ON THE (NON-)DISCRETENESS OF MORPHOLOGICAL CATEGORIES

WITH SPECIAL REFERENCE TO AFFIX CATEGORIES

IN AFRIKAANS

by

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Summary

Underlying many formal approaches to linguistics is the fundamental, philosophical assumption that categories are discrete entities. This assumption also underlies two contemporary formal approaches to morphology which seek to account for the stress and distributional properties of derivational affixes in complex words. A study of these two approaches, the level-ordering and the category distinction approaches, reveals that both are faced with the same set of counterexamples in English. Specifically, they are faced with certain derivational affixes which display uncharacteristic distributional properties. In order to deal with such affixes the approaches resort to a variety of ad hoc mechanisms whose sole purpose is to save them from refutation. The argument offered in this thesis is that the problem with both approaches lies with the background assumption about categories which underlies their work. There is, however, an alternative conception of the nature of categories that has been widely supported by experimental research in the field of cognitive psychology, viz. that categories are non-discrete or continuous entities which are distributed along a continuum. In the thesis it is argued that, by adopting this conception of categories, a more adequate account can be given of the gradient differences between category members both inter- and intra-categorically. This argument will be illustrated with specific reference to affix categories in Afrikaans.
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CHAPTER 1

INTRODUCTION

Morphology as a sub-part of the larger field of linguistics deals essentially with the characteristics of complex words. One of the assumptions underlying this field of study is that complex words are analysable into identifiable constituents whose syntagmatic ordering is based on certain organisational principles. With the renewed interest in morphology sparked by the publication of Chomsky's "Remarks of Nominalization" (1970) two formal approaches to describing, amongst others, such ordering emerged.¹ These approaches, the level-ordering and the category distinction approaches, represent attempts to account for the stress and distributional properties of derivational affixes. While sharing a common goal, these approaches use rather different mechanisms in order to achieve this goal. Proponents of the former type of approach, such as Siegel (1974), Allen (1978), Strauss (1982a), Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) account for the stress properties of derivational affixes and their distribution by extrinsically ordering word formation rules (affixation and compounding rules) in the lexicon into a series of levels. In contrast, the category distinction approach, whose main proponents are linguists like Selkirk (1982), Guerssel (1983) and Sproat (1985a), use the type of category, either Stem or Word, to which the affixes may attach, to account for these properties of derivational affixes.

The workings of the two formal approaches have been illustrated mainly with reference to English. Furthermore, they have been justified, for the most part, to the extent to which they can account for the stress and distributional properties of derivational affixes in English. Thus, they attempt to explain, through the use of (extrinsic) ordering or category
distinctions, why words such as those in (1) are wellformed, whereas words such as those in (2) are illformed.²

(1)(a) conversational
      con-verse-átion-al
      (b) unkindness
      un-kind-ness
      (c) ennoblement
      en-noble-ment
      (d) ex-fóótball coach
      ex-fóótball - coach
      (e) singers
      sing - er - s

(2)(a) *scarce - ness - ity
      (b) *in - help - less
      (c) *in - re - print - able
      (d) *mal - up - grade
      (e) *scrub - ed - woman

The approaches referred to above, while being governed, or constrained, by certain principles specific to morphology, are also, in the first instance, governed by non-morphological principles. That is, approaches to morphology are proposed within the more encompassing framework of approaches to the study of language which are underpinned by certain fundamental assumptions. These assumptions not only determine what language must look like, but also determine what morphology must look like.

One of these traditional, philosophical assumptions which linguists have implicitly accepted, without question, is the classical, Aristotelian (Taylor (1989:22)) or criterial attribute (Langacker (1987:14)) conception of categories as discrete entities. This "unquestionable, definitional truth" (Lakoff (1987:6)) about categories also underlies the two formal
approaches referred to above. Lakoff (1987:6) notes that this view of categories

"... has come out of two thousand years of philosophizing about the nature of reason. It is still widely believed despite overwhelming empirical evidence against it. There are two reasons. The first is simply that it is traditional. The accumulated weight of two thousand years of philosophy does not go away overnight. We have all been educated in those terms. The second reason is that there has been, until recently, nothing approaching a well-worked-out alternative that preserves what was correct in the traditional view while modifying it to account for newly discovered data."

Lakoff (1987:xii) claims that there is an alternative approach to the nature of categories, viz. the cognitive approach. The cognitive conception of categories which is less exclusionary and more flexible than the classical or criterial-attribute conception has been termed the prototype (Langacker (1987:14) and Taylor (1989)) or central tendencies model (Rosch (1973; 1978)). This conception of categories constitutes one of the basic assumptions of what is referred to in the literature as cognitive grammar (Langacker (1987:1)) and has been supported by extensive experimental work in the field of cognitive psychology (e.g. Rosch (1973; 1975a; 1978; 1981) and Rosch and Mervis (1975)). Within this approach categories are treated as, continuous (Corrigan (1989:4)) or non-discrete entities which are distributed on a continuum. Although this conception of categories is not new, it has not been widely accepted despite overwhelming evidence in its favour. Furthermore, its application in the field of morphology has, until recently, been limited. Exceptions are works such as those of Bybee (1985), and Bybee and Moder (1983), for example. The conception of the nature of categories proposed by cognitive linguists such as Bybee (1985) enables one to provide an account of the diverse characteristics which derivational affixes in a particular category or class exhibit. It also enables one to account for the diverse range of properties which members of the category of inflectional affixes exhibit.
Bearing the above in mind the aim of this thesis is threefold:

(i) The first aim of this thesis is to present a survey of the two formal approaches mentioned above, the level-ordering and the category distinction approaches. This survey reveals that, ignoring minor differences, both approaches are faced with the same set of counterexamples. Specifically, they are faced with data in which derivational affixes display uncharacteristic distributional properties with respect to other affixes and compounds. These counterexamples obtain irrespective of the descriptive mechanism used to account for the properties of derivational affixes. In an attempt to explain the counterexamples, proponents of the two types of approaches, as well as other linguists like Pesetsky (1985), Williams (1981) and Spencer (1988), have suggested the use of various devices such as the reclassification of affixes, a loop between levels of word formation and reanalyses of the data in terms of revised bracketing. These devices are, however, ad hoc as they are merely used to explain the anomalies or counterexamples and therefore to protect the variants of the two formal approaches from refutation. An examination of the counterexamples and the solutions offered reveals the possibility that the counterexamples may be the result of the criteria used to classify derivational affixes, viz. their stress properties and their (in-)ability to attach to Stems and/or Words. Superficially it therefore appears that the counterexamples may be eliminated if the criteria used to classify derivational affixes are changed.

(ii) The second aim of this thesis is to show that using the origin of an affix as classification criterion for derivational affixes does not lead to an elimination of counterexamples. This will be illustrated with reference to Afrikaans, the language chosen for empirical study in this thesis.
The third aim of the thesis is to show that the problems which the formal approaches encounter in both English and Afrikaans can be traced back to the conception of the categories with which they work. By adopting the conception of categories as discrete entities one is able to give a more adequate account of the characteristic properties of, in particular, members of affix categories in Afrikaans.4

Before proceeding to outline the content of the thesis I would like to briefly explain,

(i) firstly, why the origin of an affix was chosen as the primary criterion for the classification of derivational affixes, and

(ii) secondly, why Afrikaans was chosen for empirical study in this thesis.

Work done on derivational affixes in Dutch, e.g. Langeweg (1985; 1986; 1987), reveals that the division of such affixes on the basis of their origin enables one to account for their stress properties in complex words. Derivational affixes in Dutch, as in other Germanic languages, are either foreign or non-native in origin, that is, inherited from Romance languages and Greek, or they are typically Germanic/native in origin. As there seems to be a correlation between the origin of an affix, and its stress and distributional properties, it was decided to use this criterion to classify derivational affixes in Afrikaans.

Afrikaans was chosen for empirical study in this thesis for the following four reasons.

(i) Firstly, given that the formal morphologists have used English, Dutch and, to a lesser extent German data, to illustrate and justify their proposals, an examination of data from Afrikaans, which is also a Germanic language, could reveal significant characteristics of members of
affix categories which have been missed in the study of these other Germanic languages. This might throw some light on the counterexamples with which the approaches are faced.

(ii) Secondly, the Afrikaans data could reveal whether similar problems to those found in the other Germanic languages, specifically similar problematic data, are not perhaps due to the unique character of Germanic languages. This may indicate that the problems with which the formal approaches are faced, must be attributed to the characteristics of Germanic languages, rather than to deficiencies inherent in the approaches themselves. Perhaps, then the approaches can be retained, at least for non-Germanic languages.

(iii) Thirdly, Afrikaans is the youngest of the Germanic languages. While it clearly shares many characteristics with the other Germanic languages there are also many differences even with respect to its most closely related language Dutch. If the origin of derivational affixes plays a crucial role in an account of the distribution of these affixes, then the relative "youth" of Afrikaans and its closeness to Dutch could be revealing.

(iv) Fourthly, the morphology of Afrikaans, in particular the syntagmatic ordering of derivational and inflectional affixes, has not been systematically described within any contemporary theoretical framework. The analysis of a restricted corpus of Afrikaans data which is used in this thesis to illustrate the claims being made about (non-) discreteness, will therefore contribute to a systematisation of the morphology of derivations in Afrikaans.

In the light of what has been said above about the aims of this thesis, the content is organised in the following way. In Chapter 2 I will outline the level-ordering and the category distinction approaches to word formation with specific reference
to the basic assumptions which they make about the formal properties of complex words and the way in which they propose to account for such properties. Special attention will be given to the problematic data with which they are faced and the ad hoc mechanisms proposed to deal with such data.

This is followed, in Chapter 3, by a discussion of the various morphological categories, viz. affixes and bases for affixation, which can be distinguished for Afrikaans and the characteristics which members of each category have using the numerous studies on English and Dutch morphology as a guide. The views of several Afrikaans linguists will also be considered.

This chapter forms the basis for Chapter 4 in which I will discuss and illustrate the patterns of distribution of morphological categories in Afrikaans with particular reference to the distribution of derivational affixes relative to inflectional affixes and the distribution of both these types of affixes relative to compounds in complex words in Afrikaans. Although the Afrikaans data reveal, for the most part, the patterns of distribution expected, there are a number of counterexamples, that is, data in which affixes do not attach in the expected order. These counterexamples are similar in type to the English counterexamples facing the level-ordering and category distinction approaches. Furthermore, the data suggests that

(i) the characteristics of derivational affixes in a class is not uniform in the sense that some affixes have a much more restricted distribution than others and they do not always share the same stress properties;

(ii) inflectional affixes show a much wider range of distribution properties than previously recognised.

These latter two properties of affixes seem to be overlooked by the level-ordering and category distinction approaches and, in fact, cannot be accounted for by these two approaches. 5
In the light of these findings Chapter 5 begins with a review of the English and Afrikaans counterexamples facing the level-ordering and category distinction approaches and the various ad hoc strategies which they resorted to. These include, for example, the reanalysis of data (Selkirk (1982)), reclassification of affixes (Selkirk (1982) and Strauss (1982a)) and the postulation of two levels of representation for complex words (Pesetsky (1985) and Sproat (1985a)). If one should try to account for the Afrikaans counterexamples noted in Chapter 4, within a category distinction approach, one would have to probably resort to the same sorts of ad hoc strategies as those mentioned above. It is argued that there is a simple reason for very similar types of counterexamples existing in both English and Afrikaans, despite the fact that different criteria are used to classify the derivational affixes in each language. The reason can be traced back to the classical conception of categories which underlies the level-ordering and the category distinction approaches. This is also the conception of categories with which I implicitly worked in my analysis of complex words in Afrikaans. The nature of the data suggests that it is this background assumption that must be questioned and replaced if any satisfactory account is to be given of both the English and Afrikaans data. In the remainder of the chapter I will therefore discuss the cognitive conception of categories with specific reference to the work of Bybee (1985) and will consider the reinterpretation of the affix categories in Afrikaans in term of this conception of categories.

In the final chapter I will show how an account can be given of the characteristic distributional, stress and other properties of members of affix categories in Afrikaans using the cognitive conception of categories as being distributed along a continuum. It is argued that this conception of categories enables one to account for a number of other morphological facts which the level-ordering and category distinction approaches are unable to account for. The chapter ends with a brief look at data from Dutch, English and German which have been identified as problematic by certain linguists. The reason why such data
appear to be problematic, I would argue, is that underlying the work of all these linguists is the assumption that categories are discrete entities. The fact that the data can easily be accounted for within an approach in which morphological categories are treated as non-discrete provides further justification for the conception of the nature of categories, in particular affix categories, which will be argued for in this thesis.
Notes

1 Cf. Muysken (1986) for an outline of various approaches to affix ordering which have emerged in the last 20 years.

2 Morphologically complex data in this thesis are presented in the following way. On the first line of each example an orthographic representation of the word is given. On the second line a labelled bracketing is usually provided. Where there is some uncertainty about the bracketing to be assigned to a word, that is, where various possible bracketings are being discussed or where the bracketing is not pertinent to the discussion as in (1) and (2), the morphemes in the word are separated by hyphens. In cases where the structure is not pertinent to the discussion both the labelled bracketing and the morpheme-by-morpheme representation may be absent. Primary stress of a word is indicated in the orthographic representation of a word, in the labelled bracketing of such a word and in references to the word in the text. For Afrikaans, Dutch and German data a morpheme-for-morpheme gloss is also provided, followed by an idiomatic gloss in double inverted commas. In the case of illformed data no stress is indicated and no orthographic representations or idiomatic glosses are provided. Finally, in the case of morphologically simple words or stems no orthographic representation is provided.

3 Cf. Hendrikse (1989:334) where two reasons are given for background assumptions persisting despite serious criticism levelled against them. He also refers to the work of Kuhn (1979) who discusses a number of methodological and socio-psychological factors which shield background assumptions in any domain of knowledge from critical re-examination and, if necessary, revision.

4 Although the focus in this thesis will be morphological categories, I will not be considering the categorial status of the base in determining the valence for certain
affixations.

As will be shown some of the distributional properties of inflectional affixes can be accounted for by the category distinction approach.
CONTEMPORARY FORMAL APPROACHES TO WORD FORMATION

2.1 Introduction

As mentioned in Chapter 1 there are two contemporary theoretical approaches which linguists have adopted to describe the formal properties of morphologically complex words. Firstly, there is the approach involving the mechanism of extrinsic ordering, viz. the level-ordering approach, and, secondly, the approach subsuming category distinctions, viz. the category distinction approach. The aim of the proponents of the two approaches is, in essence, to describe one or more of the following formal properties of morphologically complex words:

(i) the distributional properties of the various morphological categories which make up morphologically complex words,

(ii) the relationship between the distributional properties of affixes and their phonological properties, and

(iii) the meaning assigned to morphologically complex words.

In most works, however, the emphasis is more on (i) than on (ii) and to an even lesser extent on (iii). This emphasis is also reflected in my discussion where distributional properties are discussed to a much greater extent than phonological and semantic properties.

The aim of this chapter is to present an outline of the two types of approaches referred to above with reference to

(i) firstly, the basic assumptions which they make about the formal properties of morphologically complex words, and
(ii) secondly, the way in which they account for these properties using extrinsic ordering or category distinctions.

In the discussion of each approach I will

(i) discuss and illustrate the similarities and differences between variants of each approach with respect to relevant data, and

(ii) show that the two approaches are faced with similar sets of counterexamples which they deal with in much the same way, that is, with recourse to ad hoc devices. However, despite the counterexamples the category distinction approach, seems to be a better approach. It provides some insights into word formation which could be useful in describing the morphology of derivations in Afrikaans and is also more restrictive than the level-ordering approach using only two levels of word formation.

Although the data base used by most linguists to illustrate their proposed word formation principles is English, data from other languages like Dutch (Paulissen (1985) and Scalise (1984)), Italian (Scalise (1984)), German (Jensen and Strong-Jensen (1984:487), Malayalam, Dakota (Mohanan (1982)) and Japanese (Kageyama (1982)) are also used, particularly by level-ordering proponents. The main language of illustration in this chapter will, however, be English.

2.2 Basic assumptions underlying contemporary approaches to word formation

2.2.1 Morphological categories

Underlying the two approaches are the following two correlative assumptions about morphological categorisation:
(i) complex words have morphological structure, that is, they are made up of distinguishable parts, and

(ii) these parts belong to discrete morphological categories which may be distinguished from one another in terms of distribution, and the phonological processes and semantic principles governing each category in a complex string.

The categories to which these parts belong, as will be shown below, include affixes (derivational and inflectional), stems and words.

As regards affixes, linguists seem to make use of the traditional distinction between inflectional and derivational affixes.¹ Inflectional affixes are traditionally viewed as having the following characteristics (Crystal (1985:159)):

(i) The relation between the meaning of a word and the meaning of the word plus an inflectional affix is quite regular. Therefore the meaning difference between table and tables (singular vs. plural) is paralleled quite regularly in other similar pairs of singular nouns and noun plus plural suffix combinations.

(ii) Inflectional affixes never change the word class of the word to which they attach - both table and tables are nouns.

(iii) Finally, inflectional affixes usually prevent further derivational or inflectional affixes from being attached and are therefore further away from the base than are derivational affixes.

Derivational affixes, on the other hand, are traditionally taken to exhibit the following characteristics (Crystal (1985:89)):

(i) The relation between the meaning of a word and the meaning of the word plus derivational affix is not always
predictable. For example, the pair *derive* and *derivable* show a meaning relation "X" and "able to be Xed". However, this meaning relation does not hold for all such pairs. Consider in this regard the pairs *páy* and *páyable*, and *réád* and *réádable*. *Páyable* does not mean "able to be paid", but rather "must be paid", while *réádable* means that something is well written, and is a good example of some type of literature, not something that it is "able to be read".

(ii) Derivational affixes may change the class of the word to which they attach, although this is usually the case with suffixes rather than with prefixes.

(iii) Derivational affixes do not necessarily prevent the addition of further affixes which means that derivational affixes are closer to the base than inflectional affixes.

In (1) below some examples of inflectional affixes of English are presented. In (1)(a) the regular inflectional suffix *-s* has attached to the noun *table* to form the plural *tables*, while in (1)(b) the irregular inflectional suffix *-ren* has been added to the noun *child* to form the plural *children*. Finally, in (1)(c) the regular past tense suffix *-ed* has been added to the verb *jump*. The subscript INF in these and other examples indicates an inflectional affix.

(1) (a) tábles
    [[table] s_{INF}]
(b) children
    [[child] ren_{INF}]
(c) jum ped
    [[jump] ed_{INF}]

The inflectional affixes in (1) are the only ones mentioned for English in the work of level-ordering and category distinction linguists. Although affixes like the suffix *-s* which indicates possession, the *-s* which indicates third person singular present tense and affixes which indicate case and gender are taken to be
inflectional affixes by some linguists, these are not included in discussions of level-ordering.

With reference to derivational affixes linguists claim that there are two classes in English, viz. Class I and Class II affixes. The basis for this classification is threefold. (cf. Szpyra (1986:29-31)).

(i) As regards morphological properties Class I affixes are taken to attach to stems or words, while Class II affixes attach to words only.

(ii) With regard to phonological properties, Class I affixes form a unit with the stem/word to which they attach and therefore allow the application of certain phonological rules such as trisyllabic laxing and word stress. Furthermore, these affixes are stress-determining. Class II affixes, on the other hand, do not form such a unit with the word to which they attach and therefore block the application of word stress rules and the rule of trisyllabic laxing. These affixes are also stress neutral.

(iii) Finally, with reference to meaning, most linguists implicitly make the assumption that the meaning of a morphologically complex word formed by the attachment of a Class I affix tends to be non-compositional, while the meaning of a word formed by the attachment of a Class II affix tends to be compositional.

Let us now examine the above-mentioned distributional property of affixes in morphologically complex words. Linguists make the claim that a stem can form the base to which an affix can attach. Class I affixes like de-, re-, -able and -ify have attached to stems to form the words in (2) below. In each case the stem to which the affix attaches cannot occur independently as a meaningful morphological unit in English. It can only exist as a meaningful unit in conjunction with the affix attached to it. The subscript I in these and other examples
indicates a Class I affix.

(2)(a) dedúce
[deI [dúce]]
(b) refráct
[reI [fráct]]
(c) vócal
[[vóc] alI]
(d) crucify
[[crúc] ifyI]

On the other hand, words can also form a base to which an affix can attach. The complex words in (3) below are formed by attaching the Class I affixes de- and in-, and the Class II affixes -ness and -ful, to words, that is, to lexical items which can occur independently as meaningful units. The subscript II in these and other examples indicates a Class II affix.

(3)(a) delimit
[deI [limit]]
(b) inequity
[inI [équity]]
(c) unkindness
[[kind] nessII]
(d) peaceful
[[péáce] fulII]

In turn, words, whether simple or complex, can be joined to form compounds. For example, in (4)(a) and (b) below the compounds are formed by joining two morphologically simple words. Those in (4)(c) and (d) are formed by combining one complex and one simple word, and two complex words respectively.

(4)(a) bóókshelf
[[bóók] [shelf]]
(b) bañoom
[[báth] [room]]
The compounds in (4) above are what have been termed endocentric compounds. That is, they are compounds in which the properties of the compound as a whole are determined by the properties of the head of the compound. For example, a bookshelf is a type of shelf which constitutes a subset of the larger set of shelves. The word shelf and the word bookshelf are both nouns and therefore -es is added in both cases to form the plural. In both words the last sound of the word changes from a voiceless labiodental fricative to the corresponding voiced fricative when the suffix -es is added.

The above-mentioned endocentric compounds can be contrasted with compounds which have been called exocentric. Such compounds are illustrated in (5) below.

(5) (a) saber tooth - sabers 
    [[sáber] [tooth]] - [[[sáber] [tooth]] sINF] 

(b) grandstand - grandstanded 
    [[gránd] [stand]] - [[[gránd] [stand]] edINF]

Although such compounds are formed in the same way as endocentric compounds, that is, by joining two words, the properties of such compounds (semantic, morphological, and phonological) are not determined by the properties of the head of the compound. For example, a sabertooth is not a type of tooth, but rather a type of tiger. The plural form of the word tooth is teeth, but the plural of sabertooth is sabertooths, not *saberteeth. Similarly, the past tense of the verb stand is stood, but the past tense of the verb grandstand is grandstanded, not *grandstood.
2.2.2 Distributional patterns of categories

As pointed out in the previous section linguists assume that the constituent elements which may make up a morphologically complex word belong to different categories. From this it follows that the constituents will exhibit different distributional properties. We may refer to this assumption as the categorial assumption.

Let us now examine the distributional properties of the various categories which can be found in morphologically complex words. Firstly, given the claim that Class I affixes attach to stems and words, while Class II affixes attach to words only, linguists claim that the following pattern in the distribution of Class I affixes with respect to Class II affixes exists.

(i) Class II affixes may appear outside Class I affixes, but
(ii) Class I affixes may not appear outside Class II affixes.

Thus the following possible and impossible distributional patterns of Class I and II affixes relative to each other are expected. X indicates the base (word or stem), while Y indicates suffixes and Z, prefixes. In (6) possible and impossible distributional patterns of Class I prefixes and suffixes relative to each other are given, while in (7) those of Class II prefixes and suffixes relative to each other are given. Finally, in (8) possible and impossible patterns of Class I affixes relative to Class II affixes are given. In each case an example is provided to illustrate the pattern given.

(6)(a) illégal\[
\begin{align*}
&[Z_I [[X] Y_I]] \\
&[\text{in}_I [[\text{légal} \text{ ble}_I]]]
\end{align*}
\]
(b) substition\[
\begin{align*}
&[[Z_I [X]] Y_I] \\
&[\text{sub}_I [\text{stitute}] \text{ ion}_I]
\end{align*}
\]
(c) indécent\[
\begin{align*}
&[Z_I [Z_I [X]]] \\
&[\text{in}_I [\text{déc} \text{ent}]]
\end{align*}
\]
(d) distillation\[
\begin{align*}
&[[[X] Y_I] Y_I] \\
&[[\text{distill} \ \text{ate}_I] \text{ ion}_I]
\end{align*}
\]
The lists in (6)-(8) above are not meant to be exhaustive, but are only to give an idea of which types of orderings of Class I and II affixes relative to each other are possible and which are impossible.

Implicit in (6)(e) and (f) is the assumption that there is class-internal ordering of affixes relative to the base $X$, that is, that a Class I suffix may attach before a Class I prefix in the derivation of one word, but after a Class I prefix in the derivation of another. The same is true of Class II suffixes and prefixes as shown in (7)(d) and (e). Class-internal
ordering is also determined by the implicit assumption which linguists make that the stem/word and affix at each stage in the derivation must be a lexical item to which a semantic interpretation can be assigned. This, together with the fact that affixes subcategorise for certain classes of words, means that there will be class-internal ordering of Class I prefixes relative to Class I suffixes and of Class II prefixes relative to Class II suffixes. Therefore, in the data above, only the distribution of affixes indicated by the bracketing is possible given these "constraints" on class-internal attachment.

In addition to the specific pattern of distribution which derivational affixes show with respect to each other, they also exhibit a discernible pattern of distribution with respect to compounds. Most linguists agree on the possible and impossible positioning of affixes with respect to compounds, viz.

(i) that Class I affixes can only occur inside compounds,

(ii) while Class II affixes can occur both inside and outside compounds.

Thus the distribution of categories shown in (9)(a) and (b), and (10)(a) and (b) is allowed, while the distribution shown in (9)(c) is not.

(9) (a) [[[X] Y_I] [X]] and [[X] [[X] Y_I]]
(b) [[Z_I [X]] [X]] and [[X] [Z_I [X]]]
(c) *[[[X] [X]] Y_I] and *[Z_I [[X] [X]]]

(10) (a) [[[X] Y_{II} [X]] and [[X] [[X] Y_{II}]]
(b) [[[X] [X]] Y_{II} and [Y_{II} [[X] [X]]]

The data in (11) below illustrate some of these distributional patterns.

(11) (a) fertility test
[[[fertile] ity_I] [test]]
Some linguists have also noticed a pattern of distribution of inflectional affixes with respect to certain derivational affixes and compounds. It would seem that the distinction between regular and irregular inflectional affixes is important here. All regular inflectional suffixes indicating plurality can only appear outside Class I affixes and Class II affixes, but can occur both inside and outside compounds. The regular past tense inflectional suffix can, however, only appear outside compounds. Thus the patternings of inflectional suffixes shown in (12) are permitted.

(12) (a) \([[X] \text{Y}_{I/II}] \text{INF}]$
(b) \([[\text{Y}_{I/II} [X]] \text{INF}]
(c) \([[X] [X]] \text{INF}]
(d) \([[X] \text{INF}] [X]]$

The data in (13) and (14) below illustrate the patternings given in (12).

(13) (a) abilities$^8$
\([[\text{ab(i)le}} \text{ity}_{I}] \text{sINF}]$
(b) téáchers
\([[\text{téách}} \text{er}_{II}] \text{sINF}]$
(c) permitted
\([[\text{per}} \text{mit}] \text{ed}_{I}] \text{sINF}]$
(d) hárdened
\([[\text{hár}} \text{en}_{II}] \text{ed}_{I}] \text{sINF}]$

(14) (a) báthrooms
\([[\text{báth} \text{room}] \text{sINF}]$
(b) páarks official
\([[\text{park}] \text{sINF}] [\text{official}]$^9$
Irregular inflectional markings, on the other hand, cannot appear inside or outside Class I and Class II affixes (cf. (15)(a)). In compounds when the left-hand constituent of the compound bears irregular inflection, this marking obviously occurs before compounding (cf. (15)(c)). However, when the head of the compound bears irregular inflection in the form of a vowel change, it is not easy to determine whether inflection takes place prior to, or after, compounding (cf. (15)(d)). This has implications for the ordering of compounding rules with respect to irregular inflectional rules which will be explicated later.

(15) (a) *[[[child] renINF] likeII]
(b) lice infested
   [[lice] [infested]]
(c) over threw
   [[over] [thréw]]

Some linguists like Allen (1978:172-185) and Kiparsky (1982a:135, 137-143; 1982b:6-7, 11-14, 15-20) have also noticed patterns of distribution of zero-suffixes with respect to derivational affixes and compounds. No mention is made of zero prefixes in English so it is not obvious whether level-ordering linguists recognise the existence of such prefixes or not. Zero-suffixes seem to be able to occur neither inside nor outside Class I affixes, but can appear inside Class II affixes and both inside and outside compounds. Thus the following patterns of distribution are found. The symbol $\phi$ represents a zero suffix.

(16) (a) *[[[X] $\phi$] Y_I]
(b) *[[Z_I [[X] $\phi$]]
(c) [[[X] $\phi$] Y_II]
(d) [Z_II [[X] $\phi$]]
For example, in the forms in (17) below the zero-suffix is taken to attach inside the affixes and the compound in (17)(a), (b) and (d), but outside the compound in (17)(c). The categories to which words belong are indicated in the examples in (17) as this is pertinent to the discussion at this point.

(17) (a) *[[[comfort]_N \phi]_V al_I]
(b) respectable
   [[[respect]_V \phi]_N ful_{II}]
(c) deepfreeze
   [[[deep]_A [freeze]_V \phi]_N
(d) deepfreeze sale
   [[[deep]_A [freeze]_V \phi]_N [sale]]

The assumption made by the level-ordering linguists in each case is the conventional one, viz. that words like pattern and respect are listed in the lexicon as belonging to the category Noun or Verb and that the related Noun and Verb respectively, are derived by zero-suffixation.10

2.2.3 Phonological properties of categories

As mentioned in Section 2.1 one of the aims of the level-ordering and category distinction approaches is to account for the relationship between the distributional properties of derivational affixes and their phonological properties. One of the main phonological differences between Class I and Class II affixes that has been noted and extensively discussed is that of their stress properties. Class I affixes are taken to be stress determining, that is, their presence is taken into account by the principles which determine the stress properties of words (Allen (1978:6)). This usually means that they cause stress to shift rightwards as shown in the examples below. For this reason such suffixes are also referred to as stress-shifting by some linguists.
Class II affixes, on the other hand, are stress neutral in that their presence has no effect on the operation of stress rules (Allen (1978:6)). This means that they do not cause a rightward movement of stress in the words to which they attach. The stress neutrality of Class II suffixes is illustrated in (20) and (21) below.

(20) (a) [vulture]  
(b) vulturish  
[[vulture] ishII]

(21) (a) [danger]  
(b) dangersome  
[[danger] someII]

Siegel (1974:148) makes a further distinction between Class II suffixes and Class II prefixes saying that the latter are stress neutral in that they do not cause stress to retract off the words to which they attach and they receive primary stress unlike Class II suffixes. This means that stress is sometimes borne by a Class II prefix and sometimes by the base to which it attaches as shown in (22) and (23) respectively.

(22) (a) [wire]  
(b) rewire  
[reII [wire]]

(23) (a) [synthétic]  
(b) non-synthetic  
[nónII [synthetic]]
There are a number of other phonological differences between Class I and Class II affixes. As level-ordering and category distinction linguists concern themselves primarily with the stress differences these are the only phonological differences which will be considered here. Szpyra (1986:29-30) provides a comprehensive list of other relevant phonological differences.

2.3 **Extrinsic ordering as a means of accounting for the distribution of morphological categories**

2.3.1 **General characteristics**

Linguists like Siegel (1974), Allen (1978), Strauss (1982a), Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) have claimed that it is possible to account for the distributional and stress properties of derivational affixes by extrinsically ordering the various types of word formation rules (henceforth: WFRs), viz. affixation and compounding rules, in the lexicon into a series of levels. The number of levels varies from two to five. Rules are ordered in blocks or groups with respect to each other, each block or group constituting a level. For example, a given group of affixation rules may be ordered with respect to all compounding rules, the former being ordered as a block on a level prior to the latter. The rules of each block are, however, not ordered with respect to each other, that is, they are intrinsically ordered. For example, all Class I affixation rules are ordered as a block on the first level in the lexicon, while Class II affixation rules are ordered as a block on the following level. Thus, Class I affixation rules constitute a level, as do Class II affixation rules. The Class I affixation rules on the first level are, however, not mutually ordered and may therefore apply in any order with respect to each other. The same applies to the Class II affixation rules on the second level. As mentioned in Section 2.2.2 such ordering will be constrained by factors such as the word class(es) which affixes subcategorise for and whether the affixed word constitutes a lexical item to which meaning can be assigned.
Derivational affixation and compounding rules are not the only rules ordered in the lexicon. As will be illustrated in the following section several level-ordering linguists have also noticed certain patterns of distribution of inflectional affixes relative to derivational affixes and compounds. These linguists therefore also order irregular and regular inflectional affixation rules with respect to derivational affixation rules and compounding rules.

In the work of Siegel (1974:152), Kiparsky (1982a:133; 1982b:3; 1982c:2), Allen (1978) and Mohanan (1982:5-6) phonological rules such as cyclic stress assignment rules and the rule of trisyllabic laxing, for example, are also ordered in the lexicon with respect to WFRs and with respect to each other.14 Like the WFRs the lexical phonological rules are ordered into a series of levels and apply cyclically with the application of each WFR creating a new cycle. The output of the application of a WFR on a particular level forms the input to the phonological rules on that level. The output of the phonological rules can then become the input to a WFR on the same or on a following level. By ordering the phonological rules with respect to WFRs in the lexicon the phonological properties, in particular the stress properties, of morphologically complex words can be accounted for.

Although some linguists who propose level-ordering models also associate certain levels with semantic opacity or semantic transparency, these models are not specifically designed to account for such semantic phenomena. It is generally assumed though that Class I affixes are semantically opaque and derivatives formed with such affixes tend to have non-compositional semantics. Class II affixes, on the other hand, are semantically more transparent and derivatives containing such affixes tend to have compositional semantics. Kiparsky (1982a:136; 1982b:8-9; 1982c:6-10), Allen (1978) and Thomas-Flinders (1983:144) briefly refer to the ability of a level-ordering model to account for the semantic properties of
words. However, Mohanan (1982:41, 71) is the only linguist who, in the schematic representations of level-ordering models of word formation, indicates that semantic rules apply after the WFRs and phonological rules on each level. However, he does not refer to any particular semantic rules which apply before or after a given WFR.

With the exception of Mohanan's (1982) model, no recursion is permitted from a higher to a lower level. Mohanan (1982) introduces the device of the loop to allow recursion in rule application from a higher to a lower level to account for certain types of morphologically complex words in English and Malayalam. In a note Kiparsky (1982a:138; 1982b:12) claims that "some limited recursion from phrase-level syntax back into morphology" must be assumed to account for the occurrence of phrases embedded in compounds as shown in the following examples which are taken from his work.

(24)(a) a heads-up play
     (b) (daddy) long-legs
     (c) excess profits tax

The extent of recursion in level-ordered morphology is not, however, discussed.

Schematically the proposals of the level-ordering linguists can be represented as follows. The model in (25) is a synthesis of the models given by Mohanan (1982:10, 11, 41) and Kiparsky (1982a:132; 1982b:2; 1982c:2) whose expositions are the most detailed.
2.3.2 Specific characteristics

In the previous section the characteristics which most of the level-ordering theories have in common were set out. In this section I will be examining, in more detail, how the various level-ordering linguists account for the distributional patterns of the morphological categories described in Section 2.2.2. That is, I will be examining the relative linear distribution of Class I affixes, Class II affixes, zero affixes, inflectional affixes and compounds. By ordering the various WFRs with respect to each other, these linguists attempt to account for the relevant distributional patterns. However, as will be shown in this section, although there is consensus as regards many patterns, there is also some disagreement. This has implications for the relative ordering of WFRs and also for the number of levels which are distinguished.
Let us examine firstly the pattern of distribution of Class I and Class II affixes with respect to each other. Most level-ordering linguists like Siegel (1974), Allen (1978), Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) agree that Class I affixes can only occur within Class II affixes. By ordering Class I affixation rules on level 1 and all Class II affixation rules on level 2 as shown in (26), the data in (27) below, can be accounted for.\(^{15}\)

\[
\begin{array}{ll}
\text{Level 1} & \text{Class I affixation rules} \\
\text{Level 2} & \text{Class II affixation rules}
\end{array}
\]

(27)(a) conceívable
\[
[[\text{con}_I ([\text{céive}]) \text{able}_II]]
\]
(b) neo-fáscist
\[
[\text{neo}_{II} [[\text{fásc} \text{ist}_I]]]
\]
(c) unéeducated
\[
*[\text{in}_I [[\text{educ} \text{ate}_I] \text{ed}_II]]
\quad (\text{vs. } [\text{un}_{II} [[\text{éduc} \text{ate}_I] \text{ed}_II]])
\]
(d) unmanly
\[
*[\text{in}_I [[\text{man} \text{lý}_II]]] \quad (\text{vs. } [\text{un}_{II} [[\text{mán} \text{lý}_II]])
\]

Given that Class I affixation rules are ordered before Class II affixation rules, the Class I affix \text{con}- will be added to \text{céive} and the Class I affix \text{-ist} will be added to \text{fásc} in the first stage of the derivation of the words in (27)(a) and (b). Then the Class II affixation rules can apply and attach the Class II affixes \text{-able} and \text{neo-} to \text{concéive} and \text{fáscist} respectively. The words *\text{ineducated} and *\text{inmanly} are illformed as, in each case, a Class I affix \text{in-} has attached outside a Class II affix, \text{-ed} and \text{-ly}, respectively. Such attachment is impossible given the ordering of Class I affixation rules before Class II affixation rules.

Given the ordering of rules in (26) above it is also possible to account for all the data in (28) and (29) below where either only Class I affixes or Class II affixes are involved.
(28)(a) indivisible
    \[\text{[in}_I \text{[divide] ible}_I]\]
(b) substitution
    \[\text{[sub}_I \text{[stitute]} \text{ion}_I]\]
(c) indécent
    \[\text{[in}_I \text{[dé}_I \text{[cent]]}\]
(d) distillation
    \[\text{[[distill] áte}_I \text{ion}_I]\]

(29)(a) ex-singer
    \[\text{[ex}_II \text{[[sing] er}_II]\]
(b) pre-planning
    \[\text{[[pre}_II \text{[plán]} \text{ing}_II]\]
(c) ex-paramedic
    \[\text{[ex}_II \text{[para}_II \text{[médic]]}\]
(d) friéndliness
    \[\text{[[friénd] ly}_II \text{ness}_II]\]

The only restrictions on the order in which the particular affixes are attached, are that an affix attaches to a word belonging to the word class for which it subcategorises and that a meaning can be assigned to the affixed word. For example, in the derivation of indivisible the Class I suffix \text{-ible} must be added to the stem divide to form the word divisible before the Class I prefix \text{in-} can be added. The affixes cannot be added in the reverse order as the prefix \text{in-} subcategorises for an adjective, like divisible, not for a verb like divide. In addition, no meaning can be assigned to *individe.

Similarly, in (29)(a) the Class II prefix \text{ex-} cannot attach to sing as it does not subcategorise for verbs. Also, no meaning can be assigned to *exsing. The suffix \text{-er} therefore attaches to sing to form the noun singer whereafter the prefix \text{ex-}, which subcategorises for nouns, attaches to singer to form ex-singer.

However, there are a number of words in which Class II prefixes have to attach before a Class I suffix in order for the correct semantic interpretation to be assigned to the word (cf. (30)(b-
There are also some words like that in (30)(a) where the Class II prefix *un-* must attach to the adjective *grammatical*, rather than to the derived noun *grammaticality*, for its subcategorisation frame to be satisfied. These words are referred to in the literature as bracketing paradoxes. One bracketing, viz. a Class II prefix outside a Class I suffix is required by level-ordering, while another, viz. that shown in (30), is required for the correct semantic interpretation. Such words are obviously problematic for a strict ordering of all Class I and Class II affixation rules as in (26).

(30)(a) ungrammaticality\textsuperscript{16}

\[
[\text{un}_{\text{II}} [\text{grammatical}]] \text{ity}_{\text{I}}
\]

(b) underestimation

\[
[\text{under}_{\text{II}} [\text{estimáte}]] \text{ion}_{\text{I}}
\]

(c) vice-presidential

\[
[\text{vice}_{\text{II}} [\text{presidént}]] \text{al}_{\text{I}}
\]

(d) macro-economist

\[
[\text{macro}_{\text{II}} [\text{ecóonomy}]] \text{ist}_{\text{I}}
\]

Strauss (1982a:42) resolved this problem by means of a refinement in the ordering of affixes. He claims that there is an asymmetry between the ordering of Class I and Class II prefixes and suffixes. That is, Class I prefixes may attach outside Class II suffixes and Class I suffixes may attach outside Class II prefixes as shown in the data below which is taken from Strauss (1982a:38, 60).\textsuperscript{17}

(31)(a) re-analýzable

\[
[\text{re}_{\text{II}} [\text{analýze}]] \text{able}_{\text{I}}
\]

(b) embólden

\[
[\text{em}_{\text{I}} [\text{bóld} ] \text{en}_{\text{II}}]
\]

Strauss (1982a) therefore orders Class I prefixation and suffixation rules separately with respect to Class II prefixation and suffixation rules. By ordering the rules in this way the Class II prefix *re-* can attach before the Class I suffix *-able*,\textsuperscript{18} and the Class II suffix *-en* can attach before
the Class I prefix en-. Although there are a number of words in which a Class II prefix attaches before a Class I suffix, (cf. (30) above), Strauss provides only one example of a word in which a Class I prefix attaches outside a Class II suffix, that in (31)(b).

In addition to differences with respect to the distribution of Class I and Class II affixes, there are also differences between proponents of the level-ordering approaches with respect to the distribution of affixes relative to compounds. Consequently there are differences in the orderings of compounding rules with respect to derivational affixation rules. Siegel (1974), for example, does not discuss the formation of compounds and therefore does not include compounding in her ordering of rules. Allen (1978:125), on the other hand, does include compounding and claims that Class I affixes as well as Class II affixes can appear only inside compounds. To account for this she proposes that Class I and Class II affixation rules are ordered before compounding rules as shown in (32).

(32) Level 1 - Class I affixation rules
      Level 2 - Class II affixation rules
      Level 3 - Compounding rules

Given this ordering, data such as those in (33) below can be accounted for.

(33)(a) solubility test
       [[[solub(i)le] ityI] [test]]
(b) *[[[car] [accident]] alI]
(c) child malnutrition
       [[child] [malII [nutrition]]]
(d) *[malII [[child] [nutrition]]]

As Class I affixation rules are ordered before all compounding rules, Class I affixes can only attach to words before compounds are formed. Hence the word in (33)(a), where the Class I affix -ity is inside the compound, is wellformed, while that in
(33)(b), where the Class I affix -al has attached to the compound, is illformed. Similarly, as Class II affixation rules are ordered before all compounding rules, Class II affixes can only attach before compounds are formed. Hence the word in (33)(c) in which the Class II affix mal- has attached to the word nutrition before the compound child malnutrition is formed, is wellformed. In contrast, *malchildnutrition in (33)(d), in which the affix mal- has attached after the formation of the compound childnutrition, is illformed.

Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982), in contrast to Allen (1978), claim that Class I affixes can only appear inside compounds, but that Class II affixes can appear both inside and outside compounds. Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) account for this by ordering Class I affixation rules on a level prior to the level(s) on which Class II affixation rules and compounding rules are ordered. With this ordering, which is in essence like that presented in (32) above, the wellformedness of (33)(a) and the illformedness of (33)(b) can be accounted for in their approach.

Both Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) agree that Class II affixes can appear both inside and outside compounds, but differ in the ordering which they respectively propose to account for this. Kiparsky (1982a; 1982b; 1982c) orders Class II affixation rules on the same level as compounding rules as shown in (34) below.

(34) Level 1 - Class I affixation rules
Level 2 - Class II affixation rules and compounding rules

In contrast, Mohanan (1982), as shown in (35) below, orders Class II affixation rules after Class I affixation rules and before the level of compounding rules. He then provides a loop between the Class II affixation level and the compounding level so that Class II affixes can attach to words which form the basis for compounds. The compounds can then form the input to
Class II affixation rules. The use of a loop instead of ordering Class II affixation rules and compounding rules on the same level allows Class II affixation and compounding processes to serve as inputs to each other, yet be associated with different domains (Mohanan (1982:68, note 14)).

(35) Level 1 - Class I affixation rules
   Level 2 - Class II affixation rules
   Level 3 - Compounding rules

Given their respective orderings of rules, both Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) can account for the pattern of distribution of Class II affixes with respect to compounds shown in (36) below.

(36) (a) township committee
       [[town] shipII] [committee]]

(b) ex-schóól principal
    [exII [[schóól] [principal]]]

In Kiparsky's model all Class II affixation rules are found on the same level as compounding rules. As the rules are unordered with respect to each other they can apply in any order, hence both words in (36) can be generated. In Mohanan's model the word township will be formed by adding the Class II affix -ship to the word town. The resultant word will then be joined to the word committee on the next level. The compound schóól principal will be formed on the level at which compounding takes place and will then return to the level at which Class II affixation rules apply, by virtue of the loop. The Class II affix ex- will then be added. Note that the word given in (33)(d) above, *malchildnutrition, would be problematic for both Kiparsky and Mohanan because, according to their models, this word ought to be wellformed. Conversely, the word in (36)(b), ex-schóól principal, would be problematic for Allen (1978) given her ordering of compounding rules after Class II affixation rules (cf. (32)). The Class II affix ex- would not be able to attach to the compound schóól principal.
Finally, Strauss' (1982a) views on the relative ordering of affixes with respect to compounds differ quite radically from those of the level-ordering linguists just considered. As mentioned above, Strauss (1982a:42, 52) claims that there is an asymmetry between the ordering of Class I prefixation rules and Class I suffixation rules. Furthermore, he claims that a Class I suffix, but not a Class I prefix, can appear outside a compound. Strauss (1982a:42-52) also refines his model somewhat by proposing that Class II prefixes should be classified, not as affixes, but as compounding elements because they exhibit similar properties to words which are, in Strauss' terms, compounding elements. Given this proposal a word like reanalyzable would be analysed, not as was shown in (31)(a) above, but rather as a compound to which a Class I suffix -able has attached.

(37) re-analyzable

[[[re] [analyze]] able]  

This analysis of reanalyzable is problematic for other level-ordering linguists who order all Class I affixation rules before all compounding rules. In addition the following data would not be problematic for Strauss (1982a), but would be for all other level-ordering linguists who order Class I affixation rules before all compounding rules.

(38)(a) transformational grammárían

[[[transformational] [grammár]] ian]  

(b) atomic sciéntist

[[[atomic] [sciénce]] ist]  

(c) cross séctional

[[[cross] [séction]] al]  

To sum up: the major differences between the various level-ordering proponents with respect to Class I and Class II affixes and compounds lie in the distributional patterns they recognise for
(i) Class I prefixes relative to Class II suffixes

(ii) Class I suffixes relative to Class II prefixes, and

(iii) Class I and Class II affixes relative to compounds.

The different assumptions they make are reflected in the specific orderings of rules which they propose.

Level-ordering linguists do not agree on where inflectional rules are located in the grammar. Both Siegel (1974:105) and Allen (1978:2-3) assume that inflection falls within the domain of the syntactic component of the grammar. Implicitly the assumption in their work is that, distributionally, inflectional affixes will be found outside all derivatives and compounds which are formed in the lexicon. However, neither Siegel (1974) nor Allen (1978) consider the position of inflectional affixes with respect to derivational affixes and compounds in their work. Strauss (1982a:76), on the other hand, suggests that inflectional rules should be ordered with respect to derivational and compounding rules without exemplifying or applying this ordering. He merely suggests that this may be an area for future research, noting in passing that there seem to be some English N-N compounds like admissions office and jobs committee which suggest that inflectional affixation should apply before compounding. In contrast to these linguists, Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) have proposed that inflectional rules are located in the lexicon and are ordered there relative to derivational affixation and compounding rules. In the work of Kiparsky (1982a; 1982b; 1982c) rules which are responsible for irregular inflection are ordered together with the Class I affixation rules. The rules which add regular inflectional affixes, are ordered after all the affixation and compounding rules. Given this ordering, Kiparsky (1982a; 1982b; 1982c) attempts to account for the ordering of regular and irregular inflectional affixes with respect to compounds (both endocentric and exocentric), and with respect to derivational affixes. Mohanan (1982), on the other
hand, orders all inflectional rules after all derivational affixation rules and all compounding rules.

Given the various views on the place of inflection in the grammar outlined above it seems that inflectional rules, whether located in the syntax or the lexicon, will apply after all other word formation (derivation and compounding) has taken place. This means that inflectional affixes should always attach outside all derivational affixes and all compounds. This does seem to be the case at least for regular inflectional affixes as shown in the examples below.

(39)(a) abilities
[[[ab(i)le] ityI] sINF]
(b) téáchers
[[[téách] erII] sINF]
(c) bemóáned
[[beI [móán]] edINF]
(d) härdened
[[[hárð] enII] edINF]

(40)(a) básrooms
[[[báth] [room]] sINF]
(b) sábertooths
[[[sáber] [tooth]] sINF]
(c) júmpstarted
[[[júmp] [start]] edINF]
(d) grándstanded
[[[gránd] [stand]] edINF]
(e) *[[[scrub] edINF] [woman]]

In (38)(a) and (b) the plural suffix -s has attached outside the Class I suffix -ity and the Class II suffix -er, respectively, while in (38)(c) and (d) the past tense suffix -ed has attached outside the Class I prefix per- and outside the Class II suffix -ed respectively. In (39)(a) and (b) the plural suffix -s has attached outside the endocentric and exocentric compounds básroom and sábertooth respectively. In (39)(c) and (d) the
past tense suffix -ed has attached outside the endocentric and exocentric compounds jumpstart and grandstand, respectively. As is to be expected a word will be illformed when a past tense suffix is attached to a word which forms the left-hand constituent of a compound (cf. (39)(e)).

However, there is a problem with the claim that regular inflectional affixes always attach outside a compound as a plural suffix is very often found on the left-hand member of a compound as shown in (40) below.

(41)(a) páırks commissioner
   [[[párk] sINF] [commissioner]]
(b) admissions office
   [[[admission] sINF] [office]]

Mohanan (1982:45) claims that inflected stems cannot be compounded in English and that compounds such as those in (40) are marginal. He says that "some alternative explanation will have to be offered for them".

Given Kiparsky's ordering of irregular inflectional rules on the same level as Class I affixation rules and before all Class II affixation rules and compounding rules, one would expect to find irregularly inflected forms inside derived forms and compounds. The latter is attested, as shown in (41)(a) below, but the former is not, as shown in (41)(b).

(42)(a) féét first
   [[[féét] [first]] (cf. *[[foot] [first]])
(b) fóótless
   *[[feét] lessII] (cf. [[fóót] lessII])

Finally, there is the question of zero-derivation and the way in which the distribution of zero-affixes with respect to derivational affixes and compounds is accounted for. This is discussed in the works of Allen (1978) and Kiparsky (1982a; 1982b; 1982c). In essence, given Kiparsky's (1982c) ordering
of denominal and deverbal zero-derivation on the same level as
Class II affixation rules and compounding rules the following
predictions are made:21

(i) zero-affixes forming nouns from verbs can appear outside
and inside Class II affixes and compounds, but only outside
Class I affixes, and

(ii) zero-affixes forming verbs from nouns can appear outside
and inside Class II affixes and compounds, but only outside
Class I affixes.

Prediction (i) is partially borne out by the data in (42)(a)-(c). There do not, however, seem to be cases where a noun can
be formed by zero-affixation from a verb which is formed by
Class I or Class II affixation. Once again the categories to
which the words belong are indicated as this is pertinent to the
discussion at this point.

(43)(a) respectful

[[[respect]v φ]N fulII]

(b) déépfreeze


(c) déépfreeze sale


(d) *[[[comfort]N φ]v alI]

Prediction (ii) is partially borne out by the data in (43). Once again there do not seem to be cases where a zero-affix
appears outside a word formed by Class I or Class II affixation.

(44)(a) cómforter

[[[cómfort]N φ]v erII]

(b) wállpaper

[[[wáll] [paper]]N φ]v

(c) wállpaper design

[[[[wáll] [paper]]N φ]v [design]]
2.3.3 Problematic data

2.3.3.1 General remarks

As shown in Section 2.3.2 variants of the level-ordering approach differ from each other in terms of the orderings of affixes which they recognise and therefore the ordering of rules which they propose. Ignoring these differences, most are faced with certain data in which affixes exhibit uncharacteristic properties of the class to which they belong. In this section I will be considering how some of the linguists deal with such affixes and the data in which they occur.

Before proceeding I would like to briefly mention one set of counterexamples which face all proponents of the level-ordering approach except Strauss (1982a), but which are not dealt with by any proponents of this approach. These data were presented in (38) above and are repeated here as (45) for ease of reference.

(45)(a) transformational grammárian

[[[transformational] [grammár]] ian₁]

(b) atomic sciéntist

[[[atomic] [sciénce]] ist₁]

(c) cross séctional

[[[cross] [séction]] al₁]

In each case the problem lies in the attachment of a Class I suffix to a compound. Ways of accounting for these data have been proposed by Williams (1981) and Spencer (1988), for example. These solutions will be considered briefly in Section 5.2 where the data in (45) are presented for discussion.

2.3.3.2 Reanalysis of data

Given that all variants of the level-ordering approach, with the exception of Strauss (1982a), order all Class I affixation rules before Class II affixation rules, complex words in which a Class II affix attaches before a Class I affix should be
ungrammatical. This is so in most cases as shown in the illformed data below which is taken from Kiparsky (1982c:19).

(46) (a) *[[unII [equal]] izeI]
   (b) *[[[nonII [fiction]] alI] izeI]
   (c) *[[antiII [[America] anI]] izeI]

However, there are also a number of wellformed complex words in which Class II prefixes must be taken to attach before a Class I suffix if the correct meaning is to be assigned to such a word or the subcategorisation frame of the prefix is to be satisfied. Some words exemplifying this ordering of affixes were given in (30) above and are repeated in (47) below for ease of reference.

(47) (a) ungrammaticáliy
       [[unII [grammatical]] ityI]
   (b) underestimátió
       [[underII [estimáte]] ionI]
   (c) vice-presidéntial
       [[viceII [presidént]] alI]
   (d) macro-économist
       [[macroII [économy]] istI]

If one studies all such counterexamples which are cited in the literature there seem to a limited number of Class I suffixes which can attach outside Class II prefixes, viz. -al, -ant, -ate, -ic, -ion, -ist, -ity, -th and -y. The number of Class II prefixes which can occur inside such suffixes is much larger and includes prefixes such as un-, under-, vice-, non-, extra-, re- and micro-, for example.

As pointed out earlier given the ordering of Class I affixation rules on a level prior to Class II affixation rules the derivation of words like ungrammaticáliy should proceed as follows. The Class I suffix -ity will attach to grammátiy whereafter the Class II prefix un- attaches to grammaticáliy to form ungrammaticáliy. The problem is that with this order of derivation the subcategorisation frame of un- is not satisfied.
The prefix un- subcategorises for an adjective like grammatical rather than a noun like grammaticality. To retain the ordering of the ordering of Class II affixation rules after Class I affixation rules Kiparsky (1982c:21) suggests that words like ungrammaticality are "indirectly generated by a process of reanalysis in the morphology" and that they are "blends" of grammaticality and ungrammatical. The noun grammaticalityA+ityN is formed by the Class I affixation rules. Thereafter un- is prefixed to form [un [grammaticalityA + ityN]N]. This string is then reanalysed as [[un + grammaticalityA + ityN]N]. Such reanalysis is permissible as the requirement that -ity attach to an adjective is still satisfied.

In addition to the counterexamples in (47) Kiparsky (1982c:18) points out that there are "a small number of examples where secondary suffixes [Class II suffixes...M.S.] seem to be misplaced before primary suffixes [Class I suffixes... M.S.]". Such words, like those in (47) above, violate an ordering where all Class I affixation rules are ordered before all Class II affixation rules. Examples of these words are given in (48) below.

(48)(a) idealistic
    [[[ideal] istI] icI]
(b) standardization
    [[[standard] izeI] átionI]
(c) developmén'tal
    [[[develop] méntI] alI]
(d) analyzability
    [[[analyze] ab(i)leI] ityI]

Kiparsky (1982c:17-18) deals with the counterexamples in (48) by reanalysing them in various ways, each of which is ad hoc in nature. Firstly, he deals with idealistic (48)(a) by reanalysing -istic as a unitary Class I suffix - a fusion of -ist and -ic. Given this reanalysis idealistic no longer constitutes a counterexample to the extrinsic ordering or WFRs which he proposes. While reanalysis might be justified in
certain cases where the fusion of affixes has taken place, one cannot merely reanalyse every apparent counterexample in this way. Preferably one should establish where and under what circumstances fusion could have taken place and then determine in which cases fusion took place and therefore which words must be regarded as counterexamples and which not.

As regards the counterexamples in (48)(b) and (c), Kiparsky (1982c:17-18) merely claims that -ize and -ment in these two words are Class I rather than Class II suffixes. More problematic is the suffix -able in (48)(d) which Aronoff (1976:121-129) claims has the phonological, morphological and semantic properties of both Class I and Class II suffixes. Kiparsky (1982c:18) suggests that -able is a Class I suffix. This would account for its distributional properties, while its stress properties are accounted for by marking it as extrametrical. The notion "extrametricality" is not, however, elaborated on. Kiparsky (1982c:18) claims that the suffix sequence -ability is the only one in (48) for which "some ad hoc treatment" is required. He adds that even if it should turn out that the counterexamples in (48) cannot be eliminated by "independently motivated analyses", violations in which a Class I suffix appears outside a Class II suffix are truly exceptions as they are restricted to specific pairs of suffixes. He claims that one does not find systematic exceptions, that is, suffixes which function as primary for phonology and secondary for morphology or vice versa.

The data in (47) and (48) reveal that some affixes classified as Class I and Class II do not exhibit the same distributional properties as other members of the class to which they belong. This fact brings into question the criteria used for the classification of derivational affixes.

2.3.3.3 Looping

As shown in Section 2.3.2, Mohanan's (1982) strict ordering of Class II affixation rules on a level prior to the level on which
compounding rules enables him to account for the fact that Class II affixes can occur inside compounds. However, it does not enable him to account for the fact that Class II affixes can also occur outside compounds. He therefore adds a loop between the level of Class II affixation and compounding. In doing this, he is able to account for data in which Class II affixes attach inside and/or outside compounds. However, in proposing the loop he is implicitly saying that compounding and Class II affixation cannot be extrinsically ordered and is thus weakening the concept of extrinsic ordering. Furthermore, he is in fact bringing into question the assumption he implicitly makes that Class II affixes have the property that they attach only inside compounds.

Although Kiparsky (1982c:20-22) accounts for counterexamples such as ungrammaticality by reanalysis, he also suggests the use of a loop between the level on which Class I affixation rules are ordered and the level on which Class II affixation rules are ordered. This loop "would allow forms from level 2 to feed back into level 1" (Kiparsky (1982c:20)). However, he rejects this possibility on the grounds that it severely compromises level-ordering and he resorts instead to reanalysis as discussed in Section 2.3.3.2. This also compromises level-ordering and is just as ad hoc as reanalysis.

2.3.3.4 Ad hoc constraints

Recall that Kiparsky (1982a; 1982b; 1982c) orders irregular inflectional rules on the same level as Class I affixation rules. On the next level Class II affixation rules and compounding rules are found. This is followed by rules which form regular plurals and past tenses on the next level. Given this ordering the following predictions can be made:

(i) irregular inflections can occur inside Class I and Class II affixes as well as inside compounds, and

(ii) regular inflections cannot occur inside compounds.
However, while irregular inflections may occur within compounds, they cannot occur inside Class II affixes as shown in (49) below.

(49) *[[[child] ren^{INF}] like_{II}]

To exclude such words, Kiparsky (1982a: 174, note 3) suggests using an ad hoc constraint to prevent irregularly inflected forms from forming the basis for further word formation. Words such as that in (49) will then be excluded. However, he has to put a proviso on the constraint to the effect that inherent plurals like people and suds, for example, are not subject to this constraint.

Furthermore, regular inflections can occur within compounds as was shown in Sections 2.2.2 and 2.3.2. Some of the relevant data is repeated here for ease of reference.

(50) (a) párks commissioner
       [[[párk] s^{INF}] [commissioner]]
(b) admissions office
       [[[admission] s^{INF}] [office]]

The only way to handle these data without changing the ordering of rules would be to assume that the plural forms in such compounds are pseudo-inflected forms. Once again the data, in particular those in (50), which show that inflectional affixes can sometimes occur within compounds, bring into question the distributional properties of inflectional affixes.

Mohanan's (1982) model suffers from a similar shortcoming. He orders inflectional affixation rules after all derivational affixation and compounding rules in the lexicon. The implication is that all inflectional affixes should occur outside all derivational affixes as well as outside all compounds, but forms such as those in (50) do occur. Mohanan (1982:45) merely brushes such examples aside, as was pointed out in Section 2.3.2, saying that "some alternative explanation will
have to be offered for them". In proposing ad hoc constraints, making ad hoc assumptions about pseudo-inflected forms and recognising that "some alternative" means will have to be found both linguists, in fact, recognise that inflectional affixes do not have the distributional properties attributed to them, viz. that they only occur outside compounds.

2.3.3.5 Reclassification of affixes

Strauss (1982a:42) claims that there is a distinctive difference between Class I and Class II suffixes with respect to their properties, but that such a difference between prefixes is non-existent. He therefore recognises Class I and II suffixes, but only Class II prefixes. On the basis of a number of differences between Class II suffixes and Class II prefixes he classifies Class II prefixes first as lower level compounding elements, that is, as units belonging to a similar category as words or "ordinary compounding elements". Strauss (1982a:45) subsequently classifies them as compounding elements since such prefixes, like words, can occur independently, unlike Class I prefixes like in- which cannot occur independently with meaning.

(51) (a) Are you pró or anti?
    (b) *I'm polite and you're im-.

Similarities between derived words containing Class II prefixes and compounds have also been noted by Siegel (1974:147) and Szpyra (1986:173-175) who shows that Class II prefixes have more features in common with elements of compounds than with Class II suffixes. Allen (1978:51-74, 186) seems to have implicitly had a similar idea about the treatment of one affix which other level-ordering linguists regard as a Class II prefix, viz. the prefix non-. She orders the rule of non- prefixation on the same level as the compounding rules, that is, on a level after all the Class II affixation rules.

However, while there are prefixes like pro- and anti- which seem to substantiate Strauss' (1982a:45) reclassification, there are
numerous others, like un-, which do not have word-like properties. Reclassifying all Class II prefixes as compounding elements does not therefore seem to be fully justified. Furthermore, it does not serve any purpose in describing certain distributional properties of derivational affixes and compounds relative to each other as both Class II prefixes/compounding elements and Class II suffixes seem to occur both inside as well as outside compounds. The reclassification, while serving to account for certain properties of Class II prefixes, actually predicts incorrect properties for certain others. The reclassification therefore does not seem to be justified. Rather, it merely serves to account for certain word-like properties of a number of prefixes which other proponents of level-ordering classify as Class II prefixes.

In addition to affixes which are reclassified there are a number of affixes such as -able, re-, mono and sub- which level-ordering linguists like Siegel (1974:149-150), for example, assign to both Class I and Class II. That is, she assigns them dual class status. The reason for such a dual classification can be traced back to the fact that these affixes exhibit the morphological and/or phonological properties of both classes. Szpyra (1986:36-61) has pointed out that assigning such suffixes dual class status is questionable as many so-called dual class suffixes do not display all the phonological and morphological properties of both classes.

2.3.4 Summary

In the level-ordering theories of Mohanan (1982), Kiparsky (1982a; 1982b; 1982c) and other level-ordering linguists the ad hoc constraints, reanalyses, loops etc. employed seem to serve only one purpose, viz. to protect their theories. This leads one to ask whether level-ordering can in fact offer the linguist a suitable theoretical framework within which to describe the morphology of derivations in a particular language. It would seem that all these ad hoc devices are required because affixes in a particular class exhibit properties which are not
characteristic of the class to which they belong. The use of ad hoc devices therefore suggests that there may be some problem with the classification of affixes adopted by the level-ordering approach. In fact, there is evidence from, amongst others, certain proponents of level-ordering themselves that the morphological and phonological bases for the classification of derivational affixes can be called into question. It is claimed, for example, that Class I affixes attach to Stems and Words while Class II affixes attach to Words only. It would, however, appear that this is questionable. While there are indeed no Class II prefixes which attach to Stems, there do appear to be certain Class II suffixes which attach to Stems as shown in the examples below.

(52) (a) hapless
     [[hap] lessII]
(b) feckless
     [[feck] lessII]
(53) (a) gruesome
     [[grue] someII]
(b) fulsome
     [[ful] someII]

There are two possible ways of dealing with these counterexamples. One could raise the question about whether the words in which these Class II suffixes have supposedly attached to stems are in fact morphologically complex words. The affixes -less and -some appear in many other complex words, but the stems grue and hap do not. It could be argued, however, that hap appears in words like haphazard and happen. Also, while the words hapless and gruesome might have been complex in an earlier version of English, they do not seem to be recognised as such by native speakers of Modern English. Alternatively, one could claim that the words in (44) are in fact morphologically complex words and that they therefore constitute exceptions to the claim that Class II affixes attach to words only. Strauss (1982a:25-28), in his criticism of Siegel's ordering proposals, seems to be making this claim. In this work and in Strauss (1979:398) he
concludes that there is no perfect correlation between the level of affixation and the stem or word status of the base.

Further evidence that affixes in a particular class do not all share the same properties is found in Fabb's (1988) recent work on suffix combinations in English. He criticises level-ordering for not being restrictive enough to account for the mere 50 attested pairs of suffixes of the 614 which are predicted to be possible by level-ordering. Fabb (1988:532) claims that if one examines the suffix sequences which occur in English one finds that

(i) many suffixes never attach to a word which already contains a suffix,

(ii) some attach only outside a particular suffix,

(iii) some suffixes attach to all the suffixes expected given the selection restrictions mentioned in (i) and (ii), and

(iv) some suffixes attach outside some, but not all, the suffixes which one would expect.

Fabb (1988:532-538) thus suggests that the occurring and non-occurring suffix sequences in English should be accounted for by assuming selection restrictions for suffixes. These restrictions will ensure that a particular suffix attaches to a word belonging to a certain category and that the base to which the suffix attaches is either derived or underived. If the suffix attaches to a derived word containing a particular suffix, this will have to be specified. Fabb (1988) does not discuss sequences of prefixes, or sequences of prefixes and suffixes in his work. What is important for the purposes of this thesis is not the solution he offers but rather the recognition that suffixes in a particular category do not all exhibit the same range of properties.
As shown the level-ordering approach is problematic in that it cannot account for certain distributional and other properties of affixes without recourse to ad hoc mechanisms. Such mechanisms merely serve, on the one hand to protect the level-ordering approaches from refutation. On the other hand, they avoid the essence of the problem which appears to relate in some way to the classification of derivational affixes.

2.4 Category distinctions as a means of accounting for the distribution of morphological categories

2.4.1 General characteristics

As was pointed out in Section 2.3.4 above, level-ordering in its present forms is not adequate to account for the distribution and stress properties of derivational affixes in all morphologically complex words which occur in languages like English. This has led linguists like Selkirk (1982), Guerssel (1983) and Sproat (1985a) to propose an alternative type of approach to describe the morphology of derivations. These three linguists differ quite radically from each other in terms of the theoretical frameworks they subsume for their analysis and description of derivations. Despite these differences they share the claim that the distribution of affixes relative to one another and relative to compounds can be accounted for in a similar way, viz. by assuming that

(i) there are two types of recursive levels or lexical categories, viz. Stems and Words, and

(ii) affixes subcategorise for the type of category to which they attach.

The distributional properties of derivational affixes, which were noted in Section 2.2.2, follow from their specification in the lexicon. They are subcategorised for the type of lexical morphological category to which they may attach, for example,
adjectival Stem or adjectival Word. According to Sproat (1985a:466) the fact that there are only two levels or types of categories to which affixes can attach means, in effect, that there are only two levels of word formation, rather than the arbitrary number (any number from two to five) in the variants of the level-ordering approach. In this sense then, the type of approach under discussion is more restrictive than the level-ordering approach.

While much attention is given to derivational affixation in the category distinction approaches, very little is said about inflectional affixation in the works of Selkirk (1982), Guerssel (1983) and Sproat (1985a). However, the former do assume that inflectional affixes attach only to Words, not to Stems.

In level-ordering theories of word formation an attempt is made to account not only for the structural properties of morphologically complex words, but also to account for their semantic and phonological properties. Attention is paid to the latter two properties to varying degrees by the level-ordering linguists. Guerssel (1983) discusses the application of some phonological rules with respect to certain affixation and compounding rules, while Sproat (1985a) argues for a category distinction approach primarily to account for the phonological properties of morphologically complex words. Sproat (1985a:469-470) also mentions the relationship between the phonological opacity and apparent semantic opacity of stem affixes, on the one hand, and the phonological transparency and apparent semantic transparency of word affixes, on the other. He does not, however, encode this in his theory because he is not totally convinced that these facts are correct. He says that while semantically opaque morphology is often encoded in stem-level phonological affixation, many highly semantically transparent operations such as inflectional morphology are also often encoded in stem-level affixation as in Latin (Sproat (1985a:469-470)). Selkirk (1982), on the other hand, fails to discuss the issue of the application of phonological rules. She briefly mentions the semantic interpretation of words, but not
any semantic rules which apply.

In Section 2.4.2 which follows, the way in which the alternative type of approach tries to account for the distribution of affixes relative to each other and relative to compounds using category distinctions, will be discussed.

2.4.2 Specific characteristics

Within the framework of these theories lexical items are listed in the form of Stems in the lexicon. Examples of such Stems are given in (54) below. The subscripted $S$ in (54) indicates a Stem. In other examples the subscripted $S$ next to an affix within brackets is used to indicate Stem affixes while a subscripted $S$ outside the brackets as in (54) is used to indicate Stems.

(54)
(a) $[\text{h\'{e}\acute{a}rt}]_S$
(b) $[\text{sing}]_S$
(c) $[\text{kind}]_S$

The Stems in (54) are, in fact, also Words. The Stems in (54) get Word status by virtue of a rule in the lexicon/grammar which "converts" Stems into Words as shown in (55) below. The subscripted $W$ outside the bracket indicates a Word in (55). In other examples the subscripted $W$ may be used in this way or to indicate a Word affix when used inside a bracket.

(55)
(a) $[[\text{h\'{e}\acute{a}rt}]_S]_W$
(b) $[[\text{sing}]_S]_W$
(c) $[[\text{kind}]_S]_W$

In Selkirk (1982) Stems do not only have the form shown in (54), but also the form shown in (56).

(56)
(a) $[\text{flate}]_S$
(b) $[\text{ceive}]_S$
(c) $[\text{leg}]_S$
These Stems, unlike the ones in (54), can only occur independently as meaningful units once an affix has attached. Affixes which are subcategorised to attach to Stems like de-, con- and -ible will attach to the Stems in (56)(a)-(c) respectively to form the Stems given below.

(57) (a) deflate
    [de [fláte]s]s
(b) conceive
    [con [céive]s]s
(c) legible
    [[lég]s ible]s

Guerssel (1983) excludes Stems of the type shown in (56) from his lexicon. As will be shown below he assumes that the forms in (57) are listed as in the lexicon as morphologically simple forms. From the work of Sproat (1985a) it is not clear whether he would adopt Selkirk's or Guerssel's analysis of the forms in (57).

Affixes which level-ordering linguists take to be Class I affixes are those which, in the category distinction approaches, are subcategorised in the lexicon as attaching to Stems. Such affixes (henceforth: Stem affixes) attach to Stems and with them form Stems. For example, the Stem affixes -ity, -ance and -al can attach to the Stems given in (46) below to form new Stems.

(58) (a) ability
    [[ab(i)le]s itys]
(b) resistance
    [[resist]s ance]s
(c) accidental
    [[accidént]s al]s

An important innovation in the treatment of affixes of this type and of Stems such as those in (56) is found in the work of Guerssel (1983). There are certain words like possible, porous
and *operate which level-ordering proponents, and Selkirk (1982), take to be Class I derived words formed by the attachment of the Class I suffixes -able, -ous and -ate to the Stems poss, por and oper respectively. Guerssel (1983:209-217) claims that words like possible, porous and operate are in fact complex Stems and should be listed as such in the lexicon. One reason for this is that, synchronically at least, it is impossible to establish the meaning of such words by simply adding the meanings of the two constituent parts. Also, he questions how one would ensure that affixes like -ate, -able and -ous attach to the stems oper, poss and por respectively, rather than to poss, por and oper to yield forms like *possate, *porable and *operous.

Those affixes which the level-ordering approach takes to be Class II affixes are those which, within the category distinction approach, subcategorise for Words and with them form Words. I will use the term "Word affixes" to refer to these affixes. Word affixes like -less, -er and -ness attach to the Words héárt, sing and kind (cf. (54)(a)-(c)) to form the Words in (59)(a)-(c) respectively.

(59) (a) héártless
     [[[héárt]s]W lessW]
(b) singer
     [[[sing]s]W erW]
(c) kindness
     [[[kind]s]W nessW]

The distribution of affixes relative to each other is handled in the following way. Affixes which attach to Stems will attach before affixes which attach to Words, as Words are formed from Stems. Consider in this regard the Words dialéctical, unadventurous and féárlessness whose derivations are indicated by the labelled bracketing in (60) below.

(60)(a) dialéctical
Let us consider first the derivation of the Word *dialectical*. The Stem *dialect* is listed in the lexicon as are the suffixes *-ic* and *-al* which are subcategorised to attach to Stems only. The suffix *-ic* will attach to the Stem *dialect* to form the Stem *dialectic*. The suffix *-al*, which also attaches to Stems, can then attach to the Stem *dialectic* to form the Stem *dialectical*. Once all Stem affixation is completed, the Stem will "become" a Word. The resultant Word can then either form the basis for further derivational and/or inflectional affixation, or can be conjoined with another Word to form a compound.

The Stem *adventure* is listed in the lexicon, as is the Stem suffix *-ous* and the Word prefix *un-*. The Stem suffix *-ous* will be added to the Stem *adventure* to form the Stem *adventurous*. The prefix *un-* cannot attach to *adventurous* as it is still a Stem and *un-* is a prefix which only attaches to a Word category. A rule will therefore "convert" the Stem *adventurous* into a Word. In fact, the application of this rule is obligatory if a Word affix is to be attached. The prefix *un-* can attach to the Word *adventurous* to form the Word *unadventurous* which is available for further affixation or compounding.

Finally, let us consider the Word *fearlessness*. *Fear* is listed as a Stem in the lexicon together with the Word suffixes *-less* and *-ness*. As these suffixes only attach to Words, *fear* must be converted into a Word before affixation can take place. Once this "conversion" has taken place, the suffix *-less* can attach to the Word *fear* to form the Word *fearless*. Thereafter, the suffix *-ness*, which subcategorises to attach to Words, will attach to the Word *fearless* to form the Word *fearlessness*. As is the case with the Words discussed in the previous two paragraphs, *fearlessness* may undergo further affixation or compounding.
According to Guerssel (1983:221) and Sproat (1985a:461) some affixes may also serve as bases for affixation. That is, there are some affixes which subcategorise for a specific affix in a morphologically complex word. Examples of such affixes are -ity and -ation. The suffix -ity can attach to derived adjectival Stems such as those in (61)(a)-(c) below and also underived adjectival Stems such as those in (62)(a)-(d).

(61)(a) derivable
   [[derive]s able\text{\textgreek{s}}]
(b) réádable
   [[réád]s able\text{\textgreek{s}}]
(c) mónstrous
   [[mónster]s ous\text{\textgreek{s}}]

(62)(a) [cúrious]s
(b) [póssible]s
(c) [elás tic]s
(d) [néutral]s

To account for the fact that speakers know that -ity can be added to possible in the same way that it can be added to morphologically complex words like réádable, for example, Guerssel (1983:215) proposes that the word possible is marked in the lexicon as including the suffix -able. Furthermore, Guerssel (1983:222) claims that the suffix -ity is marked to attach to adjectives which include the suffix -able, be the adjectives simple or complex. It is also marked to attach to adjectives which include the suffixes -ous, -ic and -al, be they simple or complex. The suffix -ity, therefore, does not subcategorise for just any adjectival Stem or Word. Rather, it subcategorises for an adjectival Stem or Word which contains one of the afore-mentioned suffixes. In similar vein, Sproat (1985a:462) suggests that -ity is not only subcategorised for a Stem, but is also marked as requiring a latinate base so that it can attach to a lexical item like grammátical.
The other suffix which Guerssel (1983:225-226) discusses is the suffix -(at)ion that subcategorises for Words which include the suffix -ate or the suffix -ize. Examples of such words are given in (63)(a) and (b) respectively.

(63)(a) [[[éducate]s]W
(b) [[[standardize]s]W

Guerssel (1983) does not present any examples of prefixes which subcategorise for affixes. Whether this means that prefixes cannot subcategorise for affixes is not clear.

In each of the variants of the category distinction approach, compounds are formed by the concatenation of two Words as shown in (64)(a)-(c) below.

(64)(a) self-sufficient
(b) éárthquake
(c) schóól principal

Recall that the Word is a recursive category type. Therefore, a compound formed by the concatenation of two Words can be joined to a Word to form yet another compound, and so on, as shown in (65)(a) and (b). The conversion of Stems to Words, which must occur before compounding can take place, is not indicated in these and a number of other examples for the sake of simplicity.

(65)(a) bañoom mirror
(b) bañoom mirror sale

Given the Stem/Word distinction and the way in which affixes are subcategorised for Stems or Words, affixes which attach to Stems should only be able to appear within a compound. Those which
Words should be able to occur both inside as well as outside compounds which are, per definition, Words. This is borne out by the data below.

(66)(a) fóód scarcity

\[[fóód]_W \[[scarce]_S ity]_W\W

(b) *[[[car]_W [accident]_W]_W al]_W

(c) ex-schóól principal

[ex\W [[schóól]_W [principal]_W]_W\W

(d) ex-jóckey fund

[[ex\W [jóckey]_W]_W [fund]_W\W

Selkirk (1982:99), who terms compounds such as those in (65) and (66) above, "native" compounds, distinguishes another class of compounds, viz. the "non-native" compounds. The latter are formed by joining two Stems to form a Stem which is then "converted" to a Word as shown in (67)(a) and (b) below.

(67)(a) mónosyllable

\[[[móno]_S [syllable]_S]_g\W

(b) erýthrocyte

[[[erýthro]_S [cyte]_S]_g\W

Selkirk (1982:99) tentatively proposes that Stem (Root) is a recursive compounding category in English. This means that a non-native compound should be able to be joined to a Stem (Root) to form another non-native compound. She does not, however, give any examples.

Given that Stem affixes subcategorise for Stems, they should be able to attach both inside and outside such Stem (non-native) compounds. This does seem to be the case. The order of attachment of the affixes and Stems in the Words in (68)(a) and (b) is speculative as it is not obvious from the work of Selkirk (1982) in what order she envisions attachment taking place.

(68)(a) ethnocéntric

\[[[ethno]_S [[céntr]_S ic]_S]_g\W
(b) metatheoretic

Neither Guerssel (1983) nor Sproat (1985a) distinguish compounds of this type. Guerssel assumes that apparent morphologically complex words like possible are entered into the lexicon as morphologically underived forms. One could therefore speculate that he might view at least some of the non-native compounds like erythrocyte and polygon, for example, as morphologically simple forms which are listed as such in the lexicon. This seems to be a more reasonable way to analyse at least some of the forms like erythrocyte which many speakers of English would not consider to be morphologically complex and which they seem to learn as simple forms together with their meanings.

The position of inflectional affixes relative to derivational affixes and compounds in morphologically complex words is not treated in much detail in the works of Selkirk (1982), Guerssel (1983) and Sproat (1985a). Regular inflectional affixes like the past tense suffix -ed and the plural suffix -s are taken to attach to Words. They will therefore attach outside all Stem affixes, after the Stem has been "converted" into a Word, and also outside Word affixes and compounds. This is borne out by the data in (69) below.

(69) (a) codified

(b) undermined

(c) swimmers

(d) earthquakes

However, there is a problem in that the prediction is also made that inflectional affixes should always be able to appear inside Word affixes and inside compounds. The former is not attested but the latter is, as shown below in (70) and (71) respectively.
The appearance of inflectional affixes in compounds is dealt with fairly extensively by Sproat (1985a:412-427). He presents an analysis which, although only tentative by his own admission, goes far in explaining the appearance of inflectional affixes on the left-hand member of a compound in some cases, but not in others, and their interpretation. Recall from Section 2.3.2 that the appearance of inflectional affixes on the left-hand member of a compound is something that created problems for certain level-ordering linguists. Sproat (1985a:420, 426) proposes the following constraint and claims that it "must be on the right track" although more research needs to be done to determine its exact nature.

(72) The left member of a compound must be unmarked for number, unless the plural is interpreted collectively or idiosyncratically.

This constraint enables one to explain why, in most cases, the left-hand member of a compound will be unmarked for plural, irrespective of whether it would be regularly or irregularly inflected as an independent word. All left-hand members, although unmarked for number, will have a plural interpretation. Hence a fingerbowl is a bowl for washing all your fingers in, a coat rack is a rack for one or more coats, toothpaste is for cleaning all one's teeth, and foot gear is gear for both one's feet.

(73)(a) finger bowl
[[finger][bowl]] (cf. plural fingers)
(b) cóát rack
[[cóát]w [rack]w]w (cf. plural cóáts)
(c) tóóthpaste
[[tóóth]w [paste]w]w (cf. plural tééth)
(d) fóótgear
[[fóót]w [gear]w]w (cf. plural féét)

The constraint does, however, allow the left-hand member of a compound to be marked for plurality when the plural forms can be interpreted collectively or idiosyncratically as shown in the examples below.

(74) (a) systems analyst
[[[system]w sINF] [analyst]w]w
(b) Párks department
[[[Park]w sINF] [department]w]w
(c) drinks cabinet
[[[drink]w sINF] [cabinet]w]w (cf. [[drink][cabinet]])

The plural forms in (74)(a) and (b) have a collective interpretation according to Sproat (1985a:415). He says it can be argued that a systems analyst is not a person who analyses merely any old system, but rather one who analyses systems of a specific sort, such as computer systems, for example. Similarly, a Parks department is not a department of just any parks, but rather a department of some specific set of parks. In both these cases the plural has a collective interpretation. The contrast between the meanings of the compounds drinks cabinet and drink cabinet can also be explained in terms of constraint (72). The compound drink cabinet refers to any cabinet in which potable items can be stored, while drinks cabinet refers to a cabinet where alcoholic drinks are most likely to be stored.

Irregular plurals39 insofar as they are necessarily idiosyncratic, will, according to Sproat (1985a:413), be allowed to occur as left-hand members in compounds. This is borne out by the data in (75) below.
Sproat (1985a:421) does, however, point out that in the vast majority of cases irregularly and regularly inflected forms are not found in compounds. Although much attention is paid to plural forms in compounds, Sproat (1985a) does not mention the presence or absence of affixes indicating past tense on the left-hand member of a compound.

Zero-affixation is only briefly mentioned by Guerssel (1983:227-228) when he notes that there are zero-derivational affixes and zero-inflectional affixes. Sproat (1985a:371-372) is the only one of the three linguists under discussion who devotes space to zero-derived forms and proposes an analysis of such forms. He claims that there are two abstract zero affixes 01 and 02. Being abstract these affixes have no phonological content. The former converts verbs into nouns, while the latter converts nouns into verbs. Sproat (1985a:372) claims that, given his analysis, one can explain why exocentric compounds inflect regularly irrespective of the fact that the right-hand member of the compound would inflect irregularly when used as an independent word or when used in an endocentric compound. He does not consider the ordering of zero-affixes with respect to Stem and Word affixes. Also, like the level-ordering linguists, he does not consider the possibility that Stems could be listed in the lexicon with no category specification.

Consider now the following verbal compounds which Sproat (1985a:371, 375) presents.

(76)(a) grándstand

(b) withstand
The past tense form of *stand* as an independent word, is *stood*. The past tense form of the endocentric compound *withstand* is *withstood*, while the past tense of the exocentric compound *grandstand* is *grandstanded*, not *grandstood*. Sproat (1985a:371-378) explains this in the following way. The past tense of the verbal compound *withstand*, viz. *withstood*, has the following structure. This and the structures in (78) and (80)-(82) which are taken from Sproat (1985a:371-378) have been somewhat simplified for the purposes of the discussion here.

(77) [withstand\_W PAST]

The past tense marker PAST is adjacent to *stand* therefore *stand* and PAST will be spelt out as *stood*. The past tense form of the verb *grandstand* has the structure in (77) below.

(78) [[[grand\_A [[[stand\_V O1\_N ]\_N O2]V] PAST]

As can be seen the verb *stand* becomes a noun by zero-derivation whereafter it is joined to the adjective *grand* to form the nominal compound *grandstand*. This is then converted into the verbal compound *grandstand* by zero-derivation. Finally, the past tense marker PAST is added. The verbal compound *grandstand* cannot receive irregular inflection because the Past tense marker is not morphologically adjacent to the verb *stand*. It is separated by two zero affixes.

Consider now the following two nominal compounds.

(79)(a) sabertooth - sabertooths


(b) milktooth - milkteeth


As an independent word *téeth* inflects irregularly as *téeth*. The endocentric compound *milktooth* inflects irregularly as *milkteeth*. However, the exocentric compound *sábertooth* inflects regularly as *sábertooths*, not irregularly as *sabertooths*. 
Sproat (1985a:378-382) explains this as follows. The plural form of the noun milkteeth has the following structure.

(80) \[\text{[milktooth] PL}\]

Here the plural marker is morphologically adjacent to the noun tooth which can then have irregular inflection.

Sproat (1985a:380) claims that the noun sabertooth has a head which is a "full-fledged noun" as sabertooth is in a sense a shortened version of sabertooth tiger. He calls the head o. The compound sabertooth, therefore, has the following structure.

(81) \[\text{[[saber]W [tooth]W O]}\]

Adding the plural marker to this will yield the following structure.


Once again the plural marker is not phonologically adjacent to the noun tooth because of the head o so the plural form of sabertooth will not be *saberteeth, but sabertooths.

2.4.3 Problematic data

2.4.3.1 General remarks

The category distinction approach, like the level-ordering approach, is faced with counterexamples in which derivational affixes display properties uncharacteristic of the class to which they belong. Apart from certain counterexamples which are the result of assumptions which are made, the approach is also faced with the same types of counterexamples as the level-ordering approach. In order to deal with such data a number of ad hoc mechanisms are resorted to as will be shown in the following sections.
2.4.3.2 Reclassification of affixes

The category distinction linguists seem to implicitly or explicitly assume the classification of affixes proposed by level-ordering linguists and, like them, are faced with data such as those in (83) below in which a Stem affix appears to have attached outside a Word affix. Selkirk (1982:101) claims that no other bracketing of the words in (83) is possible if the correct semantic interpretation is to be assigned to each word/ the subcategorisation frame of un- is to be satisfied. Note that the data in (83) are of the same type as those given in (47), while those in (84) are similar to those in (46). In the case of (84) we find a Stem prefixes which have attached outside a compound, while in (45) we have data in which a Class I suffix has attached outside a compound.

(83) (a) unreality
       [[un\textsubscript{W} [réal]] ity\textsubscript{S}]

(b) unpopularity
       [[un\textsubscript{W} [populár] ity\textsubscript{S}]

(84) (a) mis-backdate
       [mis\textsubscript{S} [[back] [date]]]

(b) de-upgrade
       [dés [[up] [grade]]

(c) ré-overthrow
       [ré\textsubscript{S} [[over] [throw]]]

Selkirk (1982) accounts for these data by assuming that certain affixes like un- have dual class status, that is, they have characteristics of both Stem and Word affixes and are, therefore, subcategorised in the lexicon for both Stems and Words. Given this analysis the prefix un- in (83) would have the characteristics of a Stem affix, not a Word affix. With the Stems réal and popular this prefix would form the Stems unreál and unpópular respectively. The Stem suffix -ity could then attach to these Stems to form the Stems unrealité and unpopulárit"
Similarly, the prefixes in (84) have dual class status hence their ability to not only attach inside Class I affixes, but also their ability to attach to compounds.

Sproat (1985a:22) has criticised Selkirk (1982), pointing out that

"[c]haracterizing un- as both Class I and Class II, is a weaker theory of morphology than we might like to have, unless we have strong evidence that such a weakening is necessary."

The fact that Selkirk assigns certain prefixes dual class status only to render certain counterexamples consistent with her theory does not seem to constitute "very strong evidence" for a weakening of her theory. It merely serves to save her proposals on word formation in English from refutation.

2.4.3.3 Two levels of representation

In addition to criticising Selkirk Sproat (1985a:15-65, 88-198) has criticised the attempts of Strauss (1982a), Guerssel (1983), Kiparsky (1982c), amongst others, to deal with bracketing paradoxes such as those in (47), (83) and (84). Sproat (1988:341) claims that such data are only paradoxical if the assumption is made that words must have the same single structure. They cease to be paradoxical when we allow words, like sentences, to have two different representations in different components of the grammar. He therefore suggests that word structure should be viewed as distributed over at least two components, the morphosyntactic and the morphophonological. Words are therefore represented as a pair consisting of a syntactic bracketing as shown in (85)(a) and a phonological bracketing shown in (85)(b). The Mapping Principle, which he proposes, ensures that the syntactic representation, which holds at S-structure, is "translated" into the phonological representation given in (85)(b) which holds at the level of PF.

(85)(a) [[UN GRAMMATICAL] ITY]

(b) (un (grammatical ity))
Sproat (1985b:188) concludes that

"[b]racketing paradoxes, then, are a trivial consequence of the fact that the Mapping Principle which constrains the mapping between syntactic and phonological structure does not require isomorphism. This is a natural enough expectation given that syntax deals in hierarchical structure whereas phonology deals more in terms of adjacency."

Given his proposals Sproat (1985a) thus argues that he can provide a better account of recalcitrant data such as those in (47) and (83).

2.4.3.4 Reanalysis of data

In addition to the counterexamples in (83) in which a Word prefix attaches before a Stem suffix the category distinction approach is also faced with data in which a Word suffix attaches before a Stem suffix as shown in the data in (86) below. These data are of the same type as those given in (48) above.

(86) (a) gouvernémental
  [[[govern]W méntW] alg]
(b) developmental
  [[[develop]W méntW] alg]

The suffix -ment is a Word suffix, while the suffix -al is a Stem suffix, therefore -al should not be able to attach after -ment. However, -al does, as shown in (86)(a) and (b). Selkirk (1982:104-105) argues that both these words are merely exceptions in that they are the only Verb + -ment forms in English to which the suffix -al attaches. She proposes that these words be reanalysed by analogy with Stems like ornamento and excrement which appear to include an identical suffix -ment. After reanalysis as Stems the verb + -ment forms have the structure shown in (87).

(87) (a) gouvernéméntal
  [[[gouvernémént]S alg]W
(b) developmental
[[developmental]s al]\W

Being Stems, gouvernement and développement may receive the Stem suffix -al which subcategorises for a Stem. Gouvernement and développement therefore behave like the Stems ornament and éxcrement after reanalysis. Governmental and developmental are not true counterexamples, but are rather instances of the sporadic reanalysis by analogy with Stems like ornament and éxcrement. Selkirk (1982:105) claims that such a reanalysis

"... is made possible by the independent existence of homophonous nonneutral [Stem...M.S.] affixes in the language".

The prediction is thus implicitly made that no such reanalysis will be possible if no such analogy is available. Selkirk (1982:105) also discusses the implications of such reanalyses for the stress pattern of words like développement. She proposes that développement and gouvernement are listed in the lexicon with their stress patterns. After reanalysis as Stems they retain these original stress patterns and continue to display them when combined with affixes such as -al. What exactly Selkirk (1982) means by this is not obvious as the suffix -al causes stress to shift. Obviously such a reanalysis of counterexamples to Selkirk's ordering claims is questionable in that it only serves to protect her theory from refutation.

2.4.4 Summary

In addition to the above-mentioned problematic data with which the category distinction approach is faced there are a number of others which are not noted and therefore not accounted for, even in terms of ad hoc devices. One of these problems has to do with the incorrect predictions which are made about the attachment of an inflectional affix to a Word level category. Recall that Word affixes also attach to Words. This means that Word affixes should be able to appear both inside as well as outside inflectional affixes. However, this is not the case as borne out by the data below.
In (88)(a) and (b) the past tense inflectional suffix \(-ed\) has attached to the verbs *arrive* and *dismiss* before the Word suffix \(-al\), while in (88)(c) and (d) the plural suffix \(-s\) has attached to the nouns *archbishop* and *activity* before the Word suffix \(-less\). All these words ought to be possible words given the fact that inflectional affixes attach to Words. Presumably these words will be excluded as possible words on the grounds that they are semantically uninterpretable. Ideally, however, such words should not be generated. One could account for them using an idea put forward by Guerssel (1983:236), viz. that inflectional affixes subcategorise for some specific form of a verb or a noun which would allow inflectional affixation. How this would be achieved is not obvious as Guerssel (1983) does not elaborate on his statement or present examples. Possibly this could also be achieved by having a general constraint, for English at least, that all inflectional affixes attach after all derivational affixes.

Finally, the criticisms of level-ordering by Fabb (1988) which were set out in Section 2.3.3.3 should be borne in mind here. The category distinction approach is more restrictive than the level-ordering approach in terms of the number of levels proposed when all WFRs are considered. However, with no restrictions on affix combinations other than the category to which the affix may attach, this approach, like the level-ordering approach, probably allow more affix combinations than are in fact attested in English.
2.5 Conclusion

In this chapter two alternative, contemporary approaches to word formation have been considered. Although these two approaches seem to be very different they are in fact notational variants of each other. The difference between them lies solely in the descriptive mechanisms which they use to account for the data discussed in this chapter. Ignoring minor differences, they are faced with exactly the same set of counterexamples. Specifically, they are faced with data in which derivational affixes show uncharacteristic distributional properties. These data seem to suggest that problematic nature of the data is a function of the incorrect classification of derivational affixes. It would therefore appear that the criteria for classifying such affixes need to be replaced if the counterexamples are to be eliminated. We therefore turn, in the following chapter, turn to an investigation of this possibility with specific reference to Afrikaans.
Notes

1 Although linguists seem to all implicitly assume this distinction they do not necessarily all handle inflectional and derivational affixes in the same way. For example, Siegel (1974:12-24) and Allen (1978:1-3) assume that derivation is handled in the lexicon and inflection in the syntax, while other linguists like Kiparsky (1982a; 1982b; 1982c) and Mohanan (1982) handle both derivation and inflection in the lexicon. Cf. also the discussion in Sections 2.3.2 and 3.3.1.

2 The irregularly inflected past tense of a verb like ran, viz. run, is problematic for the conception of morphological complexity given here. The assumption here is that morphologically complex words are words which consist of at least two discernible meaning parts, a base word and an affix which adds some element of meaning. Rán is problematic in that no affix is added to the word to form the past tense, rather a sound change indicates this. This could be considered to be a case of substitution where the form rán substitutes for the word run where a past tense form of the verb run is required.

These comments about irregular inflection should be borne in mind when compounds with irregular inflection are discussed in Section 2.2.2.

3 Siegel (1974:149, 151) claims that no Class II affixes can attach to stems, but does in fact present certain examples where Class II suffixes have attached to stems such as the following:

(i) grúésome
    [[grué] someII]
(ii) fúlsome
    [[fúl] someII]
(iii) féckless
She does not, however, give any examples of words where Class II prefixes have attached to stems. In fact, Siegel (1974:149) claims that such words are unattested. Cf. Section 2.3.2 for further discussion of these forms.

Proponents of level-ordering implicitly assume that stems, which cannot occur independently as words, cannot be joined to form compounds. Selkirk (1982:99), however, claims that two stems can be joined to form a compound. Cf. Section 2.4.2 for a discussion of such compounds.

As will be shown in Section 2.3.2 there are some linguists who would not entirely agree with some of these impossible orderings of affixes.

Cf. note 2, Chapter 3 where other views of the output of each stage in the derivation of a complex word are given.

As will be shown in Section 2.3.2 below, there are certain linguists who do not entirely agree with these claims. Allen (1978), for example, claims that no affixes can occur outside/attach to compounds, while Strauss (1982a) claims that certain Class I suffixes, but no Class I prefixes, can occur outside compounds.

In this word and in complex words which contain the suffix -able a bracketed, stressed i has been included in the labelled bracketing of the word so that the placement of stress can be indicated. In all these cases the stress falls on a sound which is not represented in the orthographic representation of the word.

Some linguists have argued that forms like parks are pseudo-inflected forms. That is, they are forms which
include the plural inflectional affix -s but this -s does not carry plural meaning. Similarly, the null-hypothesis would be that the suffix -s in this word is not the plural suffix -s, but rather some other inflection.

Cf. also Section 2.4.2 where forms like párks which occur as the left-hand members of compounds are discussed.

10 There are other ways of dealing with related Nouns and Verbs. For example, cf. Lieber (1981:119-147) where zero-derivation is expressed as a redundancy relation in the lexicon and Section 6.3 where the proposals of Hopper and Thompson (1984) are considered.

11 Not all linguists use the term "level". Mohanan (1982:3), for example, speaks of "an ordered set of domains that I [Mohanan...M.S.] shall call strata". Mohanan (1982:14, note 4) replaces the term "level" with the term "stratum" to avoid confusion with the more common use of the term "level" to refer to a level of linguistic representation. As all so-called level-ordering linguists, with the exception of Siegel (1974), use the term "level" rather than "stratum", I too have chosen to use the term "level".

12 Szpyra (1986:28) presents the following list of linguists who have proposed that rules be ordered in the lexicon together with a reference to the number of levels which each propose: Siegel (1974) - 2 levels, Allen (1978) - 3 levels, Kiparsky (1982a; 1982b) - 3 levels, Kiparsky (1982c) - 2 levels, Mohanan (1982) - 4 levels, and Halle and Mohanan (1985) - 5 levels. Beard (1987:24) indicates that Halle and Mohanan's fifth level is a phrasal level, the domain of postlexical, postcyclic rules. It would thus appear that this fifth level does not constitute a level of word formation in the lexicon as implied by Szypra.

13 Paulissen (1985:54-55) claims that, in English, the rules of ablaut and verbal compounding must be ordered with
respect to each other on level 1, while in Dutch the order must be verbal compounding followed by ablaut in the unmarked case. In the marked case in Dutch, ablaut must be ordered before verbal compounding. This is the only model, to the best of my knowledge, where rules are extrinsically ordered with respect to each other within a derivational level.

14 An approach like Kiparsky's (1982a:138; 1982b:12) in which phonological rules are ordered with respect to WFRs in the lexicon has been termed Lexical Phonology. Szpyra (1986:20) uses the term "integration approach" to refer to such approaches.

15 For the sake of uniformity in this chapter I will not use the term "level", as do linguists like Allen (1978) and Kiparsky (1982a; 1982b; 1982c), when referring to the various classes of affixes and affixation rules. I will, however, use the term "level" here to refer to the different levels proposed within the various level-ordering theories.

16 Here and in other places in the text where these data are referred to I will ignore the possibility that grammatical may be a complex word as this is not pertinent to the discussion.

17 Cf. the discussion below for a different analysis of reanalyzable which is proposed by Strauss (1982a).

18 Cf. Strauss (1982a:38) where he claims that the suffix -able in words like reanalyzable is the Class I suffix -able and not the Class II suffix -able.

19 Here, and in other places in the text where these data are discussed, I will ignore the internal structure of the words transformational and atomic as this is not pertinent to the discussion.
I am drawing here on the work of Kiparsky (1982c) where his claims differ in certain respects from those made in Kiparsky (1982a; 1982b).

Kiparsky (1982c:5-8) also claims that there exist certain noun-verb pairs like rebelv/rebelN which are derived from a root rebel at level 1. Therefore both the noun rebel and the verb rebel will be able to take Class I affixes. This is indeed the case as shown in the examples below.

(i) rebellion
    [[rebél]v ionI]
(ii) rebellious
    [[rebél]N iousI]

We will not be concerned with the derivation of such words here.

In addition to the approach to be discussed here, Selkirk (1982:112-119) also presents what she calls a diacritic analysis of affixes in English whereby the distinction between Class I and Class II affixes is explained on the basis of a system of features which are assigned to the various affixes and other categories. This analysis is, however, rejected by Selkirk (1982:119) on empirical as well as theoretical grounds for English, although she concedes that such an analysis may be appropriate for other languages.

Other works in which theoretical frameworks similar to the one in Guerssel (1983) are proposed are those of Guerssel (1985) and Aronoff and Sridhar (1983) according to Sproat (1985a:459). Neither of these works is freely available.

Sproat (1985a) gives a synthesis of the work of several other linguists like Selkirk (1982), Guerssel (1983; 1985), and Aronoff and Sridhar (1983) and expounds the advantages of an approach which makes use of the Stem/Word distinction
to account for the phonological properties of morphologically complex words. He then goes on to show how this type of approach to morphophonology is compatible with his approach to morphosyntax.

For example, the rules which Selkirk (1982:95) proposes to describe the possible structures which words may have, resemble the phrase structure rules of transformational generative grammar in form.

(i) Word -> Word Affix

Guerssel (1983) makes use of rules which are called Lexicomps. These rules are affix-specific in that they describe the attachment of a specific affix to certain bases. For example, the Lexicomp which adds the prefix un- has the following form.

(ii) Neg-Composition:
If (a;Fneg, ...) and (b;Fable(Fv[φ])) Σ Lexicon, form a lexical unit L = (ab;Aadj[neg] = Fneg (Fable(Fv[φ]))).

Later, in the same work, Guerssel (1983) proposes a very general rule to cover all affixation and compounding rules, viz. Bind.

Sproat (1985a:460) suggests that, for certain languages like Arabic, it might be useful to distinguish roots as well, insofar as trilateral and quadrilateral roots seem to play an important part in the morphology of the language. He does, however, note that this is a marked option.

Selkirk (1978; 1980; 1982 - unpublished version) argues that three category levels, viz. Word, Root and Stem, are required for the description of English morphology. Selkirk (1982:98) proposed the Root/Stem distinction to capture the distribution of Class I and Class II affixes
with respect to each other and the Stem/Word distinction for the description of inflectional morphology and compounding. Cf. Selkirk (1982:50-53) where reasons are given for the rejection of Stem as a category level.

27 In Selkirk (1982) affixes are also considered to be lexical items and are assigned to a category. Selkirk (1982:7) claims that this nonrecursive category \( \lambda^a_f \) (for Affix) is required "though its position in the system is somewhat special, in that it is not ordered within this hierarchy [the Word-Root hierarchy...M.S.] and is to all appearances preterminal." The distributional properties of affixes and other entities follow from their category membership and subcategorisation requirements. It might however be the case that certain Class II prefixes are, in fact, recursive as shown in the examples below.

(i) ré-redesign
   \[ [\text{réII} [\text{reII} [\text{design}]]] \]

(ii) anti-anti-abortion rally
    \[ [[\text{antiII} [\text{antiII} [\text{abortion}]]] [\text{rally}]] \]

28 Selkirk (1982) uses the term "Root", while Guerssel (1983) uses the term "Unit", and Sproat (1985a), the term "Stem". These three terms in the three alternative approaches do not refer to exactly the same morphological entities. Selkirk (1982) uses the term "Root" to refer to underived lexical items which are listed in the lexicon and which cannot occur independently, such as ceive which is found in the words recei\(\text{v}e\) and concéi\(\text{v}e\).

Guerssel (1983) uses the term "Unit" as a cover term for two types of morphological entities, viz. basic Units and complex Units. The former consist of two types, (i) units which are members of a universal category like noun, verb, etc, and (ii) affixes, both derivational and inflectional. Complex Units, on the other hand, include words like p\(\text{ô}\)ssible which certain linguists, like Selkirk (1982), take
to be a morphologically complex word formed by the attachment of the (Class I) suffix -able to poss. Guerssel (1983:209-217) claims that this word and several others like it, are, in fact, not formed in this way but are independent forms and are listed as such in the lexicon. Units within the framework of Guerssel's theory are therefore affixes as well as lexical items which can occur independently, but do not include types of morphological entities like ceive which Selkirk (1982) refers to as Roots (Stems).

Sproat (1985a:460) is somewhat vague on what constitutes a Stem. He merely claims that this is the basic form which lexical items have in the lexicon.

I will be using the term "Stem" to refer to those items, other than affixes, which are listed in the lexicon. I will assume that Stems can include both items which occur independently as Words and those like ceive.

It must be borne in mind that proponents of a level-ordering approach like Siegel (1974) also distinguish between Stems and Words and claim that Class I affixes attach to Stems and Words, while Class II affixes attach to Words only. However, they attempt to account for this fact by ordering the various WFRs into a series of levels. Within the category distinction approach a distinction is made between morphophonological entities like Stem and Word, and affixes subcategorise for one or other of these. The fact that affixes subcategorise for either Stems or Words is used to explain the morphological and phonological properties of morphologically complex words.

The various linguists have different conceptions of the lexicon. Selkirk (1982:10) views the lexicon as that component of the grammar which includes all the lexical items in a language as well as the affixes and rules which generate the various types of morphologically complex words.
in a language. Sproat (1985a:Abstract 1, 74) views the lexicon as a data structure which includes idiosyncratic forms such as morphemes and idiosyncratic phrases and words with their properties. Finally, Guerssel (1983:191) who works within a completely different type of theoretical framework, views the lexicon as the locus of morphological, phonological and syntactic operations.

What is important for the purposes of this discussion is the fact that all three linguists list lexical items and affixes in the lexicon.

Selkirk (1982:10) and Guerssel (1983) assume that such a rule applies in the lexicon. Sproat (1985a:461) does not indicate where such a rule would be found. However, given his conception of the lexicon as merely a data structure and not a word formation component, I assume that such a rule is found in the grammar rather than in the lexicon.

This rule takes on different forms in the various approaches but, in whatever form, the rule has the same effect. In the case of Selkirk (1982:95) all Words are also Roots and there is a rule which states this:

(i) Word -> Root

In Guerssel (1983:195) a rule called a Vacuous Lexicomp applies to Units to convert them to uninflected Words which are then available for compounding and for affixation by the affixes which subcategorise for Words. Sproat (1985a:461) claims, somewhat vaguely, that "[w]ord-level rules apply to stems at some point to convert them into words." He does not elaborate on the form of the rules or the possible point at which they apply. Cf. Sproat (1985a:463-465) for a detailed discussion of some characteristics of this rule.

In the case of both Selkirk (1982) and Guerssel (1983) the
rule which converts Stems into Words is obligatory if Class II affixation or compounding is to take place. A Stem must be converted into a Word before it can be joined to another Word to form a compound or have a Class II affix attach. One assumes that the same would be true of the word-level rules which Sproat (1985a:461) alludes to.

33 In this respect Guerssel (1983) differs slightly from Selkirk (1982) and Sproat (1985a). Within the framework of his theory when an affix (a Unit) attaches to a Stem (Unit), like a noun, a Word is formed. The only repercussion which this has for his theory as a whole, is that it excludes the stacking of Class I affixes. For example, once the affix -ity has attached to the Unit able to form the Word ability the prefix in- which is subcategorised to attach to a Unit cannot attach to the Word ability to form the Word inability. One way around this problem is to allow affixes to subcategorise for an affix in a morphologically complex word rather than to subcategorise for a Stem of a particular type. This is, in fact, what Guerrsel (1983) does.

34 Unlike the words possible and operate the word porous can be divided into two meaningful parts pore and the suffix -ous. Why Guerssel (1983) includes the latter in his discussion of words which should be treated as morphologically simple and listed as such in the lexicon is not obvious.

35 Guerssel (1983:192) seems to imply that all Words are listed in the lexicon together with Units. Selkirk (1982:10-12) also seems to take this view.

Sproat (1985a:486-487; 1985b:195), who views the lexicon soley as a data structure of idiosyncratic information, does not subscribe to this view.

36 Guerssel (1983:221, note 21) claims that ity in words like
oddity, jollity and nicety should be treated as an integral part of such words and that these words should be listed in the lexicon even though the bases odd, jolly and nice are independent units. The reason he gives for listing such words in the lexicon as complex words is that it is impossible to determine to which adjectives -ity can attach and to which it cannot. He cites the words absurd, solemn and insane to which -ity can attach - absurdity, solemnity and insanity - and bizarre, vast and ample to which -ity cannot attach - *bizzarity, *vastity and *amplity.

37 Recall from Section 2.3.4 that these suggestions of Guerssel (1983) and Sproat (1985a) are similar to that made by Fabb (1988) who claims that certain suffixes in English only attach outside a particular suffix. The former suffixes must therefore be subcategorised to attach to a derived word containing a certain suffix.

38 Sproat (1985a:461, note 37) points out that one could argue that grammatical is a morphologically complex form. The complexity of the form does not affect the argument here.

39 Sproat (1985a:372, 420) claims that where verbs and nouns have irregular past tense and plural forms, respectively, these will be listed separately from the uninflected forms.

40 Sproat (1985a:367-368) claims that there is no reason to suppose a difference in the syntactic representation of the plural nouns féét and dógs, merely because there is a difference in the phonological representation. The syntactic representation of these nouns would be as follows:

(i) [[FOOT] PL]
(ii) [[DOG] PL]

The affix PL is listed in the lexicon with a specification that with certain stems it has "an irregular spell-out". A
partial entry for PL would have a form along the following lines.

(iii) $PL' = <PL <N,O> '<-s

\text{Umlaut with foot, man...}>

Sproat (1985a:368) specifies that "Umlaut is some set of appropriately defined phonological rules".

41 Guerssel (1983:236) claims that inflectional rules will only add the past tense affix \text{-ed} to a verb and the plural marker \text{-s} to a noun if they have the form $F^V$ and $A^{nom}$ respectively, where F signifies function and A, argument.

This contrasts with an earlier claim of Guerssel's (1983:227) that the plural and past tense markers attach to Stems (Units).

42 There is also another, similar formal approach, viz. that proposed in the work of Fabb (1984:202-254). However, his approach suffers from problems similar to those faced by the level-ordering and category distinction approaches. One of the problems is the classification of certain affixes like \text{-able}, \text{-ing} and \text{-ness} as both syntactic and lexical affixes in order to account for the properties which these affixes have in derived words. This seems to the same type of solution that Selkirk (1982) resorts to when she assigns certain prefixes like \text{un-} dual class status. As Fabb's approach does not seem to be a significant improvement over the level-ordering and category distinction approach it was decided not to discuss his approach here.
CHAPTER 3

CHARACTERISTICS OF MORPHOLOGICAL CATEGORIES IN AFRIKAANS

3.1 Introduction

As shown in the previous chapter the level-ordering and the category distinction approaches are faced with a number of counterexamples, mainly complex words in which derivational affixes display uncharacteristic distributional properties. The counterexamples with which the approaches are faced seem to be in no small way dependent on the classification of affixes which they make.

Given the background provided in the previous chapter, the aim of this chapter is twofold:

(i) to determine what morphological categories - affixes and bases for affixation - exist in Afrikaans, and

(ii) to determine what characteristics the members of each category have, using studies on English and Dutch morphology, and to a lesser extent those of Afrikaans, as a guide.

In my discussion I will present

(i) the basic assumptions with which I worked in my analysis of complex Afrikaans words,

(ii) the various affix categories of Afrikaans with specific reference to the criteria used to distinguish such categories and the characteristics of such categories, and

(iii) the bases for affixation which I assume.
This chapter forms the basis for Chapter 4 where I will present the patterns of distribution of the morphological categories distinguished in this chapter with specific reference to the distribution of derivational affixes relative to each other, inflectional affixes and compounds.

3.2 Basic general assumptions

3.2.1 General remarks

In this and the following two sections I will be presenting an outline of certain general working hypotheses which guided my analysis of morphologically complex words in Afrikaans and which played a role in the identification of bases and affixes.

Like the linguists whose work was discussed in the previous chapter I make the following two basic, correlative assumptions about morphological categorisation:

(i) complex words have morphological structure, that is, they are made up of distinguishable parts, and

(ii) these parts belong to different, discrete morphological categories which may be distinguished from one another in terms of, amongst others, distribution.

Before trying to characterise the distribution of morphological categories, it is obvious that one must establish when a certain sequence of sounds constitutes a morphological category, in particular, what affixes exist in Afrikaans and what constitute bases for affixation.

3.2.2 Meaning and morphological categorisation

In making the above-mentioned distinctions between morphological categories I was guided, in the first instance, by the following
general linguistic condition on morphological representations as formulated by Botha (1984:110). He calls the condition in (1) the Compositionality Condition and notes that a vast number of linguists (cf. Aronoff (1976), Allen (1978), Botha (1980), McCarthy (1981) and Kiparsky (1982b)) either implicitly or explicitly accept some or other version of it in their work.¹

(1) The morphological representation assigned to a complex word must provide the labelled bracketing necessary for the specification of its semantic interpretation.

This condition presupposes that the meaning of a morphologically complex word is a function of the meaning of the constituents which make up the word, and the morphological structure of such a word. That is, the structure assigned to a morphologically complex word will indicate the order in which words are joined in the case of a compound (cf. (2)(a)), and/or the order in which the affixes attach as shown in the complex word in (2)(b).

(2) (a) bathroom towel

```
[[[báth] [room]] [towel]]
```

(b) transformational

```
[[[trans₁ [form]] átion₁] al₁]
```

The structure assigned to a complex word will thus indicate how the meaning of such a word is derived. An assumption implicit in (1) is that each part of a morphologically complex word must be able to be assigned a meaning by speakers of a language and this meaning must contribute to the meaning of the complex word as a whole. In addition, the morphological form at each stage in the derivation of a complex word must be a lexical item to which a meaning can be assigned.² Given these assumptions it will be shown that certain words which seem to be complex on purely formal grounds, must be rejected as such on semantic grounds.

Consider firstly in this regard the words in (3) and (4) below. The bracketing in (3) indicates morphological structure.
(3)(a) beméélík
[be [móéélík]]
make-difficult
"make difficult"

(b) ontéér
[ont [éér]]
removal of-honour
"dishonour"

(c) hérboor
[hér [boor]]
again-drill
"re-drill"

(4)(a) bédel
*[bé [del]]
"beg"

(b) ontgín
*[ont [gin]]
"develop/exploit"

(c) hérder
*[hér [der]]
"shepherd"

The words in (3) are morphologically complex as one can distinguish bases móéélík, éér and bóór to which meaning can be assigned and prefixes be-, ont- and her- which add some element of meaning to the base. However, the same cannot be said of the words in (4). These words cannot be divided into prefixes be-, ont- and her- and bases *del, *gin and *der as no meaning can be assigned to be, ont and her or to *del, *gin and *der. Thus, although on purely formal appearances the forms may seem to be complex in that they contain sound sequences that resemble Afrikaans prefixes, these forms do not satisfy the Compositionality Condition. The words in (4) are therefore
simple words which merely begin with the sound sequences be, ont and her. These sound sequences do not, however, have any morphological significance. In cases such as (3) and (4) the Compositionality Condition therefore yields unequivocal results. Consider now the examples in (5).

(5)(a) bepaal
   [be [paal]]
   make-pole
   "determine"

(b) ontwrig
   [ont [wrig]]
   removal of-?
   "disrupt"

(c) herinner
   [her [inner]]
   again-?inside
   "recall"

In each case it would seem that there is a distinguishable affix which has attached to a base. However, this is not the case synchronically, although it might be the case from a diachronic perspective. In modern Afrikaans the sound sequences be, ont and her are indistinguishable as part of the meaning units bepaal, ontwrig and herinner respectively and should not be recognised as affixes which add some element of meaning to a base paal, wrig or inner. While a meaning can be assigned to the base paal, viz. "pole", when it functions as an independent word, this meaning plays no role in the meaning of bepaal which means "determine". No meaning can be assigned to wrig or to inner in Afrikaans. Wrig, according to Kempen (1969:556, 483), is a remnant of the Dutch word gewrig, while herinner was inherited from Dutch which took over the High German form erinnern. The er of erinnern was replaced by her at some stage. Given these facts, if one assigned the words in (5) a morphological representation in which they consisted of two
parts, a base word and a prefix, this would not correctly represent their meaning.

There are a number of other words in Afrikaans which linguists like Combrink (1990:37-50) would regard as complex, but which I will treat as simple for the same reasons adduced in the case of the words in (5), viz. that the "base" to which the affix attaches does not have an independent meaning, at least not synchronically. These words, examples of which are given in (6), are all of French, Greek or Latin origin as is the affix in each case. In each case I have given a labelled bracketing which shows which part of the word would be regarded as the base and which parts would be regarded as affixes by linguists who claim that such words are complex.3

(6)(a) diachrónies
[[dia [chrón]] ies]
"diachronic"

(b) eksponéér
[[eks [pon]] éér]
"expose"

(c) katabolísme
[[kata [bol]] ísme]
"catabolism"

(d) sabotásie
[[sabot] ásie]
"sabotage"

(e) nomináál
[[nomin] áál]
"nominal"
3.2.3 Analogue formation

Although speakers of a language may not be able to assign meanings to the parts of certain words, such as those in (5), WFRs seem to be sensitive to these forms and speakers of Afrikaans recognise this. Although the words are not morphologically complex in terms of the Compositionality Condition, speakers of Afrikaans do recognise the sound sequences be, her and ont in these words as prefixes for the purposes of certain WFRs, in particular, for the (non-)addition of the past participle prefix ge-. All Afrikaans verbs beginning with be, her or ont, irrespective of whether or not these sound sequences constitute prefixes from a synchronic perspective, are recognised as such by speakers and behave in the same way with respect to the attachment of ge-.\(^4\) That is, all words which begin with be-, her- and ont- cannot be prefixed by ge- in Standard Afrikaans as shown in (7). Kempen (1969:591) claims that such prefix sequences are substandard.

\[
\begin{align*}
(7)(a) \ & *[ge \ [\text{bepaal}]] \\
& \text{past part.-determine} \\
(b) \ & *[ge \ [\text{be \ [moeilik]}]] \\
& \text{past part.-make-difficult} \\
(c) \ & *[ge \ [\text{herinner}]] \\
& \text{past part.-repeat} \\
(d) \ & *[ge \ [\text{her \ [boor]}]] \\
& \text{past part.-again-drill} \\
(e) \ & *[ge \ [\text{ontwrig}]] \\
& \text{past part.-disrupt} \\
(f) \ & *[ge \ [\text{ont \ [eer]}]] \\
& \text{past part.-removal of-honour}
\end{align*}
\]
It would seem that we have here something along the lines suggested by Guerssel (1983:209, 217) for English. He claims that level-ordering linguists have regarded certain words like possible and operate, for example, as morphologically complex words consisting of a Stem plus an affix (cf. Section 2.4.2) and from a historical point of view this might be the case. Many present day speakers of English, however, regard such words as being morphologically simple. In each case no meaning can be attached to the "Stem" which constitutes the base. However, as Guerssel (1983:215, 221-222) points out, speakers recognise the "suffixes" -able (-ible) and -ate in such words as bases for further affixation. For example, they are aware that words ending in -able (-ible) are adjectives and that suffixes like -ity attach to words ending in -able (-ible) irrespective of whether the words are morphologically simple adjectives like possible or are morphologically complex adjectives like réadable. This would also seem to be the case with the words in (5) above, where the occurrence of a particular sound sequence reminiscent of a prefix prohibits the application of the WFR which attaches the prefix ge-.

Further evidence in support of Guerssel's view (1983) that speakers have knowledge of this kind comes from the words in (8). Although the words may be morphologically simple on semantic grounds, speakers do recognise certain sound sequences relevant for WFRs. Firstly, they recognise the relevant sound sequence relationships between the words in (6)(a)-(e), repeated here as (8)(a)-(e), and the words in (9)(a)-(e) respectively. The bracketing here reflects the fact that I regard all these words to be morphologically simple.

(8)(a) diachrónies  
[diachrónies]  
"diachronic"

(b) eksponéér  
[eksponéér]  
"expose"
Secondly, they recognise the categorial status of the word, that is, whether it is a noun, adjective or verb, for example, from the sound sequence on which it ends. Thirdly, they will know what affixes, if any, can be added to the word on the grounds of the relevant sound sequences. For example, most morphologically complex verbs in Afrikaans which end in -eer can be nominalised
by adding the suffix -(d)ery and such is the case with eksponéér from which eksponéerdery ("the continual act of) exposing") can be formed. Also, the suffixes -ies and -aal in diachrónies and nomináál respectively, indicate to the speaker of Afrikaans that these words are adjectives. Therefore, s/he will know that the suffix -e can be added to mark the adjective as one that can be used attributively as in diachróniese verklaring ("diachronic explanation") and nominále bedrag ("nominal amount"). Many mother tongue speakers of Afrikaans may thus learn words like eksponéér, diachrónies and nomináál as morphologically simple words, but recognise that they have the same word formation potential as morphologically complex words ending in -eer, -ies and -aal.

A further point with regard to the knowledge of speakers is that no two speakers have identical knowledge. This point is also made by De Villiers (1976:169). Thus, while somebody who is working in the sciences will be able to assign a meaning to bio ("life") in biochemie ("bio-chemistry") and may use bio to form and interpret new words, a speaker without this specialised knowledge may not be able to do so. These differences in the knowledge of speakers will be ignored in this chapter and the following chapter, but will be addressed in Chapter 5.

3.3 The classification of affixes

3.3.1 Inflectional affixes

There has been much discussion in the literature on the issue of whether a principled distinction can be made between inflectional and derivational affixes in morphology. Linguists like Siegel (1974:12-24), Aronoff (1976:2), Allen (1978:1-3), Anderson (1982:585-591), for example, all appear to assume the traditional distinction between inflectional and derivational affixes (cf. Section 2.2.1). They also claim, either implicitly or explicitly, that inflectional affixes are relevant to the syntax and therefore that inflectional affixation is handled in
the syntax, while derivational affixation is handled in the lexicon. In contrast, other linguists like Williams (1981:264), Lieber (1981:7-30), Selkirk (1982:1), Strauss (1982a:13-24), Kiparsky (1982a:132-133; 1982b:2-4), Mohanan (1982:10-11, 45-46), Jensen and Strong-Jensen (1984) and Thomas-Flinders (1983:87ff.) also seem to implicitly recognise the traditional distinction between the two, but assume that inflection and derivation are both handled in the same way in the lexicon. However, with the exception of Thomas-Flinders (1983), the linguists seem to implicitly, rather than explicitly, accept certain criteria for distinguishing between inflectional and derivational affixes. What criteria they do accept obviously has implications for what they regard as inflectional affixes. For example, most assume that the regular past tense ending -ed (e.g. jumped) and the regular plural suffix -s (e.g. beds) are inflectional affixes of English. However, there is not such widespread agreement on the status of the comparative and superlative suffixes -er (e.g. bigger) and -est (e.g. biggest) respectively and diminutive suffixes like -let (e.g. droplet) and -ling (e.g. duckling), and the possessive -'s (e.g. Jack's book).5

Before considering the criteria which are to be used to distinguish inflectional affixes from derivational affixes in Afrikaans, let us consider briefly the views of certain Afrikaans linguists on what constitute inflectional affixes in Afrikaans, and the criteria that they use. De Villiers (1976:162) claims that only the suffixes which indicate plurality and those that indicate the comparative and superlative forms of adjectives and certain adverbs constitute inflectional affixes in Afrikaans. He bases this decision on the following properties which he claims derivational and inflectional affixes have.6

(i) Inflectional affixes have definite meanings and values, while the meaning of a derivational affix is dependent on the meaning of the word to which it attaches.
(ii) Inflectional affixes do not change the category of the word to which they attach, while derivational affixes can.

(iii) Inflectional affixes prevent further affixes from attaching and are therefore further from the base than derivational affixes. Derivational affixes allow further derivational affixes and/or an inflectional affix to attach and are therefore closer to the base than are inflectional affixes.

De Villiers (1976:162) does not include the prefix ge-, which forms the past participle form of verbs, as an inflectional affix because it cannot attach to verbs which begin with the derivational prefixes be-, er-, her-, ont- and ver-. He provides the following examples of verbs which do not permit the attachment of the prefix ge-. In each case the past participle form of the verb will have the same phonetic form as the present tense form of the verb. In any sentence containing such a verb the presence of the auxiliary verb het ("have/has") will indicate that the verb should be interpreted as being in the past participle form rather than in the present tense form.7

(10) (a) *[ge_{INF} \[be \[dink]]
              \text{past part.-do intensively-think}

(b) *[ge_{INF} \[erken]]
            \text{past part.-?know}

(c) *[ge_{INF} \[her \[lees]]
            \text{past part.-again-read}

(d) *[ge_{INF} \[ont \[neem]]
            \text{past part.-away from-take}

(e) *[ge_{INF} \[ver \[kies]]
            \text{past part.-do - choose}

He claims that ge- behaves like a derivational affix in the case of these verbs. Presumably he bases this claim on the fact that
ge- does not attach to all words belonging to a particular category, in this case, verbs. Similarly, a particular derivational affix which attaches to verbs, for example, does not necessarily attach to all verbs, but possibly only to transitive verbs.

Combrink (1990:31) notes that, according to Afrikaans linguists who distinguish between inflectional and derivational affixes, the affixes which are unquestionably inflectional are those which indicate plurality and those that indicate the comparative and superlative forms of adjectives and certain adverbs. In addition there are some linguists who take the following affixes to be inflectional:

(i) the prefix ge- which indicates the past participle,

(ii) the prefix ge- which indicates the passive form of verbs, and

(iii) the diminutive suffixes.  

Combrink (1990:31) himself claims that the distinction between inflectional and derivational affixes in Afrikaans is unfounded. Furthermore, he claims that the inflectional affixes which some linguists agree on as being inflectional, such as the suffixes which indicate plurality and those which indicate the comparative and superlative, do not display properties which inflectional affixes are claimed to have (cf. those accepted by De Villiers (1976) which are given on pp. 94-95). Inflectional affixes, for example, do not always have predictable meaning and form, and do not always prevent further affixation according to Combrink (1990:31). On the basis of his claims, none of which are illustrated, he concludes that there are no inflectional affixes in Afrikaans.  

It is evident from the discussion above that the distinction between inflectional and derivational affixes is a contentious one, not only for linguists working with English, but also for
those working with Afrikaans. However, I do believe that a
distinction can be made between inflectional and derivational
affixes, not on the basis of the properties which the
above-mentioned linguists have used, but on the basis of the
property of obligatoriness. According to Bybee (1985:81) this
is the most successful criterion which has been used to
distinguish between derivation and inflection and can be
attributed to Greenberg (1954). What I will be considering in
the remainder of this section is whether a particular
morphological form is obligatorily required in a particular
syntactic construction or phrase in Afrikaans. Consider by
way of illustration the following sentences.

(11) (a) Dit is die gróóttste vis wat ek al ooit gesien het.
    this-is-the-biggest - fish-that-I - ever-seen - have
    "This is the biggest fish that I have ever seen."

    (b) *Dit is die groot vis wat ek al ooit gesien het.
        this-is-the-big - fish-that-I - ever-seen - have

    (c) *Dit is die groter vis wat ek al ooit gesien het.
        this-is-the-bigger - fish-that-I - ever-seen - have

Although any of the three forms of the adjective could be used
in the prenominal position, where adjectives may occur, this
particular syntactic construction requires that the superlative
form of the adjective be used. In other syntactic constructions
the comparative form, for example, may obligatorily have to be
used.

(12) (a) Hierdie vis is gróter as daardie een.
    this - fish-is-bigger-than-that - one
    "This fish is bigger than that one."

    (b) *Hierdie vis is groot as daardie een.
        this - fish-is-big - than-that - one
(c) *Hierdie vis is grootste as daardie een.
this - fish-is-biggest - than-that - one

The three forms of the adjective groot therefore form a paradigm and the choice of the morphological form of the adjective is determined by the type of syntactic construction in which it occurs. The same is true of the choice between the singular and the plural form of a noun (cf. (13)), the present tense and past participle form of a verb (cf. (14)), and the form of certain adjectives in attributive position (cf. (15)).

(13) (a) Daar lê drie appels op die tafel.
there-lie-three-apples-on-the-table
"There are three apples lying on the table."

(b) *Daar lê drie appel op die tafel.
there-lie-three-apple-on-the-table

(14) (a) Sy het die koek gebak.
she-has-the-cake - baked
"She has baked the cake."

(b) *Sy het die koek bak.
she-has-the-cake - bake

(15) (a) Sy dra altyd ongewone klere.
she-wears-always-unusual - clothes
"She always wears unusual clothes."

(b) *Sy dra altyd ongewoon klere.
she-wears-always-unusual - clothes

On the basis of the data in (11)-(15) I therefore distinguish the following inflectional affixes in Afrikaans:

(i) the comparative and superlative suffixes -er and -ste,

(ii) the past participle prefix ge-.
(iii) the attributive adjectival marker -e,\(^{14}\) and

(iv) the suffixes -s and -e which denote plurality.\(^{15}\)

Examples of words including the inflectional affixes which I have distinguished for Afrikaans are presented in (16)-(19) below.

(16)(a) stéarker

[stérk er\(^{\text{INF}}\)]

strong - more

"stronger"

(b) prágtigste

[prágtig ste\(^{\text{INF}}\)]

pretty - most

"prettiest"

(17) gesién

[ge\(^{\text{INF}}\) [sién]]

past part.-see

"saw"

(18) hárde

[hár\(^{\text{INF}}\)]

hard - attributive marker

"hard (attributive)"

(19)(a) süsters

[súster s\(^{\text{INF}}\)]

sister - more than one

"sisters"

(b) stóéle

[stóél e\(^{\text{INF}}\)]

chair - more than one

"chairs"
The inflected forms exemplified above are all formed by the addition of regular inflectional affixes. There are, however, a number of nouns in Afrikaans which form the plural in an irregular way, that is, with a suffix other than -e or -s, as shown in the examples in (20) below.

(20)(a) báddens
[[bad] ensINF]
   bath - more than one
   "baths"

(b) ribbes
[[rib] esINF]
   rib - more than one
   "ribs"

(c) liédere
[[liéd] ereINF]
   song - more than one
   "songs"

There is also a group of words of foreign origin which form their plurals irregularly, that is, not by adding the suffixes -e and -s, but rather by adding suffixes used to form the plural in their language of origin.16

(21)(a) formántia
[[formáns] iaINF]
   formative - more than one
   "formatives"

(b) katálogi
[[katálogus] íINF]
   catalogue - more than one
   "catalogues"
Some of these "foreign" plural forms are, however, being gradually replaced by the regular plural forms. The words kritikus and muséum, for example, each have two plural forms, the one given above and a regularly formed one. The regularly inflected kritikusse is formed by adding the regular plural suffix -e to the singular form and muséums is formed by the addition of the regular plural suffix -s.

There are two other affixes which are treated as inflectional affixes by some Afrikaans linguists, but which I classify as derivational affixes viz. the diminutive suffix, -ie\(^17\) and the present participle suffix -end. As regards the diminutive there are no syntactic constructions which obligatorily require the diminutive form of a noun rather than the non-diminutive as shown in (22)\(^18\).

(22) (a) Ek het gister 'n vis gevang.
I - have-yesterday-a-fish-caught
"I caught a fish yesterday."

(b) Ek het gister 'n víssie gevang.
I - have-yesterday-a-small fish-caught
"I caught a small fish yesterday."

The present participial form of the verb in Afrikaans is unlike its English counterpart. In English the present participle form of the verb is used together with an auxiliary verb in order to indicate the progressive form of a verb as shown in (23)(a) and
(b) or it can be used adjectivally as shown in (24)(a) and (b).

(23)(a) is running
(b) has been running

(24)(a) running water
(b) threatening words

In Afrikaans, present participles, that is, complex words ending in -end, cannot function as part of the verbal string in a finite clause. They only have an adjectival function. Therefore they do not form part of a verb paradigm in Afrikaans together with the present tense and the past participle form of the verb. There is thus no syntactic construction where the present participle form of the verb would be obligatorily required rather any other verb form as illustrated in (25) below.

(25)(a) Hy dreig die meisie.
       he-threatens-the-girl
       "He threatens/is threatening the girl."

(b) *Hy dreigend die meisie.
     he-threatening-the-girl

The present participle form of the verb is, however, found in those positions in which adjectives usually occur, viz. the attributive and predicate positions, as shown in the sentence pairs below.

(26)(a) Die wedstryd is gekanseleer as gevolg van die gure weer.
       the-match - has been-cancelled - as-result-of-the-unpleasant-weather
       "The match has been cancelled as a result of the bad weather."
(b) Die wedstryd is gekanseleer as gevolg van the-match - has been-cancelled - as - result-of-
die dréigende onweer. the-threatening-weather
"The match has been cancelled as a result of the threatening bad weather."

(27)(a) Die meisie is móóí. the-girl - is-pretty
"The girl is pretty."

(b) Die meisie is hardwérkend. the-girl - is-hard-working
"The girl is hard-working."

Given the characteristics of -end explained above, I will treat it as a derivational suffix of Afrikaans.

3.3.2 Derivational affixes

3.3.2.1 Background assumptions

There are at least three major works to date in which the affixes of Afrikaans are discussed in varying degrees of detail, those of Kempen (1969), De Villiers (1976) and Combrink (1990). Kempen's discussion of affixes is the most comprehensive with respect to details about the properties of various affixes, although not with respect to the number of affixes which he distinguishes. For each affix which he distinguishes he describes the types of words to which it attaches, the meaning which it has in such words, its origin and productivity as well as other information such as the style of language in which the derived word is used. He also presents examples of words in which the affix occurs. Important for this study is what Kempen has to say about the origin of each affix. He identifies some affixes in Afrikaans as being inherited directly from Dutch, while others were inherited from Greek, Latin and French via
Dutch. However, he does not divide the affixes into two groups, a non-native/foreign group and a native/Germanic group. He merely discusses the affixes in alphabetical order mentioning each one's origin as he goes along. His discussion, while providing insights into the origin of affixes, misses an important generalisation about affixes of Afrikaans. That is, Afrikaans affixes, like the affixes of Dutch and English, can be divided into two distinct groups/classes, those which are non-native - of Romance or Greek origin - and those which are native - of Germanic origin. Furthermore, the affixes in each class have certain properties in common with respect to distribution and stress.

De Villiers (1976) provides a much more concise, yet more general, overview of the morphology and morphemes of Afrikaans rather than concentrating in detail on specific affixes. Unlike Kempen (1969) and Combrink (1990), De Villiers (1976:141-148) discusses the stress properties of various affixes as well as the stress properties of simple and complex words. He does not, however, draw any connections between the stress properties of affixes and their origin and thus misses important generalisations which will be pointed out in Section 3.3.2.3 below. Claasens (1980) and Coetzer's (1984) works on stress assignment to suffix derived adjectives and nouns, respectively, reflect some of the observations of De Villiers (1976).

Finally, Combrink's book contains a taxonomy of the prefixes and suffixes he recognises for Afrikaans. This list includes many affixes not distinguished or discussed by either Kempen (1969) or De Villiers (1976). However, Combrink does not discuss the linguistic basis for distinguishing the affixes although he applies uses truncation (cf. Aronoff (1976:88-98)) to justify certain bases for affixation. Although some affixes like -agtig ("displaying apparent characteristics of") are singled out for some discussion in later parts of the book, these are the exception. Furthermore, the discussion in the book provides no insight into criteria which could be used to classify affixes further than the basic prefix-suffix distinction.
While Combrink's work on affixes does not provide any help in classifying the affixes of Afrikaans, those of Kempen (1969) and De Villiers (1976) do provide certain insights into the origin and stress characteristics of affixes respectively. Kempen's work, however, merely implicitly suggests that there are two types of affixes in Afrikaans, those which are native and those which are non-native. De Villiers (1976:141-148), on the other hand, identifies stress properties of certain prefixes and suffixes of Afrikaans which are significant especially when considered in the light of a native/non-native distinction.

Before considering the criteria used in the classification of Afrikaans derivational affixes I would like to reiterate and elaborate on the criteria used by English and Dutch linguists. For many linguists the phonological properties of affixes, in particular their stress properties, constitute the primary criterion for their classification. Take, for example, the level-ordering approach of Siegel (1974). She proposes that, in English, all Class I affixes are stress-determining, while all Class II affixes are stress neutral. Another characteristic which Class I affixes are claimed to have is that they only attach to Stems while Class II affixes attach to Stems and Words, although subsequent works like that of Strauss (1982a:28) have shown this to be incorrect. Most other level-ordering linguists, as well as the category distinction linguists, appear to implicitly accept the Stem/Word and the stress criteria for distinguishing the various classes of affixes. However, this results in Class I and Class II being a mixture of foreign and Germanic affixes as certain foreign affixes like *mono-* , for example, have to be classed as members of both classes because of their stress properties and their apparent ability to attach to both Stems and Words.

In his study of Dutch, Booij (1977:72-108) also distinguishes two classes of affixes, Class I and Class II. Suffixes are divided into two classes on the basis of their stress properties, Class I suffixes being stress-shifting and bearing primary stress in the word to which they attach, while Class II
suffixes are stress neutral. The difference between the stress properties of the two classes is accounted for by assuming the Class I suffixes are preceded by a morpheme or formative boundary "\+", while Class II suffixes are preceded by a word boundary "\#". These boundaries enable one to explain, firstly, the differences between Class I and Class II suffixes with respect to syllabification. Booij (1977:75-80) claims that the last sound of a base word to which a Class I suffix attaches syllabifies with the suffix. For example, the word *fundament* ("foundation") consists of three syllables *fun\$da\$ment* where the word final t forms part of the last syllable of the word. However, when the suffix *-eel* is added the word syllabifies in a slightly different way with the word final t forming part of the syllable containing the suffix *-eel* as shown in *fun\$da\$men\$steel*. The fact that the suffix *-eel* is introduced by a morpheme boundary explains why such syllabification is possible. In the case of a word derived by the attachment of a Class II suffix such syllabification cannot occur as Class II suffixes are introduced by a word boundary. This enables us to explain why the word final d of *hoéd* remains part of the first syllable of the word when the Class II suffix *-loos* is added as shown in *hoed\$loos* ("without a hat").

The boundaries associated with Class I and Class II suffixes can also be used to explain why schwa deletion occurs in the case of Class I suffixes like *-ein*. This suffix *-ein* causes the final vowel of a base like *Róme* ("Rome") to be deleted when *Roméin* ("Roman") is formed. Such deletion can occur when a suffix is introduced with a morpheme boundary, but not when introduced by a word boundary.

Unlike Dutch suffixes, all Dutch prefixes are followed by a word boundary, but some have underlying stress while others do not.

Langeweg (1987:234-237) points out that there are problems with Booij's approach not least of which is the use of evidence from syllabification to support his classification of suffixes. She also claims that other attempts at accounting for the stress
behaviour of affixes such as those of Schultink (1980), Van Nes (1982), and Neyt and Zonneveld (1981) are problematic. What Langeweg (1987) implicitly assumes, is that one should distinguish two types of bases to which affixes attach, viz. Roots (Stems) and Words, (along the lines suggested by Selkirk (1982)) and two types of affixes, native and non-native affixes, in order to account for the stress properties of Dutch words.

Van Beurden (1987:26), in his discussion of Dutch suffixes, claims that stress behaviour is the principle test for distinguishing Germanic from Romance suffixes. This would seem to be the case for Dutch and possibly even for Afrikaans (cf. Sections 3.3.2.3.2 and 3.3.2.3.3 below). However, the same does not appear to be possible for prefixes in either Dutch or Afrikaans. Schultink (1980:235-238) also shows that the correct predictions about the stacking of Dutch suffixes can be made with recourse to the native/non-native distinction and to the different stress properties of the various native suffixes. He does not, however, mention prefixes.

Bearing all this in mind it would seem that the origin of affixes plays an important role in the classification of affixes and, for at least suffixes, also stress behaviour. I will start by examining the native/non-native criterion which I have used as the primary criterion for classifying affixes and will then present examples of Afrikaans affixes in each class. This will be followed by a discussion of the stress and other salient properties of Afrikaans affixes.

3.3.2.2 The native/non-native criterion

As mentioned above, many linguists make the distinction between Romance/non-native/foreign and Germanic/native affixes for Dutch. I have used this as the primary parameter for classifying Afrikaans affixes and therefore distinguish between two groups of affixes in Afrikaans, those that were inherited from Romance languages like Latin and French, and also from
Greek, via Dutch, and affixes which were inherited from Dutch and are similar to other Germanic affixes. Each class can be further divided into two subclasses, the prefixes and the suffixes. The classification of affixes being proposed is not an arbitrary one, but is rather based on the fact that the affixes in each class seem to share certain stress and distributional properties with other members of the class to which they belong. The stress properties of derivational affixes in each class will be given in Section 3.3.2.3, while the distributional properties of these affixes with respect to each other, inflectional affixes and compounds will be discussed and illustrated in Chapter 4.

Below is a list of some non-native and native affixes of Afrikaans, in each case presented in a complex word. The list below is only meant to provide a sample of some native and non-native prefixes and suffixes. For a more comprehensive and representative list of affixes which can be distinguished for Afrikaans the reader is referred to the addendum at the end of this chapter. Complex words both here and in the addendum are taken from my corpus of data, the HAT, the Tweetalige Woordeboek and Kempen (1969). The glosses provided are based on the meanings which Kempen (1969) proposes for various affixes, on meanings given in the afore-mentioned dictionaries and on the meanings of corresponding English affixes which are given in the Oxford English Dictionary. In some cases the meaning of a particular affix differs depending on the category of the base (N, A or V) to which it attaches. For example, when the suffix -agtig attaches to a noun or adjective it may add the meaning "displaying apparent characteristics of" as in doringágtig ("showing apparent characteristics of a thorn/ thorny"), but when attached to a verb may add the meaning "showing a tendency to" as in babbelágtig ("showing a tendency to chatter/ talkative"). Also, the meaning of an affix may depend on the word to which it attaches as is the case with, in particular, the prefixes be- and ver-. For these reasons the meaning given for a particular affix may not be identical in all the complex words in which it is found. Finally, in some of the data in
(28)-(31) and the addendum the internal structure of the base to which the affix attaches is not indicated for the sake of simplicity.

(28) **Non-native prefixes**

(a) á-polities
   
   \[á \quad \text{[polities]}\]
   indifferent to-political
   "apolitical"

(b) disorganiséér

\[\text{dis}^{23} \quad \text{[organiséér]}\]

reverse of action - organise
"disorganise"

(c) éks-vrou

\[\text{éks}^{24} \quad \text{[vrou]}\]

former - wife
"ex-wife"

(d) inkonsekwént

\[\text{in} \quad \text{[konsekwént]}\]

not-consistent
"inconsistent"

(e) pre-Columbiááns

\[\text{pre} \quad \text{[Columbiááns]}\]

before-Columbian
"pre-Columbian"

(f) semi-afhánklik

\[\text{semi} \quad \text{[afhánklik]}\]

partially - dependent
"semi-dependent"
(g) ultra-modern
[ultra [modern]]
excessively-modern
"ultra-modern"

(29) Native prefixes

(a) áárts-vyand
[áárts [vyand]]
to the greatest degree-enemy
"arch-enemy"

(b) bedráád
[be [draad]]
provide with-wire
"wire"

(c) mishandel
[mis [hándel]]
badly-treat
"ill-treat"

(d) onáangenaam
[on [áangenaam]]
not-pleasant
"unpleasant"

(e) vergróót
[ver [gróót]]
make - large
"enlarge"

(30) Non-native suffixes

(a) instrumentáál
[[instrument] áál]
instrument - pertaining to
"instrumental"
(b) Kubáán
    [[Kuba] áán]
    Cuba - person from
    "Cuban"

(c) adresséér
    [[adres] éér]
    address-make
    "address"

(d) dreigemént
    [[dreig] mént]
    threaten-result of
    "threat"

(e) eksklusiwitéit
    [[eksklusief] téit]
    exclusive - condition of being
    "exclusivity"

(31) Native suffixes

(a) bewonderaár
    [[bewonder] aar]
    admire - person who
    "admirer"

(b) aanpásbaar
    [[aanpás] baar]
    adapt - able to be
    "adaptable"

(c) áánhouer
    [[áánhou] er]
    perseveré-person who
    "perseverer/stayer"
3.3.2.3 Stress properties

3.3.2.3.1 General remarks

As mentioned above, De Villiers' (1976:139-157) work includes a discussion of the stress patterns of simple and derived words in Afrikaans. He claims that the position of stress in complex words is determined chiefly by two tendencies or rules. In general stress falls on the first syllable of a word. However, such stress does not fall on the first syllable

(i) where the word begins with a prefix or a corresponding sound sequence which does not bear stress,

(ii) where the word contains an affix which has a variable influence on stress, and
(iii) where the word includes an affix which draws the stress closer.

Note that there is some overlap between the cases mentioned in (ii) and (iii). Of importance for this study is the generalisation which De Villiers misses, viz. that the prefixes mentioned in (i) are native prefixes, those mentioned in (ii) are a mixture of native and non-native prefixes and those in (iii) are, for the most part, non-native suffixes. His division therefore coincides in certain respects with the boundaries of the native/non-native distinction, although he does not recognise this distinction.

As mentioned above, the works of Langeweg (1986; 1987) and Van Beurden (1987) include some fascinating insights into the stress properties of Dutch affixes. Both claim that derived words containing non-native affixes behave like monomorphemic words in Dutch with respect to stress. In contrast, for words which are derived by the addition of a native suffix their stress pattern is determined by, amongst others, the categorial status of the derived word, adjective or noun. Similar claims hold for certain derived words in Afrikaans as will be shown in the following sections.

Using the above-mentioned works as a guide in the analysis of the stress properties of affixes, let us examine in turn the various classes of affixes beginning with the non-native suffixes. The stress properties show quite clearly that each of the four classes of affixes in Afrikaans must be viewed as separate classes. This supports the claim of Strauss (1982a) that Class I prefixes and suffixes should be considered separately as should Class II prefixes and suffixes. This claim contrasts with the implicit claim made by other proponents of the level-ordering approach that all affixes on a particular level share the same stress and distributional properties.
3.3.2.3.2 Non-native suffixes

As shown in Section 3.3.2.2 above, suffixes can be divided into two groups, native and non-native. The following generalisations can be made about derived words formed by the attachment of non-native suffixes:

(i) In most cases stress falls on the suffix.

(ii) If the suffix is bi-syllabic, primary stress falls on the first syllable of the suffix.

Non-native suffixes could thus be called stress-shifting in the sense that they cause stress to shift from the base onto the suffix. These observations are also made by De Villiers (1976:146) although he does not classify the suffixes in question as non-native suffixes. It would also appear from his discussion that words ending in sound sequences which resemble non-native suffixes and words derived by the addition of non-native suffixes show the same stress patterns. This would tie in with the observations of Langeweg (1986; 1987:237-238) and Van Beurden (1987:26-27) that non-native derived words in Dutch have the same stress patterns as monomorphemic words which end on the same sound sequence. Examples of words derived with non-native monosyllabic and bi-syllabic suffixes are given in (32)-(35) below.

(32)(a) [instrument] "instrument"

(b) instrumentáal

[[instrument] áál]

instrument - pertaining to "instrumental"

(33)(a) [tuín] "garden"
(b) tuiniér
[[tuin] iér]
garden-person who works in "gardener"

(34)(a) [eksklusiéf]
"exclusive"

(b) eksklusiwitéit
[[eksklusief] téit]\]
exclusive - condition of being "exclusivity"

(35)(a) [álkohol]
"alcohol"

(b) alkoholísme
[[alkohol] isme]
alcohol - condition caused by too much "alcoholism"

The data in (36) below show that, as in Dutch, Afrikaans monomorphemic words ending in sound sequences which resemble the non-native suffixes in (32)-(35) above, are also stressed on the ultimate or penultimate syllable.

(36)(a) [brutáál]
"brutal"

(b) [barbiér]
"barber"

(c) [kwalitéit]
"quality"

(d) [antagonísme]
"antagonism"
Consider now the non-native suffix -ie which appears to be exceptional in that it does not cause stress to shift onto the suffix.

(37) (a) [abstrák]  
"abstract"

(b) abstráksie  
[[abstrák] ie]  
abstract-result of making  
"abstraction"

De Villiers (1976:145) claims that in all Afrikaans words which end in -sie, irrespective of whether they are derived or not, the stress does not fall on -sie, but rather on the preceding syllable as shown in (38).

(38) [dedüksie]  
"deduction"

The general point which De Villiers is making about the similarity of stress patterns in derived and underived words which happen to end with the same sound sequences again corroborates the point made by Langeweg (1985; 1987:237-238) and Van Beurden (1987:27-28). Furthermore, this claim ties in with a claim made in Section 3.2.3 about words which include endings which are regarded as suffixes only from a diachronic, rather than a synchronic, perspective. It was claimed that mother tongue speakers recognise these endings for the purposes of certain rules, in this case stress rules.

3.3.2.3.3 Native suffixes

Within the class of native suffixes three classes of suffixes can be distinguished on the basis of stress behaviour. In most cases native suffixes are stress neutral in the sense that the stress of the base remains unaffected after the suffix has attached. Examples of words which illustrate the stress neutral
nature of these suffixes are given in (39)-(42).

(39) (a) [bédel]
"beg"

(b) bédelaar
[[bédel] aar]
   beg - person who
   "beggar"

(40) (a) [lúí]
"lazy"

(b) lúiheid
[[lúí] heid]
   lazy-state of being
   "laziness"

(41) (a) [begríp]
"understanding"

(b) begríploos
[[begríp] loos]
   understanding-without
   "without understanding"

(42) (a) [gróótmens]
"grown-up"

(b) gróótmensagtig
[[gróótmens] agtig]
   grown-up - displaying apparent characteristics of
   "like a grown-up"

Secondly, there are those suffixes like -es and -in which bear
stress in the derived words of which they form a part.
Thirdly, as in Dutch, there is a group of suffixes in Afrikaans which have been called stress attracting/retracting. These suffixes, which include the adjective-forming suffixes -ig, -ies, -end, -lik and -saam, require that stress falls on the syllable before the suffix. If the stress of the base falls on the final syllable, the attachment of the suffix will not cause a change in stress pattern as shown in (45)-(47) below.

(45)(a) [akrobáát]  
"acrobát"  

(b) akrobáties  
[[akrobáát] ies]  
acrobát - like  
"acrobátic"  

(46)(a) [álfabet]  
"álphabet"  

(b) alfabéties  
[[álphabet] ies]  
alphabet-like  
"alphabeticále"
(47)(a) [[onder] [néém]]
    under - take
    "undertake"

(b) ondernémend
    [[onder] [néém]] end
    under - take - present part.
    "enterprising"

However, if stress falls on a non-final syllable of the base, then the attachment of the suffix will cause the stress to shift.

(48)(a) [ópmerk]
    "notice"

(b) opmérksaam
    [[ópmerk] saam]
    notice - inclined to
    "observant"

3.3.2.3.4 Non-native prefixes

Within the class of prefixes there are, as mentioned in Section 3.3.2.2 above, two classes, the non-native and the native prefixes. The question which arises is whether they show the same properties with regard to stress as the non-native and native suffixes. It will become evident that this is not the case. Within the class of non-native prefixes most prefixes never bear stress. Rather, stress remains on the base as illustrated in (49)-(51) below.

(49)(a) [normáál]
    "normal"
However, there are a number of non-native prefixes which show variable stress patterns to the extent that even two different dictionaries like the HAT and the Verklarende Woordeboek may give different stress patterns for one and the same word. In some cases the placement of stress can be predicted in that the prefix bears the stress in nouns, but not in adjectives as shown in the examples below. In the latter case the stress remains where it was on the base. The category to which the bases and derived words belong are indicated in (52)-(57) as this is pertinent to the discussion.

(52) (a)  [sosiáál]A
 "social"
(b) anti-sosiáál
[anti [sosiáál]A]A
against-social
"anti-social"

(53)(a) [klimaks]N
"climax"

(b) ánti-klimaks
[ánti [klimaks]N]N
against-climax
"anti-climax"

(54)(a) [trópies]A
"tropical"

(b) subtrópies
[sub [trópies]A]A
immediately adjacent-tropical
"sub-tropical"

(55)(a) [paragrááf]N
"paragraph"

(b) sübparagraaf
[sub [paragraaf]N]N
secondary-paragraph
"sub-paragraph"

Note that the derived nouns in (53)(b) and (55)(b) above exhibit the stress pattern found in nominal and adjectival compounds of Afrikaans. Examples illustrating this stress pattern of nominal and adjectival compounds are given in (56) and (57) below respectively.
Native prefixes

Words derived by native prefixes, like those derived by non-native prefixes, do not show a uniform range of stress behaviour. The prefixes be-, ge-, on-, ont- and ver- are all stress neutral in that the stress remains on the base to which the affix attaches as shown in (58)-(62).

(58) (a) [kráns]
"garland"

(b) bekráns
[be [kráns]]
provide with-garland
"garlanded"

(59) (a) [bril]
"spectacles"
Another group of prefixes, viz. oer-, wan- and aarts-, although in the minority, bear stress themselves. That is, they cause stress to shift off the base onto the prefix.
The other prefixes which make up the class of native prefixes, viz. aarts-, her- and mis-, have variable stress, that is, stress falls on the prefix in some cases and remains on the base in others. This is similar to Dutch where adjectives derived by these prefixes carry stress on the base whereas nouns carry stress on the prefix. The examples in (66)-(71) illustrate the variable stress patterns of derived words formed by the attachment of aarts-, mis- and her-. Once again the category to which the base and derived word belong are indicated as this is pertinent to the discussion.

(66) (a) [dóm]A
"stupid"
(b) áártsdom
[áárts [dom]A]A
to the greatest degree-stupid
"very stupid"

(67)(a) [bískop]N
"bishop"

(b) aartsbískop³²
[aarts [bískop]N]N
to the greatest degree-bishop
"archbishop"

(68)(a) [óés]N
"harvest"

(b) mísoes
[mis [oes]N]N
bad - harvest
"bad harvest, failure of crops"

(69)(a) [réken]y
"calculate"

(b) misréken
[mis [réken]y]y
badly-calculate
"miscalculate"

(70)(a) [eksámen]N
"exam"

(b) héreksamen
[hér [eksamen]N]N
again-exam
"supplementary exam"
3.3.2.4 Affix (in-)dependence

There is another characteristic of Afrikaans affixes which requires further discussion at this stage. Most linguists implicitly assume that affixes cannot function independently with meaning, but must attach to a base. This is, in fact, the case with most prefixes and suffixes in Afrikaans, except for a small number of non-native prefixes and an even smaller number of native suffixes.

Consider firstly in this regard the following non-native prefixes.

(72) ante-, anti-, intra-, post-, pre-, pro-, super-, ultra-

These prefixes, as well as a number of others, exhibit hybrid properties. Although they have much in common with other prefixes, both native and non-native, they also appear to have some properties in common with words. For example, the prefixes can sometimes be used independently as words (cf. (73)) and they can also be factored out from the word to which they attach in the same way as the left-hand member of a compound can be (cf. (74)). In (74), as in other examples in this section, the element which can be factored is given in brackets.
(73)(a) Hy is sterk \textit{anti}.\textsuperscript{33}
\hfill
he-is - strongly-anti
"He is strongly anti."

(b) Die saak van A \textit{köntra} X word vandag beslis.
the-case-of - A-against-X-is - today - decided
"The case of A against X is being decided today."

(74)(a) Is sy \textit{pró-} (aborsie) of \textit{anti-} aborsie?
is-she-for - abortion-or-against-abortion
"Is she pro-(abortion) or anti-abortion?"

(b) Sy stel belang in \textit{pré-} (Impressionisme) en
she-shows-interest-in-before-Impressionism - and
\textit{póst-} Impressionisme.
after-Impressionism
"She is interested in pre-(Impressionism) and
post-Impressionism."

The prefixes also seem to permit a factoring out from the word
to which they attach (cf. (75)). Some speakers may argue the
second sentence is ambiguous.

(75)(a) Hy is \textit{anti-} aborsie en (anti) - kindermolestering.
he-is-against-abortion-and-anti - child molestation
"He is anti-abortion and (anti)-child molestation."

(b) Daardie man is \textit{ultra-} konserwatief en
that - man-is-excessively-conservative-and
\textit{(ultra)} - streng.
excessively-strict
"That man is ultra-conservative and (ultra)-strict."

Not all of the prefixes listed in (72) exhibit all these hybrid
properties. For example, the prefix \textit{post-} can be factored out
from the word to which it attaches (cf. (76)(a)), but does not
permit the word to which it attaches to be factored out as shown in (76)(b). Also, post- cannot function independently as a word as shown in (76)(c).

(76)(a) Sy stel belang in post-Impressionisme en she-shows-interest-in-post-Impressionism - and

(post) -Cubisme.

post - Cubism
"She is interested in post-Impressionism and (post)-Cubism."

(b) *Sy stel belang in pre-Impressionisme en she-shows-interest-in-pre-Impressionism - and

post-(Impressionisme).

after-Impressionism

(c) *In watter Impressionisme stel sy belang? Die post?

in-which - Impressionism - shows-she-interest-the-post

The prefixes in (72) therefore do not seem to form a uniform group. Rather the group includes prefixes with more affix-like properties as well as those with more word-like properties.

As was noted in Section 2.3.2 the word-like properties of similar English prefixes have led linguists like Strauss (1982a:43-45) to classify these prefixes, not as Class II prefixes, but as compounding elements together with words. However, I have two reservations about re-classifying all such prefixes as compounding elements/words for the following reasons:

(i) Only a small number can function independently as words in a sentence, although more can function as words with respect to being factored out from the word to which they attach or with respect to the word to which they attach being factored out.
(ii) Unlike words to which one can attach inflectional and derivational affixes, one cannot attach affixes to most of the prefixes. The form anti is one of the exceptions as shown in (77).

(77) Daar was baie anti-s op die vergadering.
there-were-many-anti - more than one-at-the-meeting
"There were many people at the meeting who are anti."

Although Strauss (1982a) claims that suffixes in English do not share the above-mentioned word-like properties of prefixes, Hohle (1985:335-336) has claimed that certain German affixes, notably certain native suffixes, also have this property. The same has been claimed for Dutch by Van Beurden (1987:24-25).34 From the following examples it would appear that this may also be true of certain native suffixes in Afrikaans. However, some of the examples may be regarded as marginal by some speakers of Afrikaans.

(78)(a) Is die nuwe blom angels-agtig?
is-the-new - flower-carnation-displaying apparent characteristics of

of róós-agtig?35
or-rose-displaying apparent characteristics of
"Is the new flower carnation-(like) or rose-(like)?

(b) Is jou rok blóü-(erig)
is-your-dress-blue - ascribed presence to a small degree

of gróén-erig?
or-green-ascribed presence to a small degree
"Is your dress blue-(ish) or greenish?"
(c) Moet ek sóét- (erige) of sóút-
must-I - sweet-ascribed presence - or-salt
to a small degree

erige

versnaperings maak?

ascribed presence - snacks - make
to a small degree

"Must I make sweet or salty snacks?"

(d) ?Is hy vandag vréügde- vol of (vréügde)-loos?
is-he-today - joy - full-or - joy - without
?"Is he joyful or (joy)-less today?"

The native suffixes, in contrast to the non-native prefixes, exhibit less word-like properties and there is thus more reason to classify them as affixes rather than as words. None of them can occur independently with meaning, except for vol ("full").

For the purposes of this chapter I will consider the affixes discussed in this section to be derivational affixes. I will, however, show in Chapter 6 that there is a simple way of accounting for the Afrikaans affixes presented in this section as well as similar affixes in English, Dutch and German which exhibit some affix-like and some word-like properties. The solution does not involve re-classifying the affixes as in Strauss (1982a).

3.4 Bases for affixation

Having discussed the characteristics of individual inflectional and derivational affixes all that is left to discuss before considering the patterns of distribution of these affixes relative to each other and compounds, is to determine the types of bases to which affixes may attach. Following both the level-ordering and the category distinction linguists, I am assuming that there are two types of bases to which affixes can attach, viz. Stems and Words. However, I will follow the
category distinction linguists in assuming that stems are, to use Sproat's (1985a:460, 461) terminology, the form in which basic lexical items are listed in the lexicon. Below are some examples of underived stems.

(79)(a) [húmor]
"humour"

(b) [bóék]
"book"

(c) [slááp]
"sleep"

(d) [lélik]
"ugly"

Recall that in terms of the category distinction approach the stems in (79) can either form bases for stem affixation or may be converted into a word by a conversion rule whereafter a word affix may attach.

The stems in (79) are unlike some of those distinguished for English (cf. Section 2.2.1) and also unlike some of the following stems which certain linguists have distinguished for Afrikaans. De Villiers (1976), for example, regards the non-affixal part of each word to be what he calls a dependent stem. The non-affixal parts of the corresponding English forms would also be regarded as stems by most level-ordering and category distinction linguists. In (a) of each example I have given Afrikaans words and in (b) of each example the corresponding English word.

(80)(a)(i) administréér
[[administr] éér]
"administer"
(ii) administrásie
[[administ] ásie]
"administration"

(b)(i) administer
[[administ] er]

(ii) administráció
[[administ] átion]

(81)(a)(i) nominéér
[[nomin] éér]
"nominate"

(ii) nominál
[[nomin] ál]
"nominal"

(iii) nominásie
[[nomin] ásie]
"nomination"

(b)(i) nóminate
[[nómin] ate]

(ii) nóminaal
[[nómin] al]

(iii) nominátion
[[nomin] átion]

I do not believe that the non-affixal parts of the words in (80) and (81) should be regarded as Stems as no independent meaning can be assigned to them. They only have meaning together with the affix. Kempen (1969), in his discussion of Afrikaans derivational affixes, entertains a similar point of view. He argues that a given sound sequence only constitutes an affix if the sound sequence to which it is "attached" occurs
independently as a word. Thus he would not regard the non-affixal parts of the words in (80)(a) and (81)(a) to be bases to which an affix could attach. The relationship between the words in each of (a) and (b) can be accounted for by means of a redundancy rule, for example, rather than by assuming that the words are all derived forms.36

Recall from the previous chapter that some morphologically complex words are formed by the attachment of a Stem affix to a Stem and that the string so formed also constitutes a Stem to which further Stem affixes can attach. After the affixation of Stem affixes the Stem becomes a Word to which a Word affix may attach. I will be assuming that the non-native affixes which were distinguished above are Stem affixes, while the native affixes are Word affixes.

My conception of Words is essentially the same as that of the category distinction linguists whose work was discussed in the previous chapter.

(i) All Words are redundantly Stems.

(ii) Words are formed from Stems and form bases for the attachment of Word affixes.

(iii) Words include morphologically simple bases which can occur independently with meaning (cf. (82)) and morphologically complex Words formed by the attachment of one or more Stem affix (cf. (83)(a) and (b)) or formed by the attachment of one or more Word affix (cf. (84)(c) and (d)).

(82)(a) [mobiél]  
"mobile"

(b) [definiéér]  
"define"
(c) [ááp]
"ape"

(d) [hantéér]
"handle"

(83)(a) immobiél
[in [mobiél]]
not - mobile
"immobile"

(b) herdefiniéér
[her [definiéér]]
again - define
"re-define"

(84)(a) áperig
[[ááp] erig]
ape - ascribed presence to a small degree
"apish"

(b) hantéérbaar
[[hantéér] baar]
manage - able to be
"manageable"

In addition to the Word bases mentioned above there are compounds which are Words. I am assuming that, as in English,

(i) compounds are formed by joining two Words, and

(ii) that Afrikaans has endocentric and exocentric compounds both of which can form bases for the attachment of Word affixes.37

Examples of these compounds are presented in (85) and (86) respectively.
3.5 Conclusion

In this chapter the various morphological categories which exist in Afrikaans - derivational affixes, inflectional affixes and bases for affixation - were presented. Also presented were the criteria used to distinguish these categories and the characteristics of such categories. Given the content of this chapter I will make the following assumptions along the lines of those made by the category distinction approach:
(i) that there are two types of bases to which affixes can attach, Stems and Words,

(ii) that Stems are listed in the lexicon,

(iii) that Stems are converted into Words, and

(iv) that non-native affixes are Stem affixes and native affixes are Word affixes as are inflectional affixes in the sense that they attach to Words rather than Stems.

We turn now to Chapter 4 where the distributional patterns of the morphological categories distinguished in this chapter are presented.
Notes

1 But, cf. Booij (1979) in which he argues that in some cases the interpretation of a complex word, e.g. compounds, denominal verbs and denominal adjectives, is not completely determined by its morphological structure. Rather, the interpretation of such words is the result of an interaction between linguistic structure and non-linguistic information.

2 There is a difference of opinion as to whether the word at each stage in a derivation must be an existing or merely a possible, but non-existing, lexical item. As pointed out in Section 2.2.1 many linguists implicitly assume that the word must be an existing lexical item to which a meaning can be assigned. For example, Kiparsky (1982a:132; 1982b:2) claims that "...the result of every layer of derivation is itself a lexical item", the implication in his work being that it must be a possible, existing word. Kastovsky (1986:592) claims that the outputs of word formation processes are words, that is, lexical items, which are stored in the lexicon from where they are retrieved by the speaker when s/he needs them. Implicit in his work seems to be the assumption that the lexical items must be words which have at least occurred once in spoken or written language. In contrast to these two linguists Van Santen (1986:654), in her discussion of Dutch synthetic compounds, explicitly assumes that there are word formation rules which have as their output non-existent, yet possible, words which form part of certain synthetic compounds.

3 Note that the English counterparts of the words in (6) would be regarded as complex by most linguists whose work was discussed in the previous chapter with the exception of Guerssel (1983). The affixes which are found in the corresponding English words are all Class I affixes and therefore the words are taken to have non-compositional
Cf. De Villiers (1976:175) where this point is briefly mentioned in his discussion of whether ge- is an inflectional or a derivational prefix. Cf. also Section 3.3.1.

Cf., for example, Bauer (1990:15) where he briefly considers what affixes in English count as inflection affixes, Beard (1981) where plural affixes are taken to be derivational affixes and Anderson (1982) where the status of affixes in various languages are compared.

Recall that in Section 2.2.1 it was noted that most linguists implicitly or explicitly accept a traditional distinction between inflectional and derivational affixes which is based on similar properties.

There are, however, certain exceptions to this. Cf. Section 4.3.1 for further discussion of prefix sequences like those in (10)(a)-(e).

The morpheme -ie, the diminutive suffix, has seven different allomorphs according to Kempen (1969:487-488). The suffix takes on a different phonological form depending on the last sound of the word to which it attaches and the nature of the vowel/diphthong in the last syllable (cf. Wissing (1971:86)). The allomorphs of -ie are given below.

(i) saáltjie  
[[sáál] tjie]  
hall = small  
"small hall"

(ii) sómmetjie  
[[sóm] etjie]  
sum = small  
"small sum"
The seventh diminutive suffix which Kempen (1969:488) distinguishes is one which he says forms diminutive adverbs as shown in the following word.

(vi) sàggies
[[ság] ies]
soft-in such a way
"softly"

9 Cf. also Combrink (1974) for a discussion of inflection in Afrikaans and Webb (1975; 1976; 1978) for a more general discussion on aspects of inflection in an earlier version of TGG where inflectional endings are taken to be realizations of underlying grammatical categories, rather than affixes listed in a lexicon.

10 This assumption is in no way unproblematic as several typically derivational affixes may also be classified as inflectional. However, in the light of the claims to be made about the inflectional-derivational distinction later in the thesis such problems are not of crucial importance here.
Crystal (1985:221-222) points out that there is a strong tendency to avoid using the traditional labels "present" and "past" participles, with their Latinate associations of time, for forms like jumping and jumped in English. Linguists rather refer to these words as -ING forms and -ED/ -EN forms because the participle in the passive sentence I shall be kicked, for example, cannot really be regarded as being a past form. I agree with Crystal's comments but to facilitate reference to ge- and -end in the text, I will refer to ge- as the past participle suffix and -end as the present participle suffix.

One finds the sound sequence se at the end of some words in Afrikaans like Onderveldse ("of the Onderveld"). This sound sequence is the Afrikaans equivalent of the apostrophe -s which indicates genitive case/possession in English, for example, the -'s in John's books. It would appear that se is a clitic-like element which sometimes occurs attached to a noun as in Onderveldse and sometimes occurs as an independent word as in die meisie se boeke ("the girl's books"). I will not be considering this element further.

As mentioned above, some linguists distinguish between two ge- prefixes, one which indicates the passive, and one which indicates the past participle form of a verb. As the passive and the past participle forms of the verb are isomorphic in Afrikaans I will assume that there is only one inflectional prefix ge- in Afrikaans. This prefix attaches to a verb to form the past participle which may then be used together with het ("has/have") in Afrikaans to signal the past tense of the verb as in het gebak ("has/have baked"). It can also be used with an auxiliary to indicate a passive form of the verb as in word/is gebak ("is/has been baked"). Making the assumption that there is only on prefix ge- in Afrikaans does not affect the generalisations to be made in the following chapter about the distribution of this prefix. Further research will no
doubt reveal whether a distinction can be drawn between a passive and a past participle ge- in Afrikaans.

14 In Afrikaans, as in English, adjectives can be used attributively as well as predicatively as shown in (i) and (ii) below respectively. In many cases, though not all, when an adjective is used attributively a suffix -e must be added to the adjective.

(i) Sy is lelik.
   she-is-ugly
   "She is ugly."

(ii) Die lelik man sing.
    the-ugly - man-sings
    "The ugly man sings."

Consider now the examples in (iii) and (iv) below.

(iii) die arm man
    the-poor-man
    "the poor man"

(iv) die arme man
    the-wretched-man
    "the poor/wretched man"

As is evident from the examples the addition of -e here, when the adjective is used attributively, changes the meaning of the adjective. I do not believe that the -e in (iv) is the same suffix as the -e in (ii) where the adjective has exactly the same meaning when used attributively as it has when used predicatively. I will be ignoring the suffix found in (iv) because it only appears with a limited number of adjectives in Afrikaans and does not seem to appear in any sequences of affixes.

15 I will show below that there are in fact several other
suffixes which can also indicate plurality in Afrikaans. However, the regular plural suffixes are -e and -s.


17 This suffix usually indicates smallness in Afrikaans. However, it can also indicate the feeling of the speaker towards someone, either positive or negative (cf. (i) and (ii)), or it can indicate a small amount of something (cf. (iii) and (iv)).

(i) hómpie
[[hóm] pie]
him - small
"small him"

(ii) jöngie
[[jong] ie]
young-small
"small young person"

(iii) bedrāggie
[[bedrag] ie]
amount - small
"small amount"

(iv) rūkkie
[[ruk] ie]
while-small
"short while"

The reader is referred to Jenkinson (1986a:39-62; 1986b:36-43) where the meaning values which the diminutive suffix in Afrikaans can have, are discussed. I will be assuming, unless otherwise indicated, that the diminutive in Afrikaans indicates smallness.
Jenkinson (1986b) claims that the diminutive suffix displays the characteristics of inflectional, syntactic, derivational and reduction morphemes. These morphological characteristics could, he claims, imply that the various diminutive suffixes are not different manifestations of the same diminutive morpheme, but possibly represent separate morphemes, what he terms "morphematic homonyms". Jenkinson believes that this viewpoint would provide a solution for the apparently hybrid characteristics of diminutive morphemes.

In several works on Dutch morphology such as those of Booij (1977), Van Beurden (1987) and Backhuys (1988) it is claimed that so-called Romance and Germanic suffixes, which are found in Dutch, can be distinguished on the basis of their phonological form. That is, Romance suffixes are vowel-initial, they begin with a vowel which is not a schwa and Germanic suffixes are consonant-initial, they begin with a consonant or a schwa. Although this seems to generally be true of the suffixes in Afrikaans, there are several which are Germanic and vowel-initial like -aard.

A similar distinction has even been made for Japanese by Shibatani and Kageyama (1988). They claim that affixes in Japanese are either of native, that is, Japanese origin, or are of foreign origin, that is, of Sino-Japanese or Western origin.

There are also a number of suffixes which Kempen (1969:363-368) and especially Combrink (1990:39-44, 110-111) distinguish which appear attached to the Christian names of women, and to a lesser extent to those of men. Also found are suffixes which change a surname into a Christian name. These suffixes include -a, -(a)na, -chen, -da, -ell(e), -êt, -etta, -ia, i(e) and -ika as in Christa, Christelle and Laurika, for example. I have not included such suffixes in my discussion because of their restricted distribution and because they never occur in affix
sequences which are the focus of attention in this thesis.

Also excluded are certain affixes which Combrink (1990:37-50) distinguishes, but whose status is questionable.

22 Langeweg (1986:156) notes that real non-native prefixes like in-, con- and re-, for example, have been grouped with quasi-prefixal forms like neo-, circum- and electro- in the literature. The claim made by Langeweg is that the words in which quasi-prefixes are found are not derived forms but rather non-native (Root) compounds along the lines proposed in Selkirk (1982:98-100).

I will treat both so-called "real" and "quasi-prefixal" forms as non-native prefixes here. Cf. Section 6.4.2.2.1 where Langeweg's views are discussed in more detail.

23 The prefix des- is sometimes represented orthographically as dis-. I will be using des- and dis- interchangeably in the text.

24 Combrink (1990:37) distinguishes two prefixes eks-. The prefix eks-2 occurs in words such as the one in the text and is the Afrikaans equivalent of the English prefix ex-. The other prefix eks-1 occurs in words such as the following:

(i) [eksportéér]
    eksportéér
    "export"

(ii) [ekspréssie]
    ekspréssie
    "expression"

In both cases the eks can be traced back to the Latin prefix ex-. I do not recognise either of the words as morphologically complex and therefore distinguish only one
prefix \textit{eks-} for Afrikaans.

25 If the basic form of this suffix is taken to be \textit{teit} then the stress pattern in (34)(b) is correct. However, if the basic form is taken to be \textit{iteit}, and this is, in fact, the form of the suffix in a large number of words with this suffix, then the stress should fall on the first syllable of the suffix.

Booij (1977:73) treats the corresponding Dutch suffix as a Class I suffix and therefore assumes it is vowel-initial like other Class I suffixes and has the form \textit{iteit}. As he does not specify on which syllable of a bi-syllabic suffix stress will fall, the problems I have mentioned in connection with \textit{-(i)teit} in Afrikaans do not arise.

26 De Villiers (1976:146) claims that in newer words formed with the suffix \textit{agtig} stress remains on the base as shown in (42)(b), whereas in older formations such as those in (i) and (ii) the stress falls on the suffix.

(i) bees\-agtig
[[bees] ágtig]
beast-displaying apparent characteristics of "beastly"

(ii) fabel\-agtig
[[fabel] ágtig]
fable - displaying apparent characteristics of "fabulous"

27 Schultink (1980:235) calls such Dutch suffixes primary stressed suffixes-suffixes which themselves bear stress.

28 The fact that \textit{minnaar} is a derived word does not affect the argument here as \textit{-aar} is stress neutral so stress remains on the base after the attachment of \textit{-aar}.
The origin of this suffix is not entirely clear. Kempen (1969:504-506), in his discussion of this suffix, does not explicitly mention its origin. He merely claims that it occurs mainly in words which are not derivatives from a synchronic viewpoint, but are rather international words borrowed from French, Latin or Greek whose sound forms have been changed to that more typical of Afrikaans, for example, aromáties from the Greek/Latin aromaticus. He also claims that the suffix is productive with certain words of French, Greek and Latin origin. In contrast, Langeweg (1987:245) in her discussion of Dutch suffixes claims that the corresponding suffix in Dutch, viz. -isch, is a native suffix.

I have chosen to classify the Afrikaans suffix -ies as a native suffix, based on what Langeweg has to say about the corresponding suffix in Dutch. However, it is possible that a study of the etymology of -ies may reveal that it is a non-native suffix.

De Villiers (1976:146) claims that the stress pattern of a derived word with -end depends on the semantic transparency of the word to which the suffix attaches. When -end attaches to separable verbs which themselves are stressed on the first syllable, then the stress remains there as shown below.

(i) inkom
    [[in] [kom]]
    in - come
    "come in"

(ii) inkomende
    [[[in] [kom]] end] eINF
    in - come - present part.-attributive marker
    "incoming (attributive)"

However, when -end attaches to an inseparable verb such as
ondernéém stress is drawn to the penultimate syllable.

31 There are a couple of derived words which are exceptions such as ónbedruk ("not printed") and ónbegrip ("incomprehensibility"), and several with two possible stress patterns such as ónbedek/onbedék ("not covered") and ónbekend/onbekend ("unknown"). Some speakers even recognise two stress possibilities for the example in (60)(b), viz. onáángenaam/ónaangenaam ("unpleasant").

32 This noun, and others like it, which are formed by the attachment of the prefix aarts- have variable stress according to De Villiers (1976:143). Stress may fall either on the prefix or on the base.

33 This example, as well as those in (73)(b) and (77), are taken from the HAT dictionary.

34 Cf. Sections 6.4.2.2 and 6.4.2.3 where affixes in Dutch and German respectively which exhibit both word-like and affix-like properties are discussed in more detail.

35 When the two derivatives are not used contrastively stress would fall on the suffix rather than on the base, viz. angelieráagtig and rooságtig.

36 The suffix -e in blöüerige and gróénerige is the attributive marker.

37 Cf. Kooij (1980) where this suggestion is made for similar words in Dutch.

38 But, cf. Section 4.2.5.2 where the suggestion is made that perhaps exocentric compounds are recognised as compounds for the purposes of stress assignment, but should be regarded as morphologically simple words. The fact that many such compounds have idiosyncratic meanings seems to support such a view.
CHAPTER 4

DISTRIBUTIONAL PATTERNS OF MORPHOLOGICAL CATEGORIES IN COMPLEX AFRIKAANS WORDS

4.1 Introduction

In the previous chapter I presented the affixes and types of bases which I believe can be distinguished for Afrikaans. Assuming that there are two groups of derivational affixes in Afrikaans similar to the groups identified for English and Dutch, it seems reasonable to expect that the Afrikaans affixes would show similar patterns of distribution to their English and Dutch counterparts. That is, within a category distinction approach one would expect the following:

(i) Stem affixes should attach only before Word affixes and not after them,

(ii) Stem affixes should appear only inside, but not outside compounds,

(iii) Word affixes, on the other hand, should be able to appear both inside and outside compounds, and

(iv) Inflectional affixes, having Word status, should appear outside Stem affixes, outside Word affixes, and inside or outside compounds.¹

The aim of this chapter is to present data to illustrate that the above-mentioned distributional patterns of derivational and inflectional affixes do, in fact, occur in Afrikaans. The data are presented in the following order:

(i) prefix combinations,
(ii) suffix combinations,

(iii) suffix and prefix combinations,

(iv) combinations of affixes, both Stem and Word, with compounds, and

(v) combinations of inflectional affixes with derivational affixes and compounds.

It will become evident in the course of the chapter that counterexamples, similar to those facing the level-ordering and the category distinction linguists in English, are encountered in Afrikaans. These data exist despite the fact that the primary criterion for the classification of derivational affixes is their origin, rather than their stress properties or the type of base to which they attach. Furthermore, the chapter will reveal that derivational affixes in a particular class do not share the same distributional properties. The same is true of inflectional affixes.

This chapter forms the basis for Chapter 5 where I will discuss the way in which the patterns of distribution of various members of the categories of inflectional and derivational affixes and the stress properties of the latter can be accounted for in a simple, yet insightful, way.

4.2 Distribution of derivational affixes

4.2.1 General remarks

Although Kempen (1969:335-593) provides much information on Afrikaans derivational affixes with respect to the types of words to which they attach, their meaning, diachrony and productivity, he mentions very little about the stacking of these affixes with respect to each other and with respect to compounds, and provides few examples. In his brief discussion
of the ordering of prefixes and suffixes in complex words, Kempen (1969:591) makes the following general points which, as will be shown below, are borne out by the data in my corpus.

(i) There are certain affixes which very seldom appear in sequences.

(ii) Prefixes are rarely found in sequences and when they are, the sequences usually consist of only two prefixes. Sequences of three prefixes are rare and are usually regarded as substandard as are some sequences of two prefixes.

(iii) Most of the sequences found are sequences of suffixes. He also notes that of all the sequences which he investigated, most sequences consist of two suffixes, less of three, very few of four and a very small number of more than four.

What Kempen (1969) does not describe are sequences of prefixes and suffixes which seem to be interdependent in a morphologically complex word. In such sequences four affixes are quite common as will be shown below, although suffixes usually at least equal, if not exceed, the number of prefixes. Kempen (1969:403, 490) does, at several points in his work, give examples of certain affixes which can attach to compounds or which occur as part of the left-hand member of a compound. However, he does not explicitly discuss such words as examples of morphologically complex words with derivational affixes appearing inside and/or outside compounds.

A more thorough work on the ordering of derivational and inflectional affixes relative to compounds is that of Botha (1982). However, she concentrates exclusively on morphologically complex words consisting of a compound to which either a prefix or a suffix has attached. No complex words with more than one suffix (e.g. [[[Compound] Suf] Suf]), more than one prefix (e.g. [Pre [Pre [Compound]]]) or with more than one suffix or prefix (e.g. [[Pre [Compound]] Suf] and [[[Pre
[Compound] Suf] Suf]) are considered. In each case she shows that the specific affix must be analysed as having attached to the compound as a whole, rather than to the left- or right-hand member of the compound before compounding. She also discusses a number of words to which, she claims, two morphological representations can be assigned. She argues that both representations result in the same semantic interpretation being assigned to the word. Such words will be considered in Section 4.2.5.2.

4.2.2 Prefix combinations

An analysis of morphologically complex words in Afrikaans reveals patterns of distribution of prefixes essentially the same as those noted by Kempen (1969:591) (cf. Section 4.2.1). There do not seem to be an abundance of morphologically complex words containing sequences of two or more prefixes. Two or more prefixes, however, seem to be more common in words which contain suffixes as well (cf. Section 4.2.4) than in morphologically complex words which contain only prefixes. Furthermore, the prefixes that do appear in sequence tend to be Word prefixes, rather than Stem prefixes. A few sequences of either two Stem prefixes, or a Word prefix and a Stem prefix, are, however, possible as shown in (1) and (2) below respectively. An expected pattern of distribution of prefixes could therefore be represented as \([Z_W [Z_W [Z_S [X]]]]\) where the Stem prefix attaches before the Word prefixes. The subscripted S and W indicate whether the prefix is a Stem or a Word prefix respectively.

In none of the examples have I indicated that a Stem becomes a Word before Word affixes can be added as I am merely concerned here with the ordering of affixes relative to each other. In some cases where the internal structure of the base to which an affix attaches is not pertinent to the affix combination being illustrated such structure will not be indicated. Furthermore, where there is uncertainty as to the correct bracketing of a morphologically complex word the bracketing will be omitted and the reasons for the omission will be discussed.
Those sequences of Word prefixes which seem most common in morphologically complex words include the following:

(1)(a) anti-desentralisasie
[antis [des [sentralisasie]]]
against-removal of-centralisation
"anti-decentralisation"

(b) pré-desegregasie
[prés [des [segregasie]]]
before - removal of - segregation
"pre-desegregation"

(2)(a) hêrdemobiliseer
[hérW [des [mobiliseer]]]
again - removing effect of-mobilise
"demobilise again"

(b) hêrdisintegreer
[hérW [dis [integreer]]]
again - reversing effect of-integrate
"disintegrate again"

(c) áárts-inkonsekwent
[áártsW [ins [konsekwent]]]
to the greatest degree-not - consistent
"very inconsistent"

(3)(a) hêrbewapen
[hérW [beW [wapen]]]
again - provide with-weapon
"re-arm"

(b) hêronttrek
[hérW [ontW [trek]]]
again-away from-pull
"withdraw again"
(c) hérverdeel
[hér₆ [ver₆ [deel]]]
again-make - part
"divide again"

(d) ónbedek
[ón₆ [be₆ [dek]]]
not - with many of the properties-cover
which are related to
"uncovered/unconcealed/undisguised"

Other Word prefix sequences such as the following also occur.

(4) (a) áárts-onverstandig
[áárts₆ [on₆ [[verstand] ig₆]]]
to the greatest degree-not - intelligence-endowed with
"very unintelligent"

(b) onversóét
[on₆ [ver₆ [sóét]]]₅
not - make - sweet
"unsweetened"

Kempen (1969:591) also mentions that there is a negative rule
which prevents the stacking of two identical prefixes such as
*bebe-, or *ontont-,⁶ although her- is an exception to this
according to him (cf. (5)(a)). Other Word prefixes like oer- and
aarts-, which are not mentioned by Kempen (1969), are also
exceptional in this respect (cf. (5)(b) and (c)), as are certain
Stem prefixes as shown in (6)(a)-(c) below.⁷

(5) (a) hérheradressee
[hér₆ [her₆ [adressee]]]
again-again-address
"readdress again"
It would appear that, with the exception of her-, the prefixes which can be doubled usually attach to adjectives and, semantically, the quality denoted by the adjective can be placed on a continuum. For example, one can establish a point of intelligence on a continuum, a point beyond that of superintelligence, and a point beyond that of super-superintelligence. Similarly, one can establish a point on a continuum for a primary school and a point before that of a pre-primary school which one attends before the primary school, and then a point before that of the pre-pre-primary school.

Another possible way of explaining which prefixes can and which cannot duplicate is that prefixes which are stressed in complex
words can be duplicated. The prediction is then that the prefixes be-, ont- and ver- should not be able to duplicate as they are always unstressed in complex words. This prediction is in fact correct as shown in the words in (7) below.

(7) (a) *[be_w [draad]]]
      provide with-provide with-wire

      (b) *[ont_w [groei]]]
      away from-away from-grow

      (c) *[ver_w [soet]]]
      make - make - sweet

In addition to the data in which more than one Word prefix is found and in which such prefixes appear outside Stem prefixes, there are also data in which Stem prefixes, contrary to what is expected, appear outside Word prefixes as shown in (8).

(8) (a) semi-onafhanklik
      [semis [afhang lik_w]]]
      partially-not - depend - showing the quality of
      "semi-independent"

      (b) ultra-onbedagsaam
      [ultras [bedag saam_w]]]
      excessively-not - mindful-inclined to be
      "very unthoughtful"

4.2.3 Suffix combinations

There exist numerous words in Afrikaans in which stackings of suffixes are found. If we assume the distinction between Stem and Word suffixes the following predictions can be made about their relative ordering in morphologically complex words:

(i) Stem suffixes will occur in any order with respect to one another, but will appear only inside Word affixes, and
(ii) Word affixes will occur in any order with respect to each other, but only outside Stem affixes.

In addition, as in the case of prefix combinations, we expect to find verb-forming affixes appear inside adjective- and noun-forming suffixes. Thus an expected pattern of distribution would be as follows \[\text{[[[[X] Y_s]] Y_g] Y_w] Y_w]\] where Stem suffix attach before Word suffixes.

Let us first examine Stem affixes. There appear to be very few morphologically complex words which include more than one Stem suffix. This can possibly be attributed to the fact that most of these suffixes as well as the Stems to which they attach are foreign by nature and that there is a "closer" relationship between the Stem suffix and the base than is the case with Word suffixes and the base to which they attach. It is therefore difficult to determine whether or not prediction (i) above is borne out by the data. Below are two examples of morphologically complex words with more than one Stem suffix. Examples with other suffix sequences are difficult to find.

(9)(a) sportiwiteit

\[\text{[[[sport] leis]] tiit}\]

sport - having a bearing on-condition of being "sport-mindedness"

(b) nasionalisme

\[\text{[[[nasie] aal]] ismes}\]

nation-pertaining to-condition of "nationalism"

One does, however, find a variety of words which contain both a Stem and a Word suffix with the Stem suffix(es) always inside the Word suffix(es) as shown in (10) below.
(10) (a) debutéérders

[[[[debut] éérₐ] erₗₜ] sINF]
debut - make - person who - more than one
"people making their debut in society"

(b) kategorisérings

[[[[kategorie] éérₐ] ingₗₜ] sINF]
category - make - result of - more than one
"categorisations"

(c) republikéins

[[[republiek] éinₗₜ] Sₗₜ]
republic - inhabitant of - characteristic of
"characteristic of a republican"

(d) eksklusiwitéítshalwe

[[[eksklusief] itéitₗₜ] halweₗₜ]
exclusive - condition of being - for the sake of
"for the sake of exclusivity"

(e) tuinierágtig

[[[tuin] ierₐ] ágtigₗₜ]
garden - person who - displaying apparent
works with characteristics of
"like a gardener"

(f) Durbaniéeterig

[[[Durban] iétₐ] erigₗₜ]
Durban - person from-ascribed presence to a small
degree
"like a Durbanite"

(g) koloniséérbaarheid

[[[[kolonie] éérₐ] baarₗₜ] heidₗₜ]
colony - make - able to be-state of being
"colonialisability"
Word suffixes seem to occur more readily in strings than stem suffixes. One of the most common stackings appears to be that of two Word suffixes, the second of which is the suffix -heid. Sometimes, as shown in (11)(g), the suffix -heid can even be the third in a sequence of affixes. The following suffix sequences with -heid are found.

(11) (a) reuságtigheid
[[[reus] ágtigw] heidw]
giant - displaying apparent - state of being characteristics of
"hugeness"

(b) dánkbaarheid
[[[dánk] baarw] heidw]
thank - with a feeling of-state of being
"thankfulness"

(c) bángerigheid
[[[báng] erigw] heidw]
scared-ascribed presence to a small degree-state of being
"fearfulness/timidity"

(d) plesiérigheid
[[[plesiér] igw] heidw]
pleasure-full of-state of being
"pleasantness/pleasure"

(e) slááплоosheid
[[[slááp] loosw] heidw]
sleep - without-state of being
"sleeplessness"

(f) büügsaamheid
[[[büüg] saamw] heidw]
bend - inclined to-state of being
"pliability"
The data in (11) above supports the claim that adjective-forming suffixes always appear before noun-forming suffixes. However, there are data such as those in (12)(a) and (b) in which -agtig follows -heid and those in (12)(c) and (d) which show that the ordering of adjective-forming affixes before noun-forming affixes is only a tendency in Afrikaans. Another suffix which readily follows -heid is -halwe as shown in (12)(c) and (d).

(12) (a) wysheidágltig
[[[wys] heid_w] ágtig_w] wise-state of being-displaying apparent characteristics of "wisdom-like"

(b) alleenheidágltig
[[[alleen] heid_w] ágtig_w] alone - state of being-displaying apparent characteristics of "loneliness-like"

(c) véiligheidshalwe
[[[véilig] heid_w] halwe_w] safe - state of being-for the sake of "for safety's sake"

(d) vriendskáplikheidshalwe
[[[[vriend] skáp_w] lik_w] heid_w] friend - relationship as-showing the quality of halwe_w] state of being-for the sake of "for the sake of friendliness"
Other possible stackings of two or more Word suffixes which are found include those given in (13) below. As in the case of other examples, this list is not meant to be exhaustive, but merely illustrative of the types of Word suffix sequences which are possible in Afrikaans.

(13) (a) mártelaarskap
    [[[mártel] aarW] skapW]
    torture-person who is-condition of being
    "martyrdom"

(b) uitdrukkingloos
    [[[úitdruk] ingW] loosW]
    express - result of-without
    "expressionless"

(c) vreemdelingskap
    [[[vreemd] lingW] skapW]
    strange-person who is-condition of being
    "alienage"

(d) digterlike
    [[[dig] erW] likW eINF]
    write poetry-person who-showing the-attributive quality of marker
    "poetic(al) (attributive)"

Most nouns which are formed by the addition of one or more suffixes can be followed by the diminutive suffix -ie, or one of its variant forms, as shown in (14) below. Whether the diminutive suffix can be added or not, depends on the meaning of the noun to which it attaches. The diminutive can, in most cases, be followed by the regular plural suffix -e. It is never followed by the regular plural suffix -s, even if the noun to which the diminutive attaches usually takes this plural suffix, rather than -s.
While the stacking of two identical prefixes is possible in certain cases as shown in Section 4.2.2, there is no evidence that the same is generally true of suffixes. There are, however, two exceptions. Firstly, Jenkinson (1986b:39, 42) notes that a double diminutive is possible in Afrikaans in words such as the following:

(15)(a) hûisietjie
[[[hûis] ieW] tjiW]
house-small-small
"small house"
(b) *vissietjie*

\[
\text{[vis] \text{ie}}_W \quad \text{tjie}_W \\
\text{fish-small- small} \\
"\text{small fish}"
\]

The so-called emotive double diminutive is used to show disdain or emotion. Jenkinson (1986b:42) indicates that such forms are only found in certain dialects of Afrikaans. Secondly, it seems that some suffixes may occur twice in a morphologically complex word if another suffix intervenes as shown in (16) below. Such forms are not common, however, and many speakers find them marginal. 8

(16)(a) *kleunicode wloosheidsloos*

\[
\text{[[[kleu}}}r \text{loos}_W \quad \text{heid}_W \quad \text{loos}_W \\
\text{colour-without-state of being-without} \\
"\text{without colourlessness/drabnessless}"
\]

(b) *m6edeloosheidsloos*

\[
\text{[[[m6ed] \text{loos}_W \quad \text{heid}_W \quad \text{loos}_W} \\
\text{courage-without-state of being-without} \\
"\text{without despondency}"
\]

While there are words in Afrikaans in which a Stem prefix appears outside a Word prefix, there do not seem to be any words in which a Stem suffix appears outside a Word suffix.

4.2.4 **Suffix and prefix combinations**

Although there seems to be a wide variety of possible prefix-suffix combinations in Afrikaans, certain affixes do seem to always appear either outside or inside other affixes. As in the case of prefixes, on the one hand, and suffixes, on the other hand, there are a small number of words with stackings of only Stem prefixes and suffixes. There are also relatively few words with a Stem suffix plus a Word prefix and/ or suffix. The vast majority of derived words in my corpus of data include Word prefixes and suffixes. In most of the morphologically complex
words there are usually no more than two prefixes although more
than two suffixes are possible. One thus expects to find
patterns of distribution such as \([Z_W [Z_S [[X] Y_S]]] Y_W\) where
the Stem affixes attach before the Word affixes.

Below are a few examples of words with Stem and Word affixes.
In each case the Stem affix must attach before the Word affix if
one assumes that the morphological form at each stage in the
derivation must be a word to which a meaning can be assigned.9
Furthermore, as in the case of the words discussed in the
previous section, if the complex word ends in a noun-forming
suffix the diminutive suffix, or one of its allomorphs, can
generally be added.

(17) (a) onkonvensionéle
\([[[on_W [[konvensie] éé_S]] e_{INF}]
not - convention - pertaining to-attributive marker
"unconventional (attributive)"

(b) onproduktiéwe
\([[[on_W [[produk] íé_S]] e_{INF}]
not - product - has a bearing on-attributive marker
ability to make
"unproductive (attributive)"

(c) verkonkretiséring
\([[[ver_W [[konkreet] éé_S]] ing_W]
make - concrete - make - result of
"concretisation"

(d) ontmagnetiséring
\([[[ont_W [[magneet] éé_S]] ing_W]
away from - magnet - make - result of
"demagnetisation"
Stackings of Word prefixes and suffixes occur more frequently than the stackings given in (17). It would appear that, in most but not all cases, on- (an adjective-forming prefix) appears outside the Word prefixes be-, her- and ver- (verb-forming prefixes) if both occur together in a morphologically complex word.

(18)(a) bewóonbaarheid

[[[be\textsubscript{W} [wóón]] baar\textsubscript{W}] heid\textsubscript{W}]
do totally-live - able to be-state of being
"habitability"

(b) beskúldigende

[[[be\textsubscript{W} [skúld] ig\textsubscript{W}]] end\textsubscript{W}] e\textsubscript{INF}]
make like-guilt - full of-present-attributive part. marker
"accusing (attributive)"

(19)(a) hérbelewendeh

[[[hér\textsubscript{W} be\textsubscript{W} [leef]]] end\textsubscript{W}] e\textsubscript{INF}]
again - do - live - present part.- attributive intensively
marker
"re-living (attributive)"
(b) hérbesinnings
[[[hér
W] [be
W] [sin]]] ing
W] s
INF]
again - do - ponder - result of - more than one intensively "things that have been re-thought out"

(20) (a) onverbéterlikheid
[[on
W] [[ver
W] [béter]] lik
W] heid
W]
not - make - better - showing the quality of - state of being
"unimprovability"

(b) onaanváárbaarheid
[[on
W] [[aanváár] baar
W] heid
W]
not - accept - able to be - state of being
"unacceptability"

(21) (a) verbindbaarheid
[[[ver
W] [bind] baar
W] heid
W]
make firm - bind - able to be - state of being
"unitability"

(b) veréénsaamde
[[ver
W] [[één] saam
W]] e
W]
make (like) - one - inclined to be - one that is
"someone who has become lonely"

(c) verletterliking
[[ver
W] [[letter] lik
W]] ing
W]
become like - letter - showing the quality of - process of
"process of making something literal"

(22) wanórdelikheid
[[[wan
W] [órde]]] lik
W] heid
W]
bad - order - showing the quality of - state of being
"disorderliness"
Recall that in English there are a number of counterexamples of the type where a Stem (Class I) affix must attach after a Word (Class II) affix for the correct semantic representation to be assigned to the word. Similar counterexamples are also found in Afrikaans (cf. (23)). In addition, given the classification of affixes proposed in Section 3.3.2.2, which differs in certain respects from those given for English and Dutch, the counterexamples in (24) also exist.

(23) (a) ongrammatikaliteit
   \[[onW [grammatikaal]] téit\]
   not - grammatical - condition of being "ungrammaticality"

   (b) onproduktiwiteit
   \[[onW [produk] ief\]]
   not - product - has a bearing on - condition of being ability to make "unproductivity"

(24) (a) non-betáling
   \[[nonS [betáál] ing\]
   not - pay - process of "non-payment"

   (b) antí-herstrukturering
   \[[ántig [herW [[struktuur] eér\]] ing\]
   against - again - structure - make - process of "anti-restructuring"

4.2.5 Derivational affix and compound combinations

4.2.5.1 Derivational affixes internal to compounds

In my analysis of morphologically complex words affixes internal to compounds are taken to be those affixes which attach to the left-hand or the right-hand member of a compound before compounding takes place. Recall that in determining the
stacking of prefixes relative to suffixes meaning played a crucial role. The same is true when determining whether an affix attaches prior to, or after, compounding. Consider in this regard the following word.

(25) taalnasionalisme

[[taal] [[nasionaal isme]]
language-national - condition of
"language nationalism"

To derive the correct meaning of taalnasionalisme the suffix -isme must be taken to attach to the adjective nasionaal whereafter nasionalisme and taal are joined to form taalnasionalisme. If taal and nasionaal were first joined and then the suffix -isme added, the meaning of taalnasionalisme would be something along the lines of "the doctrine of language national" which is not the correct meaning of taalnasionalisme.

As illustrated in the data below both Stem and Word affixes can attach to words before compounding takes place. Such derived words can then form either the left-hand or right-hand member of a compound. Like the data in the previous sections the data below do not represent all the possible combinations of affixes with compounds, but merely exemplify certain possible combinations.

(26)(a) afleidingsproduktiwiteit

[[[[af] [lei]] ingw] -
from - infer - result of

[[[produk ief] teitg]]
product-has a bearing on-condition of being
ability to make
"derivational productivity"
(b) vrienksapsband
[[vrien] skap\textsubscript{w} [band]]
friend - relationship as-bond
"bond of friendship"

(c) kommunikasiehinderlikheid
[[kommunikasie] [[hinder] lik\textsubscript{w}] heid\textsubscript{w}]]
communication - hamper -showing the-state of being quality of
"communication hindrance"

(d) bewe\textsubscript{e}egruimte
[[bewe\textsubscript{e}eg] [ruim] te\textsubscript{w}]]
move - spacious-state of being
"room for manoeuvre"

(e) negativ\textsubscript{e}eringsbeginsel
[[negatief] \textsubscript{e}er\textsubscript{g} ing\textsubscript{w}] [beginsel]]
negative - make - result of - principle
"negation principle"

(f) e\textsubscript{e}enheidsbindende
[[e\textsubscript{e}en] heid\textsubscript{w}] [[bind] end\textsubscript{w}] e\textsubscript{INF}]
one - state of being-bind - present-attributive part. marker
"binding/uniting as one (attributive)"

(g) verar\textsubscript{m}ingsvraagstukke
[[ver\textsubscript{W} [arm]] ing\textsubscript{w}] [[vraag] stuk\textsubscript{w}]] e\textsubscript{INF}]
make - poor - process of-question-piece - more than one
"impoverishment questions/problems"
(4.2.5.2) Derivational affixes external to compounds

Given the Stem/Word distinction, the prediction is made that only Word affixes, but not Stem affixes, should be able to attach to compounds which are Words. Below are examples of a number of morphologically complex words in which the Word prefix or suffix must be taken to have attached to the compound. In each case this is the only analysis possible for the correct semantic interpretation to be assigned to the word, although, as will be shown further on there do exist certain words to which two representations and therefore two meanings can be assigned.

Most of the examples in (27) and (28) are taken from Botha (1982), although some of the glosses have been altered. Other examples are from my corpus. In (27) I exemplify words in which a Word prefix has attached to a compound, while in (28) I give examples of words in which a Word suffix has attached to a compound. It would seem that compounds with one affix occur more readily in Afrikaans than compounds with more than one affix. Where more than one Word affix is found, the Word suffix and prefix sequences show the same patterns of sequencing as they do when found in derivatives.

(27) (a) áárts-domkop
    [[áárts_w] [[dom] [kop]]]
    to the greatest degree-stupid-head
    "extremely blockheaded person"
(b) bewérktuig
[bew][werk][tuig]]
provide with-work - device
"provide with a tool"

(c) gesónbril
[ge][son][bril]]
with - sun - glasses
"wearing sunglasses"

(d) geféésvier
[ge][fées][vier]]
action of - feast - celebrate
"feasting/celebrating"

(e) herpróéflees
[her][próef][lees]]
again - proof - read
"proof-reading again"

(28)(a) sélfmoordenaar
[[sélf][moord]] aar
self - murder - person who
"person who commits suicide"

(b) ármblankedom
[[árm][blanke]] dom
poor - white - collection of
"poor whites/poor whiteism"

(c) próéflesery
[[próef][lees]] ery
proof - read - continual act of
"proof-reading"
As mentioned above there also exists a group of words which Botha (1982:185-188, 200-203, 211-214) contends can be assigned two possible morphological representations. Both
representations, she claims, result in the same meaning being assigned to the words. The two possible morphological representations are given in (29) and in (30) are some examples of the words Botha uses in her discussion. For each word I have only given one of the possible meanings in the gloss. I will argue in the following discussion that, contrary to Botha (1982), each representation in (29) leads to a slightly different meaning being assigned to the words in (30).

(29) (a) \([ [N + \{\text{Adj}\} \text{ Suffix}] \]

(b) \([ [N] \{\text{Adj}\} + \text{ Suffix}] \)

(30) (a) séésiekheid
    séé - siek - heid
    sea - sick - state of being
    "sea-sickness"

(b) bréinspoeling
    bréin - spoel - ing
    brain - wash - process of
    "brain-washing"

(c) lúgsiekte
    lúg - siek - te
    air - sick - state of being
    "air-sickness"

It would seem that each of the words in (30) can either be analysed as a compound to which a suffix has attached (cf. (29)(a)) or as a compound which contains a derived word (cf. (29)(b)). For example, if the word séésiekheid is analysed as a compound séésiek to which the suffix -heid has attached, the meaning assigned to the word will be "state of being seasick". If the word is analysed as a compound consisting of a morphologically simple word séé and a morphologically complex
The word *siékheid*, the meaning that will be assigned is "sickness caused by the sea". In neither of these cases is the subcategorisation frame of the suffix -heid violated since -heid can attach either to the right-hand member of the compound or to the compound as a whole as both are adjectives.

Similarly, in the case of *bréinspoeling* with the representation in (29)(a) the meaning assigned would be "brainwashing" as in what the enemy does with spies. In contrast, the representation in (29)(b) would yield the meaning "washing of brains" which would be carried out in a laboratory where experiments on brains are done, for example. Finally, in the case of *lügsiekte* the two representations (29)(a) and (b) would yield the meanings "condition of being air-sick" and "sickness which one suffers from when in the air" respectively. In both *bréinspoeling* and *lügsiekte* the suffix can attach either to the right-hand member of the compound or to the compound as a whole as both belong to the same syntactic category. The bracketing and hence the meaning which is assigned to the words in (30) will be determined by the context in which the word occurs.

The words in (30) contrast with those in (31) below which Botha (1982:182-184, 189-192, 197-199, 208-210) also discusses.

(31) (a) *díkbekheid*

*dík* - *bek* - *heid*

thick - mouth - state of being

"sulkiness"

(b) *snuffelgragie*

*snuffel* - *graag* - *ie*

ferret - readily - small

"small ferreter"

(c) *onderbréking*

*onder* - *bréék* - *ing*

under - break - result of

"interruption"
Essentially her argument is that the suffixes in (31)(c) and (d) could attach to the right-hand member of the compound or to the compound as a whole as both belong to the same syntactic category. This is not the case with the words in (31)(a) and (b) as -heid cannot attach to the noun bek, but can only attach to the adjective dikbek ("sulky") and the diminutive suffix -ie cannot attach to the adverb gráag, only to the noun snúuffelgraag. However, of the two possible analyses of each word only one, viz. (29)(a), allows the correct semantic interpretation to be assigned to the word. For example, onderbréking does not mean a "break which is under", but rather an "interruption" and brándsiekte does not mean a "sickness which burns", but has the idiosyncratic meaning "scabies". Botha (1982:188, 195, 214) does not try to explain why the data in (30) can be assigned two labelled bracketings, while those in (31) only one, saying that such an explanation falls outside the bounds of her thesis. In the case of (30)(d), however, she speculates that the reason may lie in the nature of the verb, bréínspoel being a separable verb and onderbréék being an inseparable one. She does not, however, elaborate on this.10

It seems to me that the differences in morphological representation could be explained with reference to the Compositionality Condition. The non-affixal parts of each of the words in (30) constitute primary compounds which have compositional meanings, whereas the non-affixal parts of the words in (31) constitute exocentric or bahuvrihi compounds11 where the meaning of the compound as a whole is not the sum of the meaning of its parts. Thus, one could argue that while the non-affixal parts in (31) may be recognised as compounds for the purpose of, for example, stress assignment, they cannot be analysed as compounds for the purpose of the assignment of meaning. If they were recognised as primary compounds, we would
expect the dual bracketing and interpretation available in the case of the words in (30)(a)-(c) to be available and this is not the case.

In addition to the data thus far there are a number of problematic words, that is, morphologically complex words in which, contrary to expectation, a stem affix attaches to a compound. It could be argued that the words in (32)(d)-(g) could be analysed as compounds consisting of a morphologically simple and a complex word. However, a different meaning would be assigned in each case, viz. an inhabitant of Pretoria from the east, an American from the south and an Indian from the west. The labelled bracketing in (32) therefore represents the only analysis possible if the meaning given in each case is to be assigned to the word.

(32)(a) á-staatslotery
    [ástaatslotery]
    indifferent to - state - lottery
    "indifferent to a state lottery"

(b) ánti-langbroek
    [ánti-langbroek]
    against N - long - pants
    "against the wearing of slacks"

(c) Oos-Pretoriáán
    [[Oos] [Pretoria] áán]
    east - Pretoria - person from
    "person from East Pretoria"

(d) Suid-Amerikááns
    [[Suid] [Amerika] ááns]
    south - America - pertaining to
    "South-American"
4.3 Distribution of inflectional affixes

4.3.1 Inflectional and derivational affix combinations

As pointed out in Section 3.3.1 I distinguish the following inflectional affixes for Afrikaans:

(i) the suffixes -s and -e which indicate plurality,

(ii) the suffix -e which is the marker of certain adjectives used attributively,

(iii) the comparative suffix -er and the superlative suffix -ste, and

(iv) the prefix ge- which indicates the past participle form of the verb.

In this section I will be considering the distribution of these affixes with respect to derivational affixes, beginning with a discussion of the distribution of plural suffixes.
From the data examined it appears that the regular plural suffixes \(-s\) and \(-e\) always appear outside nominalising Stem and Word suffixes as shown in (33) and (34) respectively.

(33)(a) Kubáne
[[[Kuba] áán\(_S\)] e\(_{INF}\)]
   Cuba - person from-more than one
   "Cubans"

(b) plantásies
[[[plant] ásie\(_S\)] s\(_{INF}\)]
   plant - collection of-more than one
   "plantations"

(34)(a) lésers
[[[léés] er\(_W\)] s\(_{INF}\)]
   read - person who-more than one
   "readers"

(b) direktéúsrkkepe
[[[direkteúr] skap\(_W\)] e\(_{INF}\)]
   director - rank of-more than one
   "directorships"

There are certain words in Afrikaans, derived by the addition of a Word suffix, which appear to include a regular plural suffix \(-s\) or \(-e\) before the Word suffix as shown in the examples below. The putative plural suffix is underlined in each case.

(35)(a) tóútjiesrig
[[[tóó] tjie\(_W\)] erig\(_W\)]
   string-little - ascribed presence to a small degree
   "stringy"

(b) dórpe\(_s\)eling
[[dórpe] ling\(_W\)]
   town - person who lives in
   "villager/town dweller"
However, it would seem that the \(-s\) here is not the regular plural suffix \(-e\) as it does not add a plural meaning to tōtjies, although some mother tongue speakers of Afrikaans would claim that there is a slight difference in meaning between tōtjierig and tōtjiesrig. In the word dōrpeling the \(-e\) does not add a plural meaning to the noun dōrp as a dōrpeling is a person who lives in a town, not a person who lives in towns.\(^{12}\)

The sound sequences \(-e\) and \(-s\) in (35)(a) and (b) constitute what have been termed "verbindingsklanke" (linking sounds) by Kempen (1969:93) and "link phonemes" by Botha (1968:154ff.). Such sound sequences, which are more frequently found between the right- and left-hand members of a compound (cf. Section 4.3.2), often do not seem to add any element of meaning to the derived words in which they occur, but merely serve to "link" the base to the affix. When such sounds do appear to add meaning, the meaning added is not necessarily a plural one as will be shown in the following section in which the distribution of link phonemes will be discussed in more detail.

The inflectional attributive marker \(-e\), like the plural suffixes, attaches after all other affixes so it appears after both Stem and Word affixes as shown in (36) and (37) respectively.

(36)(a) individuele

\[
[[[\text{individu}] \text{éél}_g] \quad \text{e}_\text{INF}]
\]

individual-pertaining to-attributive marker

"individual (attributive)"

(b) seisoenale

\[
[[[\text{seisoen}] \text{ááλ}_g] \quad \text{e}_\text{INF}]
\]

season - pertaining to-attributive marker

"seasonal (attributive)"
(37)(a) krampágtige
  [[[kramp] ágti₇] evINF]
  cramp-displaying apparent-attributive marker
  characteristics of
  "cramping/convulsive (attributive)"

(b) glánsige
  [[[gláns] ig₇] evINF]
  shine - full of-attributive marker
  "shining (attributive)"

(c) genádelose
  [[[genáde] loos₇] evINF]
  mercy - without-attributive marker
  "merciless (attributive)"

Many of the suffix combinations that occur readily in Afrikaans include an adjective-forming suffix followed by either the suffix -er or the suffix -ste which indicate the comparative or superlative forms of adjectives/adverbs respectively. Such words are given in (38) and (39) below. In most cases the comparative suffix -er and the superlative suffix -ste appear to prevent further derivational suffixes from attaching and thus seem to be what Bloomfield (1950:223) and Nida (1949:85) have termed "closing morphemes". However, as will be shown in (40) and (41) there are exceptions.

(38)(a) verstáánbaarder
  [[[verstáán] baar₇] erINF]
  understand-able to be-more
  "more understandable"

(b) húlpeloser
  [[[húlp] loos₇] erINF]
  help - without-more
  "more helpless"
(c) kléúriger
[[[kléúr] igW] erINF]
colour-full of-more
"more colourful"

(39)(a) dánkbaarste
[[[dánk] baarW] steINF]
thank - with a feeling of-most
"most thankful"

(b) gelúkkigste
[[[gelúk] igW] steINF]
happiness-full of-most
"happiest"

(c) natúúrlíkste
[[[natúúr] likW] steINF]
nature - showing the quality of-most
"most natural"

It seems possible in Afrikaans to use the superlative form of an adjective as a noun and therefore the plural suffix can be added to such superlative adjectives as shown in (40). The suffix -ste does not therefore seem to be a "closing morpheme" in this case. Note also that this is one of the only cases where two inflectional suffixes are permitted in a word.

(40)(a) ármstes
[[[árm] steINF] sINF]
poor - most - more than one
"(the) most poor people/(the) poorest ones"

(b) gelúkkigstes
[[[gelúkkig] steINF] sINF]
happy - most - more than one
"(the) most happy people/(the) happiest ones"

It also seems possible, in a few cases, to find the comparative
suffix followed by a derivational suffix and then the plural suffix -s as shown in the following example. Such words are, however, not common.

(41) móóieres

[[[móóí] erINF] eW] sINF]

pretty-more - one that is-more than one

"those who are prettier"

Let us now consider the distribution of the past participle prefix ge- with respect to derivational affixes. The inflectional prefix ge- always occurs outside Stem prefixes as shown in (42).

(42)(a) gedisintegréér

[geINF [disS [intégréér]]]

past part. - reversing effect of-integrate

"disintegrated"

(b) gedestabiliséér

[geINF [desS [stabiliséér]]]

past part.- removing effect of-stabilise

"destabilised"

With regard to the occurrence of the inflectional prefix ge- outside Word affixes, Kempen (1969:591) notes that ge- can attach outside certain prefixes like be-, her-, ont- or ver- as shown in (43) below. However, he claims that the resultant two-prefix sequences are generally regarded as substandard, especially in written Afrikaans. De Villiers (1976:162) regards such prefix sequences as unacceptable with the exception of ge-her in certain words.

(43)(a) gebemórs

[geINF [beW [mórs]]]

past part.- do intensively-mess

"messed"
Combrink (1990:219) claims that the use of ge- with verbs differs according to a scale of standardness. In Substandard Afrikaans this prefix is used before virtually any verb to form the past participle, while in Standard Afrikaans the ge- is not used by some speakers with certain categories of verbs, for example, with "core" vocabulary verbs ending in eer such as probeer ("try"). In Suprastandard Afrikaans individual speakers may omit the prefix ge- with individual verbs as a sign of refinedness with "peripheral" vocabulary verbs ending in -eer.\textsuperscript{14}

Kempen (1969:571) also states that three-prefix sequences are rare as well as substandard. He only provides one example hér-ge-be-laster ("re-slandered/slandered again") of the type of three prefix sequences which he refers to. In (44) are examples of words with three prefix sequences which include a Stem and a Word prefix with ge-, while the words in (45) include three prefix sequences, two Word prefixes and ge-. All examples seem to be marginal.

(44)(a) gehérdemobiliseer

\textit{?[geINF \text{[hérW [deS [mobiliseer]]]} past part.-again-removing effects of-mobilise "demobilised again"
(b) gehérdisintegreer

\[\text{ge}_{\text{INF}} \ [\text{hé}_r_{\text{w}} \ [\text{dis}_s \ \text{[integreer]}]]\]

past part.-again-reversing effect of-integrate
"disintegrated again"

(45)(a) gehérbewapen

\[\text{ge}_{\text{INF}} \ [\text{hé}_r_{\text{w}} \ [\text{be}_w \ \text{[wapen]}]]\]

past part.-again-provide with-weapon
"re-armed"

(b) gehéronttrek

\[\text{ge}_{\text{INF}} \ [\text{hé}_r_{\text{w}} \ [\text{ont}_w \ \text{[trek]}]]\]

past part.-again-away from-pull
"withdrew again"

The inflectional prefix \textit{ge-}, unlike most other inflectional affixes, can appear inside Word prefixes like \textit{on-} and \textit{her-}, Word suffixes like \textit{-e}, \textit{-heid} and \textit{-halwe} and also inside Stem prefixes like \textit{semi-} and \textit{ultra-} as shown in (46). It is also found inside the attributive marker \textit{-e} in certain words as shown in (47).

(46)(a) ongeskééerde

\[[\text{on}_w \ [[\text{ge}_{\text{INF}} \ [\text{skéér}]] \ e_{\text{INF}}]\]

not - past part.- shave - attributive marker
"unshaved (attributive)"

(b) hergegroepéérende

\[[\text{her}_w \ [\text{ge}_{\text{INF}} \ [[\text{groep} \ \text{éér}_s]]] \ e_{\text{INF}}]\]

again-past part.-group - make - attributive marker
"regrouped (attributive)"

(c) gewónde

\[[\text{ge}_w \ [\text{wónd}]] \ e_w\]

past part.-wound - one that is
"wounded person/animal"
(d) gedissiplinéérheidshalwe  
[[[geINF [[dissipline] éér_S]]]-past part.-discipline - make-  
heid_W] halwe_W]  
state of being—for the sake of  
"for the sake of disciplinedness"  

(e) sémi-gelaai  
[sémiS [geINF [laai]]]  
partially — past part.—load  
"partially loaded"  

(f) últra-gewaagd  
[últra [geINF [waag]]]  
excessively—past part.—dare  
"very daring"  

(47)(a) gepýnigde  
[[geINF [[[pýn] ig_W]]] eINF]  
past part.—pain—full of—attributive marker  
"tortured (attributive)"  

(b) geïllustréérde  
[[geINF [illustréér]] eINF]  
past part.—illustrate — attributive marker  
"illustrated (attributive)"  

4.3.2 Inflectional affix and compound combinations  

Given the fact that inflectional affixes can attach before or after Word affixes and that compounds are Words formed by joining two Words, the prediction is that inflectional affixes should be able to appear both inside as well as outside compounds. Therefore, one should be able to find words which have either or both of the following labelled bracketings if they include inflectional suffixes.
(48)(a) [[[Word] [Word]] Inflectional suffix]

(b) [[Word] [[Word] Inflectional suffix]]

Let us first consider the distribution of the plural suffixes in the following words.

(49)(a) kóópkondisies
    kóóp - kondisie - s
    buy - condition - more than one
    "conditions of buying"

(b) jóngkéreldæ
    jóng - kérel - dag - e
    young - chap - day - more than one
    "bachelor days"

Kóópkondisies in (49) can be assigned the labelled bracketing in (48)(a), that is, it can be taken to consist of a compound to which the inflectional suffix -s has attached. However, kóópkondisies can also be assigned the labelled bracketing in (48)(b), that is, it can be taken to be a compound of which the right-hand member is inflectionally derived. Thus there are two different representations of kóópkondisies and hence, two different meanings which can be assigned to this word, the particular one chosen being determined largely by context. Thus the representation (48)(a) yields the meaning "more than one buying condition which has to be complied with when purchasing something", while representation (48)(b) yields the meaning "more than one condition which pertains to buying (rather than to selling)". The same arguments hold for jóngkéreldæ. The representation (48)(a) will yield the meaning "(the collection of) days when someone was a bachelor", while that in (48)(b) might yield the meaning "more than one bachelor day" if one were talking, for example, of a number of special days being organised at various shopping centres with the focus being on the bachelor.
There are, however certain words such as those in (50) below to which only the labelled bracketing in (48)(a) can be assigned. In each case the plural suffix cannot attach to the right-hand member of the compound which is an adverb, it can only attach to the compound as a whole which is a noun. If the plural suffix in each case is taken to attach to the compound, the correct meaning can be assigned to the word.

(50)(a) keerwére

\[
[[[\text{keer}] \ [\text{wéér}]] \ e_{\text{INF}}]
\]

turn - again - more than one
"cul-de-sacs"

(b) snûffelgraags

\[
[[[\text{snûffel}] [\text{graag}]] \ s_{\text{INF}}]
\]

ferret - readily-more than one
"ferrets"

There are number of compounds in Afrikaans which, like the derivatives discussed in Section 4.3.1, appear to include a regular plural suffix \(-s\) or \(\text{-e}\) on the left-hand member of the compound. However, as will be shown below, the situation with respect to compounds is much more complex than it appears to be at first glance. Consider firstly the following compound and the plural form of the left-hand member of the compound when used independently. The apparent regular plural suffix in this and other compounds in the following discussion is underlined.

(51)(a) diéretuin

\[
[[\text{diére}] \ [\text{tuin}]]
\]

animal(s)-garden
"zoo"

(b) diére

\[
[[\text{diér}] \ e_{\text{INF}}]
\]

animal-more than one
"animals"
The -e attached to diér seems to be the plural suffix -e as the plural form of diér is formed by adding this suffix as shown in (51)(b). However, linguists like Kempen (1969) and Botha (1968) who have discussed such sequences deny that the e in (51)(a) represents a plural suffix despite its similarity to such an inflectional morpheme. This claim seems to be vindicated in the case of other data such as the compound in (52)(a).

(52)(a) lééùe-aandeel
   [[lééùe][aandeel]]
   lion - share
   "lion's share"

(b) lééùs
   [[lééù] sINF]
   lion - more than one
   "lions"

Clearly the -e attached to lééù in the compound lééùe-aandeel cannot be the regular inflectional affix -e as the plural of lééù is formed by adding -e as shown in (52)(b). The -e could be argued to resemble the attributive marker -e which is still found attached to certain adjectives that function attributively. However, as lééù is a noun, not an adjective, this possibility seems unlikely. Another possibility, given the meaning of lééùe-aandeel ("lion's share"), albeit figurative, is that the e is some sort of genitive marker.

To further complicate matters there are words such as the following which include an -e or -s on the left-hand member of the compound, but where this word has a singular interpretation. These examples are cited in Botha (1968:166).

(53)(a) bóéwegesig
   [[bééwe] [gesig]]
   gangster-face
   "gangster face"
(b) pérdertert
    [[pérde] [stert]]
    horse - tail
    "horse tail"

Even where the link phoneme and the apparent plural suffix are isomorphic as in the case of (51) it is often very difficult to ascertain whether -e is a link phoneme with no plural meaning or whether it is a plural suffix for the following reason. The first member of a compound in Afrikaans, as in English, often has a plural interpretation even when it has a singular form. Consider in this respect the following compounds.

(54)(a) bóékwinkel
    [[bóék] [winkel]]
    book - shop
    "book shop/shop selling books"

(b) bóékeweek
    [[bóéke][week]]
    book - week
    "book week/week during which books are promoted"

(c) bóékproduksie/bóékeproduksie
    [[bóék(e)][produksie]]
    book - production
    "book production/production of books"

In each of the compounds bóék(e) has a plural interpretation, rather than a singular one, irrespective of whether -e is present or not. These examples also illustrate a point made and extensively discussed by Botha (1968:168) that there is no way in which to predict which link phoneme will occur in a given compound as in many cases compounds with the same left-hand member take either or neither of the link phonemes.

The situation is even more complex with respect to the apparent plural suffix -s which is found attached to the left-hand member
of certain compounds. Consider in this regard the data in (55)-(57) below.

(55)(a) séünsnaam
[[séün][naam]]
boy - name
"boy's name"

(b) séüns
[[séün] s^{INF}]
boy - more than one
"boys"

(56) séünskooor
[[séün] [koor]]
boys - choir
"boys' choir"

(57) séünskool
[[séün] [skool]]
boy - school
"boys' school"

Note that in (55) the -s cannot be the plural suffix -s as the left-hand member of the compound has a singular meaning. Given the meaning of the compound -s could be the reduced form of se, the Afrikaans equivalent of the English possessive/ genitive -'s. However, compare séünsnaam with the compound séünskooor in which séüns seems to have both a plural and a possessive interpretation. Finally, consider the compound séünskool in which séün has both a plural as well as a possessive interpretation although the s is not present. The plural interpretation of séün in séünskool can be explained with reference to the claim made above that the left-hand member of a compound in Afrikaans often has a plural interpretation irrespective of whether it is marked as plural or not.
Finally, consider the following compounds which also include sequences of sounds that Kempen (1969:94-95) has classed as link phonemes. The plural of the left-hand member of the compound when used as an independent word is given in each case. Note that in (59)(a), the link phoneme bears some resemblance to the irregular plural suffixes used to form the plural of the left-hand member the compound. Also note that in the case of (58)(a) and (60)(a) the left-hand member of the compound has a singular rather than a plural interpretation.

(58)(a) béddegoed
[[bédde][goed]]
  bed - things
  "bedding"

(b) béddens
béddens
[[béd] ens_INF]
  bed - more than one
  "beds"

(59)(a) kinderverhaal
[[kinder][verhaal]]
  child - story
  "children's story"

(b) kinders
[[kind] ers_INF]
  child-more than one
  "children"

(60)(a) étenstyd
[[étens][tyd]]
  meal - time
  "meal-time"
In most of the compounds presented above the -s or -e, or other sound sequences found attached to the left-hand member of a compound add a plural and/or possessive meaning to this member of the compound. However, there also exist words in which the presence of an -s or -e adds some element of meaning to the meaning of a compound as a whole, though not necessarily a singular vs. plural meaning or a possessive one, as shown in the compounds below.

(61) (a) mánwinkel
[[mán] [winkel]]
man - shop
"shop where one can buy a man"

(b) mánswinkel
[[máns][winkel]]
man - shop
"shop which sells men's clothing"

(62) (a) dórperaad
[[dórpe][raad]]
town - council
"Township Board/council concerned with the planning of towns"

(b) dórpsraad
[[dórps][raad]]
town - council
"village council/management body of a town"

Dórperaad in (62) is particularly interesting in that the Tweetalige Woordeboek and HAT give different meanings for it. As regards dórpsraad it could be argued that dórps is in fact the
word dórps which occurs as an independent word with the meaning "village-like/of a village", rather than dórp plus a link phoneme.

Studies on similar link phonemes in languages related to Afrikaans, like Dutch (Van Marle (1985:15-21) and German (Lieber (1981:13-15) and Beard (1987:25-28)), do not provide any insights which could be used to elucidate the data in Afrikaans, rather they reveal the complexities of link phonemes. It is obvious from the discussion above that the characteristics of link phonemes in Afrikaans are complex and that a detailed study of these characteristics is required. However, such a study lies beyond the scope of this thesis which merely seeks to investigate the ordering of affixes relative to each other and compounds. I will therefore not pursue the matter of link phonemes in more detail here and will merely assume that inflectional affixes could appear within compounds. This is, in fact, predicted as Words which are joined to form compounds could include a plural suffix.

With respect to the distribution of the attributive inflectional suffix -e relative to compounds it would appear from my data that this suffix only attaches to compounds, rather than to the right-hand member of the compound prior to compounding. Thus the words in (63) must both have the representation in (48)(a), rather than that in (48)(b), for the correct semantic interpretation to be assigned to the word.

(63)(a) ýskoue

`[[ýs] [koud]] eINF`

ice - cold - attributive marker
"ice-cold (attributive)"

(b) skrééülelike

`[[skrééú] [lelik]] eINF`

scream - ugly - attributive marker
"very ugly (attributive)"
The comparative and superlative suffixes -er and -ste respectively appear to attach only to a compound as a whole rather than to the right-hand member of a compound. Therefore the words in (64) and (65) are assigned the representation in (48)(a) rather than that in (48)(b) for the meanings given to be assigned to the words.15

(64)(a) dikbekker

[[dik] [bek]] er\text{INF}

thick - mouth - more

"sulkier"

(b) hártseerder

[[hárt] [seer]] er\text{INF}

heart - sore - more

"more heartsore"

(65)(a) dommonnoselste

[[dóm] [onnosel]] ste\text{INF}

dumb - stupid - most

"most inane"

(b) binnekantste

[[binne] [kant]] ste\text{INF}

inside - side - most

"most internal"

Finally, let us consider the distribution of the past participle prefix ge- with respect to the verbs in (66).

(66)(a) gerügsteun

[ge\text{INF} [[rüg] [steun]]]

past part. - back - support

"supported"
(b) gebókspring
\[ \text{ge}^\text{INF} \quad [[\text{bók}] \quad \text{[spring]]}] \]
past part.-buck - jump
"jumped about"

(c) gesláápwandel
\[ \text{ge}^\text{INF} \quad [[\text{slááp}] \quad \text{[wandel]]}] \]
past part.-sleep - walk
"sleep walked"

In all of these words the prefix \text{ge}- attaches to the compound as a whole rather than to the verb which constitutes the right-hand member of the compound. One might try to argue that \text{ge}- attaches to the left-hand member of the compound and that the derived word is then compounded with the right-hand verb. However, while this may be possible in the case of \text{slááp}, it is not possible in the case of \text{rúq} and \text{bók} which are both nouns as the prefix \text{ge}- only attaches to verbs. However, even in the case of gesláápwandel the verb \text{sláápwandel} describes the action of sleeping while walking both of which took place at the same time, in the past. Therefore, \text{ge}- must be taken to attach to the compound as a whole.

There are however data in which the inflectional prefix \text{ge}- qualifies the compound as a whole yet seems to be attached to the right-hand member of the compound. Such data which are problematic in a number of respects are discussed in Section 4.4.2 below.
4.4 Problematic data

4.4.1 Apparent simultaneous affixation

The first set of problematic data to be considered in this section includes words such as the following.

(67)(a) gewémelte
ge — wémel — te
collection of - swarm - state of being
"a collection of swarming things/creatures"

(b) gesméékte
ge — sméék — te
collection of - plead - state of being
"a lot of pleading"

(c) gebérgte
ge — bérg — te
collection of - mountain-grouping of
"mountain range"

(d) gestéénte
ge — stéén — te
collection of-stone - grouping of
"rock (formation)"

Kempen (1969:470, 574) claims that such words include two affixes, viz. the prefix ge- and the suffix -te, and he includes such words in his discussion of both affixes. However, his discussion does not provide any insights into the order in which the affixes attach, nor how the meaning of the complex word is determined in each case. As regards the words in (67)(a) and (b) Kempen (1969:575) claims that the suffix -te has the meaning "that which does what the verb denotes (with a perjorative meaning)"\(^\text{16}\) when found in such words. His implicit assumption therefore seems to be that -te adds this meaning to the verbs wémel and sméék which form part of gewémel and gesméék.
respectively, rather than to the nouns gewémel and gesméék. He also does not discuss whether the suffix -te would be added before or after ge-, or simultaneously. Similarly, in his discussion of ge- he claims that this prefix adds a meaning of collectivity to the complex word, but he does not consider whether ge- and the suffix -te are added together or in a particular order in words like gewémelte and gesméékte.

Let us now consider the two nouns in (67)(c) and (d). Again Kempen's discussion of these words throws no light on the order in which the affixes attach or the way in which the meaning of the complex word is derived. Kempen (1969:470, 574) notes that ge-, in words like gebérgte and gestéénte, and in several other similar nouns, denotes a collectiveness as does -te in these words. It would therefore appear that the words in (67)(c) and (d) include two affixes which add essentially the same meaning to the base.

Studies on similar words in Dutch have revealed two very different views on how the affixes in such words should be treated. Booij (1982:173-174), for example, proposes that ge- and -te constitute a discontinuous affix cluster and are thus added simultaneously to the base. Schultink (1986:106-107) has, however, challenged this position. He proposes that words which include both the prefix ge- and the suffix -te can be divided into three groups. In the first group are words like the Afrikaans ones in (67)(c) and (d) (cf. 68 for a Dutch example), in the second group are words such as that in (69) and finally, in the third group, are words like that in (70). In terms of Schultink's proposals which will be discussed in the following paragraph the internal structure of such words would be represented as illustrated in (68)-(70). Although Schultink considers the order in which the affixes attach, he does not pay much attention to meaning. Thus, the literal glosses, especially those marked with a question mark, are speculative and based on the comments he makes about the affixes ge- and te- which occur in the words.
(68) gebéénte
   [ge    [[béén] te]]
   ?nominalisation-bone - ?state of being
   "skeleton"

(69) gewóónte
   [[gewóón] te]
   regular - state of being
   "habit"

(70) gebóórte
   [[gebóór] te]
   ?borne - state of being
   "birth"

Dutch words like gebéénte are handled in the following way by Schultink (1986:107-108). The suffix -te is the same suffix as that found in de-adjectival nominals such as hóógte ("height") although Schultink (1986:107) admits that this would entail an extension of the subcategorisation possibilities of -te which usually attaches to adjectives. That is, in order to be able to attach to nouns like béén this suffix would have to be able to subcategorise for nouns as well as adjectives. The prefix ge- in (68) is the same as that found in deverbal nominals like gehúúil ("crying") according to Schultink (1986:107).

Dutch words like gewóónte are analysed in a slightly different way. They are taken to consist of a base, which is an adjective like gewóón ("usual"), to which the suffix -te attaches. Finally, the Dutch word gebóórte is taken to consist of a nonexistent, but possible, base gebóór plus the suffix -te. In the case of both gewóónte and gebóórte the suffix -te is the same as that found in hóógte ("height").

While Schultink's (1986) analysis of ge-/te forms in Dutch is innovative, it is not very detailed to the extent that the way in which the meaning of the words is constructed is not addressed.
There are a number of other words in Afrikaans which present similar problems for the linguist. Consider the past participles used adjectivally in (71).

(71)(a) Die tou is ge—drááí—d.
the-string-is—past part.—twist—?state
"The string is twisted."

(b) Die meisie is ge—kwalifiséér—d.
the-girl—is-past part.—qualify—?state
"The girl is qualified."

In each case the underlined word appears to include a prefix and a suffix. Most other past participles of verbs, when used adjectivally, do not include a word final d. This is illustrated in (72) below.

(72)(a) Die instrumente is ge—steriliséér.
the-instruments-are-past part.—sterilise
"The instruments are sterilised.

(b) Haar vel is ge—plóóí.
her—skin-is-past part.—wrinkle
"Her skin is wrinkled."

However, when past participial forms are used attributively and an adjectival marker —e is added, d will be present before the e if the base ends on a voiced sound and t will be present if the base ends on a voiceless sound as shown in (73).

(73)(a) ge—krúl—d—e
past part.—curl—?state—attributitive marker—hair
"curled hair (attributitive)"

(b) ge—kwés—t—e
past part.—wound—?state—attributitive marker—buck
"wounded buck (attributitive)"
There are at least three ways of dealing with the d and t in the words in (71)-(73):

(i) they are present in the underlying form and only surface when an -e is added;

(ii) they are inserted when an -e is added;

(iii) ge- and -d/-t constitute a discontinuous affix as Booij (1982:173-4) has suggested for similar affix clusters in Dutch.

Determining the best solution for the data in (71)-(73) lies beyond the scope of this thesis. I have implicitly assumed in the data in Section 4.2 that the d/t either surface (option (i)) or are inserted (option (ii)) when -e is added. However, neither these nor option (iii), if chosen, would change the generalisations made about the distribution of inflectional affixes relative to derivational affixes in this thesis.

4.4.2 Participial derivatives

Before turning to a second set of problematic data, let us consider the following words.

(74)(a) inbring
[[in] [bring]]
in - bring
"bring in"

(b) régkry
[[rég] [kry]]
right-get
"get right/manage"
(c) uitstap
[[uit] [stap]]
out - walk
"walk out"

The words in (74) above are examples of verbs which have been called "skeibaar saamgestelde werkwoorde" (separable compound verbs) by Afrikaans linguists and verb-particle combinations\textsuperscript{18} by Le Roux (1988:18). Le Roux characterises verb-particle combinations\textsuperscript{19} as verbal expressions which consist of a verb and another, nonverbal constituent, the particle, which in most cases resembles a preposition or an adverb. Le Roux (1988:348 note 3, 29-30) says that sometimes the particle may resemble a noun or an adjective and sometimes, as she herself shows, the verbal part of the combination may in fact be an adjective or a noun as in (75)(a) and (b) below. I will therefore refer to the verbs in (74) and (75) as separable compound verbs.

(75)(a) áfplat
[[áf] [plat]]
off-level
"level off"

(b) áftak
[[áf][tak]]
off-branch
"branch off"

Le Roux (1988:18) has further noted that such verbs exhibit "hybrid properties", that is, they exhibit properties of syntactically complex words on the one hand, and properties of phrases on the other hand.\textsuperscript{20} One of the properties which Le Roux (1988:23) identifies and discusses is what she terms "internal inflection". This is illustrated in the words below.
(76)(a) ingebring
    in - ge - bring
    in - past part. - bring
    "brought in"

(b) réggekry
    rég - ge - kry
    right - past part. - get
    "got right/managed"

(c) uitgestap
    uit - ge - stap
    out - past part. - walk
    "walked out"

The past participle prefix ge- in each case does not attach to
the separable compound verb as a whole, but rather attaches to
the right-hand verbal element. One could plausibly argue that
the words in (76) are compounds formed by the combination of an
adverbial/prepositional element and the past participle form of
the verb.21 Given this analysis the correct meaning would be
assigned to these words. Furthermore the analysis is possible
from a subcategorisation point of view as the prefix ge- can
attach to verbs. However, such an analysis would encounter
problems when the following words are considered. The examples
and the accompanying glosses are taken from Le Roux (1988:27-
28).

(77)(a) áánrand
    áán - rand
    on - border
    "assault/attack"

(b) tôérus
    tôé - rus
    to(wards)-rest
    "equip"
(c) uitsonder
   uit - sonder
   out - without
   "to single out"

The words in (77) above, like those in (75), are separable compound verbs. However, these two groups of words differ from each other in that the meanings of the words in (75) are compositional, whereas the meanings of those in (77) are non-compositional. As Le Roux (1988:23) points out, virtually all linguists who have discussed separable compound verbs agree that such forms tend to have non-compositional meanings.22

Consider now the following past participle forms of the separable compound verbs given in (78).

(78)(a) ángerand
   áan - ge - rand
   on - past part.- border
   "assaulted/attacked"

(b) tégerus
   to(e) - ge - rus
   to(wards)-past part.- rest
   "equipped"

(c) uitgesonder
   uit - ge - sonder
   out - past part.- without
   "singled out"

Given that the meaning of each of the compound verbs is non-compositional, certain difficulties arise in analysing the words in the same way as those in (76). The first two words could be analysed as consisting of a prepositional/adverbial element and the past participle form of the verb. However, uitgesonder is problematic in that the prefix ge- which attaches to verbs, cannot attach to sonder which is not a verb.
Let us now turn to the meanings which would be assigned to the words in (78) if they were analysed in the same way as those in (76). The meanings of áąngerand and tóégerus cannot be taken to be a combination of the meanings of the past participle form of the verb and the adverbial/prepositional left-hand member as this would yield the meanings "bordered on" and "rested to(wards)" instead of the correct meanings "assaulted" and "equipped" respectively. The meanings which the words in fact have can only be formed by combining the meaning of the prefix ge- with the meaning of the verb-particle combination as a whole. Thus the meaning of áąngerand and tóégerus will be formed by combining the meaning "past participle" with the meaning "assault", and the meaning "past participle" with the meaning "equip" respectively. The same arguments hold in the case of uitgesonder. One could perhaps argue that the words in (76) should be treated or analysed differently to those in (78). However, it would be preferable to treat all separable compound verbs in the same way, irrespective of whether some have compositional meanings and others have non-compositional meanings.

Equally problematic for much the same reasons are the closely related forms in (79)-(81) below. These forms are examples of separable compound verbs which include a past participle ge- plus the attributive adjectival marker -e, or a derivational suffix. As in the previous cases the question of the morphological representation or bracketing which one would assign to the word to ensure that the correct meaning is assigned to it, arises. I will not repeat the discussion here. Suffice it to say that in each case where the separable compound verb has a non-compositional meaning, the meaning of the prefix ge- must be added to the meaning of verb as a whole if the correct meaning is to be assigned to the adjective or the noun. If the meaning of the compound verb is compositional, the meaning of the prefix can be added in the same way as suggested for the examples in (76).
(79) (a) uitgerekte
[[[[uite] [geINF] [rek]]] eINF]
out - past part.-stretch-attributive marker
"outstretched (attributive)"

(b) uitgebreide
[[[uite - geINF - brei] eINF]
out - past part.-prepare-attributive marker
"broad/extensive"

(80) (a) afgerondheid
[[[[af] [geINF] [rond]]] heidW]
off - past part.-round - state of being
"roundedoffness"

(b) uitgebreidheid
[[[uite - geINF - brei] heid]W
out - past part.-prepare-state of being
"broadness/extensiveness"

(81) (a) vóórgevallene
[[[vóór - geINF - val] eneW]
in front-past part.-fall-that which
"an occurrence/what has happened"

(b) áangekommenen
[[[án - geINF - kom] eneW]
on - past part.-come-that which
"an arrival"

4.5 Conclusion

In this chapter the patterns of distribution of affixes relative to each other and relative to compounds were presented. The expected patterns of distribution with respect to Stem affixes appearing inside Word affixes occur. However, the data also revealed three other important facts.
(i) Firstly, the data in this chapter clearly reveal that the distribution of affixes is not as free as one would expect. That is, it is not the case that any Stem affix can appear before any Word affix. The possible syntagmatic orderings of affixes are much more restricted than this.

At this point it may be useful to reconsider the claim that Fabb (1988) has made about the ordering of suffixes in English, viz. that English allows only a small number of the possible suffix combinations which level-ordering allows. Recall from Section 2.4.3.3 that the same is in fact true of the category distinction type of approach. The data in Afrikaans, considered within a category distinction type of approach, reveals that similar claims can be made about the ordering of all derivational affixes in Afrikaans.

(ii) Secondly, the data reveal that certain inflectional affixes seem to have a much less restricted distribution than those in English in that they can occur both inside and outside Word affixes.

(iii) Thirdly, the data reveal that a number of counterexamples exist, similar in type, for the most part, to those encountered by the level-ordering and the category distinction linguists. In each counterexample are derivational affixes which exhibit a distributional pattern not typically associated with the class to which they belong. These counterexamples exist despite the fact that the origin of an affix was used as classification criterion. Given the counterexamples, any theoretical attempt to account for Afrikaans data in terms of the level-ordering or the category distinction approach will probably involve making the same types of ad hoc reanalyses of data and reclassifications of affixes that were made by proponents of these approaches for English (cf. Section 2.3.3 and 2.4.3). This suggests that there is once again something wrong with the classification of affixes which
was made. As the criterion used for classifying Afrikaans affixes is not the same as those criteria used in English and Dutch this suggests that the problem with classification may lie at a more fundamental level.

I will argue in the following chapter that the problem lies not with the criteria used to classify affixes, but rather with a fundamental assumption which all the level-ordering linguists and category distinction linguists made, one which I also made, viz. that morphological categories are discrete entities, entities which have clear, rather than fuzzy boundaries. It is to this (non-)discreteness of categories that we turn in the following chapter.
Notes

1. In terms of the category distinction approach inflectional affixes should be able to appear both inside and outside Word affixes. However, as shown for English data in Section 2.4.4, this is clearly incorrect. Inflectional affixes in English seem to be able to appear only outside word affixes. I am assuming at this stage that this is also the case in Afrikaans. Cf. Section 4.3.1 where the distribution of inflectional affixes relative to derivational affixes is considered.

2. Cf. Section 4.3.1 where the views of other Afrikaans linguists on the substandardness of two prefix sequences is discussed.

3. Exceptions are words like *gebergte* ("mountain range") and *gesmeëekte* ("a lot of pleading") which Kempen (1969:470, 574) claims include a prefix *ge-* and a suffix *-te*. Such words will be discussed in Section 4.4.1.

4. Botha (1982:216-217) distinguishes the following inflectional affixes for Afrikaans and shows that they attach to compounds in Afrikaans:

(i) the suffixes *-s* and *-e* which mark regular plural forms of nouns,

(ii) the suffixes *-er* and *-ste* which mark the comparative and superlative forms of adjectives respectively,

(iii) the prefix *ge-* which is used to form the past participle form of verbs, and

(iv) the suffix *-end* which is used to form the present participle of verbs.

She does not, however, provide any justification for
regarding these affixes as inflectional, rather than as derivational.

5 For the prefix *on-* to attach to *versóét* ("sweeten") this word must first become an adjective (*versóét* "sweetened") as *on-* does not attach to verbs. How this category change comes about is of no concern here or in other examples and will therefore be ignored.

6 Such stacking is also impossible in Dutch as shown in the examples *be-be-discussieer, *ver-ver-draai and *ont-ont-loop. Booij (1977:154) claims that these identical prefixes are unstressed and that Dutch has a principle which prevents a word formation rule from adding an identical affix unless the affix is stressed. Cf. also the following note.

7 Booij (1977:154) claims that the same holds for Dutch. He restricts the class of prefixes with which such recursive attachment is possible to those with primary stress in their underlying form. The following words represent some of the examples he presents:

(i) páraparanormaal
'"para-paranormal"

(ii) ánti-anti-raket-raket-raket
'"anti-anti-missile-missile-missile"

(iii)her-heroverweeg
"reconsider again"

8 Schultink (1980:238) claims that standard Dutch does not allow the repetition of an identical suffix and that this is a "not unusual, but nevertheless language-specific constraint". Booij (1977:153-154), however, claims that a suffix may occur more than once in a morphologically complex word if the two occurrences of the suffix are
separated by another, different suffix. Cf. also Odendal (1963) in which the possibility of double diminutives in Afrikaans was first mentioned, and Schultink (1974) where this insight also features prominently.

9 Cf. note 2 of Chapter 3.

10 Cf. Section 4.4.2 where separable and inseparable compound verbs are discussed in some detail.

11 Cf. Sections 2.2.1 and 3.4 where exocentric compounds in English and Afrikaans respectively are described.

12 In addition to these apparent plural suffixes a wide variety of other sound sequences are found before certain Word suffixes and even before the inflectional suffixes in the words shown in (i)-(iv). The sound sequence is underlined in each case.

(i) huïshouding
   [[huïshoud] ing_W]
   housekeep - process of
   "housekeeping"

(ii) kinderagtig
   [[kinder] âgtig_W]
   child - displaying apparent characteristics of
   "childish"

(iii) lâmmertjie
   [[lâmmer] tjie_W]
   lam - small
   "small lamb"

(iv) nóoiëns
   [[nóoiëns] s-INF]
   girl - more than one
   "girls"
Cf. also the discussion of such linking sound sequences in Section 4.3.2.

13 At this stage I am not making any claims about how one would derive the noun ármste from the corresponding adjective or what morphological mechanisms would be needed.

14 Cf. Combrink (1990:219-220) for a more detailed discussion of the reasons why some speakers leave out the ge- where it should be used.

15 Some speakers of Afrikaans would find the compound adjectives to which -er and -ste are added to be marginal (cf. (64) and (65)). Such speakers would rather use the words méer ("more") and (die) mées ("(the) most") with these adjectives.

16 Some mother tongue speakers would not agree that a perjorative meaning is added.

17 Given the assumption that the -te in gebéente is the same -te as found in hóogte, it should have the meaning "state of being". However, it would seem more plausible that it has the meaning "collection of", hence the ?.

18 Le Roux (1988:17) indicates that other terms such as "phrasal verbs", "separable prefix verbs", "particle verbs", "two word verbs", "separable verbal compounds", "separable verbs" and "discontinuous verbs" are also used to refer to these verbs.

19 There is also another class of "complex" verbs in Afrikaans, the so-called "onskeibaar saamgestelde werkwoorde" (inseparable compound verbs) which were discussed briefly in Section 4.3.2 with respect to the distribution of the inflection prefix ge-. Cf. (66) for examples of such verbs.
Botha (1980:136-137) presents a number of words similar to those in (81) in his discussion of synthetic compounds in Afrikaans. Botha (1980:137-138) says such words have conventionally been assigned the status of synthetic compounds. However, in terms of his analysis of synthetic compounds such forms exhibit some, but not all, of the properties of synthetic compounds. He does not, however, suggest ways in which to analyse such forms.

This is essentially the way in which Kempen (1969:141-413) analyses verb-particle combinations like those in (81).

Cf. Le Roux (1988:23-31) where she discusses the (non-)compositionality of meaning of various verb-particle combinations in Afrikaans.
CHAPTER 5

A COGNITIVE APPROACH TO MORPHOLOGICAL CATEGORISATION

5.1 Introduction

At the end of the previous chapter it was pointed out that an attempt to account for the ordering of affixes in Afrikaans relative to each other and relative to compounds within the framework of a category distinction approach is faced with certain counterexamples. These counterexamples are similar to those which the category distinction and level-ordering approaches are faced with when considering English data. The Afrikaans counterexamples exist despite the fact that a different classification criterion for derivational affixes was used. Given the similarity of the counterexamples in English and Afrikaans, it was suggested, at the end of the previous chapter, that the problem with the above-mentioned approaches lies not in the criteria used for the classification of affixes. Rather, it was claimed that the problem lies with one of the more fundamental assumptions which underly these approaches, viz. the assumption that affixes belong to morphological categories as discrete entities.

In the light of this claim, the aim of this chapter is twofold:

(i) to show that the level-ordering and category distinction linguists have to resort to ad hoc mechanisms, reanalyses and reclassifications of affixes in order to deal with the counterexamples with which they are faced because of the traditional or classical view of categories which they hold, viz. the view that categories are discrete, and
(ii) to show that the Afrikaans data in the previous chapter, including the counterexamples, can be accounted for in a simple way if one adopts an alternative view of categories, viz. the view that categories are non-discrete.

In order to achieve the above-mentioned aims I will discuss in the following order:

(i) the counterexamples which face level-ordering and category distinction linguists, the ad hoc mechanisms, reanalyses and reclassifications of affixes they had to resort to, showing that these are the result of the classical view of the nature of categories with which the afore-mentioned linguists work,

(ii) the prototype model of the nature of categories, with special reference to the work of Bybee (1985) on morphological categories,

(iii) the compatibility of this alternative view of the nature of categories with the level-ordering and category distinction approaches, and

(iv) the reinterpretation of the categories derivation and inflection in Afrikaans within a cognitive approach.

The discussion in this, the penultimate, chapter therefore deals with the essence of this thesis as captured in the title, viz. the discreteness versus non-discreteness of morphological categories.
5.2 Handling of counterexamples in the level-ordering and category distinction approaches

As will be recalled from Chapter 2 the aim of the level-ordering and the category distinction approaches is to provide an account of the distribution of affixes relative to each other and to compounds. Using extrinsic ordering and category distinctions proponents of these approaches are able to account for most of the distributional patterns shown by affixes. However, both approaches are faced with exactly the same problematic data which fall into the three groups given in (1)-(3) below.¹ In these and other examples in the chapter the subscript S indicates a Class I/Stem affix and the subscript W a Class II/Word affix.

(1) (a) ungrammaticality

[[unw [grammatical]] itys]²

(b) underestimation

[[underw [estimate]] ions]

(c) vice-presidential

[[vicew [president]] ials]

(d) macro-economist

[[macroII [economy]] istS]

(2) (a) transformational grammarian

[[[transformational] [grammár]] ians]

(b) atomic scientíst

[[[atomic] [sciences]] istS]

(c) cross-sectional

[[[cross] [section]] als]

(3) (a) nationalistic

[[[nation] als] istw] ics]

(b) analyzability

[[[analyze] ab(i)lew] itys]

(c) standardization

[[[standard] izew] átions]
Recall that the data in (1) are problematic in that a Class II/Word prefix had attached before a Class I/Stem suffix, while those in (2) are problematic in that a Class I suffix has attached to a compound. While it could be argued that another bracketing is possible in the case of the data in (1) and (2) linguists would argue that the bracketing given is the only one which yields the correct interpretation. The bracketing in each example indicates not only the order in which affixes attach, but also the sequence in which the meaning of the word is composed. Thus underestimation means "result of underestimating", rather than "estimation which is under" and transformational grammárían means "a person who does/works within transformational grammar", rather than "a grammarian who does/is transformational". In contrast the problem with ungrammaticáility is that one bracketing is required by the Stem/Word distinction or the Class I/Class II ordering, while another is required to satisfy the subcategorisation frame of un-. It cannot attach to the noun grammaticáity, only to the adjective grammátical. As mentioned in Section 2.3.2 the data in (1) and (2) are therefore usually referred to in the literature as bracketing paradoxes. One bracketing is required by the Compositionality Condition/ subcategorisation frame and another is required by the Stem/Word distinction or the Class I/Class II ordering whereby Stem/Class I affixation must precede Word/Class II affixation. Finally, the data in (3) are problematic in that a Class I/Stem suffix has attached outside a Class II/Word suffix, also in violation of the ordering required.

These recalcitrant data, especially the words in (1) and (2), have been the topic of discussion and debate in the work of not only level-ordering and category distinction linguists, but also in the work of other linguists such as Williams (1981) and Pesetsky (1985), for example. In their attempts to deal with these data, linguists have resorted to a wide range of ad hoc
mechanisms, re-analyses of data and reclassifications of affixes as was shown in Sections 2.3.3.3 and 2.3.4.3. Many linguists have criticised these attempts and have suggested what they believe to be better alternatives. Invariably the alternative analyses can, and, in many cases have been, shown to be problematic in certain respects. As many of the attempts to deal with the data in (1)-(3) were discussed in Chapter 2 I will merely be presenting a brief outline of some of the more well-known attempts not already discussed. 3

Recall from Section 2.4.3.3 that Sproat (1985a) attempts to account for bracketing paradoxes such as those in (1) by postulating two distinct structures for each of these words, a phonological and a syntactic structure. Pesetsky (1985) has proposed a similar type of analysis. Essentially his argument is as follows. Words such as those in (1) have two distinct structures which hold at different levels of representation. At the level of S-structure word structure is determined by morphological information. This means that level-ordering constraints and phonological conditions on affixation apply at this level. Words such as ungrammaticality must therefore be bracketed at the level of S-structure such that the Class I/Stem suffix -ity attaches before the Class II/Word prefix un-. C-selection requirements of affixes, that is, the requirement that an affix attaches to a specific word category, for example, noun, do not have to be met on the level of S-structure. Rather they have to be met at the level of Logical Form. At this level a word like ungrammaticality must be bracketed in such a way that the correct meaning can be assigned, that is, it must be bracketed as in (1)(a) above. At the level of Logical Form level-ordering and phonological constraints do not have to be met.

Williams (1981) has discussed data such as those in (1) and (2) above, with specific reference to the compositional and non-compositional nature of lexical relatedness. Briefly he claims that if two words are lexically related they share elements of form and meaning. Therefore the words work and
worker are lexically related as they both share the element work. Furthermore, if one accepts the strict compositionality of morphologically complex words, the meaning of a complex word is a function of the meaning of the parts which make up the word. The meaning of worker is therefore a function of the composition of the meanings of the verb work and the suffix -er. Given this interpretation of the notion 'lexically related', the problem with the words in (1) and (2) is that the bracketing required by level-ordering leads to the incorrect meaning being assigned to certain words like transformational grammárian. The bracketing would indicate that transformational and grammárian are related. This would yield the incorrect meaning "grammárian who does/is transformational" respectively. A non-compositional notion of lexical relatedness enables one to bracket transformational grammárian according to the level-ordering requirements, but relate parts of the word such as transformational grammar and -ian in such a way that the correct meaning is assigned to the word. This non-compositional re-interpretation of lexical relatedness which Williams (1981) has proposed has been widely criticised by Hoeksema (1985:119), Strauss (1982b), Botha (1984:112-129) and Spencer (1988:672-673).

Another, somewhat different solution to the data in (2) has been proposed by Spencer (1988:675). He suggests that bracketing paradoxes of the type in (2)(a) and (b), what he terms personal nouns, can be accounted for by appealing to "a novel type of word formation process, a type of productive back-formation" (Spencer (1988:680)). The essence of his argument can be illustrated with reference to the following diagram taken from his work (Spencer (1988:675)).

(4) grammar <------------------> grammárian
    |
    transformational <------------------> ?
    grammar
He assumes that the permanent lexicon includes two lexical items such as *grammar* and the corresponding derived personal noun *grammárian*. In addition, the assumption is made that the lexicon includes an expression like *transformational grammárian* in which the personal noun *grammárian* is modified by a derived adjective like *transformational*. Finally, Spencer (1988:675) assumes a general principle of English word formation which operates on words in the permanent lexicon. This principle licenses the formation of *transformational grammárian* given the existence of the *grammárian, grammárian* and *transformational grammárian* in the lexicon. The newly formed word is also listed in the lexicon. With the formation of *transformational grammárian* the square in (4) is completed. Spencer (1988:675) claims that what is important here is that the set of entries in the lexicon must be relatable in such a way that a closed path is formed between each of the four words in the square. That is, the square shown in (4) above must be completed. He also mentions two other "genuine restrictions" on the formation of these personal noun paradoxes. Firstly, the source expression, in this case *transformational grammar*, should be lexicalised or perceived as such, and, secondly, the head noun which bears the suffix, in this case *grammárian*, must be a word and must already be lexicalized with a meaning which contains that of the paradox.

At this point it would be useful to reconsider the problematic nature of the data in (1)-(3). The Class I suffixes and Class II prefixes which occur in the data have in common that they exhibit certain characteristics typical of the category to which they belong, but also exhibit certain characteristics typical of Class II suffixes and Class I prefixes respectively. That is, they exhibit certain distributional properties uncharacteristic of the class to which they belong. For example, the Class II prefixes in (1)-(3) display a distributional characteristic not typical of Class II prefixes, viz. the ability to attach before a Class I suffix. Usually Class II prefixes only attach after Class I suffixes. Such uncharacteristic behaviour of the Class II prefixes has lead to the types of solutions proposed such as
that of Selkirk (1982). To deal with Class II prefixes such as un-, re- and vice- she resorts to the creation of a new class of affixes, the dual class. Included in this class are all Class II prefixes such as un-, re- and vice- which exhibit, in addition to the distributional and stress properties typical of Class II prefixes, distributional properties more typical of Class I prefixes. The Class I suffixes found in the complex words in (1)-(3) are not, however, assigned to a dual class. As shown above other linguists have resorted to equally ad hoc solutions in order to deal with prefixes and suffixes which exhibit what are considered to be "uncharacteristic" distributional properties. However, the problem with all these solutions can be traced back to a fundamental assumption which the linguists make, viz. the assumption that morphological categories are discrete entities. This assumption encompasses a set of assumptions which are collectively referred to as the classical (Aristotelian) view (Taylor (1989:22ff.)) or the criterial-attribute model (Langacker (1987:14, 16)) of categories. This view or model incorporates the following assumptions which are taken from Taylor (1989:23-24).

(i) Categories are defined in terms of a conjunction of necessary and sufficient features.

(ii) Features are binary.

From assumption (ii) it follows that

(iii) categories have clear boundaries, and

(iv) all members of a category have equal status.

In terms of this view, the category of Class II prefixes, for example, will be defined in terms of certain features such as the feature that all such prefixes attach only after Class I suffixes, that they attach outside all Class I prefixes and can attach either inside or outside compounds. If these features are considered to be the features which are necessary and
sufficient for the definition of the category of Class II prefixes, then a given prefix must exhibit all the properties to be a member of the category. Furthermore these necessary and sufficient features are binary, therefore a prefix either possesses each of these features or it does not. Prefixes which attach only after Class I suffixes, outside Class I prefixes and inside or outside compounds will be members of the category of Class II prefixes, while those like un- which do not display all these features will not belong to this class. A clear boundary can therefore be drawn between those prefixes which are members of the category of Class II prefixes and those which are not. Furthermore, the category of Class II prefixes has a non-varying structure in that all prefixes which fall within this class have equal status. They all share the same distributional characteristics, amongst others, they attach only after Class I suffixes, behave as coherent set in this respect and are treated equivalently. Non-members of the category such as Class I prefixes also behave coherently as a set in that Class I prefixes, for example, can all attach after, or before, Class I suffixes and only appear inside compounds.

Given this inflexible conception of a morphological category the level-ordering and category distinction linguists had to either resort to creating a new (sub-)category for those prefixes which behave like Class I prefixes in some respects and like Class II prefixes in other respects or to accounting for the data with the use of ad hoc mechanisms. If, however, linguists were to conceive of categories in a different, more flexible way, that is, as non-discrete entities, the creation of new (sub-)categories, the reclassification of affixes (cf. Selkirk (1982)) as well as the postulation of other ad hoc solutions could be avoided. That is, none of the data in (1)-(3) would have to be regarded as problematic.

In the light of the above let us consider now the Afrikaans data which were labelled as problematic in the previous chapter. All the data contain affixes which exhibit a distributional property uncharacteristic of the affix category to which they belong.
Recall that the distributional patterns were considered within the framework of a category distinction type of approach. The counterexamples encountered in (5) and (6) below are similar to those in (1) and (2), which are repeated here as (8) and (9). There are two differences between the problematic data in Afrikaans and those found in English. Firstly, there are the data in (7). Corresponding words in English would not be counterexamples to the level-ordering and the category distinction approaches discussed in Chapter 2 as many of the English prefixes which correspond to those that I have classified as Stem (non-native) are regarded as Class II/Word prefixes or as having dual class status by level-ordering and/or category distinction linguists. Secondly, counterexamples of the type in (3), repeated here as (10), are not found in Afrikaans, probably also because of the different classification criterion used for Afrikaans affixes.

(5) (a) ongrammatikaliteit

[[onW [grammatikaal]] téitS]
not - grammatical - condition of being
"ungrammaticality"

(b) onproduktiwiteit

[[onW [[produk] iefS]] téitS]
not - product - has a bearing on-condition of being
"unproductivity"

(6) (a) non-alkohólies

[nonS [[alkóhol] iesW]]
not - alcohol - pertaining to
"non-alcoholic"

(b) ánti-herstrukturering

[ántiS [[herW [[struktuur] eers]] ingW]]
against - again - structure - make - result of
"anti-restructuring"
(7)(a) Suid-Amerikâans
[[Suid] [Amerika] ááns<G>]
south - America - pertaining to
"South American"

(b) Oos-Pretoriáán
[[Oos] [Pretoria] ááns<G>]
east - Pretoria - person from
"East Pretorian"

(c) Maleis-Portugesísme
[[Maleis] [Portugees] ísmes<G>]
Malay - Portugese - doctrine of
"Malayo-Portugeisism"

(d) anti-langbroek
[[anti]<G> [[lang] [broek]]]
against - long - pants
"against the wearing of long pants"

(8)(a) ungrammaticalité
[[un<W> [grammaticál] ity<G>]
(b) underestimation
[[under<W> [estimáte]] ions<G>]
(c) vice-presidential
[[vice<W> [presidént]] ial<G>]

(9)(a) transformational grammárian
[[[transformational] [grammár]] iang]<G>
(b) atomic sciéntist
[[[atomic] [sciénce]] ist<G>]
(c) cross-séctional
[[[cross] [séction]] alg]<G>

(10)(a) nationalistic
(b) analyzability
[[[analyze] ab(i)le<W>] ity<G>]}
The category distinction approach is thus faced with the same set of counterexamples in Afrikaans as in English. The reason for this can be traced back to a fundamental assumption underlies this approach as well as the level-ordering approach, viz. that morphological categories are discrete. If this assumption is made, and an attempt is made to account for the Afrikaans data in (8)-(10) within a category distinction approach, one would have to probably resort to the same types of ad hoc mechanisms, reanalyses and/or reclassifications of data discussed above.

In the next section an alternative conception of the nature of categories will be considered with specific reference to the work of Bybee (1985) on morphological categories.

5.3 The cognitive approach to morphological categories

5.3.1 The cognitive conception of the nature of categories

According to Corrigan (1989:3), while there is general agreement that categorisation is a fundamental human ability, there is not any agreement on the nature of this ability to categorise. As pointed out in the previous section, certain linguists work from a classical view of categories whereby categories are treated as discrete entities. Langacker (1987:14), however, points out that

"[m]uch in language is a matter of degree. Linguistic relationships are not invariably all-or-nothing affairs, nor are the linguistic categories always sharply defined and never fuzzy around the edges. This is perhaps unfortunate from the analytical standpoint - discrete entities are easier to manipulate, require simpler descriptive tools, lend themselves to stronger claims, and yield
esthetically more pleasing analyses - but it is true nonetheless. Eventually the predilections of the analyst must give way to the actual complexity of the empirical data. Nondiscrete aspects of language structure must be accommodated organically in the basic design of an adequate linguistic theory."

In the light of these comments let us consider the conception of the nature of categories which emerged from work in the field of cognitive psychology, in particular from the work done by, for example, Rosch (1973; 1975a; 1978; 1981) and her colleagues. This conception of categories constitutes one of the basic tenets of cognitive grammar. Within the cognitive approach to categorisation there are no features which are essential that is, necessary and sufficient, for membership in a category. There are only features which are typically associated with a category and which instantiate certain perceived similarities between the members of such a category. Of the features typically associated with a category not all will necessarily be common to all members of the category. In fact, there may be no features which are common to all members. Therefore, some features may be shared by certain members of a category, while other features may be shared by different members of the category and some members may have virtually nothing in common with others. Furthermore, it is not the case that a particular member of a category either does or does not have a particular feature, but rather that it may have that feature to a greater or lesser degree. This contrasts with the traditional view of categories in which features used to define a category are treated as binary constructs.

Other experimental work which has been done suggests that there are certain features, the predominant features, which are more central to the characterisation of a category than others. These features tend to hold for most of the members of a particular category, especially for its most typical members, but do not hold for members of neighbouring categories. Clark (1979:790) suggests that these predominant features can be derived from notions of "cue validity". For any particular cue or feature the more it serves to distinguish the members of one
category from members of other categories the more valid it is said to be for that category. Categories should include features which maximise the similarity between the members of the same category and the dissimilarity between members of different categories.

The more features, resemblances and/or similarities which a category member shares with other members in a category the more typical of that category it is judged to be. Those members which are the best examples of, or the most typical members of, a category are known as the prototypical members of that category. According to Langacker (1987:17) categories are often organised around such prototypical members which are those instances that people accept as "common, run-of-the-mill, garden-variety members of the category". In addition they are generally the instances which occur the most frequently in our experience,\(^5\) tend to be learnt earliest and which can be identified experimentally. Those members of a category which are the worst exemplars of a category are obviously the least typical members of the category. Such members are assimilated to the category to the extent that they are seen as matching or approximating the prototype (Langacker (1987:17)).

Given these assumptions about prototypical and non-prototypical members of a category, it follows that there are certain asymmetries within a category. That is, it follows that there are various degrees of category membership. Categories, according to Corrigan (1989:4), are therefore not structured in an all-or-none fashion as they are from a traditional viewpoint, but rather in a probabilistic way. The prototypical members are regarded as the central members of a category and serve as reference points for the categorisation of less typical members of the category. The less typical members are then graded from more to less typical with reference to the prototypical members depending to what extent and in what ways they deviate from the prototype (Langacker (1987:17)).

In the light of what has been said above about categories, it is
obvious that there is no basis for uniquely distinguishing one category from another. That is, one cannot draw a clear boundary between any two categories. Categories are therefore conceived of as being continuous (Corrigan (1989:4)) or non-discrete. Given this conception of categories, neither members nor non-members of a category form a uniquely defined set.

In summary: the prototype (Langacker (1987:5)) or central tendencies (Rosch (1975a)) model of categories entails the following assumptions:

(i) there are no features which are necessary and sufficient for the definition of a category,

(ii) features are not binary constructs,

(iii) categories are continuous, or non-discrete, and

(iv) categories have internal structure with prototypical, less typical and least typical members.

Against the background of the above discussion of the prototype model of categories I turn, in the next section, to a discussion of morphological categories with specific reference to the work of Bybee (1985) on continua of morphological categories or expression types. The discussion will include an explication of certain key notions in relation to the continua.

5.3.2 Continua of morphological categories

In her discussion of morphological categories Bybee (1985:11-12) distinguishes the following three major expression types or morphological categories which are found in language:

(i) Lexical expression is found when two or more semantic elements are expressed in a single lexical item. For example, the lexical item *drop* combines the semantic
elements 'fall' and 'cause' at some level of analysis. Bybee (1985) does not, however, indicate whether there are single lexical items in which only one semantic element is expressed.

(ii) Inflectional expression is found when each semantic element is expressed in an individual unit, the units being bound into a single form. Examples of inflectional expression include affixes which are added to a stem as in the regularly inflected past tense form *jumped* or a change in the phonological form of the stem itself as found in the irregularly inflected verb *sung*. Bybee (1985:11) further claims that a morphological category is inflectional if some member of the category obligatorily accompanies the radical element when it occurs in a finite clause.

(iii) In syntactic expression, in contrast to lexical and inflectional expression, the different semantic relations are expressed by totally separable and independent units, that is, by separate forms. For example, the separate words *cause* to *know* constitute the syntactic expression of the semantic elements 'causative' and 'know'.

In addition to these three major expression types Bybee (1985:12) distinguishes the following two intermediate expression types:

(iv) Derivational expression resembles lexical expression, on the one hand, and inflectional expression, on the other, these being the two categories between which it falls. Firstly, like lexical expression, derivational morphemes are often restricted in applicability and have idiosyncratic formation and/or meaning. However, like inflectional expression, derivational expression involves the combination of two distinct morphemes into a word.
Finally, there are free grammatical morphemes like the cliticised object pronouns of Spanish and French and the modal auxiliaries of English (Bybee (1985:12)). These items are like inflectional expression in that they belong to a closed class and obligatorily occur in certain syntactic constructions. However, they are more like syntactic expression in that they are not bound to any lexical item.

At a later stage in her book, Bybee (1985:105-109) also mentions two other, intermediate, morphological expression types which are related to derivation, viz. compounding and incorporation. Words formed by these processes differ from those formed by inflectional or derivational processes. Compounds and incorporated forms contain two lexical elements, that is, more than one stem or root. Inflected and derived words, on the other hand, contain a lexical and a grammatical element, that is, a stem or root and an affix.

Compounding, according to Bybee (1985:106), has characteristics of both syntactic and lexical expression. On the one hand, it resembles syntactic expression in that the units which are combined exist independently as words. On the other hand, compounds resemble lexical expression in that the result of compounding is a word and the meaning of the word is not predictable from a composition of the meaning of its parts. The reason for this, she claims, is that compounds become lexicalised and tend to gradually lose their semantic and phonological transparency.

Incorporation is a term used to cover a variety of verb-formation processes ranging from those that are derivation-like to those which are compound-like. In some languages the forms which are incorporated have no cognate free morphemes and therefore seem to be like derivational affixes. The complex words in which they appear are more derivation-like than compound-like. In certain other languages, the incorporated forms exist as independent
words in other constructions. As these incorporated forms are similar to words which are joined to form compounds, the incorporation structures resemble compounds. Other than examples of languages which exemplify one or both of these options, Bybee (1985:106-107) does not illustrate her claims. She only gives the following examples from Tiwi which illustrate the morpho-phonological differences which are sometimes found between a free and incorporated form when they are cognate. She does not provide glosses for the free forms.

\[
\begin{align*}
\text{ęŋkali-} & \quad \text{jinkala} & \text{"upper leg"} \\
\text{məɾɔ} & \quad \text{murupuaka} & \text{"ankle"}
\end{align*}
\]

In her rather detailed discussion of the distinction between derivational and inflectional categories Bybee (1985:5, 13-19, 82-87) shows that the formal differences between these two expression types are closely related to their meanings. The parameters along which their meanings are taken to differ are relevance and generality. These two parameters are used by Bybee (1985) to determine differences between the categories derivation and inflection as well as between various inflectional affixes, on the one hand, and derivational affixes, on the other hand. As background to my discussion of the categories inflection and derivation in Afrikaans in Section 5.5, I would like to consider Bybee's use of these two parameters.

Relevance, according to Bybee (1985:5, 82-84), is the extent to which the meaning of an affix directly affects the lexical content of the base to which it attaches. Although all morphological categories must be high in relevance, the different degrees of relevance are responsible for the derivational/inflectional distinction and the hierachical relationships within each type of category. For example, derivational affixes which do not change the category of the word to which they attach usually cause a substantial meaning change in the base. For example, the prefix un- which attaches
to verbs like tie, zip and hook to form untie, unzip and unhook respectively, causes a significant meaning change in that it affects the description of the situation. In contrast, the suffix -ly which forms adverbs like intelligently from adjectives like intelligent only adds the sense that the word describes the manner in which an event took place. It does not change the significance of the attribute which the adjective describes and therefore is more inflectional than un- as regards the relevance parameter.

The second parameter which Bybee (1985:84-87) distinguishes is that of generality. In derivational morphology, for example, one may find that a certain affix like -ment attaches only to a small number of verbs, rather than to all verbs, to form nouns like développement. Other affixes like the gerundival -ing may attach to practically all verbs in English. This suffix is, in terms of generality, more inflection-like than -ment. The lack of full generality of some derivational morphemes can be attributed to their meanings according to Bybee (1985:87).

Inflectional affixes, in contrast to derivational affixes, generally attach to all members of a particular word class. Bybee (1985:84) says that if an inflectional category is obligatory in a particular syntactic construction, there must be "an exponent of that category for any lexical item that fits that slot in the syntactic structure". This does not mean that all expressions of an inflectional category have to be regular or productive for the particular category to display generality. There must merely be some way to form the inflection. For example, the fact that there are many verbs in English that form the past tense and past participle forms irregularly, that is, by vowel change (e.g. ran), not by the addition of a suffix (e.g. jumped), does not mean that the inflectional category Past tense does not have full generality.
Other inflectional affixes like the plural suffixes are, however, more derivational-like with respect to generality as there are a number of defective paradigms according to Bybee (1985:85). She cites the work of Beard (1981) who identifies the defective paradigms as pluralia tantum, that is, plurals which do not have corresponding singular forms such as *óats* and *pliers* and singularis tantum, that is, singulars which have no corresponding plural form such as *péace* and *contemplátion*. Beard (1981) argues, on the basis of such data, that Indo-European nominal number is a derivational, rather than an inflectional category. Bybee (1985:85) claims that within her framework such data can be interpreted in a different way. The data can be taken to indicate that noun number "lies closer to the lexical end of [the] continuum" as a change in number causes a change in the entity or entities being referred to. Such a semantic change to the base word is more typical of derivational than inflectional categories.

Bybee (1985:107-108) also claims that there is a gradient difference between compounding, incorporation and derivation with respect to generality of meaning and relevance. However, she only illustrates this with reference to the gradient difference between compounding and incorporation and even this reference is very brief. From what she says about compounding, and what she says in discussions about derivation the following differences between compounding and derivation can be inferred. With reference to generality Bybee (1985:107-108) says that the elements which are joined to form a compound do not differ in generality of meaning from the same elements when they occur independently as words. Thus *baby* used independently and in the compound *babysit* refer to the same entity, although the former has a referential and the latter a generic function. Obviously derivational affixes are restricted in generality in comparison to compounds as derivational affixes, because of their meanings, only attach to particular members of a class of adjectives or nouns, for example. With respect to relevance Bybee (1985:108) claims that compounding is free of lexical restrictions, presumably in the following sense. The right hand member of a
compound such as *tablecloth* does not change the entity to which the word cloth refers, it only specifies the type of cloth. In contrast, derivational affixes affect the meaning of the word to which they attach to a greater or lesser degree (cf. the discussion above).

It is evident from the discussion above that there are gradient differences between various morphological categories as well as between members of each category, with respect to the two parameters, relevance and generality. In order to account for these and other gradient differences between expression types or morphological categories, Bybee (1985:12) claims that the above-mentioned expression types do not "constitute discrete categories, but rather mark off areas on a continuum". This continuum ranges from the most highly fused means of expression, viz. lexical expression, to the most loosely joined means of expression, viz. syntactic expression, as shown in the continuum below which has been adapted from Bybee (1985:12).

(11) lexical--derivational--inflectional--free ---- syntactic grammatical

<----------------------------------------------------------

greater degree of fusion
greater degree of relevance
lesser degree of generality

Compounding is not included in the continuum in (11). Bybee (1985:108) suggests the following continuum to represent the gradient differences which exist between compounding, incorporation and derivation.

(12) compounding---incorporation---derivation---inflection

<----------------------------------------------------------

greater degree of fusion
greater degree of relevance
lesser degree of generality

She identifies compounding, at the one end of the continuum, as the "freest" expression type, involving the largest class of
items with the richest and most specific meanings. At the other end of the continuum is inflection which is the most constrained, involving the smallest class of items with the most abstract and general meanings.

Obviously the ideal would be to amalgamate the two continua as there is a great deal of overlap between the two, but Bybee (1985) does not mention or show how this could be done. In Section 5.5.2 the amalgamation of the two continua will be considered in detail.

As noted above, categories are structured in a gradient way, not only with respect to other categories, but also internally with respect to category members. The first type of gradience is handled by organising the categories along a continuum as shown in (11) and (12) above. The second type of gradience is accounted for by assuming that the categories which lie along these continua are structured in the following way.

(13)

```
derivation

least--less--proto--less

3 2 1 2

inflection

least--less--proto--less--least

3 2 1 2 3
```
The prototypical members of each category lie in the central part of the area marked off by each category, that is, in the area marked 1. The least typical members of each category lie close to the edge of the area marked by each category, that is, where the two adjacent categories merge. This area is marked 3 on the continuum. The less typical members of each category lie in the areas marked 2. The area on the continuum where the prototypical members of a category lie is referred to as the focal area of the category and the prototypical members are therefore often referred to as the focal exemplars of the category. The area near the boundary between two adjacent categories on the continuum is the fuzzy area. This is the area in which the least typical members of a category are found and where a certain amount of overlap with an adjacent category may be found. For example, certain members of the category derivation may be similar to certain members of the category inflection with respect to relevance and/or generality. Such members are found in the area of overlap between the two categories, that is, in the area marked 3 in the middle of the continuum.

5.3.3 Shifts and directions of change

In her discussion of the various morphological categories, Bybee (1985:17) claims that words and derivational affixes may undergo changes, with words becoming more affix-like and affixes becoming more word-like. For example, words may, over the years, be reduced with respect to their phonological shape and their semantic content, become clitics and then finally inflectional affixes. In terms of Bybee's continuum this means that a shift can occur from a form which can exist independently as a word with meaning, that is, as a free morpheme, to a form which can only function when attached to another morpheme, that is, as a bound morpheme. A shift can therefore occur from the syntactic area on the continuum to the inflectional area on the continuum. For a form to occur commonly enough to be reduced and become a bound morpheme Bybee (1985:17) says that it must have a meaning which is general enough to be appropriately
combinable with any stem of a particular syntactic category. It must also have a meaning that is communicatively useful enough to ensure a high frequency of occurrence.

Another shift which is also possible, according to Bybee (1985:106), is that from the compound area on the continuum to the derivational area. Such a shift occurs, she says, when one of the elements of a compound becomes a derivational affix because of its occurrence in a large number of compounds. This means that a shift can occur from a free morpheme in the direction of a bound morpheme. For example, she claims that derived adjectives/adverbs formed by the attachment of the suffix 

\[ -\text{ly} \]

developed from an earlier compound form which included \( -\text{like} \), similar to the compound child-like which still occurs in English. With the change in form the meaning of the "suffix" generalised from "having the appearance of" (the entity described by the noun stem) to "having the qualities appropriate to" (the entity described by the noun stem) according to the Oxford English Dictionary.\(^8\)

Although Bybee's discussion of shifts is brief, it is obvious that members of a particular category can change and undergo a shift on the continuum, becoming more like members of an adjacent category. They can thus shift in the direction of an adjacent category on either side of them on the continuum and with such a shift take on certain characteristics of the adjacent category members with respect to features like generality and relevance.

5.4 Non-discreteness of categories and the formal approaches

5.4.1 General remarks

It was stated above that the conception of the nature of categories set out in the previous section constitutes a part of what is known as cognitive grammar (Langacker (1987:14-19)). It
is possible that this conception could be compatible with the level-ordering and/or category distinction approaches. In the next section I will show that the prototype model of categories is not fully compatible with either of these approaches.

5.4.2 Non-discreteness and the level-ordering approach

Let us consider first a level-ordering approach in which the following two basic assumptions are made:

(i) morphological categories are not discrete entities, and

(ii) the distribution of categories is accounted for in terms of the mechanism of extrinsic ordering along the lines of Kiparsky (1982a; 1982b) and Mohanan (1982), for example.

I will be using Kiparsky's (1982a:132; 1982b:2) model of level-ordering to illustrate my arguments as this model is the most comprehensive in terms of the WFRs it includes.

To account for data in which affixes which belong to Class I, for example, attach after Class II affixes, one could make a number of different assumptions. One possibility is to assume that level-ordering holds only for the prototypical members of each category. For the poor, or least typical, exemplars of a particular category, this would mean that one would have to assume a loop between each level along the lines shown in (14) to enable words which include affixes with non-prototypical properties to be formed.

(14) Class I affixation/Irregular inflectional affixation
    Class II affixation and compounding
    Regular inflectional affixation

Having loops between each level would be a severe weakening of the whole concept of ordering. An alternative would be to
merely exclude less and the least typical affixes from such a model and assume that only prototypical affixes are subject to level-ordering constraints. This is problematic in that the affixes which would be excluded may occur in affix sequences with prototypical affixes. It would also not be capable of handling shifts as it would be difficult to decide to which category the affix belonged before the shift took place.

A third option is to assume that there is some sort of non-discreteness between the levels so that one has a fuzziness between the levels of Class I affixation and Class II affixation/compounding, for example, and between Class II affixation/compounding and the level of regular inflectional affixation. One would then have to show that the particular extrinsic ordering of rules being proposed does in fact account for all the possible orderings of affixes, both inflectional and derivational, relative to each other. The zig-zag pattern between the levels in (15) represents the fuzziness between these levels.

(15) Class I affixation/Irregular inflectional affixation
     /                           /                           /
    Class II affixation and compounding
     /                           /                           /
    Regular inflectional affixation

Even if we accept one of the three options offered above, there are a number of other problems which remain unresolved. For example, there is question of whether two classes of affixes like the Class I prefixes and suffixes, and Class II prefixes and suffixes which display such different sets of properties should be placed together on a common level. It would seem that the properties of the prefixes and suffixes of each class are different enough to warrant each class being treated separately as suggested by Strauss (1982a:42). Then there is the recent claim by Fabb (1988:538) that, in fact, level ordering is not restrictive enough to account for the mere 50 occurring suffix combinations of the 614 which are predicted to be possible by
level-ordering (cf. Section 2.3.3.3). It would therefore seem that extrinsic ordering as a means of accounting for the distributional and stress properties of affixes is fraught with a number of difficulties. Trying to retain level-ordering, while assuming categories as non-discrete does not appear to offer a reasonable solution to the problems.

5.4.3 Non-discreteness and the category distinction approach

Let us now consider a category distinction model in which the following assumptions are made:

(i) morphological categories are non-discrete, and

(ii) the distribution of affixes can be accounted for in terms of subcategorisation, that is, affixes subcategorise for either Stems or Words along the lines suggested by Selkirk (1982), Guerssel (1983) and Sproat (1985a).

Selkirk (1982), Guerssel (1983) and Sproat (1985a) all implicitly or explicitly accept the division of affixes into two classes made by level-ordering linguists like Siegel (1974). That is, they accept a division made on the basis of the stress properties of affixes. Recall that in the previous chapter I took non-native affixes to be Stem affixes and native affixes to be Word affixes. The options to be examined in this section with respect to non-discreteness and category distinction approaches hold irrespective of the basis on which the division of affixes is made. Given the assumptions (i) and (ii) above, the following two options present themselves. Firstly, all Stem affixes subcategorise for Stems and all Word affixes subcategorise for Words. Prototypical Stem affixes would be those which display only the expected subcategorisation properties. Less and the least typical affixes would be those which subcategorise for both Stems and Words. This could, however, be argued to be similar to assigning the affixes dual class status.
An alternative option is to have affixes subcategorise for adjectives without any further subdivision of adjectives into Words or Stems. Typical Stem affixes would be those which attach to adjectival Stems only, while less typical Stem affixes would be those which attach to adjectival Stems and Words, for example. Similarly, typical Word affixes would attach to adjectival Words only, while less typical Word affixes would attach to both adjectival Stems and Words. Once again this option would be similar to having dual class affixes.

While these options seem to be slightly better than the options proposed with respect to level-ordering one must still take into account Fabb's (1988:538) criticism of level-ordering, viz. that it is not restrictive enough in that it predicts a number of non-occurring suffix sequences, which was pointed out in Sections 2.3.3.3 and 2.4.3.3. Fabb's criticism of the level-ordering approach is also true of the category distinction approach. The latter only accounts for the ordering of all Stem affixes as a class before all Word affixes, but does not account for the ordering of a particular Stem affix with respect to a particular Word affix.

As was pointed out at the end of the previous chapter the Afrikaans data reveal that the same sorts of claims which Fabb (1988) makes about suffix sequences in English could be made about suffix and prefix sequences in Afrikaans. On the basis of the data it appeared that affixes, in addition to subcategorising for an adjective, noun or verb, as the case may be, would also have to be marked as attaching to underived words or to derived words which include a particular suffix or prefix along the lines suggested by Guerssel (1983) and Fabb (1988). The implication of this is that a category-distinction approach using the notion of the non-discreteness of categories as suggested above, will not be adequate to account for the distributional properties which affixes in fact exhibit in complex words.
5.5 **Morphological categories as continua in Afrikaans**

5.5.1 **General remarks**

In this section I will present a revised conception of continua of morphological categories with specific reference to affix categories in Afrikaans. Thereafter I will consider the internal structure of the categories of inflection and derivation which lie along such a continuum. This section forms the background for Chapter 6 in which I will examine how the Afrikaans data in the previous chapter can be accounted for within an approach which conceives of categories as being non-discrete entities.

5.5.2 **The continuum of morphological categories in Afrikaans**

In Section 5.3.2 the following two continua proposed by Bybee (1985) were presented, both in slightly adapted form.

(16) lexical--derivational--inflectional--free ---- syntactic grammatical

<----------------------------------------------------------

greater degree of fusion
greater degree of relevance
lesser degree of generality

(17) compounding---incorporation---derivation---inflection

<----------------------------------------------------------

greater degree of fusion
greater degree of relevance
lesser degree of generality

It is obvious that these two continua need to be integrated as there is a considerable overlap between the two. On a continuum of categories for Afrikaans, incorporation can be excluded as I am not aware of any examples of incorporation in Afrikaans. Furthermore, while continua like those in (16) and (17) are useful in representing the non-discrete nature of morphological
categories found in a language like Afrikaans, they are oversimplified when one tries to explain the gradient difference between categories, the shifts that occur and the direction of such shifts. While linear sequencing may therefore be a general organising principle of categories along a continuum, it does not necessarily allow for the variety of relationships between the categories, in particular for the boundaries between the various categories. I therefore suggest that there is a semi-circular relationship between the categories as represented in the following continuum. For the sake of simplicity I have only represented some of the relationships which hold between categories along the continuum. The abbreviation "free gramm." in (18) stands for "free grammatical".

(18)

\[
\begin{array}{c}
\text{compounding-lexical-derivational-inflectional-free-syntactic} \\
\text{gramm.}
\end{array}
\]

In the discussion in Chapter 6 reference will be made in more detail to the relationships which have to be postulated between categories along this continuum. By representing the relationship between categories in this way one can explain, on the one hand, how a derivational affix and the word to which it attaches may become so fused that the word becomes a lexical item. On the other hand, one can also explain how a derivational affix may become more word-like to the extent that it can be used independently with meaning. One can also explain why the complex word in which it occurs has compound-like features. The conception of the relationships between categories on the continuum shown in (18) would also enable one to explain how compounds are related to lexical expression which
is adjacent to compounding on the continuum. It also enables one to explain how compounds are related to syntactic expression which lies at the other end of the continuum. Note that the categories along the continuum, like derivation and inflection, can be interpreted as either referring to derivational and inflectional affixes, on the one hand, or to complex derivationally and inflectionally derived words on the other.

Before proceeding, brief reference needs to be made to zero-affixation. I have not postulated zero affixation as forming part of the continuum in (18). Rather, I would like to suggest that there are other ways in which to treat words formed be zero affixation without having to resort to the type of zero-affixation adopted by the level-ordering linguists. I will discuss this in Section 6.3.

Considering what has been said about morphological categories being non-discrete and lying along a continuum one would expect the various morphological categories in Afrikaans, in particular the affix categories, to also exhibit such differences both inter- as well as intra-categorially. Furthermore, given that members of various categories along the continuum undergo changes becoming more like members of adjacent categories (cf. Section 5.3.3), one would expect to find such changes in Afrikaans as well. In the following section I will consider members of the category inflection in Afrikaans and in Section 5.5.4 members of the category of derivational affixes.

5.5.3 The category inflection

As was pointed out in Section 5.3.2, Bybee (1985:82, 87) claims that the distinction between inflection and derivation is a gradual or gradient one, rather than a clear or discrete one. In this section I would like to consider the inflectional affixes distinguished for Afrikaans in Section 3.3.1 and whose patterns of distribution were illustrated in Section 4.3. I will try to determine where on the inflectional/derivational part of the continuum in (18) they lie.
There are three features which are typically associated with inflectional affixes and which can be used to distinguish them from derivational affixes. In the first place there is the feature of obligatoriness in certain syntactic constructions which was used in Chapter 3 to distinguish inflectional affixes from derivational affixes. Bybee (1985:82) claims that "perhaps the obligatoriness criterion, actually provides a discrete division between derivational and inflectional processes" and this, in fact, seems to be the case in Afrikaans. However, with respect to the features of generality and relevance a distinction can be made between Afrikaans inflectional affixes which could be regarded as prototypical inflectional affixes and those which seem to be less inflection-like/more derivation-like. In addition to the three features already mentioned one can also distinguish between various inflectional affixes on the basis of their (in-)ability to appear in certain sequences of derivational and inflectional affixes.

Let us first consider the past participle prefix ge- which was taken to be inflectional as it is obligatory in the verb phrase of the sentence (19)(a).

(19)(a) Sy het ’n koek gebak.
   she-has-a-cake-baked
   "She has baked a cake."

(b) *Sy het ’n koek bak.
   she-has-a-cake-bake

With respect to relevance the past participle prefix ge- in Afrikaans seems to differ from affixes indicating tense in other languages. Bybee (1985:22) states that a tense distinction does not affect the meaning of the verb as the situation which the verb refers to stays the same irrespective of whether the situation is in the present or the past. However, in Afrikaans the prefix ge- merely serves to mark the verb as the past participle form. It does not seem to add past tense meaning as such, since the past tense of the verb in a finite clause in
Afrikaans is indicated by the auxiliary het ("has") on its own (cf. the examples in (21) below) or together with the past participle form of the verb.

Let us consider now the generality of the past participle prefix ge- in Afrikaans. As was pointed out in Section 4.3.1 both Kempen (1969:591) and De Villiers (1976:162) claim that the inflectional prefix ge- with verbs beginning with the sound sequences be-, er-, ge-, her-, ont- and ver- results in unacceptable, substandard sequences (cf. (20)). The prefix ge- is therefore not generally applicable in "Standard" Afrikaans.10

(20)(a) *[ge [bepaal]]
    past part. - determine

(b) *[ge [erken]]
    past part. - admit

(c) *[ge [genees]]
    past part. - cure

(d) *[ge [herboor]]
    past part. - redrill

(e) *[ge [onteer]]
    past part. - dishonour

(f) *[ge [verleen]]
    past part. - give

However, as Combrink (1990:219) has claimed, speakers of what he calls Substandard Afrikaans overgeneralise the use of ge- and use it with virtually any verb. Such speakers would therefore probably use the past participle forms in (20). In contrast, those who speak so-called Suprastandard Afrikaans often leave ge- out where it should be used as shown in the sentences below which are taken from Combrink (1990:219). The past tense in these sentences is indicated solely by the use of the auxiliary
het ("have/has"). The verb which should be inflected is underlined in each case. Note that the verb bestel in (21)(b) begins with the sound sequence be and therefore does not allow ge- to be added even in Standard Afrikaans.

(21) (a) Hy het die boek in swart en wit illustreër.
"He has illustrated the book in black and white."

(b) Sy het op 'n advertensie reageër en hoendertjies bestel oor die pos.
"She reacted to an advertisement and ordered small chickens through the post."

Given the different uses of ge- there seems to be a "pull" in Afrikaans. Some speakers overgeneralise the past participle prefix ge- giving it greater generality and making it more inflection-like, while others restrict its application, even if only to show refinedness, making it less general and therefore less inflection-like.

Thus there is a difference between speakers of Afrikaans with respect to obligatoriness as a feature of morphological categories. For those who speak Standard Afrikaans ge- is obligatory in a finite verb phrase with verbs other than those in (20). For speakers of Substandard Afrikaans ge- is obligatory in the same syntactic construction, but with all verbs. In contrast to the speakers of these two dialects, the speakers of Suprastandard Afrikaans do not regard the use of ge- as obligatory. Such differences in obligatoriness between various speakers of Afrikaans will be ignored at this stage, but will be considered again in Section 6.2.2.1.2.

Other inflectional affixes which were distinguished in Chapter 3 are the regular plural suffixes -s and -e. There are
indications that these suffixes may be somewhat derivation-like. As was pointed out, these suffixes can be classified as inflectional because they are obligatory in the syntactic construction in (22)(a).

(22)(a) Daar lê drie ëppels op die tafel.
there-lie-three-apples-on-the-table
"There are three apples lying on the table."

(b) *Daar lê drie appel op die tafel.
there-lie-three-apple-on-the-table

In Section 5.3.2 I referred to Bybee's (1985:85) discussion of inflectional affixes in which she points out that the criterion of generality does not absolutely distinguish inflectional from derivational morphology. She refers to the work of Beard (1981) in which it is claimed that, in English, some inflectional processes like plural formation are not entirely general. This is the case in Afrikaans as well. Although Afrikaans has the regular plural suffixes -s and -e and a number of other suffixes to form plurals like -ia, -ens and -ci (cf. Section 3.3.2), a number of defective paradigms also exist. For example, there are a number of pluralia tantum, that is, nouns with a plural, but not a singular form, like mäsehls ("measles"), buëre ("neighbours") and hurke ("haunches") as well as singularis tantum, that is, singulars with no corresponding plural forms such as áansien ("esteem/complexion"), étlus ("appetite") and raåd ("advice"). In the light of the above comments it seems as if the plural suffixes -e and -s are more derivation-like than inflection-like.

Furthermore, as regards relevance the change in number caused by the plural suffixes produces a change in the entity or entities being referred to. For this reason Bybee (1985:85) claims that the morphological category of plural is, in terms of her continuum of categories, more derivation-like than inflection-like. The same would be true of plural suffixes in Afrikaans.
Let us consider next the suffix \(-e\) which attaches to adjectives. Recall that this suffix is obligatory in attributive position (cf. Section 3.3.1). However, it is only obligatory with certain adjectives as shown in (23)–(25) below.

(23)(a) Die meisie is lélik.
    the-girl - is-ugly
    "The girl is ugly."

(b) *Die meisie is lelike.
    the-girl - is-ugly

(24)(a) Die lélike meisie is hier.
    the-ugly - girl - is-here
    "The ugly girl is here."

(b) *Die lelik meisie is hier.
    the-ugly - girl - is-here

(25)(a) Ek geniet die wárm weer.
    I - enjoy - the-warm-weather
    "I enjoy the warm weather."

(b) *Ek geniet die warme weer.
    I - enjoy - the-warm - weather

Given that this suffix only attaches to certain adjectives like lélik, but not to others like wárm, it does not have full generality. With respect to generality the suffix \(-e\) is therefore similar to derivational affixes which usually have a restricted application.

As regards relevance the suffix \(-e\) does not cause any meaning change to the adjective to which it attaches. It merely marks the adjective for attributive use. In this respect then it is very much like an inflectional affix and is possibly the residue of some agreement feature which is still found in other Germanic languages. Consider in this regard the capitalised agreement
features in the German phrase *den kleinen Häusern* ("the small houses (accusative)"), in particular the suffix -en in the attributively used adjective *kleinen*.

Finally, there are the comparative and superlative suffixes -er and -ste respectively which attach to adjectives and sometimes to adverbs. Although not all adjectives/adverbs in Afrikaans take -er or -ste to form their comparative and superlative forms, there are other ways, viz. the use of the degree words *meeër* ("more") and *(die)* méês ("(the) most") with adjectives and adverbs. With respect to generality, the comparative and superlative suffixes therefore seem to be more inflection-like than some of the other inflectional affixes discussed above in that most adjectives and adverbs have a comparative and superlative form. The only adjectives in Afrikaans which seem not to have a comparative and a superlative form are compound adjectives such as those in (26) below. In each case the compound contains a nominal or verbal left-hand member which intensifies the quality indicated by the right-hand member of the compound, the adjective. As each of these words includes a superlative aspect it cannot, for semantic reasons, take either the comparative suffix -er or the superlative suffix -ste.

(26)(a) yskoud (*yskouer, *yskoudste)

[[ys] [koud]]
ice - cold
"ice-cold"

(b) brandmaer (*brandmaerder, *brandmaerste)

[[bránd][maer]]
burn - thin
"very thin"

(c) stókoud (*stokouer, *stokoudste)

[[stók] [oud]]
stick - old
"very old"
Considering what has been said above, several of the inflectional affixes distinguished for Afrikaans seem to border on derivational affixes, while others seem to be more typically inflectional with respect to relevance and generality. However, before considering how the affixes would be placed along the inflectional area of the continuum I would like to consider three other features which could be used to distinguish between various inflectional affixes in Afrikaans.

Firstly, in Section 3.3.2, I mentioned that certain linguists base the distinction between derivation and inflection on the fact that inflectional affixes always attach last. That is, they attach furthest from the base and therefore prevent further affixation, in particular derivational affixation, from taking place. If one examines the inflectional affixes which have been discussed thus far it is obvious that this is true of most inflectional affixes. However, it is false in two respects for certain inflectional affixes. As was mentioned in Section 4.3.1, some inflectional affixes can be followed by another inflectional affix. For example, the inflectional suffix \(-ste\) can, in a small number of words, be followed by the plural suffix \(-s\). Also possible is a sequence of a comparative suffix \(-er\), a derivational affix and the plural suffix \(-s\). The relevant data is repeated here for ease of reference.

\[(27)\]
\[(a)\]  
\[\text{ármstes}\]  
\[\text{[[[árm] steINF] sINF]}\]  
\text{poor - most - more than one}\  
"(the) most poor people/(the) poorest ones"  

\[(b)\]  
\[\text{gelúkkigstes}\]  
\[\text{[[[gelúkkig] steINF] sINF]}\]  
\text{happy - most - more than one}\  
"(the) most happy people/(the) happiest ones"
(28) móríeres
[[[móí] enINF [eW] sINF]
pretty-more - one that is-more than one
"(the) prettier ones"

Another inflectional affix which also has the ability to appear inside another inflectional suffix is ge-. Consider in this regard the following words.

(29) (a) geskéérde
[[geINF [skéér] eINF]
past part.-shave - attributive marker
"shaved (attributive)"

(b) gegroepéérde
[[geINF [[grOep] éérS] eINF]
past part.-group - make - attributive marker
"grouped (attributive)"

(c) geamuséérdste
[[geINF [[amuséérS] stéINF]
past part.-amuse - most
"(the) most amused person"

In both cases the attributive marker -e must attach after the inflectional prefix ge-.

Secondly, I also pointed out in Section 4.3.1 that a few Word affixes can attach after the inflectional prefix ge- as can a few Stem prefixes. Consider in this regard the data in (30) below.

(30) (a) ongekonsentréérde
[[onW [geINF [konsentréér]] eINF]
not -past part.- concentrate - attributive marker
"unconcentrated (attributive)"
The data in (30) illustrate that the inflectional prefix ge- can attach before a Word prefix, a Word suffix or a Stem prefix. No other inflectional affixes, except -er in (28), appear to have this ability unless one considers the so-called link phonemes discussed in Sections 4.3.1 and 4.3.2 to be plural suffixes. However, inflectional suffixes and prefixes always attach after Stem suffixes.

Finally, inflectional affixes do not all share the same distributional properties with respect to compounds. In Section 4.3.2 I pointed out that all inflectional affixes can attach to compounds. This is illustrated in the following representative example of data taken from Section 4.3.2.

(31) (a) dikbekker
[[[dik] [bek]] erINF]
thick-mouth-more
"sulkier"

(b) domonnoselste
[[[döm] [onnosel]] steINF]
dumb - stupid - most
"most inane"
However, the ability of inflection affixes to appear inside compounds, that is, to attach before compounding, is less easy
to determine. It would appear that the inflectional suffixes
-er, -ste and the attributive marker -e all attach after, rather
than before compounding, if the correct semantic interpretation
is to be assigned to a word.

As regards the plural suffixes it was pointed out in Section 4.3.2 that they could be taken to attach to the right-hand
member of a compound either before or after compounding in words
such as the following.

(32) kóópkondisies
    kóóp - kondisie - s
    buy - condition - more than one
    "conditions of buying"

However, as was pointed out, it is difficult to determine
whether the e and s in the words in (18)(a) and (b) are in fact
plural suffixes or merely so-called link phonemes.

(33)(a) diéretuin
    [[diére] [tuin]]
    animal(s)-garden
    "zoo"
(b) séûnskoor
[[séûns] [koor]]
boys - choir
"boys' choir"

With respect to the inflectional prefix ge- the data in (16)(d) shows that this prefix can, in fact must, attach after compounding (cf. Section 4.3.2). However, it was also argued in Section 4.4.2 that this prefix could be found attached to the right-hand member of a compound and, presumably attached before compounding (cf. (19)(a)). However, in certain cases this leads to problems. In the case of (19)(b) it was argued that the correct semantic interpretation can only be assigned to the word if one assumes that the prefix attaches to the compound as a whole rather than to the right-hand member before compounding.

(34)(a) in-ge-bring
in - past part.-bring
"brought in"

(b) áångerand
áän - ge - rand
on - past part.-border
"assaulted/attacked"

In the continuum in (35) below I have indicated the various features along which inflectional affixes can vary. While the first two features present a continuum from least to greatest, the last two are not gradable in the same way contrary to features usually used to distinguish between category members within a prototype model. The final feature, viz. ability to appear inside/outside compounds, differs from the others in that certain inflectional affixes display both features. Obligatoriness has not been given in (35) as it serves to distinguish between inflectional and derivational affixes, rather than between various inflectional affixes.
5.5.4 The category derivation

5.5.4.1 General remarks

In the previous section we examined the inflectional affixes of Afrikaans distinguished in Section 3.3.1 with respect to the features generality, relevance and their (in-)ability to appear inside and/or outside other inflectional and derivational affixes. It was shown that inflectional affixes, far from having equal status with respect to these features, display generality and relevance to a greater or lesser extent and show different distributional features. We thus established that the category inflection, while superficially seeming to be uniform in Afrikaans, has internal structure.

The same is true of the category derivation. In Section 3.3.2.2
it was claimed that prefixes and suffixes in Afrikaans should be divided into two classes, non-native and native, as there are certain distributional and stress properties typically associated with the members of each class. However, in Section 3.3.3.3.2 it was pointed out that not all members of the category of Stem suffixes, for example, cause stress to shift onto the suffix. Similarly, within the class of Word prefixes not all prefixes are stress neutral. In addition, an examination of the distribution of affixes illustrated in Chapter 4 reveals that not all the suffixes and prefixes of a particular class show exactly the same range of distributional possibilities. Some appear only in sequences with particular affixes, while others never appear in sequences at all. Implicit in Chapters 3 and 4 is therefore the claim that none of the four classes of affixes distinguished in Chapter 3 is entirely homogeneous with respect to its distributional and/or stress properties. In this and the following sections I will examine the derivational area of the continuum given in (18) with specific reference to the stress and distributional features of affixes belonging to the various classes. I will compare firstly Stem and Word suffixes, and then Stem and Word prefixes with respect to these features. It must, however, be borne in mind that one could take a particular feature, for example, stress neutrality/stress shift and compare all prefixes and suffixes with respect to it. However, firstly, for the sake of simplicity I have chosen to look at suffixes and prefixes separately. Secondly, we are interested in the differences and similarities between the members of each suffix class and between the members of each prefix class. In addition we are interested in the differences and similarities between suffixes and prefixes which share the same origin. I have chosen to consider each class separately as I believe it is easier to show the differences and similarities between affixes, both inter- and intra-categorically, in the derivational area of the continuum in (18).
While the features in terms of which members and non-members of classical categories are distinguished from each other are binary, those which are used to distinguish prototypical and less and the least typical exemplars of a category from one another are usually gradable. In the case of affix categories, some of the features needed to distinguish between various affixes are binary, while others are gradable, but not to the same extent as features like relevance and generality. For example, if we want to distinguish between various affixes with respect to their stress properties we have essentially the following four options:

(i) affixes cause stress to shift onto the suffix
(ii) affixes cause stress to shift closer to the suffix,
(iii) they allow stress to remain on the base, or
(iv) they display both properties.

It is not entirely accurate to claim that a particular affix has a certain stress property to a greater or lesser degree. Similarly, with respect to the distribution of affixes relative to compounds, the following options present themselves:

(i) affixes either attach inside, but not outside compounds,
(ii) outside, but not inside compounds, or
(iii) inside and outside compounds.

Again one cannot really conceive of this property as being gradable to the same as extent as generality and relevance.

The binary features which can be used to distinguish between various derivational affixes are based on values such as mono- or bisyllabicity, whether the affix begins with a vowel or consonant, and the (in-)ability to syllabify with the word to
which the affix attaches. These features are all strictly binary in that a particular affix is either mono- or bisyllabic, for example. It cannot have either of these features to a greater or a lesser degree. As these features are not pertinent to the discussion here they will not be considered any further.

Before examining the differences between various affixes I would like to discuss two features, other than stress and distribution, which can be used to distinguish various affixes from each other. As mentioned in Section 5.3.2 Bybee (1985:83-84) uses the features generality and relevance to differentiate between various derivational affixes. She mentions that the gerundival -ing and the adverbial -ly in English border on inflection. They only add a slight significance to the words to which they attach and attach to almost every verb and adjective in English respectively. Therefore, they are low in relevance but high on generality. Afrikaans also has a suffix -ing similar to that found in English. Examples of derived words with this suffix are given in (36) below.

(36) (a) inkrimping
[[[[in] [krimp]] ingW]
in - shrink - result of
"contraction/shrinking"

(b) opening
[[[open] ingW]
open - result of
"opening"

As derivatives which include this suffix are numerous in Afrikaans according to Kempen (1969:514) the suffix -ing could be regarded as being generally applicable in Afrikaans. As regards meaning, the suffix -ing does not change the meaning of the base word greatly, it merely changes the verb into a noun and therefore is low with respect to relevance. However, it seems to attach to a lot less verbs than its English counterpart, that is, it is less generally applicable and
therefore, does not seem to be as close to the inflectional border as -ing in English.

Derivatives with the suffix -er are of the most numerous kind in Afrikaans according to Kempen (1969:456).

(37) (a) wéker

[[wérk] erW]

work - person who
"worker"

(b) bóuer

[[bou] erW]

build-person who
"builder"

However, this suffix, although very general in that it attaches to a large number of verbs, causes a greater semantic change in the base to which it attaches than does -ing. It specifies that the noun is the agent of the activity named by the verb as does its English counterpart (Bybee (1985:84)). It would therefore be further away from the inflectional end of the continuum than -ing, for example, but closer than certain other derivational affixes which are less general than it.

On the basis of what Bybee has said about English derivational affixes one can hypothesise that Afrikaans derivational affixes that do not change the category of the word to which they attach display more relevance than those which do. However, a point which Bybee does not mention in her short discussion is that there are a number of affixes which are verb-forming, for example, and which attach to verbs, adjectives and nouns. Therefore, certain affixes may change the category of the base to which they attach in some cases, but not in others. In addition, there are those affixes that always change the category of the word to which they attach and those that never do. Without an in-depth investigation of the various derivational affixes in Afrikaans it is difficult at this point
to speculate on a continuum of such affixes from least to most relevant.

Similar problems arise when trying to establish a continuum of derivational affixes from greatest to least generality. The idea of generality of applicability appears to be the same as what is traditionally referred to as productivity, as the more generally an affix applies the more new words it can form. As Bybee (1985) shows, with reference to a few examples, certain affixes are more generally applicable/productive than others. Aronoff (1976:35-45, 62) notes that the productivity of an affix is difficult to measure in that the productivity of one affix is dependent to a large extent on the bases, derived and underived, to which it can attach. To determine the productivity of an affix one therefore has to consider what simple words it can attach to as well as the number of derived words to which it can attach. Only an in-depth independent study will reveal the generality of applicability of the various derivational affixes in Afrikaans. Thereafter we can speculate on the nature of a continuum of derivational affixes from least to most generally applicable.

As in the case of the relationship between derivational and inflectional affixes on a continuum, the relationship between prefixes and suffixes in Afrikaans may also be expressed in the form of a continuum as will be shown below. In the discussion which follows I will be referring to the non-native and native affixes distinguished in Chapter 3 as Stem and Word affixes rather than as non-native and native affixes to avoid confusion. I will therefore continue to label them with a subscript S and W respectively. The terms Stem and Word should merely be viewed as labels and do not have the theoretical significance they had in previous chapters.

5.5.4.2 Suffixes

Let us consider suffixes first and assume that the category of derivational expression may have some sort of internal
structure. It includes two categories of suffixes, those that are non-native in origin, the Stem suffixes, and those that are native in origin, the Word suffixes. Although it would appear that the Stem/Word distinction is a binary one, within the class of Stem suffixes there are certain suffixes which are less Stem-like and more Word-like. Similarly, within the class of Word affixes there are certain suffixes which have the typical features of a suffix which is native in origin, while others have features which are more typical of a suffix that is non-native in origin. Thus, in each category one finds suffixes which are prototypical of that category and, at the periphery, in the area of overlap in (38), one finds Stem and Word suffixes which share certain distributional and/or stress properties.

(38) Stem suffixes Word suffixes

Let us assume that the typical features of Stem suffixes include the following. Stem suffixes typically

(i) cause stress to shift onto the suffix (onto the first syllable if the suffix is bisyllabic),
(ii) never occur in sequence with other Stem suffixes, but can occur in sequence with respect to Stem prefixes,

(iii) attach only before Word affixes,

(iv) occur only inside compounds,

(v) attach only before inflectional affixes, and

(vi) can never be duplicated in a complex word.

The following Stem suffixes have all the properties cited above:

(39) -er, -ein, -âr, -eur, -ier, -is, -ment

The suffixes in each of the examples below are non-native in origin, cause stress to shift onto the suffix and only occur in sequence with Stem prefixes (cf. (40)), not with Stem suffixes (cf. (41)). They also attach only before Word affixes (cf. (42)) and inflectional suffixes (cf. (43)), and occur only inside compounds (cf. (44)). None of the suffixes in (39) can be duplicated.

(40) (a) motoris

[[motor] is₃]  
car - person who drives  
"motorist"

(b) winkeliér

[[winkel] ié₉₃]  
shop - person who works in  
"shopkeeper"

(41) (a) destabiliséér

[de₃ [stabil] éé₉₃]  
removing effect of-stable - make  
"destabilise"
There are, however, certain Stem suffixes which differ from the prototypical suffixes given above with respect to one or more of the features listed above. All Stem suffixes, with two
exceptions given in (45), cause stress to shift onto the suffix, specifically onto the first syllable if the suffix is bisyllabic. The suffix, viz. -ie, does not cause stress to shift onto the suffix (cf. (46)(a)). The bisyllabic suffix -erie causes stress to shift onto the second, rather than the first, syllable of the suffix as is usually the case with bisyllabic Stem suffixes.

(45)  -erie, -ie

(46)(a) abstráksie
[[abstrák] ieg]
abstract-result of making
"abstraction"

(b) galanterié
[[galant] erié]
gallant-state of being
"gallantry"

Secondly, only the following Stem suffixes seem to occur in a sequence with another Stem suffix as shown in (47). The suffixes -ief and -aal can be followed, but not preceded by other Stem prefixes, while -isme and -teit can follow, but not precede other Stem prefixes.

(47)  -ief, -isme, -aal, -teit

(48)(a) sportiwiteit
[[[sport] ief₉] téit₉]
sport - having a bearing on-condition of being
"sport-mindedness"

(b) nasionalisme
[[nasie] aal₉]isme₉
nation-pertaining to-condition of
"nationalism"
Problematic in this respect is the suffix -eel which also occurs in sequence with other Stem suffixes like -isme or -teit, but which changes form and becomes -aal when followed by these suffixes as shown in the following examples.

\[(49)\]

(a) individuéél
\[[\text{individu}] \, \text{éél}_g\]
individual-pertaining to
"individual"

(b) individualisme
\[[[\text{individu}] \, \text{aal}_g] \, \text{isme}_g\]
individual-pertaining to-condition of being
"individualism"

(c) individualitéit
\[[[\text{individu}] \, \text{aal}_g] \, \text{téít}_g\]
individual-pertaining to-condition of being
"individuality"

The reason(s) for this change of form will have to be established by independent study.

Thirdly, there seem to be a number of Stem suffixes which are similar to those in (39) in most respects except that they never seem to be preceded or followed by other Stem and Word affixes.

\[(50)\]

-aat, -aan, -aans, -ana, -aner, -ant, -aries, -aris,
-arium, -asie, -eel, -ees, -erie, -eus, -i, -iet

\[(51)\]

(a) oseanárium
\[[\text{oseaan}] \, \text{árium}_g\]
ocean - place like
"oceanarium"
combinable with any stem of a particular syntactic category. It must also have a meaning that is communicatively useful enough to ensure a high frequency of occurrence.

Another shift which is also possible, according to Bybee (1985:106), is that from the compound area on the continuum to the derivational area. Such a shift occurs, she says, when one of the elements of a compound becomes a derivational affix because of its occurrence in a large number of compounds. This means that a shift can occur from a free morpheme in the direction of a bound morpheme. For example, she claims that derived adjectives/adverbs formed by the attachment of the suffix -ly developed from an earlier compound form which included -like, similar to the compound child-like which still occurs in English. With the change in form the meaning of the "suffix" generalised from "having the appearance of" (the entity described by the noun stem) to "having the qualities appropriate to" (the entity described by the noun stem) according to the Oxford English Dictionary. 8

Although Bybee's discussion of shifts is brief, it is obvious that members of a particular category can change and undergo a shift on the continuum, becoming more like members of an adjacent category. They can thus shift in the direction of an adjacent category on either side of them on the continuum and with such a shift take on certain characteristics of the adjacent category members with respect to features like generality and relevance.

5.4 Non-discreteness of categories and the formal approaches

5.4.1 General remarks

It was stated above that the conception of the nature of categories set out in the previous section constitutes a part of what is known as cognitive grammar (Langacker (1987:14-19)). It
is possible that this conception could be compatible with the level-ordering and/or category distinction approaches. In the next section I will show that the prototype model of categories is not fully compatible with either of these approaches.

5.4.2 Non-discreteness and the level-ordering approach

Let us consider first a level-ordering approach in which the following two basic assumptions are made:

(i) morphological categories are not discrete entities, and

(ii) the distribution of categories is accounted for in terms of the mechanism of extrinsic ordering along the lines of Kiparsky (1982a; 1982b) and Mohanan (1982), for example.

I will be using Kiparsky's (1982a:132; 1982b:2) model of level-ordering to illustrate my arguments as this model is the most comprehensive in terms of the WFRs it includes.

To account for data in which affixes which belong to Class I, for example, attach after Class II affixes, one could make a number of different assumptions. One possibility is to assume that level-ordering holds only for the prototypical members of each category. For the poor, or least typical, exemplars of a particular category, this would mean that one would have to assume a loop between each level along the lines shown in (14) to enable words which include affixes with non-prototypical properties to be formed.

(14) \[
\text{Class I affixation/Irregular inflectional affixation} \\
\quad \text{Class II affixation and compounding} \\
\quad \text{Regular inflectional affixation}
\]

Having loops between each level would be a severe weakening of the whole concept of ordering. An alternative would be to
merely exclude less and the least typical affixes from such a model and assume that only prototypical affixes are subject to level-ordering constraints. This is problematic in that the affixes which would be excluded may occur in affix sequences with prototypical affixes. It would also not be capable of handling shifts as it would be difficult to decide to which category the affix belonged before the shift took place.

A third option is to assume that there is some sort of non-discreteness between the levels so that one has a fuzziness between the levels of Class I affixation and Class II affixation/compounding, for example, and between Class II affixation/compounding and the level of regular inflectional affixation. One would then have to show that the particular extrinsic ordering of rules being proposed does in fact account for all the possible orderings of affixes, both inflectional and derivational, relative to each other. The zig-zag pattern between the levels in (15) represents the fuzziness between these levels.

\[
\begin{array}{c}
\text{Class I affixation/Irregular inflectional affixation} \\
\text{Class II affixation and compounding} \\
\text{Regular inflectional affixation}
\end{array}
\]

Even if we accept one of the three options offered above, there are a number of other problems which remain unresolved. For example, there is question of whether two classes of affixes like the Class I prefixes and suffixes, and Class II prefixes and suffixes which display such different sets of properties should be placed together on a common level. It would seem that the properties of the prefixes and suffixes of each class are different enough to warrant each class being treated separately as suggested by Strauss (1982a:42). Then there is the recent claim by Fabb (1988:538) that, in fact, level ordering is not restrictive enough to account for the mere 50 occurring suffix combinations of the 614 which are predicted to be possible by
level-ordering (cf. Section 2.3.3.3). It would therefore seem that extrinsic ordering as a means of accounting for the distributional and stress properties of affixes is fraught with a number of difficulties. Trying to retain level-ordering, while assuming categories as non-discrete does not appear to offer a reasonable solution to the problems.

5.4.3 Non-discreteness and the category distinction approach

Let us now consider a category distinction model in which the following assumptions are made:

(i) morphological categories are non-discrete, and

(ii) the distribution of affixes can be accounted for in terms of subcategorisation, that is, affixes subcategorise for either Stems or Words along the lines suggested by Selkirk (1982), Guerssel (1983) and Sproat (1985a).

Selkirk (1982), Guerssel (1983) and Sproat (1985a) all implicitly or explicitly accept the division of affixes into two classes made by level-ordering linguists like Siegel (1974). That is, they accept a division made on the basis of the stress properties of affixes. Recall that in the previous chapter I took non-native affixes to be Stem affixes and native affixes to be Word affixes. The options to be examined in this section with respect to non-discreteness and category distinction approaches hold irrespective of the basis on which the division of affixes is made. Given the assumptions (i) and (ii) above, the following two options present themselves. Firstly, all Stem affixes subcategorise for Stems and all Word affixes subcategorise for Words. Prototypical Stem affixes would be those which display only the expected subcategorisation properties. Less and the least typical affixes would be those which subcategorise for both Stems and Words. This could, however, be argued to be similar to assigning the affixes dual class status.
An alternative option is to have affixes subcategorise for adjectives without any further subdivision of adjectives into Words or Stems. Typical Stem affixes would be those which attach to adjectival Stems only, while less typical Stem affixes would be those which attach to adjectival Stems and Words, for example. Similarly, typical Word affixes would attach to adjectival Words only, while less typical Word affixes would attach to both adjectival Stems and Words. Once again this option would be similar to having dual class affixes.

While these options seem to be slightly better than the options proposed with respect to level-ordering one must still take into account Fabb's (1988:538) criticism of level-ordering, viz. that it is not restrictive enough in that it predicts a number of non-occurring suffix sequences, which was pointed out in Sections 2.3.3.3 and 2.4.3.3. Fabb's criticism of the level-ordering approach is also true of the category distinction approach. The latter only accounts for the ordering of all Stem affixes as a class before all Word affixes, but does not account for the ordering of a particular Stem affix with respect to a particular Word affix.

As was pointed out at the end of the previous chapter the Afrikaans data reveal that the same sorts of claims which Fabb (1988) makes about suffix sequences in English could be made about suffix and prefix sequences in Afrikaans. On the basis of the data it appeared that affixes, in addition to subcategorising for an adjective, noun or verb, as the case may be, would also have to be marked as attaching to underven words or to derived words which include a particular suffix or prefix along the lines suggested by Guerssel (1983) and Fabb (1988). The implication of this is that a category-distinction approach using the notion of the non-discreteness of categories as suggested above, will not be adequate to account for the distributional properties which affixes in fact exhibit in complex words.
5.5 Morphological categories as continua in Afrikaans

5.5.1 General remarks

In this section I will present a revised conception of continua of morphological categories with specific reference to affix categories in Afrikaans. Thereafter I will consider the internal structure of the categories of inflection and derivation which lie along such a continuum. This section forms the background for Chapter 6 in which I will examine how the Afrikaans data in the previous chapter can be accounted for within an approach which conceives of categories as being non-discrete entities.

5.5.2 The continuum of morphological categories in Afrikaans

In Section 5.3.2 the following two continua proposed by Bybee (1985) were presented, both in slightly adapted form.

(16) lexical--derivational--inflectional--free ---- syntactic grammatical

<---------------------------------------------------------------
greater degree of fusion
greater degree of relevance
lesser degree of generality

(17) compounding---incorporation---derivation---inflection

<---------------------------------------------------------------
greater degree of fusion
greater degree of relevance
lesser degree of generality

It is obvious that these two continua need to be integrated as there is a considerable overlap between the two. On a continuum of categories for Afrikaans, incorporation can be excluded as I am not aware of any examples of incorporation in Afrikaans.9 Furthermore, while continua like those in (16) and (17) are useful in representing the non-discrete nature of morphological
categories found in a language like Afrikaans, they are oversimplified when one tries to explain the gradient difference between categories, the shifts that occur and the direction of such shifts. While linear sequencing may therefore be a general organising principle of categories along a continuum, it does not necessarily allow for the variety of relationships between the categories, in particular for the boundaries between the various categories. I therefore suggest that there is a semi-circular, relationship between the categories as represented in the following continuum. For the sake of simplicity I have only represented some of the relationships which hold between categories along the continuum. The abbreviation "free gramm." in (18) stands for "free grammatical".

(18)

In the discussion in Chapter 6 reference will be made in more detail to the relationships which have to be postulated between categories along this continuum. By representing the relationship between categories in this way one can explain, on the one hand, how a derivational affix and the word to which it attaches may become so fused that the word becomes a lexical item. On the other hand, one can also explain how a derivational affix may become more wcrd-like to the extent that it can be used independently with meaning. One can also explain why the complex word in which it occurs has compound-like features. The conception of the relationships between categories on the continuum shown in (18) would also enable one to explain how compounds are related to lexical expression which
is adjacent to compounding on the continuum. It also enables one to explain how compounds are related to syntactic expression which lies at the other end of the continuum. Note that the categories along the continuum, like derivation and inflection, can be interpreted as either referring to derivational and inflectional affixes, on the one hand, or to complex derivationally and inflectionally derived words on the other.

Before proceeding, brief reference needs to be made to zero-affixation. I have not postulated zero affixation as forming part of the continuum in (18). Rather, I would like to suggest that there are other ways in which to treat words formed be zero affixation without having to resort to the type of zero-affixation adopted by the level-ordering linguists. I will discuss this in Section 6.3.

Considering what has been said about morphological categories being non-discrete and lying along a continuum one would expect the various morphological categories in Afrikaans, in particular the affix categories, to also exhibit such differences both inter- as well as intra-categorically. Furthermore, given that members of various categories along the continuum undergo changes becoming more like members of adjacent categories (cf. Section 5.3.3), one would expect to find such changes in Afrikaans as well. In the following section I will consider members of the category inflection in Afrikaans and in Section 5.5.4 members of the category of derivational affixes.

5.5.3 The category inflection

As was pointed out in Section 5.3.2, Bybee (1985:82, 87) claims that the distinction between inflection and derivation is a gradual or gradient one, rather than a clear or discrete one. In this section I would like to consider the inflectional affixes distinguished for Afrikaans in Section 3.3.1 and whose patterns of distribution were illustrated in Section 4.3. I will try to determine where on the inflectional/derivational part of the continuum in (18) they lie.
There are three features which are typically associated with inflectional affixes and which can be used to distinguish them from derivational affixes. In the first place there is the feature of obligatoriness in certain syntactic constructions which was used in Chapter 3 to distinguish inflectional affixes from derivational affixes. Bybee (1985:82) claims that "perhaps the obligatoriness criterion, actually provides a discrete division between derivational and inflectional processes" and this, in fact, seems to be the case in Afrikaans. However, with respect to the features of generality and relevance a distinction can be made between Afrikaans inflectional affixes which could be regarded as prototypical inflectional affixes and those which seem to be less inflection-like/more derivation-like. In addition to the three features already mentioned one can also distinguish between various inflectional affixes on the basis of their (in-)ability to appear in certain sequences of derivational and inflectional affixes.

Let us first consider the past participle prefix ge- which was taken to be inflectional as it is obligatory in the verb phrase of the sentence (19)(a).

(19)(a) Sy het 'n koek gebäk.
        she-has-a-cake-baked
        "She has baked a cake."

(b) *Sy het 'n koek bak.
        she-has - a-cake-bake

With respect to relevance the past participle prefix ge- in Afrikaans seems to differ from affixes indicating tense in other languages. Bybee (1985:22) states that a tense distinction does not affect the meaning of the verb as the situation which the verb refers to stays the same irrespective of whether the situation is in the present or the past. However, in Afrikaans the prefix ge- merely serves to mark the verb as the past participle form. It does not seem to add past tense meaning as such, since the past tense of the verb in a finite clause in
Afrikaans is indicated by the auxiliary *het* ("has") on its own (cf. the examples in (21) below) or together with the past participle form of the verb.

Let us consider now the generality of the past participle prefix *ge-* in Afrikaans. As was pointed out in Section 4.3.1 both Kempen (1969:591) and De Villiers (1976:162) claim that the inflectional prefix *ge-* with verbs beginning with the sound sequences *be-*-, *er-*-, *ge-*-, *her-*-, *ont-* and *ver-* results in unacceptable, substandard sequences (cf. (20)). The prefix *ge-* is therefore not generally applicable in "Standard" Afrikaans.10

(20) (a) *[ge \[bepaal]]
     past part. - determine

(b) *[ge \[erken]]
     past part. - admit

(c) *[ge \[genees]]
     past part. - cure

(d) *[ge \[herboor]]
     past part. - redrill

(e) *[ge \[onteer]]
     past part. - dishonour

(f) *[ge \[verleen]]
     past part. - give

However, as Combrink (1990:219) has claimed, speakers of what he calls Substandard Afrikaans overgeneralise the use of *ge-* and use it with virtually any verb. Such speakers would therefore probably use the past participle forms in (20). In contrast, those who speak so-called Suprastandard Afrikaans often leave *ge-* out where it should be used as shown in the sentences below which are taken from Combrink (1990:219). The past tense in these sentences is indicated solely by the use of the auxiliary
het ("have/has"). The verb which should be inflected is underlined in each case. Note that the verb bestél in (21)(b) begins with the sound sequence be and therefore does not allow ge- to be added even in Standard Afrikaans.

(21)(a) Hy het die boek in swart en wit illustreér.
he-has-the-book-in-black-and-white-illustrate
"He has illustrated the book in black and white."

(b) Sy het op 'n advertensie reagéér en
she-has-on - a-advertisement-react - and
hoendertjies bestel oor die pos.
small chickens-ordered-over-the-post
"She reacted to an advertisement and ordered small chickens through the post."

Given the different uses of ge- there seems to be a "pull" in Afrikaans. Some speakers overgeneralise the past participle prefix ge- giving it greater generality and making it more inflection-like, while others restrict its application, even if only to show refinedness, making it less general and therefore less inflection-like.

Thus there is a difference between speakers of Afrikaans with respect to obligatoriness as a feature of morphological categories. For those who speak Standard Afrikaans ge- is obligatory in a finite verb phrase with verbs other than those in (20). For speakers of Substandard Afrikaans ge- is obligatory in the same syntactic construction, but with all verbs. In contrast to the speakers of these two dialects, the speakers of Suprastandard Afrikaans do not regard the use of ge- as obligatory. Such differences in obligatoriness between various speakers of Afrikaans will be ignored at this stage, but will be considered again in Section 6.2.2.1.2.

Other inflectional affixes which were distinguished in Chapter 3 are the regular plural suffixes -s and -e. There are
indicators that these suffixes may be somewhat derivation-like. As was pointed out, these suffixes can be classified as inflectional because they are obligatory in the syntactic construction in (22)(a).

(22)(a) Daar lê drie òppels op die tafel.
there-lie-three-apples-on-the-table
"There are three apples lying on the table."

(b) *Daar lê drie appel op die tafel.
there-lie-three-apple-on-the-table

In Section 5.3.2 I referred to Bybee’s (1985:85) discussion of inflectional affixes in which she points out that the criterion of generality does not absolutely distinguish inflectional from derivational morphology. She refers to the work of Beard (1981) in which it is claimed that, in English, some inflectional processes like plural formation are not entirely general. This is the case in Afrikaans as well. Although Afrikaans has the regular plural suffixes -ë and -ê and a number of other suffixes to form plurals like -ia, -ëns and -ci (cf. Section 3.3.2), a number of defective paradigms also exist. For example, there are a number of pluralia tantum, that is, nouns with a plural, but not a singular form, like måsels ("measles"), hûre ("neighbours") and hûrke ("haunches") as well as singularis tantum, that is, singulars with no corresponding plural forms such as àânsien ("esteem/complexion"), âétlus ("appetite") and rââîd ("advice"). In the light of the above comments it seems as if the plural suffixes -ë and -ê are more derivation-like than inflection-like.

Furthermore, as regards relevance the change in number caused by the plural suffixes produces a change in the entity or entities being referred to. For this reason Bybee (1985:85) claims that the morphological category of plural is, in terms of her continuum of categories, more derivation-like than inflection-like. The same would be true of plural suffixes in Afrikaans.
Let us consider next the suffix -e which attaches to adjectives. Recall that this suffix is obligatory in attributive position (cf. Section 3.3.1). However, it is only obligatory with certain adjectives as shown in (23)-(25) below.

(23)(a) Die meisie is lélik.
the-girl - is-ugly
"The girl is ugly."

(b) *Die meisie is lelike.
the-girl - is-ugly

(24)(a) Die lélike meisie is hier.
the-ugly - girl - is-here
"The ugly girl is here."

(b) *Die lelik meisie is hier.
the-ugly - girl - is-here

(25)(a) Ek geniet die wárm weer.
I - enjoy - the-warm-weather
"I enjoy the warm weather."

(b) *Ek geniet die warme weer.
I - enjoy - the-warm - weather

Given that this suffix only attaches to certain adjectives like lélike, but not to others like wárm, it does not have full generality. With respect to generality the suffix -e is therefore similar to derivational affixes which usually have a restricted application.

As regards relevance the suffix -e does not cause any meaning change to the adjective to which it attaches. It merely marks the adjective for attributive use. In this respect then it is very much like an inflectional affix and is possibly the residue of some agreement feature which is still found in other Germanic languages. Consider in this regard the capitalised agreement
features in the German phrase deN kleinEN HÄusERN ("the small houses (accusative)"), in particular the suffix -en in the attributively used adjective kleinen.

Finally, there are the comparative and superlative suffixes -er and -ste respectively which attach to adjectives and sometimes to adverbs. Although not all adjectives/adverbs in Afrikaans take -er or -ste to form their comparative and superlative forms, there are other ways, viz. the use of the degree words méér ("more") and (die) méés ("(the) most") with adjectives and adverbs. With respect to generality, the comparative and superlative suffixes therefore seem to be more inflection-like than some of the other inflectional affixes discussed above in that most adjectives and adverbs have a comparative and superlative form. The only adjectives in Afrikaans which seem not to have a comparative and a superlative form are compound adjectives such as those in (26) below. In each case the compound contains a nominal or verbal left-hand member which intensifies the quality indicated by the right-hand member of the compound, the adjective. As each of these words includes a superlative aspect it cannot, for semantic reasons, take either the comparative suffix -er or the superlative suffix -ste.

(26)(a) ýskoud (*yskouer, *yskoudste)
\[\text{[[ys] [koud]]} \]
\text{ice - cold}
"ice-cold"

(b) brándaer (*brandmaerder, *brandmaerste)
\[\text{[[bránd][maer]]} \]
\text{burn - thin}
"very thin"

(c) stókoud (*stokouer, *stokoudste)
\[\text{[[stók] [oud]]} \]
\text{stick - old}
"very old"
Considering what has been said above, several of the inflectional affixes distinguished for Afrikaans seem to border on derivational affixes, while others seem to be more typically inflectional with respect to relevance and generality. However, before considering how the affixes would be placed along the inflectional area of the continuum I would like to consider three other features which could be used to distinguish between various inflectional affixes in Afrikaans.

Firstly, in Section 3.3.2, I mentioned that certain linguists base the distinction between derivation and inflection on the fact that inflectional affixes always attach last. That is, they attach furthest from the base and therefore prevent further affixation, in particular derivational affixation, from taking place. If one examines the inflectional affixes which have been discussed thus far it is obvious that this is true of most inflectional affixes. However, it is false in two respects for certain inflectional affixes. As was mentioned in Section 4.3.1, some inflectional affixes can be followed by another inflectional affix. For example, the inflectional suffix -ste can, in a small number of words, be followed by the plural suffix -s. Also possible is a sequence of a comparative suffix -er, a derivational affix and the plural suffix -s. The relevant data is repeated here for ease of reference.

(27)(a) ármstes  
[[[árm] steINF] sINF]  
poor - most - more than one  
"(the) most poor people/(the) poorest ones"

(b) gelúkkigstes  
[[[gelúkkig] steINF] sINF]  
happy - most - more than one  
"(the) most happy people/(the) happiest ones"
(28) móóieres
[[[móői] e_INF] e_W] s_INF]
pretty-more - one that is-more than one
"(the) prettier ones"

Another inflectional affix which also has the ability to appear inside another inflectional suffix is ge-. Consider in this regard the following words.

(29)(a) geskeéerde
[[ge_INF [skéér]] e_INF]
past part.-shave - attributive marker
"shaved (attributive)"

(b) gegroepéérde
[[ge_INF [[groep] éér_S]] e_INF]
past part.-group - make - attributive marker
"grouped (attributive)"

(c) geamuséérdste
[[ge_INF [amuséér_S]] ste_INF]
past part.-amuse - most
"(the) most amused person"

In both cases the attributive marker -e must attach after the inflectional prefix ge-.

Secondly, I also pointed out in Section 4.3.1 that a few Word affixes can attach after the inflectional prefix ge- as can a few Stem prefixes. Consider in this regard the data in (30) below.

(30)(a) ongekonsentréérde
[[on_W [ge_INF [konsentréér]]] e_INF]
not -past part.- concentrate - attributive marker
"unconcentrated (attributive)"
(b) gedissiplinéerdheid
[[ge\text{INF}  [dipl] éér]] heid\text{W}]
  past part.-discipline - make - state of being
  "disciplinedness"

(c) sémi-gelaai
[sémi\text{S}  [ge\text{INF}  laai]]
  partially-past part.-load
  "partially loaded"

(d) últra-gawaagd
[últra\text{S}  [ge\text{INF}  waag]]
  excessively-past part.-dare
  "very daring"

The data in (30) illustrate that the inflectional prefix ge- can attach before a Word prefix, a Word suffix or a Stem prefix. No other inflectional affixes, except -er in (28), appear to have this ability unless one considers the so-called link phonemes discussed in Sections 4.3.1 and 4.3.2 to be plural suffixes. However, inflectional suffixes and prefixes always attach after Stem suffixes.

Finally, inflectional affixes do not all share the same distributional properties with respect to compounds. In Section 4.3.2 I pointed out that all inflectional affixes can attach to compounds. This is illustrated in the following representative example of data taken from Section 4.3.2.

(31)(a) díkbekker
    [[[dík] [bek]] er\text{INF}]
    thick-mouth-more
    "sulkier"

(b) dómonnoselste
    [[[dóm] [pono]] ste\text{INF}]
    dumb - stupid - most
    "most inane"
(c) skréułeilelike
[[[skréu] [lelik]] eINF]
scream - ugly - attributive marker
"very ugly (attributive)"

(d) gesláápwanandel
[geINF [[slááp] [wandel]]]
past part.-sleep - walk
"sleep walked"

However, the ability of inflection affixes to appear inside compounds, that is, to attach before compounding, is less easy to determine. It would appear that the inflectional suffixes -er, -ste and the attributive marker -e all attach after, rather than before compounding, if the correct semantic interpretation is to be assigned to a word.

As regards the plural suffixes it was pointed out in Section 4.3.2 that they could be taken to attach to the right-hand member of a compound either before or after compounding in words such as the following.

(32) kóópkondisies
kóóp - kondisie - s
buy - condition - more than one
"conditions of buying"

However, as was pointed out, it is difficult to determine whether the e and s in the words in (18)(a) and (b) are in fact plural suffixes or merely so-called link phonemes.

(33)(a) diéretuin
[[diére] [tuin]]
animal(s)-garden
"zoo"
With respect to the inflectional prefix ge- the data in (16)(d) shows that this prefix can, in fact must, attach after compounding (cf. Section 4.3.2). However, it was also argued in Section 4.4.2 that this prefix could be found attached to the right-hand member of a compound and, presumably attached before compounding (cf. (19)(a)). However, in certain cases this leads to problems. In the case of (19)(b) it was argued that the correct semantic interpretation can only be assigned to the word if one assumes that the prefix attaches to the compound as a whole rather than to the right-hand member before compounding.

(34)(a) ingebring
    in - ge - bring
    in - past part. - bring
    "brought in"

(b) áängérand
    án - ge - rand
    on - past part. - border
    "assaulted/attacked"

In the continuum in (35) below I have indicated the various features along which inflectional affixes can vary. While the first two features present a continuum from least to greatest, the last two are not gradable in the same way contrary to features usually used to distinguish between category members within a prototype model. The final feature, viz. ability to appear inside/outside compounds, differs from the others in that certain inflectional affixes display both features. Obligatoriness has not been given in (35) as it serves to distinguish between inflectional and derivational affixes, rather than between various inflectional affixes.
(35) less inflection-like, more inflection-like
more derivation-like

least generality-----------------most generality
-e, -s/-e                      ge-                   -er/-ste

greatest relevance--------------least relevance
-s/-e,                         -er/-ste, ge-, -e

always last--------second last-----non-appearance in
in inflectional        (or last)     inflectional
sequences                sequences
-s, -e,                     -er/-ste, ge- -e (plural)

appearance inside--------------appearance only outside
derivational affixe             derivational affixes
ge-, -er,                      -e, -ste, -s/-e

appearance inside--------------appearance outside
compounds                         compounds
ge-, -s/-e                     ge-, -er/-ste, -e, -s/-e

5.5.4 The category derivation

5.5.4.1 General remarks

In the previous section we examined the inflectional affixes of Afrikaans distinguished in Section 3.3.1 with respect to the features generality, relevance and their (in-)ability to appear inside and/or outside other inflectional and derivational affixes. It was shown that inflectional affixes, far from having equal status with respect to these features, display generality and relevance to a greater or lesser extent and show different distributional features. We thus established that the category inflection, while superficially seeming to be uniform in Afrikaans, has internal structure.

The same is true of the category derivation. In Section 3.3.2.2
it was claimed that prefixes and suffixes in Afrikaans should be divided into two classes, non-native and native, as there are certain distributional and stress properties typically associated with the members of each class. However, in Section 3.3.3.3.2 it was pointed out that not all members of the category of Stem suffixes, for example, cause stress to shift onto the suffix. Similarly, within the class of Word prefixes not all prefixes are stress neutral. In addition, an examination of the distribution of affixes illustrated in Chapter 4 reveals that not all the suffixes and prefixes of a particular class show exactly the same range of distributional possibilities. Some appear only in sequences with particular affixes, while others never appear in sequences at all. Implicit in Chapters 3 and 4 is therefore the claim that none of the four classes of affixes distinguished in Chapter 3 is entirely homogeneous with respect to its distributional and/or stress properties. In this and the following sections I will examine the derivational area of the continuum given in (18) with specific reference to the stress and distributional features of affixes belonging to the various classes. I will compare firstly Stem and Word suffixes, and then Stem and Word prefixes with respect to these features. It must, however, be borne in mind that one could take a particular feature, for example, stress neutrality/stress shift and compare all prefixes and suffixes with respect to it. However, firstly, for the sake of simplicity I have chosen to look at suffixes and prefixes separately. Secondly, we are interested in the differences and similarities between the members of each suffix class and between the members of each prefix class. In addition we are interested in the differences and similarities between suffixes and prefixes which share the same origin. I have chosen to consider each class separately as I believe it is easier to show the differences and similarities between affixes, both inter- and intra-categorially, in the derivational area of the continuum in (18).
While the features in terms of which members and non-members of classical categories are distinguished from each other are binary, those which are used to distinguish prototypical and less and the least typical exemplars of a category from one another are usually gradable. In the case of affix categories, some of the features needed to distinguish between various affixes are binary, while others are gradable, but not to the same extent as features like relevance and generality. For example, if we want to distinguish between various affixes with respect to their stress properties we have essentially the following four options:

(i) affixes cause stress to shift onto the suffix

(ii) affixes cause stress to shift closer to the suffix,

(iii) they allow stress to remain on the base, or

(iv) they display both properties.

It is not entirely accurate to claim that a particular affix has a certain stress property to a greater or lesser degree. Similarly, with respect to the distribution of affixes relative to compounds, the following options present themselves:

(i) affixes either attach inside, but not outside compounds,

(ii) outside, but not inside compounds, or

(iii) inside and outside compounds.

Again one cannot really conceive of this property as being gradable to the same as extent as generality and relevance.

The binary features which can be used to distinguish between various derivational affixes are based on values such as monosyllabic, whether the affix begins with a vowel or consonant, and the (in-)ability to syllabify with the word to
which the affix attaches. These features are all strictly binary in that a particular affix is either mono- or bisyllabic, for example. It cannot have either of these features to a greater or a lesser degree. As these features are not pertinent to the discussion here they will not be considered any further.

Before examining the differences between various affixes I would like to discuss two features, other than stress and distribution, which can be used to distinguish various affixes from each other. As mentioned in Section 5.3.2 Bybee (1985:83-84) uses the features generality and relevance to differentiate between various derivational affixes. She mentions that the gerundival \textit{-ing} and the adverbial \textit{-ly} in English border on inflection. They only add a slight significance to the words to which they attach and attach to almost every verb and adjective in English respectively. Therefore, they are low in relevance but high on generality. Afrikaans also has a suffix \textit{-ing} similar to that found in English. Examples of derived words with this suffix are given in (36) below.

(36)(a) inkrimping
[[[in] [krimp]] ing\textsubscript{W}]
in - shrink - result of
"contraction/shrinking"

(b) \öpening
[[\öpen] ing\textsubscript{W}]
open - result of
"opening"

As derivatives which include this suffix are numerous in Afrikaans according to Kempen (1969:514) the suffix \textit{-ing} could be regarded as being generally applicable in Afrikaans. As regards meaning, the suffix \textit{-ing} does not change the meaning of the base word greatly, it merely changes the verb into a noun and therefore is low with respect to relevance. However, it seems to attach to a lot less verbs than its English counterpart, that is, it is less generally applicable and
therefore, does not seem to be as close to the inflectional border as -ing in English.

Derivatives with the suffix -er are of the most numerous kind in Afrikaans according to Kempen (1969:456).

(37) (a) wérker
[[wérk] erW]
work - person who
"worker"

(b) böuer
[[bou] erW]
build-person who
"builder"

However, this suffix, although very general in that it attaches to a large number of verbs, causes a greater semantic change in the base to which it attaches than does -ing. It specifies that the noun is the agent of the activity named by the verb as does its English counterpart (Bybee (1985:84)). It would therefore be further away from the inflectional end of the continuum than -ing, for example, but closer than certain other derivational affixes which are less general than it.

On the basis of what Bybee has said about English derivational affixes one can hypothesise that Afrikaans derivational affixes that do not change the category of the word to which they attach display more relevance than those which do. However, a point which Bybee does not mention in her short discussion is that there are a number of affixes which are verb-forming, for example, and which attach to verbs, adjectives and nouns. Therefore, certain affixes may change the category of the base to which they attach in some cases, but not in others. In addition, there are those affixes that always change the category of the word to which they attach and those that never do. Without an in-depth investigation of the various derivational affixes in Afrikaans it is difficult at this point
to speculate on a continuum of such affixes from least to most relevant.

Similar problems arise when trying to establish a continuum of derivational affixes from greatest to least generality. The idea of generality of applicability appears to be the same as what is traditionally referred to as productivity, as the more generally an affix applies the more new words it can form. As Bybee (1985) shows, with reference to a few examples, certain affixes are more generally applicable/productive than others. Aronoff (1976:35-45, 62) notes that the productivity of an affix is difficult to measure in that the productivity of one affix is dependent to a large extent on the bases, derived and underived, to which it can attach. To determine the productivity of an affix one therefore has to consider what simple words it can attach to as well as the number of derived words to which it can attach. Only an in-depth independent study will reveal the generality of applicability of the various derivational affixes in Afrikaans. Thereafter we can speculate on the nature of a continuum of derivational affixes from least to most generally applicable.

As in the case of the relationship between derivational and inflectional affixes on a continuum, the relationship between prefixes and suffixes in Afrikaans may also be expressed in the form of a continuum as will be shown below. In the discussion which follows I will be referring to the non-native and native affixes distinguished in Chapter 3 as Stem and Word affixes rather than as non-native and native affixes to avoid confusion. I will therefore continue to label them with a subscript S and W respectively. The terms Stem and Word should merely be viewed as labels and do not have the theoretical significance they had in previous chapters.

5.5.4.2 Suffixes

Let us consider suffixes first and assume that the category of derivational expression may have some sort of internal
structure. It includes two categories of suffixes, those that are non-native in origin, the Stem suffixes, and those that are native in origin, the Word suffixes. Although it would appear that the Stem/Word distinction is a binary one, within the class of Stem suffixes there are certain suffixes which are less Stem-like and more Word-like. Similarly, within the class of Word affixes there are are certain suffixes which have the typical features of a suffix which is native in origin, while others have features which are more typical of a suffix that is non-native in origin. Thus, in each category one finds suffixes which are prototypical of that category and, at the periphery, in the area of overlap in (38), one finds Stem and Word suffixes which share certain distributional and/or stress properties.

(38) Stem suffixes Word suffixes

least-less proto-less least-less proto-less least

Let us assume that the typical features of Stem suffixes include the following.\textsuperscript{12} Stem suffixes typically

(i) cause stress to shift onto the suffix (onto the first syllable if the suffix is bisyllabic),
(ii) never occur in sequence with other Stem suffixes, but can occur in sequence with respect to Stem prefixes,

(iii) attach only before Word affixes,

(iv) occur only inside compounds,

(v) attach only before inflectional affixes, and

(vi) can never be duplicated in a complex word.

The following Stem suffixes have all the properties cited above:

(39)  -eer, -ein, -ér, -eur, -ier, -is, -ment

The suffixes in each of the examples below are non-native in origin, cause stress to shift onto the suffix and only occur in sequence with Stem prefixes (cf. (40)), not with Stem suffixes (cf. (41)). They also attach only before Word affixes (cf. (42)) and inflectional suffixes (cf. (43)), and occur only inside compounds (cf. (44)). None of the suffixes in (39) can be duplicated.

(40)(a) motoris
   [[motor] is₃]  
   car - person who drives
   "motorist"

(b) winkeliér
   [[winkel] iér₃]  
   shop - person who works in
   "shopkeeper"

(41)(a) destabiliséér
   [des₃  [[stabil] éér₃]]  
   removing effect of-stable - make
   "destabilise"
(b) éks-adviseur
   [éks g[[advies] eur g]]
   former-advice - person who gives
   "ex-adviser"

(42)(a) stabiliséérder
   [[[stabil] éér g] e rW]
   stable - make - thing that
   "stabiliser"

(b) republikéins
   [[[republiek] éing] sW]
   republic - inhabitant of-characteristic of
   "characteristic of a republican"

(43)(a) geéksperimentéér
   [ge INF[[eksperiment] éér g]]
   past part.-experiment - make
   "experimented"

(b) adviséúrs
   [[[advies] éúr g] s INF]
   advice - person who gives-more than one
   "advisers"

(44)(a) sosialiséringsproses
   [[[sosiaal] éér g] ingW [proses]]
   social - make - result of-process
   "socialisation process"

(b) tuiniérsalmanak
   [[[tuin] iér g] [almanak]]
   garden-person who works with-calendar
   "gardener's calendar"

There are, however, certain Stem suffixes which differ from the
prototypical suffixes given above with respect to one or more of
the features listed above. All Stem suffixes, with two
exceptions given in (45), cause stress to shift onto the suffix, specifically onto the first syllable if the suffix is bisyllabic. The suffix, viz. -ie, does not cause stress to shift onto the suffix (cf. (46)(a)). The bisyllabic suffix -erie causes stress to shift onto the second, rather than the first, syllable of the suffix as is usually the case with bisyllabic Stem suffixes.

(45) -erie, -ie

(46)(a) abstráksie
    [[abstrák] ie₉]
    abstract-result of making
    "abstraction"

(b) galanterié
    [[galant] erié]
    gallant-state of being
    "gallantry"

Secondly, only the following Stem suffixes seem to occur in a sequence with another Stem suffix as shown in (47). The suffixes -ief and -aal can be followed, but not preceded by other Stem prefixes, while -isme and -teit can follow, but not precede other Stem prefixes.

(47) -ief, -isme, -aal, -teit

(48)(a) sportivitéit
    [[[sport] ief₉] téit₉]
    sport - having a bearing on-condition of being
    "sport-mindedness"

(b) nasionalisme
    [[[nasie] aal]₉ isme:₉
    nation-pertaining to-condition of
    "nationalism"
Problematic in this respect is the suffix -eel which also occurs in sequence with other Stem suffixes like -isme or -teit, but which changes form and becomes -aal when followed by these suffixes as shown in the following examples.

(49)(a) individuëél
[[individu] éél₉]
  individual-pertaining to
  "individual"

(b) individualisme
[[[individu] aal₉] isme₉]
  individual-pertaining to-condition of being
  "individualism"

(c) individualitéít
[[[individu] aal₉] teít₉]
  individual-pertaining to-condition of being
  "individuality"

The reason(s) for this change of form will have to be established by independent study.

Thirdly, there seem to be a number of Stem suffixes which are similar to those in (39) in most respects except that they never seem to be preceded or followed by other Stem and Word affixes.

(50) -aat, -aan, -aans, -ana, -aner, -ant, -aries, -aris, -arium, -asie, -eel, -ees, -erie, -eus, -i, -iet

(51)(a) o seanárium
[[oseaan] árium₉]
  ocean - place like
  "oceanarium"
(b) bibliotekáris
[[biblioteek] árís₉]
library - person who works in
"librarian (male)"

Although many of the noun-forming suffixes could be followed by the suffixes -agtig or -erig as in oseanariumágtig ("like an oceanarium") and Italiánerig ("Italianish"), such stacking seems to occur very seldom. The near absence of such words can probably be attributed to the fact that the tendency in Afrikaans is for adjective-forming affixes to attach before noun-forming affixes.

Fourthly, there are a number of Stem suffixes which can attach to compounds. The nouns to which they attach refer, primarily to names of places, while the suffixes add the meaning "pertaining to" or "person from/who lives in". A list of these suffixes is given in (52) and examples showing their ability to attach to compounds are given in (53) below.

(52) -aan, -aans, -aner, -ant, -aris, -ees, -i, -iet, -isme

(53)(a) Roomskatolisisme
[[[Rooms] [Katolíék] isme₉]
Roman - Catholic - doctrine of
"Roman Catholicism"

(b) jazz-musikánt
[[[jazz] [musiek]] ánt₉]
jazz - music - person who makes
"jazz musician"

(c) Suid-Italiáner
[[[Suid] [Italië]] áner₉]
south - Italy - person from
"person from southern Italy"
Finally, there is a Stem suffix which attaches outside a Word prefix as shown in (54).

(54) -teit

(55) ongrammatikaliteit

[[on\textsubscript{W} grammaticaal] teit]s

not - grammatical - condition of being

"ungrammaticality"

The Stem suffixes listed or exemplified in (39)-(55) exhibit either a distributional or a stress property which is at odds with the typical distributional and stress properties of Stem suffixes. These suffixes, in fact, exhibit one or more of the properties which are more typical of Word suffixes and thus seem to lie close to or in the fuzzy area between the Stem and Word suffixes on the continuum in (18). The only feature which all the Stem suffixes seem to have in common is their origin and the fact that they are not able to duplicate in complex words.

Prototypical Word suffixes, in contrast, have the following features with the first four being features which are not shared by the prototypical Stem suffixes:

(i) they are stress neutral in that stress does not shift off the base to which they attach,

(ii) they attach only after Stem prefixes and suffixes,

(iii) they attach before and after other Word affixes,

(iv) they occur inside or outside compounds,

(v) they attach only before inflectional affixes, and

(vi) they can never be duplicated in complex words.

There are a number of Word suffixes, viz. those listed in (56), which exhibit only the properties listed above, that is, they
are stress neutral, (cf. 57), appear only outside Stem affixes when they do appear in such sequences, appear inside and outside other Word affixes (cf. (58)) appear both inside and outside compounds (cf. (59)), and inside, but not outside, inflectional affixes (cf. (60)). None of the suffixes listed in (56) can be duplicated in a complex word.

(56) -aar, -baar, -end, -er, -ie, -skap, -ing, -ling

(57) (a) vreémdeling
[[vreémd] lingeW]
strange-person who is
"stranger"

(b) [[aanváár] baarW]
accept - able to be
"acceptable"

(58) (a) fermentéérbaar
[[[ferment] éérG] baarW]
ferment - make - able to be
"fermentable"

(b) standardiséérder
[[[standard] éérG] erW]
standard - make - person who/thing which
"standardiser"

(59) (a) onvriendelig
[onW [[vriend] likW]]
not - friend - showing the quality of
"unfriendly"

(b) vriendskáplik
[[[vriend] skápW] likW]
friend - relationship as - showing the quality of
"friendly"
(60) (a) stáátsamptenaar
[[stáát] [amp] aarW]
state - office-person who holds
"government official"

(b) bóékrakkie
[[boék] [rak]] ierW
book - shelf - small
"small bookcase"

(61) (a) künstenaars
[[kúns] aarW] sINF
art - person who does-more than one
"artists"

(b) belówendé
[[belóóf] endW] eINF
promise -pres.part.- attributive marker
"promising (attributive)"

In addition to the Word prefixes given in (56) above there are a number of others which do not exhibit all the features listed above. Although most Word suffixes are stress neutral there are six Word suffixes which are not. Firstly, the following two Word suffixes bear stress in a complex word13 (cf. (63)). These suffixes are similar to Stem suffixes with respect to their stress properties.

(62) -es, -in

(63) (a) dienarés
[[dien] aarW] ésw
serve-person who-female
"female servant"
Secondly, there are those Word suffixes which are not stress neutral, like other Word suffixes, but rather cause stress to shift off the base word (cf. (64)). The stress shifts closer to the suffix, usually to the syllable preceding the suffix as shown in (65) and (66) below.

(64) -ig, -lik, -saam

(65) (a) vriéndskap

[[vriénd] skapW]
friend - relationship as "friendship"

(b) vriéndskáplik

[[vriénd] skápW likW]
friend - relationship as-showing the quality of "friendly"

(66) (a) [ópmerk]
"notice"

(b) opmérksaam

[[ópmerk] saamW]
notice - inclined to "observant"

(67) (a) [ágterdog]
"suspicion"

(b) ágterdógwig

[[ágterdóg] wigW]
suspicion - full of "suspicious"
Finally, there are a number of Word suffixes which differ from those in (56) in that they appear to never attach after Stem or Word affixes.

\[(68) \ -aard, -dom, -e, -entheid, -erd, -erik, -haftig, -ies, -igheid, -in, -gewys, -kunde, -liks, -lings, -nis, -s, -s, -sel, -ster, -te, -vol, -waarts\]

However, a few of these such as -es, -in, -ster and -sel can sometimes be followed by the diminutive suffix -ie and/or by the adjective-forming suffixes -agtig or -erig. The latter possibility is less likely to be found because of the tendency in Afrikaans for adjective-forming affixes to attach before noun-forming affixes.

\[(69)(a) \ tikstertjie\]
\[\text{[[[tik] sterW] tjieW]}\]
\[\text{type - woman who-small}\]
\[\text{"small typist (also disdain)"}\]

\[(b) \ kelnerinágtig\]
\[\text{[[[kelner] inW] agtigW]}\]
\[\text{waiter - female-displaying apparent}\]
\[\text{characteristics of}\]
\[\text{"like a waitress"}\]

There are also a number of non-prototypical suffixes which stack with both Stem and Word affixes. This group includes the following suffixes which are illustrated in (70).

\[(70) \ -aar, -agtig, -erig, -ery, -halwe, -heid, -lik, -saam\]

\[(71)(a) \ kollektéédery\]
\[\text{[[[kollekte] éérS] eryW]}\]
\[\text{collection-make - continual act of}\]
\[\text{"taking collection"}\]
(b) kinderágtigheid
[[[[[kind] ágtigW] heidW]]
child-displaying apparent-state of being characteristics of "childishness"

(c) vriendskáplikheidshalwe
[[[[[vriend] skápW] likW] -
friend - relationship as-showing the quality of-
heidW] halweW]
state of being-for the sake of "for the sake of friendliness"

Of the non-prototypical Word suffixes there are a number which seem to appear more readily outside, rather than inside compounds (cf. (72)).

(72) -agtig, -end, -er, -erig, -ery, -halwe, -heid, -ies, -in, -lik, -loos, -ster

(73) (a) huishóudelik
[[[[huis] [hóu]] likW]]
house - keep - showing the quality of "household/domestic"

(b) oorrhéérsend
[[[[oor] [héérs]] endW]]
over - govern - pres. part. "dominating"

There also seem to be a few Word suffixes which have the ability to attach after an inflectional prefix as shown in the examples in (75).

(74) -e, -ery, -heid, -halwe
For the most part, Word suffixes cannot occur twice in a complex word. However, there are a few exceptions given in (75).

(76)   -ie, -loos

In Section 4.2.3 I pointed out that the diminutive suffix can sometimes be duplicated to show emotion or disdain. Relevant examples from Jenkinson (1986b:39) are repeated here.

(77)(a) vissietjie
        [[[vis] ie_W] tjeie_W]
     fish-small-small
     "small fish"

(b) huísietjie
        [[[huís] ie_W] tjeie_W]
     house-small-small
     "small house"

Secondly, the suffix -loos seems to be able to appear twice in the same word provided the two instances of the suffix are separated by some other suffix. The relevant examples from
Section 4.2.3 are repeated here for ease of reference.

(78) (a) klêurloosheidsloos
\[ [[[klêur] \ loos_w] \ heid_w] \ loos_w] \]
colour - without-state of being-without
"without colourlessness/drabnessless"

(b) móédeloosheidsloos
\[ [[[móéd] \ loos_w] \ heid_w] \ loos_w] \]
courage-without-state of being-without
"without despondency"

There do not appear to be any Word suffixes other than these three that are able to duplicate in a complex word.

A feature which is implicit in the lists of typical features of Word and Stem suffixes is the inability of affixes to function independently with meaning. In fact, this feature is often used to distinguish between bound morphemes like affixes and free morphemes, that is, words. However, a cursory look at the data reveals that a clear boundary cannot be drawn between so-called free and bound morphemes. While most affixes are, in fact, usually bound, some display properties more typical of words and the structures in which they occur appear to be compound-like (cf. (80)). The word-like features of these suffixes were identified in Section 3.3.2.4. The relevant data is repeated here for ease of reference.

(79) -agtig, -erig, -loos, -vol

(80) (a) Is die nuwe blom \textit{angeliér-(agtig)}
is-the-new - flower-carnation-displaying apparent characteristics of of \textit{róos-agtig}?
or-rose-displaying apparent characteristics of "Is the new flower carnation-(like) or rose-like?"
(b) Is jou rok blue-erig?
    is-your-dress-blue ascribed presence to a small degree
    or-greén-erig?
    or-green-ascribed presence to a small degree
    "Is your dress blue-(ish) or greenish?"

(c) Moet ek süé-(erige) of süút-
    must-I - sweet-ascribed presence-or-salt-
    to a small degree
    erige versnaperings maak?
    ascribed presence to a small degree-snacks - make
    "Must I make sweet or salty snacks?"

(d) Is hy vandag vréúgde-(loos) of hópe-loos?
    is-he-today - joy - without-or-hope-without
    "Is he joy-(less) or hopeless?"

(e) Is die man vréúgde-(vol) of hóóp-vol?
    is-the-man-joy - full-or-hope-full
    "Is the man joy or hopeful?"

Although the suffixes -erig and -agtig can be factored out from the base to which they attach, these suffixes cannot function independently as meaningful units, nor can the base to which they attach be factored out from the suffix as shown in (81) below.

(81)(a) *Sy is agtig.
    she-is-like
(b) *Is die nuwe blom angelier-agtig
    is-the-new - flower-carnation-displaying apparent
    characteristics of
    of (angelier) - erig?
    or - carnation - ascribed presence to a small degree
    "Is the new flower carnation-like or (carnation)-y?"

(82)(a) *Sy is erig.
    she-is-ish

(b) *Is die meisie babbel- erig of
    is-the-girl - chatter-tendency to-or-
    (babbel)-agtig?
    chatter- displaying apparent characteristics of (one
    who)
    "Is the girl chattery or talkative?"

Similarly, the suffix -loos can be factored out from the base to
which it attaches, as can -vol. However, the former cannot be
used independently with meaning, but the latter can, as shown in
(83)(a) and (84)(a) respectively. Furthermore, the sentences in
(83)(b) and (84)(b) are regarded as marginal by most speakers of
Afrikaans. Sentence (84)(b) can be made less unacceptable by
adding additional stress/emphasis on hópelooš.

(83)(a) *Sy is loos.
    she-is-without

(b) ?Voel hy vandag vreúgde-vol of (vreúgde) - loos?
    feels-he-today - joy - full or joy - without
    "Is he feeling joyful or (joy)-less today?"

(84)(a) Dit is vol.
    it - is - full
    "It is full."
(b) "Voel die man hópe-loos of (hóóp)-vol?
feels-the-man-hope-without or- hope- full
?"Is the man feeling hopeless or (hope)-ful?"

It would thus seem as if, within the category of Word suffixes, suffixes can be compared with respect to the feature "boundedness-freeness". Word suffixes therefore seem to vary from those like -vol which behave like words, indeed, which can function independently as words, to Word suffixes such as those listed in (56), for example, which exhibit no word-like properties. Between these two extremes are suffixes like -agtig, -erig and -loos which, on the basis of their behaviour in the data above, seem to exhibit both word-like and affix-like properties. As regards -vol ("full", its behaviour raises the question whether it should be classified as an affix in the first place.

5.5.4.3 Prefixes

In this section the prefixes which are found in the derivational area of the continuum in (18) will be considered. As in the case of suffixes I assume that the category of derivational expression may have some sort of internal structure. It includes two classes of prefixes, a class of those which are non-native in origin, the Stem prefixes, and a class of those that are native in origin, the Word prefixes. However, within the class of Stem prefixes there are certain prefixes which are less Stem-like and more Word-like. Similarly, within the class of Word affixes there are are certain prefixes which have the typical features of a prefix which is native in origin, while others have features which are more typical of a prefix that is non-native in origin. Thus, in each category or class of prefixes one finds prefixes which are prototypical of that category and at the periphery, in the area of overlap in (73), one finds Stem and Word prefixes which share certain distributional and/or stress properties.
Let us first consider Stem prefixes and assume that their typical properties include the following:

(i) they are stress neutral in that stress does not shift off the base word,

(ii) they stack with Stem suffixes, but only with certain Stem prefixes,

(iii) they attach only before Word affixes,

(iv) they occur only inside compounds,

(v) they attach before inflectional affixes, and

(vi) they cannot duplicate in complex words.

There are a number of Stem prefixes (cf. (86)) which exhibit all of the properties given above as shown in (87)-(90): stress does not shift off the base word (cf. (87)), non-native prefixes do not stack with respect to other Stem prefixes, but do with respect to Stem suffixes (cf. (88)), they occur only within
compounds (cf. (89)) and only inside inflectional affixes (cf. (90)). Finally, none of the prefixes in (86) can be duplicated in a complex word.

(86)  ab-, de-, dis- and in-

(87)(a) abnormáál
\[ ab \_ [normáál] \]
away from-normal
"abnormal"

(b) immoréél
\[ in \_ [moréél] \]
not - moral
"immoral"

(88)(a) abnormalitéit
\[ [ab [normaal]] téít \]
away from-normal - condition of being
"abnormality"

(b) disharmoniéér
\[ [dis [harmonie] éér] \]
reversing effect of-harmony - make
"disharmonise"

(89)(a) desentralisásiewet
\[ [des [sentraal] ásie] [wet] \]
removal of-central - make - law
"law pertaining to decentralisation"

(b) disinféksiemiddel
\[ [dis [inféksie] [middel]] \]
removal of-infection - means
"disinfectant"
The remainder of the Stem prefixes do not share all the features listed above. Firstly, the following Stem prefixes exhibit a variable stress pattern in that they bear stress in some complex words, but in others, stress remains on the base.

\[\text{geo- hidro-, hiper-, homo-, infra-, inter-, ko-, kontra-, makro-, mikro-, mono-, multi-, neuro-, non-, proto-, pre-, post-, sub-, super-, supra-, tele-, trans-}\]

The majority of these prefixes usually exhibit a tendency to display one of the previously mentioned stress properties in most of the words in which they occur and display the other property in the remainder of the complex words in which they occur. In many cases the stress pattern is determined by the category of word to which the prefix attaches. With adjectives the stress seems to stay on the base word, while with nouns the stress seems to fall on the prefix. This results in the latter having a stress pattern which resembles that of a nominal compound. Although this is generally the case, there are exceptions, that is, adjectives in which stress is borne by the prefix and nouns where the stress is borne by the base. The variable stress patterns of two of these prefixes are illustrated in (92) and (93) below.

\[\text{(92)(a) superfyn} \]
Finally, there are a number of prefixes which, like the prototypical prefixes in (86), seem to never bear stress. That is, stress always remains on the base word as shown in (95).

(94) \textit{bio-}, \textit{cis-}, \textit{helio-}, \textit{hemi-}, \textit{hipo-}, \textit{intra-}, \textit{iso-}, \textit{meta-}, \textit{outo-}, \textit{pan-}, \textit{para-}, \textit{poli-}, \textit{pseudo-}, \textit{psigo-}, \textit{sirkum-}

(95)(a) \textit{psigoterapié}  
\textit{psigotérapié}  
\textbf{[psig{\textit{otes} \textit{terapié}]}}  
relating to the psyche-therapy  
"psychotherapy"

(b) \textit{bio-geneologié}  
\textit{bio-geneologié}  
\textbf{[bi{\textit{otes} \textit{genealogíe}]}}  
of living things-genealogy  
"bio-geneology"

Most of the prefixes listed in (91) and (94), while they might stack with Stem suffixes (cf. (96)), do not seem to stack with other Stem prefixes.
(96) pan-Afrikanis
[[[pana [Afrika]] is]]
all - Africa - person who studies
"pan-Africanist"

Furthermore, there are a number of Stem prefixes which, unlike the prefixes given in (86) above, attach both before and after Word prefixes and suffixes as illustrated in (98).

(97) a-, anti-, eks-, non-, pro-, semi-, super-, ultra-

(98)(a) semi-onafhanklik
[semi_g [onw [[afhang] lik_w]]]
partially - not - depend - having the quality of
"semi-independent"

(b) ultra-onbedagsaam
[ultra_g [onw [[bedag] saam_w]]]
excessively-not - mindful-inclined to be
"very unthoughtful"

(c) superbelasting
[super_g [[elas] ing_w]]
extra - tax - process of
"supertax"

As pointed out above, prototypical Stem prefixes do not attach to compounds. However, there are a number of less typical prefixes listed in (99) which do.

(99) a-, anti-, ko-, kontra-, non-, pro-

(100)(a) á-staatslotery
[as [[staat] [lotery]]]
indifferent to-state - lottery
"indifferent to a state lottery"
(b) anti-rassdiskriminasie
   \[\text{antí-rassdiskriminasie}\]
   against - race - discrimination
   "anti-racial discrimination"

While Stem prefixes usually attach before inflectional affixes there are a few Stem prefixes such as those in (101) below which seem to have the ability to attach outside the inflectional prefix ge-.

(101) pro- , semi- , ultra-

(102)(a) sémi-gelaai
   \[\text{sémi-gelaai}\]
   partially - past part. - load
   "partially loaded"

(b) ultra-gewaagd
   \[\text{ultra-gewaagd}\]
   excessively-past part. - dare
   "very daring"

(c) pró-gedissiplineerdheid
   \[\text{pré-gedissiplineerdheid}\]
   for - past part. - discipline - make - state of being
   "disciplinedness"

There are a number of Stem prefixes which can be duplicated in complex words as may be recalled from Section 4.2.2. The prefixes which exhibit this feature include those in (103) below. Their ability to duplicate is illustrated in (104).

(103) pré- , super- and ultra-

(104)(a) süper-súper-intelligent
   \[\text{süper-súper-intelligent}\]
   to a great degree - to a great degree - intelligent
   "very, very intelligent"
In the discussion of Word suffixes it was pointed out that an implicit assumption is that affixes are always bound. However, as was shown, there are certain Word suffixes which display word-like features usually associated with free morphemes. Similarly, as was stated in Section 3.3.2.4, there are some Stem prefixes that have one or more of the following word-like properties:

(i) they can be used independently with meaning,

(ii) they can be factored out from the bases to which they attach (cf. (107)), and

(iii) they permit factoring out of the bases to which they attach (cf. (106)).

As shown previously, while several Stem prefixes permit factoring out of the bases to which they attach or can themselves be factored out from the bases to which they attach, very few have the ability to function independently as meaningful units. If we consider the prototypical Stem prefixes listed in (86), none of them can function independently as words, none cause stress to shift off the base, none can be factored out from the base, and the base to which they attach cannot be factored out. Then there are those Stem prefixes that can be factored out from the base to which they attach as shown in (106). These data and those in (107) and (109) are repeated here from Section 3.3.2.4.
(105) **anti-**, **post-**, **pre-**, **pro-**

(106) (a) Is sy pró- (aborsie) of ánti- aborsie?
    is-sy-for - abortion-or-against-abortion
    "Is she pro-(abortion) or anti-abortion?"

    (b) Sy stel belang in pré- (Impressionisme) en
    she-shows-interest-in-before-(Impressionism) - and
    post- Impressionisme.
    after-Impressionism
    "She shows interest in pre-(Impressionism) and
    post-Impressionism."

The prefixes **anti-**, **post-**, **pre-**, **pro-** and others may also be
factored out from the words to which they attach as shown in

(107) (a) Hy is ánti- aborsie en (ánti)-kindermolestering.
    he-is-against-abortion-and-against-child molestation
    "He is anti-abortion and (anti)-child molestation."

    (b) Daardie man is ultra - konservatief en
    that - man-is-excessively-conservative-and
    (últra) -streng.
    excessively-strict
    "That man is ultra-conservative and (ultra-)strict."

However, only some of the prefixes with the properties
illustrated in (106) and (107) can function independently as
words. In fact, only the prefixes listed in (108) below can
function independently as words. This is illustrated in (109).

(108) **anti-**, **kontra-**, **pro-**
(109) (a) Hy is sterk anti.
   he-is-strongly-anti
   "He is strongly anti."

(b) Die saak van A kontra X word vandag beslis.
   the-case-of - A-against-X-is being-today - decided
   "The case of A against X is being decided today."

Stem prefixes which can be factored out from their bases or permit factoring out of bases include all those in (91), (94), (96) and (98) above.

As was pointed out above, some complex words which include a Stem prefix exhibit the stress pattern typical of that found in a nominal compound. This seems to be the case with many of the complex words which contain the prefixes listed in (91), (94), (96) and (98). These are exactly the prefixes which allow the type of factoring out which is typical of compounds.

Prototypical Word prefixes, in contrast to the prototypical Stem prefixes discussed above, seem to have the following features:

(i) they are stress neutral in that stress does not shift off the word to which the suffix attaches,

(ii) they are seldom found in sequences with Stem prefixes, but occur readily with Stem suffixes,

(iii) they can attach before or after Word affixes,

(iv) they can occur inside and outside compounds,

(v) they attach before inflectional suffixes, but neither inside or outside inflectional prefixes, and

(vi) they cannot be duplicated.
The following are the prototypical Word prefixes of Afrikaans.

(110) be-, ge-, ont-, ver-

Examples illustrating the prototypical prefixes and their properties are given below. The words in (111) illustrate the stress neutral nature of Word prefixes and their ability to attach outside Stem affixes, while those in (112) illustrate their ability to attach both inside and outside Word affixes. The examples in (113) show that Word prefixes occur inside and outside compounds and those in (114) that Word prefixes attach inside inflectional suffixes, but neither inside nor outside inflectional prefixes. None of the prefixes listed in (110) can be duplicated in a complex word.

(111) (a) beredenéér
[beW [[rede] éérsg]]
do intensively-reason-make
"argue/reason out"

(b) ontmagnetiséér
[ontW [[magneet] éérsg]]
removal of-magnet - make
"demagnetise"

(112) (a) vervréémding
[[verW [vreémd]] ingW]
make - strange - result of
"estrangement"

(b) hérbewapen
[hérW [beW [wapen]]]
again-provide with-weapon
"re-arm"
There are, as was pointed out in Section 3.3.2.3.5, a number of Word prefixes which appear to have variable stress patterns in that stress sometimes remains on the base word and sometimes falls on the prefix. The stress pattern in such cases is usually determined by the category of the word to which the affix attaches as shown in (116)-(118). Where the base is an adjective, stress stays mostly on the base. Where the base is a noun or a verb stress moves onto the prefix. The Word prefixes which behave in this way are listed in (115). The category of the base and of the complex word in (116) and also in (117), (118) and (120) where this is pertinent to the discussion.

(115) on-, mis- and her-

(116) (a) onaangenaam

[onaW [aångenaam]A]A
not - pleasant
"unpleasant"
In the case of the prefix her-, which usually attaches to verbs, stress falls either on the prefix or on the base as shown in (118)(a) and (b) respectively. When her- attaches to a noun stress usually falls on the prefix as shown in (118)(c).

(118) (a) hérnomineer
[hérw [nomineer]v]v
again-nominate
"re-nominate"

(b) herbóú
[herw [bóú]v]v
again-build
"re-build"

(c) hérskamen
[hérw [eksamen]N]N
again-exam
"supplementary exam"

In contrast to the Word prefixes in (115) the prefixes in (119) always bear the stress themselves as shown in (120)(a), (b) and (c).
As regards stacking with Stem and other Word affixes, there are differences between the various non-prototypical Word prefixes. Firstly, the prefixes aarts-, her-, and on- readily appear in Word prefix sequences, the latter usually being the last prefix to attach. However, Word prefixes such as those in (121) do not seem to appear outside other Word prefixes, although they readily appear inside and outside Word suffixes.

(121) oer-, mis-, wan-

(122) (a) onbebóud

(onW [beW [bou]])
not-do intensively-build
"uncultivated"

(b) onherléibaar

(onW [[herW [léi]] baarW])
not - again - lead - able to be
"irreducible"
Of the non-prototypical prefixes her- is the only one which seems to have the ability to readily attach to compounds, although several others may in a small number of cases. Most of the other prefixes appear more readily inside, rather than outside, compounds.

(123) (a) wánbetaling
[wán [[betaal] ing]]
badly - pay - result of
"non-payment"

(b) mishándeling
[[mis [[hándel]] ing]]
badly - handle - result of
"maltreatment"

(124) her-, on-

(125) (a) hérdeurblaai
[hér [[deur] [blaai]]]
again - through-page
"page through again"

(b) ónvuurvas
[ónv [[vuur] [vas]]]
not - fire - fast
"not fireproof"
There are a few word prefixes which can occur outside inflectional affixes. Although the word prefix/inflectional prefix sequence of on-ge is common in Afrikaans (cf. (127)(a)), other such prefix combinations like her-ge shown in (127)(b) are not.

(127) her-, on-

(128) (a) ongeskéérde
[[onW [geINF [skéér]] eINF]
not - past part. - shave - attributive marker
"unshaved (attributive)"

(b) hergegroepeeréérde
[[herW [geINF [[groep] éérS]]] eINF]
again - past part. - group - make - attributive marker
"regrouped (attributive)"

Finally, there are a very small number of Word prefixes which can be duplicated. These prefixes include those in the examples in (130).

(129) aarts-, her-, oer-

(130) (a) áárts-aartslui
[áártsW [aartsW [lui]]]
to the greatest degree - to the greatest degree - lazy
"very, very lazy"
5.6 Conclusion

In this chapter it was argued that the problematic data which face the level-ordering and category distinction approaches in English and Afrikaans are a function of the conception of categories with which they work. It was further argued that the fundamental assumption which underlies their work should be replaced by the assumption that categories are non-discrete entities. This conception of categories allows us to reinterpret affix categories in terms of more and less typical properties which more adequately reveals the range of properties which members of a particular category have.

We turn now to the final chapter in which I will show how the properties of affixes discussed and illustrated in this chapter can be accounted for within a cognitive approach which treats categories as non-discrete entities.
Notes

1 Another well-known counterexample is unhappier in which both the suffix and the prefix belong to the same group/class, viz. Class II/Word affixes. The problem here is that the prefix un- must attach before the suffix -er for the correct semantic representation, viz. "more unhappy", rather than "less happier", to be assigned to the word. However, there is a problem in that the comparative suffix -er can only attach to bisyllabic adjectives like happy not to trisyllabic adjectives such as unhappier. The counterexample unhappier is not of the same type as the counterexamples in (1)-(3) and because it has attracted very little attention in comparison to the others and seems to require a different type of solution, I will exclude it from the discussion. Cf. Pesetsky (1985:96-97) for a discussion of the counterexample unhappier.

2 I am ignoring the possibility that grammatical may be morphologically complex as this is not pertinent to the discussion.

3 A similar solution is also proposed by Zwanenburg (1988). He argues that bracketing paradoxes can be more adequately accounted for if we assume that derivation structure comprises a 'bare' level independent of individual affixes and an 'enriched' level at which affixes are inserted.

4 This is not entirely true of some of the features which can be used to describe various affixes as will be shown in Section 5.5.4.1.

5 Taylor (1989) contends that this is not necessarily so.

6 Bybee (1985) does not, however, specify this level of analysis.

7 Implicit in the work of many linguists such as proponents
of the level-ordering and category distinction approaches is the notion that there are two types of compounds, viz. endocentric and exocentric compounds. The former are compounds like bathroom which are taken to have a compositional meaning. The latter are compounds like scapegoat which are taken to have idiosyncratic meanings, that is, meanings which are not predictable from a composition of the meaning of their parts. It is not obvious whether linguists who work with this implicit assumption would entirely agree with Bybee (1985) that compounds gradually become lexicalised and lose their semantic and phonological transparency. Cf. the discussion in Sections 2.2.1 and 4.2.5 on endocentric and exocentric compounds.

Cf. also the work of Van Lint (1982:135-136) who makes a similar distinction between compounds which are stored in the lexicon (exocentric compounds) and so-called transparent compounds which are viewed as "a product of generation". The elements of such compounds yield enough information to infer their meaning every time they are heard. Such compounds are not taken to have idiosyncratic meaning.

8 Cf. Allen (1978:116-118) where such reduction of the right-hand member of a compound to a derivational-like element is discussed and also Allen (1978:232-243) where she argues for the reanalysis of certain suffixes such as worthy in trustworthily as words.

9 In her discussion of separable compound verbs/verb-particle combinations in Afrikaans, Le Roux (1988:336-337) lists a number of problems which need to be addressed by future research, one of which is the formation of such compound verbs. She suggests that an incorporation account along the lines which Baker (1985) has proposed for various languages could be considered, but does not give any examples to illustrate this proposal. If such an account
were shown to be feasible for separable compound verbs/verb-particle combinations in Afrikaans, then incorporation would have to considered a possible means of word formation in Afrikaans and would have to be included in the continuum.

10 The internal structure of the verbs to which ge- attaches has not been indicated in these examples as it is not pertinent to the discussion.

11 These examples are taken from Combrink (1990:127).

12 Recall from the previous section that there are number of other features which could be used to describe affixes like syllabification and mono- vs. bisyllabicity. However, as these are not pertinent to the discussion here they have been excluded.

13 I am not making any claims here about whether stress shifts onto the suffixes when they attach to the base or whether such suffixes are listed with stress in the lexicon. Dutch linguists like Schultink (1980:235-237), who refer to these suffixes as stress bearing, seem to implicitly assume that they carry stress and are listed with this stress feature in the lexicon. This contrasts with typical Stem suffixes which are not listed in the lexicon with stress, but cause stress to shift onto them when they attach to a base.

14 This word itself has variable stress with the Tweetalige Woordeboek placing stress on the base rather than on the prefix while the HAT places stress on the prefix.
CHAPTER 6

TOWARDS AN ACCOUNT OF THE PROPERTIES OF AFFIX CATEGORIES WITHIN
THE COGNITIVE APPROACH

6.1 Introduction

In the previous chapter the cognitive approach to categories and
categorisation was discussed with specific reference to the work
of Bybee (1985) on morphological categories. With reference to
this conception of categories the affix categories of Afrikaans,
viz. inflection and derivation, were reinterpreted as
non-discrete entities. It was shown that members of the
category inflection, for example, differ from each other with
respect to generality, relevance and their ability to appear in
sequences with inflectional and derivational affixes. The same
was shown to be true of members of each of the two classes of
derivational prefixes and suffixes. For example, the
derivational affixes in each class do not display exactly the
same stress and distributional properties. Against the
background of this reanalysis the aim of this concluding chapter
is twofold:

(i) Firstly, to show how a variety of properties of affix
categories can be accounted for within a cognitive approach
which assumes a continuum of non-discrete morphological
categories as proposed in Chapter 5.

(ii) Secondly, to show that there is independent justification
for this type of approach to morphological categories if
one considers certain apparently uncharacteristic
properties of affixes in related Germanic languages like
English, German and Dutch.
To achieve these two aims the chapter is organised in the following way:

(i) Firstly, the properties of the Afrikaans affixes presented in the previous chapter will be discussed in terms of the continuum of morphological categories proposed in Chapter 5, with specific reference to focal and fuzzy areas.

(ii) Secondly, data from English, German and Dutch which have been labelled as problematic or recalcitrant will be presented and discussed.

It will become evident in the discussion that the approach to morphological categories being espoused and illustrated in this and the previous chapter is superior, in many ways, to approaches which work implicitly or explicitly with the assumption that morphological categories are discrete entities.

6.2 An account of the properties of Afrikaans affix categories with reference to the continuum construal of categories

6.2.1 General remarks

Before considering the affix categories of Afrikaans I would like to briefly consider, again, the level-ordering and category distinction approaches which claim that English derivational affixes can be divided into two classes on the basis of their stress properties and their (in-)ability to attach to Stem and Word bases. These approaches assume that this division also correlates with the different distributional properties of the affixes in each of the two classes, for example, that Class I affixes always attach before Class II affixes. The basis of these claims is the fact that there are certain clusters of properties common to, or characteristic of, each of the two classes of derivational affixes. However, it has also been recognised that certain affixes exhibit stress and distributional properties uncharacteristic of the class to which
they belong. Data in which derivational affixes exhibit such uncharacteristic, apparently "deviant" properties are treated as problematic as was shown in Sections 2.3.2 and 2.4.3 and a variety of ad hoc mechanisms have been proposed to deal with them. More recently, in his study of the distributional properties of English suffixes, Fabb (1988) has shown that members of Class I suffixes show markedly different patterns of distribution. The same is true of suffixes which belong to Class II. He considers this sufficient reason for dispensing with level-ordering which does not appear to be restrictive enough, and proposing instead selection restrictions on suffixes.

The significance of the fact that the members of a particular morphological category do not share the same distributional and/or stress properties cannot be accounted for in the normal way, but require ad hoc devices does not lie in the inadequacies of the standard formal morphological devices. Rather, it shows that morphological categories cannot be conceived as unitary discrete categories. Thus, though the deviant members of a certain morphological class may show up the inadequacies of the descriptive devices, such inadequacies are rooted in a fundamentally incorrect conception of the nature of morphological categories. Once it is recognised that morphological categories are non-discrete and that members of such categories need not all share the properties defining the various categories to the same degree, one can reinterpret the definitional properties and the deviance of some members from these properties in a natural way. The definitional properties define the prototypical or focal members of a morphological class, that is, the non-deviating members. The deviant members are then taken as the non-prototypical members. That is, they are taken to belong to the fuzzy membership area of the category.

As mentioned in the previous chapter the non-discrete nature of categories has, to a large extent, been supported by evidence from the field of cognitive psychology. Rosch (1973; 1975a;
1978: 1981) and others have provided experimental evidence which suggests that people categorise what they experience in terms of non-discrete categories. The evidence presented in the previous chapter suggests that morphological categories of Afrikaans, in particular affix categories, are also non-discrete. That is, categories are not defined in terms of a set of necessary and sufficient features which all members of a category must share in order to be classified as members of the category. Instead, members of a category are defined in terms of features which various members may exhibit to varying degrees. This is not to say that affix categories are merely heterogeneous entities containing an arbitrary collection of affixes. Rather, it would seem that these categories exhibit an internal structure, that is, they consist of prototypical affixes surrounded by a number of affixes which deviate to varying degrees from central affixes. The latter may, in fact, share properties with members of adjacent categories. These gradient differences between categories, and between members of a category, can be accounted for by assuming that categories lie along a continuum such as the one proposed in Chapter 5. The continuum is repeated here for ease of reference as (1). Recall that the abbreviation "free gramm." stands for "free grammatical (expressions)". The lines in (1) indicate some of the relationships which hold between categories on the continuum.

(1)

compounding-lexical-derivational-inflectional-free--syntactic gramm.
The morphological categories which lie along the continuum in (1) do not represent discrete points on the continuum, but rather mark off areas, each of which has a focal point with a fuzzy area around it. As will be shown in the following section, by adopting this conception of morphological categories we are able to account for:

(i) the gradient difference between the prototypical affixes and the less and least typical affixes within a particular category,

(ii) the gradient differences between the members of adjacent or related categories on the continuum,

(iii) shifts that occur between categories, and

(iv) the slight differences in category boundaries between affixes in the competence of different Afrikaans speakers.

Before proceeding with the discussion two points about the continuum of categories in (1) should be borne in mind. Firstly, as was mentioned in Section 5.5.2, while linear ordering may be the general ordering principle in terms of which categories are ordered along a continuum, the relationship between the categories may not necessarily be a linear one. That is, members of a particular category may not only show similarities to members of an adjacent category, but also to members of other categories on the continuum as indicated by the lines in (1). Secondly, although I will be using the notion of a continuum to account for the properties which members of affix categories exhibit, it should be pointed out that this notion is a pre-theoretical one. Further research is needed to explicate its nature as a theoretical construct.
6.2.2 Focal and fuzzy areas of affix categories on the continuum

6.2.2.1 Inflectional affixes

6.2.2.1.1 The status of inflectional affixes

We may think of the focal area of any of the affix categories as being defined in terms of certain characteristic features such as those represented in the following diagram.

(2)

For every affix category these features will have different "values". Considering first the category inflection let us assume that the following "values" hold for prototypical inflectional affixes. The first two are identified in the work of Bybee (1985), while the latter two correspond closely to those traditionally identified as being characteristic of inflectional as opposed to derivational affixes.

(i) a low degree of relevance,

(ii) a high degree of generality
(iii) attachment always outside derivational affixes, and
(iv) no stacking with other inflectional affixes.

If these are the necessary and sufficient properties of prototypical inflectional affixes, then Afrikaans has no prototypical inflectional affixes. That is, there are no inflectional affixes in Afrikaans which exhibit a low degree of relevance, a high degree of generality, always attach outside derivational affixes and never stack with other inflectional affixes. In the cognitive approach, however, the features in (i)-(iv) above are not necessary and sufficient features for membership in the category of inflection. Therefore, there may be affixes in Afrikaans which belong to the category of inflection because they are obligatory in certain syntactic constructions, but which do not share all the features listed in (i)-(iv) above. The affixes in (3) are such inflectional affixes.

(3)  

These inflectional affixes differ to a greater or lesser extent from each other with respect to:

(i) their relevance and generality,

(ii) their (non-)ability to stack with other inflectional affixes, and

(ii) their (non-)ability to occur inside derivational suffixes.

Therefore it seems that Afrikaans, which is less inflected than other Germanic languages like German and Dutch, has no prototypical inflectional affixes, but has several less typical inflectional affixes. These inflectional affixes therefore lie outside the focal area of the category inflection, that is, in the fuzzy area, and may show certain similarities to derivational affixes. This is indeed the case for the plural
suffixes, for example. They seem to display a high degree of relevance which is more typical of derivational than inflectional affixes (cf. Section 5.5.3). Although Bybee (1985:83-84) discusses the way in which relevance and generality determine the inflectional or derivational status of an affix, it is not obvious at this stage how one would weight the different values of the features for inflectional affixes to determine how (non-)typical a given inflectional affix is. Therefore it is not possible at this stage to determine which of the inflectional affixes in (3) most closely approximates a prototypical inflectional affix and which is least like the prototype.

6.2.2.1.2 Gradient differences in the knowledge of speakers

As shown in the previous paragraph the continuum of affix categories enables one to account for the gradient differences between the inflectional affixes given in (3) above. However, it also enables one to account for the fact that, although individual speakers of a language like Afrikaans will all have the same continuum of expression types, the boundaries between inflection and derivation may vary slightly between speakers. Recall that some mother tongue speakers of Afrikaans use the past participle prefix ge- more widely than others. As was pointed out in Section 5.5.3 the inflectional prefix ge- is more inflection-like for those speakers of, what Combrink (1990:219) calls, Substandard Afrikaans in the sense that it has full generality. For speakers who leave it out with certain verbs ending in eer this prefix is less general in its applicability and therefore more derivation-like with respect to this feature. Finally, for those who speak Suprastandard Afrikaans and sometimes omit the inflectional prefix ge- as a sign of refinedness this prefix is least general and therefore least inflection-like. Although the boundary between inflection and derivation differs for speakers of each of these varieties of Afrikaans, the difference is so slight that speakers with different boundaries will still be mutually intelligible. The cognitive approach with its non-discrete conception of
categories allows for these differences in the categorial knowledge of individual speakers of a language and enables us to give an account of such differences. An approach in which categories are regarded as discrete would abstract away from such differences accounting only for the use of the prefix ge- in the speech of speakers of Standard Afrikaans. The use of ge- in other dialects or sociolects would be relegated to the realm of sociolinguistic study.

6.2.2.2 Derivational affixes

6.2.2.2.1 The status of derivational affixes

Let us now consider the derivational affix categories. I will illustrate the discussion with reference mainly to the category of Stem prefixes. The general comments made also hold for other affix categories. As was the case with inflectional affixes the focal area of an affix category is defined in terms of features such as those given in (2). The values of these features for Stem prefixes are given in (i)-(vi) below. Recall that the features of generality and relevance were not considered for derivational affixes (cf. Section 5.5.4) and are therefore omitted here.

(i) They are stress neutral in that stress does not shift off the base.

(ii) They stack with Stem suffixes, but only with certain Stem prefixes.

(iii) They attach only before Word affixes.

(iv) They occur only inside compounds.

(v) They attach before inflectional affixes.

(vi) They cannot duplicate in complex words.
All prefixes of non-native origin such as those in (4) which share the above-mentioned features will fall into the focal area of the category of Stem prefixes. That is, they are the prototypical Stem prefixes.

(4) ab-, de-, dis-, in-

If one encounters a prefix of non-native origin which shares with the prefixes in (4) all the features listed in (i)-(vi) above then such a prefix will also be a prototypical Stem prefix. It will be a member of the focal area of the category of Stem prefixes.

Although the possession of the features in (i)-(vi) indicates that a prefix belongs to the category of Stem prefixes, these features are not necessary and sufficient in the sense that all prefixes which belong to this prefix category must exhibit all or even most of them. Thus one would expect there to be some Stem prefixes which

(i) are not stress neutral,

(ii) show different distributional patterns with respect to Word affixes and compounds,

(iii) are able to stack, and

(iv) possibly share certain features with members of adjacent or nearby categories.

This is in fact the case with the Stem prefixes listed in (5).

The Stem prefixes in (5) are all non-prototypical prefixes, but differ to a greater or lesser extent from the prototypical prefixes and from each other. The extent to which they differ from the prototypical prefixes is dependent on the number of features which they have in common with the prototypical prefixes. There are certain indications in the work of Bybee (1985:83-84) as to how we distinguish between more and less typical derivational affixes with respect to relevance and generality. However, it is not obvious how one would grade the distributional and stress features, for example, with respect to their importance. It is therefore not evident how the presence or absence of these features would be weighted in determining how close to or far away from the focal area a given Stem prefix lies.

6.2.2.2.2 Shifts on the continuum

Given the assumption that derivational categories are non-discrete, non-classical properties of the prefixes in (5) which are viewed by the level-ordering and category distinction linguists as being recalcitrant or unexpected are a function of the nature of categories. Within a prototype model these apparently "deviant" properties are not regarded as deviant, but are rather taken to reflect the range of properties that prefixes of the same origin share. One of the apparently strange properties which some of the prefixes in (5) exhibit are word-like properties. Stem prefixes like anti-, post-, pre-, and pro-, for example, have the following properties.

(i) They can be factored out from the base to which they attach.

(ii) They allow the base to which they are attached to be factored out.

(iii) Derived words containing such prefixes display the stress pattern typical of nominal compounds.
(iv) Some prefixes like anti- and kontra- can function independently with meaning.

The cognitive approach handles these properties of Stem prefixes in the following way. As derivation lies next to compounding and close to lexical expression on the continuum one would expect that a shift could occur where members of a compound become more affix-like (cf. Section 5.3.3 for English examples) and/or a shift where derivational affixes become more word-like and the words in which they occur become more compound-like. The latter shifts seems to occur in Afrikaans with the Stem prefixes mentioned above. With the conception of categories being espoused here one can account for these shifts without having to resort to the creation of a new class of affixes (cf. Selkirk (1982)). One would also not have to resort to rather arbitrary reclassification of all prefixes of a particular class as compounding elements irrespective of whether they exhibited word-like properties like anti-, or not, like un- (cf. Strauss (1982a)).

As compounding and derivation lie next to each other on the continuum one would expect a shift over time. Stem prefixes which can become word-like are those which are not stress neutral, unlike the prototypical Stem prefixes, but which bear stress in a complex word. The derived word of which they form part thus has the stress pattern that is typical of nominal and adjectival compounds in Afrikaans. These Stem prefixes behave like words which are usually joined to form compounds, in that they can be factored out from the base to which they attach or they allow factoring out. Over time these prefixes may become even more like the words (lexical expressions) which make up compounds and may be able to be used independently with meaning like anti- and kontra-, for example. Thus the shift of prefixes from being typically bound elements in derivational structures to free elements which can occur independently with meaning can be accounted for.
The conception of categories of affixes as non-discrete entities can also be used to explain another shift which occurs. As mentioned in Section 3.2.3, over a period of time certain affixes seem to fuse with the base to which they attach. In such cases it is no longer possible to break up the word into constituent parts each contributing to the meaning of the whole. Consider in this regard the following words. The putative affix is underlined in each case.¹

(6)(a) predikáát
[predikáát]
"predicate"

(b) eksponéér
[eksponéér]
"expose"

(c) metátesis
[metátesis]
"metathesis"

(7)(a) absolvéér
[absolvéér]
"absolve"

(b) kontempórér
[kontempórér]
"contemporary"

(c) inspektéúr
[inspektéúr]
"inspector"

In each case, although it might be possible to distinguish diachronically between the base and the suffix and assign a meaning to each, most mother tongue speakers of Afrikaans would not be able to do so contemporarily. These forms appear to have undergone, what Bybee (1985:88-89) refers to as, lexical split.
Lexical split occurs when the derived member of a pair becomes increasingly autonomous. There are three factors which determine autonomy and therefore also the likelihood of lexical split, viz. frequency of the derived form, phonological distance from the basic form and the degree of semantic change from the basic to the derived form. In *metátesis* ("metathesis") in (6)(c) the prefix *meta-* has undergone a phonological change in that the first vowel is not pronounced in the same way as the corresponding vowel in *metafísika* ("metaphysics"). One finds the vowel [ə] in *metátesis* ("metathesis"), but the vowel [e] in *metafísika* ("metaphysics"). The vowel in *pre-* has not undergone such a change. Furthermore, the meaning of each of these words, for many mother tongue speakers, must be learnt in the same way as the meanings of monomorphemic words because for such speakers the meaning of these words can no longer be inferred cumulatively.  

In contrast, in words such as those in (8) and (9) the meaning of each word is a function of the meaning of its parts. These forms have not undergone lexical split.

(8)(a) **pre-destinásie**

[prɛ̃g [destinásie]]
before-destination
"predestination"

(b) **éks-vrou**

[ɛksɛ̃ [vrou]]
former-wife
"ex-wife"

(c) **metafísika**

[metaɛ̃ [físika]]
alongside - physics
"meta-physics"
The differences and similarities between the words in (6) and (7), which have undergone lexical split, and those in (8) and (9), which have not undergone lexical split, can be accounted for easily within the prototype model. As mentioned before the continuum of morphological categories includes both the categories of derivational and lexical expression along which the words in (8) and (9) would lie. In terms of the continuum in (1) derivational and lexical expression lie close to each other and may be related to each other. Those words which seem to have undergone lexical split lie in the fuzzy area of derivational expression, that is, close to lexical expression on the continuum. Such words will therefore be regarded as similar to monomorphemic words with respect to their properties, meaning and stress patterns. However, as they lie on a continuum which stretches from derivational expression at the one extreme to lexical expression at the other we can also explain the fact that such words do exhibit certain properties of derivational words. That is, mother tongue speakers recognise the endings of the words in (7) as being the same as the endings of the transparently derivational forms in (9). They therefore know what category the word belongs to and what affixes may attach to it. Furthermore, they know the stress patterns which the various words exhibit. The words in (8) and (9) which are fully
compositional with respect to meaning and which are formed by productive WFRs lie in the derivational area of the continuum and are therefore treated as derivational forms.

These similarities and differences between the words in (6) and (7) and those in (8) and (9) cannot be accounted for within approaches like the level-ordering and category distinction approaches which treat all the words as derived, for example, Siegel (1974) and Allen (1978). Neither can these similarities and differences between the words be accounted for by an approach in which the words in (6) and (7) are treated as simple and those in (8) and (9) as derived, for example, Guerssel (1983).

6.6.2.2.3 Continua of bases

This way of accounting for the similarities and differences between the two sets of words above raises two other interesting questions. Firstly, with reference to the words in (6) and (7) it could also be argued that, in addition to affixes and words lying along a continuum, there is a continuum of bases to which affixes may attach. At the one end there would be bases like pon that occur in words which have undergone lexical split or which are no longer perceived as consisting of more than one meaningful unit. At the other end of the continuum would be bases such as vróú ("woman") and stóél ("chair"), for example, which not only occur in complex words, but can also function independently with meaning. Between these two types of bases are those such as administr, often referred to as dependent stems, which are easily recognisable in words and seem to have the same "meaning" in such words as shown in (10) below.

(10)(a) administréér
       administr - éér
       "administer"
(b) administrásie
  administr - ásie
  "administration"

(c) administratéúr
  administr - atéúr
  "administrator"

The explication of such a continuum of bases, if such a continuum does indeed exist, lies beyond the scope of this thesis. For the purposes of this thesis I have assumed that only words which can occur independently with meaning can serve as bases for affixation. The postulation of forms like pon and administr as bases for affixation does not affect the claims made in this thesis about the distribution of affixes. That is, the affixes which can be attached to the words eksponéér ("expose") and administréér ("administer"), for example, are the same as those that can be attached to the derived word sentraliséér ("centralise") as shown in (11) below.

(11) (a) eksponéérdery
         [[[eksponéér] eryW]
          expose - continual act of
          "exposing"

(b) administréérdery
         [[[administréér] eryW]
          administer - continual act of
          "administering"

(c) sentraliséérdery
         [[[sentraal] éérS] eryW]
         central - make - continual act of
         "centralising"
6.2.2.4 Gradient differences in the knowledge of speakers

Another fact which can easily be explained with reference to the continuum of categories is the differences in the knowledge which various speakers of a language have. As was pointed out in Section 3.2.3, speakers of a particular language like Afrikaans may differ as to the knowledge they have of the affixes in their language. A person with specialist knowledge, like a scientist, for example, might know the meaning of the Stem prefix bio- ("of living beings") in biochemié ("bio-chemistry"). Such a speaker may be able to use this specialist knowledge about the prefix when forming and interpreting new words. For him the word biochemié ("bio-chemistry") is a complex one consisting of a base word chemié ("chemistry") and a (Stem) prefix bio- ("of living things"). Other speakers, who do not share this specialist knowledge, may not be able to assign a meaning to bio- ("of living things") or to use it when forming and interpreting new words. For them the word biochemié ("bio-chemistry") is a simple, that is, non-complex, word which they have to learn together with its apparently idiosyncratic meaning.

This assumption would enable one to account for the fact that speakers with certain specialist knowledge will recognise a particular word as being complex, while other speakers will recognise it as being simple. For the former a word like biochemié ("bio-chemistry") will still be part of the derivational part of the continuum, and will therefore be an instantiation of the prefixation rule bio- + N with compositional meaning. For the latter group of speakers the affix has become fused with the base and the word is perceived as a monomorphemic word, that is, as a lexical expression. As such it is learnt together with its meaning as are monomorphemic words.
6.2.3 Summary

The advantages of the prototype conception of morphological categories as we have illustrated with reference to affix categories of Afrikaans are numerous. This approach does not try to force affixes into discrete categories in terms of necessary and sufficient properties thereby avoiding the need for ad hoc reclassifications in order to accommodate affixes with deviant properties. By forcing affixes into two, discrete categories the level-ordering approaches and the category distinction approaches grossly over-simplify the range and variation in properties which affixes in a particular class have. At the same time these formal models overgenerate in the sense that many of the affix sequences which they predict to be possible, do not in fact exist. Similarly, affixes of a particular class do not always exhibit the same stress properties. In their defence one could say that they do account for the fact that affixes of a certain class generally attach prior to affixes in another class. However, as was pointed out by Fabb (1988), Class I and II suffixes in English have very restricted distributions with respect to the number and type of affixes with which they can co-occur. The present study corroborates his view for stackings of prefixes and suffixes in Afrikaans. Neither the level-ordering approach nor the category distinction approach can account for this range of different distributional and stress properties which affixes of a particular class exhibit. The cognitive approach which has been explored in this and the previous chapter can account for this range of properties without recourse to ad hoc mechanisms. Furthermore, it can account for the shifts which occur between categories as well as minor differences in the category boundaries of certain affixes of various speakers of Afrikaans.

Before turning to zero affixation I would like to briefly consider a slightly different way of accounting for the properties of members of affix classes. This involves reinterpreting the necessary and sufficient properties of the various affix classes in cognitive terms. Consider in this
regard the diagram in (12) below.

<table>
<thead>
<tr>
<th>Class I</th>
<th>Class II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necessary and sufficient features</td>
<td>Necessary and sufficient features</td>
</tr>
<tr>
<td>&lt;--&gt;</td>
<td>features</td>
</tr>
<tr>
<td>&lt;-----------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

Fuzzy area

Those properties which the level-ordering and category distinction linguists took to be the defining properties of Class I and Class II affixes could be reinterpreted as the properties which define the focal area of the category of Class I and II affixes. The prototypical affixes of each class are those affixes which exhibit all the necessary and sufficient features of the class. In the fuzzy area are those affixes which deviate in one or more ways from the prototypical affixes by not exhibiting one or more of the necessary and sufficient features. The deviance of various affixes from the prototypes can therefore be explained in terms of deviance from certain parameters or features.

6.3 Zero affixation

One of the implicit assumptions of my work is that an affix is a sound sequence which adds an element of significance to the base to which it attaches. The assumption that an affix must have phonological substance effectively excludes zero affixes as possible affixes since they have no phonetic form. The question which now arises is how one would account for the underlined English forms in (13)-(15) and similar Afrikaans forms in (16)-(18).

(13)(a) I have a hámmer.
(b) Hámmer the nail into the wall.
(14)(a) She has a permit to work here.
    (b) Does he permit his daughter to stay out late?

(15)(a) She has not yet finished her werk.
    (b) He refuses to werk today.

(16)(a) Daar lê 'n hámer.
    there-lies-a-hammer
    "There lies a hammer."

    (b) Hámer die yster tot dit reguit is.
    hammer-the-iron - until-it - straight-is
    "Hammer the iron until it is straight."

(17)(a) Hy vat 'n háp.
    he-takes-a-bite
    "He is taking a bite."

    (b) Hy háp die brood.
    he-bites-the-bread
    "He bites the bread."

(18)(a) Haar werk is nog nie klaar nie.
    her - work - is-yet-not-finished-not
    "Her work is not yet finished."

    (b) Hy werk hard.
    he-works-hard
    "He works hard."

In each of the sentence pairs we find a word, with identical shape (if stress differences are ignored) used as a noun in the (a) sentence, and as a verb in the (b) sentence. Traditionally linguists have regarded one of the forms as basic and the other as derived from it by a process of zero affixation or conversion. As was pointed out in Sections 2.2.2 and 2.3.2, linguists like Kiparsky (1982c:5-10) have proposed that for certain words like pattern, for example, the noun is basic and
that the verb is derived from it by zero affixation. In the case of other words like consent the verb is taken to be basic and the corresponding noun is derived from it by zero affixation. However, more recently two alternative approaches to accounting for related nouns and verbs have been proposed. Firstly, there is the proposal of Hopper and Thompson (1984:747) within the framework of the cognitive approach. They discuss nouns and related verbs in English such as those in (13)-(15) above and claim that all linguistic forms are characterisable as acategorial. Categoriality, that is, the realisation of a form as a noun or verb, for example, is imposed on a particular form by the context in which it is used. Thus they claim that the underlined forms in (13)-(15) would be listed acategorially in the lexicon and realised as nouns in the (a) sentences and as verbs in the (b) sentences. The question is now: what are the implications of acategoriality for affixation. Let us assume that affixes subcategorise in the lexicon for the type of category to which they attach, for example, nouns, verbs and adjectives. In terms of Hopper and Thompson's (1984) proposals a particular word like werk ("work"), for example, will be listed acategorially in the lexicon. This word will then realise as a verb in an affixation context in which the suffix -er is being added to it as this suffix subcategorises for verbs. Thus, the suffix -er, by virtue of its subcategorisation feature, will assign werk ("work") to the category verb. The same would be true of other words in the lexicon. If one assumes that all words are listed acategorially in the lexicon then there is no need for zero affixes in this approach.

However, given the assumption that morphological categories are non-discrete, there are other solutions to the problem of zero affixation within the cognitive approach. Firstly, in the same way that affix categories show different degrees of class membership so, words/lexical items which have traditionally been regarded as nouns, verbs etc., may also show different degrees of word/lexical class membership. Thus, within such a view of categories one would expect to find prototypical nouns, less typical and least typical nouns, for example. The same would be
true of verbs. Perhaps it is the case that the so-called zero-derived nouns and verbs are those nouns and verbs which are less typical of their respective categories. These nouns and verbs would lie in the fuzzy border area or the area overlapping the boundaries of nouns and verbs.

Secondly, one might consider one word of each pair as representing the prototypical member. This could be either the noun or the verb depending on the criteria used to determine the prototypical member of a pair. The non-prototypical member of the pair could then be taken to constitute an instance of category shift. However, determining the internal structure of the categories of noun and verb and/or the properties of prototypical properties of such categories lies beyond the scope of this thesis. Suffice it to say at this point that there are alternative ways of dealing with related nouns and verbs without recourse to zero affixation.

6.4 Further justification for the non-discreteness of categories

6.4.1 General remarks

The aim of this section is to show that the non-discreteness of morphological categories is not merely needed to account for distributional and other properties of affixes in Afrikaans, but also for similar properties of affixes in related Germanic languages like English, Dutch and German. The data to be discussed in this section are data which have been identified as problematic or recalcitrant by linguists working on the distributional and stress properties of affixes.
6.4.2 **Problematic and recalcitrant data**

6.4.2.1 **English data**

Let us examine firstly the problematic data with which both the level-ordering and the category distinction linguists are faced.

(19) (a) ungrammaticality
    
(19) (b) underestimation
    
(19) (c) vice-presidential

(20) (a) transformational grammárian
    
(20) (b) atomic sciéntist
    
(20) (c) cross-séctional

(21) (a) nationalístic
    
(21) (b) analyzability
    
(21) (c) standardizátion
    
(21) (d) developméntal

The data in (19)-(21) can be accounted for if one assumes that affix categories in English are non-discrete and that they have prototypical and non-prototypical members. The Class I/Stem suffixes which attach outside compounds and outside Class II/Word suffixes belong to a restricted group, viz. -ity, -ion, -ial, -ic, -al, -ist and -ian. These Class I/Stem suffixes are not good exemplars or prototypical members of Class I/Stem suffixes because, in addition to their ability to attach after
Class I/Stem suffixes, they are also able to attach after certain Class II/Word affixes and after compounds. Prototypical Class I/Stem suffixes do not exhibit these distributional properties. Similarly, as was pointed out in Section 2.3.3 the prefixes in (19)-(21) also belong to a fairly restricted group which includes prefixes such as un-, arch-, vice- and re-.

In Sections 3.3.3.4, 5.5.4.2 and 5.5.4.3 it was noted that certain prefixes and suffixes in Afrikaans have word-like properties and the structures in which they appear are compound-like. Siegel (1974:147), Kiparsky (1982c:20) and Strauss (1982a:42-57) have noticed that certain prefixes in English have, in addition to their affix-like properties, word-like properties, particularly in that they permit factoring out from the head of a word. The prefixes which have this property are those which level-ordering linguists classify as Class II prefixes. Examples from Siegel (1974:147) and Kiparsky (1982c:20) are given respectively in (22) and (23) below.

(22) (a) mόno-(syllabic) and tri-syllabic
(b) pró-(clitics) and énclicts
(c) hyper-(thyroid) and hypo-thyroid
(d) sócio-(economic) and político-economic

(23) (a) mόno-(syllabicity) and polysyllabicity
(b) bi-(laterality) and multilaterality
(c) óver-(estimation) and underestimation

Kiparsky (1982c) treats the words in (23) as Class II derived words as does Siegel (1974:147), although she determines their stress properties by the same rules used to determine the stress patterns of compounds. Siegel (1974:147) claims that such treatment also explains their behaviour in allowing the bases to which they attach to be factored out. Strauss (1982a:42, 43, 45) has noted that, in addition to the property of the prefixes shown in (22) and (23), Class II prefixes can also be factored out from the base to which they attach and can function
independently as words as shown in (24)(a) and (b) respectively which are taken from Strauss (1982:43, 45).

(24) (a) socio-linguistics and (socio)-economics
(b) Are you pró or ánti?

He therefore suggests that all Class II prefixes be reclassified as compounding elements, that is, as words (cf. the discussion in Section 2.3.2).

There is, however, another way in which the apparently uncharacteristic behaviour of the prefixes in the data given in (22) and (23) above can be accounted for. The word-like properties of the Class II prefixes in (22) and (23) can be explained if one assumes that affix categories are non-discrete and lie along a continuum. In terms of the continuum presented in (1) the categories of derivation and compounding lie next to each other on the continuum of expression types. Shifts between these two categories can take place where derivational affixes become more word-like and the structures in which they appear more compound-like. Such a shift seems to have taken place in English with the prefixes in (22) and (23) becoming more word-like, although they still retain some of their affix-like properties in that they can only be added at the beginning of a word and only a few can be used independently with meaning. The apparently strange word-like behaviour of the prefixes in (22) and (23) can thus be explained if we accept the notion of the non-discreteness of categories.

6.4.2.2 Dutch data

6.4.2.2.1 Non-native affixes

In two recent works similar claims to those made about certain prefixes and suffixes with more word-like properties in English and Afrikaans have been made about a number of non-native prefixes in Dutch. There are two sets of data which suggest that what is happening in Afrikaans and English also occurs in
Dutch. Firstly, consider the following data which is taken from Langeweg (1986:154).6

(25)(a) co-auteur
[côû [auteur]]
"co-author"

(b) pró-vitamine
[prôû [vitamine]]
"pro-vitamin"

(26)(a) inter-continentaal
[inters [continentaal]]
"intercontinental"

(b) semi-direct
[semiû [direcì]]
"semi-direct"

Langeweg (1986:154-155) notes that the complex words in (25) and (26) are formed by the addition of a non-native prefix to a base. However, the derived words exhibit the stress properties found in nominal and adjectival compounds in Dutch respectively.7 She therefore treats the prefixes in these words as phonological words for the purposes of stress assignment, that is, she treats the words in (25) and (26) as compounds.

Let us now consider the comments of Langeweg (1986:156-157) on prefixes and so-called quasi-prefixal forms. She claims that true prefixes like in- , con- and re- are often grouped together with quasi-prefixal forms like neo- , circum- and electro-. Forms like -loog, -craat and -fiel are similarly considered to be suffixes. Given these assumptions words like aristocráát ("aristocrat") and fonolóög ("phonologist") are taken to be prefix-suffix combinations.8 Langeweg (1986:156) points out that this is false as some of the "prefixes" can occur in suffix position and vice versa as shown in telefôón ("telephone") (cf. fonolóóg) and logopedié ("speech therapy") (cf. pedagogíé
"pedagogy"). She suggests that a better solution would be to treat these quasi-affix forms as bound morphemes some of which can also be used independently as words, for example, fóto ("photo") and hómo ("homo(sexual)").

Langeweg's (1986:156) proposal is that derived words containing quasi-prefixal forms are in fact bound roots which are found in non-native compounds of the type Root + Root as proposed by Selkirk (1982:98-99). She claims that this analysis explains why certain Root + Root compounds allow "co-ordination reduction". That is, they allow the head of the word to be factored out. This is a property which compounds also have. Contrary to similar Root (non-native) compounds in English, Root compounds in Dutch exhibit the same stress pattern as that found in monomorphemic words.

(27) (a) bioscóóp
[[bio] [scóóp]]
"bioscope"

(b) isomórf
[[iso] [mórf]]
"isomorph"

Langeweg (1986:157) does, however, claim that the first part of such Root compounds may receive stress if the compound consists, not of two roots, but rather of a root and a word as shown in (28) below.

(28) (a) ámfi-teater
[ámfi [teater]]
"amphitheatre"

(b) áudio-signaal
[áudio [signaal]]
"audiosignal"
In contrast to Langeweg's solution I would like to suggest that her data can be accounted for in a more insightful way with reference to non-discrete categories. As she notes, there are

(i) prefixes which can only attach at the beginning of a word like in-,

(ii) quasi-prefixal forms like amfi- which also attach at the beginning of a words, but which have word-like properties, and

(iii) quasi-affixal forms like foon and loog which can function either as "suffixes" or "prefixes".

If one assumes that there is a range of prefixes from most to least typical and that some of them function in a similar way to words, then the quasi-prefixes (cf. (ii)) and "true" prefixes (cf. (i)) which Langeweg (1986:156-157) refers to can easily be accounted for. By classifying these quasi-prefixes and true prefixes as prefixes, one can account for the fact that they attach at the beginning of a word. The explanation of the word-like properties of quasi-prefixes would depend on whether they had entered Dutch with these properties or whether they developed these properties over time. If the former is the case, the word-like properties can be accounted for in the following way by the cognitive approach. As prefixes in a particular category do not all share the same properties, there may be certain prefixes like amfi- which, unlike other category members, have word-like properties. If, however, the latter is the case the following explanation could be given. Over a period of time a shift may have taken place with some prefixes becoming more word-like and the structures in which they appear becoming more compound-like. Hence the words in which such prefixes occur display compound-like stress patterns.

Data such as those in (27) in which apparent bound morphemes occur, can be accounted for by assuming that a shift has occurred from the derivational part of the continuum of
expression types to the area of lexical expression. With this shift the constituents of each word have become fused. The words are now examples of lexical, rather than of derivational, expression. This would also explain why such words display the same stress patterns as monomorphemic words and why, for most mother tongue speakers of Dutch the meanings of such words are not compositional. Finally, those quasi-affixal forms like loog and foon which seem to be able to function as both prefixes and suffixes may be Stems. In the lexical expression area of the continuum there could be a range of elements from words which can occur independently with meaning to bound Stems as suggested in Section 6.2.2.2.4. While loog is clearly like a bound or dependent Stem as it cannot occur independently with meaning, foon is clearly more word-like in that it can occur independently with meaning. Assuming such a continuum of lexical expression would account for the fact that the so-called "quasi-affixal" forms, like words, can occur as either the left- or right-hand member of a complex word, e.g. table cloth/coffee table.

6.4.2.2.2 Native suffixes

Let us consider now the work of Van Beurden (1987) on native suffixes. The main argument of his work is that level-ordering effects can be shown for native suffixes in Dutch. He thus proposes the following ordering of derivation which accounts for the fact that native suffixes which form verbs attach before native suffixes which form adjectives. Native suffixes which form nouns are added last (Van Beurden (1987:28)). All native suffixes are attached after all non-native or Romance suffixes. The arrows in the diagram indicate the direction and ordering of word formation.
However, Van Beurden (1987:24) is faced with certain "recalcitrant data" which are given in (30) and (31) below.

(30)(a) schóólmeisje
schóól - meisje
"schoolgirl"

(b) schóólmeisjesachtig
schóól - measles - achtig
"like a schoolgirl"

(31)(a) váderland
váder - land
"native land"

(b) váderlandsloos
váder - lands - loos
"without a native land"

The two native suffixes -achtig and -loos are problematic according to Van Beurden (1987:24) because they behave unexpectedly with respect to stress. They do not influence the stress pattern of the base word as they should (cf. diagram in (29)). This apparently strange behaviour can be explained if words such as those in (30)(b) and (31)(b) which are derived by the addition of -achtig and -loos are treated as compounds. The first piece of evidence which is adduced in favour of this
proposal can be illustrated with reference to the data in (32) below which is taken, together with the glosses, from Van Beurden (1987:24).

(32) (a) róódachtig
    roo[t] - achterg *roo - [d]achtig "reddish"
    riploos
    ri[p] - loos *ri - [b]loos "without bones"

(b) góúdader
    gou[t] - ader *gou - [d]ader "vein of gold"
    krápijzer
    kra[p] - ijzer *kra - [b]ijzer "scraper"

(c) hóüding
    *hou[t] - ing hou - [d]ing "attitude"
    waárdig
    *waar[t] - ig waar - [d]ig "worthy"

Internal syllabification is blocked by -achtig and -loos and therefore syllable final obstruent devoicing in the left-hand member of the complex word can occur as shown in the left-hand column of (32)(a). Such syllabification and therefore devoicing is also found in compounds (cf. the left-hand column in (32)(b)), but not in complex words derived by what Van Beurden (1987:24) calls, "normal" suffixes (cf. the left-hand column in (32)(c)). The latter allow syllabification and therefore devoicing is not possible.

The second piece of evidence in favour of treating the words in (30)(b) and (31)(b) as compounds is illustrated with reference to the following data in Van Beurden (1987:25).

(33) (a) vógeltjesachtig
    vógel - tjes - achterg
    "like little birds"
(b) vriendjesloos
vriend - jes - loos
"without friends"

(c) dámesachtig
dáme - s - achterg
"ladylike"

(d) váderlandsloos
váderland - s - loos
"without a native country"

(34)(a) vógeltjesdans
vógel - tjes - dans
"bird-like dance"

(b) vriendjespolitiek
vriend - jes - politiek
"favouritism"

(c) dámostas
dáme - s - tas
"lady's bag"

(d) váderlandsliefde
váderland - s - liefde
"patriotism"

Van Beurden (1987:25) notes that in compounds, and in words derived by -achtig and -loos, a preceding diminutive suffix or a transitional -s- (link phoneme) is allowed. Neither are apparently found in words derived by what he terms "normal" suffixes although he does not provide any examples to justify this claim. He claims that all the data in (33) and (34) can be accounted for if the assumption is made that -achtig and -loos are not suffixes, but rather right-hand members of compounds.
Another way of explaining the data in (30)(b) and (31)(b) would be to assume that the suffixes -achtig and -loos, like their German, English and Afrikaans counterparts, have certain word-like properties in addition to their affix-like properties. This would explain why, like other suffixes, they constitute the right-hand rather than the left-hand member of a complex word and why, unlike words which usually make up compounds, they cannot be inflected. The forms -achtig and -loos are thus merely suffixes which have become more word-like and the structures in which they occur more compound-like. To merely classify the suffixes as compounding elements and the structures in which they occur as compounds, is to somewhat blur the facts and leave certain, apparently "problematic" properties of -achtig and -loos unexplained.

6.4.2.3 German data

Consider finally the following German data which is taken from Höhle (1985:335-338). The data in (35) and (36) show that, as in English, Afrikaans and Dutch, a non-native prefix can be factored out from the base to which it attaches and that the base itself can also be factored out. No examples are given of prefixes which can be used as words as is the case in English and Afrikaans.

(35)(a) Pseudoargumente und (pseudo) -lösungen
pseudo-arguments-and - pseudo - solutions
"pseudoarguments and pseudosolutions"

(b) Haupteingänge oder (Haupt)-āusgänge
head-entrances-or - head - exits
"main entrances or main exits"

(36)(a) Ur-form oder Spätform
proto-form - or - late-type
"prototype or late type"
Furthermore, Hohle (1985:335-336) notes that certain suffixes in German, apparently native suffixes, also exhibit these properties as shown in the examples below. The (e)s and (e)n which he gives in the gloss of certain examples are link phonemes which are found in German. Hohle (1985:334) notes that while some suffixes must occur with link phonemes others cannot.

(37) (a) hilf-(los) und hoffnungslos
help-(loose)-and-hoping-g-loose
"helpless and hopeless"

(b) erkennen- (bar) und begriffbar
recognize-(able)-and-comprehend-able
"recognizable and comprehensible"

(c) Freund-(schaft) oder Feindschaft
friend-(ship)- or - enemy-ship
"friendship or animosity"

(d) Mannes-(tum) und Heldentum
man-es-(dom)- and-hero-en-dom
"manhood and heroism"

(e) kaefer-(haft) oder spinnenhaft
bug - (like)- or - spider-n-like
"like a bug or a spider"

Another interesting point made by Hohle (1985:334-345) is that there is no difference between compounding and derivation other than for the following fact. Affixes are bound, that is, they only have meaning when attached to a word, whereas lexical items which are found in compounds are not bound, that is, they can occur independently with meaning. Hohle (1985) therefore proposes rather questionable structures for derived words in
German. They are assigned the same structure as compounds. What is of interest here is not so much his theory which is criticised in detail by Reis (1985), but rather the claim he makes and the data which he presents to substantiate his claims. The data he presents, such as those in (35)-(36) above, which supposedly show that compounding and affixation are no different, can be interpreted in a different way. That is, a certain amount of similarity between certain derivations and compounds is to be expected given that derivation and compounding lie next to each other on the continuum of expression types and that the distinction between the two is a gradient one.

This prototype conception of categories would in fact be further supported if one considers the claims made by Höhle (1985:327-334) about prefixes and suffixes. Of suffixes Höhle (1985:327-328) says that they have a very general "meaning" while free morphemes, that is, words, typically have a more specific meaning. In his discussion of the suffix -fähig ("-able") Höhle (1985:328) has the following to say:

"One can see, moreover, that the difference in type of meaning often found between free and bound morphemes is of a gradual nature just as the difference between bound and free homonymous morphemes (morpheme complexes) is occasionally troublesome, since there can be many different degrees of similarity of meaning."

He goes on to show that certain suffixes like -freundlich (wäschefreundlich "wash-friendly/easy to wash") are "clearly recognizably related to free morphemes", that is, to words, while such a relationship is less directly present in the case of suffixes like -recht (lichtrecht "light-genuine/fast to light") and nonexistent in the case of suffixes like -ig and -bar, for example, in the words sälzig ("salty") and begründbar ("comprehendable") respectively.
Consider now the comments of Höhle (1985:333) on the similarity of prefixes to words.

"That this gradual transition from a free to a bound morpheme is a completely natural phenomenon can also be seen from first constituents, where the same observation can be made. Morphemes like un- (ungar 'un-done'/'raw, not (yet) done'),... occur only bound, therefore clearly as prefixes, whereas blut in blutarm 'blood-poor'/'anemic' (as opposed to blutarm 'blood-poor'/'bloody poor' with blut a bound element here) and Blutsboor 'blood-trace'/'blood spot' clearly corresponds to the freely occurring morpheme Blut 'blood'; in addition there is, however, a whole series of first constituents that in one respect are quite similar to free morphemes but in another respect deviate semantically and/or distributionally in varying degrees from their free counterparts. This is true for, e.g., haupt-, neben- and sonder-...."

The properties of suffixes and prefixes which Höhle (1985) identifies in the quotes above can be accounted for within the cognitive approach. The varying degrees of "wordiness" of affixes is to be expected given the assumption that derivational expressions and compounding occur next to each other on the continuum of expression types, that the difference between the two is a graded one and given that language shifts can occur from the derivational part of the continuum in the direction of compounding and lexical expressions. In an approach which does not recognise the non-discreteness of categories the properties of affixes which Höhle mentions are difficult to account for without recourse to certain ad hoc mechanisms or reanalyses.

All the data discussed in this section and Sections 6.4.2.1 and 6.4.2.2, show that what is found in Afrikaans, that is, the tendency for certain derivational affixes to become more word-like and for the structures in which they occur to become more compound-like is also found in other languages. In all cases this tendency can be explained if one assumes a continuum of expression types and assumes the non-discreteness of expression types, but not if one assumes discrete morphological categories. Making the assumption that categories are non-discrete therefore enables us to explain not only data in
Afrikaans, but also to explain similar data in related Germanic languages like English, Dutch and German.

6.5 Conclusion

In this chapter an insightful and novel approach to the analysis of morphological categories has been considered. This approach enables us to account for the characteristics of the categories of inflection and derivation in Afrikaans which other approaches, like the level-ordering and category distinction approaches, did not come to grips with. That is, the approach adopted in this and the previous chapter enables us to account for the wide range of properties. By treating categories as non-discrete entities we are also able to account for the fact that, over time, certain derivational affixes may become more word-like and the structures in which they occur more compound-like, for example. The advantages of a non-discrete conception of categories was illustrated not only with respect to Afrikaans data, but also with respect to related English, Dutch and German data.

The approach proposed in this chapter also throws new light on old problems like the bracketing paradoxes which faced the level-ordering and category distinction approaches. Working with the conception of categories as non-discrete entities no ad hoc mechanisms, re-analyses and reclassifications which are characteristic of the level-ordering and category distinction approaches' attempts to deal with problematic data are required. In addition, this study introduces a new perspective on the much debated distinction between inflectional and derivational affixes. Recall from Section 3.3.1 that there are a number of views on whether such a distinction exists and, if it does, which affixes should be considered inflectional and which derivational. This study shows that there are gradient differences between the members of affix categories which cannot be accounted for by an approach which works with discrete categories.
A more important and more profound consequence of this study, however, is that it reflects negatively on one of the most fundamental, unquestionable assumptions which has guided much of linguistic research over the past years, viz. the assumption that categories are discrete. Lakoff (1987:6) says

"[this] classical theory [of categories...M.S.] was not the result of empirical study. It was not even the subject of a major debate. It was a philosophical position arrived at on the basis of a priori speculation. Over the centuries it simply became a part of the background assumptions taken for granted in most scholarly disciplines... It was taught in most disciplines not as an empirical hypothesis but as an unquestionable, definitional truth."

As has been shown in the thesis it is precisely this "unquestionable, definitional truth" which needs to be questioned. It is precisely this assumption which is the cause of the problematic data encountered by the level-ordering and category distinction approaches in morphology. The Afrikaans data investigated in this thesis add, on the one hand, to the overwhelming empirical evidence provided by, amongst others, the work of Rosch (1973; 1975a; 1978) which has already called into question the validity of the classical conception of categories. On the other hand, the data provide further empirical support for the alternative approach to categories which Lakoff (1987) describes in his book, viz. the cognitive approach which views categories as non-discrete. In doing this the data also clearly indicate the direction which future morphological and linguistic research must take.

The level-ordering and category distinction approaches, where categories are taken as discrete entities, base their classification of derivational affixes on certain necessary and sufficient properties which affixes must display. Thus typical Class I affixes, for example, are those which attach to Stems, not Words, are stress-shifting and, attach inside Class II affixes and compounds. However, as has been shown, not all affixes which belong to this class share all these properties. The same is true of the other three classes of affixes. Such
differences are largely ignored and the following four discrete affix categories are adopted. Affixes which do not share all the properties of the class to which they are assigned are viewed as problematic.

(38)

| Class I prefixes | Class I suffixes | Class II prefixes | Class II suffixes |

What the level-level-ordering and category distinction approaches in fact identify for each of these four affix categories, are not the typical properties of all the affixes in each class, but rather the properties of the prototypical affixes of each class. Linguists who work with a conception of categories as discrete entities do the same for other categories found in language.

The cognitive approach, however, recognises that affixes which form part of a particular affix category do not necessarily all share the same properties. On the one hand, members of an affix category may differ in certain respects from the prototypical affixes of the category to which they belong. On the other hand they may have certain properties in common with members of adjacent or related categories. Thus, the cognitive approach is interested in those properties which the prototypical affixes of class exhibit. However, they are also interested in the properties of affixes found in the fuzzy area surrounding the focal area of a category and in the area of convergence between related categories as indicated by the dotted lines in the diagram below.
It is these points of convergence and, in particular, the nature of the boundaries at these points of convergence, that need to be addressed by future research, not only with respect to affix categories, but also with respect to other linguistic categories. In addition, linguistic research needs to consider the following:

(i) The notion of the continuum, which at this stage is still merely a pre-theoretical notion, needs to be studied. As shown in this thesis linear arrangement of categories along a continuum is clearly an oversimplification.

(ii) Focal areas of all the categories on the continuum need to be identified and the properties which characterise them need to be determined.

(iii) The changes which the focal area of a category may undergo over time with certain prototypical affixes becoming less typical or less typical affixes becoming prototypical need to be considered.

(iv) The weighting of the various properties of members of morphological categories to determine a range from most to least typical.

(v) The existence of a continuum of various bases for affixation such as Stems and Words.
Notes

1 There is another possibility, viz. that words such as those in (6) and (7) could be derived by truncation from other words. For a discussion of truncation theory cf. Aronoff (1976) and Combrink (1990) and Combrink and De Stadler (1987: Section 2.1) where this theory is applied to Afrikaans.

2 It might be argued that the words under discussion were inherited in their present forms from Dutch or English. However, the argument being put forward here remains essentially the same. That is, certain words in Afrikaans can be divided into meaningful constituent parts if one takes their Latin or foreign origin into account. Some speakers of Afrikaans have knowledge which enables them to do this while others do not.

3 Cf. also Kiparsky (1982a:140-143; 1982b:15-20) and Allen (1978:271-285) where zero-derived forms within a level-ordering model are discussed.

4 Cf. also Clark and Clark (1979) who discuss the semantic derivation of innovative denominal verbs. The essence of their argument is that, although denominal verbs belong to a unified morphological family in that they are all derived from nouns, they do not allow a unified semantic description. Innovative denominal verbs like houseguest, opaque idioms like lynch and badger, and transparent but well established verbs like bicycle and smoke must all be treated differently. With respect to their formation, Clark and Clark (1979) imply that in each case the noun is basic and the verb derived but do not give any details on how the grammar would handle this.

5 The stress pattern of underestimation differs from that in (19)(b) (cf. underestimation) because two possibilities are being compared here.
6 Cf. also Langeweg (1987:237-238) where the stress properties of derived words containing such non-native prefixes are discussed.

7 Langeweg (1986:229) claims that the Compound Stress Rule assigns stress to the left-hand member of a compound in Dutch. However, compound adjectives display a variable stress pattern. She therefore assumes that the right-hand member of a compound adjective bears stress. Realisation of the main stress is however, conditioned by the syntactic position of the adjective. When a compound adjective is used attributively, there is a clash of two string elements and the stress is shifted onto the left-hand member.

8 This is in fact a point also made by Bauer (1979:508-509) in his critique of Aronoff's word based morphology.

9 Part of the diagram which is not pertinent to the discussion has been omitted.

10 Cf. the quote below from Höhle (1985:333) in which he claims that haupt and neben in (35)(b) and (36)(b) are examples of prefixes which are very similar to free morphemes.
A. **NON-NATIVE PREFIXES**

á-polities
[á [polities]]
indifferent to-political
"apolitical"

antirevolutionér
[anti [revolucionér]]
against-revolutionary
"anti-revolutionary"

Ciskéi
[cis [kéi]]
across-Kei (river)
"Ciskei"

disorganisasie
[dis [organisasie]]
reversal of-organisation
"disorganisation"

geofisikus
[geo [fisikus]]
of the earth-physicist
"geophysicist"

hémisiklus
[hémi [siklus]]
half - cycle
"half-cycle"

abnormáál
[ab [normáál]]
away from-normal
"abnormal"

biochemié
[bio [chemié]]
of living things-chemistry
"bio-chemistry"

depolarisasie
[de [polarisasie]]
removal of-polarisation
"depolarisation"

éks-vrou
[éks [vrou]]
former-wife
"ex-wife"

helioterapíé
[helio [terapíé]]
sun - therapy
"heliotherapy"

hidrosféeér
[hidro [sféeér]]
relating to water-sphere
"hydrosphere"
hipersensitiéf
[hiper [sensitiéf]]
over - sensitive
"hyper-sensitive"

homoseksualitéit
[homo [seksualitéit]]
same - sexuality
"homosexuality"

infrastruktuür
[infra [struktüür]]
within-structure
"infrastructure"

intra-molekulér
[intra [molekulér]]
within-molecular
"intramolecular"

kó-edukasie
[kó [edukasie]]
with others-education
"co-education"

makro-ekonomié
[makro [ekonomié]]
large scale-economy
"macro-economics"

mikrogolf
[mikro [golf]]
small - wave
"microwave"

hiposéntrum
[hipo [séntrum]]
under centre
"underground centre"

inkonsekwént
[in [konsekwént]]
in - consistent
"inconsistent"

internasionaal
[inter [nasionaal]]
between-national
"international"

isoklimaties
[iso [klimaties]]
equal-climatic
"isoclimatic"

kóntra-reformasie
[kóntra [reformasie]]
against reformation
"counter-reformation"

metafisika
[meta [fisika]]
alongside-physics
"metaphysics"

monosillábe
[mono [sillábe]]
one - syllable
"monosyllable"
multi-miljoener
[multi [miljoener]]
many - millionaire
"multimillionaire"

non-aktief
[non [aktief]]
not - active
"inactive"

pán-Islam
[pan [Islam]]
all - Islam
"pan-Islam"

pólikliniek
[póli [kliniek]]
many - clinic
"polyclinic"

post-Impressionisme
[post [Impressionisme]]
after-Impressionism
"post-Impressionism"

prótotipe
[próto [tipe]]
original-type
"prototype"

psigoanalise
[psigo [analíse]]
to do with - analysis
the psyche
"psychoanalysis"

néurochirurg
[néuro [chirurg]]
nerve - surgeon
"neuro-surgeon"

outobiografié
[outo [biografié]]
one's own-biography
"autobiography"

paramédies
[para [médies]]
beside-medical
"para-medical"

pre-Columbiááns
[pre [Columbiááns]]
before-Columbian
"pre-Columbian"

pró-aborsie
[pró [aborsie]]
for - abortion
"pro-abortion"

pséúdoprofeet
[pséudo [profeet]]
false - prophet
"pseudo-prophet"

re-evaluásie
[re [evaluásie]]
again-evaluation
"re-evaluation"
B. NATIVE PREFIXES

áártsvyand
[áárts [vyand]]
to the greatest-enemy degree
"arch-enemy"

bedráád
[be [dráád]]
provide with-wire
"wire"

géólie
[ge [ólie]]
treated with-oil
"oiled/ lubricated"

hérproeflees
[hér [proeflees]]
again - proofread
"proofread again"

mishándel
[mis [hándel]]
badly-treat
"ill-treat"

óéroud
[óér [oud]]
very - old
"very old"
onaangenaam
[on [áangenaam]]
not-pleasant
"unpleasant"

ontgróei
[ont [gróei]]
away from - grow
"outgrow"

vergróót
[ver [gróót]]
make - large
"enlarge"

wánorde
[wán [orde]]
bad - order
"disorder"

C. NON-NATIVE SUFFIXES

instrumentáál
[[instrument] áál]
instrument - pertaining to
"instrumental"

Kubáán
[[Kuba] án]
Cuba - person from
"Cuban"

Amerikááns
[[Amerika] ááns]
America - pertaining to
"American"

sultanáát
[[sultan] áát]
sultan - worthiness/area of
"sultanate"

Africááns
[[Africa] áná]
Africa - items concerning
"Africana"

Mexikáner
[[Mexiko] ánér]
Mexico - person from
"Mexican"

musikánt
[[musiek] ánt]
music - person who makes
"music-maker"

legendáries
[[legende] áries]
legend - connected with
"legendary"

argiváris
[[argief] áris]
archive-person who works in
"archivist"

oseanárium
[[oseaan] árium]
ocean - place like
"oceanarium"
<table>
<thead>
<tr>
<th><strong>plantásie</strong></th>
<th><strong>spioenásie</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[plant] ásie</td>
<td>[spioen] ásie</td>
</tr>
<tr>
<td>plant - collection of</td>
<td>spy - activities of</td>
</tr>
<tr>
<td>&quot;plantation&quot;</td>
<td>&quot;espionage&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>departementéél</strong></th>
<th><strong>adresséér</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[departement] éél</td>
<td>[adres] éér</td>
</tr>
<tr>
<td>department - pertaining to</td>
<td>address-make</td>
</tr>
<tr>
<td>&quot;departmental&quot;</td>
<td>&quot;address&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Japannéés</strong></th>
<th><strong>republikéín</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Japan] éés</td>
<td>[republiek] éín</td>
</tr>
<tr>
<td>Japan - person from/</td>
<td>republic - inhabitant of</td>
</tr>
<tr>
<td>pertaining to</td>
<td>&quot;Japanese&quot;</td>
</tr>
</tbody>
</table>

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<th><strong>dokumentéér</strong></th>
<th><strong>galanterié</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[dokument] éér</td>
<td>[galant] erié</td>
</tr>
<tr>
<td>document - pertaining to</td>
<td>gallant-act of being</td>
</tr>
<tr>
<td>&quot;documentary&quot;</td>
<td>&quot;gallantary&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>adviséür</strong></th>
<th><strong>modiéús</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[advies] éür</td>
<td>[mode] éús</td>
</tr>
<tr>
<td>advise - person who gives</td>
<td>fashion-with characteristics of</td>
</tr>
<tr>
<td>&quot;adviser&quot;</td>
<td>&quot;fashionable&quot;</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>Isráéli</strong></th>
<th><strong>abstráksie</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Isráél] i</td>
<td>[abstrák] ie</td>
</tr>
<tr>
<td>Israel - person from</td>
<td>abstract-result of making</td>
</tr>
<tr>
<td>&quot;Israeli&quot;</td>
<td>&quot;abstraction&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>sportiéf</strong></th>
<th><strong>tuiniéér</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[sport] iéf</td>
<td>[tuin] iér</td>
</tr>
<tr>
<td>sport - that has a bearing on</td>
<td>garden-person who works with</td>
</tr>
<tr>
<td>&quot;sporting&quot;</td>
<td>&quot;gardener&quot;</td>
</tr>
</tbody>
</table>
Durbaníét
[[Durban] iét]
Durban - person from "Durbanite"

alkoholísme
[[alkohol] isme]
alcohol - condition caused by too much "alcoholism"

dreigemént
[[dreig] mént]
threaten-result of "threat"

eksklusiwitéít
[[eksklusief] téit]
exclusive - condition of being "exclusivity"

D. NATIVE SUFFIXES

bewonderaar
[[bewonder] aar]
admire - person who "admirer"

beesagtig
[[bees] ágtig]
beast-displaying apparent characteristics of "beastly"

aanpasbaar
[[aanpas] baar]
adapt - able to (be) "adaptable"

mënsdom
[[mëns] dom]
person-collection of "mankind"

lúíaard
[[lúí] aard]
lazy-person who is "lazy person"

krómme
[[króm] e]
skew - thing which is "thing which is skew"
assistant
[[assistént] e]
assistant - female
"female assistant"

dréigend
[[dréig] end]
threaten-present part.
"threatening"

gévélentheid
[[gevél] entheid]
feel - action of
"feeling"

áánhouer
[[áánhou] er]
persevere-person who
"perseverer/stayer"

dikkerd
[[dik] erd]
fat - person who is
"fatty/humpty-dumpty"

asýnerig
[[asýn] erig]
vinegar-ascribed presence to a small degree
"vinegary"

dómmerik
[[dóm] erik]
stupid-person who is
"blockhead"

afblaardery
[[afblaar] ery]
exfoliate-continual act of
"continual exfoliation"

dómmerik
[[dóm] erik]
stupid-person who is
"blockhead"

minarés
[[minnaar] és]
lover - female
"female lover"

asýnerig
[[asýn] erig]
vinegar-ascribed presence to a small degree
"vinegary"

déélsgewys
[[déél] gewys]
part - in one after the other
"bit by bit"

holding"
[[held] háftig]
hero - like
"brave/heroic"

álpshalwe
[[álp] halwe]
office-by virtue of
"officially"

mínder
[[mínder] énder]
not-enough-person who is
"not enough"

áakligheid
[[áaklig] heid]
awful - state of being
"awfulness/dismalness"

stoéfe
[[stoéf] ie]
stove - small
"small stove"
akrobáties
[akrobát] ies
acrobat - like
"acrobatonic"

kléinigheid
[kléin] igheid
small - a lesser extent
"trifle/small thing"

insinking
[insink] ing
cave in-result/process of
"subsidence"

begéérlik
[begéér] lik
desire - showing the qualities of being
"desirable"

bekéérling
[bekeéér] ling
convert-person who
"convert"

kinderloos
[kinder] loos
child - without
"childless"

Amsterdáms
[Amsterdam] s
Amsterdam - characteristic of
"characteristic"
brôéisel
[[brôéi] sel]
  hatch - that which has
  "hatch/brood (of chickens)"
direktéûrskap
[[direkteûr] skap]
  director - rank of
  "directorship"
tikster
[[tik] ster]
  type-lady who
  "typist"
kálmte
[[kálm] te]
  calm - state of being
  "calmness/composure"
hándvol
[[hánd] vol]
  hand - as much as it can hold
  "handful"
huíswaarts
[[huís] waarts]
  home - in the direction of
  "homeward(s)"
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