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WORD-BASED MORPHOLOGY AND SYNTHETIC COMPOUNDING

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R.P.B.

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Chapter 1

INTRODUCTION

Chomsky's (1970) analysis of *English nominalizations* has proved to be controversial in many respects.(1) Beyond dispute, however, is the fact that this analysis has (re-)kindled the interest of many linguists in the aspect of linguistic structure known as "morphology" or "word-formation".(2) Thus, during the past decade, Chomsky's lexicalist hypothesis(3) has served as a point of departure for various attempts at developing theories which aim to give an account of the structure and/or formation of morphologically complex words.(4)

These so-called lexicalist theories of word-formation/structure differ from each other in many respects, some of which are nontrivial.(5) All of them, however, use the same basic kind of descriptive device, viz. word formation rules (henceforth: WFRs), to account for the phenomena within their domain. Moreover, all these theories attempt to place proper constraints on WFRs.(6) Fundamental to every major lexicalist theory is the constraint that WFRs do not take units larger than words as their bases.(7) That is, WFRs are claimed not to form morphologically complex words on the basis of syntactic phrases.

The major aim of this study is to present an argument to the effect that this claim is untenable. More specifically, on the basis of an analysis of Afrikaans synthetic compounds, it will be argued that the constraint in question must be relaxed in order to allow WFRs to apply to a properly defined class of syntactic structures.(8)

The argument is developed in four steps. First, in chapter 2, Roeper and Siegel's (1978) theory of verbal compounding is subjected to critical scrutiny. It is argued that this theory has to be rejected for reasons of an essential sort.(9) Subsequently, in chapter 3, Allen's (1978) theory of synthetic compounding is accorded similar treatment. This theory too, it is argued, cannot be upheld, given its flaws.(10) Next, chapter 4 develops the outlines of a theory of Afrikaans synthetic compounding which is, in important respects, an alternative to Roeper and Siegel's and Allen's

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theories. Specifically, in contradistinction to the latter theories, the former allows WFRs to apply to certain syntactic structures to form synthetic compounds. Finally, by way of conclusion chapter 5 compares the merits of these three alternative theories.

The general interest of this study thus lies in the challenge it poses to a widely accepted theoretical principle of word formation. The idea that WFRs should be allowed to apply to syntactic phrases has so far been consistently opposed by lexicalist morphologists. This idea was once again rejected recently by Allen (1978:253) in her analysis of the way in which words such as two-handed, eight-sided, many-eyed and four-cornered are formed. Her position is that "not only is the conclusion that -ed must attach outside phrases a theoretically improbable one, but it also makes empirically incorrect predictions". It would therefore be of some general interest if the present study could present a plausible case for allowing WFRs to form morphologically complex words on the basis of (at least one well-defined class of) syntactic structures. It should be noted though that --- for reasons which will be given in §4.1 --- the case for this thesis cannot be conclusive. Chapter 4, in which this case is developed, is much more speculative and working paper-like than the preceding chapters in which Roeper and Siegel's and Allen's theories are criticized.

Before proceeding to the substance of the discussion, a few terminological points require clarification. The term synthetic compound is conventionally used to denote complex morphological forms such as the following:

(1)	truck-driver	arms shipment
	grain-storage	tax evasion
	mail-delivery	peace-making

In traditional terms, synthetic compounds are characterized as derivatives or derived words based on word groups or syntactic constructions.[11] Synthetic compounds of which the second or right constituent is deverbal are called verbal compounds or verbal-nexus compounds.[12] Synthetic compounds are conventionally distinguished from root compounds or primary compounds such as the following:[13]

(2)	truck-man	arms factory
	grain-market	tax-form
	mail-bag	peace corps

A superficial difference between synthetic and root/primary compounds is that, whereas the second constituent of the former compounds contains an affix,[14] the second constituent of the latter compounds does not.

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Chapter 2

ROEPER AND SIEGEL'S LEXICAL TRANSFORMATION THEORY

2.1 General

The fundamental assumptions and formal devices of Roeper and Siegel's (1978) theory of verbal compounding will be outlined first. This will be followed by a fairly detailed analysis of what appears to be the major shortcomings of this theory. Referring to its central descriptive device, this theory may be called "the Lexical Transformation Theory (of verbal compounding)". This term will be useful in later sections when the theory is contrasted with alternatives.

2.2 Fundamental assumptions

Roeper and Siegel (1978) present their theory of verbal compounding within the general framework of Aronoff's theory of word-formation. Since the general assumptions of the latter theory are well-known, they are not repeated here. Roeper and Siegel base their theory on an analysis of verbal compounds involving the suffixes -er, -ing, and -ed alone.

(1)

oven-cleaner	checker-playing	expert-tested
jaw-breaker	strange-sounding	well-built
late-bloomer	fast-acting	pan-fried

What follows below are the general outlines of Roeper and Siegel's theory of the formation of such verbal compounds. Specific features will be dealt with in the critical appraisal of this theory.

A fundamental observation underlying Roeper and Siegel's theory (1978:208) is that permissible and impermissible verbal compounds correspond exactly to grammatical and ungrammatical sentences. The (a) compounds and corresponding (b) sentences in (2) are presented to illustrate this observation.

(2)

(a)	(b)
*peace-thinking	*She thinks peace
peace-making	She makes peace
*quick-making	*She makes quickly
quick(ly)-thinking	She thinks quickly

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*life-falling (snow)	*It falls life
fast-falling (snow)	It falls fast
*fast-supporting (snow)	*It supports fast
life-supporting (trees)	It supports life

A central aim of Roeper and Siegel's theory of verbal compounding is to account for the correspondence illustrated in (2) above. To achieve this aim, they propose two basic hypotheses, of which one is general and the other more specific.

Roeper and Siegel's (1978:208) general hypothesis is that both sentences and verbal compounds are formed from subcategorization frames associated with verbs. They illustrate this hypothesis with reference to the subcategorization frames associated with support and fall:

(3) (a) support [$_{NP}$] ([$_{Adv}$]) etc.
(b) fall ([$_{ADV}$]) etc.

A theory incorporating the general hypothesis under consideration predicts the ungrammaticalness of both the sentence *It falls life and the corresponding impermissible verbal compound *life-falling. Both these expressions are derived from an impossible subcategorization frame:

(4) *fall [$_{NP}$]

That is, *life-falling is impermissible as a verbal compound since the sentential source underlying it cannot be generated.

The second, more specific, hypothesis referred to above is Roeper and Siegel's (1978:208) First Sister (FS) Principle. This principle states that all verbal compounds are formed by the incorporation of a word in the first sister position (immediately to the right) of the verb. They (1978:209) in fact call the First Sister Principle "the central claim around which our system is built". Specifically, they propose that nouns, adjectives, adverbs and (perhaps) particles which occur in FS position can be compounded with the verb (plus affix). The FS Principle provides the basis for their explanation of

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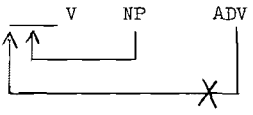
why, for example, peace-making, in contrast to *quick(ly)-making, is permissible. The basis for their explanation is schematically presented as follows by Roeper and Siegel (1978:208):

(5) She makes peace quickly



The NP peace occurs in the FS position of make(s), hence the permissible verbal compound peace-making can be formed. The adverb quickly, by contrast, does not occur in FS position in (5). Consequently, the FS Principle rules out *quickly-making as an impermissible verbal compound.

2.3 Formal devices

This brings us to the formal devices Roeper and Siegel use to express the two hypotheses under consideration and to generate English verbal compounds. Central among these formal devices are four lexical rules: Affixation, Subcategorization Insertion, Variable Deletion, and the Compound Rule. The Compound Rule is claimed to "reflect" the FS Principle and constitutes the crucial device in Roeper and Siegel's theory. It will be shown below that this rule is a movement rule and is considered to be a "lexical transformation" by Roeper and Siegel. The first three rules are so-called "adjustment rules" which jointly create the structures to which the Compound Rule applies. For -ed compounds an additional obligatory rule, Subcategorization Adjustment/Deletion, is required. But let us briefly consider these rules separately in the order in which they apply in the derivation of -ed compounds.

Affixation, also called "the Affix Rule" by Roeper and Siegel (1978:210), is the first rule that applies in order to create structures to which the Compound Rule ultimately applies. The function of the Affix Rule is to "supply" an affix to the right and an empty frame to the left of the verb which constitutes the core of the verbal compound. Roeper and Siegel (1978:210), in fact, postulate three affix rules, one for each of

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~~the suffixes~~ -ed, -ing, and -er. With reference to the Affix Rule for -ed, the function and form of Affixation may be illustrated as follows:

(6) Affixation

$$[_{\text{verb}}] \; W \Rightarrow [[_{\text{empty}}] + \text{verb} + \text{ed}]_{\text{Adj}} \; W$$

where W ranges over subcategorization frames

An important feature of Roeper and Siegel's theory is that it draws a distinction between "compound" affix rules and "simple" or "noncompound" affix rules. Thus, their theory provides for two rules of -ed affixation: for the compound -ed rule (6) which plays a role in the formation of verbal compounds such as expert-tested, well-built and pan-fried, and for a separate noncompound -ed rule required for the generation of simple derivatives such as tested, built and fried. In §2.4.3 below Roeper and Siegel's motivation for drawing this distinction between compound and noncompound affix rules will be subjected to critical scrutiny.

In Roeper and Siegel's analysis of -ed compounds, the Affix Rule (6) is obligatorily followed by the rule of Subcategorization Adjustment/Deletion. They (1978:210) represent this rule as follows:

(7) Subcategorization Adjustment/Deletion

$$\text{verb} + \text{ed} \; [_{NP}] \; \left\{ \begin{matrix} [_{Adj}] \\ [_{NP}] \end{matrix} \right\} \; Y \Rightarrow \text{verb} + \text{ed} \quad Y$$

$$1 \quad 2 \quad 3 \quad 4 \quad 1 \quad \emptyset \; \emptyset \; 4$$

where Y ranges over subcategorization frames

The function of this rule is to delete the two subcategorization frames adjacent to the verb: the direct object frame and the frame for adjectival and nominal complements. Thereby Subcategorization Adjustment/Deletion makes it impossible for direct object NPs, adjectival complements and predicate nominals to occur in FS position. Consequently, the FS Principle correctly predicts the impermissibility of such forms as *car-driven (in a non-agent reading), *green-grown, and *president-elected (on any reading except 'elected by a president') as verbal com-

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pounds. If Subcategorization Adjustment/Deletion had not deleted the three above-mentioned frames, the FS Principle would have incorrectly predicted these forms to be permissible verbal compounds. Subcategorization Adjustment/Deletion apparently plays no role in the derivation of -er and -ing compounds.

All three affix rules --- for -ed, -er, and -ing --- however, must be followed by Roeper and Siegel's (1978:210) rule of Subcategorization Insertion. This rule inserts a lexical item from the lexical core for each obligatory frame, and it may insert items into optional frames.(1) Roeper and Siegel (1978:211) give the following abstract representation of the function and form of this rule:

(8) Subcategorization Insertion

$$[_{\overline{X}} \text{ empty}] \Longrightarrow [_{X} \text{ +word}]$$

This rule is formulated in accordance with the condition that WFRs do not "involve" phrases. Thus, by convention, the rule eliminates the phrase brackets from the subcategorization frames. As a result NP becomes N, AdjP becomes Adj, and AdvP becomes Adv.

After Subcategorization Insertion, a further "adjustment rule" has to apply: Variable Deletion. In general terms, the function of the latter rule is to guarantee that the right subcategorization frames appear in FS position. Schematically, this rule is represented as follows by Roeper and Siegel (1978:212):

(9) Variable Deletion

$$\begin{array}{cccccccccc} \text{verb} & X & [& \text{+word} &] & Y & \Longrightarrow & \text{verb} & [& \text{+word}] \\ 1 & 2 & & 3 & & 4 & & 1 & \emptyset & 3 \end{array} \quad \begin{array}{c} Y \\ 4 \end{array}$$

where X and Y range over empty subcategorization frames

The function of Variable Deletion can be illustrated with respect to the verb build. To Roeper and Siegel (1978:212) "the facts" of (10) "indicate that the verb build allows at least four different subcategorization

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~~frames to be involved in compound formation:~~ adverb, agent, instrument, locative.

(10)

well-built	hand-built
slave-built	factory-built
well-built by slaves	hand-built in a factory
*slave-built well	*factory-built by hand

The permissibility of well-built by slaves, as opposed to the impermissibility of *slave-built well, indicates to Roeper and Siegel "that the FS Principle is followed". To illustrate the role of Variable Deletion in the derivation of the compounds of (10), they (1978:212) ask their readers to make three assumptions: (a) that the -ed affix rule has applied, (b) that redundancy rules supply the frames in (11) to build, and (c) that Subcategorization Insertion has filled the Adv frame.

(11) [[empty] built] [Adv well] [Inst] [Agent] [Loc]

The expression well-built by slaves is formed "directly" by applying the Compound Rule which effects the movement indicated by the arrow in (11) and by "allowing the subsequent frames after (Adv) to be inherited and filled in the syntactic component". The impossibility of *slave-built well indicates to Roeper and Siegel that if the Compound Rule "operates on" [Inst], the Adv frame cannot be inherited. Therefore, they require a rule which eliminates [Adv]. This rule has the effect of putting [Inst] in FS position, which makes it possible to derive compounds such as hand-built (in a factory). The function of Variable Deletion, now, is to delete whatever lies between the verb and [+word] (what falls to the right of [+word] may be inherited). The function of Variable Deletion is illustrated as follows by Roeper and Siegel (1978:212):

(12) [build] [Adv] [Inst] [+word] [Loc] W ⟹ build [+word] [Loc] W

1 2 3 4 5 1 ∅ 3 4 5

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The operation of Affixation, Subcategorization Adjustment/Deletion (in the case of -ed compounds), Subcategorization Insertion, and Variable Deletion creates an "acceptable input" to Roeper and Siegel's core rule: the Compound Rule. This rule is a "lexical transformation" which moves the word inserted by Subcategorization Insertion into the empty frame supplied by Affixation (given, of course, that Variable Deletion has ensured that this word occurs in FS position). Roeper and Siegel (1978: 209) give the following schematic representation of the Compound Rule:

(13) Compound Rule

$$[[\text{empty}] + \text{verb} + \text{affix}][X_{+N} + \text{word}]\ W \Rightarrow [[+\ \text{word}] + \text{verb} + \text{affix}]\ W$$

$$1 \qquad 2 \qquad 3 \qquad\qquad 4 \quad 5 \qquad\qquad 4 \qquad 2 \qquad 3 \qquad \emptyset \quad 5$$

where W ranges over subcategorization frames and X_{+N} stands for lexical categories N, A, Adv.

It is pointed out by Roeper and Siegel (1978:213) that the Compound Rule could be stated as three separate rules, one for each of the affixes -ed, -ing, and -er. They have collapsed these three rules since they accept an evaluation metric which "requires that we state rules with maximal formal economy".

This completes the outline of Roeper and Siegel's theory of verbal compounding, an outline from which many details have been omitted. In conclusion, a sample derivation --- Roeper and Siegel's (1978:244) derivation for the verbal compound government-initiated --- may elucidate many of the points presented rather abstractly above.

(14) initiate [NP] ([Adv]) ([Inst]) (by [NP Agent])

(a) initiate $\xrightarrow{\text{Affix}}$ [[empty] + initiate + ed][NP] ([Adv]) etc.

(b) [[empty] + initiated][NP] ([Adv]) $\xrightarrow{\text{Delete}}$ [[empty] initiated] ([Adv])

(c) [[empty] initiated] ([Adv]) ([Inst]) (by [NP Agent]) $\xrightarrow{\text{Insert}}$

[[empty] initiated] ([Adv]) ([Inst]) by [N government]

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(d) [[empty] initiated] ([Adv]) ([Inst]) by [$_N$ government] $\xrightarrow{\text{Delete}}$
[[empty] initiated] [government]

(e) [[empty] initiated] [$_N$ government] $\xrightarrow{\text{Compound}}$
[[government] initiated]$_{Adj}$

The rules applying in this derivation are: Affixation in (a), Subcategorization Adjustment/Deletion in (b), Subcategorization Insertion in (c), Variable Deletion in (d), and the Compound Rule in (e). It is clear that these rules are intrinsically ordered and that a derivation is initiated by Affixation since it supplies the empty frame ultimately to be filled by the Compound Rule.

2.4 Shortcomings

This section focuses on major defects of Roeper and Siegel's theory of verbal compounding. Some of the most obvious of these shortcomings have been indicated in an informal paper by myself (Botha 1979) and have also been discussed independently and in greater depth by Allen (1978) in her unpublished dissertation.(2) Since Allen's work is undoubtedly the better known, I will refer to it where possible, and will use it as a source of illustrative material. The discussion below, however, will materially elaborate on some of the criticisms presented in the two sources mentioned above. Moreover, it will present detailed additional criticisms of a nontrivial nature which are considered in neither of these sources.

2.4.1 The notion "verbal compound"

It will be argued below that a first major shortcoming of Roeper and Siegel's theory of verbal compounding is that its core notion "verbal compound" is ill-defined in more than one respect. This theory lacks a principled basis for distinguishing verbal compounds from root compounds on the one hand and certain complex derivatives on the other hand. As a consequence, it will be shown that Roeper and Siegel's analysis of verbal compounds is arbitrary in an important respect.

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2.4.1.1 Verbal compounds vs. root compounds

As regards the distinction between verbal and root compounds, Roeper and Siegel clearly realize that it cannot be based solely on the fact that verbal compounds, as opposed to root compounds, are morphologically marked by the presence of an affix. Consequently, they (1978:206) invoke the notions "predictability and compositionality in meaning" and "productivity" to provide a more adequate basis for this distinction: "In contrast [to root compounds --- R.P.B.], verbal compounds are (a) predictable and compositional in meaning and (b) extremely productive".

The meaning criterion alluded to in the (a) part of this quote fails in both directions. Thus, on the one hand, Levi (1978:44ff.) has recently shown that numerous root compounds have predictable, compositional, non-specialized/lexicalized meanings. The following compounds, traditionally considered to be root compounds, illustrate this point:

(15)

N + N	Adj + N
home-life	marginal note
salt water	urban transportation
lemon peel	axial stress
sugar cube	national exports
auto mechanic	avian sanctuary

Allen (1978:52), moreover, has argued that "primary compounds are completely specifiable in terms of interacting feature hierarchies, given some general principles of meaning formation of compounds".(3)

On the other hand, many verbal compounds have lexicalized meanings and are consequently nonpredictable and noncompositional in meaning. Allen (1978:152) provides examples such as the following:

(16)

windbreaker	life-saver
jawbreaker	care-taker
sky-scraper	coffee-maker

Even more telling is the fact that Roeper and Siegel (1978:216) have to

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point out, in a later section of their paper, that there are verbal compounds which "have meanings narrower than a strict decomposition would imply". They list the following examples:

(17) truckdriver icebreaker
cropduster homemaking

Clearly, then, verbal compounds cannot be distinguished from root compounds on the basis of predictability and compositionality of meaning.

It is less than clear how Roeper and Siegel intend using the notion of productivity --- in the (b) part of the quote given above --- as a basis for drawing a distinction between verbal and root compounding. The obvious interpretation is that, whereas verbal compounding is "extremely productive", root compounding is not. But this claim can be falsified in both directions. On the one hand, not all types of verbal compounds can be formed productively. Thus, in spite of their productivity claim quoted above, Roeper and Siegel (1978:233) have to point out themselves, in a later section of their paper, that certain types of verbal compounds are nonproductive. A case in point is the type which involves the affix -ing and which incorporates adjectives: "The overall productivity of this class of compounds is low. There are no compounds with many of the verbs in (96) [repeated as (18) below --- R.P.B.]. For instance, we do not find *& crazy-going or *& angry-appearing. We do not know whether these gaps are accidental or follow some unknown principle (perhaps semantic)".

(18) smell (fresh) become (mad)
look (nice) appear (angry)
act (grim) go (crazy)
seem (strange) stay (clean)
sound (funny) remain (calm)
taste (pleasant) get (ready)
turn (red) do (wrong)

Furthermore, Roeper and Siegel (1978:214) have to point out that there

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are some differences in productivity among affixes: "The -er affix is somewhat less productive than -ing or -ed".

Even more important is that Roeper and Siegel restrict their analysis to the three affixes which are the most productively involved in verbal compounding, viz. -ing, -ed, and -er. Other affixes involved in verbal compounding are much less productive, e.g. -ance, -al, -ment, -ion, -ure, and ∅ (zero). Verbal compounds such as the following are formed by means of these affixes according to Marchand (1969:19):

(19)

car insurance	tax evasion
snow removal	power failure
strike settlement	oil output

Marchand explicitly calls these "types" of verbal compounds "less productive".(4)

On the other hand, as has been noted in many studies of root compounding, some types of root compounds are extremely productive. Compound nouns formed on the basis of two other nouns, i.e., Noun + Noun ⟶ Compound Noun, is a case in point. Linguists such as Jackendoff (1975:667-668), Levi (1978:8-9, 54-56), and Allen (1978:133) have all remarked on the extreme productivity of certain types of root compounding. For instance, Allen (1978:133) states that "there are few limits on the formation of productive compounds". In sum: how Roeper and Siegel can distinguish verbal compounds from root compounds on the basis of differential productivity is all but clear.(5)

Roeper and Siegel, thus, cannot draw a principled distinction between verbal and root compounds.(6) The obvious question is how this inability bears on the adequacy of their theory of verbal compounding. In the absence of a principled distinction between verbal and root compounds, it becomes possible to make two related claims.

(20) (a) Verbal compounds and root compounds instantiate the same fundamental type of morphologically complex word.

(b) Verbal compounds and root compounds must receive fundamentally equivalent linguistic analyses.

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Allen (1978:151ff.) in fact makes these two claims (or ones closely related to them). In terms of the (b) claim, which derives from the (a) claim, the morphological structure assigned to verbal compounds must be of essentially the same kind as the structure assigned to root compounds. One possible unitary structure for both root and verbal compounds is indicated in (21) below.

(21)

(a) Root Compounds	(b) Verbal Compounds
$[\,[\text{truck}]_N\,[\text{man}]_N\,]_N$	$[\,[\text{truck}]_N\,[\text{driver}]_N\,]_N$
$[\,[\text{grain}]_N\,[\text{market}]_N\,]_N$	$[\,[\text{grain}]_N\,[\text{storage}]_N\,]_N$
$[\,[\text{mail}]_N\,[\text{bag}]_N\,]_N$	$[\,[\text{mail}]_N\,[\text{delivery}]_N\,]_N$

In terms of the analysis (21) both verbal compounds and root compounds are formed by a simple adjunction operation: two nouns are adjoined to form a more complex noun.(7)

Now, in order to justify their theory of verbal compounding Roeper and Siegel must show, inter alia, that it is more adequate than an alternative theory incorporating the claims (20)(a) and (b). By implication, they must argue that the type of morphological structure assigned to verbal compounds in (21)(b) is incorrect. But this implies that they are able to differentiate between verbal and root compounds in a principled manner. And we have seen that they have no basis for doing this. Consequently, Roeper and Siegel's theory of verbal compounding is arbitrary in the sense that it does not, on a principled basis, rule out the possibility that verbal compounds must be analyzed (in the same way) as root compounds.

Roeper and Siegel may argue that they do have a principled basis for drawing a distinction between root compounds and a certain subset of verbal compounds. This subset would include verbal compounds such as those of (22) (which for the sake of the discussion below are presented in terms of an adjunction-type bracketing).

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(22) $[[\text{sword}]_N [\text{swallower}]_N]_N$

$[[\text{heart}]_N [\text{breaker}]_N]_N$

$[[\text{church}]_N [\text{goer}]_N]_N$

$[[\text{money}]_N [\text{changer}]_N]_N$

$[[\text{type}]_N [\text{setter}]_N]_N$

The principled basis for claiming that these verbal compounds are distinct from root compounds and for not assigning to them the simple adjunction analysis of (22) takes on the form of a principle of the lexicalist theory of word-formation to which Roeper and Siegel --- following Aronoff (1976) --- subscribe.

(23) Word-formation rules create new words on the basis of existing words listed in the lexical core.(8)

Roeper and Siegel could point out that the adjunction analysis of (22) which treats the verbal compounds in question like root compounds violates the principle (23). The second (right) consituents of these verbal compounds are not listed in the lexical core as existing or actually occurring words.

(24) & swallower & goer & setter(9)
& breaker & changer

Roeper and Siegel (1978:219) do in fact claim that the forms in (24) are not "independently existing" elements. Moreover, they do use the alleged nonexistence of these forms to argue against a phrase-structure analysis of the verbal compounds in (22) in terms of which these compounds would actually be "phrase-structure generated adjective + noun sequences". They could extend this argument in a natural way, arguing on the basis of the alleged nonexistence of the forms in (24) against

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~~the primary compound adjunction~~ analysis of these compounds as presented in (22). These compounds cannot be primary compounds, since in terms of the principle (23), a WFR cannot create a primary compound by adjoining to an existing word (e.g. sword, heart, church, money, type) a nonexisting word (e.g. & swallower, & breaker, & goer, & changer, & setter). This argument, however, must be rejected both on general theoretical and on empirical grounds.

On general theoretical grounds it can be claimed that Roeper and Siegel's use of the notion "occurring/existing/actual word" is objectionable. The basic point is that this notion can be used to restrict neither the input nor the output of productive word-formation processes and the rules describing them. This point has in fact been argued in the literature and it is not clear why Roeper and Siegel have failed to take notice of these arguments. Some of the arguments for not restricting the output of productive WFRs in terms of a notion "occurring/existing word" will be considered in §2.4.3 below.

Let us consider here the restriction that the input to --- i.e., the bases of --- productive WFRs must be actually existing or occurring words. This restriction was presented as (23) above. Various linguists have argued against this restriction, including Booij (1977:28) and, more recently, Allen (1978:185). Let us consider the gist of Allen's argument because it bears directly on the question of constructing a theory of verbal compounding. Allen (1978:185) proposes a general theory of morphology which she calls "Overgenerating Morphology", the empirical basis of which she presents as follows: "The central empirical datum in support of Overgenerating Morphology is the fact that words derived by regular derivational processes may not be occurring words (e.g. handed, sightly, toothed) but when subsequent derivational processes apply, occurring words may result (e.g. handedness, unsightly, sabre-toothed)".(10) The crucial point is that if the bases of WFRs are restricted to occurring words it would be impossible to derive derivatives such as handedness, unsightly and a synthetic compound such as sabre-toothed since these complex morphological forms are formed on the basis of nonoccurring words, i.e. words not available as input to regular WFRs in terms of the restriction (23). Clearly, this restriction cannot be maintained: WFRs must be allowed to operate on any well-formed/permissible/possible word, regardless of whether or not it can be claimed to be an existing or occurring word.(11) This, then, is the gist of the theoretical grounds for rejecting

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Roeper and Siegel's (possible) argument that the forms of (22) could not be considered to be primary compounds since their second constituents, as listed in (24), are not occurring or independently existing words. Each of the latter words is a morphologically well-formed or possible word of English. Thus, the notion "existing/occurring word" does not provide a principled basis for drawing a distinction between verbal and root compounds. Neither can this notion be used as the basis of an argument against an adjunction analysis --- such as in (22) --- of verbal compounds.

An additional theoretical problem is that Roeper and Siegel's notion "existing/occurring word" is not particularly well-defined. Specifically, it is unclear precisely what their criterion is for assigning a given word the status of "(non)existing/(non)occurring". Thus, consider the following remarks in this connection by them (1978:200): "There is ... a distinction between existing words in the lexicon, which are in common use, and possible words that are not in common use. For instance, happiness is a real English word that we recognize and that follows the lexical rule for the formation of -ness nouns from adjectives. On the other hand, expectedness is not a real English word, although it is a possible one; it is not in common parlance although it does obey the rule for forming -ness nouns. Therefore, happiness is in the lexical core but expectedness will not be in the lexical core until it is 'invented' in some appropriate circumstance and comes into general use". It appears that to qualify for the status of "existing/occurring word", a given word must not only "exist"; it must "be in common/general use" or "in common parlance" as well. But Roeper and Siegel fail to provide a basis for distinguishing between words which are and words which are not in "common/general use or parlance". Thus, the latter notion is obscure and, consequently, their notion "existing/occurring word" is not properly defined. This is a further reason for disallowing their (possible) argument against a primary compound analysis of the verbal compounds listed in (22) above.

This argument, moreover, would be weak on empirical grounds, as is shown by Allen (1978:158). On the one hand, she argues that göer is "non-occurring" not only as a simple derivative. It generally fails to appear in compounds as well, as is illustrated by the impermissibility of forms such as the following:

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(25)

*bed-goer	*school-goer
*prison-goer	*college-goer
*supper-goer	*store-goer

From the impermissibility of these forms, Allen draws the conclusion that compounds with goer are "generally bad, church-goer being the exception".

On the other hand, Allen (1978:160) argues that Roeper and Siegel wrongly judge forms such as breaker and dweller to be nonexistent. She points out that these forms are "non-evident" only in a particular context, one which lacks the required type of complement:

(26)

*He is a breaker	(compare :	*He breaks)
*He is a dweller	(compare :	*He dwells)

In contexts where breaker and dweller do appear with the appropriate complement, they are permissible:

(27) He is a typical breaker of contracts and promises
(Compare : He breaks promises)

They are former dwellers of the city of light
(Compare : They dwell in a city)

Verbs such as tell, avoid, make and suggest exhibit this pattern as well; they only appear not to have -er derivatives. In sum: there are also empirical considerations which severely weaken an argument against a primary compound analysis of forms such as (22) which is based on the "nonexistence/nonoccurrence" of the forms listed in (24). It is not clear how Roeper and Siegel could avoid the criticism that their notion "verbal compound" is ill-defined in the sense that they have no principled basis for distinguishing verbal compounds from root compounds.

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2.4.1.2 Verbal compounds vs. complex derivatives

A second respect in which Roeper and Siegel's notion "verbal compound" is ill-defined relates to the fact that they do not provide a principled basis on which a distinction can be drawn between certain verbal compounds and complex derivatives formed on the basis of certain compounds by means of suffixation. To see this, it is necessary to consider the list of "diagnostics" proposed by Roeper and Siegel (1978:225) for verbal compounds.

(28) (a) Does it have an affix (-er, -ing, -ed)? (boatmaker)
(b) Does it have a nonindependent verb form? (church-goer/&goer)
(c) Does it fail to allow the Rhythm Rule? (Chinése lover)
(d) Does it take re- internally? (story-retelling)
(e) Does it have no related compound verb? (time-consuming; *time-consume)

To this list of diagnostics for verbal compounds Roeper and Siegel (1978:225) add the following, crucial, remark: "If the answer is positive to the first question (75a) [i.e., our (28)(a) --- R.P.B.] and any of the remaining four questions, then the phrase is a verbal compound and will obey the FS Principle".

Suppose now that in the case of an arbitrary "phrase" the answer is positive to the first question and, in addition, to the final question, (28)(e). The quoted remark by Roeper and Siegel would force one to conclude that the phrase is a verbal compound and not a complex derivative derived from a compound verb by means of suffixation. Notice now that in the diagnostic (28)(e), the expression "no related compound verb" has to be interpreted as "no related existing/occurring compound verb". This interpretation is dictated by the restriction (23) to which Roeper and Siegel subscribe. Thus, the diagnostic (28)(e), like (28)(b), makes critical use of the notion "existing/occurring form". The problematic nature of this notion has been dealt with in §2.4.1.1 above, but let us determine here how it affects the analysis of our arbitrary phrase . This phrase consists of a possible compound verb which does not "exist independently" as an "actual word" and a suffix, say -er, -ed or -ing. Roeper and Siegel's diagnostics now force us to "diagnose" this phrase

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as a verbal compound. In virtue of its suffixal constituent it satisfies the first diagnostic, (28)(a). And because of the fact that the compound verb has not been found "to exist/occur as an actual word", the phrase satisfies the final diagnostic, (28)(e), as well. Thereby, the conjunction of these criteria arbitrarily rules out the analysis of this phrase as a complex derivative formed on the basis of a possible compound by means of suffixation. This, in essence, means that Roeper and Siegel have no principled basis for drawing a distinction between verbal compounds and complex derivatives of the type under consideration.(12)

2.4.2 Correspondence between verbal compounds and sentences

Recall that basic to Roeper and Siegel's (1978:208) theory of verbal compounding is the observation that "the permissible and impermissible compounds correspond exactly to grammatical and ungrammatical sentences". Allen (1978:233), however, points out that there are impermissible verbal compounds that correspond to perfectly grammatical syntactic units:

(29)	(a) Verbal Compound	(b) Syntactic Unit
	*worried-appearer	to appear worried
	*president-becomer	to become president
	*quick-elapser	to elapse quickly
	*fortune-promiser	to promise a fortune
	*pale-turner	to turn pale

All the verbal compounds in (29)(a) obey the FS Principle but are nevertheless impermissible. This, of course, erodes the basic observation underlying Roeper and Siegel's theory and is at the root of a second major shortcoming of their theory.

Allen (1978:162) argues that there is a straightforward explanation for the impermissibility of the verbal compounds, but that this explanation is unavailable within the framework of Roeper and Siegel's theory. The essence of this explanation is that the compounds of (29)(a) are impermissible since they incorporate impossible words as second constituents: *appearer, *becomer, *elapser, *promiser, and *turner. This explanation is unavailable to Roeper and Siegel since their simple -er suffix rule

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which has to disallow these impossible words is distinct from their compound -er suffix rule. So the relevant restriction on the simple -er rule cannot be brought to bear directly on the compound -er rule. Roeper and Siegel could, of course, claim that all the restrictions on the simple -er rule apply to the compound -er rule as well. This claim, which would be most damaging to their theory, brings us to a third serious defect of their theory of verbal compounding.

2.4.3 The two affix rule hypothesis

As pointed out in §2.3 and §2.4.2 Roeper and Siegel's theory of verbal compounding includes the hypothesis that for each of the affixes -er, -ing, and -ed English has two affixation rules. Whereas a simple or noncompound rule generates simple derivatives such as those in (30)(a), the corresponding compound affix rule functions in the derivation of verbal compounds such as those in (30)(b).

(30) (a) Simple -er Rule (b) Compound -er Rule

cleaner	oven-cleaner
driver	truck-driver
mover	fast-mover
owner	home-owner

This point can be illustrated with reference to simple and compound -ing and -ed forms as well.

Any linguist who accepts the view that a central aim of linguistic description is to capture genuine generalizations will find the two affix rule hypothesis highly suspect. Allen (1978:150ff.) and Botha (1979) have independently expressed their misgivings about this hypothesis. So let us briefly review the problems with Roeper and Siegel's hypothesis.

The first problem with the hypothesis under consideration stems from a flaw in the conceptual basis of the arguments furnished by Roeper and Siegel to support it. These arguments are based on their untenable notion of "((not) independently) occurring/existing/listed word". Con-

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sider the following typical cases of their use of this notion:

(31) (a) "... there is an Affix Rule that supplies -er and an empty frame [empty]. This frame distinguishes the compound -er affix rule from the noncompound rule (e.g. lose ⟶ lose + er). The distinction is necessary because not all compounding verbs can undergo the noncompound rule. We hear church-goer, but not a & goer" (p. 210).

(b) "Verbal compounds, however, can incorporate forms like growing, which are not listed in the lexicon as separate nouns:

[(57)]	a.	b.
	flower-growing	& the growing
	house-keeping	& the keeping
	habit-forming	& the forming
	. . . . .	. . . . .

The expressions in (57a) must derive exclusively from the compound rule ... We have shown that compound formation is different from the generation of adjective + noun sequences in phrase structure. We can express this difference formally by stating distinct affix rules for the compound nouns and the simple nouns in the morphology" (p.220).

(c) "We have stated two affix rules because some verbs appear not as independent adjectives but just in compounds:

[(120)] a. & the read book
b. the well-read book
c. & the heard symphony
d. the oft-heard symphony" (p. 238).

Thus, in the case of each of the affixes -er ((31)(a)), -ing ((31)(b)), and -ed ((31)(c)), Roeper and Siegel's argument runs as follows: a distinction must be drawn between a compound and a noncompound rule since forms which do not "exist/occur (independently)" as simple derivatives "occur" as second constituents of verbal compounds.

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The "nonoccurring" simple derivatives can be blocked by preventing the noncompound affix rule from applying to their bases; the second constituents of the given verbal compounds can be generated by allowing the compound affix rule to apply to these base words.

This argument of Roeper and Siegel's is flawed because it makes crucial use of the objectionable notion "existing/occurring word". Specifically, the argument is based on the following restriction on the output of productive WFRs:

(32) The output of (i.e., the morphologically complex words generated by means of) productive WFRs must be "actually occurring/existing" words.

Botha (1968:126ff.), surveying the then relevant literature, argued at length that a restriction with the purport of (32) cannot be placed on WFRs which aim to describe an aspect of linguistic competence. Reduced to its essentials, the argument has two sides to it. On the one hand, it is shown that notions such as "occurring form", "attested form", "familiar form", "used form", etc. --- insofar as their content is clear --- represent aspects of linguistic performance. Specifically, these notions cannot be used appropriately to characterize or restrict the output of rules whose function it is to characterize a creative aspect of linguistic competence. Productive WFRs, by definition, are rules which attempt to do just this: to claim that a WFR is productive is to state, inter alia, that it can be applied to form an unlimited number of possible morphologically complex words. On the other hand, to adopt a restriction such as (32) is to reduce the status of a grammar to that of a description of a restricted corpus of linguistic utterances. Notions such as "existing/occurring/attested, etc. form" can be meaningfully used only in relation to the content of a finite corpus of data. A generative grammar, of course, purports to be a description of a language or linguistic competence and not of a restricted set of utterances of the language. Moreover, it is in principle impossible to list the output of productive rules --- be they syntactic or morphological --- in a finite corpus. In sum: there are principled reasons for rejecting a restriction such as (32). The appropriate distinction is not between existing and nonexisting (morphologically complex) words but between

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~~well-formed/permissible~~/possible and ill-formed/impermissible/impossible words. Thus, (32) must be replaced by a restriction with the general tenet of (33).

(33) The output of productive WFRs must be well-formed/permissible/possible (morphologically complex) words.

This restriction is in fact argued for in such early studies as Botha 1968 and Halle 1973. And at a level of theoretical reflection, even Roeper and Siegel (1978:200) seem to accept it: "The WFRs have the power to generate many possible words that are not in the lexicon".(13) Unfortunately, however, Roeper and Siegel's justification for the two affix rule hypothesis is in disaccord with the restriction (33).

The other problems with Roeper and Siegel's two affix rule hypothesis are of an empirical nature. On the one hand, recall that Allen has shown that it is simply not true that forms such as & dweller, & swallower, and & breaker fail to occur in an absolute sense. They do occur in appropriate contexts such as those illustrated in (27) above.

On the other hand, the two affix rule hypothesis makes empirical predictions which are incorrect. This point may be illustrated with reference to -er. The hypothesis that there are two -er affix rules --- a compound and a noncompound rule --- gives rise to the expectation that these rules will differ in regard to what they claim about such properties of derived forms as allomorphy, stress pattern, meaning, and subcategorization. But Roeper and Siegel provide no evidence of such differential behaviour with regard to these two rules. Thus, they present no empirical evidence indicating (a) that the set of allomorphic variants of the suffix involved in the noncompound rule differs from that of the suffix involved in the compound rule, (b) that the effect of the noncompound rule on the stress pattern of bases differs from that of the compound rule, (c) that the suffix involved in the noncompound rule differs in meaning from the one involved in the compound rule, (d) that the noncompound rule effects changes in subcategorization frames which are nonidentical to those brought about by the compound rule. As regards (a), Allen (1978:158) has in fact provided evidence from which it is clear that the expected differences in allomorphy do not exist: "The deverbal

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allomorphy is always the same, regardless of whether the suffix appears in a simple derivative or a verbally derived compound". In sum, Roeper and Siegel's two affix rule hypothesis must be rejected, both on theoretical and on empirical grounds.

2.4.4 The lexical rules

It was shown in §2.3 above that Roeper and Siegel require at least four special lexical rules for the derivation of verbal compounds: Affixation (cf. (6)), Subcategorization Insertion (cf. (8)), Variable Deletion (cf. (9)), and the Compound Rule (cf. (13)). For the derivation of *-ed* compounds a fifth rule is needed, viz. Subcategorization Adjustment/Deletion (cf. (7)). These rules have various questionable properties, to which we turn now.

To begin with, there is the question of the power of lexical transformations such as the Compound Rule. On the surface, it appears that the inclusion of movement transformations in the lexicon leads to an increase in the descriptive power of the total grammar. According to Allen (1978: 169-170), Roeper and Siegel conceded this point in the 1976 version of their paper. Such an increase in descriptive power would of course be highly undesirable, given the general aim of the linguists who work within the framework of the (Revised) Extended Standard Theory.[14] In the introduction to their 1978 paper, Roeper and Siegel, however, appear to have reversed their judgment of the effect of lexical transformations on the overall power of the grammar. Thus, they (1978:200) claim that "Our analysis ... does not lead to an increase in the power of the total grammar (a) because it simplifies the syntax where it complicates the lexicon, and (b) because the lexical transformation operates on a highly constrained structural description". Let us consider the (a) and (b) claims separately.

The (a) claim is extremely difficult to evaluate. To make a nonarbitrary assessment of the effect that the adoption of lexical transformations has on the power of the total grammar, three steps have to be taken. First, the contribution of lexical transformations to the power of the total grammar has to be calculated. Second, the decrease in the power of the total grammar resulting from the simplification of the syntax has to be calculated.

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Observe, that not just any "simplification" of "the syntax" would lead to a decrease in this power. Third, the former (possible) increase and the latter (possible) decrease have to be compared and the result evaluated. Of course, if the "simplification" of "the syntax" leads to a grammar which is descriptively less adequate, there is no point in proceeding with this comparison.

Roeper and Siegel have made no attempt to take the three steps mentioned above in an explicit and systematic manner. This is the reason why their (a) claim is hard to evaluate and why it appears to be rather arbitrary. Allen's assumption that lexical transformations do lead to an increase in the power of the total grammar does not fare better in this regard. Without first having made the above-mentioned calculations, the only safe conclusion would be that lexical transformations are undesirable because of a potential increase in the power of the total grammar which may result from their adoption.(15)

Now consider Roeper and Siegel's (b) claim in which they assert that the lexical transformation operates on a highly constrained structural description (which provides the second reason for their judgment that their analysis does not lead to an increase in the power of the total grammar). This (b) claim is more amenable to critical analysis: analysis which reveals a number of undesirable properties of their lexical rules. The gist of the argument below will be that, whereas the structural descriptions on which the Compound Rule operates may be "highly constrained", these structural descriptions are generated by means of unconstrained and ad hoc lexical rules. Let us take a closer look at the individual lexical rules, aptly called "adjustment rules" by Roeper and Siegel.

Affixation --- which initiates the derivation of verbal compounds --- performs two quite unrelated functions by means of two unrelated operations, viz. supplying an affix and creating an empty frame. The fact that a single rule performs such disparate operations makes it quite undesirable within the framework of a theoretical approach which aims to place strong constraints on the possible operations or structural changes that may be effected by individual rules. What makes Affixation an even more undesirable rule is the fact that both of these operations duplicate operations of other rules within the grammar. Whereas the affixation operation duplicates the operation carried out by noncompound affix rules,

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the creation of an empty frame duplicates the structure building function of phrase structure rules.

Subcategorization Insertion, as a lexical rule, has the same kinds of undesirable properties as Affixation. On the one hand, the function and operation of Subcategorization Insertion duplicate lexical insertion in base structures, a point conceded by Roeper and Siegel (1978:211): "Subcategorization Insertion operates much as regular lexical insertion does in syntax". On the other hand, it is not at all clear that Subcategorization Insertion has only this single function and performs only this unitary operation. From Roeper and Siegel's formulation (8) of this rule it is clear that the input and output of the rule differ in regard to the labelling of phrase brackets as well: $[_{\bar{\bar{X}}}\ ]$ becomes $[_{X}\ ]$. Roeper and Siegel (1978:210) comment on this structure changing operation by stating that "By convention, ..., we eliminate the phrase brackets from the subcategorization frames, since they are no longer eligible for expansion. Thus, NP becomes N, AdjP becomes Adj, AdvP becomes Adv." This "convention", however, is represented in the rule itself, as is clear from (8). Thus, it is hard to see how one can avoid the conclusion that Subcategorization Insertion is an unconstrained rule in the sense that it comprises two unrelated operations.

Before turning to Roeper and Siegel's two other "adjustment rules", viz. Subcategorization Adjustment/Deletion and Variable Deletion, it is necessary to consider an aspect of their theory of verbal compounding which is rather poorly explicated. Recall that the "adjustment rules" we have just mentioned as well as the Compound Rule operate on strings of subcategorization frames. A typical string of these frames is presented as follows by Roeper and Siegel (1978:212, 240):

(34) Verb [Direct Object] [Adverb] [Instrument] [Agent] [Locative]

A first question which arises in connection with strings of subcategorization frames such as (34) concerns their origin. How are such strings created or generated? Roeper and Siegel unfortunately do not deal with this question in an explicit manner. They (1978:210, 212) do no more than merely state that "redundancy rules supply the frames" in such strings. This statement is obscure and puzzling. Notice that a string of subcategorization frames such as (34) is structured in the sense that the individual frames have to occur linearly in a certain fixed order. Thus, the strings (35)(a) and (b) in which the order of the individual frames has

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been changed cannot constitute possible strings of subcategorization frames to which Roeper and Siegel's lexical rules could apply.

(35) (a) Verb [Instrument] [Adverb] [Direct Object] [Locative] [Agent]

(b) Verb [Locative] [Agent] [Adverb] [Instrument] [Direct Object]

It is unclear how conventional redundancy rules could generate structured strings of subcategorization frames such as (35)(a) and (b). These rules, in essence, specify that "If a lexical item has a feature (of the form) X, then it also has a feature (of the form) Y".(16) Such conventional lexical redundancy rules obviously cannot generate ordered strings of subcategorization frames. For the generation of these strings a different kind of rule is needed: one which is capable of building structures, or generating strings consisting of linearly ordered subcategorization frames. Moreover, rules of this kind must be applicable in such a way that they generate only certain ordered strings of subcategorization frames (e.g. (34)) but not others (e.g. (35)(a) and (b)). Roeper and Siegel, however, provide no information regarding the form, mode of application or power of this kind of "redundancy rules".(17) The absence of this information implies that the strings of subcategorization frames required by Roeper and Siegel's theory of verbal compounding are created in a mysterious way by devices which are obscure both in regard to formal properties and descriptive power. Moreover, in creating structured strings of the kind in question these devices or "redundancy rules" duplicate an aspect of the function and operation of independently needed rules, namely PS-rules. Thus, to motivate the particular order of the subcategorization frames in the string (34) and to draw a distinction between a permissible string of subcategorization frames such as (34) and impermissible strings such as (35)(a) and (b), redundancy rules must repeat some of the information about syntactic structure already expressed by PS-rules. To put it differently: the frames in (34) must occur in the order in question because this is the order in which NPs or PPs representing Direct Objects, Adverbial Phrases, Instrumental Phrases, Agentive Phrases and Locative Phrases are generated independently by PS-rules. If this assumption were not made, the order of the subcategorization frames in (34) would be both ad hoc and arbitrary. In sum: the generally obscure nature of Roeper and Siegel's "redundancy rules" and the fact that they

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have to duplicate part of the syntax reflect quite negatively on any theory (of verbal compounding) which has to rely on them.

This brings us to two other, functionally related, "adjustment rules" proposed by Roeper and Siegel: Subcategorization Adjustment/Deletion and Variable Deletion. That these rules are functionally related should be clear from the discussion in §2.3 : through the deletion of subcategorization frames, both of these rules function so as to change strings of subcategorization frames on which the Compound Rule cannot operate to form permissible verbal compounds into strings on the basis of which this rule can form permissible compounds. Specifically, both Subcategorization Adjustment/Deletion and Variable Deletion are used to ensure that the FS position contains appropriate subcategorization frames.

Recall that Subcategorization Adjustment/Deletion has the function of deleting from FS position subcategorization frames containing direct objects, adjective complements, and other predicate nominals. If these frames were to occur in FS position, the Compound Rule would, according to Roeper and Siegel (1978:210), derive such impermissible _-ed_ compounds as the following:

(36) *green-grown (adjective incorporated)
*car-driven (direct object incorporated)
*president-elected (predicate nominal incorporated)

The rule under consideration ensures that only "the adverb, instrument, agent, and locative frames supplied by redundancy rules are left as potential first sisters".

Subcategorization Adjustment/Deletion has more than one unattractive property. First, as used by Roeper and Siegel this rule is completely ad hoc, its only function being to protect the FS principle from the refuting impact of such impermissible _-ed_ verbal compounds as those listed in (36). Second, to perform its function, the rule crucially depends on the availability of strings of subcategorization frames whose components exhibit the order of (34). As we have seen, such strings are created in a dubious way. Thus for its operation, Subcategorization Adjustment/Deletion depends on an input structure which comes into existence in an obscure and arbitrary manner. Third, the rule performs a

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deletion operation, the constraints on which are unclear. In view of the attempts to constrain the number and nature of the operations performed by grammatical rules, this is a particularly unfortunate state of affairs. Finally, there are empirical problems with Subcategorization Adjustment/Deletion as well. These are considered within the context of a critical analysis of the Compound Rule below.

Both the motivation for and the functioning of Variable Deletion, the other "adjustment rule" performing a deletion operation, have been outlined in some detail in §2.3 above. Let us now take a look at the problematic aspects of this rule, which are akin to those of Subcategorization Adjustment/Deletion considered above. To begin with, Roeper and Siegel present independent motivation for neither this specific rule nor the general type which it instantiates. Moreover, the rule crucially depends for its operation on a string of subcategorization frames --- e.g. (34) --- which has the undesirable properties dealt with above. In addition, the constraints on the deletion operation of the rule are unclear. This is illustrated by the fact that Variable Deletion may perform, in addition to its major deletion operation, a further, peripheral deletion operation. Thus, whereas the rule is primarily designed to delete subcategorization frames, Roeper and Siegel propose that it be used for the deletion of prepositions in the case of certain *-ed* compounds as well. The "underlying structure" of *-ed* compounds such as *starstruck*, *homemade* and *bullet-ridden* incorporate a preposition according to Roeper and Siegel (1978:241). This preposition, of course, does not occur in the "superficial structure" of the compound. Consequently, Roeper and Siegel (1978:242) have to propose that "The preposition will automatically be deleted by the Variable Deletion rule, which includes everything that falls between verb and [+word]".(18) In sum: Variable Deletion is a rule which is not motivated independently, which operates on an arbitrarily created string of subcategorization frames, and which is not properly constrained in terms of the operations it may perform. Notice that if ordered strings of subcategorization strings may be arbitrarily created and if particular frames may be arbitrarily deleted from these strings, it is virtually impossible to refute Roeper and Siegel's FS Principle.

It is now possible to appraise Roeper and Siegel's claim --- the (b) claim quoted above --- that the Compound Rule "operates on a highly constrained structural description" (and hence does not lead to an increase

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in the power of the total grammar). This, clearly, is a misleading claim. The salient point is that the structural description of the Compound Rule is created by prior "lexical redundancy" and "adjustment rules" which are themselves not properly constrained and which, moreover, have other undesirable properties. This point undermines Roeper and Siegel's (b) claim. To see this, compare the Compound Rule, as a lexical movement transformation, to ordinary syntactic movement transformations. The latter rules apply to structures which, in a proper sense, are highly constrained. Thus, these structures are generated by PS-rules which must not only be independently motivated, but which must, in addition, meet such constraints as those expressed, for example, by the $\overline{X}$-theory. By contrast, the structures to which Roeper and Siegel's Compound Rule applies are generated by rules which do not have these or parallel properties. It is therefore in principle impossible for these rules to generate "highly constrained" structures or structural descriptions.

The fact that the Compound Rule does not apply to appropriately constrained structures is not its only defect. A second questionable aspect of this rule becomes apparent when forms such as those in (37) are considered.

(37) (a) -ed Adjective (b) -ing Adjective (d) -er Noun

beautifully-danced	beautifully-dancing	*beautifully-dancer
smartly-dressed	smartly-dressing	*smartly-dresser
loudly-screamed	loudly-screaming	*loudly-screamer

(c) -ing Noun

*the beautifully dancing
*the smartly dressing
*the loudly screaming

With reference to these forms, Roeper and Siegel (1978:221) point out that there is a systematic gap in the set of possible compounds. The gap is illustrated by the impermissibility of (c) and (d) forms and is filled by adjective + noun constructions such as those in (38).

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(38) (a) _____ -er Noun Gap ____ (b) -ing Noun Gap

beautiful dancer	the beautiful dancing
smart dresser	the smart dressing
loud screamer	the loud screaming

In accord with the FS Principle, the Compound Rule, however, will generate the impermissible -ing compounds in (37)(c) and the impermissible -er compounds in (37)(d).

Roeper and Siegel (1978:222-223) propose the following solution to the problem of preventing the impermissible forms in question from being generated by the Compound Rule: "... the lexicon must have a provision that eliminates compounds in case the adjective + noun construction systematically produces the same reading. (See Aronoff (1976) for a discussion of 'blocking' among morphological rules.)". However, they do not elaborate on either the formal nature or the mode of application of the device required for this blocking. This is unfortunate, since Allen (1978:182, n. 23) claims that this device has the status of a transderivational constraint. Transderivational constraints, she proceeds to point out, are "as theoretical devices ... extremely powerful, allowing for potentially unlimited descriptive power, as any stage in one derivation may be referred to by any stage in any other derivation. But if we can describe everything with our theoretical device, then we can explain nothing. And our task is clearly one of explanation". Thus, if the device required by Roeper and Siegel for blocking impermissible compounds such as (37)(c) and (d) were indeed to be a transderivational constraint, this would be a most undesirable consequence of the Compound Rule.[19]

This brings us to a third problem, one of an empirical nature, with regard to the Compound Rule.[20] The rule incorrectly predicts that verbal compounds such as those in (39) must be impermissible.

(39) calorie-controlled
time-controlled
surface-sealed
tongue-tied

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This incorrect prediction stems from the fact that in the case of -ed compounds, the Compound Rule --- through the "adjustments" made by Subcategorization Adjustment/Deletion --- is never required to operate on an input structure with a direct object in FS position. And, in (39) calorie, time, surface and tongue appear to be direct objects incorporated in the compounds in question. In terms of this analysis, calorie-controlled would, for example, be derived from a source such as control calories.

Roeper and Siegel's (1978:234-235) solution to this problem is based on the claim that the compounds of (39) "can be paraphrased in terms of a passive with a prepositional phrase":

(40) It was controlled for calories.
It was controlled in time by the meter.
It was sealed at the surface with tape.
?He was tied at/by the tongue by his embarrassment.

This solution, in terms of which the compounds of (39) incorporate the NP of a prepositional phrase rather than a direct object, is unsatisfactory. Roeper and Siegel make no attempt to provide independent grounds for motivating the prepositional object analysis vis-à-vis the more natural direct object analysis.

Finally, if a lexical movement rule such as the Compound Rule were to be used in the derivation of Afrikaans synthetic compounds, two serious empirical problems would arise in connection with this rule. On the one hand, Afrikaans has synthetic compounds which are not verbally based but which have a noun (to which a suffix is attached) as their central constituent. Consider the following typical examples which incorporate the suffix -s: (21)

(41) Adj/Adv + Noun + Suffix

onder + grond + -s
under ground affix
"underground/subterranean"

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binne + aar + -s
inside vein affix
"intravenous"

buite + muur + -s
outside wall affix
"extramural"

It is extremely difficult, if not impossible, to conceive of an analysis in terms of which synthetic compounds such as these are derived by means of a movement rule. Consequently, if a parallel of the Compound Rule were to be used for the derivation of Afrikaans verbal compounds, it would have to be claimed that Afrikaans has two distinct types of synthetic compounds: one involving movement and one not involving movement. A unitary analysis in which all synthetic compounds are derived in fundamentally the same manner would, of course, be superior. In chapter 4 it is argued that there is such an analysis which does not use a movement rule such as the Compound Rule for the derivation of Afrikaans synthetic compounds.(22)

On the other hand, as has been shown by De Villiers (1979), Afrikaans has synthetic compounds which incorporate phrases as first constituent. The following examples illustrate the point (the verbal bases are capitalized):

(42) (a) AdvP + V + Suffix

[baie + laat] + SLAAP + -er
very late sleep er
"a person who usually sleeps very late"

[vreeslik + vinnig] + RY + -ery
terribly fast drive ing
"the repeated/continual act of driving terribly fast"

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(b) PP + V + Suffix

[kerk + toe]$_{PP}$ + GAAN + -er (P = postposition)
church to go er
"church-goer"

[in + die + bed]$_{PP}$ + LÊ + -er (P = preposition)
in the bed lie er
"someone who habitually lies in bed"

(c) NP + PP + V + Suffix

[[boek]$_{NP}$ + [in + die + bed]$_{PP}$] + LEES + -ery
book in the bed read ing
"the repeated/continual act of reading a book in bed"

[[stoele]$_{NP}$ + [op + die + tafel]$_{PP}$] + PAK + -ery
chairs on the table stack ing
"the repeated/continual act of stacking of chairs on tables"

If verbal compounds such as those in (42) should be derived by means of a movement rule analogous in essential respects to the Compound Rule, the former rule would have to violate the condition that WFRs do not involve phrases. As shown by De Villiers (1979) the cases listed in (42) are by no means isolated examples. The general point is clear: a compound rule for Afrikaans would have the property of violating a constraint on WFRs considered to be basic by Roeper and Siegel (1978:202, 211-212). This concludes the discussion of problematic properties of Roeper and Siegel's Compound Rule.

2.4.5 Missing generalizations

Recall that fundamental to Roeper and Siegel's (1978:208) theory of verbal compounding is the observation that permissible and impermissible compounds correspond exactly to grammatical and ungrammatical sentences. Their theory attempts to account for this correspondence on the basis of the assumption that both sentences and compounds are formed from subcategorization frames. But notice that the rules required for the derivation

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of verbal compounds are not the same as those involved in the derivation of the corresponding sentences. Thus, for the formation of verbal compounds, Roeper and Siegel need unconventional "redundancy rules" plus an assortment of lexical "adjustment rules" and, of course, the Compound Rule. To specify the relevant aspects of the structure of the corresponding sentences, PS-rules and conventional redundancy rules are needed. Thus, Roeper and Siegel use different (kinds of) formal devices for the derivation of verbal compounds and corresponding sentences. But to state that two "corresponding" linguistic units have to be derived by means of different (kinds of) formal means, is to state that they are in fact unrelated. If these two units were indeed related, their differential derivation would be symptomatic of an inability to capture the relevant generalization(s). And this brings us to a serious shortcoming of Roeper and Siegel's theory of verbal compounding: by not using essentially the same formal devices for deriving verbal compounds and corresponding sentences, it fails to capture the relevant generalizations.

2.5 Conclusion

In the preceding sections it has been argued that Roeper and Siegel's theory of verbal compounding exhibits the following major shortcomings:

1. Roeper and Siegel's notion "verbal compound" is ill-defined, with the result that they are unable (a) to draw a principled distinction between, on the one hand, verbal compounds and, on the other hand, root compounds and certain complex derivatives; (b) to motivate their lexical transformation analysis vis-à-vis an adjunction analysis in a non-ad hoc manner.

2. The observation basic to this theory --- viz. that permissible and impermissible compounds correspond exactly to grammatical and ungrammatical sentences --- is incorrect in its full generality.

3. For each affix the theory postulates a duplication of affixation rules --- i.e., a compound as well as a noncompound affix rule --- which is untenable because (a) Roeper and Siegel's argument for this duplication is based on the objectionable distinction between "occurring/existing" and "nonoccurring/nonexisting forms"; (b) Roeper and Siegel fail to provide empirical support for this duplication in the form of data about such properties of derived forms as allomorphy, stress pattern, meaning and subcategorization.

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4. The formal devices proposed by Roeper and Siegel for the derivation of verbal compounds exhibit a variety of undesirable properties.

(a) The "(lexical) redundancy rules" required for the generation of structured strings of subcategorization frames (i) are obscure in regard to formal properties, mode of application and power; (ii) duplicate part of the syntax.

(b) Affixation/The Affix Rule(s), by supplying both an affix and creating an empty frame, perform(s) two quite disparate operations and is/are consequently not properly constrained.

(c) Subcategorization Insertion (i) duplicates the function of regular lexical insertion in syntax, and (ii) is unconstrained in the sense of performing two disparate operations, viz. inserting words in empty frames, and changing the labelling of phrase brackets.

(d) Subcategorization Adjustment/Deletion (i) is ad hoc in the sense of being restricted to -ed compounds to prevent them from refuting the FS Principle; (ii) crucially depends for its operation on arbitrarily created strings of subcategorization frames; (iii) performs a deletion operation the constraints on which are unclear.

(e) Variable Deletion (i) is a rule belonging to a general type for the existence of which Roeper and Siegel provide no independent motivation; (ii) crucially depends for its operation on arbitrarily created strings of subcategorization frames; (iii) performs a deletion operation the constraints on which are unclear; (iv) is a rule which, because of the above-mentioned properties, drastically reduces the refutability of the FS Principle.

(f) The Compound Rule, as a lexical transformation, (i) represents a kind of formal device whose contribution to the power of the total grammar is unclear; (ii) crucially depends for its operation on input structures created by the unconstrained and questionable "adjustment rules" listed above; (iii) probably requires a transderivational constraint to block its application in the case of certain impermissible verbal compounds; (iv) incorrectly fails to generate certain -ed compounds which incorporate direct objects; (v) would have a parallel in Afrikaans which (∝) would fail to provide an account of the structure of synthetic compounds

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involving no movement at all; (β) would have to violate the basic constraint that WFRs do not involve phrases.

5. Roeper and Siegel's theory of verbal compounding fails to capture the relevant generalizations by not using essentially the same formal devices to account for the shared structural properties of verbal compounds and corresponding sentences.

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Chapter 3

ALLEN'S ADJUNCTION RULE THEORY

3.1 General

This chapter focuses on the theory of synthetic compounding proposed recently by Allen in her dissertation Morphological Investigations (1978). On an expository level, the outlines of Allen's general theory of morphology, her theory of primary compounding, and her theory of synthetic compounding are briefly sketched in this order.(1) Then follows a critical appraisal of the shortcomings of this theory. To distinguish Allen's theory from Roeper and Siegel's lexical transformation theory of verbal compounding, it may be called "the Adjunction Rule Theory (of synthetic compounding)".(2)

3.2 The general theory of morphology

Allen (1978:147ff.) presents a theory of synthetic compounding which is intended to be an alternative to Roeper and Siegel's theory of verbal compounding. She proposes her theory within a general theoretical framework which differs from the one within which Roeper and Siegel propound their theory in important respects. Since the general morphological theory which constitutes Allen's framework is not generally known, it is necessary first to present its outlines before turning to her theory of synthetic compounding.

Allen (1978:195) considers the "central goal" of morphological investigation to be that of characterizing the notion "morphological well-formedness". To provide this characterization, Allen attempts to develop a general morphological theory of derivation and compounding which draws on work by Siegel (1974) and others. The basic descriptive devices employed by this theory include WFRs, a Conditional Lexicon and a Permanent Lexicon. Allen's (1978:197) WFRs apply to both stems and underived words. Moreover, some WFRs apply to bases with the status of possible words which have been derived by regular derivational processes but which do not have the status of "occurring words".

The two defining characteristics of Allen's morphological theory are denoted by the expressions overgenerating and level-ordered. The theory is, in Allen's (1978:185) terminology, an Overgenerating Morphology in the sense that rules of word-formation must generate the infinite set of possible, well-formed words, only a subset of which includes "actual" or "occurring" words. It is

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---on this basis that she (1978:185) draws a distinction between a Conditional Lexicon and a Permanent Lexicon: the former constitutes the set of morphologically possible words, the latter represents the "actual" words. "The central empirical datum" in support of Allen's (1978:185) Overgenerating Morphology is the fact that words derived by regular derivational processes may not be "occurring" words (e.g. handed, sightly, toothed) but when subsequent derivational processes apply, "occurring" words may result (e.g. handedness, unsightly, sabre-toothed).

Allen's (1978:186) morphology is level-ordered in the sense that it states that WFRs operate at three levels in the morphology. Level I rules are ordered before Level II rules, and both Level I and Level II rules are ordered before Level III rules. Level I contains all rules of +boundary affixation, e.g. in- prefixation: impotent, impious, infinite, innocent. The affixes involved in Level I rules --- so-called Class I affixes --- are stress determining and attach to stems. Level II, in turn, contains all rules of #boundary affixation, e.g. un- prefixation: unlawful, uncertain, unbalanced. The affixes involved in Level II rules --- Class II affixes --- are stress neutral and attach only to words or "lexical roots". Level III contains Nominal and Adjectival Compounding, non- prefixation and, according to Allen (1978:186), "probably a number of other rules such as $\emptyset$ derivation".

3.3 The theory of compounding

Allen's theory of synthetic compounding forms part of her general theory of compounding. So let us first consider the latter theory in outline. She (1978:111) presents old as well as new evidence to show that primary compounds such as those in (1) are morphological entities.

(1)

mouse-trap	breadbasket
foot-warmer	car-thief
fly-paper	goldfish
hand-towel	greenhouse

Allen's claim that compounds are morphological entities is not a new one, as she correctly points out.(3)

To account for the formation of productive primary noun compounds, Allen

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(1974:114) proposes a morphological rule, the Primary Compound Formation Rule (or PCFR):

(2) PCFR

$[\#\ X\ \#]_N \ldots [\#\ Y\ \#]_N \longrightarrow [[\#\ X\ \#][\#\ Y\ \#]]$

Condition: Y contains no V

The effect of this rule, which will be modified in (12) below, is to concatenate or adjoin two fully specified lexical items, creating an internal double word-boundary in the process. By means of the Condition on the rule, verbal(-nexus) compounds (e.g. truck-driver, food-spoilage, mountain-climbing) are excluded from the domain of the PCFR.

The PCFR functions in conjunction with a number of general conventions or conditions which specify properties of primary compounds that are not rule-specific. The first is a general convention --- called External Word Boundary Assignment by Allen (1978:114) --- which assigns to compounds and other words external word boundaries. This convention makes it possible to omit such boundaries from the PCFR.

In addition, Allen proposes two general "principles of meaning formation" which specify aspects of "the semantics" of productive primary compounds. The first of these principles, the so-called Variable R Condition (Allen 1978:93), has to account for the variability in primary compound meanings. Thus, according to Allen (1978:92), the compound water-mill may have the meanings in (3), but not those in (4).

(3) "mill powered by water"
"mill which produces water"
"mill located near the water"
"mill for analyzing the content of water"
"mill where the employees drink water, etc."

(4) "mill which lives near the water"
"mill which grinds water"
"mill which drinks water"
"mill which searches for water, etc."

The function of the Variable R Condition, according to Allen (1978:93), is to

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establish "... a range of possible, and consequently impossible, meanings for a given primary compound. This range of meanings is specified in terms of the semantic feature sets of the constituent elements of the compound. Variable R predicts that the complete semantic content of the first constituent element may fill any one of the available feature slots in the feature hierarchy of the second constituent element, as long as the feature slot to be filled corresponds to one of the features of the filler". It is not necessary to present here Allen's (1978:93) attempt at formalizing this condition. Nor need we dwell on Allen's (1978:94ff.) highly speculative account of how the Variable R Condition could be made to discriminate between more and less possible meanings of primary compounds.

The second general "principle of meaning formation" for primary compounds is the IS A Condition, which Allen (1978:105) states as follows:

(5) The IS A Condition
In the compound $[[\ldots]_X [\ldots]_Y]_Z$
Z "IS A" Y

Allen "purposefully" states this condition in an ambiguous way: it can be interpreted both syntactically and semantically. On the one hand, on the syntactic interpretation of the condition, X, Y and Z stand for labels of major lexical categories and the condition predicts the derived (syntactic) category of primary compounds. The derived category of the compound (Z) is that of its second constituent (Y). The adoption of this condition makes it unnecessary to specify the derived category of primary compounds in the PCFR. Notice that this information is omitted from the PCFR as presented in (2).(4)

On the other hand, on the semantic interpretation of the IS A Condition, Allen (1978:108ff.) views X, Y and Z as "... shorthand for the semantic content of their associated bracketings [. . .]". Interpreted semantically, this condition predicts that "... a semantic subset relationship holds between the compound Z and the compound constituent Y. For example, a steam-boat IS A boat, a rose-bush IS A bush, a silk-worm IS A worm, a beer-can IS A can, etc.". This completes the outline of some of the central assumptions of Allen's theory of compounding. To some of these we will return in §3.5 below.

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3.4 The theory of synthetic compounding

The core of Allen's (1978:147ff.) theory of synthetic compounding is expressed by the following two hypotheses:

(6) (a) Synthetic and primary compounds are "formally related".
(b) The analyses of primary and synthetic compounds must be "fundamentally equivalent".(5)

Let us now examine the major shortcomings of Allen's theory of synthetic compounding, focussing in the process on a number of the ancillary hypotheses of this theory as well.

3.5 Shortcomings

3.5.1 General

It is clear that if Allen's hypotheses (6)(a) and (b) could be shown to be untenable, her theory of synthetic compounding would collapse. The discussion below will present reasons for rejecting both of these hypotheses.

3.5.2 "Formal" unrelatedness of synthetic and primary compounds

The hypothesis that synthetic and primary compounds are "formally related" lies at the very heart of Allen's theory of synthetic compounding. She (1978:151) in fact goes so far as to characterize the relationship between these two types of compounds by means of the expression "same". As regards possible definitional differences between these types of compounds, Allen (1978:147) explicitly mentions only one as such: synthetic compounds can be distinguished from primary compounds "by the presence of an overt verbal or deverbal element". It will be argued below that Allen's own analysis of synthetic compounds reveals the existence of differences of a fundamental sort between synthetic and primary compounds. These differences refute the hypothesis (6)(a), in so far as its content is clear and therefore refutable. Moreover, it will be shown directly below that the evidence furnished by Allen in support of this hypothesis is quite indecisive.

3.5.2.1 Lexicalized meanings

Consider the essence of the empirical consideration which Allen (1978:153)

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furnishes in support of hypothesis (6)(a): "The similarities between primary and synthetic compounds with respect to the development of lexicalized meanings suggests, contrary to R & S [= Roeper and Siegel --- R.P.B.], that the two types are formally related". Specifically, she (1978:152) claims that "both primary and synthetic compounds have unpredictable, lexicalized, readings as well as predictable, compositional readings". This claim, which can hardly be disputed, is illustrated by such synthetic compounds as windbreaker, life-saver, care-taker, etc. which clearly have lexicalized meanings.

Allen's argument for a "formal" relatedness between synthetic and primary compounds on the basis of the empirical consideration in question has two questionable aspects. First, she makes no attempt to explicate the meaning of "formally" in the expression "formally related". This is unfortunate in view of the fact that the data she presents in support of this "formal relatedness" are of a semantic sort. It is difficult to conceive of a nonarbitrary technical meaning for "formal(ly)" in the context in question. Consequently, the hypothesis (6)(a) has an obscure aspect in regard to its content.

Second, and even more important, synthetic compounds are related in this same "formal" manner to other types of linguistic units, notably simple derivatives and phrases. Allen (1978:152-153) herself, in fact, provides examples of derivatives which have both compositional and lexicalized meanings:

(7)

Derivative	Lexicalized Meaning
pointer	"a breed of dog"
bouncer	"one who removes rowdies"
thriller	"a 'thrilling' novel, detective style"
slider	"a type of baseball pitch"
pusher	"a seller of illicit drugs"

Thus, it may be claimed that "both synthetic compounds and simple derivatives have unpredictable, lexicalized readings as well as predictable, compositional readings". And it may be concluded that "the similarities between synthetic compounds and simple derivatives with respect to the development of lexicalized meanings suggest that the two types of morphologically complex words are 'formally related'".

This argument, moreover, may be repeated with regard to the similaritics

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between synthetic compounds and certain kinds of phrases. Thus Allen (1978:99-100) claims that it is "unquestionable" that lexicalized phrases exist, furnishing examples such as the following:

(8)

red hérring	black mágic
black márket	yellow péril
prickly péar	eager béaver

Marchand (1969:122ff.) presents many other cases of lexicalized phrases so that those of (8) by no means constitute isolated examples. Now, on the basis of such lexicalized phrases it may be argued that "the similarities between synthetic compounds and phrases with respect to the development of lexicalized meanings suggest that the two types of linguistic units are 'formally related'".

The salient question, of course, is the following: if synthetic compounds, in regard to the development of lexicalized meanings, are similar not only to primary compounds but also to simple derivatives and phrases, how can it be concluded on the basis of lexicalization that synthetic compounds are "formally related", in a special way, to primary compounds but not to the two other types of forms? This question is not considered by Allen and this implies that the evidence she provides in support of a special "formal relatedness" of synthetic compounds to primary compounds is indecisive and provides insufficient justification for the hypothesis (6)(a). On the basis of data about lexicalization, one could conclude --- in a similarly arbitrary manner --- that the (special) "formal relatedness" existed, rather, between synthetic compounds and simple derivatives or phrases. And, Allen presents no other evidence than that derived from lexicalization in support of the hypothesis (6)(a).

3.5.2.2. Well-formedness

This brings us to a first fundamental difference between synthetic compounds and the primary compounds analyzed by Allen: whereas synthetic compounds can be ill-formed, primary compounds cannot exhibit this property. This difference is noted by Allen (1978:150) herself when she points out that "Examples (208) and (209) [represented as (9)(a) and (b) respectively below --- R.P.B.] provide a sharp contrast with the primary compound data examined earlier in this chapter. There are no primary

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compounds which are 'deviant' in the sense in which the synthetic compounds in (209) are deviant. The closest a primary compound comes to being ill-formed is for it to be impossible to build any coherent verbal relationship between the semantic feature hierarchies of the nominal elements".

(9) (a) Well-formed Compounds (b) Deviant Compounds

strange-sounding	*man-sounding
thought-thinker	*peace-thinker
cake-maker	*quick-making
story-teller	*children-teller

This difference between synthetic and primary compounds ought to be important to Allen within the framework of a morphological theory whose "central goal" is to characterize the notion "morphological well-formedness". However, she fails to consider its implications. This is unfortunate since at least two general points should have emerged rather clearly from such a consideration.

On the one hand, the difference in regard to well-formedness between synthetic and primary compounds simply has to lead to the construction of nonequivalent analyses of these two types of linguistic units. Within the overall framework of a general linguistic theory such as the (Revised) Extended Standard Theory, the formal devices needed to account for morphological (and syntactic) well/ill-formedness would clearly differ from those required for an account of semantic (non)deviance.

On the other hand, as regards well-formedness, synthetic compounds clearly pattern with (simple) derivatives. Like synthetic compounds, (simple) derivatives are either well-formed or ill-formed. This point may be illustrated with reference to Allen's (1978:22) own work in which she judges the derivatives in (10)(a) to be well-formed and those in (10)(b) to be ill-formed.

(10) (a) Well-formed Derivatives (b) Ill-formed Derivatives

unlucky	*inlucky
unfriendly	*infriendly
unchildlike	*inchildlike
unselfish	*inselfish

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The fact that synthetic compounds are similar to derivatives in exhibiting the property of well/ill-formedness, should prompt the morphologist to explore the consequences of the hypotheses (11)(a) and (b) which are alternatives to Allen's (6)(a) and (b) respectively.

(11) (a) Synthetic compounds and derivatives are "formally" related (where "formally" relates to morphological form).
(b) The analyses of synthetic compounds and derivatives should be equivalent in (certain) basic respects.

We will see below that there are further similarities between synthetic compounds and derivatives which make (11)(a) and (b) interesting at least as working hypotheses. To return to the main point: Allen's hypothesis (6)(a) is unacceptable because she fails to take into consideration the marked difference between synthetic and primary compounds with respect to the fundamental property of well-formedness.

3.5.2.3 Subcategorization

A second difference between synthetic and primary compounds concerns subcategorization. Allen (1978:150) concedes that "... it appears to be true that the syntactic subcategorization frames associated with every verb are crucial to the formation of verbally based compounds". And, in a later section, she (1978:164) describes as "by and large correct" Roeper and Siegel's view that the deviance of verbal compounds such as *peace-thinker and *children-teller is a consequence of the violation of verbal subcategorization in the source (viz. *he thinks peace and *he tells (to) the children respectively). Allen, however, does not analyze a single type of primary compound in the formation of which subcategorization frames are crucial. Consequently, we have here a second basic difference between synthetic and primary compounds which argues against the hypothesis that these types of compounds are formally related. Moreover, as will be shown in §3.5.3.2 below, this difference forces Allen to propose, contra her (6)(b), fundamentally nonequivalent analyses for synthetic and primary compounds.

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3.5.2.4 Variability in meaning

Variability in meaning is a third basic property with respect to which synthetic and primary compounds behave differentially. In §3.3 above we saw that Allen considers variability in meaning to be a central semantic feature of Noun + Noun primary compounds. To deal with this property of nominal primary compounds she develops a special subtheory central to which is the Variable R Condition and hypotheses postulating feature hierarchies and "slots" into which other features "plug". But, in regard to synthetic compounds, Allen (1978:147) has to concede that they "... do not exhibit the range of meanings characteristic of primary compounds". It is therefore not strange that she makes no attempt to show that the Variable R Condition generalizes to synthetic compounds. What is puzzling, however, is the fact that Allen fails to note that this basic difference between synthetic and primary compounds reflects negatively on her hypothesis of the "formal" relatedness of these two types of compounds. Moreover, she fails to point out that in this respect too synthetic compounds are similar to derivatives which do not exhibit this variability in meaning. That she must be aware of this property of derivatives is indicated by the fact that she makes no attempt to generalize the Variable R Condition to include derivatives.

3.5.3 Nonequivalence of analyses of synthetic and primary compounds

3.5.3.1 General

This brings us to the second fundamental hypothesis of Allen's theory of synthetic compounding, viz. that the analysis of primary and synthetic compounds must be fundamentally equivalent. On this hypothesis, (6)(b), synthetic compounds must be derived by means of morphological rules of the same type as those operative in the derivation of primary compounds: rules of word adjunction which create a concatenation of two lexically specified (major) categories. The adjunction rule which Allen (1978:170-171) in fact proposes for the derivation of synthetic compounds is "... none other than the compounding rule proposed for primary compounds". The latter rule, which "morphologically adjoins two nominal elements", she abstractly represents as follows:

(12) $N_1 + N_2 \longrightarrow [N_1 + N_2]_{N_3}$

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Allen points out that the rule (12) is not sensitive to the internal structure of the constituent Ns. This means that the rule conforms to the Adjacency Condition, a general condition on WFRs first proposed by Siegel (1977) and subsequently revised by Allen (1978:15) to read as follows:

(13) The Adjacency Condition

No rule of word-formation can involve X and Y, unless Y is uniquely contained in the cycle adjacent to X.

This condition does not permit WFRs and conditions on WFRs to refer to internal bracketings of words; WFRs and conditions on them can refer only to external bracketings, i.e. to the level of bracketing which is structurally adjacent to the level at which the rules or conditions are operative.

The Adjacency Condition thus disallows a WFR such as (12) from referring to the internal bracketing of N_1 and N_2. Notice that the WFR (12) in fact represents the PCFR (2) which has been so modified to satisfy the Adjacency Condition. This modification entails the scrapping of the Condition on the PCFR; it is this Condition which violates the Adjacency Condition by referring to the internal structure of N_2. The modified WFR (12), as Allen (1978:171) points out, now operates in "identical fashion" on simple and deverbal nominals. When it operates on simple nouns, primary compounds such as truck-man are derived. When N_2 is deverbal, this WFR derives synthetic compounds such as truck-driver.

It was argued above that there are differences of a fundamental sort between synthetic and primary compounds. Consequently, it is only reasonable to expect that Allen's hypothesis (6)(b) cannot be correct in claiming the analyses of synthetic and primary compounds to be fundamentally equivalent. And it is reasonable to expect also that the more the analysis of synthetic compounds is made to resemble that of primary compounds, the less adequate the former analysis will be. In the remaining part of this section two general points will be argued. First, it will be argued that Allen's own analysis of synthetic compounds is in fact nonequivalent in fundamental respects to her analysis of primary compounds. Second, it will be shown that some of the major shortcomings of Allen's theory of synthetic compounding spring from an attempt to force the analysis of synthetic compounds into a PCFR-like mould.

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~~3.5.3.2 Subcategorization and interpretive filters~~

Recall that Allen concedes that the subcategorization frames associated with the verb play a fundamental role in the formation of verbally based synthetic compounds. In the formation of the primary compounds analyzed by Allen, by contrast, these frames play no role at all. It is evident that this difference between the formation of primary and synthetic compounds cannot be accounted for solely in terms of the adjunction rule (12). Allen obviously requires an additional kind of device to account, for example, for "the fact that -er and -ing deverbal nominals inherit the subcategorization of the related verb" (1978:170). The kind of device she proposes for this task, she (1978:170) calls "interpretive filters": "my proposal is that the subcategorization frames associated with deverbal nominal derivatives be understood as interpretive filters". These filters operate on any nominal compound which contains a deverbal derivative assigning to its first/left constituent the first subcategorization frame associated with the verb from which the second constituent is derived.

An example may serve to clarify the function of Allen's interpretive filters. Within the framework of Allen's theory, the synthetic compound truck-driver is formed by means of the WFR (12) which adjoins the two nominal elements truck and driver. Since it is deverbally derived, the noun driver has associated subcategorization information according to Allen (1978:171). She represents this information as follows:

(14) driver: ____ (NP) (PP)

Allen (1978:171) then proposes the Interpretive Filter (15) as "an algorithm" that associates the first NP in the subcategorization frame of driver with the first (left) constituent of the compound.

(15) Interpretive Filter 1

If the deverbal derivative is subcategorized for an optional or obligatory direct object, then the first (left) constituent is interpreted as such.

Allen (1978:171) claims that "This [i.e., the Interpretive Filter Account

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--- R.P.B.] is simply an interpretive reflection of R & S's FS Convention. Everything that the FS Convention can account for is similarly statable in this manner".(6)

Allen (1978:172) assigns interpretive filters the status of devices which apply optionally. In the case of (15), this implies that when subcategorization information about N_2 is available, i.e. when N_2 is deverbal, the information may or may not be employed "as an interpretive filter". When the subcategorization information is invoked, a verbal reading results. A nonverbal reading, i.e. a primary compound reading, arises when the subcategorization information is not invoked.

It will be argued below that Allen's interpretive filters have various problematic aspects. Notice, however, that the mere fact that Allen has to use such filters in the derivation of synthetic compounds refutes her hypothesis (6)(b). Such filters play no role in the derivation of the primary compounds analyzed by Allen. Consequently, her analysis of synthetic compounds can be "fundamentally equivalent" to her analysis of primary compounds only if some ad hoc and obscure meaning is assigned to the expression "fundamentally equivalent".

A first problematic aspect of Allen's surface filters concerns the unclear nature of the claims which they express about the well/ill-formedness of synthetic compounds. Recall that Allen's morphological theory is a theory of "morphological well-formedness". Recall, moreover, that, in contrast to primary compounds, synthetic compounds can have the property of being well/ill-formed according to Allen. Primary compounds can be "deviant" only in some semantic sense.

Consider now the way in which Allen's (1978:172-173) Interpretive Filter Approach deals with "ill-formed verbal compounds such as *peace-thinker, *man-sounding ... It predicts exactly what R & S's analysis does; i.e. that these compounds can be understood only as primary compounds. In my analysis *peace-thinker is generated unthinkingly by the Compound Formation Rule. However, there is no algorithm to provide a verbal interpretation since the subcategorization of thinker is approximately: .... thinker: —— *NP". Thus, Allen's Interpretive Filter Approach, does not claim that compounds such as *peace-thinker and *man-sounding are (morphologically) ill-formed. This approach, by contrast, claims that as synthetic compounds these forms are semantically uninterpretable. But

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this does not tally with what Allen presents as the fact to be accounted for, viz. that the verbal compounds in question are ill-formed. Thus, the claims expressed by Allen's interpretive filters are obscure because Allen does not operate with a clear and principled distinction between the notions "(morphological) well-formedness" and "semantic deviance/ noninterpretability" in this context. Allen, consequently, makes an obscure statement when she claims that her approach "predicts exactly what R ↷ S's analysis does". The predictions of the latter analysis express claims about (morphological) permissibility/well-formedness, not about semantic (non)deviance.

Moreover, and more fundamental, Allen leaves her readers in the dark with regard to her view of the nature of the information expressed in such statements about subcategorization as "thinker: ——— *NP". Interpreted conventionally, this statement expresses a claim about syntactic (or morphological) well-formedness. But somewhere along the way Allen has apparently assigned this statement a semantic interpretation, without motivating this step. The question, then, is whether or not statements about subcategorization express syntactic/morphological facts or semantic facts. In the absence of a principled answer to this question, the bases and import of Allen's interpretive filters are obscure.

A second problematic aspect of Allen's interpretive filters concerns the way in which she (1978:171) relates them to Roeper and Siegel's FS Principle: "This [i.e., Interpretive Filter (15) — R.P.B.] is simply an interpretive reflection of R ↷ S's FS Convention. Everything that the FS Convention can account for is similarly statable in this manner. I will claim, however, that the two are not notational variants".

On the one hand, notice that it cannot be claimed that the filter (15) reflects the entire content of Roeper and Siegel's FS Principle. The reason is obvious: whereas this filter accounts for the interpretation of Direct Objects only, the FS Principle provides for the incorporation of Adverbs, Instrumental NPs, Agentive NPs and Locative NPs as well. Allen, consequently, would have to supplement the filter (15) with a variety of other interpretive filters. She appears to be partly aware of this problem when she (1978:173) proposes one additional filter, (16), to account for synthetic compounds such as food-spoilage, insect flight, and brain-death "whose left-most constituents correspond to a noun to the left of the verb (i.e. 'subject'), not to a first sister to the right of the verb".

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16) Interpretive Filter 2

If the deverbal derivative takes no direct object, then the first (left) nominal constituent of the compound is interpreted as 'subject'.(7)

There would, of course, have to be additional interpretive filters for the interpretation of Adverbs, Instrumental NPs, Agentive NPs and Locative NPs. Granted that these can be formulated, the question is whether Allen may justifiably claim that this proliferation of filters captures the generalization expressed in Roeper and Siegel's single FS Principle. And, as has been shown in §§2.4.4 - 2.4.5 above even Roeper and Siegel's FS Principle and the rules associated with it miss generalizations in the sense that they restate information expressed by PS-rules and conventional redundancy rules. The fact that Allen's approach requires a proliferation of interpretive filters underscores this loss of generalization.

On the other hand, suppose for the sake of argument that Allen's interpretive filters did in fact reflect everything that Roeper and Siegel's FS Principle accounts for. It has been shown in §2.4.4 above that to make their FS principle work, Roeper and Siegel require various ad hoc and unconstrained "adjustment rules" in the lexicon. The postulation of these devices is necessitated by the fact that some of the claims expressed by the FS Principle are false. For example, the FS Principle incorrectly predicts that -ed compounds may freely incorporate direct object NPs, adjectival complements, and predicate nominals. It is now the function of their "adjustment rule" called Subcategorization Adjustment/Deletion to block this incorrect prediction from being realized in such impermissible verbal compounds as *car-driven, *green-grown and *president-elected.(8)

The question, now, is whether such incorrect claims are not made by Allen's Interpretive Filter Approach as well. That is, does this approach reflect only the empirically nonobjectionable part of Roeper and Siegel's FS Principle? And, if the answer to this question has to be in the negative, can Allen's Surface Filter Approach avoid using notational variants of such objectionable "adjustment rules"? These are questions which Allen does not raise. This is symptomatic of the incompleteness and inexplicitness of her theory of interpretive filters.

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A third potentially problematic aspect of Allen's interpretive filters concerns their power. Allen was quick to claim that the incorporation of movement rules, such as Roeper and Siegel's Compound Rule, in the lexicon adversely affects the descriptive power of the total grammar. Strangely, however, she refrains from considering what effect the adoption of interpretive filters may have on this power. It may be that this effect would not be negative. Allen herself, however, would have to show this. And this would entail clarifying such obscure matters as the precise import and formal properties of interpretive filters.

3.5.3.3 Morphological structure and semantic composition

In the preceding section we saw that it is simply not true that Allen's analyses of primary and synthetic compounds are "fundamentally equivalent". We turn next to a first shortcoming of her analysis of synthetic compounds which is a result of her attempt to derive these compounds by means of the same (kind of) adjunction rule as that proposed for primary compounds. In her discussion of compound adjectives such as (17), Allen operates with a condition for morphological structures which may be reconstructed as (18).

(17) N - N - ed

beach-pebbled
pencil-pointed
pine-forested

(18) The morphological structure assigned to a complex word must be adequate as a basis for predicting the semantic composition/interpretation of the word.

On the basis of this condition Allen argues, for example, that the morphological structures in (19)(a) and not those in (19)(b) should be assigned to the compound adjectives (17).

(19) (a) [beach] [pebbled]
[pencil] [pointed]
[pine] [forested]

(b) [beach-pebble] d
[pencil-point] ed
[pine-forest] ed

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Thus, she (1978:249) argues that "The former analysis [i.e., (19)(a) --- R.P.B.], with -ed inside the compound, predicts meanings such as 'pebbled like a beach', 'pointed like a pencil', 'forested with pine', which are in fact the correct meanings for these compounds. The latter analysis [i.e., (19)(b) --- R.P.B.], with -ed outside the compound falsely predicts that the compounds should mean 'having beach-pebbles', 'having pencil-points', 'having pine-forests'. Semantic considerations thus support the proposed analysis of N-N-ed adjectival compounds".(9)

The major point of this section, now, is that Allen's adjunction rule analyses of certain synthetic compounds have the shortcoming that they fail to comply with the condition (18) on morphological structures. That is, the morphological structures assigned to certain synthetic compounds by means of adjunction rules such as (12) make incorrect predictions about the meaning of these compounds. This point may be illustrated with reference to the synthetic compounds in (20).(10)

(20) (a) cave-dweller
(b) good-looker
(c) fast-mover
(d) onlooker

In terms of an adjunction rule analysis, these compounds have to be assigned the following morphological structures:(11)

(21) (a) $[[\text{cave}]_N\ [\text{dweller}]_N]_N$
(b) $[[\text{good}]_{Adj}\ [\text{looker}]_N]_N$
(c) $[[\text{fast}]_{Adv}\ [\text{mover}]_N]_N$
(d) $[[\text{on}]_{Prt}\ [\text{looker}]_N]_N$

In terms of Allen's theory of the formation of the meaning of compounds, the meaning of a synthetic compound, like that of a primary compound, should be formed by "slotting" the meaning of the first constituent into that of the second constituent. On the basis of the morphological structures of

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(21) it would accordingly be predicted that the synthetic compounds of (20) have the respective meanings of (22).

(22) (a) "dweller who is (habitually) in a cave"
(b) "looker who is (habitually) good"
(c) "mover who is (habitually) fast"
(d) "looker who is (habitually) on"

But, of course, these are not the meanings of the compounds under consideration. These compounds rather have meanings such as those in (23).

(23) (a) "one who (habitually) dwells in a cave"
(b) "one who (habitually) looks good"
(c) "one who (habitually) moves fast"
(d) "one who (habitually) looks on"

Notice that the meanings of the synthetic compounds in (20) are "composed" by relating the meaning of the affix (-er) to the meaning of a phrase (dwells in a cave, looks good, moves fast, looks on). But this composition of meaning cannot be performed on the basis of the adjunction structures of (21).

For the composition of the meaning of the compounds under consideration, morphological structures such as the following are required:

(24) (a) $[[\text{cave}]_{N}\ [\text{dwell}]_{V}]$ er
(b) $[[\text{good}]_{Adj}\ [\text{look}]_{V}]$ er
(c) $[[\text{fast}]_{Adv}\ [\text{move}]_{V}]$ er
(d) $[[\text{on}]_{Prt}\ [\text{look}]_{V}]$ er

The morphological structures of (24) must be taken to illustrate only the general make-up of the structures required for a correct specification of the meaning of the synthetic compounds in question. The exact labelling

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of the brackets as well as the order of the nonaffixal constituents is irrelevant here.(12) Notice only that, in contrast to the adjunction structures of (21), the morphological structures of (24) do not fail to meet the condition (18) which Allen, too, accepts. For example, whereas the adjunction structure (21)(c) incorrectly predicts that fast must be interpreted as standing in an adverbial (or perhaps adjectival) relation to the noun mover, the structure (24)(c) correctly predicts that fast stands in an adverbial relation to the verb move. Notice, moreover, that the adjunction rules required by Allen's theory for the formation of synthetic compounds cannot assign the appropriate morphological structures, (24), to the synthetic compounds in question. This is a major shortcoming of Allen's theory of synthetic compounding, one which is a result of her attempt to assign "fundamentally equivalent" analyses to synthetic and primary compounds.

3.5.3.4 Non-N + N compounds and the Adjacency Condition

This brings us to a second shortcoming of Allen's theory of synthetic compounding, which is due to her attempt to make the analysis of these compounds "fundamentally equivalent" to that of primary compounds. Observe that Allen's adjunction rule (12) will generate only synthetic compounds of which both constituents are nouns. However, both Allen and Roeper and Siegel list synthetic compounds of which one or both of the constituents is not a noun. The following typical examples are provided by Roeper and Siegel (1978:207, 233-234):

(25)	(a)	good-looker	(b)	slow-worker	(c) onlooker
		nice-sounding		late-bloomer	outsitter
		odd-seeming		rapidly-rising	ongoing
		girlish-sounding		oft-heard	incoming

These forms cannot be generated as synthetic compounds by the rule (12). To account for their formation additional steps will have to be taken. Allen could either argue that the forms of (25) do not represent synthetic compounds, or she could propose additional adjunction rules for their derivation.

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Let us consider the latter possibility with respect to the forms good-looker, slow-worker and onlooker. To derive the types of compounds represented by these forms, the following three additional adjunction rules are required.

(26) (a) $Adj + N \longrightarrow [Adj + N_1]_{N_2}$ (good-looker, etc.)

(b) $Adv + N \longrightarrow [Adv + N_1]_{N_2}$ (slow-worker, etc.)

(c) $Prt + N \longrightarrow [Prt + N_1]_{N_2}$ (onlooker, etc.)

The question, now, is whether or not the formulation of additional adjunction rules such as those of (26) is permissible within the framework of Allen's general theory of compounding. Putative rules such as these could be disallowed on (at least) two general grounds. Let us consider these separately.

First, adjunction rules which involve nonmajor categories should probably be disallowed. Allen requires the categories involved in compounding rules to be major categories. This requirement would rule out the adjunction rule (26)(c). Notice, incidentally that Roeper and Siegel consider verbal compounds incorporating particles to be "few" and "archaic". The rules (26)(a) and (b), however, involve major categories only and would therefore satisfy the requirement under consideration.

Second, additional adjunction rules for synthetic compounds which are without independent motivation, in a specific sense, should be disallowed within the framework of Allen's theory. To be independently motivated in this sense, rules such as (26)(a) and (b) should not only be required for the derivation of synthetic compounds; they should be needed for the derivation of primary compounds as well. These rules would be needed for the derivation of primary compounds, if English had productive processes by means of which Adj + Noun and Adv + Noun primary compounds are formed.

Suppose for the sake of argument that English did not have these two processes of primary compound formation. This would entail that the rules (26)(a) and (b) would be ad hoc in the sense that their operation would have to be restricted to the formation of synthetic compounds alone. Con-

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sider now the import of these restrictions: they would have to express the fact that the rules in question take only verbally derived nouns as second constituents. To express this fact, the rules (26)(a) and (b) would have to be modified as (27)(a) and (b) respectively.

(27) (a) $Adj + N \longrightarrow [Adj + N_1]_{N_2}$

Condition: N_1 has the internal structure V + affix

(b) $Adv + N \longrightarrow [Adv + N_1]_{N_2}$

Condition: N_1 has the internal structure V + affix

But notice that the conditions appended to the rules (27)(a) and (b) are essentially similar to the Condition built into the PCFR (2): all three these conditions refer to the internal bracketing of a word on which a WFR operates. Consequently, all three these conditions violate the Adjacency Condition (13). By implication, also, the rules (27)(a) and (b) would have to be disallowed within the framework of Allen's theory of compounding. That is, synthetic compounds such as those of (25)(a) and (b) cannot be derived by means of the type of rule --- adjunction rules --- which Allen reserves for this task.

The question, then, is whether English in fact does or does not have productive processes for forming Adj + Noun and Adv + Noun primary compounds. Following Marchand, Allen (1978:98) claims that English does not have a productive word formation process for forming Adj + Noun primary compounds such as those in (28).

(28)

hothouse	freshman
highway	blackboard
broadside	hardware

She (1978:99) speculates that these Adj + Noun compounds "... have as their base phrases which have become lexicalized (i.e. non-compositional) and which subsequently undergo changes in structure and stress-placement". Moreover, Allen (1978:101ff.) does not consider so-called exocentric compounds such as

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~~(29) consisting of an Adj + Noun sequence~~ to be formed by means of a productive process of primary compound formation either.

(29) bighorn greenback
paleface lazybones

It is not clear from her account precisely how such exocentric compounds are formed. The important point, however, is that neither Marchand nor Allen claims that English has a productive compounding rule for the formation of primary Adj + Noun compounds. And, in their work I find no indication that English has such a rule for the formation of Adv + Noun primary compounds. Thus, if the forms of (25)(a) and (b) are indeed synthetic compounds and have to be derived by means of adjunction rules, the rules (27)(a) and (b) must necessarily incorporate the conditions violating the Adjacency Condition. Notice that this is a result of the attempt to provide "fundamentally equivalent" analyses for primary and synthetic compounds.

Allen could attempt to evade this undesirable consequence by arguing that the forms of (25)(a) and (b) are in fact not synthetic compounds. Consequently, rules such as (27)(a) and (b) would not be needed for their derivation. However, it would be possible to appraise such a counterargument only after Allen has presented alternative analyses of the forms in question.

I would like to conclude this section of the discussion by showing that Afrikaans has forms (a) which must be analyzed as synthetic compounds, (b) which, within Allen's theoreticl framework, must be derived by means of an adjunction rule incorporating a condition that violates the Adjacency Condition, and (c) for which no plausible alternative analysis is conceivable. For the sake of the exposition I will henceforth simply call these forms "synthetic compounds". As is clear from the following examples, these forms incorporate particles as their leftmost constituent and can involve various suffixes, e.g. -er, -ery, -sel and -ing. To simplify the illustration, the same verb --- sak (= "to sink/go down/drop") --- occurs in all the examples.

(30) Prt + V + Affix

(a) uit + sak + -er
out drop -er
"dropout"

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(b) weg + sak +-ery
away sink -ing
"process/result of sinking away"

(c) af + sak +-sel
down sink -ment
"sediment"

(d) in + sak +-ing
in sink -ing
"depression"

In terms of an adjunction analysis, these compounds would have to be assigned the following morphological structures:

(31) (a) $[\,[\text{uit}]_{\text{Prt}}\ [\text{sakker}]_{N_1}\,]_{N_2}$

(b) $[\,[\text{weg}]_{\text{Prt}}\ [\text{sakkery}]_{N_1}\,]_{N_2}$

(c) $[\,[\text{af}]_{\text{Prt}}\ [\text{saksel}]_{N_1}\,]_{N_2}$

(d) $[\,[\text{in}]_{\text{Prt}}\ [\text{sakking}]_{N_1}\,]_{N_2}$

Since this type of synthetic compound is extremely productive, it would have to be derived by means of a rule. This would have to be a WFR, since no plausible, non-ad hoc base or transformational analysis of the forms in question is conceivable. Moreover, since Afrikaans does not have a productive process for forming Prt + Noun primary compounds, the WFR would have to violate the Adjacency Condition by incorporating the special condition stated as part of (32) below.

(32) $\text{Prt} + \text{N} \longrightarrow [\text{Prt} + N_1]_{N_2}$

Condition: N_1 has the internal structure V + Affix

This rule is objectionable not only because it is restricted to synthetic

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compounds and violates the Adjacency Condition. The morphological structures generated by it --- e.g. those in (31) --- violate the general condition (18) as well. That is, these morphological structures make incorrect predictions about the meanings of the compounds in question. I do not provide special illustration of this point: the facts and argument are exactly parallel to those presented in connection with the English form (21)(d), viz. onlooker. But, to return to the main point, the Afrikaans synthetic compounds of (30) clearly illustrate a major shortcoming of Allen's attempt to provide "fundamentally equivalent" analyses for primary and synthetic compounds. This attempt --- as expressed in the hypothesis (6)(b) above --- necessitates the formulation of ad hoc adjunction rules which violate the Adjacency Condition.(13)

3.6 Conclusion

The major shortcomings of Allen's theory of synthetic compounding may be summarized as follows.

1. The hypothesis (6)(a) that synthetic and primary compounds are "formally related" is untenable because (a) the empirical data about lexicalization furnished by Allen in support of this hypothesis are ambiguous in that they allow for the possibility that synthetic compounds are "formally related" to (simple) derivatives and syntactic phrases as well; (b) primary and synthetic compounds differ in regard to such fundamental properties as well-formedness, subcategorization, and variability in meaning.

2. The hypothesis (6)(b) that the analyses of synthetic and primary compounds must be "fundamentally equivalent" must be rejected because (a) the analysis of the former but not of the latter compounds crucially requires so-called interpretive filters (which have the problematic properties listed in 3. below); (b) the attempt to analyze synthetic compounds in the same way as primary compounds yields an adjunction rule analysis which (i) assigns to certain synthetic compounds morphological structures that make incorrect predictions about the meaning of these compounds, and (ii) requires the formulation of adjunction rules which are not only ad hoc but also violate Allen's Adjacency Condition.

3. The interpretive filters required by Allen's theory of synthetic com-

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pounding are problematic in the sense that (a) their basis and the import of their claims are obscure because Allen fails to draw a principled distinction between (morphological/syntactic) well-formedness and semantic deviance; (b) their properties and function are unclear so that it is possible to ascertain neither whether their use does or does not lead to a loss in generalization nor whether their use necessitates the use of additional devices which are notational variants of Roeper and Siegel's objectionable rules Subcategorization Adjustment/Deletion and Variable Deletion; (c) their potential contribution to the power of the total grammar remains unclear.

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Chapter 4

THE BASE RULE THEORY

4.1 General

This chapter presents the outline of a theory of synthetic compounding in Afrikaans. Traditionally, Afrikaans forms such as the following have been considered to be synthetic compounds.

(1) (a) (i) dik-lip-IG
thick lip -ed
"having thick lips"

(ii) vyf-week-LIKS
five week -ly
"five-weekly"

(iii) bo-grond-S
above ground affix
"above-ground"

(iv) vreeslik-krom-E
terribly bent one
"someone/-thing that is terribly bent"

(b) (i) leeu-byt-ER
lion bite -er
"one who bites lions"

(ii) laat-slaap-ERY
late sleep -ing
"repeated/continual act of sleeping late" (pejorative)

(iii) HER-aan-wys
re- out point
"to indicate/select again"

(iv) GE-bly-lê
affix remain lie
"repeated/continual act of not getting up" (pejorative)

A few remarks are needed on the conventions that will be observed in presenting the data for this discussion. The capitals and hyphens used in (1) indicate the relevant affixes and the relevant morpheme boundaries respectively. An English gloss is provided directly underneath (each constituent of) an Afrikaans form. Where necessary this is followed --- as in (1) --- by an idiomatic translation enclosed in double inverted commas. These conventions will be observed throughout the discussion to aid the reader in interpreting the Afrikaans data. Notice that the Afrikaans forms are represented orthographically: only where necessary will phonetic transcription be used.

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Let us turn now to the substance of the data in (1). Observe at the outset that these synthetic compounds are heterogeneous in (at least) two respects. On the one hand the affixes include both suffixes (<u>-ig</u>, <u>-liks</u>, <u>-s</u>, <u>-e</u>, <u>-er</u>, <u>-ery</u>) and prefixes (<u>her-</u>, <u>ge-</u>).(1) On the other hand, whereas the (b) forms are verbally based, the forms (a)(i)-(iii) are nominally based, and the form (a)(iv) is adjectivally based.

It was noted in chapter 1 that synthetic compounds in various languages have conventionally been analyzed as *morphologically complex* words formed by means of affixation on the basis of "word groups", "syntactic phrases", "syntactic constructions" or "syntagmas".(2) The theory of Afrikaans synthetic compounding outlined below represents an attempt at capturing the essence of this conventional view of synthetic compounds in lexicalist terms. The facts which this theory purports to account for comprise Afrikaans forms, such as those in (1), which have traditionally been viewed as synthetic compounds. It is of course not a priori clear that (all) the forms which have traditionally been considered to be Afrikaans synthetic compounds do indeed constitute a natural class within an explanatory theory, or that the conventional view of the nature of synthetic compounds can serve as the *(pretheoretical) basis for a fruitful theoretical concept "synthetic compound"*. However, these issues can be settled in one way only: by attempting to construct a theory of synthetic compounding such as the one envisaged above.

First of all, the basic hypotheses of this theory --- which may be called "the Base Rule Theory (of Afrikaans synthetic compounding)" --- will be presented and illustrated. Subsequently, the empirical and conceptual consequences of the individual hypotheses and of the theory as a whole will be systematically explored. As pointed out in chapter 1, the general interest of this theory, should it prove to be plausible, lies in the challenge it poses to the generally accepted view that WFRs should not be allowed to apply to syntactic phrases.(3)

Before proceeding to a discussion of the substance of the Base Rule Theory, we have to consider the question of the criteria which an adequate theory of synthetic compounding should satisfy. The following criteria have emerged from our critical analysis of Roeper and Siegel's Lexical Transformation Theory and Allen's Adjunction Rule Theory:

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(2) (a) A theory of synthetic compounding must describe the formation of all possible synthetic compounds of the language in such a way that

(i) all the relevant linguistically significant generalizations about the language are expressed;

(ii) no spurious generalizations about the language are expressed.

(b) In expressing the relevant language-specific generalizations, the theory should *NOT* use formal devices --- e.g. (kinds of) rules, structures and conditions --- which

(i) violate well-motivated language-independent principles, conditions, constraints, etc.;

(ii) introduce conceptual redundancy into the general linguistic theory;

(iii) have obscure properties or are insufficiently constrained in regard to descriptive power.

Obviously, these criteria are not restricted to theories of synthetic compounding, but apply to grammatical theories in general.

As we proceed, it will become clear that the Base Rule Theory of Afrikaans synthetic compounding is in certain respects no more than a rudimentary theory. On the one hand, at this stage of the inquiry Afrikaans synthetic compounding appears to me to be a phenomenon of great internal complexity. I am simply not able to isolate all the underlying principles or to formulate accurately every principle which I have been able to identify. I will indicate as coherently as possible these gaps in my understanding of the phenomenon. On the other hand, synthetic compounding in Afrikaans is complex in an external sense. This phenomenon is related to a variety of phenomena, including for example those accounted for by means of base rules, rules of primary compounding, rules of simple affixation, transformational rules, stress assignment rules, and so on. In order to develop the Base Rule Theory, it is necessary to make assumptions about many of these related aspects of Afrikaans, none of which has been properly studied within a generative framework. Many of these assumptions have to be quite speculative, though not completely arbitrary, I hope. Thus, for both "internal" and "external" reasons the Base Rule Theory of Afrikaans synthetic compounding will have obvious limitations. This chapter is therefore much more working paper-like than the preceding two. Nevertheless, it will be argued that, despite its limitations, the Base Rule

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Theory compares favourably with both Roeper and Siegel's Lexical Transformation Theory and Allen's Adjunction Rule Theory.

4.2 Fundamental hypotheses

No theory of Afrikaans synthetic compounding can be empirically adequate unless it accounts for the following observation:

(3) In terms of their properties Afrikaans synthetic compounds are related to syntactic phrases on the one hand and derived words on the other hand.

As we proceed, it will become clear that the properties referred to in (3) include properties such as well-formedness, semantic interpretation, internal constituency, etc. It is the observation (3) which underlies the conventional view that synthetic compounds are complex derived words/derivatives formed on the basis of word groups or syntactic constructions. Within a lexicalist approach to word formation, the observation (3) can be accounted for by assuming a theory of synthetic compounding which includes the following two fundamental hypotheses:

(4) The Deep Structure Hypothesis
Afrikaans synthetic compounds have as their bases syntactic deep structures which are generated by independently motivated base rules.

(5) The Affixation Hypothesis
The rules by means of which Afrikaans synthetic compounds are formed on the basis of deep structure phrases are affixation rules which (i) are also used for the formation of simple derived words, and which (ii) apply in accordance with proper constraints.

The essence of the Base Rule Theory of Afrikaans synthetic compounding is quite simple: Afrikaans synthetic compounds are morphologically complex words which are formed by the application of ordinary affixation rules to independently generated deep structures. The affixation rules are part of the lexicon and apply to deep structure phrases that are fed into the lexicon by the base component. The Deep Structure Hypothesis is formulated in terms of the concept "deep structure" defined by Chomsky's Extended Standard Theory.

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The fundamental hypotheses of the Base Rule Theory may be illustrated with reference to the synthetic compounds listed in (1)(a) above. In terms of the Deep Structure Hypothesis, these compounds have as their underlying structures deep structures which may be roughly represented as follows:

(6) (i) $[\,[\text{dik}]_{\text{Adj}}\ [\text{lip}]_{\text{N}}\,]_{\text{NP}}$

(ii) $[\,[\text{vyf}]_{\text{Q}}\ [\text{week}]_{\text{N}}\,]_{\text{NP}}$

(iii) $[\,[\text{bo}]_{\text{Prep}}\ [\text{grond}]_{\text{NP}}\,]_{\text{PP}}$

(iv) $[\,[\text{vreeslik}]_{\text{Adv}}\ [\text{krom}]_{\text{Adj}}\,]_{\text{AP}}$

The Affixation Hypothesis requires <u>-ig</u> Suffixation, <u>-liks</u> Suffixation, <u>-s</u> Suffixation and <u>-e</u> Suffixation to apply to the structures of (6), deriving the forms of (7) by adjunction of the relevant suffixes.

(7) (i) $[\,[\text{dik lip}]\ \text{ig}]_{\text{Adj}}$

(ii) $[\,[\text{vyf week}]\ \text{liks}]_{\text{Adj/Adv}}$

(iii) $[\,[\text{bo grond}]\ \text{s}]_{\text{Adj/Adv}}$

(iv) $[\,[\text{vreeslik krom}]\ \text{e}]_{\text{N}}$

We will return to the question of the labels that should be assigned to the brackets in (7) in §4.4.3 below. For the present, it is sufficient to concentrate on the bracketing alone.

Notice that on the Base Rule Theory, every synthetic compound is assigned an underlying form, a deep structure base, and a more superficial form which incorporates, among other things, the affix supplied by the relevant affixation rule. This, of course, does not imply that synthetic compounds are derived by means of (syntactic) transformations. The claim expressed by the Affixation Hypothesis is that these expressions are formed by WFRs within the lexicon. On the Base Rule Theory, synthetic compounds, like the products of other WFRs, are available for (lexical) insertion into categorial structures.

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The synthetic compounds of (7) are not verbally based: the head constituent --- lip, week, grond, krom --- is not a verb.(4) However, the Base Rule Theory gives a straightforward account of the formation of verbally based compounds such as the forms in (1)(b) as well. To see this, note first of all, to be descriptively adequate, a grammar of Afrikaans has to incorporate the following syntactic hypothesis:

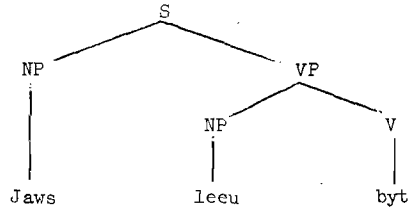
(8) The SOV Hypothesis
The underlying order of the major syntactic constituents of Afrikaans is SOV.

This hypothesis is not part of the Base Rule Theory; it is required for the description of syntactic processes which are completely unrelated to the morphological phenomenon of synthetic compounding.(5)

In terms of the SOV Hypothesis a sentence such as (9) is assigned the deep structure of which the relevant constituents are represented in (10).

(9) Jaws byt die leeu.
Jaws bites the lion

(10)



The surface structure of (9) --- with the relevant constituents in the order Jaws-byt-leeu --- is derived by means of a transformation which moves the verb to the second position in root sentences.(6)

Given the SOV Hypothesis, the deep structures on the basis of which the synthetic compounds of (1)(b) are formed may be roughly represented as follows:

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(11) (i) $[\,[\text{leeu}]_{NP}\ [\text{byt}]_{V}\,]_{VP}$

(ii) $[\,[\text{laat}]_{Adv}\ [\text{slaap}]_{V}\,]_{VP}$

(iii) $[\,[\text{aan}]_{Prt}\ [\text{wys}]_{V}\,]_{VP}$

(iv) $[\,[\text{bly}]_{AUX/V}\ [\text{lê}]_{V}\,]_{VP}$

To these structures -er Suffixation, -cry Suffixation, her- Prefixation and ge- Prefixation adjoin the relevant affixes, deriving the forms which may be roughly represented as follows:

(12) (i) $[\,[\text{leeu byt}]\ \text{er}]_{N}$

(ii) $[\,[\text{laat slaap}]\ \text{ery}]_{N}$

(iii) $[\text{her}\ [\text{aan wys}]\,]_{V}$

(iv) $[\text{ge}\ [\text{bly lê}]\,]_{N}$

As we proceed, the claims of the Base Rule Theory will be compared with those of Roeper and Siegel's Lexical Transformation Theory and Allen's Adjunction Rule Theory. At this point it is sufficient to draw attention to the following fundamental difference: the Base Rule Theory assigns to synthetic compounds the status of ordinary derived words. By implication, the Base Rule Theory denies synthetic compounds the status of a special type of form derived by means of affixation and movement and, similarly, it denies them the status of primary compounds.

The more general theoretical framework into which the Base Rule Theory fits includes neither of the following assumptions:

(13) (a) Both the bases to which WFRs apply and the complex words formed by these rules must be "actually occurring" or "independently existing or attested" forms.

(b) All the words formed by means of WFRs must be listed in the lexicon.

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~~As regards (13)(a), it was argued at length in~~ §2.4.1.1 above that this assumption cannot be made by a morphological theory which has the aim of characterizing the notion "possible word". Turning to (13)(b), I need only state that it is not clear to me how the output of productive WFRs can be included in a finite list.(7)

4.3 The Deep Structure Hypothesis

4.3.1 General

In this paragraph we will consider the general import, the language-specific consequences and the language-independent consequences of the Deep Structure Hypothesis.

4.3.2 General import

The Deep Structure Hypothesis --- which states that Afrikaans synthetic compounds have as their bases independently generated deep structure constituents --- has a dual function. On the one hand, it provides a basis for explaining why certain compounds are well-formed whereas others are ill-formed. On the other hand, it gives an account of the correspondence in well-/ill-formedness between synthetic compounds and related syntactic phrases.

Both functions of the Deep Structure Hypothesis may be illustrated with reference to the compounds of (14)(a) and the corresponding underscored syntactic phrases in (14)(b). The constituents of the relevant VPs in (14)(b) are presented in the verb-final order in which they appear in embedded sentences introduced by complementizers such as dat (= "that"). In the (a) forms hyphens are once again used to indicate the relevant morpheme boundaries while the relevant affixes are capitalized.

(14)	(a)	(i)	vyf-week-LIKS five week -ly	(b)	(i)	(Hy kom om) die vyf weke. he comes after the five weeks "he comes every five weeks"
		(ii)	*gister-week-LIKS yesterday week -ly		(ii)	(Hy kom om) *die gister weke. he comes after the yesterday week

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(iii)	vreeslik-krom-E terribly bent one	(iii)	(Hy is) vreeslik krom. he is terribly bent
(iv)	*rooi-krom-E red bent one	(iv)	(Hy is) *rooi krom. he is red bent
(v)	leeu-byt-ER lion bite -er	(v)	(Hy droom dat Jaws) die leeu byt. he dreams that Jaws the lion bites
(vi)	*leeu-slaap-ER lion sleep -er	(vi)	(Hy droom dat Jaws) *die leeu slaap. he dreams that Jaws the lion sleeps
(vii)	laat-slaap-ERY late sleep -ing	(vii)	(Hy sê dat Jan) laat slaap. he says that Jan late sleeps
(viii)	*president-slaap-ERY president sleep -ing	(viii)	(Hy sê dat Jan) *president slaap. he says that Jan president sleeps

On the Deep Structure Hypothesis a synthetic compound is derived from the same deep structure as the corresponding syntactic phrase. Thus, if (15) represents the deep structure underlying both the verbal compound leeubyter and the Verb Phrase die leeu byt, if (15) is a possible deep structure of Afrikaans, and if no other constraint is violated in the formation of either the compound or the phrase, it follows that both will be well-formed.

(15) $[\,[\text{leeu}]_{NP}\ [\text{byt}]_{V}\,]_{VP}$

Notice that syntactic features such as number and definiteness have not been specified in (15). We will return to this point in §4.3.3.3 below.

On the Deep Structure Hypothesis, moreover, the ill-formedness of both the verbal compound *leeuslaper and the corresponding Verb Phrase *die leeu slaap follows from the fact that (16) is an impossible deep structure in Afrikaans.

(16) $[\,[\text{leeu}]_{NP}\ [\text{slaap}]_{V}\,]_{VP}$

Specifically, the intransitive verb slaap cannot take a direct object NP.

Similar explanations can be given for the well-/ill-formedness of the other compound-phrase pairs of (14). Thus, the well-formedness of the pairs (i),

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(iii) and (vii) can be reduced to the fact that (17)(i), (iii) and (v) respectively are possible deep structures in Afrikaans. Similarly, the fact that (17)(ii), (iv) and (vi) represent impossible deep structures in Afrikaans, accounts for the ill-formedness of the pairs (14)(iv), (vi) and (viii).

(17) (i) $[\,[\text{vyf}]_{Q}\ [\text{week}]_{N}\,]_{NP}$

(ii) $*[\,[\text{gister}]_{Adv}\ [\text{week}]_{N}\,]_{NP}$

(iii) $[\,[\text{vreeslik}]_{Adv}\ [\text{krom}]_{Adj}\,]_{AP}$

(iv) $*[\,[\text{rooi}]_{Adj}\ [\text{krom}]_{Adj}\,]_{AP}$

(v) $[\,[\text{laat}]_{Adv}\ [\text{slaap}]_{V}\,]_{VP}$

(vi) $*[\,[\text{president}]_{NP}\ [\text{slaap}]_{V}\,]_{VP}$

(17)(ii) is an impossible deep structure because, in Afrikaans, nouns cannot be modified by adverbs; (17)(iv) is impossible because adjectives such as red cannot modify adjectives such as krom; and (17)(vi) is impossible because verbs such as slaap do not take predicate nominals such as president. Notice, incidentally, that the ill-formedness of the compounds *gisterweekliks, *rooikromme, *leeuslaper, and *president-slapery cannot be explained on the hypothesis that weekliks, kromme, slaper and slapery are ill-formed. Everyone of these forms is a perfectly well-formed simple derivative.

The Deep Structure Hypothesis, thus, derives a first measure of justification from the fact that it provides a basis for explaining the well-formedness of certain Afrikaans synthetic compounds vis-à-vis the ill-formedness of others. This measure of justification is increased by the fact that the Deep Structure Hypothesis captures linguistically significant generalizations in reducing the well-/ill-formedness of compounds and related syntactic phrases to one underlying reason: the (im-)possibility of a common deep structure source. Notice, moreover, that in doing so, the Deep Structure Hypothesis avoids conceptual redundancy. It does not require different kinds of formal devices to account for the well-/ill-formedness of related compounds and phrases. In this respect the Base Rule Theory contrasts favourably with Roeper and Siegel's Lexical

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Transformation Theory. Their theory also attributes the well-/ill-formedness of compound-phrase pairs to one underlying factor, viz. shared strings of subcategorization frames. But their theory has to employ different kinds of formal devices for the specification of these strings of subcategorization frames and for deriving the compounds and related phrases from these strings.(8) The Base Rule Theory, in contrast to Roeper and Siegel's theory, need not postulate such objectionable devices as a special kind of redundancy rule, diverse kinds of lexical "adjustment" rules and movement transformations operating within the lexicon. Nor does the Base Rule Theory need a special kind of interpretive filter, as does Allen's Adjunction Rule Theory. Consequently, unlike Allen's theory, the Base Rule Theory does not confuse the morphological well-formedness of synthetic compounds with their interpretability.(9)

The Deep Structure Hypothesis, moreover, requires that the deep structures from which Afrikaans synthetic compounds are derived must be independently motivated. This entails that the base rules needed for the generation of these structures must be motivated by purely syntactic considerations, which places a powerful restriction on the potential explanations which the Deep Structure Hypothesis can provide for the well-/ill-formedness of synthetic compounds. The Deep Structure Hypothesis particularly disallows the assignment of ad hoc deep structure bases to such compounds in order to account for their well-/ill-formedness. I have come across no real counterevidence to this aspect of the Deep Structure Hypothesis. A class of apparent counterexamples will be discussed below.

4.3.3 Language-specific consequences

Having considered the general import of the Deep Structure Hypothesis, we can now explore its language-specific consequences. These take the form of predictions about Afrikaans. In considering these predictions, I shall concentrate on the properties of synthetic compounds formed by means of clearly productive affixation rules.

4.3.3.1 Possible bases and their properties

A first prediction of the Deep Structure Hypothesis concerns the structures that can serve as bases of Afrikaans synthetic compounds.

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(18) No synthetic compound will have as its base a structure which is not a possible deep structure of Afrikaans.

This prediction entails, for example, that Afrikaans synthetic compounds are not formed on the basis of syntactic transforms, syntactic structures derived with the aid of deletion or stylistic rules, or phonetically interpreted surface structures.(10) At this stage of the investigation I have no evidence contradicting prediction (18) of the Deep Structure Hypothesis. Notice that it is of some importance that this prediction is borne out by the facts. The Deep Structure Hypothesis represents the most restrictive formulation of the traditional view that synthetic compounds are formed on the basis of "syntactic constructions" or "word groups".

A second prediction of the Deep Structure Hypothesis concerns the kinds of linguistic units which may be incorporated in synthetic compounds.

(19) Every kind of linguistic unit which may be (lexically) inserted into categorial structures (to form deep structures) may be incorporated in Afrikaans synthetic compounds.

The kinds of units which are available for lexical insertion --- and which, therefore, are potential deep structure constituents --- are, of course, all those that are either listed in the lexicon or formed by means of WFRs in the lexicon. These include simple lexical items, idioms and morphologically complex words such as simple derivatives, primary compounds and synthetic compounds.

The Afrikaans synthetic compounds listed in (20)(a)-(e) indicate that the empirical expectation expressed in (19) is correct. The relevant constituents are enclosed in parentheses.

(20) (a) Simple Lexical Items

(leeu)-(byt)-ER
(laat)-(slaap)-ER

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(b) Idioms

(uit-die-vuis)-praat-ER
out of the fist speak -er
"one who speaks off the cuff"

skandale-(in-die-doofpot-stop)-ERY
scandals into the extinguisher stuff -ing
"repeated/continual act of hushing up scandals" (pejorative)

(c) Derived Words

(geweld-ig)-duur-E
terribly expensive one
"one which is terribly expensive"

mens-(ont-eer)-ERY
man dis- honour -ing
"repeated/continual act of dishonouring people" (pejorative)

(d) Primary Compounds

(sirkus-leeu)byt-ER
circus lion bite -er
"someone who bites circus lions"

skelm-(knip-oog)-ERY
furtively wink eye -ing
"repeated/continual act of winking" (pejorative)

(e) Synthetic Compounds

duidelik-(geleed-poot-ig)-E
clearly jointed leg -ed one
"one which is clearly arthropodal"

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(leeu-byt-er)-tem-ER
lion bite -er tame -er
"one who tames 'lion-biters'"

Observe that the prediction (19) does not express the claim that every individual lexical item, idiom, derivative, primary compound or synthetic compound can be incorporated in synthetic compounds. There are various kinds of restrictions on the affixation rules deriving synthetic compounds. To these restrictions we turn in §4.4.2 below.

Certain false claims which, at a first glance, appear to be predictions of the Deep Structure Hypothesis, do not in fact follow from this hypothesis. Had these claims followed from the Deep Structure Hypothesis, the Base Rule Theory would of course have been disconfirmed. We shall now consider such nonpredictions of the Deep Structure Hypothesis.

4.3.3.2 Ill-formed compounds and possible sources

A first nonprediction of the Deep Structure Hypothesis may be formulated as follows:

(21) The deviance of every ill-formed synthetic compound can be attributed to a deep structure which is impossible in Afrikaans.

This claim cannot be derived from the Deep Structure Hypothesis because this hypothesis does not state that deep structure is the sole factor which determines the well-/ill-formedness of Afrikaans synthetic compounds. The Deep Structure Hypothesis, thus, allows for the possibility that there may be ill-formed compounds which are based on perfectly possible deep structure phrases. That this possibility is realized in Afrikaans is clear from the ill-formed compounds of (22)(a) which may be derived from the possible deep structure phrases of (22)(b).[11]

(22) (a) *strategie-bedink-ER
strategy think out -er

*vinnig-verdwyn-ER
fast disappear -er

(b) $[\,[\text{strategie}]_{NP}\,[\text{bedink}]_{V}\,]_{VP}$

$[\,[\text{vinnig}]_{Adj/Adv}\,[\text{verdwyn}]_{V}\,]_{VP}$

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*lekker-leef-ER — [[lekker]$_{Adj/Adv}$ [leef]$_{V}$]$_{VP}$
good live -er

moeg-lyk-ER — [[moeg]$_{Adj}$ [lyk]$_{V}$]$_{VP}$
tired appear -er

*Pond-kos-ER — [[Pond]$_{NP}$ [kos]$_{V}$]$_{VP}$
Pound cost -er

*selfmoord-probeer-ER — [[selfmoord]$_{NP}$ [probeer]$_{V}$]$_{VP}$
suicide attempt -er

*minister-word-ER — [[minister]$_{NP}$ [word]$_{V}$]$_{VP}$
minister become -er

*(aan-die-)jeug-behoort-ER — [[[aan]$_{Prep}$ [jeug]$_{NP}$]$_{PP}$ [behoort]$_{V}$]$_{VP}$
to the youth belong -er

*vir-sy-lewe-vrees-ER — [[[vir]$_{Prep}$ [sy lewe]$_{NP}$]$_{PP}$ [vrees]$_{V}$]$_{VP}$
for his life fear -er

*op-reën-hoop-ER — [[[op]$_{Prep}$ [reën]$_{NP}$]$_{PP}$ [hoop]$_{V}$]$_{VP}$
for rain hope -er

The deep structure phrases of (22)(b) are possible in Afrikaans: they represent the only possible analysis of the syntactic phrases underscored in (23).

(23) (Hy wonder of die organiseerder) 'n strategie bedink.
he wonders whether the organiser a strategy thinks out

(Hy vrees dat sy kanse) vinnig verdwyn.
he fears that his chances fast disappear

(Hy twyfel of die president) lekker leef.
he doubts whether the president good lives

(Hy berig dat die kandidaat) moeg lyk.
he reports that the candidate tired appears

(Hy bereken dat elke stem) 'n Pond kos.
he calculates that each vote a Pound costs

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(Hy sien hoe die verloorder) selfmoord probeer.
he sees how the loser suicide attempts

(Hy dink dat die verloorder) minister word.
he thinks that the loser minister becomes

(Hy betoog dat die keuse) aan die jeug behoort.
he argues that the choice to the youth belongs

(Hy glo dat elke kandidaat) vir sy lewe vrees.
he believes that each candidate for his life fears

(Hy beweer dat die organiseerder) op reën hoop.
he claims that the organizer for rain hopes

Since the prediction (21) cannot be derived from the Deep Structure Hypothesis, the ill-formed compounds of (22)(a) are not counterexamples to this hypothesis. Within the framework of the Base Rule Theory there is a second basic factor, in addition to deep structure, which is involved in the forming of synthetic compounds, viz. affixation. The ill-formedness of a synthetic compound, thus, can also be the result of the violation of an affixation rule or a general constraint applying to such a rule. That the ill-formedness of the compounds of (22)(a) can be attributed to such violations is clear from the fact that the simple derived words corresponding to these compounds are ill-formed too.

(24)

*bedinker	*probeerder
*verdwyner	*worder
*lewer	*behoorter
*lyker	*vreser
*koster	*hoper

Obviously, there is a restriction on -er Affixation which prevents it from applying to verbs such as blyk, verdwyn, leef, etc. or to verb phrases of which these verbs constitute the head. We will return to the question of the specific restrictions and general constraints on such affixation rules in §4.4.2 below.

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4.3.3.3 Superficial vs. deep properties of synthetic compounds

This brings us to a second claim which does not follow from the Deep Structure Hypothesis.

(25) The phrasal constituent in the surface form of an Afrikaans synthetic compound will have every property that characterizes the deep structure base of the compound.

It does not follow from the Deep Structure Hypothesis that the labelled bracketing or the syntactic feature specification of the constituents of the deep structure base will be mapped onto the surface form of a synthetic compound in an unmodified form. From a general theoretical point of view, this should not be surprizing. Obviously, if an underlying structure --- be it syntactic, phonological or morphological --- and a corresponding superficial structure were to be completely identical, the distinction between these structures would be entirely terminological. It is a fundamental claim of transformational syntax and classical generative phonology that, to account for the properties of linguistic units, these units must be assigned distinct structures or representations at two or more different levels of structure. This claim is also expressed by the Base Rule Theory of synthetic compounding.

But let us consider the nonprediction (25) from an empirical point of view. Consider the synthetic compounds of (26)(a) and the corresponding underscored phrases of (26)(b).

(26)(a) (i) leeu-byt-ER (b) (i) (Hy droom dat Jaws he dreams that Jaws

- *leeu byt. (lion bites)
- die leeu byt. (the lion bites)
- leeus byt. (lions bites)
- die leeus byt. (the lions bites)

(ii)	drie-arm-IG three arm -ed	(ii)	(Die monster het) the monster has	*drie arm. three arm drie arms. three arms
(iii)	hard-kop-IG hard head -ed	(iii)	(Andy Capp het) has	*hard kop. hard head *'n hard kop. a hard head *harde kop. hard head 'n harde kop. a hard head

In the case of none of the compounds leeubyter, drie-armig and hardkoppig is there a corresponding syntactic phrase which has exactly the same form as the compound. In the case of leeubyter, the corresponding phrases, to be well-formed, must incorporate either the definite article die (= "the") or the plural morpheme -s or both. None of these formal elements appear in the compound. As regards drie-armig, the corresponding well-formed phrase has to incorporate the plural morpheme -s. And in the case of hardkoppig, the well-formed syntactic phrase has to contain both the indefinite article 'n ("a") and an affix -e on the adjective.(12) Neither of these elements appears in hardkoppig.

Had the Deep Structure Hypothesis made the prediction (25), differences like those between leeubyter, driearmig, hardkoppig and the corresponding well-formed syntactic phrases could have been cited as counterevidence to this hypothesis. But the Deep Structure Hypothesis does not assert that synthetic compounds and corresponding phrases will be identical in surface form. The identity is claimed to exist at the level of deep structure only. Clearly, synthetic compounds have deep structure properties which are not mapped onto their surface forms. The pertinent questions are: "What are these properties?" and "Can their existence be predicted on the basis of a general principle?" We will turn to these questions in §4.4.2.5 below.

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In sum: the two crucial empirical predictions --- (18) and (19) --- appear to be correct. At least, at this stage of the investigation, they are not contradicted by counterevidence. Moreover, potentially serious counterevidence has been found to bear on claims --- (21) and (25) --- which cannot be derived as predictions from the Deep Structure Hypotheses. Thus, the language-specific consequences of this hypothesis positively contribute to its merit.

4.3.4 Language-independent consequences

This brings us to the central language-independent consequence of the Deep Structure Hypothesis.

(27) Morphologically complex words can be formed on the basis of syntactic phrases, namely deep structure phrases.

This consequence of the Deep Structure Hypothesis bears on the correctness of what has come to be known as "theories of word-based morphology."[13] Specifically, the Deep Structure Hypothesis is irreconcilable with the following general constraint:[14]

(28) The No Phrase Constraint
Morphologically complex words cannot be formed (by WFRs) on the basis of syntactic phrases.

The clash between the Deep Structure Hypothesis and the No Phrase Constraint can be resolved only by determining which is the better motivated device.

As a language-independent constraint, the No Phrase Constraint has a peculiar status: it is widely accepted but poorly motivated. The evidence presented in support of this constraint by Aronoff (1976:23ff.) and others[15] comes almost exclusively from English. The absence of cross-linguistic evidence derived from a variety of unrelated languages severely weakens the credibility of the No Phrase Constraint as a general linguistic principle.[16] Thus, as a language-independent principle, the No Phrase Constraint does not have much going for it in the way of positive evidence.

Moreover, no general linguistic principle can be correct if its acceptance

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makes it impossible for the grammarian of a specific language to construct a descriptively adequate grammar for this language.(17) It was argued in §4.3.2 above that, unlike related devices in Roeper and Siegel's and Allen's theories of synthetic compounding, the Deep Structure Hypothesis does allow for the construction of a descriptively adequate grammar of synthetic compounding in Afrikaans. To give up this hypothesis in order to maintain the No Phrase Constraint would therefore be an indefensible step, given that a grammar of a language has to express the linguistically significant generalizations about the language. Moreover, in chapter 5 evidence will be presented which indicates that acceptance of the No Phrase Constraint makes it impossible to give a descriptively adequate account of the formation of primary compounds in Afrikaans as well.

Thus, the Deep Structure Hypothesis cannot be faulted for being in conflict with the No Phrase Constraint and, consequently, for not satisfying the criterion formulated as (2)(b)(i) in §4.1 above. The No Phrase Constraint is insufficiently motivated as a language-independent principle and it stands in the way of the construction of a descriptively adequate grammar for Afrikaans. Should one wish to relax this constraint, it would have to be formulated as in (29).

(29) The No Phrase Constraint (Relaxed Version)
Morphologically complex words cannot be formed (by WFRs) on the basis of syntactic phrases which are not possible deep structure constituents.

In chapter 5, however, we shall see that even this version of the No Phrase Constraint may be incorrect.

4.4 The Affixation Hypothesis

4.4.1 General

The Affixation Hypothesis has a wide range of language-specific consequences. We turn first to these and subsequently to the language-independent consequences of this hypothesis.

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4.4.2 Language-specific consequences

Recall that the Affixation Hypothesis has two parts. The first part states that the rules supplying the affixal component of synthetic compounds are the same as those involved in the forming of simple derived words. Let us first consider the language-specific consequences of this part of the Affixation Hypothesis.

4.4.2.1 The affixation rules

A first prediction of the first part of the Affixation Hypothesis is obvious.

(30) Every affixation rule by means of which Afrikaans synthetic compounds are formed will also be used in the forming of simple derived words.

This prediction is correct: there is no affix which occurs --- even unproductively --- in Afrikaans synthetic compounds, but which fails to appear in simple derivatives.

Notice that there is a claim which is related to (30) but which is not a consequence of the Affixation Hypothesis.

(31) Every affixation rule involved in the forming of simple derived words will also be used in the forming of Afrikaans synthetic compounds.

Thus, the fact that various affixation rules of Afrikaans are not involved in the formation of synthetic compounds does not reflect negatively on the Affixation Hypothesis. This point may be illustrated with reference to ver-Prefixation, a rule which productively forms verbs such as those in (32)(b) on the basis of other verbs such as those in (32)(a).

(32)	(a)		(b)	
	slaap	sleep	verslaap	oversleep
	wurg	throttle	verwurg	strangle

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sluk	versluk
swallow	swallow too much at once (= gulp)
rek	verrek
stretch	overstretch (= strain)

It is not possible to form synthetic compounds by applying ver- Prefixation to deep structure constituents consisting of a verb such as slaap, wurg, rek, and sluk and an additional peripheral component such as laat (= "late"), boef (="villain"), spier (= "muscle") and in (= "in/down"):

(33) (i) $[\,[\text{laat}]_{Adv}\ [\text{slaap}]_{V}\,]_{VP} \longrightarrow$ *VER-laat-slaap

(ii) $[\,[\text{boef}]_{NP}\ [\text{wurg}]_{V}\,]_{VP} \longrightarrow$ *VER-boef-wurg

(iii) $[\,[\text{spier}]_{NP}\ [\text{rek}]_{V}\,]_{VP} \longrightarrow$ *VER-spier-rek

(iv) $[\,[\text{in}]_{Prt}\ [\text{sluk}]_{V}\,]_{VP} \longrightarrow$ *VER-in-sluk

That the deep structure constituents of (33) can form the bases of well-formed synthetic compounds is clear from the compounds of (34) which are derived by means of -er Suffixation.

(34) (i) laat-slaap-ER
late sleep -er

(ii) boef-wurg-ER
villain throttle -er

(iii) spier-rek-ER
muscle stretch -er

(iv) in-sluk-ER
down swallow -er

The interesting question is why only certain (classes of) affixation rules are involved in the formation of Afrikaans synthetic compounds. Since the Affixation Hypothesis does not make the prediction (31), it is not imperative

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that an answer to this question should be provided at this stage of the inquiry. Moreover, preliminary work indicates that any serious attempt at solving the problem will take us too far afield.(18)

A second prediction of the first part of the Affixation Hypothesis expresses a stronger claim than the first prediction (30).

(35) An affixation rule will have exactly the same effect, as regards meaning, lexical categorization and subcategorization, and allomorphy, on synthetic compounds as on simple derived words.

This prediction implies, among other things, that a given affixation rule will not contribute one element to the meaning of simple derived words but a different one to that of synthetic compounds; that it will not form simple derived words of the lexical category A but synthetic compounds of the lexical category B; that it will not affect the subcategorization of simple derived words in one way but that of synthetic compounds in a different way; that it will not cause one set of allomorphic changes in the case of simple derived words but a different one in that of synthetic compounds.

The prediction (35) appears to be correct, at least as far as it was possible to confront its implications with empirical data. For example: (a) in both simple derived words and synthetic compounds *-er* has the meaning "person/thing that (habitually/professionally) ...."; (b) both the simple derived words and the synthetic compounds formed by means of *-er* Suffixation are nouns (derived mainly from verbs or deep structure constituents with verbal heads); (c) *-er* Suffixation triggers the same allomorphic changes in simple derived words and synthetic compounds, as is clear from a comparison of the simple derived words (36) with the compounds (37).

(36) (i) *suig-ER* : /sœyxər/ ↕ /sœyər/
suck -er

(ii) *sif-ER* : /səfər/ ↕ /sə{ft, v}ər/
sift -er

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~~(iii)~~ ~~veg-ER~~ : /fɛxər/
fight -er ↕
/fɛxtər/

(iv) huur-ER : /hy:rər/
rent -er ↕
/hy:rdər/

(37) (i) bloed-suig-ER : /blutsœyxər/
blood suck -er ↕
/blutsœyər/

(ii) meel-sif-ER : /melsəfər/
flour sift -er ↕ v
/melsə{ft, v}ər/

(iii) terug-veg-ER : /tərœxfɛxər/
back fight -er ↕
/tərœxfɛxtər/

(iv) uit-huur-ER : /œythy:rər/
out rent -er ↕
/œythy:rdər/

Notice that the prediction (35) makes no reference to the way in which the stress pattern of simple derived words and synthetic compounds is affected by affixation rules. Virtually no work has been done within a generative framework on the mechanisms which assign stress to Afrikaans (derived) words and syntactic phrases.(19) It is therefore not clear to me whether or not stress should be included in (35). To return to the main point: given evidence such as that cited above, it is not clear how it can be maintained that different affixation rules supplying the same affix are involved in the forming of derived words and synthetic compounds in Afrikaans. Recall that Roeper and Siegel's Lexical Transformation Theory does require a duplication of affixation rules for English.(20)

A third prediction of the Affixation Hypothesis concerns the restrictions on the affixation rules involved in the derivation of synthetic compounds.

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(38) Every restriction which limits the productivity of an affixation rule in the formation of simple derived words will also apply to the rule in the formation of Afrikaans synthetic compounds.

This prediction may be illustrated with reference to *-er* Suffixation. In abstract terms it implies that if it is impossible to form a simple derived word V_x + *er* on the basis of a verb V_x, it will also be impossible to form a synthetic compound $[Y + V_x]$ + *er* on the basis of a VP which contains V_x and an additional constituent Y. Forms such as the following indicate that the prediction (38) is probably correct:

(39)

V_x	V_x + *er*	$[Y + V_x]$ + *er*
lyk look	**lyker* look -er	**gelukkig-lyk-ER* happy look -er
vóórkom appear	**voórkommer* appear -er	**tevrede-voorkom-ER* satisfied appear -er
behoort belong	**behoorter* belong -er	**(aan-die-)man-behoort-ER* to the man belong -er
verg require/take	**verger* require -er	**moed-verg-ER* courage require -er
pryk look splendid appear prominently be prominent	**pryker* prominently appear -er prominent be -er	**(teen-die-)muur-pryk-ER* prominently (against the) wall appear -er prominent (against the) wall be -er
leef live	**lewer* live -er	**lekker-leef-ER* good live -er
probeer attempt	**probeerder* attempt -er	**selfmoord-probeer-ER* suicide attempt -er
verdwyn disappear	**verdwyner* disappear -er	**vinnig-verdwyn-ER* fast disappear -er

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sterf	*sterwer	*gelate-sterf-ER
die	die -er	resignedly die -er
word	*worder	*arts-word-ER
become	become -er	physician become -er

In testing the prediction (38) it should be kept in mind that WFRs are rules for forming possible/well-formed words, not rules for deriving "existing" or "actually occurring" words. To see why this is an important point, consider the following forms:

(40)

Base	Simple Derived Word	Synthetic Compound
pers	perser	af-pers-ER
squeeze	squeeze -er	out squeeze -er "blackmailer"
weet	weter	beter-weet-ER
know	know -er	better know -er "know-all"
werp	werper	spies-werp-ER
throw	throw -er	javelin throw -er
knou	knouer	af-knou-ER
hurt	hurt -er	off hurt -er
pinch	pinch -er	off-pinch -er "bully"

It may be claimed that, whereas the synthetic compounds listed above are (in some sense) "existing" or "actually occurring" words, the corresponding simple derived words are not. From this claim the conclusion may be drawn that there is a restriction on the productivity of -er Suffixation which is relaxed in the formation of synthetic compounds. This conclusion, which contradicts the prediction (38), would have to be rejected, however, because it presupposes an untenable view of the function of WFRs. Though the simple derived words of (40) may be "nonoccurring" or "unattested" in an unclear sense, they are perfectly well-formed words of Afrikaans.

Notice that there is a claim which is related to (38), but which does not follow from the Affixation Hypothesis:

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(41) The only restrictions on the productivity of an affixation rule in the formation of Afrikaans synthetic compounds are those which limit its productivity in the formation of simple derived words.

There is a principled reason why the claim of (41) cannot be a consequence of the Affixation Hypothesis. It has been noted by many linguists --- recently again by Aronoff (1976:36, 62)[21] --- that it is incorrect to speak in absolute terms about the productivity of a WFR. The bases to which a WFR applies may differ in regard to their morphological properties. The pertinent properties are those of morphological class and morphological complexity. The productivity of a WFR is a function of these morphological properties. As regards morphological class, -ness Affixation, for example, is more productive in English when attached to base adjectives ending in ive (perceptive) than when attached to base adjectives ending in ile (servile).[22] Turning to morphological complexity, we find that un- Prefixation, for example, is more productive with bases which are past participles of transitive verbs than with bases which are monomorphemic adjectives.[23]

Given that the morphological form of the bases of a WFR determines its productivity, it is clear why the claim (38) does not follow from the Affixation Hypothesis. Clearly, the bases to which an affixation rule applies in the formation of synthetic compounds, are morphologically different from the bases on which simple derived words are formed. The bases of synthetic compounds and simple derived words differ both in regard to morphological complexity and lexical category. For example, the bases $[\text{Adv}\ \text{V}]_{\text{VP}}$ and V differ in both these respects. It is therefore impossible to conclude from the fact that, say, -er Affixation applies productively to the latter category of bases that it will apply equally productively to the former category of bases. Had the Affixation Hypothesis made the prediction (41), it would have been disconfirmed by various classes of counterexamples, as we will see below.

4.4.2.2 The Contiguity Constraint

We come now to the second part of the Affixation Hypothesis, which states that the affixation rules involved in the derivation of Afrikaans synthetic compounds must apply in accordance with proper constraints. To see the general point, consider the following expressions:

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(42) (i) laat-slaap-ER
late sleep -er

(ii) buite-slaap-ER
outside sleep -er

(iii) (in-die-)dag-slaap-ER
in the day sleep -er

(iv) *Jan-slaap-ER (with Jan interpreted as subject/agent)
Jan sleep -er

(v) *miskien-slaap-ER
perhaps sleep -er

(vi) *(tot-sy-)verbasing-slaap-ER
to his surprise sleep -er

Neither the Deep Structure Hypothesis nor the Affixation Hypothesis provides the basis for a straightforward explanation of the ill-formedness of the forms (42)(iv)-(vi) vis-à-vis the well-formedness of the forms (42)(i)-(iii). To start with the latter hypothesis: corresponding to both the well- and the ill-formed compounds there is a well-formed simple derivative, viz. slaper (= "sleeper"). Thus, the ill-formedness of the compounds (42)(iv)-(vi) cannot be explained by claiming that they violate a restriction on -er Affixation which is also applicable in the formation of simple derived words.

Nor does the Deep Structure Hypothesis provide the required discrimination between the well-formedness of (42)(i)-(iii) and the ill-formedness of (42)(iv)-(vi). For every form of (42) --- be it ill- or well-formed --- there is a possible deep structure base. This is indicated by the fact that corresponding to each of these forms there is a well-formed syntactic phrase (which is underscored in (43)).

(43) (i) (Hy beweer dat Jan) laat slaap.
he claims that Jan late sleeps

(ii) (Hy beweer dat Jan) buite slaap.
he claims that Jan outside sleeps

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(iii) (Hy beweer dat Jan) in die dag slaap.
he claims that Jan in the day sleeps

(iv) (Hy beweer dat) Jan slaap.
he claims that Jan sleeps

(v) (Hy beweer dat Jan) miskien slaap.
he claims that Jan perhaps sleeps

(vi) (Hy beweer dat Jan) tot sy verbasing slaap.
he claims that Jan to his surprize sleeps

Given that the ill-formed forms (42)(iv)-(vi) are indeed synthetic compounds, (one or more) additional constraints on -er Suffixation are clearly needed. This also applies to other affixation rules by means of which Afrikaans synthetic compounds are formed.

To prevent the generation of ill-formed synthetic compounds such as (42)(iv)-(vi), we need (one or more) additional constraints which are maximally general in their scope. Rule-independent conditions, clearly, will be more highly valued than rule-specific conditions, and it would add to their merit if they could, moreover, be shown to be language-independent too.

In the form of their First Sister Principle, Roeper and Siegel (1978:208) have in fact proposed a rule-independent constraint for English. Recall that this principle specifies that all verbal compounds are formed by incorporation of a word in first sister position of the verb. To be made applicable to Afrikaans within the framework of the Base Rule Theory, the essence of this principle has to be generalized in the following way:

(44) The Contiguity Constraint

The affixation rules involved in the formation of Afrikaans synthetic compounds can take as their bases only those deep structure phrases of which the head and peripheral constituent are both linearly and structurally contiguous.

In (44) "contiguous" is synonymous to "adjacent".(24) A peripheral constituent which is both linearly and structurally adjacent to a head constituent will be considered in this study to be the first sister of the head constituent. In terms of the Contiguity Constraint a head V and a peri-

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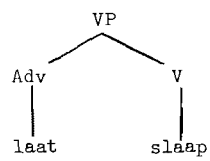
~~pheral Adv or NP can jointly constitute~~ the base of an Afrikaans synthetic compound only if, at the level of deep structure, no lexical material intervenes between them and if both constituents are immediately dominated by VP. The Contiguity Constraint applies to nominally and adjectivally based synthetic compounds in a parallel way.

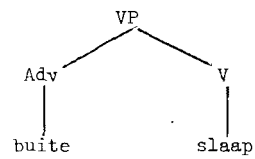
Notice that the Contiguity Constraint is in several respects more general than Roeper and Siegel's First Sister Principle. Whereas the latter applies to verbally based compounds only, the former applies to all synthetic compounds, be they verbally, nominally or adjectivally based. Moreover, the Contiguity Constraint differs from the First Sister Principle in that it does not restrict the class of first sisters to words. The First Sister Principle, in fact, expresses two claims which are not inherently related: the first concerning the first sister status of the constituents which are candidates for incorporation, the second relating to the word (or non-phrasal) status of these constituents. As part of a morphological theory which in any case assumes the No Phrase Constraint (28), Roeper and Siegel's First Sister Principle in fact contains a conceptual redundancy.

The Contiguity Constraint provides a basis for explaining why the forms (42)(iv)-(vi) are ill-formed, as opposed to (42)(i)-(iii). In the case of the latter forms the peripheral constituent --- laat, buite, (in-die-)dag --- are both linearly and structurally contiguous to the head constituent slaap. They function adverbially within the VP. In the case of the former forms, the peripheral constituent --- Jan, miskien, (tot-sy-)verbasing --- is linearly but not structurally contiguous to the head constituent slaap. Jan is a subject NP whilst miskien and (tot-sy-)verbasing are sentence adverbials outside the VP. These points are illustrated by the following diagrams:

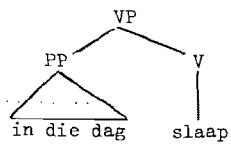
(45) (i)



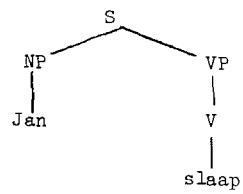
(ii)



(iii)



(iv)



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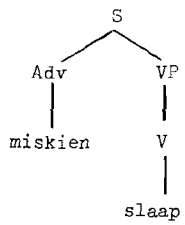
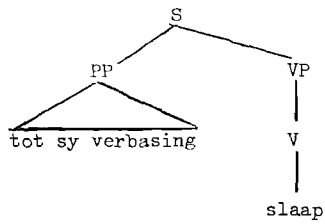
(v)



(vi)



Thus, in the case of (45)(i)-(iii), but not in that of (45)(iv)-(vi), the peripheral constituent is a first sister of the head constituent slaap.

Let us now explore the empirical consequences of the Contiguity Constraint. A first consequence may be formulated as follows:

(46) Every well-formed Afrikaans synthetic compound will be based on a deep structure phrase of which the relevant constituents are both structurally and linearly contiguous.

There are no clear cases of synthetic compounds which contradict this prediction. We will return to a class of apparent counterexamples below.

A second consequence of the Contiguity Constraint appears to be correct too.

(47) All synthetic compounds formed on the basis of deep structure phrases of which the constituents are not structurally and linearly contiguous will be ill-formed in Afrikaans.

I am unable to present convincing examples of deep structure phrases whose constituents are non-contiguous but which may be regarded as the bases of well-formed synthetic compounds. As in the case of (46), there are apparent counterexamples to the prediction (47) too.

The expressions in (48) exemplify the apparent counterexamples to the predictions (46) and (47).

(48) (i) wind-GE-droog(de rosyne)
wind -ed dry raisins
"wind-dried raisins"

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(ii) mens-GE-maak(te werktuie)
man -ed make
"man-made tools"

(iii) siekte - GE - teister(de gemeenskappe)
disease -ed plague communities
"disease-plagued communities"

(iv) mot -GE-vreet(e jasse)
moth -en eat coats
"moth-eaten coats"

(v) regering -GE-inisieer(de projekte)
government -ed initiate projects
"government-initiated projects"

In terms of one analysis of these expressions, they would be synthetic compounds parallel to English -ed compounds.(25) On this analysis, these ge- forms could be claimed to be counterexamples to the predictions (46) and (47). This point may be illustrated with reference to windgedroog.

Meaning "cause to become dry", the verb droog obligatorily takes a direct object. Given this fact, it may be claimed that the compound windgedroog is based on a deep structure phrase of which the relevant features may be roughly represented as follows:

(49) $[[[\text{wind}]_{NP}[[\ \ldots X \ldots]_{NP}\ [\text{droog}]_{V}]_{VP}]_{S}$

In (49), $[\ldots X \ldots]_{NP}$ represents the obligatory direct object into which rosyne (= "raisins") would be lexically inserted. Observe that in (49) the constituents on which windgedroog is based are neither linearly nor structurally contiguous. Thus, on this analysis of windgedroog, the fact that the compound is well-formed contradicts the consequence (46) of the Contiguity Constraint. Moreover, the deep structure phrase (49), in constituting the discontinuous base of a well-formed compound, contradicts consequence (47) of this constraint. These general points hold for the other forms of (48) too.

Even if, for the sake of argument, it is assumed that the forms of (49) are

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in fact synthetic compounds, there is an alternative analysis on which they do not constitute counterexamples to the Contiguity Constraint. In terms of this analysis, the peripheral constituent of the underlying deep structure phrase is not a subject NP but an agentive by (= deur) phrase. The structure on which windgedroog is based on this hypothesis would be roughly that of (50).

(50) $[\,[\text{deur wind}]_{PP}\ [\text{droog}]_{V}\,]_{VP}$

As the NP constituent of the by phrase, wind is generated immediately to the left of droog. Consequently wind and droog are both linearly and structurally contiguous and windgedroog is not a counterexample to the consequence (46) of the Contiguity Constraint. An analysis along these lines, obviously, is available for the other forms of (48) too.(26) This implies that the forms in question cannot be assigned the status of real counterexamples to the Contiguity Constraint.

Moreover, assuming an agentive phrase analysis, the Contiguity Constraint provides a basis for explaining the ill-formedness of *pistool-GE-koopte (= "pistol-bought") vis-à-vis the well-formedness of boef-GE-koopte (= "villain-bought"). The base of *pistool-gekoopte may be roughly represented as follows:

(51) $[\,[\text{pistool}]_{NP}\ [\text{deur X}]_{PP}\ [\text{koop}]_{V}\,]_{VP}$

In (51) X represents an agentive NP, e.g. boef. Observe that the relevant constituents of the deep structure phrase (51) are non-contiguous: a PP containing an agentive NP intervenes between $[\text{pistool}]_{NP}$ and $[\text{koop}]_{V}$. The Contiguity Constraint therefore predicts that *pistool-gekoopte will be ill-formed. At the same time it is predicted that boef-gekoopte (pistool) will be well-formed. The relevant constituents, viz. $[\text{boef}]_{NP}$ and $[\text{koop}]_{V}$, are both linearly and structurally adjacent in the base from which this form is derived.

Returning to the main theme, it has been shown that there is an analysis of the forms (48)(i)-(v) on which they are not even potential counterexamples to the Contiguity Constraint. Recall that, for the sake of argument, we

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have so far accepted the traditional view that these forms should indeed be analyzed as synthetic compounds. In §4.5.6 below it will be suggested that this analysis of the complex ge- forms under consideration is questionable. They have various properties which make them candidates for an analysis as primary compounds. Under the latter analysis windgedroog would be assigned the following bracketing.

(52) $[\,[\text{wind}]_{N}\ [\text{gedroog}]_{Adj}\,]_{Adj}$

If a primary compound analysis can be motivated for complex ge- forms such as (48), they cease to be relevant to the testing of the Contiguity Constraint.

Let us now consider the way in which the Contiguity Constraint accounts for the ill-formedness of certain -er compounds which, at a first glance, appear to contradict it. A first type of apparent counterexample is illustrated by the expressions (53)(a) which are ill-formed if interpreted as synthetic compounds.

(53)(a)	(i)	*droog-eet-ER dry eat -er	(b)	(i)	(Hy sê dat hy sy brood) droog eet. he says that he his bread dry eats
	(ii)	*sterk -drink -ER strong drink -er		(ii)	(Hy sê dat hy sy tee) sterk drink. he says that he his tea strong drinks
	(iii)	*gerook-koop-ER smoked buy -er		(iii)	(Hy sê dat hy die spek) gerook koop. he says that he the bacon smoked buys

The acceptability of the (b) expressions would suggest that each of the ill-formed (a) compounds corresponds with a well-formed (underscored) syntactic phrase. This could be taken as an indication that the (a) compounds are formed on the basis of possible deep structure phrases. The question then would be why the (a) compounds are ill-formed.

The Contiguity Constraint provides a basis for explaining the ill-formedness of the forms *droog-eter, *sterk-drinker, *gerook-koper. In the deep structure phrase underlying the (a)-(b) pairs the peripheral constituent --- droog, sterk, gerook --- is indeed linearly contiguous to the head constituent --- eet, drink and koop. However, there is an analysis of these pairs

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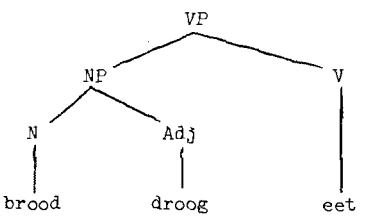
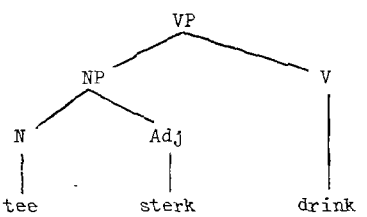
on which the peripheral constituents are not structurally adjacent to the respective head constituents. On this analysis the peripheral constituent is not an adverbial first sister of the head verb, but an adjectival complement within the preceding (direct object) NP:

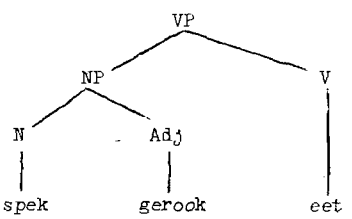
(54) (i)



(ii)



(iii)



The syntax of Afrikaans has not been investigated in sufficient depth within a transformational generative framework to judge the merit of the analyses (54)(i)-(iii). That these analyses have at least some initial plausibility is indicated by the fact that each of the relevant expressions has a related form (with basically the same meaning) in which the adjective appears prenominally:

(55) (i) droë brood eet
dry bread eat

(ii) sterk tee drink
strong tea drink

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(iii) gerookte spek koop
smoked bacon buy

On the analysis (54), therefore, the forms (53)(a) would not be real counterexamples to the Contiguity Constraint. However, even if the analysis (54) could not be upheld, there would still be a good reason for not regarding the forms of (53)(a) as counterexamples to the Contiguity Constraint. To see this, we turn to a second type of -er compound which appears to be a counterexample to the Contiguity Constraint.

Compare the following expressions with the corresponding ones in (53).

(56)(a)	(i)	*swaar -eet -ER difficult eat -er	(b)	(i)	(hy sê dat hy sy brood) swaar eet. he says that he his bread with difficulty eats
	(ii)	*kalm-drink -ER calm drink -er		(ii)	(Hy sê dat hy sy tee) kalm drink. he says that he his tea calmly drinks
	(iii)	*ver-koop-ER far buy -er		(iii)	(Hy sê dat hy die spek) ver koop. he says that he the bacon far buys

The forms of (56) appear to be basically similar to those of (53). There is one important difference, however. In (56)(b) swaar (= "with difficulty"), kalm (= "calmly"), and ver (= "far") cannot be analyzed as adjectival complements of brood (= "bread"), tee (= "tea"), and spek (= "bacon") respectively. Thus, the corresponding expressions in which swaar, kalm, and ver occur prenominally as adjectives are ill-formed:

(57) (i) *swaar brood eet
difficult bread eat
"to eat bread which is difficult"

(ii) *kalm tee drink
calm tea drink
"to drink tea which is calm"

(iii) *ver spek koop
far bacon buy
"to buy bacon which is far"

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Note that swaar, kalm and ver can occur prenominally as adjectives in the form which they have in (57).

(58) (i) swaar beslissings neem
difficult decisions take

(ii) kalm oseane bevaar
calm seas sail

(iii) ver lande besoek
far countries visit

Thus the ill-formedness of the forms in (57) cannot be attributed to the "fact" that swaar, kalm and ver cannot occur in the form in question as prenominal adjectives.

The implication of all of this is that in (56)(a) swaar, kalm and ver should be analyzed as adverbs within the VP: first sisters of the relevant verbs. If this analysis is correct, the Contiguity Constraint cannot be invoked to account for the ill-formedness of the synthetic compounds *swaar-eter, *kalm-drinker, and *ver-koper. These forms are ill-formed despite the fact that the constituents of their respective deep structure bases are both linearly and structurally contiguous.

The question, then, is whether the ill-formed -er compounds in (56)(a) are real counterexamples to the Contiguity Constraint. Notice that these forms cannot be real counterexamples to the Contiguity Constraint unless the following claim is expressed by this constraint.

(59) Every deep structure phrase of which the relevant constituents are linearly and structurally contiguous forms the base of a well-formed synthetic compound in Afrikaans.

But this claim clearly cannot be derived from the Contiguity Constraint (44) above. Hence, the ill-formed compounds (56)(a) do not constitute real counterexamples to this constraint. And this holds true for the ill-formed compounds in (53)(a) too --- even if the analyses of (54) have to be rejected. The ill-formedness of the synthetic compounds in (56)(a) illustrates one point only: the limited scope of the Contiguity Constraint. This constraint does not provide a basis for explaining the ill-formedness of synthetic com-

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pounds which are based on deep-structure phrases of which the relevant constitutents are linearly and structurally contiguous.

4.4.2.3 Rule-specific conditions

It will be argued below, in §4.4.2.4, that it would be wrong to demand from a linguistic theory of synthetic compounding to provide a basis for explaining the deviance of all unacceptable synthetic compounds of the language. However, let us assume for the sake of argument that the Base Rule Theory has to give an account of the ill-formedness of the compounds (56)(a) and numerous other similar ones. The question, then, is whether it is possible to replace the Contiguity Constraint with a more general constraint or to supplement it with one or more other rule-independent conditions on the affixation rules by which Afrikaans synthetic compounds are formed.

A detailed analysis of a large number of Afrikaans verbs which can form the head constituent of synthetic compounds has so far yielded neither a more general constraint which can replace the Contiguity Constraint nor the required supplementary rule-independent conditions.(27) Specifically, this analysis has failed so far to uncover formal syntactic, functional (relational) or semantic (thematic) regularities which may serve as the basis for either a general constraint or rule-independent conditions.(28) At this stage of the inquiry it appears then that one has to resort to rule-specific conditions to supplement the Contiguity Constraint.

The conditions (60)(a) and (b) are illustrative of such rule-specific conditions:

(60) (a) -er Suffixation cannot derive synthetic compounds from deep structure phrases whose peripheral constituent is an adjective (of the type exemplified by droog, sterk, gerook).

(b) -er Suffixation cannot derive synthetic compounds from deep structure phrases whose peripheral constituent is an adverb of the type exemplified by swaar, kalm, ver.

The condition (60)(a) will rule out forms such as those of (53)(a) if the analyses of (54) turn out to be objectionable. The forms of (56)(a) are ruled out as impossible synthetic compounds by the condition (60)(b).

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The rule-specific conditions of (60) are intended to be formulated in terms of formal syntactic notions, viz. "adjective" and "adverb of the type exemplified by swaar, kalm, ver". Not all the required rule-specific conditions, however, can be formulated in purely formal terms. For the formulation of some of these conditions it is necessary to invoke relational/thematic notions. This point may be illustrated with reference to the data in the following table:

(61)

	besoek "to visit"	rook "to smoke"
Accompaniment	-	-
Direction	-	-
Duration	maand-besoek-ER month visit -er	
Instrument	-	houer - rook -ER holder smoke -er
Location	hospitaal-besoek-ER hospital visit -er	sitkamer- rook -ER lounge smoke -er
Source	-	?frustrasie - rook -ER frustration smoke -er
Time	Sondag-besoek-ER Sunday visit -er	naweek - rook - ER weekend smoke -er

The first column of (61) lists seven of the thematic functions which figure in semantic theories such as those of Gruber (1976) and Jackendoff (1972).[29] The second column shows the possible thematic functions of the peripheral constituent of synthetic compounds whose head constituent is the verb besoek ("to visit"). The third column presents analogous data about synthetic compounds of which the head constituent is the verb rook ("to take in or emit smoke from").

The data of (61) are interesting in two respects. On the one hand, they clearly show that in order to formulate the required rule-specific conditions on -er Affixation recourse must be had to thematic notions. The NPs/PPs

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that can/cannot be incorporated in *-er* compounds cannot be distinguished from each other in terms of conventional functional notions such as "direct object" and "indirect object". Thus, with respect to compounds of which *besoek* is the verbal base, it is not possible to distinguish NPs (or, perhaps, reduced PPs) such as *maand*, *hospitaal*, and *Sondag* from NPs which cannot be incorporated in such synthetic compounds in functional terms. The required condition has to be formulated in terms of thematic notions:

(62) *-er* Suffixation cannot derive synthetic compounds from deep structure phrases of which the head is a verb such as *besoek* and of which the peripheral constituent has the thematic function of accompaniment, direction, instrument or source.

Like the conditions of (60) the condition (62) is presented to illustrate a general point: these conditions have no pretence to fine-grained empirical adequacy.

On the other hand, the data of (61) indicate that, in order to formulate the necessary rule-specific conditions, extremely fine lexical distinctions are required. Thus, both *besoek* and *rook* (= "to take in or emit smoke from") are transitive verbs. However, they do not select as peripheral constituents NPs (or PPs) with similar ranges of thematic relations. Thus, condition (62) does not apply to verbs of the type exemplified by *rook*. For such verbs a condition with roughly the following content has to be formulated:

(63) *-er* Suffixation cannot derive synthetic compounds from deep structure phrases of which the head is a verb such as *rook* and of which the peripheral constituent has the thematic function of accompaniment, direction or duration.

Thus, *besoek* and *rook* differ in that the latter but not the former allows the incorporation of a peripheral constituent which has the thematic function of instrument.(30)

The rule-specific conditions considered above --- (60)(a)-(b), (62), (63) --- are formulated in negative terms: they exclude certain classes of deep structure phrases as possible bases of Afrikaans synthetic compounds. Such conditions, however, can equally well be specified in positive terms.

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That is, in specifying the bases of a given affixation rule, the relevant conditions can be formulated so as to define the classes of deep structure phrases to which the rule can apply. The deep structure phrases to which the rule cannot apply are then defined by omission: they are not listed as possible bases of the rule. At this stage of the investigation, no principled choice between a positive and negative formulation of such conditions can be made. No theoretical significance should be attached to the fact that so far all illustrative conditions have been formulated negatively.

A final general point concerns the way in which the rule-specific conditions under consideration relate to the Contiguity Constraint. It appears to me that every consequence of the Contiguity Constraint can be expressed without loss of empirical content by a rule-specific condition. That is, in a theory which has to allow for rule-specific conditions, the Contiguity Constraint appears to be redundant. Thus, to specify which synthetic compounds can be formed by means of _-er_ Suffixation a (composite) rule-specific condition such as the following may be formulated in positive terms:

(64) _-er_ Suffixation can derive Afrikaans synthetic compounds from deep structure phrases of which

(i) the head constituent is a transitive verb and the peripheral constituent a direct object NP (e.g. _leeubyter_);

(ii) the head constituent is an intransitive verb such as _slaap_ and the peripheral constituent an adverb such as _laat_ (e.g. _laatslaper_);

(iii) the head constituent is either a transitive or an intransitive verb and the peripheral constituent a particle (e.g. _deur-slaper_, "through-sleeper");

(n) . . . . . .

(64), of course, is not exhaustive; (n) symbolizes the conditions defining the other deep structure phrases which may serve as bases for _-er_ Suffixation.

The question, of course, is whether abandoning the Contiguity Constraint in favour of rule-specific conditions would not mean giving up an interesting (sub-)generalization. However, this question could be countered by asking whether it is indeed a real, significant generalization. It could be argued that there are reasons for doubting the genuineness of the generalization expressed by the Contiguity Constraint.

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~~First, it may be contended that the~~ need for supplementing the Contiguity Constraint with rule-specific conditions formulated in terms of lexical syntactic, functional and/or thematic notions indicates that contiguity only accidentally enters into the constraints on the relevant affixation rules. The point would be that the Contiguity Constraint works only where contiguity coincides with lexical syntactic, functional and/or thematic distinctions.

Second, a notion of contiguity is completely irrelevant to the formulation of the affixation rules for the derivation of simple derived words in Afrikaans (and English). There are, however, constraints on these rules which have to be formulated in terms of lexical syntactic, functional and/or thematic notions. Thus, following Siegel (1971), Aronoff (1976:88) states that in forming derived words such as employee, payee, presentee, etc., -ee Suffixation must be restricted to "verbs which are both transitive and take animate objects". This may be another indication that contiguity is only a derivative parameter in the formation of synthetic compounds.

Third, recall that Roeper and Siegel's version of the Contiguity Constraint, viz. the First Sister Principle, can be maintained within their theoretical framework only with the aid of the rules of Subcategorization Adjustment and Variable Deletion.(31) We have seen that these rules are highly suspect ad hoc devices whose essential function is to protect the First Sister Principle from the impact of counterexamples. It may now be argued that the fact that a device is in need of such protection indicates that it expresses a spurious generalization.

These three doubts about the status of the Contiguity Constraint, however, do not compel us to abandon the constraint, at least not at this stage of the inquiry. We will continue to operate with this constraint, supplementing it with the necessary rule-specific conditions. In connection with the use of rule-specific conditions, questions such as the following arise: Does the use of such conditions in some sense reflect negatively on the Base Rule Theory? Is it in some sense objectionable to let such conditions have access not only to syntactic information but also to functional and/or thematic information (about the properties of possible bases of WFRs)? We turn to these questions in §4.4.3 below.

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4.4.2.4 The Complexity Constraint

Consider the following expressions:

(65) (i) leeu- byt -ER (NP = N)
lion bite -er

(ii) *woeste-leeu- byt -ER (NP = Adj + N)
fierce lion bite -er
"one who bites fierce lions"

(iii) *leeu-van-die-Kalihari- byt -ER (NP = N + PP)
lion of the Kalihari bite -er
"one who bites lions of the Kalihari"

(iv) *Boswell- se-leeu- byt -ER (NP = NP + NP)
Boswell POS lion bite -er
"one who bites Boswell's lion"

(v) *leeu - wat - die - bok - gevang - het - byt - ER (NP = NP + S)
lion which the buck caught has bite -er
"one who bites the lion which caught the buck"

The forms of (65) are putative synthetic compounds formed by means of -er Suffixation. Each of these forms incorporates a direct object NP which is the first sister of the verb byt. (The direct object NPs are underscored in (65)). However, the forms (ii)-(v), as opposed to (i), are unacceptable. This observation gives rise to the following question: Which further constraint(s) is (are) violated by the forms (ii)-(v)? Observe that the unacceptable compounds differ from the acceptable one with regard to the internal structure of the peripheral constituent. In the case of the acceptable compound, leeubyter, the peripheral constituent has no internal constituent structure. By contrast, the peripheral constituent of each of the unacceptable compounds is structured internally, as is roughly indicated in the parentheses to the right of each form. These observations suggest an additional constraint on the affixation rules forming Afrikaans synthetic compounds.

(66) The Complexity Constraint
The peripheral constituent of an Afrikaans synthetic compound cannot be syntactically complex, i.e. it cannot have internal constituent structure.

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Observe that the Complexity Constraint expresses one of the claims asserted by the No Phrase Constraint (28). Roeper and Siegel (1978:212), in fact, invoke the latter constraint to account for the ill-formedness of the English verbal *compounds* (67)(*ii*) and (iv).

(67) (i) make [coffee] ⟹ coffee-maker

(ii) make [some good dark coffee] ⟹ *good dark coffee-maker

(iii) make [home] ⟹ homemaker

(iv) make [a home for the aged] ⟹ *home for the aged *maker*

Roeper and Siegel claim that whereas the permissible compounds (i) and (iii) incorporate nouns, the impermissible ones incorporate NPs.

Before turning to the merit of the Complexity Constraint, it has to be noted that this constraint is not identical in content to the No Phrase Constraint (28). The Complexity Constraint only places a restriction on the internal structure of the peripheral constituent of Afrikaans synthetic compounds. It allows the head constituent to be syntactically complex and, moreover, it allows the peripheral and head constituent jointly to form a syntactic phrase. These two possibilities are disallowed --- in addition to the first --- by the No Phrase Constraint.(32)

This brings us to the empirical consequences of the Complexity Constraint, central among which is the following one:

(68) Every Afrikaans synthetic compound with a syntactically complex peripheral constituent will be unacceptable.

This prediction, however, is false. De Villiers (1979) has argued that there are various types of Afrikaans synthetic compounds whose peripheral constituent may be syntactically complex. In the following cases --- which illustrate the point --- the complex peripheral constituent is underscored.

(69) (a) Peripheral Constituent = [NP + Postposition]

<u>kerk - toe</u> - stap - *ERY*
church to walk -ing

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London - toe - bel - ER
London to phone -er

straat - af - kyk - ER
street down look -er

stroom - op - swem - ERY
stream up swim -ing

(b) Peripheral Constituent = [Prep + NP]

agter - die - muur - rook - ER
behind the wall smoke -er

in-die-straat-sit -ER
in the street sit -er

oor - mekaar - val - ERY
over each other fall -ing

onder- dak-parkeer-ERY
under roof park -ing

(c) Peripheral Constituent = [Adv + PP]

laat-in-die-bed-kom -ERY
late in the bed get -ing

voor - in-die- kerk -sit -ER
in front in the church sit -er

diep-onder-die-see-swem -ERY
deep under the sea swim -ing

(d) Peripheral Constituent = [NP + PP]

boek-in-die-bed-lees -ERY
book in the bed read -ing

hand-in-die - sak - staan -ER
hand in the pocket stand -er

pap - sonder - suiker-eet -ER
porridge without sugar eat -er

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(e) Peripheral Constituent = [PP + PP]

met -die-hand-in-die- sak -staan -ERY
with the hand in the pocket stand -ing

met -die-handsak-onder-die-arm-loop -ERY
with the handbag under the arm walk -ing

met -die-hand-op-die-Bybel-sweer -ERY
with the hand on the Bible swear -ing

Analyzed as synthetic compounds, the forms listed above --- and there are numerous similar ones --- are counterexamples to the Complexity Constraint.

The question, then, is how these counterexamples to the Complexity Constraint should be handled. A first approach would be to look for one or more principles from which it would follow that this constraint applies to a certain class of syntactic phrases only. That is, one could attempt to narrow the scope of the constraint in a principled manner.

A second, alternative, approach would be to consider the possibility that the Complexity Constraint expresses a nonlinguistic (sub-)generalization. In justification of this approach, it can be pointed out that work by Bever (e.g., 1974) and others has revealed that unacceptability which is caused by structural complexity indicates that a non-linguistic factor --- e.g. a perceptual strategy --- is involved. In terms of this approach the unacceptability of the compounds of (69) is not a fact to be accounted for by a linguistic theory, be it a grammar or the general theory. It is the task of an appropriate theory of language behavior which has to include an independently motivated analogue to the Complexity Constraint.(33)

It is interesting to note that Allen (1978:187, n. 1) recently adopted the latter approach to the question of accounting for what appears to be restrictions on the complexity of primary compounds. She notes that compounding is a recursive process and that there seems to be no formal limit to the number of times the rule forming primary compounds can re-apply to its own output. She proceeds to argue that "in actual practice, compounding is limited by pragmatic factors, such as memory load and decoding complexity. Sentence embeddings, conjoined structures, and many other examples, are limited in actual speech by the same factors. These facts are not relevant to linguistic well-formedness, morphological or sentential".

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Consider, against this background, the conventional lexicalist account of the unacceptability of the Afrikaans compounds of (65) and the English compounds of (67). This account attributes the unacceptability of these expressions to the fact that the No Phrase Constraint has been violated: the compounds in question are unacceptable because they incorporate phrases and not words as their peripheral constituent. What we have here is a description of a state of affairs, not an explanation for it. For the No Phrase Constraint to have any explanatory power, it must at least spell out why words and not phrases can be incorporated in morphologically complex forms such as synthetic compounds. This is not done by the No Phrase Constraint. The No Phrase Constraint, in fact, is itself in need of explanation. It is an open question whether this explanation can be a linguistic one. If some notion of complexity of decoding, perception or the like has to be used in this explanation, the status of the No Phrase Constraint would be in jeopardy. For, such an explanation would show this constraint to be essentially a non-linguistic one. Recall now that the No Phrase Constraint articulates the very core of word-based morphology. Clearly, the pursuit of the second approach to dealing with the counterexamples to the Complexity Constraint has potentially interesting general linguistic consequences. Embarking on this pursuit, however, lies beyond the restricted scope of this study.(34)

4.4.2.5 The Morphological Island Constraint

We now come to a different kind of constraint on the affixation rules involved in the formation of Afrikaans synthetic compounds. In considering the consequences of the Deep Structure Hypothesis, it was pointed out that this hypothesis does not predict that the non-affixal part of the surface form of a synthetic compound will have every property associated with its deep structure base.(35) In other words, it is not predicted that a synthetic compound will have every formal property of the surface syntactic phrase corresponding to it. This point was illustrated with reference to the synthetic compounds leeubyter, drie-armig and hardkoppig. In leeubyter, for example, neither the distinction "singular-plural" nor the distinction "definite-indefinite" can be formally expressed with respect to leeu. And in the case of hardkoppig it is impossible to express formally the distinction "positive-comparative-superlative" with respect to hard.

The fact that certain properties of the deep structure base of synthetic

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compounds cannot be realized overtly in their surface form does not pose a special problem for the Base Rule Theory. It follows from a general property of WFRs: WFRs create islands. That is, as has been often noted, recently again by Allen (1978:111 ff.), the individual elements of the morphologically complex words created by WFRs cannot function independently with respect to inflectional, derivational and syntactic processes. Complex words can interact with such processes as entities only. This point may be formulated in terms of a general constraint:

(70) The Morphological Island Constraint
The individual constituents of the complex words formed by means of WFRs lose the ability to interact with inflectional, derivational and syntactic processes.

Formulated as in (70), the constraint in question applies to all morphologically complex words: simple derivatives, primary compounds, synthetic compounds, etc. It is an empirical question whether every distinct type of morphologically complex word in fact instantiates the strong form (70) of this constraint.

The affixation rules by means of which Afrikaans synthetic compounds are formed --- being typical WFRs --- apply in accordance with the constraint (70). Consequently such deep structure properties as singular, plural, definite, indefinite, comparative and superlative of the individual constituents of Afrikaans synthetic compounds are "frozen". The rules which overtly realize the abstract syntactic features representing these properties are prevented from applying to these constituents. It is therefore predicted that a synthetic compound and a related syntactic phrase will differ in regard to the properties under consideration, since the phrase is not subject to the Morphological Island Constraint. The question of how to indicate formally that a synthetic compound is an island with respect to the relevant rules will be discussed in §4.4.3 below. Finally, a certain class of synthetic compounds which appear to be counterexamples to the Morphological Island Constraint will be considered at the end of §4.4.2.6 below.

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4.4.2.6 Reduction of bases

There is a second type of difference between the deep structure base and the surface form of synthetic compounds which has not yet been discussed. This difference is manifested in compounds of which the peripheral constituent is underlyingly a prepositional phrase. In the case of certain compounds --- e.g. (71)(a) --- the preposition must occur in the surface form of the compound, in other compounds --- e.g. (71)(b) --- the preposition may optionally appear in the surface form, and in the case of a third class of compounds --- e.g. (71)(c) --- the preposition cannot appear in the surface form.

(71) (a) op - aandag - staan -ER — *aandag-staan-ER
to attention stand -er

met - mekaar - stry - ERS — *mekaar-stry-ERS
with each other argue -ers

onder - gebed-praat -ERS — *gebed-praat-ERS
during prayer talk -ers

met -homself-praat -ER — *homself-praat-ER
with himself talk -er

onder - toesig - werk -ER — *toesig-werk-ER
under supervision work -er

onder - druk - werk -ERY — *druk-werk-ERY
under pressure work -ing

via-'n - tolk - praat -ERY — *tolk-praat-ERY
via an interpreter talk -ing

(b) (met-die-) hand-werk -ER
with the hand work -er

(in-die-) dag-slaap -ER
in the day sleep -er

(in-die-) klas - praat -ER
in the classroom talk -er

(uit-) Engels - vertaal -ER
from English translate -or

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(oor- die-) duiwel - preek -ER
about the devil preach -er

(in-die-) bed-lees -ERY
in the bed read -ing

(oor-) Kersfees-kampeer -ERS
over Xmas camp -ers

(c)	koord-dans -ER rope dance -er	*op-die-koord- dans -ER on the rope dance -er
	strand-loop -ER beach walk -er	*op-die-strand-loop -ER on the beach walk -er
	klavier-speel -ER piano play -er	*op-die-klavier-speel -ER on the piano play -er
	druk - kook -ER pressure cook -er	*onder - druk - kook -ER under pressure cook -er
	ys -skaats -ER ice skate -er	*op-(die)-ys-skaats -ER on (the) ice skate -er
	veld -werk -ER field work -er	*in-die- veld-werk -ER in the field work -er
	mes - steek -ER knife stab -er	*met-'n- mes -steek -ER with a knife stab -er

Within the framework of the Base Rule Theory no special account of the compounds (71)(a) is required: they represent the expected case with every deep structure constituent appearing in the surface form. These compounds are problematic within the framework of Roeper and Siegel's and Allen's approaches, both of which assume the No Phrase Constraint.

The Base Rule Theory, however, must give an account of the optional occurrence of the prepositions in the surface form of the compounds in (71)(b) and of the obligatory absence of the prepositions from the surface form of the compounds in (71)(c). I have not yet investigated in sufficient depth the factors which seem to condition the obligatory presence, optional appearance and obligatory absence of underlying prepositions in the surface form of compounds such as those in (71). Questions such as whether the preposition has a lexical or a relational meaning, whether or not the preposition plays a role in disambi-

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guating the compound, whether or not the peripheral constituent (P + NP) has an idiomatic sense, whether or not the preposition and NP jointly constitute a fixed syntactic combination, and whether or not the compound as a whole has a noncompositional, lexicalized meaning appear to be relevant.(36)

Notice that some of the synthetic compounds listed in (71) above appear to be problematic within the framework of the Morphological Island Constraint.

(72) via-'n-tolk-praat-ERY
in-die-klas-praat-ER
met-die-hand-werk-ER
oor-die-duiwel-preek-ER
in-die-dag-slaap-ER
in-die-bed-lees-ERY

These compounds appear to violate the Morphological Island Constraint by incorporating either the indefinite article 'n (= "a") or the definite article die (= "the").

To me it appears ill-advised, for various reasons, to consider the compounds in (72) to be real counterexamples to the Morphological Island Constraint. First, these forms with the overtly realized preposition and article are for many speakers less acceptable than the corresponding reduced forms without the preposition and article. Second, the articles in these forms do not have the usual contrastive function. For example, though hand (= "hand") can be either definite (die hand) or indefinite ('n hand), there is not a well-formed compound met-'n-hand-werker with which the compound met-die-hand-werker contrasts in regard to the definiteness of hand. The same holds true for the other compounds of (72). Third, all the compounds in (72) belong to a poorly understood, problematic type of synthetic compound: compounds incorporating a PP as peripheral constituent. Notice that these compounds are problematic not only with respect to the Morphological Island Constraint. They are also problematic in the framework of a constraint such as the Complexity Constraint (66) and, moreover, instantiate the type of compound of which, counter to what is expected, not all underlying constituents necessarily appear in the superficial form of the compound. Notice, incidentally, that there are cases of such PP compounds which appear to violate the Morphological Island Constraint by incorporating a plural marker, as illustrated in (73) with the plural marker underscored in each case.

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(73) tussen - (leier-s)- kies -ERY
between/ among leader -s choose -ing

onder die-(arme - s) - verdeel -ERY
among poor one -s distribute -ing

tussen-(vriend -e) - tweedrag -saai -ERY
among friend -s dissension sow -ing

These forms have the same kinds of properties as the compounds in (72). They are slightly marginal; the plural marker has no contrastive function --- the corresponding, non-deviant, compounds in which the relevant NPs are singular do not occur;(37) they are problematic with respect to other general principles as well. To conclude: the properties of the synthetic compounds of (72) and (73) are not sufficiently well-understood for these compounds to be considered real counterexamples to the Morphological Island Constraint.

4.4.3 Language-independent consequences

The first part of the Affixation Hypothesis states that the rules by means of which Afrikaans synthetic compounds are formed on the basis of deep structure phrases are affixation rules which are also used for the formation of simple derived words. We turn now to the consequences of this claim for the format of formalized affixation rules. The obvious question is whether these consequences are tolerable from a language-independent point of view.

In the technical literature one finds contrasting views of what the format of (ordinary) affixation rules should be.(38) Aronoff's (1976) view has more or less acquired the status of the "standard" or "conventional" lexicalist view. For the purpose of this discussion it is convenient to accept this view as such. In Aronoff's (1976:62-63) view "a WFR has at least two parts. First, there is a part which specifies the syntactic and semantic characteristics. There will be no disjunction in the specification of these characteristics, and no negation. The semantics of the output of the WFR is specified here as a compositional function of the base. Second, there is a series of positive conditions on the morphology of the base. These conditions are associated with productivity and semantic coherence (which are, in a sense, the same thing)". On the assumption that the phonological

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part of the change of a rule consists in the addition of an affix,[39] the rule of negative un# is stated as follows by Aronoff (1976:63).

(74) Rule of negative un#

a. $[X]_{Adj} \longrightarrow [un\# [X]_{Adj}]_{Adj}$

semantics (roughly) un# X = not X

b. Forms of the base

1. $X_V$en (where en is the marker for past participle)
2. X_V# ing
3. X_V# able
4. X+y (worthy)
5. X+ly (seemly)
6. X# ful (mindful)
7. X-al (conditional)
8. X# like (warlike)

Aronoff does not indicate in (74) the "index of productivity and coherence" which is associated with each of the forms of the base. Moreover, it is not clear from (74) that in the case of some rules negative conditions or restrictions on the base have to be included in the b. part of the rule. The example provided by Aronoff (1976:56) in a different context is that of -al which cannot attach to bases of the form $X_V$ment (e.g. *employmental, *discernmental, *derangemental, etc.). This negative condition is stated as follows by Aronoff (1976:55).

(75) $X]_N$ -al $]_A$

Condition: $X \neq [Y]_V$ ment

How, then, can an affixation rule which is used for generating both simple derived words and synthetic compounds be represented in the format of (74)? There appears to be no problem of principle, as is illustrated by the following schematic statement of the Afrikaans rule of -er Suffixation:

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(76) Rule of -er Suffixation

a. $[X]_{VP} \longrightarrow [[X]_{VP}\ er\ ]_{N}$

semantics (roughly) X-er = someone/thing that (habitually) X's

b. Forms of the base

1. $V_{\pm a}$
2. $NP_{\pm b} + V_{\pm c}$
3. $Adv_{\pm d} + V_{\pm e}$
4. $Prt_{\pm f} + V_{\pm g}$
5. .....

As regards the a. part of the rule: $[X]_{VP}$ symbolizes the fact that -er Suffixation applies to bases which are syntactically categorized as VPs. In the b. part, the internal make-up of these VP bases is further specified. Applying to bases with the internal structure $V_{\pm a}$, the rule forms simple derived words (e.g. byter, slaper, slukker, etc.); applying to the other forms of the base, i.e. $NP_{\pm b} + V_{\pm c}$, $Adv_{\pm d} + V_{\pm e}$, $Prt_{\pm f} + V_{\pm g}$, etc., the rule forms synthetic compounds (e.g. leeubyter, laatslaper, inslukker). The subscripts --- $\pm a$, $\pm b$, ..., $\pm g$ --- are convenient symbols for the various positive (+) and negative (-) conditions, if any, on the individual constituents of which each base form is made up. For example, by means of feature-specification, or some other appropriate abbreviatory device, it may be specified, if necessary, in the second form of the base in the position indicated by $\pm b$ what functional and/or thematic properties the NP must have in order to qualify for incorporation in synthetic compounds. Similarly, in the position indicated by $\pm c$ the lexical subcategory of V may be specified if necessary. Thus, the subscripts symbolize the formalized statements expressing the content of the necessary rule-specific conditions on the bases of affixation rules.

There appears to be only one relevant difference between the rule of -er Suffixation (76) and Aronoff's negative un# rule (74). In the case of the former rule, the concept "forms of the base" has been extended so as to include not only morphological forms but (internal) syntactic forms as well. This extension appears to be natural and, moreover, is empirically motivated. Though the formulation of the negative un# rule does not show it, Aronoff also needs devices which have the function of the subscripts in the -er Suf-

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fixation rule. For example, in the case of -ee Suffixation in English, Aronoff has to specify that the verbal base must be transitive and must take animate objects (e.g. presentee, employee, payee). Following Siegel (1971), Aronoff (1978:88-89) informally uses feature specifications such as '+transitive' and '+animate object' as subscripts to V to express this information. In sum: there appears to be no essential formal difference between the affixation rules required by the Affixation Hypothesis and those provided for by an approach such as Aronoff's.

What, then, about differences in content between the former and the latter affixation rules, specifically in regard to the conditions which they include? Again there are no differences of real significance. Both the affixation rules required by the Affixation Hypothesis and those provided for by Aronoff require the postulation of rule-specific conditions. Moreover, the conditions on both kinds of rules must have access to more than one kind of information, e.g.: (formal) syntactic, functional, thematic, morphological and phonological information. Thus, as is clear from a study of chapter 4 of Aronoff's monograph, the Affixation Hypothesis does not require a relaxing of the constraints on the kinds of information to which (the conditions on) affixation rules can have access.

This brings us to the way in which a rule such as -er Suffixation interacts with the rule-independent condition which was formulated as the Morphological Island Constraint in §4.4.2.5 above. This constraint states that the individual constituents of the complex words formed by means of WFRs lose the ability to interact with inflectional, derivational and syntactic processes. Without effecting a change in its content, the Morphological Island Constraint may also be formulated as follows:

(77) The Morphological Island Constraint (Reformulated)

Inflectional, derivational and syntactic rules cannot apply to constituents occurring within pairs of brackets with the label X, where X has the values assigned to it within the $\overline{X}$ convention.

The way in which the Morphological Island Constraint (77) interacts with affixation rules can be illustrated with reference to the synthetic compound leeubyter. Given a formulation of -er Suffixation with the formal properties of (76), this compound will be assigned the surface form (78).

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(78) $[[[\text{leeu}]_{NP}\ [\text{byt}]_{V}]_{VP}\ \text{er}]_{N}$

Notice that the NP leeu occurs within the brackets $[\ \ ]_N$. Consequently, the Morphological Island Constraint prevents the rules which realize the abstract syntactic features $\langle \pm \text{plu} \rangle$ and $\langle \pm \text{def} \rangle$ --- not indicated explicitly in (78) --- as morphemes from applying to this NP. Given the Morphological Island Constraint and the rule of -er Suffixation (76), it follows that the compound in question cannot have such impossible forms as the following:

(79) die * [(die-leeu)-byter]
die * [('n-leeu)-byter]
die * [(leeu-s)-byter]
die * [(die-leeu-s)-byter]

In this way, the Morphological Island Constraint (77), in conjunction with other affixation rules of the type (76), freezes abstract syntactic/morphological properties of the individual constituents of all types of Afrikaans synthetic compounds.

Recall that Roeper and Siegel (1978:211), within the framework of their theory of verbal compounding, have to face a problem which parallels the one solved with the aid of the Morphological Island Constraint within the framework of the Base Rule Theory. On the former theory, verbal compounds are formed by means of lexical rules on the basis of strings of subcategorization frames such as the following:

(80) Verb [Adv] [Inst] [Agent] [Loc]

Though not indicated explicitly by them, frames such as those in (80) in fact carry phrase category labels such as NP, Adj P, and Adv P. However, they also adopt the No Phrase Constraint which states, in their terminology, that lexical rules "may not involve phrases". Consequently, at some stage of the derivation of verbal compounds Roeper and Siegel have to get rid of the phrase brackets --- a problem parallel to that of preventing individual constituents of synthetic compounds from interacting independently with morphological and syntactic rules.

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Roeper and Siegel's (1978:211) solution to the problem is tied up with their rule of Subcategorization Insertion which inserts words into subcategorization frames such as those of (80): "We formulate the rule in keeping with the restriction on lexical rules that they may not involve phrases. By convention, therefore, we eliminate the phrase brackets from the subcategorization frames, since they are no longer eligible for expansion. Thus, NP becomes N, Adj P becomes Adj, Adv P becomes Adv. In X-bar notation:

[(28)] Subcategorization Insertion

$$[_{\bar{\bar{X}}} \text{ empty }] \Longrightarrow [_{X} \text{ + word }]$$

The problem of freezing the relevant properties of the individual constituents of Afrikaans synthetic compounds may be tackled along similar lines. That is, one could formulate a convention which would change the phrase brackets of these compounds in the required respects. In terms of this convention, the compound leeubyter would be assigned the following surface form:

(81) $[[[\text{leéu}]_N\ [\text{byt}]_V]_V\ \text{er}]_N$

From a comparison with (78) it is clear that the status of [leéu] has been changed from NP to N and that of [[leéu][byt]] from VP to V. Given that the rules which realize abstract syntactic features as morphemes are formulated as $\bar{\bar{X}}$ rules, the convention under consideration effectively freezes the relevant properties associated with [leeu] and [[leeu][byt]]. A solution along these lines, however, is in various respects inferior to the one given in terms of The Morphological Island Constraint.

First, consider the labelled bracketing of (81). It expresses, among other things, the claim that $[[\text{leéu}]_N\ [\text{byt}_V]]$ is a verb. This form, however, does not occur independently as a verb in Afrikaans nor is it a possible verb formed by means of a productive rule of compounding. Moreover, to say that in the context of $[\ \ ]_N$ $[[\text{leéu}]_N\ [\text{byt}]_V]$ is a verb is to make a claim which has neither explanatory power nor independent test-implications. Thus, a Roeper and Siegel-like solution to the problem under consideration has the unacceptable consequence of leading to the arbitrary labelling of brackets.

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Second, whereas the Morphological Island Constraint is a general constraint on all WFRs, the label-changing convention applies only to a subclass of lexical rules. In the case of the Base Rule Theory, this subclass comprises the affixation rules involved in the formation of synthetic compounds; in the case of Roeper and Siegel's theory of verbal compounding it applies to one rule, Subcategorization Insertion, only. The more general device, obviously, is to be preferred. A theory which incorporates the label-changing convention needs additional devices for expressing the remaining claims of the Morphological Island Constraint.

To summarize this section: none of the language-independent consequences of the Affixation Hypothesis appears, at this stage of the inquiry, to be intolerable.

4.5 Conjunction of the hypotheses

4.5.1 General

We still have to consider a class of consequences which the Deep Structure Hypothesis and the Affixation Hypothesis have jointly. These consequences concern the ways in which Afrikaans synthetic compounds are related to primary compounds, simple derived words, complex derived words, and base-generated phrases. It is important to consider these consequences because a linguistic notion such as "synthetic compound" cannot be a mere taxonomic device. To be minimally acceptable, it must serve an explanatory function. That is, a given expression (e.g. leeubyter) is assigned the status of a synthetic compound in order to account for the way in which its properties differ from those of, say, primary compounds, complex derived words, and base-generated phrases. The consequences which the conjunction of the Deep Structure Hypothesis and the Affixation Hypothesis have will reveal the extent to which our notion "synthetic compound" possesses the required explanatory power.

4.5.2 Synthetic compounds vs. primary compounds

A first consequence of the conjunction of the Deep Structure Hypothesis and the Affixation Hypothesis may be formulated as follows:

(82) Afrikaans synthetic compounds differ from primary compounds in essential respects.

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The claim expressed in (82) is correct if the expression "essential respects" is taken to include well-formedness, subcategorization, semantic structure, variability in meaning, morphological structure and generative origin.

As regards well-formedness, Afrikaans synthetic compounds have the property of being well-formed, ill-formed or marginal. This point has been illustrated by numerous examples in preceding sections. Afrikaans primary compounds, by contrast, are not well-formed or ill-formed in the sense in which synthetic compounds are. These compounds are merely more or less easily interpretable from a semantic point of view. Phrased in Allen's (1978:80) terms: "the closest a primary compound comes to being ill-formed is for it to be impossible to build a coherent verbal relationship between the semantic feature hierarchies of the nominal elements".(40)

The latter point is illustrated by the following N+N primary compounds.

(83) slang-gif
snake poison

vuur-gif
fire poison

takt-gif
tact poison

It is easy to build a coherent verbal relationship between the meanings of the constituents of slanggif: "poison produced by snakes", "substance for poisoning snakes", etc. Therefore, the compound "sounds good or acceptable". It is more difficult, however, to think up an appropriate interpretation for vuurgif and a first judgment may be that this primary compound "sounds less acceptable" than slanggif. However, as soon as an appropriate interpretation has been found for vuurgif --- e.g., "poisonous substance produced by fire or secreted by something because of the heat of fire" --- it "sounds much more acceptable". Finally, because it is extremely difficult to conceive of a meaning for taktgif, this compound "sounds quite unacceptable" in comparison with the other two. This "unacceptability", however, disappears as soon as a possible interpretation for the compound has been found. The well-/ill-formedness of a synthetic compound, by contrast, does not correlate with its (potential) lexical meaning in this way. Thus, synthetic

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compounds such as *gisterweekliks, *rooi-kromme, *leeuslaper, *president-slapery, *vinnig-verdwyner, *lekker-lewer, *moeg-lyker, *pond-koster, *self-moord-probeerder and *minister-worder remain ill-formed --- under any conceivable interpretation.(41)

A second difference between primary and synthetic compounds concerns the way in which such compounds are related to phrases. In preceding sections we have seen that for every synthetic compound there is a related syntactic phrase. To account for a similar observation about English, both Roeper and Siegel (1978:208) and Allen (1978:150, 164) have argued that the subcategorization frames associated with verbs are crucial to the formation of verbally based compounds. By contrast, the most productive type of primary compounds, viz. N+N compounds, is not systematically related to syntactic phrases in either English or Afrikaans. Consequently, subcategorization frames are not involved in their formation at all.(42)

A third difference between synthetic compounds and primary compounds in Afrikaans (and also in English) relates to variability in meaning. It has been noted by many linguists that a primary compound can have various meanings. Allen's (1978:92) English example water-mill has the range of meanings shown in (84). These meanings are also associated with the Afrikaans counterpart of this compound, watermeul.

(84) "mill powered by water"
"mill which produces water"
"mill located near the water"
"mill for analyzing the content of water"
"mill where employees drink water"

Synthetic compounds in neither English nor Afrikaans, however, exhibit such variability in meaning. Thus, associated with each of the following compounds is only the meaning specified to its right:

(85) water-drink -ER "someone/thing that (habitually) drinks water"
water drink -er

water-drink -ERY "repeated/continual act of drinking water" (pejorative)
water drink -ing

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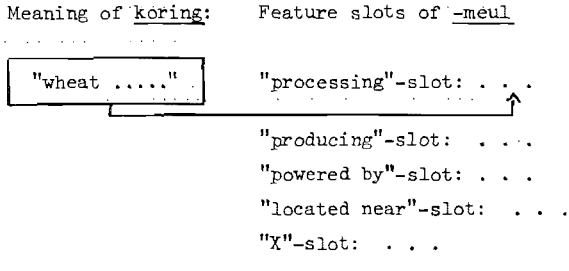
It will become clear below that the difference with regard to variability in meaning between synthetic and primary compounds is tied up with a fundamental difference in semantic structure between these two types of morphologically complex words.

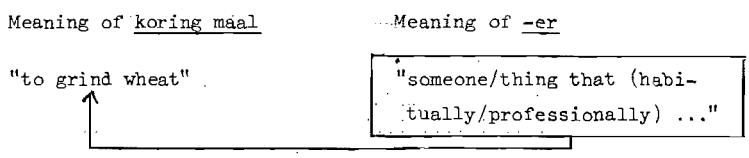
A fourth difference between synthetic and primary compounds in Afrikaans (and also in English) concerns their semantic structure. The meaning of an endocentric primary compound is formed by bringing the meaning of the first constituent to bear on that of the second constituent. In Allen's metaphorical teminology, the meaning of a primary compound is formed by "plugging" or "slotting" the meaning of the first constituent into that of the second. Thus, in the case of the compound koringmeul (lit. "wheat mill") the meaning of koring is plugged into the semantic feature slot "processing" of meul. Schematically:

(86)



The meaning of a synthetic compound is not formed in this way: it is not formed by bringing the meaning of the first (peripheral) constituent to bear on that of a second constituent which consists of the head constituent plus the affix (in the case of suffixation). Thus, the meaning of koringmaler ("someone/thing that (habitually/professionally) grinds wheat") is not formed by plugging the meaning of koring into a semantic feature slot associated with maler. Rather, the meaning of this synthetic compound is formed by bringing the meaning of the suffix -er to bear on that of the (deep structure) syntactic phrase koring maal. Schematically:

(87)



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Notice, incidentally, that the arrow in (87) expresses no claim about the nature of the formal mechanism --- e.g., feature-slotting, etc. --- by means of which the meaning of the affix is brought to bear on that of the phrase.

Thus, the semantic structure of a synthetic compound differs in a fundamental way from that of a lexically related primary compound. This difference is further illustrated, quite strikingly, by the synthetic compound fynmaler. If the meaning of this compound were formed by bring the meaning of fyn (= "fine; consisting of tiny particles") to bear on that of maler (= "grinder"), the compound would have to mean something like "grinder that is fine". The compound, however, means "someone/thing that (habitually/professionally) grinds something else fine". The latter meaning can be formed only if the meaning of the affix -er is brought to bear on that of the (deep structure) syntactic phrase fyn maal.

Notice that the difference in variability in meaning between synthetic and primary compounds ties in with the difference in semantic structure between these two types of expressions. In the case of primary compounds, the meaning of the first constituent can be plugged into one of various semantic feature slots of the second constituent; hence the variability in the meaning of such compounds. In the case of synthetic compounds, however, the meaning of the affixal constituent can be brought to bear on the meaning of the phrasal constituent in one way only; hence the lack of variability in the meaning of these compounds. The general point is illustrated by the schematic representations (86) and (87) of the way in which the meanings of koringmeul and koringmaler are constructed.

A fifth difference between synthetic and primary compounds concerns their internal structure or morphological form. This difference is a function of a certain assumption about the relationship between the morphological form and semantic interpretation of morphologically complex words. This assumption --- which is implicit in the work of many lexicalist morphologists[43] --- was formulated as follows in §3.5.3.3 above.

(88) The morphological structure assigned to a complex word must be adequate as a basis for predicting the semantic composition/interpretation of the word.

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Given this assumption, it is clear that in order to account for the difference in semantic structure between primary and synthetic compounds, they must be assigned different morphological forms. Specifically, synthetic compounds, as opposed to primary compounds, cannot be assigned a bracketing in which a first (peripheral) constituent is adjoined to a second constituent which consists of the lexical head and an affix. That is, the synthetic compound koringmaler cannot be assigned the morphological form (89)(a) which is bracketed in the same way as the morphological form (89)(b) of the primary compound koringmeul.

(89) (a) [[koring] [maler]]

(b) [[koring] [meul]]

To account for the semantic interpretation of koringmaler --- cf. (87) above --- it must be bracketed as follows:

(90) [[[koring] [maal]] er]

A sixth difference between primary and synthetic compounds is related to the fifth: it concerns the nature of the rules involved in their formation. Recall that in terms of Allen's (1978:114) theory which is accepted here for the sake of argument, primary compounds are formed by means of adjunction rules such as the following:

(91) $N_1 + N_2 \longrightarrow [N_1 + N_2]_{N_3}$

A rule such as (91) is a concatenation rule which morphologically adjoins two (possible) words.

Afrikaans synthetic compounds cannot be derived by means of word adjunction rules such as (91) for two basic reasons. On the one hand, such rules would assign to synthetic compounds such as koringmaler and fynmaler internal bracketings of the type illustrated in (89). As shown above, this type of bracketing does not constitute an adequate basis from which to derive an account of semantic interpretation of synthetic compounds.

On the other hand, as has been shown in §3.5.3.4 above, the word adjunction

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rules required for the derivation of certain types of Afrikaans (and also English) synthetic compounds would be ad hoc. These ad hoc rules would, moreover, be inconsistent with Allen's Adjacency Condition presented as (13) in §3.5.3.1 The types of synthetic compounds in question are those which are not matched by structurally parallel primary compounds:

(92)	(a)	uit - sak -ER		(b)	fyn - maal -ER
		out drop -er			fine grind -er
		weg - sak -ERY			hoog-spring -ER
		away sink -ing			high jump -er
		af - sak -SEL			kort -knip -ER
		down sink -ment			short cut -er
		in - sak -ING			groot-praat -ER
		in sink -ing			big talk -er

There is no compounding rule in Afrikaans which productively concatenates either a particle and a noun or an adverb and a noun to form compounds corresponding to the synthetic compounds of (92)(a) and (b).

In sum: the first prediction made by the Base Rule Theory about the nature of Afrikaans synthetic compounds --- namely that these compounds are different from primary compounds in essential respects --- is in accord with a variety of facts: facts about well/ill-formedness, subcategorization, variability in meaning, semantic structure, morphological form and generative origin. The Base Rule Theory is thus superior to an Adjunction Rule Approach along the lines of Allen's (1978) which claims that synthetic compounds are in fundamental respects similar to primary compounds. It is also clear in which sense the notion "synthetic compound" is an explanatory concept within the Base Rule Theory. A given form --- e.g. uitsakker --- is assigned the status of "synthetic compound" to account for the fact that it is well-formed, that corresponding to it there is both a well-formed phrase and a well-formed simple derived word, that its meaning is invariable, that its semantic structure is like the one depicted in (87), that it has a morphological bracketing like that of (90), and that it is not derived by means of a word-adjunction rule.

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4.5.3 Synthetic compounds and simple derived words

A second consequence which the Base Rule Theory has --- as a direct result of its incorporating the Affixation Hypothesis --- concerns the interrelatedness of synthetic compounds and simple derived words.

(93) Afrikaans synthetic compounds are in essential respects similar to simple derived words.

In preceding sections we have seen that, like simple derived words, Afrikaans synthetic compounds are well- or ill-formed, do not exhibit variability in meaning, has a semantic structure in which the meaning of an affix is one of the two major components, has a morhpological form of which an affix is one of the two immediate constituents, and are derived by means of affixation rules. The second consequence of the Base Rule Theory, thus, appears to be amply confirmed by the facts. The similarities between synthetic compounds and simple derived words listed above are not predicted by an Adjunction Rule Approach such as Allen's. Nor can they be satisfactorily accounted for by a Lexical Rule Approach such as Roeper and Siegel's.

4.5.4 Synthetic compounds vs. complex derived words

This brings us to a third consequence of the Base Rule Theory relating to the nature of synthetic compounds:

(94) Afrikaans synthetic compounds are distinct from complex derived words formed by means of affixation on the basis of primary compounds.

(94) represents a claim that cannot be made within the framework of Allen's morphological theory. Allen's (1978:224) Extended Ordering Hypothesis specifies that affixation rules apply before compounding rules, thus ruling out the possibility of (94).

Afrikaans, however, has a large set of morphologically complex words for which the only plausible analysis is that of complex derived words formed by means of affixation on the basis of primary compounds.(44) *-ig* Suffixation is one of the rules by means of which such words are formed:

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95) [[vier - kant]$_N$ IG]$_{Adj}$

four side -ed

"square"

[[eer - sug]$_N$ IG]$_{Adj}$

honour craving -ed

"overly ambitious" (pejorative)

[[waan - sin]$_N$ IG]$_{Adj}$

delusion mind -ed

"insane/demented"

[[drie - hoek]$_N$ IG]$_{Adj}$

three corner -ed

"three-cornered/triangular"

[[koepel - vorm]$_N$ IG]$_{Adj}$

dome shape -ed

"dome-shaped"

Other affixation rules which appear to be involved in this process are: -e Suffixation (e.g. (96)(i)), -erig Suffixation (e.g., (96)(ii)), ge- Prefixation (e.g., (96)(iii)), -isme Suffixation (e.g., (96)(iv)), -agtig Suffixation (e.g., (96)(v)), -loos Suffixation (e.g. (96)(vi).

(96) (i) [[vuur - warm]$_{Adj}$ E]$_N$

fire hot affix

"red-hot one"

[[ys - koud]$_{Adj}$ E]$_N$

ice cold affix

"ice-cold one"

(ii) [[gal - steen]$_N$ ERIG]$_{Adj}$

gall stone -like

"like a gall stone"

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[[sigaret - as]$_N$ ERIG]$_{ADJ}$

cigarette ash -like

"like cigarette-ash(es)"

(iii) [GE [lang - broek]$_N$]$_{Adj}$

-ed long pants

"with/wearing long pants"

[GE [kamer - jas]$_N$]$_{Adj}$

-ed room coat

"with/wearing a dressing-gown"

(iv) [[Maleis - Portugees]$_N$ ISME]$_N$

Malay(o) Portuguese -ism

"Malayo-Portuguesism"

[[Rooms-Katoliek]$_N$ ISME]$_N$

Roman Catholic -ism

"Roman Catholicism"

(v) [[week - blad]$_N$ AGTIG]$_{Adj}$

week paper -like

"like a weekly"

[[skool - kind]$_N$ AGTIG]$_{Adj}$

school child -like

"like a school-pupil"

(vi) [[knoop - gat]$_N$ LOOS]$_{Adj}$

button hole -less

"without (a) button-hole(s)"

[[*onder - broek*]$_N$ LOOS]$_{Adj}$

under pants -less

"without underpants"

t is therefore possible that a morphologically complex form which at first

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glance appears to be a synthetic compound should rather be analyzed as a complex derived word based on a primary compound. For example, it could be suggested that the forms of (97) should not be viewed as synthetic compounds formed on the basis of the deep structure phrases of (98)(a), but should rather be considered complex derivatives based on the primary compounds of (98)(b).

(97) (i) mooi - maak - ER
pretty make -er

(ii) laat- kom - ER
late come -er

(iii) uit - sak - ER
out drop -er

(iv) klip - kap - ER
stone cut -er

(98) (a) (i) $[[mooi]_{Adj}\ [maak]_{V}]_{VP}$ (b) (i) $[[mooi]_{Adj}\ [maak]_{V}]_{V}$

(ii) $[[laat]_{Adv}\ [kom]_{V}]_{VP}$ (ii) $[[laat]_{Adv}\ [kom]_{V}]_{V}$

(iii) $[[uit]_{Prt}\ [sak]_{V}]_{VP}$ (iii) $[[uit]_{Prt}\ [sak]_{V}]_{V}$

(iv) $[[klip]_{NP}\ [kap]_{V}]_{VP}$ (iv) $[[klip]_{N}\ [kap]_{V}]_{V}$

The analysis of forms such as (97) as complex derivatives based on compound verbs such as (98)(b), however, has to be rejected.

First, the complex verbs of (98)(b) would, in conventional terms, be "phrasal verbs".(45) This implies that these expressions cannot be primary compounds. They lack the internal cohesion of such compounds. The constituents of a primary compound can occur only in one fixed order. These constituents, moreover, cannot be separated by intervening material. Observe now that the constituents of mooimaak can occur in two orders in (99)(a) and (b), and, moreover, that in (99)(b) these constituents are separated by intervening material.

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(99) (a) Andy kla dat Flo haar al-ewig mooimaak.
Any complains that Flo her continually pretty makes

(b) Flo maak haar al-ewig mooi.
Flo makes her continually pretty

(c) *Flo mooimaak haar al-ewig.
Flo pretty makes her continually

The ill-formedness of (c) indicates that in root sentence the constituents of mooimaak cannot be linearly contiguous.

The relevant points can be illustrated with reference to the other putative compound verbs of (98)(b)(ii)-(iv) too. These forms therefore lack two of the essential properties of primary compounds. Consequently it cannot be maintained that the forms of (97) are complex derivatives based on compound verbs.

Second, if the forms of (98)(b) were indeed compound verbs, it would have to be assumed that Afrikaans has the following productive rules of verbal compounding:

(100) (i) $Adj + V_1 \longrightarrow [Adj + V_1]_{V_2}$ (mooimaak)

(ii) $Adv + V_1 \longrightarrow [Adv + V_1]_{V_2}$ (láátkom)

(iii) $Prt + V_1 \longrightarrow [Prt + V_1]_{V_2}$ (uitsak)

(iv) $N + V_1 \longrightarrow [N + V_1]_{V_2}$ (klípkap)

Afrikaans, however, does not have any of these rules as a productive means for forming expressions other than "phrasal verbs".

The Base Rule Theory, thus, appears to be correct in predicting that synthetic compounds constitute a morphological class which is distinct from complex derived words.

4.5.5 Synthetic compounds vs. base-generated phrases

The Base Rule Theory has a fourth consequence which relates to the nature of synthetic compounds.

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~~(101)~~ ~~Afrikaans synthetic compounds~~ are distinct from base-generated phrases.

This consequence entails that forms such as (97) cannot be assigned base structures such as (102).

(102) (i) $[\,[\text{mooi}]_{\text{Adj}}\ [\text{maker}]_{\text{N}}\,]_{\text{NP}}$

(ii) $[\,[\text{laat}]_{\text{Adv}}\ [\text{kommer}]_{\text{N}}\,]_{\text{NP}}$

(iii) $[\,[\text{uit}]_{\text{Prt}}\ [\text{sakker}]_{\text{N}}\,]_{\text{NP}}$

(iv) $[\,[\text{klip}]_{\text{N}}\ [\text{kapper}]_{\text{N}}\,]_{\text{NP}}$

The consequence (101) of the Base Rule Theory appears to be correct. To assign base-generated structures such as (102) to forms such as (97) would have various unacceptable consequences.

First, base-generated structures such as (102) would be inadequate as a basis for predicting the semantic interpretation of forms such as (97). For example, mooimaker has the meaning (103) which is formed by bringing the meaning of mooi to bear on that of maak and, then, by bringing the meaning of the suffix -er to bear on that of mooi maak.

(103) "someone/thing that (habitually/professionally) makes something pretty"

On the basis of the structure (102)(i), however, it is incorrectly predicted that mooimaker has the meaning of (104).

(104) "maker that is pretty"

That is, the structure (102)(i) embodies the incorrect claim that mooi stands in an adjectival relationship to the noun maker. The first constituent of each of the expressions of (97) modifies the verb in the second constituent --- a fact not expressed in the base-generated structures of (102)(i)-(iv).

Second, to assign structures such as those of (102) to the expressions of (97) would entail making incorrect claims about morphological and syntactic proper-

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ties of the first constituent of these expressions. For example, in terms of the structure (102)(i) mooi is an ordinary adjective. One would therefore expect it to have all the normal properties of adjectives. It should be capable of taking the comparative suffix -er and the superlative suffix -ste and, moreover, should be capable of modification by adverbs such as redelik (= "reasonably"). From (105), however, it is clear that, as a constituent of mooimaker, mooi has lost these typically adjectival properties.

(105) (i) *mooier - maker
pretty -er maker

(ii) *mooiste - maker
pretty -est maker

(iii) *redelik mooimaker
reasonably pretty maker

If mooimaker is analyzed as a synthetic compound within the framework of the Base Rule Theory, the Morphological Island Constraint predicts that the relevant properties of mooi will be frozen. The general point under consideration can be illustrated with reference to laatkommer, uitsakker and klipkapper as well.

Third, to assign base-generated structures such as (102)(ii) and (iii) to the expressions laatkommer and uitsakker respectively would require the postulation of the ad hoc PS-rules (106)(i) and (ii) respectively.

(106) (i) NP ——> Adv N
(ii) NP ——> Prt N

These rules are ad hoc in the sense that they play no role in the generation of ordinary syntactic phrases.

The prediction of the Base Rule Theory, that Afrikaans synthetic compounds are distinct from base-generated structures, is clearly borne out by a variety of facts.(46)

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4.5.6 The notion "synthetic compound"

We turn now to the status of the notion "synthetic compound" that has been at the basis of the analyses presented in the preceding sections. The discussion was initiated in §4.1 where we identified a class of expressions --- (1) --- with the aid of a conventional notion "synthetic compound". In terms of this notion, these expressions were depicted as morphologically complex words formed by means of affixation on the basis of "word groups", "syntactic phrases" or "syntactic constructions". This notion "synthetic compound" was assigned the status of a pretheoretical notion, the use of which would hopefully lead to a linguistically-interesting analysis of the expressions in question. As regards this notion, the question was --- as it is in the case of all pretheoretical notions --- whether its intuitive content could be explicated by means of a theory of synthetic compounding which met the normal criteria for linguistic theories. These criteria were spelled out as (2) in §4.1.

Within the theory of synthetic compounding developed in the sections following §4.1 the pretheoretical notion "synthetic compound" was replaced by a theoretical notion "synthetic compound". The core of the latter notion is that an Afrikaans synthetic compound is a morphologically complex word formed on the basis of an independently generated syntactic deep structure phrase by means of a properly constrained ordinary affixation rule. In subsequent sections it was shown that the hypotheses expressing the content of the theoretical notion "synthetic compound" do have the required explanatory power, do have a variety of correct consequences, and do meet other criteria of adequacy for linguistic theories. Thus, it was shown that the adoption, initially, of a certain pretheoretical notion "synthetic compound" did lead to the construction of an interesting theory of Afrikaans synthetic compounding. It was shown that this theory compares favourably with alternatives that have recently been proposed to provide an account of related phenomena in English.

Notice that the discussion did not proceed from the assumption that all the expressions conventionally viewed as "synthetic compounds" would in fact turn out to be synthetic compounds within the framework of an explanatory theory. Such an assumption would have been unfounded and the approach which allowed it to be made would have been misdirected. It is only with reference to a well-justified explanatory theory that a given expression may be assigned the nonintuitive status of an X, where "X" may denote "sentence", "word",

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"derived word", "synthetic compound", etc.. And there is only one good reason for assigning an expression the status of an X: to provide an explanation of its properties.

Specifically, to assign the status of synthetic compound to an expression E within the framework of the Base Rule Theory is to explain why E has the following cluster of properties:

(107) (a) E is a morphologically complex word whose one (immediate) constituent is an affix.

(b) Corresponding to E there is a well-formed (possible) simple derived word. (If the simple derived word is ill-formed E is ill-formed too.)

(c) Corresponding to the non-affixal part of E there is a well-formed syntactic phrase. (If the syntactic phrase is ill-formed because of the violation of a subcategorization restriction E is ill-formed too.)

(d) The meaning of E is formed by bringing the meaning of the affixal constituent to bear on that of the phrasal constituent.

(e) E is invariable in regard to its meaning.

Notice that in the preceding sections it was assumed implicitly that to be analyzable as a synthetic compound an E must have all five the properties of (107).

Against this background it is clear that there may be Afrikaans expressions which are identified as synthetic compounds in terms of the pretheoretical notion "synthetic compound" but which do not constitute synthetic compounds in terms of our theoretical notion "synthetic compound". These would be expressions which did not have the full set of properties listed in (107). In positive terms: these expressions would have properties that cannot be explained by assigning them the status of synthetic compounds within the framework of the Base Rule Theory.

Let us briefly consider two classes of Afrikaans expressions which have conventionally been assigned the status of synthetic compounds but whose properties are such that it is doubtful whether they should be analyzed as syn-

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thetic compounds within the framework of the Base Rule Theory: complex ge- forms such as (108) and complex -end forms such as (109).

(108) wind -GE - dróog
wind -ed dry
"wind-dried"

lang -GE - rek
long -ed draw out
"long drawn out"

fel - GE - haat
intense -ed hate
"intensely hated"

aan - GE - spuit
on -ed spray
"sprayed on"

(109) tyd - róof - END
time consume -ing
"time-consuming"

soét - klink - END
sweet sound -ing
"sweet sounding"

laat - slaap - END
late sleep -ing
"late-sleeping"

uit - loop - END
out flow -ing
"out-flowing"

As indicated by the glosses, the complex ge- forms and the complex -end forms correspond to -ed and -ing compounds in English respectively. The complex Afrikaans forms have a number of properties which raise doubts as to whether they should be assigned the status of synthetic compounds within the Base Rule Theory.

Focusing on the complex ge- forms, observe first that if they were to be

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analyzed as synthetic compounds, they would be the only ones incorporating an infix, viz. -ge-. This affix is a prefix in all other morphologically complex words. This implies that, if analyzed as synthetic compounds, complex ge- forms contradict an otherwise well-justified consequence --- (30) --- of the Affixation Hypothesis. Second, recall that in §4.4.2.2 above we saw that if these forms were to be analyzed as synthetic compounds in a certain way, they would constitute the only well-defined class of counter-examples to the Contiguity Constraint. Third, it is not clear that the meaning of such complex -ge forms is formed in the distinctive manner in which the meaning of synthetic compounds is formed, viz. by bringing the meaning of the affixal constituent to bear on that of the phrasal constituent (cf. (107)(d) above). It appears as if the meaning of such complex forms can also be formed by bringing the meaning of a first lexical constituent to bear on that of a second morphologically complex word, the latter being a simple ge- derivative. Properties such as these, suggest that complex ge- forms of the kind under consideration should, perhaps, not be analyzed as synthetic compounds within the Base Rule Theory.

The matter, however, is rather complex: complex ge- forms such as those of (108) have other properties which indicate the contrary. Thus, corresponding to each of these forms there is not only a possible derived word but also a well-formed syntactic phrase (cf. (107)(b) and (c) above). Unlike primary compounds, such complex ge- forms are well-formed, ill-formed or marginal --- and not merely semantically more or less deviant. Moreover, unlike primary compounds these complex ge- forms have invariable meanings (cf. (107)(e) above).

It is not possible here to resolve the intricate question of the status of complex ge- forms such as (108) --- nor to go into the parallel question of the status of complex -end forms such as (109).[47] It is sufficient to note that no aspect of the Base Rule Theory has been justified by assuming that these forms are indeed synthetic compounds.

To summarize: the preceding sections have made it clear that the conjunction of the Deep Structure Hypothesis and the Affixation Hypothesis has various consequences which show that our theoretical notion "synthetic compound" does possess the required explanatory power. Moreover, it is clear from these sections that the Base Rule Theory succeeds in "carving up the morphological reality of Afrikaans at its joints" in a revealing way. In this respect too this theory compares favourably with Roeper and Siegel's Lexical Transformation Theory and Allen's Adjunction Rule Theory.

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Chapter 5

CONCLUSION

In chapter 4 we explored some of the consequences of a theory of Afrikaans synthetic compounding which, within a lexicalist framework, expresses the traditional view that synthetic compounds are formed by affixation on the basis of syntactic phrases. For the reasons presented in §4.1, various questions of principle and many issues of empirical detail had to be left open. Nevertheless, even in its rudimentary form the Base Rule Theory of Afrikaans synthetic compounding compares favourably with Roeper and Siegel's (1978) Lexical Transformation Theory of English verbal compounding and Allen's (1978) Adjunction Rule Theory of English synthetic compounding. The attractive aspects of the former theory become apparent when the three theories are appraised in terms of the criteria of adequacy listed as (2) in §4.1. The essence of some of the more important differences may be summarized as follows.

Roeper and Siegel's theory requires various new types of rules --- e.g., a movement transformation in the lexicon, more than one type of special lexical adjustment rule, and a special kind of syntactic redundancy rule. Each of these kinds of devices has been shown to have one or more objectionable properties. The Base Rule Theory requires none of these objectionable devices. Nor does this theory require a duplication of the relevant affixation rules --- with the concomitant loss of generalization --- as Roeper and Siegel's theory does. Moreover, unlike the latter theory, the Base Rule Theory cannot be criticized for arbitrarily ruling out a primary compound analysis for synthetic compounds. To mention one more major difference between the two theories: in contrast to Roeper and Siegel's theory, the Base Rule Theory does succeed in capturing the generalizations about the structural properties which synthetic compounds share with syntactic phrases. Thus, whereas Roeper and Siegel's theory has to use different sets of formal devices to account for these shared properties, the Base Rule Theory does so by means of a single set of formal devices.

The Base Rule Theory has various advantages over Allen's Adjunction Rule Theory too. Crucially, the former theory provides a much more accurate account of the way in which synthetic compounds are related to primary compounds and de-

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rived words. It was shown that in this connection Allen's theory fails in both directions. On the one hand, it incorrectly identifies synthetic compounds with primary compounds, thus expressing spurious generalizations. On the other hand, Allen's theory fails to account for the linguistically significant similarities between synthetic compounds and derived words. Unlike Allen's theory, the Base Rule Theory does not assign to synthetic compounds adjunction structures similar to those underlying primary compounds. As a consequence, the Base Rule Theory does not only provide a more adequate account of, for example, semantic properties of synthetic compounds, but it also does not require the postulation of ad hoc (primary) compound formation rules. To conclude this comparison we mention one more, nontrivial, difference: the Base Rule Theory's account of the way in which synthetic compounds are related to syntactic phrases is superior to the one given by Allen's theory. Thus, in contrast to Allen's theory, the Base Rule Theory neither obscures the distinction between (structural/morphological) well-formedness and (semantic) interpretability, nor requires the postulation of such dubious devices as interpretive filters.

It could be objected that the merits of the Base Rules Theory listed above are outweighed by a fatal flaw: in allowing affixation rules to apply to syntactic deep structure phrases it requires a relaxation of an important general linguistic constraint, viz. the No Phrase Constraint. However, in §4.3.4 --- where this constraint was formulated as (28) --- it was argued that there are various reasons for not being overly satisfied with the No Phrase Constraint as a language-independent principle. To conclude the discussion, I would like to draw attention to an Afrikaans word formation process which is independent from synthetic compounding, but which also indicates that the No Phrase Constraint is incorrect in the strong form in which it appears in (28) in §4.3.4.

In Afrikaans it is possible to productively form primary compounds by adjoining various kinds of syntactic phrases, including whole sentences, to a nominal second constituent. Consider the following typical examples (the syntactic structure of the phrasal constituent is indicated roughly by means of labelled bracketing):

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(1) Phrasal Constituent = NP

[[skewe]$_{Adj}$ [mond]$_{NP}$]$_{NP}$ - laggie
crooked mouth smile
"crooked smile"

[[Engelse]$_{Adj}$ [koerant]$_{NP}$]$_{NP}$ - storie
English newspaper story
"story of/appearing (typically) in an English newspaper"

[[spek]$_{NP}$ [en]$_{CONJ}$ [eiers]$_{NP}$]$_{NP}$ - ontbyt
bacon and eggs breakfast
"breakfast of which the main components are bacon and eggs"

[[koppie]$_{NP}$ [en]$_{CONJ}$ [piering]$_{NP}$]$_{NP}$ - geluide
cup and saucer sounds
"sounds typically made by cups and saucers"

(2) Phrasal Constituent = PP

[[oor]$_{Prep}$ [die heining]$_{NP}$]$_{PP}$ - stories
over the fence stories
"stories typically told (by neighbours) over the fence separating their homes"

[[van]$_{Prep}$ [die rak]$_{NP}$]$_{PP}$ - pak
from the shelf suit
"suit bought off the peg"

[[uit]$_{Prep}$ [die oond]$_{NP}$]$_{PP}$ [[op]$_{Prep}$ [die tafel]$_{NP}$]$_{PP}$ -skottel
out of the oven on the table dish
"oven-to-table casserole"

[[dertig myl]$_{NP}$ [per uur]$_{PP}$]$_{AdvP}$ - teken
thirty miles per hour sign
"road-sign indicating speed limit of thirty miles an hour"

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(3) Phrasal Constituent = AdvP

[liewer vas]$_{AdvP}$ - mense

preferably together people

"people who prefer (where there is a choice) to write two words as one"

[tien voor twee]$_{AdvP}$ - klas

ten to two class

"lecture starting at ten minutes to two"

[[vies]$_{Adj}$ [vir die wêreld]$_{PP}$]$_{AdvP}$ - uitdrukking

mad at the world expression

"disgruntled expression"

[[laaste]$_{Adj/Adv}$ [by die paal]$_{PP}$]$_{AdvP}$ - speletjie

last at the post game

"game consisting in seeing who can get to a pre-arranged point first"

[[saans]$_{Adv}$ [laat]$_{Adv}$ [in die bed]$_{PP}$]$_{AdvP}$ - kinders

at night late in the bed children

"children who (habitually) go to bed late"

(4) Phrasal Constituent = VP

[[maklik]$_{Adv}$ [om te maak]$_{Infin}$]$_{VP}$ - poeding

easy to make pudding

"pudding that is easy to prepare"

[[baie]$_{Adv}$ [om te doen]$_{Infin}$]$_{VP}$ - program

much to do programme

"a very full programme"

[[rek]$_{V}$ [en]$_{CONJ}$ [strek]$_{V}$]$_{VP}$ - oefening

stretch and extend exercise

"a stretch-and-bend exercise"

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[[bekeer]$_V$ [of]$_{CONJ}$ [krepeer]$_V$]$_{VP}$ - preek

reform or suffer sermon

"sermon exhorting people to mend their ways or be eternally damned"

[[hoed]$_{NP}$ [dra]$_V$]$_{VP}$ - era

hat wear era

"era in which it is/was fashionable to wear a hat"

[[syfer]$_{NP}$ [vreet]$_V$]$_{VP}$ - statistici

figure gobble statisticians

"statisticians who are unduly obsessed with figures"

[[lekker]$_{Adv}$ [lees]$_V$]$_{VP}$ - brief

good read letter

"entertaining letter"

[[gou]$_{Adv}$ [baklei]$_V$]$_{VP}$ - spelers

fast fight players

"players who are known to be free with their fists"

[[gaan]$_{AUX}$ [slaap]$_V$]$_{VP}$ - tyd

go sleep time

"bedtime"

[[laat]$_{AUX}$ [loop]$_V$]$_{VP}$ - beleid

let go policy

"a laisser-faire policy"

[[uit die bottel]$_{PP}$ [drink]$_V$]$_{VP}$ - alkoholis

from the bottle drink alcoholic

"alcoholic who drinks straight from the bottle"

[[op die stoep]$_{PP}$ [sit]$_V$]$_{VP}$ - boere

on the verandah sit farmers

"farmers who sit on the verandah all day"

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[[[af]$_{Prt}$ [sak]$_{V}$]$_{VP}$ - kouse

down drop stockings

"stockings that keep sagging"

[[onder]$_{Prt}$ [dompel]$_{V}$]$_{VP}$ - seremonie

under dip ceremony

"ceremony in which new converts are immersed in water"

(5) Phrasal Constituent = S

[jy is my held]$_{S}$ - oë

you are my hero eyes

"worshipping eyes"

[ek stuit vir niks]$_{S}$ - borskas

I stop at nothing chest

"solid chest"/"formidable-looking chest"

[moet ek dit alles alleen doen]$_{S}$ - uitdrukking

must I it all alone do expression

"a 'must I do it all alone?'-expression"

[wie is baas]$_{S}$ - gryns

who is boss sneer

"a sneer that says 'I'm the boss'"

[gedra jou goed]$_{S}$ - vermaning

behave yourself well admonition

"admonition to be on one's best behaviour"

[ekskuus dat ek lewe]$_{S}$ - gesig

sorry that I live face

"face (typical) of a self-effacing person"

[ons word gruwelik uitgebuit]$_{S}$ - houding

we are terribly exploited attitude

"attitude indicating a feeling of being unduly exploited"

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[wie kla kry slae]$_S$- dreigement

who complains gets a hiding threat

"demand for unquestioning obedience"

[as jy lag bars jy]$_S$- kyk

if you laugh suffer you look

"a look that says 'Don't you dare laugh at me'"

The forms listed above do not illustrate all the structural possibilities which exist with regard to the phrasal constituent of the compounds in question. Note that these phrasal constituents are not analyzable as idioms or primary compounds and, moreover, that the list under each heading can be extended indefinitely. That is, the processes by means of which these compounds are formed are fully productive.(1)

All the forms listed above as (1)-(5) have the typical properties of morphologically complex words. For example, the constituents of these phrasal compounds are inseparable and obey the Morphological Island Constraint. Clearly, the WFRs involved in the formation of such compounds have to apply to syntactic phrases --- some of which appear to be transformationally derived surface structures --- thus contradicting the No Phrase Constraint. I have not yet analyzed Afrikaans phrasal compounds in sufficient depth to spell out in detail the implications which they have for the No Phrase Constraint. For example, it is still an open question whether these compounds require only a further non-arbitrary relaxation of this constraint or whether they require that the constraint be abandoned altogether. What is clear, however, is that such phrasal compounds provide independent evidence that the No Phrase Constraint, as conventionally formulated by lexicalist morphologists, cannot be a language-independent principle. Thus, the fact that the Base Rule Theory of Afrikaans synthetic compounding is incompatible with the No Phrase Constraint, seems to reflect negatively on the constraint rather than on the theory. This, of course, is not to say that the Base Rule Theory is without shortcomings: throughout the discussion I have drawn attention to unsolved problems relating to both theoretical principle and empirical detail. Nor can it be claimed that it is impossible within a broadly lexicalist approach, to construct alternative theories which would be more adequate than the Base Rule Theory.(2)

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NOTES TO CHAPTER 1

1. This is clear from such discussions as McCawley 1973 and Schachter 1976, with McCawley criticizing (mainly) Chomsky's analyses of derived nominals, while Schachter focuses on his analysis of gerundive nominals.

2. In the era preceding the publication of Chomsky's "Remarks on nominalization", few linguists paid serious attention to questions of word formation within a generative framework. Some of the better known exceptions are Chapin (1967), Lees (e.g. 1966), Matthews (1972), Motsch (e.g. 1962), Wurzel (1970), Zimmer (1964) and Botha (1968). For further references cf. Lipka 1975.

3. The essence of this hypothesis is that derived nominals are not transforms but deep structure NPs and that they are lexically related to corresponding verbs. For a detailed discussion, cf. Chomsky 1970.

4. The most significant contributions to morphology/word-formation within a lexicalist framework include Halle 1973, Siegel 1974, Jackendoff 1975, Aronoff 1976, Wasow 1977, Anderson 1977, Bresnan 1978, Roeper and Siegel 1978, Allen 1978 and Carrier 1979. This list is not exhaustive. Nor is it claimed that all serious recent work on word formation has been carried out within a lexicalist framework. Levi's study (1978) of "complex nominals" represents a nonsuperficial analysis of morphologically complex forms within a nonlexicalist framework.

5. To mention but a few of the major differences: whereas Halle (1973) and Siegel (1974) include inflection in the domain of their morphological theories, Aronoff (1976) does not. As regards primary compounding, both Halle (1973) and Aronoff (1976) are vague as to its status in a theory of word formation; Roeper and Siegel (1978) exclude it from the domain of their theory; Allen (1978) includes it in the domain of her theory of word formation. There are many other differences of a more technical sort: differences concerning the role of an evaluation measure, the need for an exception filter, the format and ordering of WFRs, the need for adjustment rules, the special status of reduplication rules, etc.

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6. For a summary of some of the major constraints on WFRs, cf. Roeper and Siegel 1978:201-202.

7. This constraint has a stronger version which also prohibits WFRs from applying to units smaller than words. Aronoff (1976:21) formulates the stronger constraint as follows: "All regular word-formation processes are word-based. A new word is formed by applying a regular rule to a single already existing word". This stronger constraint, however, is not accepted by lexicalist morphologists such as Halle (1973), Siegel (1974) and Allen (1978). Aronoff's adoption of this constraint, moreover, has been criticized by, for example, Moody (1978). For a rejoinder, cf. Aronoff 1976. Even linguists working within the framework of nonlexicalist, transformationalist theories of word formation adopt a constraint parallel to the one that WFRs do not apply to units larger than words. Levi (1978) is a case in point.

8. By virtue of a notion "stretchable suffixation", Allen (1978:236ff.) has proposed a minimal relaxation of the constraint under consideration.

9. This critical appraisal of Roeper and Siegel's theory has been published separately as Botha 1980a.

10. The critical appraisal of Allen's theory has been published separately as Botha 1980b.

11. Cf., e.g., Bloomfield 1933:231; Marchand 1969:15ff.

12. The former expression is used, for example, by Roeper and Siegel (1978), the latter by Allen (1978). All the synthetic compounds in (1) clearly are verbal or verbal-nexus compounds. In Dutch and German respectively the expressions "samenstellende afleiding" (cf. Schultink 1976) and "Zusammenbildung" (cf. Henzen 1957:237) are used to denote a synthetic compound.

13. Whereas Roeper and Siegel (1978) prefer the former term, Allen (1978) uses the latter.

14. This affix may be zero as in oil output. Cf. Marchand 1969:19 and Allen 1978:157 for a clarification of this point.

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NOTES TO CHAPTER 2

1. The lexical core consists of a list of simple (or atomic) words and the morphologically complex words that have been created by WFRs --- cf. Roeper and Siegel 1978:200.

2. Allen's dissertation was unknown to me at the time of my working on the former paper, entitled "Buitelyne van 'n teorie oor samestellende afleiding". It should be noted that Allen's criticisms of Roeper and Siegel's theory are levelled at an earlier, preliminary exposition of this theory in Roeper and Siegel 1976. The majority of these criticisms, as I understand them, however, apply to the later presentation in Roeper and Siegel 1978 as well.

3. It is neither possible nor necessary to explicate these principles here. For some discussions cf. §3.3 below.

4. For additional examples of verbal compounds formed by means of less productive affixes not listed above cf. Allen 1978:157.

5. Notice incidentally that Roeper and Siegel's claim that verbal compounds are "extremely productive" is quite problematic within the framework of the general theory of word-formation which they accept. This theory states (cf. Roeper and Siegel 1978:200) that "the output of word formation rules (WFRs) is entered in long-term memory". Roeper and Siegel call the long-term memory the "lexical core" (cf. note 1 above) which, as a component of the lexicon, "is a list of atomic words and those complex words that have been generated by WFRs". Being a component of the lexicon, this list must be finite. But how could the potentially infinite output of "extremely productive" rules such as those involved in verbal compounding be included in a finite list? Roeper and Siegel fail to broach this issue. The only indications they (1978:204) are prepared to give take the form of such intriguing statements as the following: "Words with particularly frequent affixes could not all be listed in the core. For instance, the -ly adverbs are so numerous that it would be inefficient to remember each one". But what do these statements mean and how do they fit into the theory of the lexicon quoted above?

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6. When the list of their criteria for verbal compounds is presented in §2.4.1.2 below, it will be clear that they have no criterion in addition to those considered above for drawing this distinction in a principled way. Observe that it is not claimed here that it is in principle impossible to draw such a distinction. In fact, it will be argued directly below that such a distinction has to be drawn. The pertinent claim here is that Roeper and Siegel cannot do this in a principled way. At the heart of this inability on the part of Roeper and Siegel lies the fact that, in reality, they have no (linguistic) theory of root compounding. They (1978:206) tentatively allow, in the vaguest terms possible, for "the possibility that rules of concept construction (perhaps derived from cognitive psychology) might capture many intuitive regularities [observed in root compounds --- *R.P.B.*], such as the relation "like a" in babyface (face like a baby's)". On the nature and function of these "rules" they have nothing to say. In a note, they (1978:206, n.7) add that "The fact that we claim that cognitive rules are relevant to the definition of root compounds does not mean that syntactic factors may not also be present". They give no indication of how a linguistic account of these "syntactic factors" --- which they, incidentally, do not identify --- should be fitted into the overall grammar.

7. This analysis is discussed in detail in connection with Allen's (1978) theory of synthetic compounding in §§3.4, 3.5 below.

8. For a discussion of this principle and its background cf. Roeper and Siegel 1978:200.

9. Roeper and Siegel mark possible but "not existing" or "not actually occurring" words with "&".

10. Allen's (1978:185) morphology is "overgenerating" in the sense that rules of word-formation must generate the infinite set of possible, well-formed words, only a subset of which includes "actual" or "occurring" words.

11. In a note, Allen (1978:286, n.3) states that "It is not clear why the distinction between morphological well-formedness and lexical occurrence has not played a more central role in the development of recent theories of morphology. Halle's (1973a) work is exceptional in this

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respect". These statements are truly remarkable, given the existence of studies such as Botha 1968 and Booij 1977.

12. Allen (1978:§4.3) argues that in English complex derivatives cannot be formed (freely) on the basis of compounds by means of suffixation. In §4.5.4 I will argue that a parallel claim for Afrikaans would be simply false.

13. At this point in the discussion the content of note 5 above is once more relevant.

14. For a recent discussion of this aim of restricting the power of the general linguistic theory cf., e.g., Chomsky and Lasnik 1977:427.

15. Arguments against the use of certain formal devices because of the way in which they would adversely affect the power of the total grammar are often weaker than they are (fashionably) taken to be. The reason for this is that few propounders of such arguments take the trouble to make the necessary calculations in a systematic and explicit manner. For a recent controversy about how a specific theoretical device, namely traces, affects the power of the total grammar cf., e.g., Postal and Pullum 1978; and Chomsky and Lasnik 1978:268, n. 1.

16. Cf., e.g., Bach 1974:170 for the conventional notion "lexical redundancy rule".

17. For an implicit proposal that the power of redundancy rules be increased cf. Chomsky 1970. This proposal is criticized in McCawley 1973 and Botha 1977:168ff.

18. Alternatively, according to Roeper and Siegel (1978:342), the prepositions could be listed in the Compound Rule and "be deleted at that point".

19. For criticism of some of the empirical implications of Roeper and Siegel's use of the notion "blocking" cf. Joseph 1980.

20. A first empirical problem with this rule was dealt with in §3.3 where

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it was shown that, operating in accordance with the FS Principle, the rule would derive impermissible verbal compounds such as those of (31)(a).

21. More examples --- involving other affixes as well --- will be cited in §4.1 below.

22. English may also have synthetic compounds which are not verbally based. Thus, Meys (1975:135) speculates on the possibility that forms such as short-circuiting, hot-gospelling, grand-touring, and perfect-fitting are derived by means of -ing suffixation from "adjective-noun combinations" which also underly (a) short-circuit, (a) hot-gospeller, (the) grand tour, (a) perfect fit respectively.

NOTES TO CHAPTER 3

1. Recall that Allen uses the expression "primary compound(ing)" while Roeper and Siegel use the term "root compound(ing)". In this study both terms will be used.

2. In chapter 1, it was pointed out that, whereas Roeper and Siegel operate with the notion "verbal compound(ing)", Allen uses the more inclusive concept "synthetic compound(ing)". Allen, however, is also actually concerned with the analysis of verbally based synthetic compounds.

3. Of the many linguists who have held this view, Allen singles out Bloomfield (1933), Nida (1946), Marchand (1969), and Matthews (1974).

4. It is not necessary to consider here Allen's (1978:106ff.) attempt at extending the IS A Condition to other types of morphologically complex words.

5. For both of these hypotheses cf. Allen 1978:153.

6. Recall that Roeper and Siegel's (1978:208) FS Convention or First Sister Principle states that "All verbal compounds are formed by incorporation

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of a word in first sister position of the verb". The first sister position is the one immediately to the right of the verb.

7. Allen (1978:174) proceeds to claim that "There is no way in which R & S's FS Incorporation can account for these compounds". It is not obvious that this claim is correct because it is unclear to which extent Roeper and Siegel could use their frame $[_{Agent}\ ]$ to account for the formation of the compounds in question.

8. In *car-driven a direct object is incorporated, in *green-grown an adjective, and in *president-elected a predicate nominal.

9. Notice, incidentally, that it is of some importance to Allen that the analyses of (19)(a) and not those of (19)(b) be the correct analyses of the compounds in question. The latter but not the former analyses violate one of the fundamental principles of her morphology, viz. the Extended Ordering Hypothesis. One of the consequences of this hypothesis is that the rule of -ed suffixation cannot apply to N + N compounds. An additional point of interest is that analyses of the type (19)(a) incorrectly predict the meaning of compounds such as shirt-sleeved, snow-suited and bowler-hatted. For example, shirt-sleeved does not have the meaning "sleeved like a shirt", or a meaning related to it, as predicted by the (19)(a) type of analysis. This compound rather has the meaning predicted by the (19)(b) type analysis, viz. "characterized by the presence of shirt-sleeves". Allen makes no attempt to account for the former incorrect prediction of her Extended Ordering Hypothesis. For further discussion of this aspect of the Extended Ordering Hypothesis cf. Thereza Botha in preparation.

10. These verbal compounds are taken from Roeper and Siegel's (1978:207, 233) paper which lists many other similar ones.

11. In virtue of the fact that their first constituents are not nouns, the compounds (20)(b)-(d) clearly cannot be derived by means of the rule (12). This point is pursued further in §3.5.3.4 below.

12. These questions are dealt with in §4.2.5 below within the context of an analysis of Afrikaans synthetic compounds.

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13. The argument presented above in terms of the Adjacency Condition does not imply that I accept this condition. It is an argument ad hominem, an argument directed at morphologists --- such as Allen --- who do accept the condition.

NOTES TO CHAPTER 4

1. The class of affixes conventionally considered to be involved in the forming of Afrikaans synthetic compounds also includes:

-aar:	diens - weier - AAR, service refuse -er "conscientious, objector (to military service)"	in - vorder - AAR, in collect -er "collector"	af - sonder - AAR off isolate -er "recluse"
-dom:	drie - gode - DOM, three gods -dom "domain in which three gods are worshipped"	een- gode - DOM, one god -dom "domain in which one god is worshipped"	twee - vroue - DOM two wives -dom "domain in which bigamy is practised"
-baar:	om - koop - BAAR, off buy -able "corruptible/bribable"	toe - laat - BAAR to let -able "permissible"	son - droog - BAAR sun dry -able
-end:	op - let - END, up attend -ing "attentive/observant"	mooi - klink - END, beautiful sound -ing	pap - eet - END porridge eat -ing
-erig:	aan - stel - ERIG, on put -ing "affected/full of airs"	twis - soek - ERIG, quarrel seek -ing "quarrelsome"	dwars - trek - ERIG cross pull -ing "cross-grained"
-ing:	in-besit-neem-ING, in possession take -ing "occupation/taking possession"	toe - stem - ING, to voice -ing "consent"	aan - beveel - ING on order -ing "recommendation"

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-lik:	af - stoot - LIK,	buite - kerk - LIK,	buite - eg(te) - LIK
	off push -ly	outside church -ly	out of wedlock -ly
	"repulsive"	"extra-clerical"	"illegitimate"
-sel:	af - sak - SEL,	in - voeg - SEL,	aan - pak - SEL
	down sink -ment	in add -ment	on lay -ment
	"sediment"	"insertion"	"layer (of dirt)"

a-: A - militêre - opleiding, A - verpligte - sport,
a- military training a- compulsary sport

A - sosiale - versekering
a- social insurance

ge-:	GE - rooi - das,	GE - wit - hemp,	GE - swart - manel
	-ed red tie	-ed white shirt	-ed black frock-coat
	"wearing a red tie"	"wearing a white shirt"	"wearing a black frock-coat"

This list does not pretend to be exhaustive: Kempen's (1969:§143) discussion of Afrikaans synthetic compounds exemplifies the conventional, i.e. nongenerative, approach to the analysis of such morphologically complex forms as those listed above.

2. For this conventional view of synthetic compounds cf., e.g., Henzen 1957:237 and Marchand 1969:15ff.

3. This view was documented in note 7 to chapter 1.

4. A synthetic compound may be said to consist of an affixal constituent and a phrasal constituent. For example, diklippig consists of the affixal constituent -ig and the phrasal constituent $[\text{dik lip}]_{NP}$. The phrasal constituent, in turn, consists of a head constituent and a peripheral constituent. In the case of $[\text{dik lip}]_{NP}$ the head constituent is $[\text{lip}]_{N}$ and the peripheral constituent is $[\text{dik}]_{Adj}$. In traditional terms, the peripheral constituent is said to be "incorporated" in the synthetic compound.

5. In essence the arguments which, for example, Koster (1975) and Neijt (1976; 1979:7ff.) provide for considering Dutch a language which is underlyingly SOV apply to Afrikaans as well.

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6. For an account of how this transformation functions in the syntax of Dutch cf. Koster 1975.

7. Cf. §2.4.1.1 above for some of the problems generated by assumption (13)(b).

8. Cf. §2.4.5 above for this point.

9. Cf. §3.5.3.2 above for this point.

10. For these levels of linguistic structure or representation cf., e.g., Chomsky and Lasnik 1977 and Chomsky 1978.

11. Allen (1978:161-162) cites English forms which illustrate the same point.

12. The affix -e marks the attributive form of (certain) adjectives.

13. For the notion "word-based morphology" cf. Aronoff 1976:21.

14. For the theoretical framework into which this constraint fits cf. chapter 1 of this study.

15. For example, Roeper and Siegel 1978:213-214.

16. Even the evidence from English provided by Aronoff (1976:23ff.) for this constraint is less than convincing. This evidence involves controversial assumptions about the phonological cycle in English and the status of back-formation in a theory of synchronic morphology.

17. Cf. Botha to appear: §§10.4.2.2.2 for the way in which this criterion is used in the validation of linguistic hypotheses and theories.

18. Neither Roeper and Siegel (1978) nor Allen (1978) consider this problem in connection with English. Fraser (1976:129-132) offers a few informal observations about the problem in the context of a discussion of verb-particle constructions. For some discussion of this problem as it is manifested in Afrikaans cf. Le Roux to appear.

19. Schultink (1976) studied the stress patterns of Dutch synthetic com-

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pounds in depth. Claassens (1979:chap. 6) attempted to replicate Schultink's study for Afrikaans. Claassens, however, fails to solve any significant problem in his work.

20. For this point cf. §2.4.3 above.

21. Aronoff cites Zimmer (1964) as an example of "a modern author who does stress the fact that morphological form affects productivity". If "modern" can also be taken to mean "structuralist" in this context, Aronoff could have referred to the early work of Schultink (1962: 42-43) and that of certain linguists (e.g., Uhlenbeck) cited by Schultink for this "fact".

22. Cf. Aronoff 1976:36 for more details.

23. Cf. Zimmer 1964:35-36.

24. For the notions "string adjacent" and "structure adjacent" cf., e.g., Chomsky and Lasnik 1977:482-483 and De Haan 1979:43.

25. Roeper and Siegel's (1978) analysis of the latter compounds was illustrated in §2.3 above.

26. Notice that the deep structure phrase (50) incorporates the preposition deur which may optionally appear in the surface form of the compound: deur-wind-gedroogde is an acceptable variant of windgedroogde. In §4.4.2.6 below we turn briefly to the question of the occurrence of prepositions in Afrikaans synthetic compounds.

27. For this analysis cf. Thereza Botha to appear.

28. For a number of subregularities cf. the reference in note 27.

29. Of the thematic functions listed in (61) only that of accompaniment needs some elucidation. Gruber (1976:71) illustrates this thematic function as follows: "another nonMotional sense of prepositions with Motional verbs is the expression of Accompaniment. In the sentence John flew the kite ahead of him the sense may be that John was moving, maintaining the kite ahead of him".

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30. For the lexical subcategories of which besoek and rook are members cf. Thereza Botha to appear.

31. Cf. §2.2 above for Roeper and Siegel's First Sister Principle and §2.4.4 for the role of the rules of Subcategorization Adjustment and Variable Deletion.

32. At this stage of the inquiry, it is not clear whether the forms (ii)-(iv) and (vi)-(viii) below should be analyzed as synthetic compounds incorporating a syntactically complex head constituent (underscored) or whether they should be analyzed as primary compounds consisting of a noncomplex first constituent and a second constituent which is a synthetic compound:

(i)	leeu - byt - ER lion bite -er	(v)	pap - maak - ER porridge make -er
(ii)	leeu- dood - byt - ER lion dead bite -er	(vi)	pap - oop - maak - ER porridge open make -er
(iii)	klere - stukkend - byt - ER clothes to pieces bite -er	(vii)	pap - warm - maak - ER porridge warm make -er
(iv)	kop - af - byt - ER head off bite -er	(viii)	pap - aan - maak - ER porridge up make -er

33. For the requirement that the non-linguistic principles in question should be independently motivated cf., e.g., Bever 1975.

34. A third alternative approach to the apparent counterexamples (69) to the Complexity Constraint would be to look for reasons for denying them the status of synthetic compounds. If such reasons could be found they would cease to be relevant to the evaluation of this constraint. For the general nature of the reasons for not assigning expressions the status of synthetic compounds cf. §4.5.6 below.

35. Cf. §4.3.3.3 above for this nonprediction of the Deep Structure Hypothesis.

36. Notice incidentally that Roeper and Siegel (1978:241-242), contrary to what is expected on the basis of the No Phrase Constraint, find

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themselves compelled to account for -ed compounds which "involve a very restricted range of prepositional phrases". Their examples include the following:

by	at, in, to	with
starstruck	homemade	bullet-ridden
wolf-reared	pan-fried	doom-laden
rebel-held	land-based	feather-filled

37. The meaning of the prepositions tussen and onder (in combination with that of the verbs kies, verdeel and (tweedrag) saai) is such that the compounds which incorporate the relevant NP in the singular form are semantically anomalous; e.g.:

*tussen- ('n) - leier - kies - ERY
between/ among a leader choose ing

38. Cf., e.g., Halle 1973:10, Aronoff 1976:62-63, Allen 1978:chap. 2.

39. For a modification of this view cf. Aronoff 1976:70ff.

40. Note that this conclusion is based on an analysis of N + N nominal compounds; an analysis which has not been extended to V + N nominal compounds, of which Afrikaans has various subtypes (cf., e.g., Kempen 1969:§§56-57).

41. The fact that it is possible to conceive of various primary compound interpretations for *leeuslaper is irrelevant to the argument.

42. It may be the case that this observation does not generalize to compound nouns of the form V + N. Cf. note 40 above.

43. E.g., Aronoff 1976, Allen 1978, Roeper and Siegel 1978.

44. For an analysis of this type of morphologically complex words cf. Thereza Botha in preparation.

45. For this notion cf. Bolinger 1971:3. Such forms have traditionally been known as "scheidbaar samengestelde verba" in Dutch (cf., e.g.,

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~~De Vries 1975:43)~~ and as "trennbare Zusammensetzungen" in German (cf., e.g., Glinz 1962:389).

46. The Base Rule Theory, in fact, makes more predictions about the nature of synthetic compounds --- e.g. that such compounds will be distinct from transforms. The predictions considered above, however, provide sufficient illustration of this aspect of the empirical content of the theory.

47. Cf. Oosthuizen to appear for an analysis of the status of complex ge-forms.

NOTES TO CHAPTER 5

1. Some of the phrasal compounds in (1)-(5) have been taken from Kempen 1969:870. Others are listed in a term paper by Thereza Botha.

2. It is possible that, within the framework of "lexical grammar" (cf. Hoekstra, Van der Hulst and Moortgat 1979), various alternatives to the Base Rule Theory may be formulated, such that these overcome the limitations of Roeper and Siegel's and Allen's theories without requiring a modification of the No Phrase Constraint. The merit of these alternatives will be determined, among other things, by the measure of success which they achieve in "lexicalizing" the relevant syntactic parameters. An inquiry into the nature and merit of these alternative theories, however, is a task for further research. At the time of writing the present study, I unfortunately did not have access to the contributions to the volume on "lexical grammar" edited by Hoekstra, Van der Hulst and Moortgat.

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BIBLIOGRAPHY

Allen, Margaret Reece

1978 Morphological investigations. Ph.D. Dissertation, University of Connecticut.

Aronoff, Mark

1976 Word formation in generative grammar (= Linguistic Inquiry Monograph One). Cambridge, Massachusetts: MIT Press.

Bach, Emmon

1974 Syntactic theory. New York, etc.: Holt, Rinehart and Winston, Inc.

Bever, Thomas A.

1974 "The ascent of the specious or there's a lot we don't know about mirrors", in Cohen (ed.) 1974:173-200.

1975 "Functional explanations require independently motivated functional theories", Papers from the Parasession on Functionalism, Chicago Linguistic Society, 580-609.

Bloomfield, Leonard

1933 Language. London: George Allen & Unwin Ltd.

Bolinger, Dwight

1971 The phrasal verb in English. Cambridge, Mass.: Harvard University Press.

Booij, G.E.

1977 Dutch morphology. A study of word formation in generative grammar. Lisse: The Peter de Ridder Press.

Botha, Rudolf P.

1968 The function of the lexicon in transformational generative grammar (= Janua Linguarum, Series Maior, No. 38). The Hague and Paris: Mouton.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

1977 _On the logic of linguistic research_ (= Utrecht Working Papers in Linguistics, No. 2). Utrecht: Instituut voor Algemene Taalwetenschap, R.U.U.

1979 Buitelyne van 'n teorie oor samestellende afleiding. Mimeographed.

1980a "Roeper and Siegel's theory of verbal compounding: a critical appraisal", Stellenbosch Papers in Linguistics, Nr. 4: 1-45.

1980b "Allen's theory of synthetic compounding: a critical appraisal", in Van Alkemade et al. (eds.) 1980:157-180.

to appear The conduct of linguistic inquiry. A systematic introduction to the methodology of generative grammar. The Hague, Paris, New York: Mouton.

Botha, Thereza

to appear Generalizations about synthetic compounding in Afrikaans. To appear in a 1981 number of Stellenbosch Papers in Linguistics.

in preparation Primary compounds as bases of affixation rules: an appraisal of the Extended Ordering Hypotheses. M.A. Dissertation, University of Stellenbosch.

Bresnan, Joan

1978 "A realistic transformational grammar", in Halle, Bresnan and Miller (eds.) 1978:1-59.

Carrier, Jill L.

1979 The interaction of morphological and phonological rules in Tagalog: a study in the relationship between rule components in grammar. Ph.D. Dissertation, MIT, Cambridge, Mass.

Chapin, Paul G.

1967 On the syntax of word-derivation in English. Ph.D. Dissertation, MIT, Cambridge, Mass.

Chomsky, Noam

1970 "Remarks on nominalization", in Jacobs and Rosenbaum (eds.) 1970.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

1972 Studies on semantics in generative grammar (= Janua Linguarum, Series Minor, No. 107). The Hague and Paris: Mouton.

1978 On binding. Mimeographed [Published in Linguistic Inquiry, Vol. 11, 1980:1-46].

Chomsky, Noam, and Howard Lasnik

1977 "Filters and control", Linguistic Inquiry, Vol. 8:425-504.

1978 "A remark on contraction", Linguistic Inquiry, Vol. 9: 268-274.

Claassens, S.J.H.

1979 Klemreëls van suffigaal afgeleide adjektiewe in Afrikaans. D.Phil. Proefskrif, Universiteit van Stellenbosch.

Cohen, David (ed.)

1974 Explaining linguistic phenomena. Washington, D.C.: Hemisphere Publishing Corporation.

Culicover, P., T. Wasow, and A. Akmajian (eds.)

1977 Formal syntax. New York: Academic Press.

De Haan, G.J.

1979 Conditions on rules. The proper balance between syntax and semantics. Dordrecht: Foris Publications.

De Villiers, Reinette

1979 "Phrasal categories in word formation rules", Stellenbosch Papers in Linguistics, Nr. 2:39-69.

De Vries, J.W.

1975 Lexicale morfologie van het werkwoord in Modern Nederlands. Leiden: Universitaire Pers.

Fraser, Bruce

1976 The verb-particle combination in English. New York and London: Academic Press.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

Gruber, Jeffrey S.

1976 Lexical structures in syntax and semantics. Amsterdam, etc.: North-Holland Publishing Company.

Glinz, Hans

1962 Die innere Form des Deutschen. Eine neue Deutsche Grammatik. Dritte Auflage. Bern und München: Francke Verlag.

Halle, Morris

1973 "Prolegomena to a theory of word formation", Linguistic Inquiry, Vol. 4:3-16.

Halle, Morris, Joan Bresnan, and George A. Miller (eds.)

1978 Linguistic theory and psychological reality. Cambridge, Mass.: The MIT Press.

Henzen, Walter

1957 Deutsche Wortbildung. Zweite, verbesserte Auflage. Tübingen: Max Niemeyer Verlag.

Hoekstra, T., H. van der Hulst, M. Moortgat

1979 Introduction, Glot (Number devoted to "Lexical Grammar"), Jaargang 2:1-48.

Jackendoff, Ray S.

1972 Semantic interpretation in generative grammar. Cambridge, Mass.: MIT Press.

1975 "Morphological and semantic regularities in the lexicon", Language, Vol. 51:639-671.

Jacobs, Roderick A., and Peter S. Rosenbaum (eds.)

1970 Readings in English transformational grammar. Waltham, Mass.: Ginn and Co.

Joseph, Brian

1980 "Lexical productivity versus syntactic generativity", Linguistic Inquiry, Vol. 11:420-426.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

Kempen, W.

1969 Samestelling, afleiding en woordsoortelike meerfunksionaliteit in Afrikaans. Kaapstad, ens.: Nasou.

Koerner, E.F.K. (ed.)

1975 The transformational-generative paradigm and modern linguistic theory (= Current Trends in Linguistic Theory, Vol. 1). Amsterdam: North-Holland Publishing Company.

Koster, J.

1975 "Dutch as an SOV language", Linguistic Analysis, Vol. 1: 111-136.

Le Roux, Cecile

to appear "Possible constraints on affixation in Afrikaans synthetic compounding", Stellenbosch Papers in Linguistics, Nr. 6, 1981.

Levi, J.

1978 Syntax and semantics of complex nominals. New York: Academic Press.

Lipka, L.

1975 "Prolegomena to 'Prolegomena to a theory of word-formation' --- a reply to Morris Halle", in Koerner (ed.) 1975: 175-184.

Marchand, Hans

1969 The categories and types of present-day English word-formation. Second Edition. München: Beck.

Matthews, Peter H.

1972 Inflectional morphology: A theoretical study based on aspects of Latin verb conjugation. Cambridge: Cambridge University Press.

1974 Morphology. Cambridge: Cambridge University Press.

McCawley, James D.

1973 Review of Chomsky 1972, reproduced by the Indiana University Linguistics Club.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

Meys, J.
1975 Compound adjectives in English and the ideal speaker. Amsterdam: North-Holland Publishing Company.

Moody, M.D.
1978 "Some preliminaries to a theory of morphology", Glossa 12: 16-38.

Motsch, Wolfgang
1962 "Zur Stellung der 'Wortbildung' in einem formalen Sprachmodell", Studia Grammatica, Vol. I:31-50.

Neijt, A.H.
1978 "Marked coordination in conjunction with the SOV-SVO problem", in Zonneveld (ed.) 1978:188-195.
1979 Gapping: A contribution to sentence grammar. Dordrecht: Foris Publications.

Nida, Eugene A.
1946 Morphology: the descriptive analysis of words. Ann Arbor, Michigan: University of Michigan Press.

Oosthuizen, Alta E.
to appear "On the status of complex ge- forms in Afrikaans", Stellenbosch Papers in Linguistics.

Peters, P.S., and R.W. Ritchie
1973 "On the generative power of transformational grammars", Information Sciences, Vol. 6:49-83.

Postal, Paul M., and Geoffrey Pullum
1978 "Traces and the description of English complementizer contraction", Linguistic Inquiry, Vol. 9:1-29.

Roeper, Thomas, and Muffy Siegel
1976 A lexical transformation for verbal compounds. Preliminary version. University of Massachusetts, Amherst.
1978 "A lexical transformation for verbal compounds", Linguistic Inquiry, Vol. 9:199-260.

Stellenbosch Papers in Linguistics, Vol. 5, 1980, 01-170 doi: 10.5774/5-0-117

Schachter, Paul

1976 "A nontransformational account of gerundive nominals in English", Linguistic Inquiry 7:205-241.

Schultink, H.

1962 De morfologische valentie van het ongelede adjectief in modern Nederlands. Den Haag: Van Goor Zonen.

1976 Samenstellende afleidingen in het Nederlands. Mimeographed.

Siegel, Dorothy

1971 Some lexical transderivational constraints in English. Mimeographed.

1974 Topics in English Morphology. MIT Dissertation.

1977 The adjacency condition and the theory of morphology. Mimeographed.

Van Alkemade, D.J. et al. (eds.)

1980 Linguistic studies offered to Berthe Siertsema. Amsterdam: Rodopi.

Wasow, T.

1977 "Transformations and the lexicon", in Culicover, Wasow, and Akmajian (eds.) 1977:327-360

Wurzel, W.U.

1970 Studien zur deutschen Lautstruktur (= Studia Grammatica 8). Berlin: Akademie Verlag.

Zimmer, Karl E.

1964 Affixal negation in English and other languages: an investigation of restricted productivity (= Supplement to Word, Vol. 20, Nr. 2., Monograph No. 5).

Zonneveld, W. (ed.)

1978 Linguistics in The Netherlands. Lisse: The Peter de Ridder Press.