PHRASAL COMPOUNDS IN AFRIKAANS: A GENERATIVE ANALYSIS*

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1   Introduction

The aim of this paper is twofold: to present the outlines of a theory
of Afrikaans phrasal compounding and to discuss the consequences of this
theory for the status of the No Phrase Constraint (henceforth: NPC) as
a language-independent constraint on word formation rules (henceforth:
WFRs).

Lexicalist morphologists like Aronoff (1976), Allen (1978), and Roeper
and Siegel (1978), amongst others, accept the hypothesis that WFRs can-
not take bases which are larger than words, that is, a WFR cannot form
a morphologically complex word on the basis of, for example, a syntactic
phrase. This restriction on WFRs is known as the NPC. While most
morphologists accept this constraint, they do not all assign to it the
same status. Roeper and Siegel (1978:202, 209, 211 and 213) and Allen
(1978:4, 12, 253), it appears, accept the NPC as having a language-
independent status. Selkirk (1982:8), on the other hand, views it as
at least a constraint on bases of WFRs in English. That is, the NPC
has a language-specific status. Whether she takes this constraint to
generalize to other languages is not clear.[1]

Botha (1981a:19) has recently described the NPC as a language-indepen-
dent constraint which is "widely accepted but poorly motivated". He
has argued that the NPC, as a language-independent constraint, is un-
tenable in its most general form. He presents an analysis of Afrikaans
synthetic compounds which requires that the NPC be reformulated so that
WFRs can apply to a properly defined class of syntactic structures,
viz. deep structure (henceforth: D-structure) phrases. This analysis
is worked out as his Base Rule Theory.[2]

In Afrikaans there exists another class of compounds which appear to
violate the NPC. These compounds are formed, according to linguists

such as Kempen (1969:347, 352) and Botha (1981a:73-77), by adjoining a
syntactic phrase to a noun. The following are examples of such com-
pounds.[3]

(1)   (a)   God-is-dood-teologie
              God is dead theology

              "doctrine which claims that God is dead"

       (b)   gou - baklei-spelers
              quickly fight players

              "players who are known to be free with their fists"

Forms such as those in (1) above have been called "phrasal compounds"
by Botha (1981a:76). For the formation of these compounds it appears
that WFRs must be able to take syntactic phrases as bases. Afrikaans,
therefore, does not seem to obey the NPC. This constitutes negative
evidence for the NPC if this constraint were to have a language-inde-
pendent status.

We turn now to the generalizations which an analysis of the different
types of phrasal compounds reveals, the outlines of a theory of phrasal
compounding and the implications of this theory for the status of the
NPC as a language-independent constraint on WFRs.

2   Generalizations for Afrikaans

An analysis of Afrikaans phrasal compounds reveals that these morpholo-
gically complex words can be divided into six types according to the
syntactic phrase which constitutes the lefthand constituent of such a
word.[4]   The syntactic phrase may be a NP, PP, AdvP, AP, VP or $\overline{S}$ as
shown in (2)(a), (3)(a), (4)(a), (5)(a), (6)(a) and (7)(a). The syn-
tactic phrase corresponds to an independently generated syntactic phrase
in a grammatical sentence of Afrikaans as in (2)(b), (3)(b), (4)(b),
(5)(b) and (6)(b), or to an independently generated sentence as in (7)
(b). The relevant syntactic phrases are capitalized.

(2)   (a)   [[mooi   weer] $_{NP}$ [godsdiens] $_N$] $_N$
             fair   weather   religion

"religion which is practised only when the situation is favourable to the person practising it"

(b)   MOOI   WEER   maak 'n mens   gelukkig.
       fair   weather makes a person happy

"Fair weather makes one happy."

(3)   (a)   [[op 'n ry] $_{PP}$ [neste] $_N$] $_N$
          in a row   nests

"nests hanging in a row"

(b)   Die neste hang OP 'n RY.
       the nests hang in a row

"The nests are hanging in a row."

(4)   (a)   [[laat in die aand] $_{AdvP}$ [drankie] $_N$] $_N$
          late in the evening   drink

"drink taken late in the evening"

(b)   Hulle wil altyd LAAT IN DIE AAND   koffie drink.
       they   want always late in the evening coffee drink

"They always want to drink coffee late in the evening."

(5)   (a)   [[vies vir die wêreld] $_{AP}$ [uitdrukking] $_N$] $_N$
          cross for the world   expression

"disgruntled expression"

(b)   Sy is VIES VIR DIE WÊRELD.
       she is cross for the world

"She is disgruntled."

(6)   (a)   [[uit die bottel drink] $_{VP}$ [alkoholis] $_N$] $_N$
          from the bottle drink   alcoholic

"alcoholic who drinks straight from the bottle"

(b)   Die vrou kla   dat haar man   UIT DIE BOTTEL DRINK.
       the woman complains that her husband from the bottle drinks

"The woman complains that her husband drinks straight from the bottle."

(7) (a) $[\ [\text{alles gaan goed}]_{\overline{S}}\ \ [\text{atmosfeer}]_N\ ]_N$

all   goes well   atmosphere

"trouble-free atmosphere"

(b)   ALLES GAAN GOED.

all   goes well

"Everything is going well."

The analysis of data such as those given above reveals certain generalizations which must be expressed by a descriptively adequate account of Afrikaans phrasal compounding.

(8) (a)   The non-head[5] of a well-formed phrasal compound corresponds to a well-formed syntactic surface structure phrase in a grammatical sentence of Afrikaans or a well-formed surface structure sentence of Afrikaans. The syntactic phrase may be generated by a rule/rules similar to that/those required to generate the corresponding syntactic phrase of Afrikaans.

(b)   The WFRs which adjoin the various syntactic phrases to nouns are extensions of the WFRs which adjoin non-phrasal constituents like nouns, adjectives and adverbs, for example, to nouns.

(c)   The noun to which the syntactic phrase is attached is a common noun or abstract noun.

Before turning to a discussion of the substance of the theory of Afrikaans phrasal compounding, it is necessary to consider the criteria which such a theory should satisfy. A theory of phrasal compounding, like grammatical theories in general, should satisfy the criteria enumerated in (9) below.[6]

(9) (a)   A theory of phrasal compounding must describe the formation of all possible, well-formed phrasal compounds in such a way that

(i)   all the relevant, linguistically significant
        generalizations about the language are ex-
        pressed;

(ii)   no spurious generalizations about the lan-
        guage are expressed.

(b)   In expressing the relevant language-specific generali-
        zations the theory should NOT use formal devices such as
        (kinds of) rules, structures and conditions which

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

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

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

3   A theory of Afrikaans phrasal compounding

3.1   Fundamental hypotheses of a theory of Afrikaans phrasal com-
        pounding

The generalizations formulated in (8) above can be accounted for by
assuming a theory of phrasal compounding which includes the following
two fundamental hypotheses.

(10)   The Phrasal Constituent Hypothesis
        Afrikaans phrasal compounds have as their bases phonetically
        interpreted surface structure phrases which are generated by
        independently motivated rules of the grammar.

(11)   The Compounding Hypothesis
        The rules by means of which syntactic phrases are adjoined
        to nouns are extensions of the rules of non-phrasal compoun-
        ding where compounding rules are WFRs which adjoin two con-
        stituents.

The essence of the theory of phrasal compounding which incorporates the

hypotheses (10) and (11) can be illustrated with reference to the phrasal
compounds (12)(a)-(d).

(12)   (a)   mooiweergodsdiens

       (b)   gou-baklei-spelers

       (c)   op-'n-ry-neste

       (d)   God-is-dood-teologie

In terms of the Phrasal Constituent Hypothesis, the phrasal compounds
(12)(a)-(d) have as their underlying structures phonetically interpreted
syntactic surface structures which may be represented as (13)(a)-(d) re-
spectively.

(13)   (a) $[[\text{mooi}]_{Adj} [\text{weer}]_N]_{NP}$

       (b) $[[\text{gou}]_{Adv} [\text{baklei}]_V]_{VP}$

       (c) $[[\text{op}]_P [\text{'n ry}]_{NP}]_{PP}$

       (d) $[COMP [\text{God is dood} —]_S]_{\overline{S}}$ [7]

The syntactic phrases (13)(a)-(d) are adjoined to nouns by a rule of
phrasal compounding in the lexicon to form (14)(a)-(d).

(14)   (a) $[[\text{mooi weer}]_{NP} [\text{godsdiens}]_N]_N$

       (b) $[[\text{gou baklei}]_{VP} [\text{spelers}]_N]_N$

       (c) $[[\text{op 'n ry}]_{PP} [\text{neste}]_N]_N$

       (d) $[[\text{God is dood}]_{\overline{S}} [\text{teologie}]_N]_N$

Afrikaans phrasal compounds are thus morphologically complex words formed
by adjoining a well-formed syntactic surface structure phrase, generated
by independently motivated rules of the grammar, to a noun. The phrasal
compounds, like the products of other WFRs, are then available for lexi-
cal insertion into categorial structures.

3.1.1   The Phrasal Constituent Hypothesis

The Phrasal Constituent Hypothesis as formulated in (10) makes certain predictions about possible and impossible phrasal compounds of Afrikaans and about the correspondence of the phrasal constituents of such com- pounds with possible and impossible syntactic expressions of Afrikaans. As will be shown below, both the well-/ill-formedness of syntactic expressions and the well-/ill-formedness of certain phrasal compounds can be reduced to a   well-/ill-formed syntactic expression of Afrikaans.

The Phrasal Constituent Hypothesis is partially justified by its ability to explain the well-formedness of certain phrasal compounds as opposed to the ill-formedness of others.   This hypothesis, by attributing the well-/ill-formedness of a certain phrasal compound and the expression corresponding to the phrasal constituent to one underlying source, cap- tures a linguistically significant generalization.   In so doing the Phrasal Constituent Hypothesis uses the same formal device to account for the well-/ill-formedness of syntactic expressions and the corres- ponding phrasal compounds.   This hypothesis thus avoids a conceptual redundancy in the general linguistic theory and satisfies the criterion given in (9)(b)(ii) above.[8)]   Note that the Phrasal Constituent Hypothe- sis does not provide a basis for explaining the ill-formedness of ALL phrasal compounds, nor does it enable us to distinguish between accepta- ble, marginally (un)acceptable and unacceptable phrasal compounds.   We return to these problems in §§3.1.1.2 and 3.2 respectively.

3.1.1.1   Possible phrasal constituents

A first prediction of the Phrasal Constituent Hypothesis may be formu- lated as (15).

(15)   No Afrikaans phrasal compound may have as its base a struc- ture which is not a possible, well-formed syntactic surface structure phrase of Afrikaans.

The claim expressed in (15) is borne out by the data in (16)(a)-(d) and (17(a)-(d).

(16) (a) <u>op-'n-ry-neste</u>

    (b) <u>laat-in-die-aand-drankie</u>

    (c) <u>alles-gaan-goed-atmosfeer</u>

    (d) <u>ons-word - mishandel - klagte</u>
        we   are   ill-treated complaint

        "complaint of being ill-treated"

(17) (a) *<u>op-ry-neste</u>

    (b) *<u>laat-in-aand-drankie</u>

    (c) *<u>alles-goed-gaan-atmosfeer</u>

    (d) *<u>ons-mishandel-word-klagte</u>

The forms (16)(a)-(d) are well-formed as each consists of a well-formed
phonetically interpreted surface structure phrase adjoined to a noun.
The forms (17)(a)-(d) are not well-formed as the syntactic phrase in
each case is not a well-formed phonetically interpreted surface struc-
ture of Afrikaans but rather a D-structure.

The non-heads of (17)(a) and (b) are well-formed D-structures given the
assumption that a categorial structure in Afrikaans does not include a
node like ART or DET under which <u>'n/die</u> is lexically inserted. I assume
in this paper that <u>'n/die</u> are overt realizations of the syntactic
features <-def> / <+ def> of NPs like <u>ry</u> and <u>aand</u>.[9]

There are certain forms, such as those in (18)(a) and (b) below, which
are problematic for the Phrasal Constituent Hypothesis and for the pre-
diction (15).

(18) (a) <u>tafel- en - bank - eenheid</u>
        table and   bench unit

        "unit consisting of a table and (a) bench"

    (b) <u>been- rek   - ruimte</u>
        leg   stretch space

        "space in which to stretch one's legs"

Let us consider each phrasal compound in turn with respect to the Phrasal

Constituent Hypothesis and the claim expressed in (15). The Phrasal
Constituent Hypothesis makes the claim that the syntactic phrase which
is adjoined to a noun exists on the level of syntactic surface struc-
ture. The syntactic phrase in (18)(a) appears to be a D-structure
rather than a surface structure phrase. A well-formed phonetically
interpreted surface structure phrase corresponding to the non-head of
(18)(a) could be either (19)(a) or (b). That is, in each case the
phrase includes an article die or n̩ .

(19)   (a)   die-tafel-en-die-bank
        (b)   n̩-tafel-en-n̩-bank

(20)(a) and (20)(b) in which (19)(a) and (19)(b) are adjoined to the
noun eenheid should constitute well-formed phrasal compounds of Afri-
kaans. This is not the case. Both (20)(a) and (b) are unacceptable
to fluent speakers of Afrikaans.

(20)   (a)   *n̩/die [die-tafel-en-die-bank-eenheid]
        (b)   *n̩/die [n̩-tafel-en-n̩-bank-eenheid]

(21)(a) and (b) in which the articles preceding the nouns tafel and
bank are absent, are acceptable to fluent speakers of Afrikaans.

(21)   (a)   die [tafel-en-bank-eenheid]
        (b)   n̩ [tafel-en-bank-eenheid]

We have an apparent contradiction here. The Phrasal Constituent Hypo-
thesis expresses the claim that only a well-formed phonetically inter-
preted surface structure may form a base of a phrasal compound. However,
(20)(a) and (b) in which such a phrase has been adjoined to a noun are
unacceptable to fluent speakers of Afrikaans. (21)(a) and (b) are,
however, acceptable to fluent speakers. The question which now arises
is how the data can be accounted for given the Phrasal Constituent Hypo-
thesis. To exclude forms such as (20)(a) and (b) we can include a
filter in the grammar. This filter excludes, as ill-formed, any sequence
in which two articles are adjacent. Hence, the filter will mark both

(20)(a) and (b) as ill-formed. By accounting for these forms with recourse to a filter, the Phrasal Constituent Hypothesis can be maintained in its most general form (10). No independent motivation exists for this filter. The absence of articles preceding nouns in other morphologically complex words which include syntactic phrases is accounted for in the following way. Afrikaans synthetic compounds, like phrasal compounds, take syntactic phrases as bases. The syntactic phrase leeu-byt in the synthetic compound (22) corresponds to the VP die leeu byt in the sentence (23).[10]

(22)   die/'n [leeu - byt - er]
        the a lion bite er
        "the/a person who bites lions"

(23)   Hy droom dat Jaws die leeu byt.
        he dreams that Jaws the lion bites
        "He dreams that Jaws is biting the lion."

The absence of the article die preceding leeu in (22) is accounted for by assuming that synthetic compounds are formed on the basis of D-structure phrases in which features like $\langle + \text{def} \rangle$ have not yet been overtly realized as the article die. The filter proposed above is therefore only required for excluding a limited number of phrasal compounds and is thus ad hoc.[11]

We turn now to the form beenrekruimte given as (18)(b) above. Given the Phrasal Constituent Hypothesis, the forms (24)(a)-(c) should be acceptable to fluent speakers of Afrikaans as each is formed by adjoining a surface structure phrase to a noun.[12] This is, however, not the case.

(24)   (a)   *'n/die ['n/die beenrekruimte]
        (b)   *'n/die [benerekruimte]
        (c)   *'n/die [(die) benerekruimte]

In contrast to (24)(a)-(c), the form (25) below is acceptable to fluent speakers of Afrikaans. The non-head in (25) corresponds to a well-formed

D-structure phrase, unlike the non-heads of (24)(a)-(c) which correspond to surface structure phrases.

(25)   'n/die [beenrekruimte]

The unacceptability of (24)(a)-(c) vis-à-vis the acceptability of (25) must be accounted for.   (24)(a) would be excluded by the filter proposed on p. 45 above. The form (24)(b) could also be excluded by this filter although there is another cause of unacceptability, viz. the plural form bene. The unacceptability of (24)(b) can also be attributed to the plural form of the noun bene in the non-head. Let us now examine several other ways in which we could attempt to account for the unacceptability of the forms (24)(a)-(c) vis-à-vis the acceptability of (25).

Firstly, we could restrict the possible bases to which the rules of phrasal compounding apply, that is, not all bases of phrasal compounds are syntactic surface structures, some are D-structures. To include beenrek as a possible base, the Phrasal Constituent Hypothesis would have to be restricted to include, as bases, D-structure VPs where the VP consists of a NP and a verb and to exclude such surface structure VPs. The prediction is that forms such as (26)(a)(i) and (b)(i) in which the VP corresponds to a surface structure phrase should be unacceptable to fluent speakers of Afrikaans. Forms such as (26)(a)(ii) and (b)(ii) in which the VP corresponds to a D-structure phrase should be acceptable. This is indeed the case.

(26)   (a)   (i)   *die [die tone-druk - skoene]
                       the   the toes press   shoes
                       "*the shoes which press the toes"

        (ii)   die [toon-druk - skoene]
                 the   toe   press   shoes
                 "the shoes which press one's toes"

      (b)   (i)   *die [die-truie - brei - sessie]
                      the   the jerseys knit session
                      "*the session at which the jerseys are knitted"

(ii)   die [trui - brei - sessie]
         the jersey knit   session
         "the session at which jerseys are knitted"

It would, however, seem unwise to restrict the generality of a funda-
mental hypothesis of the theory of phrasal compounding in order to
account for one sub-type of VP + N phrasal compounds.

A second possibility is the analysis of beenrek as a N + V compound of
the type liplees (= "lip read"). However, from a comparison of beenrek
with liplees it is evident that the individual constituents of beenrek
do not exhibit the same properties as liplees does when used in a gram-
matical sentence of Afrikaans. Rather, the individual constituents of
beenrek exhibit the same characteristics as the direct object and verb
of a grammatical sentence of Afrikaans. That is, the noun been like
the noun kat in Sy sê dat hy die groot kat slaan (= "She says that he
is hitting the big cat.") may be preceded by an article 'n (= "a") or
die (= "the") and may be preceded by a modifying adjective like groot
(= "big"). Thus, beenrek must be analyzed as a syntactic phrase and
not as a compound of the type N +V where the compound as a whole is a
verb.[13] An alternative would be to analyze beenrek as a noun derived
from the verb beenrek by zero affixation as represented in (27).

(27)   [[[been]$_N$ [rek]$_V$]$_V$ ∅]$_N$

If beenrek were analyzed in this way, beenrekruimte would be analyzed
as a nominal compound of the type N + N as represented in (28).

(28)   [[beenrek]$_N$ [ruimte]$_N$]$_N$

This analysis has certain unacceptable consequences. Firstly, the ana-
lysis of beenrek as a noun presupposes that beenrek is a possible com-
pound of the type N + V. As noted above, beenrek does not share
characteristics with N + V compounds like liplees. Instead, the cha-
racteristics of beenrek correspond to those of a syntactic phrase like
(die) kat slaan. This constituted evidence for analyzing beenrek as a

syntactic phrase, a VP, rather than as a compound. It was concluded that beenrek is not a possible compound of Afrikaans. This, in turn, constitutes negative evidence against the analysis of beenrek as a possible derivative, a noun, derived by zero affixation from the verb beenrek. Finally, if it is found that the rule of zero-affixation is not well-motivated, this would constitute further negative evidence against the analysis of beenrek as a noun.

It appears that beenrekruimte should be analyzed as a phrasal compound consisting of a syntactic phrase, a VP, and a noun. Given the limited occurrence of phrasal compounds like beenrekruimte, it seems unwise to restrict the generality of the Phrasal Constituent Hypothesis in any way. Forms such as beenrekruimte may be taken to be exceptions.

A second prediction of the Phrasal Constituent Hypothesis concerns the types of linguistic units which the phrasal constituent constituting the non-head of a phrasal compound may incorporate.

(29)   Each kind of linguistic unit which may occur in a phoneti-
         cally interpreted surface structure may be incorporated in
         the phrasal constituent which constitutes the non-head of a
         phrasal compound.

All morphologically simple and complex words such as simple derivatives, primary compounds, synthetic compounds, and even phrasal compounds, which are listed in the lexicon or formed by WFRs may be lexically inserted into a categorial structure and may therefore occur in a phonetically interpreted surface structure. Such words may thus also be incorporated into the phrasal constituent of a phrasal compound. This claim is borne out by the data in (30)(a)-(f). The relevant constituents are enclosed in parentheses.

(30)   (a)   *Simple lexical items*

             (i)   (gou) - (baklei) - spelers
             (ii)   (tafel) - (en) - (bank) - eenheid

(b) *Derived words*

    (i)   <u>(huisie) – in – die – berge – voorkoms</u>
            little house in the mountains appearance

          "appearance similar to that of a little house in
          the mountains"

    (ii)   <u>klein – (seuntjie) – glimlag</u>
            little (little) boy smile

          "smile of a little boy"

(c) *Primary compounds*

    (i)   <u>(speelgoed) – optel – kameraad</u>
            toys up pick companion

          "companion who helps to pick up and put away toys"

    (ii)   <u>(troetelmeisie) – van – die – jaar – wedstryd</u>
            playgirl of the year competition

          "competition to choose the playgirl of the year"

(d) *Idioms*

    (i)   <u>soggens – vroeg-(uit –die-vere) –·huisvrou</u>
            in the morning early from the feathers housewife

          "housewife who rises early each day"

    (ii)   <u>ek-het –nog -('n-kaart-in-die-mou) – waarskuwing</u>
            I have still a card in the sleeve warning

          "warning by someone that he still has a card up
          his sleeve"

(e) *Synthetic compounds*

    (i)   <u>(leeubyter) – van-die – jaar – kompetisie</u>
            lion biter of the year competition

          "competition to choose the lion-biter of the year"

    (ii)   <u>(vyfweekliks) – kom – belofte</u>
            five weekly come promise

          "promise to come every five weeks"

(f)   *Phrasal compounds*

(i)   doen – (rek –   en – strek – oefeninge) – bevel
        do   stretch and bend   exercises   order

        "order to do stretch-and-bend exercises"

(ii)   Diana–se–(kant – en – sy – aandtabberd) – stories
        Diana 's lace and silk evening dress stories

        "stories about Diana's lace and silk evening dress"

3.1.1.2   Ill-formed phrasal constituents

The Phrasal Constituent Hypothesis does not make the following prediction
about ill-formed phrasal compounds of Afrikaans.

(31)   The deviance of every ill-formed phrasal compound can be
        attributed to the ill-formedness of the phrasal constituent.

The Phrasal Constituent Hypothesis does not make the claim expressed in
(31), that is, it does not claim that surface structure is the only
factor which determines the well-/ill-formedness of Afrikaans phrasal
compounds. The hypothesis does not exclude the possibility that there
exist phrasal compounds which are formed by adjoining a well-formed
syntactic surface structure to a noun, but which are nevertheless ill-
formed. Consider in this regard the examples in (32).

(32) (a)   *soggens   – en – smiddae   – byeenkoms
            in the morning and   in the afternoon   meeting

            "meeting which takes place every morning and afternoon"

      (b)   *verdraaiing – van – die – feite – kwaadheid
            distortion   of   the   facts   anger

            "anger that the facts have been distorted"

      (c)   *hom – skuldig – bevind – skok
            him   guilty   find   shock

            "shock that someone has been found guilty"

In each case the phrasal constituent corresponds to a well-formed syn-
tactic surface structure but the phrasal compound is ill-formed. Since
the Phrasal Constituent Hypothesis does not make the prediction (31),
the ill-formed phrasal compounds are only apparent, not real, counter-
examples to this hypothesis. The theory of phrasal compounding consists
of two fundamental hypotheses, the Phrasal Constituent Hypothesis and
the Compounding Hypothesis. The ill-formedness of the phrasal compounds
(32)(a)-(c) may therefore also be attributed to the Compounding Hypothe-
sis. The ill-formedness of phrasal compounds such as (32)(a)-(c) may be
the result of the violation of some constraint on the rules of phrasal
compounding. We return to this question in §3.1.2 below.

3.1.2   The Compounding Hypothesis

We turn now to the prediction of the Compounding Hypothesis. The first
prediction of this hypothesis may be formulated as (33).

(33)   For every rule of phrasal compounding there is a corres-
        ponding rule of non-phrasal nominal compounding.

In essence, the prediction (33) expresses the following claim. If there
is a rule of phrasal compounding which adjoins a NP to N noun, there is
a corresponding rule of non-phrasal compounding which adjoins a noun to
a noun. The data in (34)-(37) bear out this claim.

(34)   (a)   NP - N   (b)   N - N

               tafel - en - bank - eenheid   tafel - doek
                                                  table   cloth

                                                  "tablecloth"

(35)   (a)   AP - N   (b)   Adj - N

               vies-vir-die-wêreld-uitdrukking   vuil - goed
                                                  dirty things

                                                  "rubbish"

(36) (a) PP - N   (b) P - N

        laat-in-die-aand-drankie   onder-dak
        ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾   under roof

                                                "shelter"

(37) (a) VP - N   (b) V - N

        ‘ gou - baklei - spelers   borrel-geluidjies
        ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾   bubble   sounds

                                                "bubbling sounds"

The only type of phrasal compound which does not have a corresponding
non-phrasal compound is the phrasal compound of the type $\bar{S}$ + N exempli-
fied in (38) below. [14]

(38)   God - is - dood - teologie
        ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾

A second prediction of the Compounding Hypothesis, may be formulated as
(39).

(39)   Restrictions which limit the productivity of a rule of
        non-phrasal compounding will also limit the productivity
        of the corresponding rule of phrasal compounding.

This prediction may be illustrated with reference to the forms below.
(39) implies, in abstract terms, that, if it is impossible to form a
non-phrasal compound Adv_x + N with Adv_x as its head, it will
also be impossible to form a phrasal compound $[Adv_x + Y]$ + N/$[Y + Adv_x]$ + N
on the basis of a syntactic phrase which contains Adv_x and one or more
additional constituents Y. Forms such as those in (40) indicate that
the prediction (39) is probably correct.

(40)   (a) Adv_x $Adv_x + N$

soggens   *soggens   –   byeenkoms
in the morning   in the morning   meeting

"in the morning"   "meeting held every morning"

$[Adv_x + Y] + N$

*soggens   – en – smiddae   – byeenkoms
in the morning and   in the afternoon meeting

"meeting held every morning and afternoon"

(b) Adv_x $Adv_x + N$

dikwels   *dikwels-vergaderings
often   often   meetings

"often"   "meetings which are held often"

$[Y + Adv_x] + N$

*te – dikwels-vergaderings
too often   meetings

"meetings which are held too often"

(c) Adv_x $Adv_x + N$ $[Y + Adv_x + Y] + N$

naby   *naby-leeu   *so-naby-dat – jy – elke –
near   near lion   so near that you every

                                haar – kan – sien-leeu
                                hair   can   see   lion

"near"   "lion which   "lion which is standing so near
             is near"   to a person that he can see
                                each hair on the lion's body"

A third prediction which follows from the Compounding Hypothesis may
be formulated as (41).

(41)   The morphological representation assigned to a phrasal com-
       pound is subject to the same general conditions as the
       morphological representations assigned to non-phrasal com-
       pounds.

Percolation and the Compositionality Constraint have been proposed as
general conditions to which the representation of morphologically com-

plex words are subject. The former is a well-formedness condition
proposed by Selkirk (1982:21) while the latter is formulated by Botha
(1982:1). These conditions are not included in all recent theories
of morphology and are used here only to elucidate the content of (41).

The representations assigned to morphologically complex words like the
non-phrasal (nominal) compounds (42)(a) and (b) are, according to Sel-
kirk (1982:21), subject to a well-formedness condition, Percolation,
given in (43).[15)]

(42)   (a)   <u>sake   -   brief</u>
               business letter

               "business letter"

        (b)   <u>staal - masjien</u>
               steel   machine

               "machine   made of steel"

(43)   Percolation

        If a constituent α is the head of a constituent β ,

        α and β are associated with an identical set of

        features (syntactic and diacritic). $[2.12]$

Phrasal compounds like (44)(a) and (b), being morphologically complex
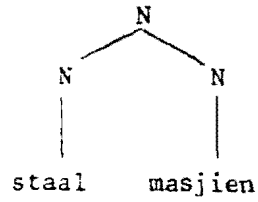words, should also be subject to this constraint.

(44)   (a)   <u>"hoe - gaan - dit - nog"-brief</u>
               how   goes   it   still letter

               "'how are you?' letter"

        (b)   <u>op - die - plek - draf - masjien</u>
               on   the   spot   jog   machine

               "exercise-machine which makes a person run on the spot"

The nominal compounds (42)(a) and (b) are formed by adjoining a noun to
another noun and are assigned the structures (45)(a) and (b) respectively.
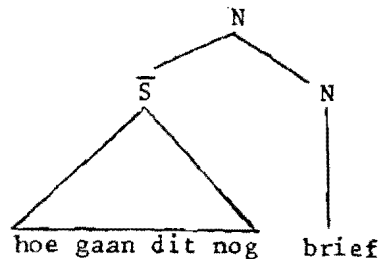
(45) (a)

```
              N
           /     \
         N          N
         |          |
        sake      brief
```

(b)

```
              N
           /     \
         N          N
         |          |
       staal     masjien
```
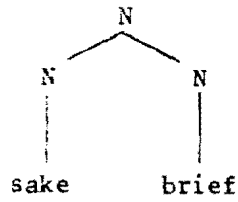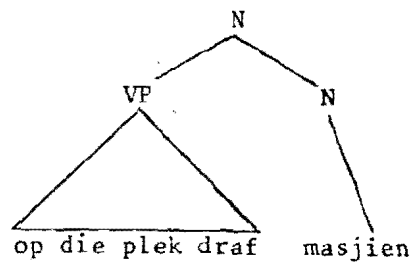
The phrasal compounds (44)(a) and (b) are formed by adjoining a syntactic phrase to a noun and are assigned the structures (46)(a) and (46)(b) respectively.
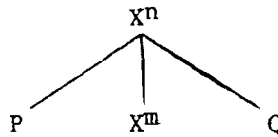
(46) (a)

```
                   N
                /     \
              S̄          N
            /    \        |
          /_____\     brief
        hoe gaan dit nog
```

(b)

```
                   N
                /     \
              VP          N
            /    \         \
          /_____\      masjien
        op die plek draf
```

Selkirk (1982:20) defines the head of a morphologically complex word as follows:

(47) Righthand Head Rule (revised)

In a word internal configuration,

$$X^n$$

P X^m Q

where X stands for a syntactic feature complex and

where Q contains no category with the feature complex X,

X^m is the head of X^n.

$$[2.11]$$

Given the RHR, the righthand constituent of each nominal compound, viz. brief and masjien , is the head of that compound. According to the well-formedness condition (47) the syntactic and diacritic features of the head must percolate to the node dominating the compound as a whole. The compounds then bear the same syntactic features as their heads and should be able to appear in the same syntactic environments as their heads. The same should be true of the corresponding phrasal compounds. These claims are borne out by the data in (48)-(51) below.

(48) (a) ʼn/die brief
           a/the letter

      "a/the letter"

      (b) ʼn/die sake   -   brief
           a the business   letter

      "a/the business letter"

      (c) ʼn/die "hoe - gaan - dit - nog" - brief
           a the how   goes   it   still letter

      "a/the 'how are you' letter"

(49) (a) in die brief
           in the letter

      "in the letter"

      (b) in die sake   -   brief
           in the business   letter

      "in the business letter"

(c) . in die "hoe – gaan – dit – nog" – brief
       in the how goes it still letter

"in the 'how are you' letter"

(50) (a) Ek skryf 'n brief.
         I write a letter

"I am writing a letter."

(b) Ek skryf 'n sake   –   brief.
    I write a business letter

"I am writing a business letter."

(c) Ek skryf 'n "hoe – gaan – dit – nog" – brief.
    I write a how goes it still letter

"I am writing a 'how are you' letter."

(51) (a) Die brief lê   op die tafel.
         the letter lies on the table

"The letter is lying on the table."

(b) Die sake   –   brief lê   op die tafel.
    the business letter lies on the table

"The business letter is lying on the table."

(c) Die "hoe – gaan – dit – nog" – brief lê   op die tafel.
    the how goes it still letter lies on the table

"The letter asking how you are is lying on the table."

It has recently been argued that morphologically complex words like
nominal compounds are subject to a general linguistic condition on
morphological representation, the Compositionality Condition. Botha
(1982:1) formulates this condition as follows:

(52)   The Compositionality Condition
        The morphological representation assigned to a complex word
        must provide a formal basis which will allow the semantic
        interpretation of the word as a whole to be specified as a
        simple function of the meanings of its constituents.   [1]

A prediction of the Compositionality Condition is that a nominal com-

pound should be formed in such a way that its labelled bracketing will
provide a formal basis for assigning the correct semantic interpretation
to such a compound. The morphological representations assigned to (42)
(a) and (b) may be represented as (53)(a) and (b) respectively.

(53)   (a) $[\, [\text{sake}]_N \, [\text{brief}]_N \,]_N$

    (b) $[\, [\text{staal}]_N \, [\text{masjien} \quad]_N \,]_N$

The labelled bracketing in (53)(a) correctly denotes the two constituents,
<u>sake</u> and <u>brief</u>, which will represent elements in the "composition" of the
meaning of the compound as a whole: "business letter". Similarly, in
(53)(b) the labelled bracketing indicates the two constituents, <u>staal</u>
and <u>masjien</u> , which will represent elements in the "composition" of
the meaning of the compound: "machine made of steel".

The phrasal compounds (44)(a) and (b), being morphologically complex
words, are also subject to the Compositionality Condition. The phrasal
compounds should be formed in such a way that the labelled bracketing
provides a formal basis for assigning the correct semantic interpreta-
tion to each compound. The morphological representations assigned to
(44)(a) and (b) may be represented as (54)(a) and (b) respectively.

(54)   (a) $[\, [\text{op die plek draf}]_{VP} \, [\text{masjien} \quad]_N \,]_N$

    (b) $[\, [\text{hoe gaan dit nog}]_{\overline{S}} \, [\text{brief}]_N \,]_N$

The labelled bracketing in (54)(a) correctly indicates the two consti-
tuents, <u>op die plek draf</u> and <u>masjien</u> , which will represent elements
in the "composition" of the meaning of the phrasal compound as a whole:
"exercise machine which makes a person run on the spot". Similarly, in
(54)(b) the labelled bracketing indicates the two constituents, <u>hoe gaan</u>
<u>dit nog</u> and <u>brief</u>, which will represent elements in the "composition"
of the meaning of the phrasal compound: "'how are you' letter".

An incorrect labelled bracketing of the forms (44)(a) and (b) would be
any bracketing that incorrectly indicated the constituents which repre-
sent elements in the composition of the meaning of the phrasal compound

as a whole. Such a labelling is represented in (55)(a) and (b).

(55)　(a)　$*\left[\left[\text{op-die-plek}\right]_{PP}\left[\text{drafmasjien}\right]_N\right]_N$

　　　(b)　$*\left[\left[\text{hoe-gaan}\right]_S\left[\text{dit-nog-brief}\right]_N\right]_N$

Given the bracketing in (55)(a), op-die-plek-draf-masjien　would incorrectly be assigned the meaning "exercise-machine forcing/enabling one to run, which moves on the spot", rather than the more natural meaning "exercise-machine which makes a person run on the spot". In the case of (55)(b), the labelled bracketing is incorrect as hoe-gaan does not constitute a well-formed sentence of Afrikaans, and dit-nog-brief does not constitute a well-formed morphologically complex word of Afrikaans. No meaning can be assigned to the form as a whole.

3.2　Extra-grammatical constraints on phrasal compounding

The Phrasal Constituent Hypothesis, as formulated in (10) on p. 41 above, provides a basis for explaining the well-formedness/ill-formedness of certain Afrikaans phrasal compounds on the basis of the well-/ill-formedness of the non-head. The Compounding Hypothesis provides a basis for explaining the ill-formedness of phrasal compounds which correspond to ill-formed non-phrasal compounds. These hypotheses do not, however, provide a basis for explaining the differences in acceptability between the well-formed phrasal compounds discussed above and those given in (56) and (57) below.

(56)　(a)　*bevestiging - dat - Richard Clayderman - nie - meer -
　　　　　confirmation that Richard Clayderman not more

　　　　　gaan - speel - nie - berig
　　　　　go play not report

　　　　　"report confirming that Richard Clayderman is not going
　　　　　to play anymore"

　　　(b)　*twintig - voet - van - die - huis - boom
　　　　　twenty foot from the house tree

　　　　　"tree which stands twenty feet from the house"

(c)   *vir – sy – kind – 'n – motor – koop – onderneming
       for his child   a   car   buy   undertaking

       "undertaking by a father to buy his child a car"

(57)   (a)   ?*vleisrol – wat – in – 'n – sous – gebak – word – gereg
              meatroll which in   a   sauce   baked   is   dish

              "dish consisting of a meatroll which is cooked in a sauce"

       (b)   ?*sestig – voet – onder – die – see – wrak
              sixty   foot   under   the   sea   wreck

              "wreck which lies sixty feet under the sea"

       (c)   ?*drie – keer – toet – waarskuwing
              three   time   hoot   warning

              "warning given by hooting three times"

The question to which we must now turn is the following: How can the
differences in acceptability between the various well-formed phrasal
compounds be accounted for? The unacceptability/marginal (un)accepta-
bility of well-formed phrasal compounds such as those in (56) and (57)
cannot be attributed to the ill-formedness of the non-head as the non-
head in each case corresponds to a well-formed syntactic phrase in a
grammatical sentence of Afrikaans, nor to the violation of some restric-
tion on compounding. In each case the unacceptability/marignal (un)ac-
ceptability appears to be the result of some factor for which the
grammar cannot account. For example, the unacceptability of (56)(a)
and the marginal (un)acceptability of (57)(a) appears to be the result
of the complexity of the non-head and hence the complexity of the
phrasal compound as a whole. This results in the phrasal compound
being difficult to process perceptually. In cases like (56)(b) and
(57)(b) the unacceptability / marginal (un)acceptability appear to
be the result of the impossibility of assigning an appropriate meaning
to the entity denoted by the phrasal compound.

Given the limited scope of this study, I was unable to empirically
determine the factor/factors responsible for the unacceptability/mar-
ginal (un)acceptability of forms like (56)(a)-(c) and (57)(a)-(c). As
the unacceptability/marginal (un)acceptability cannot be attributed to
the ill-formedness of the forms I have tentatively concluded that the
unacceptability is the result of some extra-grammatical constraint. An

in-depth study of such constraints is required before a more detailed
account can be given of the unacceptability/marginal (un)acceptability
of (56) and (57) and other similar forms.[16)]

3.3   The nature of the rules generating the non-head

We turn now to a discussion of the nature of the rules which generate
the non-head of a phrasal compound. The Phrasal Constituent Hypothesis
as formulated in (10) expresses the claim that the phrasal constituent
which constitutes the non-head of a phrasal compound is generated by
independently motivated rules of the grammar of Afrikaans. That is, the
phrasal constituent is generated by the rules of the syntactic, Logical
Form (henceforth: LF) and Phonetic Form (henceforth: PF) components.
For example, a base rule generates a syntactic phrase NP
into which morphologically simple or complex items from the lexicon
are inserted.   Rules of the syntactic, LF- and PF-components may
or may not then apply to such an NP. The NP is fed back into the lexicon
where it is adjoined to a noun by a rule of phrasal compounding. The
phrasal compound is then available for lexical insertion into a catego-
rial structure underlying a grammatical sentence of Afrikaans. On this
analysis there is no duplication of the functions of rules of the gram-
mar. Already existing, independently motivated rules of the grammar
generate the syntactic phrases which constitute bases for the rules of
phrasal compounding. This proposal which does not cause a redundancy
in the grammar and which allows for the capturing of linguistically
significant generalizations about the similarities between the non-head
of a phrasal compound and the corresponding syntactic phrase satisfies
criterion (9)(a)(i) given on pp. 40 — 41 above.

There are two other ways in which the formation of the non-head of a phrasal
compound could possibly be accounted for.   A first possibility is that
the lexicon may contain a set of rules similar to those in the syntactic,
LF- and PF-components. These rules would then generate phrasal struc-
tures like NPs, for example, in the lexicon. A WFR would then adjoin
such a NP to a noun to form a well-formed phrasal compound of Afrikaans.
This proposal is, however, unacceptable as it causes a redundancy in
the grammar of Afrikaans. That is, it fails to satisfy the criterion
(9)(a)(ii) on p. 41 above. If the phrasal constituent which constitutes

the non-head were generated by rules similar to those of the syntactic,
LF- and PF-components, there would be an unnecessary duplication of the
function of the rules which generate the corresponding phrases. Such a
duplication is undesirable and should, if possible, be avoided. In
addition, the similarity/similarities between the non-head of a phrasal
compound and the corresponding syntactic phrase is/are left unexpressed.
Criterion (9)(a)(i) is not satisfied.

A second possibility is that the syntactic phrases which constitute the
non-heads of phrasal compounds may be listed in the lexicon. This is,
however, not acceptable. The rules of phrasal compounding are produc-
tive rules, and, as such, can adjoin almost any syntactic phrase to a
noun to form a phrasal compound. The number of syntactic phrases which
may form bases for rules of phrasal compounding is therefore infinite.
An infinite number of syntactic phrases cannot be stored in a finite
list in the lexicon.

In order to express the linguistically significant generalizations
about phrasal compounding we must assume that the non-head of a phrasal
compound is generated by independently motivated rules of the grammar
of Afrikaans.

A question which has not yet been discussed is whether there are formal
restrictions on the class of possible phrases which may constitute the
non-head of a well-formed phrasal compound. If the class of syntactic
phrases is not restricted in any way, any well-formed surface structure
phrase can be adjoined to a noun to form a phrasal compound. Unaccep-
table/ill-formed phrasal compounds formed in this way will then have to
be filtered out/excluded by extra-grammatical constraints such as those
suggested in §3.2 above.

If it were found that a certain type of syntactic phrase could never
constitute the non-head of a well-formed phrasal compound, such phrases
could be excluded by some formal restriction. However, in many cases
it appears that some syntactic phrases of a given type can be adjoined
to nouns while other phrases, which are structurally identical, cannot.
We would not want to place formal restrictions on such classes of syn-
tactic phrases. For example, if a formal restriction excluded PPs con-
sisting of an N and a PP as possible non-heads, a syntactic phrase such as

twintig-voet- van - die -huis would be excluded as a possible non-head.
*twintig-voet- van -die-huis-boom would correctly be excluded as an
unacceptable/ill-formed phrasal compound. However, the formal restric-
tion would also exclude the PP dertig-myl-per-uur as a possible non-
head and hence incorrectly exclude dertig-myl-per-uur-teken as a well-
formed phrasal compound.

Furthermore, not all phrasal compounds incorporating a given type of
syntactic phrase are equally (un)acceptable to fluent speakers of
Afrikaans. For example, *bevestiging-dat-Richard-Clayderman-nie-meer-
gaan-speel-nie-berig and ?*vleisrol-wat-in-'n-sous-gebak-is-gereg both
incorporate structurally similar syntactic phrases as non-heads. The
former is unacceptable and the latter only marginally (un)acceptable.
A formal restriction on syntactic phrases consisting of an N and an $\bar{S}$
would incorrectly exclude both syntactic phrases as possible non-heads.
I would tentatively suggest then, that, rather than having recourse to
formal restrictions on the class of syntactic phrases which may consti-
tute non-heads, we have recourse to extra-grammatical constraints,
perceptual or pragmatic, for explaining the unacceptability/ill-formed-
ness of certain phrasal compounds.

3.4   Problematic cases

We turn now to a number of cases which are problematic for the theory
of phrasal compounding. Firstly, a number of forms whose non-head could
be analyzed either as a compound or as a syntactic phrase are examined.
Secondly, forms in which constituents of the non-head are optionally or
obligatorily deleted are discussed.

3.4.1   Compound versus phrasal analysis of non-head

There are several forms in my corpus of data which cannot be accounted
for by the theory of phrasal compounding as formulated on p.41 above.
The non-head of each form discussed below could be analyzed either as a
non-phrasal compound or as a syntactic phrase. If the non-head is ana-
lyzed as a compound, the form as a whole must be analyzed as a non-phrasal

compound. If, however, the non-head is analyzed as a syntactic phrase, the form as a whole is analyzed as a phrasal compound.

3.4.1.1 Slaap-wakkerbly-patroon

The form (58) is an ill-formed phrasal compound of Afrikaans given the Phrasal Constituent Hypothesis. The non-head slaap-wakkerbly does not correspond to a well-formed syntactic surface structure phrase. Sentence (59) which contains a syntactic phrase corresponding to slaap-wakkerbly is ungrammatical.

(58)   slaap-wakkerbly - patroon
       sleep awake stay   pattern

      "pattern of sleeping and staying awake alternately"

(59)   *Sy sê   dat hulle op diens slaap wakkerbly   na gelang
       she says that they on duty sleep awake stay depending

      van die werk wat   hulle moet doen.
      on the work which they   must do

      "*She says that they sleep stay awake on duty depending
      on the work which they have to do."

There are, however, two other possible analyses of the non-head of slaap-wakkerbly-patroon. Before considering such analyses let us briefly consider wuif-groet which is similar in structure to slaap-wakkerbly.

(60)   Hulle berig dat die koning sy onderdane wuif-groet.
       they report that the king his subjects wave greets

      "They report that the king waves to and greets his subjects."

wuif-groet in (60) can be analyzed as a syntactic phrase which has been subject to deletion. On this analysis, wuif-groet is generated as a coordinated structure, wuif en groet, by the base rules of Afrikaans. A deletion rule applies to wuif en groet and deletes the conjunction en, yielding wuif-groet.

Alternatively, wuif-groet could be analyzed as a V + V compound. Kempen (1969:344) has noted that such compounds are readily attested in Afri-

kaans, especially in literary works. These compounds may be interpreted
as having an en (= "and") relationship between their component consti-
tuents. wuif-groet is therefore assigned the meaning "wave and (simul-
taneously) greet".[17]

slaap-wakkerbly, like wuif-groet, could be analyzed either as a syntac-
tic phrase which has been subject to deletion or as a compound verb.
Let us consider first the analysis of slaap-wakkerbly-patroon as a
non-phrasal compound consisting of a compound verb, slaap-wakkerbly,
and a noun, patroon. wakkerbly in the non-head position may be analyzed
as a compound, specifically as a verb, consisting of an adjective wakker
and a verb bly. slaap-wakkerbly then consists of a verb slaap and a
compound, also a verb, wakkerbly. The compound slaap-wakkerbly, as a
whole, is a verb. This compound could be interpreted as having an en-
relationship between its component constituents. It will thus be
assigned the meaning "sleep and (simultaneously) stay awake". Given
this interpretation of slaap-wakkerbly, slaap-wakkerbly-patroon would
be assigned the interpretation "pattern of sleeping and (simultaneously)
staying awake". The analysis of the non-head of slaap-wakkerbly-patroon
as a compound thus results in an unnatural interpretation being assigned
to the form as a whole.

slaap-wakkerbly-patroon could be analyzed as a phrasal compound whose
non-head is a syntactic phrase, a VP, that has been subject to reduc-
tion/deletion. On this analysis the non-head slaap-wakkerbly is taken
to correspond to the syntactic phrase slaap en wakkerbly in sentence
(61) below.

(61)   Sy sê   dat die manne op diens om die beurt slaap en
        she says that the men   on duty   in the turn   sleep and

        wakkerbly.
        awake stay

        "She says that the men on duty take it in turns to sleep and
        stay awake."

The conjunction en in the VP slaap en wakkerbly is deleted and the re-
duced VP is adjoined to the noun patroon to form slaap-wakkerbly-patroon.
slaap-wakkerbly has the meaning "sleep and stay awake (in turn)" and the form
slaap-wakkerbly-patroon the meaning "pattern of sleeping and staying awake
(in turn)". The analysis of slaap-wakkerbly as a reduced syntactic phrase

enables us to assign a more natural interpretation to the form <u>slaap-</u>
<u>wakkerbly-patroon</u> as a whole. The analysis of the non-head of <u>slaap-</u>
<u>wakkerbly-patroon</u> as a reduced syntactic phrase is therefore to be
preferred to an analysis of the non-head as a compound.

3.4.1.2   <u>Vaalhaarnooi</u> type

In Afrikaans there exist a number of forms which, at first glance, could
be analyzed in one of two possible ways:

>   (i)   as nominal compounds consisting of a nominal
>   compound of the type Adj + N and a noun, or
>
>   (ii)   as phrasal compounds whose non-head NP con-
>   sists of an Adj and a N.

Consider in this regard the forms (62)(a)-(c) below.

(62)   (a)   <u>vaal-haar-nooi</u>
               dull hair girl

               "girl with dull hair"

        (b)   <u>bruin-oog-dogter</u>
               brown eye girl

               "brown-eyed girl"

        (c)   <u>lang-been-vrou</u>
               long leg woman

               "long-legged woman"
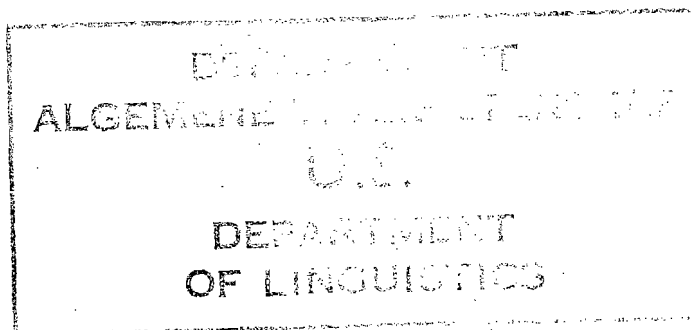
The forms (62)(a)-(c) appear to be similar to phrasal compounds like
<u>mooiweergodsdiens</u> in which the non-head NP consists of an Adj and a
noun. The Adj - N sequence in each form corresponds to an independent-
ly generated NP in grammatical sentences of Afrikaans such as (63)(a)-(c).

(63)   (a)   <u>Die nooi het vaal hare.</u>
               the girl has dull hair

               "The girl's hair is dull."

        (b)   <u>Die dogter het bruin oë.</u>
               the girl   has brown eyes

               "The girl has brown eyes."

(c)   Die vrou het lang bene.
       the woman has long legs

       "The woman has long legs."

The only difference between the Adj - N sequences in (62)(a)-(c) and the corresponding NPs in the sentences (63)(a)-(c) is that the nouns are singular in form in the former, but plural in form in the latter. The theory of phrasal compounding cannot account for the forms (62)(a)-(c). The non-head in each case does not correspond to a well-formed syntactic surface structure. Given the Phrasal Constituent Hypothesis, (62)(a)-(c) are ill-formed phrasal compounds of Afrikaans.

Alternatively, we may analyze the forms (62)(a)-(c) as non-phrasal compounds. The non-phrasal compound consists of a nominal compound of the type Adj + N, and a noun. Each form is therefore assigned the structure (64) as shown in (65)(a)-(c).

(64) $[[Adj + N]_N + N]_N$

(65)   (a) $[[[vaal]_{Adj} [haar]_N]_N [nooi]_N]_N$

        (b) $[[[bruin]_{Adj} [oog]_N]_N [dogter]_N]_N$

        (c) $[[[lang]_{Adj} [been]_N]_N [vrou]_N]_N$

The sentences (66)(a)-(c) each contain the non-head of (62)(a)-(c) used as a noun.

(66)   (a)   Hy is verlief op   die vaal-haar.
               he is in love with the dull hair

               "He is in love with the girl who has dull hair."

        (b)   Sy is 'n bruin-oog.
               she is a brown eye

               "She is brown-eyed."

        (c)   Sy is 'n lang-been.
               she is a long leg

               "She is long-legged."

Let us now consider the analyses given above against the background of Kempen's (1969:192ff.) discussion of similar forms in Afrikaans such as dikkopmense and grootbekkinders. Kempen notes that sequences like dikkop (= "blockhead") and grootbek (= "braggart") may be handled as compounds or as "word groups" (syntactic phrases). In (67)-(69) dikkop, grootbek and dikmond (= "sulky") are used as compounds while in (70) dikkop and grootbek are used as "word groups".

(67)   Hy is 'n dik -kop / groot-bek.
         he is a thick head big   mouth

         "He is a blockhead/braggart."

(68)   Hy is alweer groot-bek   oor   sy   kanse.
         he is again big   mouth about his chances

         "He is bragging about his chances again."

(69)   Hy staan dik - mond   voor   die deur en wag.
         he stands thick mouth in front of the door and waits

         "He waits sulkingly in front of the door."

(70)   Hy het so 'n dik   kop / groot bek.
         he has such a thick head / big   mouth

         "He has such a thick skull/big mouth."

Compounds like dikkop, grootbek and dikmond may function as nouns as in (67), as adjectives as in (68) or as adverbs as in (69). dikkop and grootkop as compound nouns, or as "word groups", may be adjoined to nouns to form longer nominal compounds as in (71)(a) and (b).

(71)   (a)   [dik - kop] + mense
               thick   head people

               "people who are blockheads"/"people who, anatomically
               speaking, have thick skulls"

        (b)   [groot - bek] + kinders
               big   mouth   children

               "children who are braggarts"/"children who, anatomically
               speaking, have big mouths"

In these examples it is possible to determine whether dikkop/grootbek
is a non-phrasal compound or a syntactic phrase. Compounds like dikkop/
grootbek belong to the class of so-called exocentric, or, more specifi-
cally, bahuvrihi compounds. The meanings of such compounds are not
formed in the same way as the meanings of similar Adj + N endocentric
compounds. Bahuvrihi compounds have been discussed, albeit briefly, in
various recent works on compounding in English. Allen (1978:98-102,
109-111) has proposed that English exocentric compounds are not formed
by the same compounding rules as endocentric Adj + N compounds. The
exocentric compounds are listed in the lexicon together with their idio-
syncratic meanings. Selkirk (1982:26), on the other hand, has proposed
that bahuvrihi compounds are generated by the same context-free rewriting
rules that are used for the generation of endocentric compounds. The
meanings of such bahuvrihi compounds are, however, composed by special
semantic rules.

If dikkop is taken to be a bahuvrihi (exocentric) compound, it has the
meaning "blockhead". dikkopmense has the meaning "people who are block-
heads". If, however, dikkop is taken to be an NP, it has the meaning
"thick head/skull". As a whole dikkopmense has the meaning "people who,
anatomically speaking, have thick skulls". Thus dikkopmense may con-
ceivably have two different meanings, depending on the analysis of
dikkop. Similarly, if grootbek is taken to be a compound, it has the
meaning "braggart". grootbekmense has the meaning "people who are brag-
garts". If grootbek is taken to be a NP, it has the meaning "big mouth"
and grootbekkinders the meaning "children who, anatomically speaking,
have big mouths". There are thus two possible analyses of dikkopmense
and grootbekkinders and hence two possible interpretations of these
forms.

Let us now consider in more detail the two alternative analyses of the
forms (62)(a)-(c). As noted above there appear to be two possible ana-
lyses of these forms. If vaalhaar is analysed as a bahuvrihi compound,
it has the meaning "someone (a person) with dull hair". vaalhaarnooi
has the meaning "girl who is a person with dull hair". Similarly,
bruinoog has the meaning "someone (a person) with brown eyes" and bruin-
oognooi "a girl who is a person with brown eyes". Finally, langbeen has
the meaning "someone (a person) with long legs" and langbeenvrou the
meaning "woman who is a person with long legs". If, however, the forms

are analyzed as phrasal compounds, they have the meanings "girl with
dull hair", "girl with brown eyes" and "woman with long legs", respec-
tively. In each case the interpretation is more natural than the one
assigned when analyzing (62)(a)-(c) as consisting of a bahuvrihi com-
pound and a noun. It appears that the analysis of (62)(a)-(c) as phrasal
compounds is to be preferred. However, the theory of phrasal compounding
cannot account for the singular form of the noun in the non-head position
of each form. As in the case of been in beenrekruimte, the nouns haar,
oog and been are singular in form but convey a generic sense usually con-
veyed by the plural form. If the non-head of each form is analyzed as a
bahuvrihi compound, the absence of the suffix -e is accounted for.

To summarize: if the non-head of each form is analyzed as a bahuvrihi
compound, the absence of the suffix -e on the noun is accounted for.
However, a less natural semantic interpretation is assigned to each form.
The theory of phrasal compounding cannot account for the absence of the
suffix -e on the noun in the non-head position. However, the analysis
of the forms (62)(a)-(c) as phrasal compounds enables us to assign a
more natural interpretation in each case. To analyze the forms (62)
(a)-(c) as phrasal compounds the Phrasal Constituent Hypothesis would
have to be weakened to include D-structure NPs as possible bases for
rules of phrasal compounding.

Before weakening the Phrasal Constituent Hypothesis, bahuvrihi compounds
in Afrikaans must be investigated in detail, especially with respect to
the interpretation assigned to such compounds both as independent words
and as the non-heads of morphologically complex words. The same inter-
pretation problems as those which arose with vaalhaarnooi, arise when a
bahuvrihi compound consisting of a numeral and a noun such as (72) is
adjoined to a noun as in (73).

(72)   nege - oog
        nine eye

        "entity with nine eyes"

(73)   nege - oog - reus
        nine   eye   giant

        "giant who is an entity with nine eyes"

The more natural interpretation of (73) is "giant with nine eyes". This
interpretation would be assigned if (73) were analyzed as a phrasal
compound.

Even bahuvrihi compounds in which the component constituents do not
correspond to constituents of a syntactic phrase exhibit the same inter-
pretation problems. For example, krul, a noun, and kop, a noun, in the
bahuvrihi compound (74) below, do not correspond to constituents of an
NP in Afrikaans. krulkop can therefore only be analyzed as a compound
and not as a syntactic phrase.

(74)   krul - kop
        curl head

        "person who has curly hair"

When (74) is adjoined to a noun, as in (75), the same type of less natu-
ral interpretation that was assigned to vaalhaarnooi is assigned to
krulkopseuntjie.

(75)   krul-kop - seuntjie
        curl head   little boy

        "little boy who is a person who has curly hair"

The more natural interpretation is "little boy with curly hair". In
cases like vaalhaarnooi and nege-oog-reus the less natural interpreta-
tion can be avoided by reanalyzing the form as a phrasal compound.
This is not however possible with forms like (75).

The problem here appears to lie with the interpretation of bahuvrihi
compounds which constitute the non-head of a morphologically complex
word, rather than with the Phrasal Constituent Hypothesis. Forms such
as vaalhaarnooi and blouoogdogter should not, therefore, be taken to
reflect negatively on the Phrasal Constituent Hypothesis, but rather
to reflect on an interpretation problem of bahuvrihi compounds. A study
of such compounds is clearly necessary.

3.4.1.3   Vyfdagtoets type

Forms such as (76)(a)-(c) below are problematic for the theory of phrasal compounding, specifically for the Phrasal Constituent Hypothesis as formulated in (10) on p. 41 above.

(76)   (a)   vyf - dag - toets
                five   day   test

               "five-day test"

        (b)   vier - speek - stuurwiel
               four   spoke   steering wheel

               "steering wheel which has four spokes"

        (c)   twee - vuis - rughand
               two   fist   backhand

               "backhand shot played holding the tennis racket with both hands"

The non-head of each form does not correspond to a well-formed phonetically interpreted surface structure phrase. In each case the corresponding NP in a grammatical sentence of Afrikaans must contain a noun which is plural in form as in (77)(a)(i), (b)(i) and (c)(i) rather than a noun which is singular in form as in (77)(a)(ii), (b)(ii) and (c)(ii).

(77)   (a)   (i)   Die toets duur vyf dae.
                      the test lasts five days

                      "The test lasts five days."

               (ii)   *Die toets duur vyf dag.
                      the test lasts five day

                      "*The test lasts five day."

        (b)   (i)   Die stuurwiel   het vier speke.
                      the steering wheel has four spokes

                      "The steering wheel has four spokes."

               (ii)   *Die stuurwiel   het vier speek.
                      the steering wheel has four spoke

                      "*The steering wheel has four spoke."

(c)   (i)   <u>Die bokser sien twee vuiste voor   sy gesig.</u>
                 the boxer sees two fists in front of his face

"The boxer sees two fists in front of his face."

    (ii)   <u>*Die bokser sien twee vuis voor   sy gesig.</u>
                 the boxer sees two fist in front of his face

"*The boxer sees two fist in front of his face."

The Phrasal Constituent Hypothesis cannot account for the form of the non-heads in (76)(a)-(c). That is, given the Phrasal Constituent Hypothesis, (76)(a)-(c) are ill-formed phrasal compounds of Afrikaans.

Let us now consider the following data.

(78)   (a)   <u>een-vertrek-kantoor</u>
             one room office

"office consisting of one room"

    (b)   <u>een-kamer-woning</u>
             one room abode

"abode consisting of one room"

    (c)   <u>agt - silinder -motor</u>
             eight cylinder car

"car which has eight cylinders"

The $Q-N$ sequences in (78)(a) and (b) can be taken to correspond to well-formed syntactic surface structures or to well-formed D-structure phrases.

(79)   (a)   (i)   <u>Die kantoor het een vertrek.</u>
                    the office has one room

"The office consists of one room."

        (ii) $[\ [een]_Q \ [vertrek]_N \ ]_{NP}$

    (b)   (i)   <u>Die woning het een kamer.</u>
                    the abode has one room

"The abode consists of one room."

        (ii) $[\ [een]_Q \ [kamer]_N \ ]_{NP}$

The Q-N sequences in (78)(a) and (b) can also be analyzed as compounds
of Afrikaans.

(80) (a) <u>Vir 'n een-vertrek sien ek nie kans   nie.</u>
           for a one   room   see I not chance not

           "I am not prepared to stay in a one-roomed flat."

      (b) <u>Hulle woon in 'n een-kamer.</u>
           they live in a one room

           "They live in a one-roomed flat."

The Q-N sequence in (78)(c) does not correspond to a well-formed syntac-
tic surface structure phrase as was the case with the Q-N sequence in
the forms (76)(a)-(c).

(81) (a) <u>Die motor se enjin het agt   silinders.</u>
           the car   's engine has eight cylinders

           "The car's engine has eight cylinders."

      (b) <u>*Die motor se enjin het agt   silinder.</u>
           the car   's engine has eight cylinder

           "*The car's engine has eight cylinder."

The Q-N sequence <u>agtsilinder</u>, like the Q-N sequences <u>eenvertrek</u> and
<u>eenkamer</u>, can function as a compound.

(82) <u>Ek wil 'n agt - silinder koop.</u>
      I want an eight cylinder buy

      "I want to buy an eight cylinder car."

Let us now consider how the data given above can be accounted for.
Firstly, the forms (78)(a), (b) and (c) can be accounted for by analy-
zing each Q-N sequence as a compound, specifically as an exocentric
compound. Thus the Q-N sequence <u>een-vertrek</u> is an exocentric compound
of Afrikaans. This compound is adjoined to a noun like <u>kantoor</u> to form
<u>een-vertrekkantoor</u>.

The forms (76)(a)-(c) could also be analyzed in this way, that is, as
exocentric compounds adjoined to nouns. <u>vyfdag</u>, <u>vierspeek</u> and <u>tweevuis</u>

may be analyzed as well-formed but non-occurring exocentric compounds of Afrikaans. Each compound is adjoined to a noun to form a compound like vyfdagtoets, vierspeekstuurwiel and tweevuisrughand, respectively. By analyzing the forms (76)(a)-(c) as consisting of a compound and a noun, rather than as consisting of a syntactic phrase and a noun, we can account for the singular form of the noun in the non-head position. However, such an analysis, as in the case of forms like vaalhaarnooi, results in a less natural interpretation being assigned to the form as a whole. For example, the compound vyfdag would be assigned the meaning "something which lasts five days". vyfdagtoets would then be assigned the meaning "test which is something which lasts five days", rather than the more natural interpretation "test which lasts five days"/"five-day test". The latter interpretation would be assigned if vyfdagtoets were analyzed as a phrasal compound. Similarly, vierspeek would be assigned the meaning "something which has four spokes" and vierspeekstuurwiel the meaning "steering wheel which is something with four spokes". The more natural interpretation "steering wheel which has four spokes" would be assigned if vierspeekstuurwiel were analyzed as a phrasal compound.

By analyzing forms like vyfdagtoets and vierspeekstuurwiel as phrasal compounds we can assign a more natural interpretation to the form as a whole but we cannot account for the singular form of the noun in the non-head. On the other hand, by analyzing the non-head as an exocentric compound we can account for the form of the noun in the non-head, but must assign a less natural interpretation to the form as a whole. vyfdagtoets and vierspeekstuurwiel thus exhibit the same problematic aspects as vaalhaarnooi and langbeenvrou with respect to their interpretation as morphologically complex words. It is evident that, before weakening the Phrasal Constituent Hypothesis in any way, we must study not only bahuvrihi, but all exocentric compounds, with specific reference to their interpretation as independent words and as the non-heads of other morphologically complex words.

3.4.2   Reduction of bases

Certain Afrikaans forms containing a PP as non-head are problematic for the theory of phrasal compounding. The problematic aspects of such forms can be illustrated with reference to the data in (83)-(89) below.

(83) (a) op - 'n - ry - neste

      (b) *ry - neste

(84) (a) *in - die - veld - skool
           in   the   field school

           "school held out in the field "

      (b) veld - skool
           field school

           "school held out in the field"

(85) (a) van - die - rak - pak
           from the shelf suit

           "suit bought off the peg"

      (b) rak - pak
           shelf suit

           "suit bought off the peg"

(86) (a) in - 'n - slaapsak - onder - die - sterre - vakansie
           in a sleeping-bag under the stars holiday

           "holiday during which one sleeps in a sleeping-bag
           under the stars"

      (b) slaapsak - onder - die - sterre - vakansie
           sleeping-bag under the stars holiday

           "holiday during which one sleeps in a sleeping-bag
           under the stars"

(87) (a) ?*uit - die - oond - na - die - tafel - breekware
           from the oven to the table crockery

           "crockery which can be taken directly from oven to table"

      (b) oond - na - tafel - breekware
           oven to table crockery

           "crockery which can be taken directly from oven to table"

(88) (a) uit - die - oond - op - die - tafel - skottel
           from the oven on the table dish

           "oven-to-table casserole"

(b)   oond - op - tafel - skottel
        oven   on   table   dish

        "oven-to-table casserole"

(89)   (a)   van - die - oggend - tot - die - aand - rumoer
                from the   morning   to   the   evening noise

                "noise which lasts from the morning to the evening"

        (b)   oggend - tot - aand - rumoer
                morning   to   evening noise

                "noise which lasts from the morning to the evening".

The theory of phrasal compounding can account for the forms in (83)(a),
(85)(a), (86)(a), (87)(a), (88)(a) and (89)(a). These phrasal compounds
are formed by adjoining a well-formed syntactic surface structure phrase
to a noun. The PP in the non-head position of each of these phrasal com-
pounds corresponds to a well-formed PP in a grammatical sentence of
Afrikaans.

The theory of phrasal compounding should, if possible, give an account of
the optional occurrence of the prepositions in the surface forms of the
phrasal compounds (86)(b), (87)(b), (88)(b) and (89)(b). These forms con-
stitute apparent counter-examples to the theory of phrasal compounding as
each contains a phrasal constituent which does not correspond to a well-
formed syntactic phrase of Afrikaans.[18] Furthermore, the theory of
phrasal compounding should, if possible, also account for cases like (84)
(a) which are well-formed but which are unacceptable to fluent speakers
of Afrikaans. Examples like (83)(b), (84)(b) and (85)(b) which can be
analyzed as an ill-formed and well-formed nominal compounds, respectively,
will be accounted for by an appropriate theory of nominal compounding.

Botha (1981a:46-49) discusses similar problems with regard to Afrikaans
synthetic compounds whose peripheral constituent (non-head) is underlying-
ly a PP consisting of a P and a NP. He suggests that "questions such as
whether the preposition has a lexical or a relational meaning, whether or
not the preposition plays a role in disambiguating the compound, whether
or not the preposition and NP jointly constitute a fixed syntactic combi-
nation, and whether or not the compound as a whole has a noncompositional,
lexicalized meaning, appear to be relevant". What is clearly needed is
an in-depth study of Afrikaans prepositional phrases.

3.5   Alternative analyses

For several well-formed phrasal compounds in my corpus of data, alterna-
tive analyses exist. Such alternative analyses are discussed in this
paragraph.

3.5.1   AP - N sequences

Forms like (90)(a)-(c) below may be analyzed as phrasal compounds con-
sisting of a well-formed syntactic phrase, an AP, and a noun.[19)]

(90)   (a)   maklik - om - te - maak - poeding
               easy   for   to   make   pudding

               "pudding which is easy to make"

        (b)   lekker - om - te - lees - boek
               pleasant for to   read   book

               "enjoyable book"

        (c)   vies - vir - die - wêreld - uitdrukking

The APs in (90) have the same internal structure as the corresponding APs
in the sentences (91)(a)-(c) respectively.

(91)   (a)   Die poeding is maklik om te maak.
               the pudding is easy   for to make

               "The pudding is easy to make."

        (b)   Die boek is lekker   om   te lees.
               the book is pleasant for to read

               "The book is enjoyable."

        (c)   Die man is vies vir die wêreld.
               the man is cross for the world

               "The man is disgruntled."

The APs in (90), it may be argued, are generated by a rule or rules simi-
lar to those which generate the APs in (91)(a)-(c). Predicate adjectives
like maklik, lekker and vies in the sentences (91)(a)-(c) are assumed to

be generated under a node AP by a rule such as (92).   Under such an AP node
complements of adjectives like S̄ and/or PP may be generated.

(92)   AP —> (Deg) - (NP) - (Adv) - A - (NP) - (PP) - (S̄)

Prenominal adjectives such as vies and lekker in (93)(a) and (b) below
are assumed to be generated under an Adj node by a rule such as (94).

(93)   (a)   Die vies man raas   met almal.
                 the angry man scolds with everyone.

                 "The angry man scolds everyone."

         (b)   Almal   het die lekker   boek gelees.
                 everyone past the enjoyable book read

                 "Everyone read the enjoyable book."

(94)   NP —> (Adj)* - N

Implicit in rule (94) is the assumption that a prenominal adjective may
not be followed by a complement.   In this respect prenominal adjectives
differ from predicate adjectives which may be followed by a complement.[20]
If the rules (92) and (94) were part of the grammar of Afrikaans, the
only way in which to analyze the sequences in (90)(a)-(c) would be as
phrasal compounds formed by adjoining an AP, generated by rule (92), to
a noun.

We turn now to the work of Nanni (1980) who presents an analysis of pre-
nominal and predicate APs in English.   In the following paragraphs I
outline Nanni's analysis of adjectival constructions and her analysis of
A - to - V sequences[21] as complex adjectives, and discuss the implica-
tions of adopting her analysis for prenominal APs in Afrikaans.

Nanni (1980:569-573) first notes that predicate A - to - V sequences
like easy to please differ from predicate A + PP + INF[22] and A + INF + INF[23]
sequences like easy for us to please and hard to try to please, respec-
tively.   Let us examine the characteristics of each type of sequence with
reference to the data which Nanni presents.

(95)   (a)   John is easy to tease.   [2]

(b)　How easy to tease is John?　　　　　[3]

(c)　How easy to tease John is!　　　　　[5]

The A - to - V sequence easy to tease may appear in predicate position as in (95)(a) and may be moved as a whole by the rule Move-wh to form an interrogative (95)(b) or an exclamation (95)(c). On the basis of these data Nanni (1980:571) concludes that an A - to - V sequence like easy to tease forms a single constituent.

The same is not however true of the A + PP + INF and A + INF + INF sequences in the sentences (96)-(97).

(96)　(a)　The coat is difficult to persuade Bill to wear Ø.　[6]

　　　(b)　*How difficult to persuade Bill to wear was the coat? [7]

　　　(c)　*How difficult to persuade Bill to wear the coat was! [8]

(97)　(a)　John is easy for the children to tease.　　　[9]

　　　(b)　*How easy for the children to tease is John?　　[10a]

　　　(c)　How easy for the children to tease John is!　　[10b]

The A + PP + INF and A + INF + INF sequences cannot be moved as a whole to form grammatical interrogatives or exclamations. (96)(b) and (c) and (97)(b) and (c) in which such sequences have been moved as a whole are ill-formed. The sequences A + PP + INF and A + INF + INF do not therefore behave as single constituents.

Nanni (1980:573) also notes that A - to-V sequences like easy to sew differ in an important respect from A + INF and A + PP sequences[24) de-spite the fact that all these sequences behave like a single constituent with respect to the rule Move-wh. This rule can apply to each of the predicate APs in (98)(a)-(c) moving each AP as a single constituent. Hence the well-formed interrogatives (99)(a)-(c) are formed.

(98)　(a)　The pattern is easy to sew.

　　　(b)　The boys were anxious to dance.

　　　(c)　The teacher was concerned about her student.

(99)   (a)   How easy is the pattern to sew?

       (b)   How anxious to dance were the boys? $[13]$

       (c)   How concerned about her student was the teacher? $[13]$

A - to - V sequences differ from A + INF and A + PP sequences in that the former can appear prenominally while the latter cannot.

(100)   (a)   an easy - to - sew pattern $[11]$

        (b)   *some anxious to dance boys $[14]$

        (c)   *a concerned about her student teacher $[14]$

In order to account for the differences between A - to - V sequences on the one hand, and A + PP and A + INF sequences on the other, Nanni (1980: 575) proposes to analyze A - to - V sequences as complex adjectives, that is, as single lexical items of the category "Adjective". Following Roeper and Siegel (1978) she formulates a rule of Complex Adjective Formation which forms complex adjectives from A - to - V sequences.[25]

(101)   Complex Adjective Formation[6]

$$[_A word] + \underline{to} + [_{V + trans} word] + [_N \Delta] \quad Y \longrightarrow$$

$$[_A [_A word] + \underline{to} + [_V word]]$$

where Y ranges over empty subcategorization frames for the verb
$[19]$

The lexical items, that is, the complex adjectives formed by rule (101), are "atomic units with respect to the syntactic component of the grammar". They "display all the properties of individual lexical items" and are thus "inserted directly into base-generated markers". Nanni then accounts for the prenominal appearance of A - to - V sequences and the constituent-like behaviour of such sequences with respect to the rule Move-wh in the following way. She (1980:574) implicitly assumes a base rule with the following form for expanding the NP node in English.

(102)   NP $\longrightarrow$ Det - AP - N

The sequence easy-to-sew in (100)(a) is a complex adjective formed by
the rule of Complex Adjective Formation (101). It is therefore an atomic
unit with respect to the syntactic component and is filled in under the
AP node as a single lexical item as in (103).

(103)
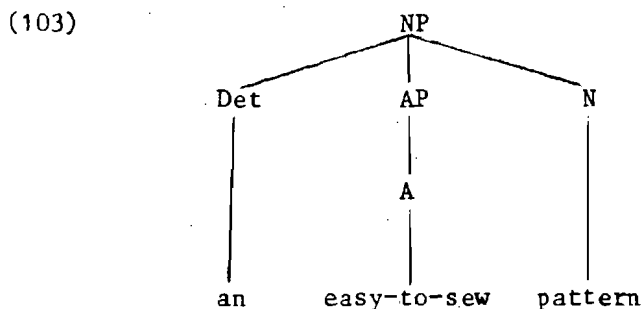
```
                      NP
              _____|_____
           __/        |        \
        Det           AP         N
         |            |          |
         |            A          |
         |            |          |
         |            |          |
        an       easy-to-sew   pattern
```
[FIGURE 4]

This proposal, Nanni (1980:574) argues, "automatically explains why AP's
like easy to sew may occur before a noun. No complement follows the com-
plex adjective in the AP^5".[26] Such complements are excluded by the rule
of Complex Adjective Formation. The formulation of the rule is such that
A + PP sequences cannot form complex adjectives, that is, only a to - V
sequence may follow the adjective of a complex adjective. A + INF sequences
like anxious to dance are excluded as possible complex adjectives by the
stipulation that the verb in the to - V sequence must be transitive, hence
the feature + trans. As A + PP and A + INF sequences containing an intran-
sitive verb cannot be analyzed as complex adjectives, they cannot occur
prenominally.

The postverbal A - to - V sequence easy to tease in (95)(a), repeated below
as (104)(a), can be analyzed as a single, complex adjective rather than as
an AP. As a complex adjective the sequence will behave as a single con-
stituent with respect to the rule Move-wh, hence the well-formed sentences
(104)(b) and (c).

(104)   (a)   John is easy to tease   [2]

        (b)   How easy to tease is John?   [3]

        (c)   How easy to tease John is!   [5]

The postverbal AP easy to tease in (104)(a) may also be generated in
another way, that is, as a daughter of VP. The rule for expanding the
AP node has the form (105).

(105)   AP ——> A

Following Hendrick (1978), Nanni (1980:576ff.) proposes to generate the postverbal AP node as a sister node to its PP and/or $\overline{S}$ complement(s).[27] The sequence easy-to-tease does not therefore form a single constituent and the AP easy can be moved by the rule Move-wh without causing a violation of the A - over - A Condition.[28]   The interrogative (106)(a) and exclamation (106)(b) are thus well-formed variants of (104)(b) and (104)(c) above.

(106)   (a)   How easy is John to tease?

         (b)   How easy John is to tease!

The analysis of the postverbal sequence easy to tease as a complex adjective accounts for the ability of the sequence to behave like a single constituent with respect to the rule Move-wh. The analysis of the same sequence as an AP easy and a $\overline{S}$ to tease accounts for the ability of the sequence to behave like two separate constituents with respect to the rule Move-wh.

All postverbal A + PP + INF and A + INF + INF sequences which do not, according to Nanni (1980:576), behave as a single constituent, are generated under the VP node as an AP - PP - $\overline{S}$ sequence or as an AP - $\overline{S}$ - $\overline{S}$ sequence. It is thus always possible to move the AP alone. The examples in (107) and (108) are consistent with this claim.

(107)   (a)   The problem was tough for Bill to solve.

         (b)   How tough was the problem for Bill to solve? $\begin{bmatrix} 21a \end{bmatrix}$

         (c)   How tough the problem was for Bill to solve! $\begin{bmatrix} 21b \end{bmatrix}$

(108)   (a)   He was difficult to arrange to meet.

         (b)   ?How difficult was he to arrange to meet? $\begin{bmatrix} 21a \end{bmatrix}$

         (c)   ?How difficult he was to arrange to meet! $\begin{bmatrix} 21b \end{bmatrix}$

Nanni's analysis of A - to - V sequences in English is problematic in certain respects. Firstly, her analysis creates a redundancy in the grammar

of English. An A - to - V sequence like easy to sew may be accounted for in two ways. The sequence may be analyzed as a complex adjective gene- rated by a lexical transformation. Alternatively, the A - to - A sequence may be analyzed as a syntactic phrase AP - $\overline{S}$ generated by the base rules of English as daughter nodes of VP. An ad hoc rule of Complex Adjective Formation is thus needed to generate sequences which could otherwise be generated by the base rules independently needed to generate predicate A - to - V sequences in grammatical sentences of English. Secondly, the evidence which Nanni presents for analyzing an A - to - V sequence as a complex adjective can equally well support the analysis of such a sequence as the non-head of a possible, well-formed phrasal compound of English.

If Nanni's proposals, as outlined above, were to be adopted for Afrikaans we could also analyze prenominal adjectival sequences like maklik-om-te- maak as complex adjectives. This would however create an even greater redundancy than that which is found in the grammar of English. I will discuss here the implications of adopting Nanni's analysis for prenominal APs in Afrikaans.

There exists in Afrikaans a wider range of prenominal adjectival sequences than in English. Each form in (109)(a)-(c) consists of a prenominal adjec- tival sequence and a noun. (109)(a)-(c) are acceptable to fluent speakers of Afrikaans while (110)(a)-(c) are marginally (un)acceptable to some fluent speakers of Afrikaans.

(109)　(a)　vies - vir - die - wêreld - uitdrukking

　　　　(b)　maklik - om - te - maak - poeding

　　　　(c)　bang　- om - iets　- te - sê　- manier
　　　　　　　scared　for　anything to　say　manner

　　　　　　"manner evidenced by someone who is too scared to
　　　　　　say anything"

(110)　(a)　?*vol - sproete - gesig
　　　　　　full　freckles　face

　　　　　　"freckled face"

　　　　(b)　?*te - vuil - om - te - dra - rok
　　　　　　to　dirty　for　to　wear　dress

　　　　　　"dress which is too dirty to wear"

(c)   ?*<u>moeilik - vir - 'n - kind   - om - te - maak - rok</u>
        difficult   for   a   child   for   to   make dress

       "dress which is difficult for a child to make"

Suppose that these prenominal adjectival sequences were analyzed as com-
plex adjectives. The grammar of Afrikaans would then require, in addi-
tion to a rule similar to (101), various other <u>ad hoc</u> lexical rules for
generating each of the "complex adjectives" in (109)(a)-(c) and (103)
(a)-(c). Additional <u>ad hoc</u> lexical rules would therefore have to be
added to the grammar to account for sequences which could otherwise be
generated by the base rules of the grammar.

Let us consider how prenominal adjectival sequences could be generated
by base rules rather than by <u>ad hoc</u> lexical rules. Assume that the gram-
mar of Afrikaans includes the base rules (111) and (92) given on p. 80
above and repeated here as (112).

(111)   NP ——>   (AP)* - N

(112)   AP ——>   (Deg) - (NP) - (Adv) - A - (NP) - (PP) - ($\overline{S}$)

If the grammar of Afrikaans were to contain no restriction(s) on the
internal structure of prenominal APs, as is the case in English, the
forms (109)(a)-(c) and (110)(a)-(c) could be generated by the rule (111)
and the relevant APs by rule (112). (109)(a)-(c) and (110)(a)-(c) are then
taken to be syntactic phrases of Afrikaans rather than phrasal compounds.
No additional rule of phrasal compounding need be added to the grammar
of Afrikaans. The prenominal APs are generated by the same rules inde-
pendently required to generate the corresponding predicate APs in gram-
matical sentences of Afrikaans such as (91)(a)-(c) above. The D-struc-
ture of <u>vies-vir-die-wêreld-uitdrukking</u>, as generated by the rules (111)
and (112), will be roughly:

(113)   NP
              AP   N
         A   PP

       vies   vir die wêreld   uitdrukking
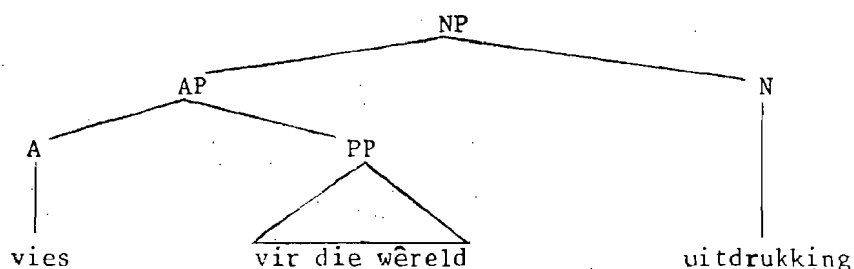
The problem is then to account for forms which are marginally (un)accep-
table to fluent speakers of Afrikaans. Such forms could be accounted for
by adding a condition to the rule (112) which restricts the expansion of
a prenominal AP node in Afrikaans. Such a node may, for example, contain
only one complement, either a PP or an infinitival clause. An alterna-
tive would be to allow all APs to appear prenominally and attribute the
marginal (un)acceptability of forms such as (110)(a)-(c) to a non-linguis-
tic constraint such as a perceptual strategy. Such a constraint would,
of course, have to be independently motivated. For example, (110)(a)-(c)
may be taken to be well-formed but difficult to perceive due to the
structural complexity of the adjective phrase. Hence such forms are mar-
ginally (un)acceptable to fluent speakers of Afrikaans.

If the analysis presented above were taken to be correct, all AP - N
sequences would be analyzed as syntactic phrases of Afrikaans rather
then as phrasal compounds of Afrikaans. However, the fact that AP - N
sequences exhibit the properties of compounds rather than the properties
of syntactic phrases reflects negatively on this analysis.

A criticism which can be made of the tentative analyses of AP - N sequen-
ces proposed above is that they fail to account for the ability of a
predicate A - to - V sequence to behave either as a single constituent or
as two constituents with respect to the rule Move-wh. In fact, both
analyses predict that all predicate APs, including the type which can
also appear prenominally, will always behave as a single constituent with
respect to this rule. As in English, this does not appear to be the case.
Thus both (114)(b) and (114)(c) are well-formed interrogatives correspon-
ding to (114)(a), and (115)(b) and (c) are well-formed interrogatives
corresponding to (115)(a).

(114)   (a)   Hy is vies vir die wêreld.

        (b)   Hoe vies is hy vir die wêreld?

        (c)   Hoe vies vir die wêreld is hy?

(115)   (a)   Die poeding is maklik om te maak.

        (b)   Hoe maklik is die poeding om te maak?

        (c)   Hoe maklik om te maak is die poeding?

As the properties of APs with respect to syntactic rules of movement are
not the central concern of this thesis, I will not investigate this pro-
blem further but note that such a problem exists and will have to be
solved by future research.

To summarize: Nanni's analysis of A - to - V sequences as complex adjec-
tives is problematic as it causes a redundancy in the grammar of English
and would cause an even greater redundancy if adopted for Afrikaans. It
was argued that prenominal APs could be analyzed in at least two other
ways depending on the assumptions made about the base rules which gene-
rate adjectives/APs in prenominal and predicate positions. These analyses
avoid the redundancy which would result if Nanni's proposals were adopted
for Afrikaans, but fail to account for the fact that most predicate APs
do not act as a single constituent with respect to the rule Move-wh. The
analysis in fact predicts that such APs should behave like single consti-
tuents.

In the absence of a detailed study of the properties of APs and the rules
for generating prenominal adjectives/APs, the analyses presented above
remain tentative and must be viewed only as an attempt to isolate the
problems which exist, not to solve them.

3.5.2   Blomme-en-vrugtemandjies

Forms such as (116) and (117) below may be analyzed as phrasal compounds
consisting of a non-initially coordinated NP in the non-head position
and a noun in the head position. The nouns in the non-head position of
(116) are taken to be plural in form and the nouns in (117) singular in
form.

(116)   blomme - en - vrugtemandjie
         flowers   and   fruit basket
         "basket in which one places flowers and/or fruit"

(117)   tafel-en-bank-eenheid

There is, however, an alternative analysis of the internal structure of
(116) as well as of the forms of the nouns in the non-head position. Let

us consider in this regard the forms blomme-en-vrugtemandjies in the

sentences below.

(118)   (a)   Pieter sit   die appels in die blomme − en − vrugtemandjie.
                Peter places the apples in the flowers and fruit basket

         "Peter places the apples in the basket which one uses for
         flowers as well as fruit."

         (b)   Pieter sit   die appels in die blomme − en − vrugtemandjies.
                Peter places the apples in the flowers and fruit baskets

         "Peter places the apples in the baskets which one uses for
         flowers as well as fruit/which one uses for fruit and in
         the baskets which one uses for flowers."

blomme-en-vrugtemandjie, in which the head is singular in form, is inter-

preted as referring to one basket of the type which one uses for flowers

as well as for fruit. The non-head is then analyzed in the same way as

the non-head of phrasal compounds like tafel-en-bank-eenhede, that is,

as two NPs coordinated by the conjunction en. Each NP consists of a noun

which is plural in form, viz. blomme and vrugte. The structure given in

(119) is assigned to blomme-en-vrugtemandjie.

(119) $[\ [_{NP}\ C\ NP]_{NP}\ +\ N]_N$

The form blomme-en-vrugtemandjies, in which the head is plural in form,

may be analyzed in more than one way. blomme-en-vrugtemandjies can be

interpreted as referring to a number of baskets of one type, the type

which one uses for flowers as well as for fruit. In this case the non-

head is analyzed as consisting of two NPs coordinated by the conjunction

en. Each NP consists of a noun which is plural in form. blomme-en-

vrugtemandjies is therefore analyzed as a phrasal compound and is assign-

ed the same structure as that assigned to blomme-en-vrugtemandjie above,

viz. (119).

Alternatively, blomme-en-vrugtemandjies may be interpreted as referring

to a number of baskets which belong to two types, a type which one uses

for flowers only, and a type which one uses for fruit only. In this

case blomme-en-vrugtemandjies could conceivably be analyzed as follows.

We may hypothesize that reduction has occurred in the form blomme-en-

vrugtemandjies, that is, the head (mandjies) of blommemandjies has been
deleted. Structure (120) may then be assigned to blomme-en-vrugtemand-
jies.

(120) $\left[\ \left[\text{N} + \emptyset\right]_{\text{N}}\ \text{en}\ \left[\text{N} + \text{N}\right]_{\text{N}}\right]_{\text{NP}}$

On this analysis blommemandjies and vrugtemandjies are both analyzed as
nominal compounds formed by the rule $\text{N} \rightarrow \text{N} - \text{N}$.[29] The nominal com-
pounds blommemandjies and vrugtemandjies are coordinated by en as in (121).

(121) $\left[\left[\left[\text{blomme}\right]_{\text{N}}\left[\text{mandjies}\right]_{\text{N}}\right]_{\text{N}}\ \left[\text{en}\right]_{\text{C}}\ \left[\left[\text{vrugte}\right]_{\text{N}}\ \left[\text{mandjies}\right]_{\text{N}}\right]_{\text{N}}\right]_{\text{NP}}$

Reduction occurs, that is, the head (mandjies) of the nominal compound
blommemandjies is deleted under identity with the head of vrugtemandjies
yielding (122) which has the structure given in (120) above.

(122)   blomme-en-vrugtemandjies

For the form blomme-en-vrugtemandjies there are thus two possible ana-
lyses and two possible interpretations. No principled distinction need
be made between the analyses (119) and (120) of blomme-en-vrugtemandjies.
The structure assigned will depend crucially on the semantic interpreta-
tion assigned to the form.

The assignment of the structure (120) to a form like blomme-en-vrugte-
mandjies gives rise to the following question: Should -(m)e and -(t)e
of blomme and vrugte, respectively, be analyzed as link phonemes or as
representing grammatical morphemes of plurality? Let us consider each
possibility in turn.

Botha (1968:154) describes link phonemes as one or more special or addi-
tional phonemes which are present in the phonological form of the forma-
tives or combination of formatives which occur as the non-head[30] of
some Afrikaans nominal compounds. Such phonemes are, however, absent in
the phonological form of the formatives or combination of formatives when
these do not occur as the non-head of such compounds. Such link phonemes
do not convey meaning.

If we assume that blomme-en-vrugtemandjies has the structure (120), that is, that it consists of two nominal compounds, both -(m)e and -(t)e fit the description of a link phoneme given by Botha. In Afrikaans -(m)e is absent when the formative blom occurs as an independent word, that is, when it does not constitute the non-head of a nominal compound, as in the sentence (123).

(123)   Die blom   is geel.
        the flower is yellow

        "The flower is yellow."

When blom constitutes the non-head of a nominal compound in Afrikaans, it (blom) is characterized by the absence, presence or optional presence/ absence of -(m)e as in (124), (125), (126)(a) and (b) respectively.[31]

(124)   blom   - bak
        flower   bowl

        "flower-bowl"

(125)   blomme-meisie
        flower girl

        "flower-girl"

(126)   (a)   blom   - stander
              flower   stand

              "flower stand"

        (b)   blomme-stander
              flower stand

              "flower-stand"

The same applies to -(t)e in vrugte as can be seen in the examples below.[32]

(127)   vrug - stuk
        fruit piece

        "still-life depicting fruit"

(128)   vrugte-mes
          fruit knife

          "fruit-knife"

(129)   (a)   vrug - moes
                  fruit pulp

                  "fruit-pulp"

          (b)   vrugte-moes
                  fruit pulp

                  "fruit-pulp"

The phonemes -(m)e of blomme and -(t)e of vrugte could thus conceivably
be analyzed as link phonemes if the structure (120) is assigned to blomme-
en-vrugtemandjies. Even if -(m)e and -(t)e are analyzed as link phonemes,
blomme-en-vrugtemandjies will be interpreted as referring to baskets used
for flowers and baskets used for fruit, rather than to baskets used for
one flower only and baskets used for one piece of fruit only.

Lieber (1981:7-30) has recently described German, Old English, Latin and
Tagalog forms similar to blom/blomme in blompot and blommemandjies and
vrug/vrugte in vrugstuk and vrugtemes. She (1981:7) argues that "stem
allomorphy usually associated with inflectional paradigms must be consi-
dered a word formation process to be included in the word formation com-
ponent of our grammar". German forms such as (130)(a) and (b) below are
accounted for in the following way.

(130)   (a)   Aug-apfel
                  eye apple

                  "eyeball"

          (b)   Augen-arzt
                  eye doctor

                  "eyedoctor"

The root and stem allomorph of a given noun like Aug (= "eye") are listed
in the lexicon as members of a clearly defined inflectional class. Thus,
the root Aug and the stem allomorph Augen are listed in the lexicon as
members of the lexical class 3 and are related by the morpholexical rule

X~Xn. As both the root Aug and its stem allomorph are listed in the
lexicon, both are available to processes of word formation such as deri-
vation and compounding which are generally assumed to operate on items
in the lexicon. Hence we have the form (130)(a) in which the root Aug
formed the base of a rule of compounding and (130)(b) in which the stem
allomorph Augen formed the base of a rule of compounding.

The variant forms blom/blomme and vrug/vrugte in Afrikaans compounds
could be accounted for in the same way. blom would be analyzed as a
root and blomme as a stem allomorph of blom. blom and blomme would be
related by a morpholexical rule and listed in the lexicon. Both blom
and blomme are then available as bases for the rules of compounding, hence
the forms blompot and blommemandjies. Similarly, vrug would be analyzed
as a root and vrugte as a stem allomorph of vrug. vrug and vrugte would
be related by a morpholexical rule and listed in the lexicon. Both vrug
and vrugte are then available as bases for the rules of compounding
hence the forms vrugstuk and vrugtemes. Like Botha's (1968) analysis,
that of Lieber (1981) does not make it possible to predict which variant,
root or stem, will constitute the non-head of a given nominal compound.[33]

The -(m)e and -(t)e of blomme and vrugte, respectively, could also be
analyzed as phonological realizations of the grammatical formative of plu-
rality.[34] If blomme and vrugte are taken to be plural forms, the non-
head of the nominal compound blommemandjies is plural in form as is the
non-head of vrugtemandjies. blommemandjies is assigned the meaning
"baskets which one uses for flowers" and vrugtemandjies the meaning
"baskets which one uses for (more than one piece of) fruit".

From the discussion above it appears that -(m)e and -(t)e can be analyzed
as representing grammatical morphemes of plurality or as link phonemes.
In the examples discussed above the presence/absence of -(m)e or -(t)e
in a given nominal compound does not result in a difference in meaning.
We cannot therefore make a principled choice, on semantic grounds,
between the two analyses of -(m)e and -(t)e. It is possible that -(m)e
and -(t)e represent grammatical morphemes of plurality in some nominal
compounds, and are link phonemes in others. For example, -(m)e in
blommemandjie could be analyzed as representing a grammatical morpheme
of plurality if this form referred to a basket for more than one flower,
in contrast to blommandjie which refers to a basket for one flower only.

In nominal compounds like <u>blomstander</u> and <u>blommestander</u> where one form is characterized by the presence of -(m)e and the other not, without a contrast in meaning, -(m)e in <u>blommestander</u> may be taken to be a link phoneme. Further research will indicate whether this is, in fact, the case.[35]

For many examples in my corpus of data there is only one possible structure which may be assigned. Consider in this regard the forms below.

(131) <u>Hansie - en - Grietjie-vingers</u>
       Hansel and Gretel   fingers

       "thin fingers"

(132) <u>potlood-en - papier-meningspeilings</u>
       pencil and paper opinion researches

       "public-opinion research programmes in which answers to
       questions are recorded"

(133) <u>kat - en - muis - speletjies</u>
       cat and mouse games

       "cat and mouse games"

(134) <u>sout - en - asyn - skyfies</u>
       salt and vinegar chips

       "chips flavoured with salt and vinegar"

The head of each phrasal compound is plural in form. There is, however, only one structure which can be assigned to each form, viz. (119). (131) is not interpreted as referring to two types of fingers "Hansel-fingers" and "Gretel-fingers" and (132) is not interpreted as referring to two types of research, a "pencil public-opinion research programme" in which only a pencil is used and a "paper public-opinion research programme" in which only paper is used. Similarly, (133) does not refer to a "cat-game" and a "mouse-game" but rather to a game involving two people/parties and (134) refers not to two types of chips, salted chips and vinegar-flavoured chips, but to one type flavoured with both salt and vinegar.

To summarize: there are two possible interpretations of <u>blomme-en-vrugtemandjies</u> and therefore two possible analyses of this form. No principled choice need be made between the two possible analyses. In the

case of (131)-(134), there is only one possible interpretation of each
form and hence only one structure which can be assigned to the form.[36)]

3.5.3   Bloublommetjiesheining

Included in my corpus of data are a number of phrasal compounds whose
non-head NP consists of an Adj and a noun. (135) is an example of such
a phrasal compound.

(135)   blou-blommetjies - heining
         blue little flowers hedge
         "hedge bearing little, blue flowers"

The noun blommetjies is taken to be plural in form. Let us now compare
bloublommetjiesheining to (136) in which the noun blommetjie is singular
in form.

(136)   blou-blommetjie - heining
         blue little flower hedge
         "hedge bearing little, blue flowers"

There is no difference in meaning between (135) in which the suffix -s
is present and (136) in which -s is absent. Both forms are interpreted
as referring to a hedge which bears more than one little, blue flower.
The question which now arises is whether -s should be analyzed as a
link phoneme or as representing a grammatical morpheme of plurality.

In Afrikaans plurality is not always represented by the presence of a
form element like a suffix on a noun. It is therefore the case that, in
the absence of a plural suffix like -s, both a singular and plural
interpretation of a given noun are possible. If the suffix -s is pre-
sent, only a plural interpretation is possible. blommetjie in (135)
may be assigned a singular or a plural interpretation. bloublommetjie-
heining may therefore refer to a hedge which bears only one little, blue
flower or to a hedge which bears more than one little, blue flower. Only
the plural interpretation is possible in the case of (135) given the pre-

sence of the suffix -s. By analyzing -s as representing a grammatical morpheme of plurality the plural interpretations assigned to the forms (135) and (136) can be accounted for.

As the presence/absence of -s does not result in a difference of meaning between (135) and (136), -s could also be analyzed as a link phoneme. If -s is analyzed as a link phoneme, the adjoining of a syntactic phrase like NP to a noun to form a well-formed phrasal compound of Afrikaans is similar to the adjoining of the noun dood (= "death") to the noun engel (= "angel") to form the nominal compound doodsengel (= "angel of death").[37]

It appears that both (135) and (136) can be accounted for by analyzing -s as representing a grammatical morpheme of plurality or as a link phoneme.

3.6   Language-independent consequences

We turn now to the language-independent consequences of the Phrasal Constituent Hypothesis and the Compounding Hypothesis.

3.6.1   The Morphological Island Constraint

Morphologically complex words such as simple derivatives, complex derivatives, synthetic compounds and primary compounds are subject to what has been presented as a language-independent constraint, the Morphological Island Constraint (henceforth: MIC). Botha (1981a:45-46) argues that WFRs create islands. Individual constituents of a morphologically complex word cannot function independently with respect to inflectional, derivational and syntactic processes. A morphologically complex word can only interact with such processes as a whole. Botha (1981a:46) formulates this restriction as follows:

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

The theory of phrasal compounding presented in this paper appears to vio-
late this constraint. In phrasal compounds such as (138)(a)-(d) below
derivational and syntactic rules appear to have applied to certain indi-
vidual constituents in the non-head of each one.

(138)   (a)   huisie-in-die-berge-voorkoms

        (b)   klein-seuntjie-glimlag

        (c)   wie - is - baas - gryns
               who is boss sneer

               "sneer that says 'I'm the boss'"

        (d)   "hoe-gaan-dit-nog"-brief

For example, wie is baas in wie-is-baas-gryns is a wh-question formed by
the syntactic rule Move-wh. huisie and seuntjie in (138)(a) and (b) are
both derivatives formed by the addition of -ie and -tjie respectively by
derivational rules. However, the claim that forms such as (138)(a)-(d)
are counter-examples to the MIC is a function of the incorrect interpre-
tation of this constraint. The MIC as formulated in (137) places restric-
tions, not on the bases of WFRs, but rather on morphologically complex
words AFTER WFRs have applied. Hence (138)(a)-(d) only constitute appa-
rent counter-examples to the MIC. On this interpretation phrasal com-
pounds do not reflect negatively on the MIC as a general constraint on
WFRs. [38)

3.6.2   The No Phrase Constraint

This brings us finally to an important consequence of the theory presen-
ted in this thesis. That is, the theory of phrasal compounding presented
in this thesis appears to seriously affect the tenability of a generally
accepted hypothesis about word formation, viz. the NPC.

The various lexicalist theories of word formation as presented by Aronoff
(1976), Allen (1978), Roeper and Siegel (1978) and Selkirk (1982) have,
as a basic tenet, the hypothesis that WFRs cannot take units larger than
words as possible bases. This highly restrictive hypothesis about WFRs,

known as the NPC, is reconstructed as in (139) below by Botha (1981a:18).

(139)   The No Phrase Constraint

Morphologically complex words cannot be formed (by
WFRs) on the basis of syntactic phrases.   [28]

While the lexicalist morphologists mentioned above implicitly or expli-
citly accept the NPC, the status assigned to this constraint by these
morphologists differs. Aronoff (1976:21) and Roeper and Siegel (1978:202,
209, 211, 213) who present their theories of word formation as general-
linguistic theories, implicitly accept the constraint as having a language-
independent status. For Allen (1978: 4, 12, 253), the constraint that WFRs
cannot take syntactic phrases as bases, is a constraint on at least WFRs
of English. As her theory is presented as a general theory of morphology
we may assume that she takes this constraint to generalize to other lan-
guages as well. That is, the constraint would have a language-independent
status. This is not, however, explicitly stated. Selkirk (1982:8), within
the context of her theory of word formation in English, accepts the con-
straint excluding syntactic phrases as bases of WFRs. The NPC therefore
appears to be a language-specific constraint for Selkirk (1982). Whether
she takes this constraint to generalize to other languages is not clear.

Botha (1981a:19) has recently noted that

> "as a language-independent constraint, the No Phrase Constraint
> has a peculiar status: it is widely accepted but poorly moti-
> vated. 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 credibi-
> lity of the No Phrase Constraint as a general linguistic prin-
> ciple.[16] Thus, as a language-independent principle, the No
> Phrase Constraint does not have much going for it in the way of
> positive evidence."[39)

The NPC, according to Botha (1981a:19), cannot be accepted, at least not
in its most general form, for Afrikaans. He argues that it is impossible
to give a descriptively adequate account of Afrikaans synthetic compoun-
ding if the NPC, as formulated in (139) above, is taken to be correct as
a general linguistic principle. He therefore proposes a relaxation of
the constraint in order to allow WFRs (of Afrikaans) to apply to a proper-

ly defined class of syntactic structures, viz. D-structures. He (1981a: 20) suggests reformulating the NPC as (140).

(140)   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.   [29]

One of the criteria which the theory of phrasal compounding, like the theory of synthetic compounding, has to satisfy is that it should not make use of formal devices which violate well-motivated language-independent principles or constraints. This criterion was given as (9)(b)(i) on p. 41 above. If the NPC as formulated in (139) were taken to have a language-independent status, as noted by Botha (1981a:19), the theory of phrasal compounding would not satisfy criterion (9)(b)(i) as it (the theory) includes WFRs which take syntactic phrases as bases. The data accounted for by the theory of phrasal compounding would therefore constitute negative evidence for the NPC as a language-independent constraint. Even the relaxed version of the NPC given as (140) would not be tenable as it excludes all phrasal compounds which are formed by adjoining a well-formed syntactic surface structure phrase, rather than a deep structure constituent, to a noun.

Before examining how the NPC could be reconciled with the data accounted for by the theory of phrasal compounding, let us examine certain recent linguistic work in which the status of the NPC as a language-independent constraint has been questioned. In such works cross-linguistic data from a number of unrelated languages such as English, Japanese and Danish, for example, are presented. Such data constitute a source of further evidence against the NPC as a language-independent principle and severely weaken its credibility as a language-independent constraint on WFRs.

Carroll (1979:863), in his article on complex compounds (or phrasal compounds as I have called them), notes that "anecdotal and experimental evidence is marshalled against" the claim by Roeper and Siegel (1978) that lexical structures can never embed phrasal constituents. The complex compounds, viz. the NP + N phrasal compounds, which were studied are, according to Carroll (1979:876 note 1),

"just the tip of an iceberg. Verb phrases and entire sen-
tences are rather routinely embedded into word structures:

I'm taking the New York to Detroit flight.
I'm sick of that stick it in your ear attitude."

Examples given by Carroll (1979:865) of complex compounds which were
rated as acceptable by fluent speakers of English include the following:

(141)   (a)   little - girl - doll

         (b)   girl - with - a - bike - doll

         (c)   girl - that - says - 'Mama' - doll

Bauer (1978:186) notes that English, French, Danish and Swedish have so-
called "phrase compounds" or "string compounds" in which the string or
phrasal constituent modifies a head noun. He illustrates this point with
examples such as (142)(a)-(d) from English, Swedish and Danish.

(142)   (a)   don't - tell - me - what - to - do - look

         (b)   kom - och - tag - mig-om-du - kan-minen
                come   and   get   me   if   you   can   look   the

                "come - and - get - me - if - you - can - look"

         (c)   kulturen - ud - til - folket - idealister
                culture the out   to   people the idealists

                "idealists who take culture to the people"

         (d)   hvorfor-skal-man - op - om - morgenen - stemme
                why   must one (get) up in morning the voice

                "why - must - one - get - up - in - the - morning - voice"

Even as early as 1946 Jespersen (1946:155) noted that there exist com-
pounds "in which a whole phrase, not a compound, is used as first element.
Thus, the first element may consist of two sbs [substantives/nouns ---
M.S.] joined by means of and". He (1946:155-156) cites examples such as
the following:

(143)   (a)   <u>bride - and - groom pictures</u>

(b)   <u>hot - sausage - and - mashed - potato shop</u>

(c)   <u>boy - and - girl days</u>

Finally, Kageyama (1982:255) notes that Japanese includes words formed by the attachment of a bound morpheme (suffix) to the head noun of a complex NP. Such word formation is "in direct violation of the No Phrase Constraint" and the suffixes "count as intractable counterevidence to the No Phrase Constraint". He (1982:256) then proposes a phonological read-justment rule for reanalyzing his data. This "readjustment analysis has the advantage of maintaining the No Phrase Constraint". In the light of the data presented above it would appear that there is no justification for proposing a seemingly <u>ad hoc</u> readjustment analysis in order to main-tain the NPC. Given the arguments and data presented by Botha (1981a: 19) and Carroll (1979), for example, there appears to be no advantage in maintaining the NPC as a language-independent constraint. Rather, given the negative evidence it seems that the NPC should be given up completely.

Implicit in the discussion above has been the assumption that the NPC is a language-independent constraint in the sense that it holds for all lan-guages. The existence of morphologically complex words which include syntactic phrases in Afrikaans, as well as in a number of unrelated lan-guages, was therefore taken to constitute evidence against the NPC as a language-independent constraint. The NPC could, however, be maintained despite this apparent negative evidence. To determine how the data ac-counted for in this thesis affect the status of the NPC as a language-independent constraint it is necessary to determine the possible inter-pretations which can be assigned to the notion 'language-independent'.

Let us assume first that a constraint has a language-independent status if it holds for all human languages, and that such language-independent constraints are constraints on the core, rather than on the periphery of a grammar.[40] If the NPC were taken to be a language -independent con-straint in the sense given above, it would be a constraint on the rules of the core. The rules of the core grammar of Afrikaans would be subject to this constraint. Given these assumptions, the consequences of phrasal compounds for the NPC would depend crucially on whether the rules of

phrasal compounding are taken to belong to the core or to the periphery
of the grammar of Afrikaans.

If, on the one hand, it is argued that the rules of phrasal compounding
are rules of the core, they should obey the NPC. These rules, however,
form morphologically complex words which include syntactic phrases as
bases. This would constitute negative evidence for the NPC as a language-
independent constraint. It would appear that the NPC cannot be main-
tained and should be given up completely.

If, on the other hand, it is argued that the rules of phrasal compounding
are rules of the periphery, the existence of phrasal compounds would not
affect the language-independent status of the NPC in any way. As rules
of the periphery, the rules of phrasal compounding would not be subject
to, and hence would not violate, the NPC which is a constraint on rules
of the core. The NPC could therefore be maintained, in its strongest
formulation, as a language-independent constraint. Before an empirical-
ly based choice between the two proposals presented above can be made,
the claim that certain rules belong to the core and others to the peri-
phery of a grammar must be empirically tested.

It is possible that a constraint may have a language-independent status
in the sense that it is an option made available by Universal Grammar
(henceforth: UG) for the core grammars of all human languages. Such
options are not, however, necessarily chosen by all human languages.
The options chosen/not chosen will determine certain aspects of the
core grammar of a given language.[41] Let us assume that the NPC is a
language-independent constraint in the sense that it is an option made
available by UG. If Afrikaans and English, for example, were not to
choose this option, the core grammar of each language could include
WFRs which take syntactic phrases as bases. On the other hand, if a
language were to choose this option, the core grammar of this language
would not be able to include WFRs which take syntactic phrases as bases.
The fact that Afrikaans and English, for example, have morphologically
complex words which include syntactic phrases would not constitute evi-
dence against the NPC, nor would it affect the status of the NPC as a
language-independent constraint. The NPC could therefore be maintained,
in its strongest formulation, as a language-independent constraint.
This proposal, that the NPC is an option made available by UG, would

account for the fact that WFRs in certain languages can take syntactic phrases as bases, while WFRs in other languages cannot.

It is evident from the discussion above that the consequences of the theory of phrasal compounding for the NPC depend on assumptions about, amongst others, the sense in which this constraint is assigned a language-independent status.

4   Conclusion

An important consequence of this study of phrasal compounds is that it has made evident an inadequacy in recent major lexicalist general theories of morphology such as those of Aronoff (1976) and Roeper and Siegel (1978), for example. These theories include the assumption that WFRs do not take units larger than words as possible bases. The existence of morphologically complex words which include units larger than words, viz. syntactic phrases, reflects negatively on these theories. The theories of Aronoff (1976) and Roeper and Siegel (1978), amongst others, will have to be modified to account for the fact that WFRs in Afrikaans, as well as in a variety of other languages, can, in fact, take syntactic phrases as bases. In modifying the theories explicit mention must be made of the status which is assigned to the NPC as a constraint on WFRs.

FOOTNOTES

*This paper is based on a chapter of an M.A. thesis which was presented at the University of Stellenbosch in December 1983 under the supervision of Prof. R.P. Botha.

1.   Cf. Savini 1983:1-3 for a more detailed discussion of the status assigned to the NPC by Roeper and Siegel (1978), Allen (1978) and Selkirk (1982).

2.   Cf. Botha 1980 : 64-145 and Botha 1981a : 1-77 for an exposition of this theory.

3.   The following conventions will be observed in order to facilitate the reader's interpretation of the Afrikaans data:

    (i)   hyphens in phrasal compounds and compounds are used to indicate constituent boundaries which are pertinent to the discussion. Such hyphens do not always correspond to those used in phrasal compounds in the source sentence.

    (ii)   an English gloss is provided underneath each constituent of an Afrikaans phrasal compound, compound and sentence;

    (iii)   this is followed by an idiomatic translation enclosed in double inverted commas.

The inverted commas in certain phrasal compounds correspond to those used in the source sentence. All Afrikaans phrasal compounds, compounds and sentences are represented orthographically.

4.   Cf. Savini 1983 for a detailed analysis of Afrikaans phrasal compounds.

5.   In this paper the notion 'non-head' is used to refer to the lefthand/

phrasal constituent of a phrasal compound, while the notion 'head' is
used to refer to the righthand/nominal constituent. Cf. Savini 1983:
39-43 for a discussion of the notions 'non-head' and 'head'.

6.   Cf. Botha 1981a : 4 for similar criteria which an adequate theory of
     Afrikaans synthetic compounding should satisfy.

7.   Afrikaans is taken to be an SOV-language hence the position of the
     verb in D-structure is sentence final. The S-structure underlying
     God is dood is derived by moving the finite verb from sentence-final
     position to second position in the sentence as represented in (i)
     below. _____ represents the position vacated by the finite verb.

     (i) $[_{COMP} [_{God\ dood\ is}]_S]_{\bar{S}}$

            $\underset{\overrightarrow{\Longrightarrow}}{Move\text{-}V} [_{COMP} [_{God\ is\ dood\ \underline{\ \ \ }}]_S]_{\bar{S}}$

     Cf. Savini 1983 : 98-101 for a detailed discussion of Afrikaans as an
     SOV-language and of the derivation given above.

8.   Botha (1981a:9-11) provides similar justification for the Deep Struc-
     ture Hypothesis which forms part of his theory of synthetic compounding.

9.   Cf. Savini 1983:46 . for a more detailed discussion of this assumption.

10. Cf. Botha 1981a:17, 52-55 for a discussion of the absence of the
     definite article die in the surface form of leeubyter.

11. The expression ad hoc is used here in the sense of "without indepen-
     dent motivation/evidence". Cf. Botha 1981b:316 for a brief explica-
     tion of this interpretation of ad hoc.

12. been rek and bene rek in (24)(a) and (b) correspond to the surface
     structure VPs in the sentences (i) and (ii) below.

     (i)   Hy sê   dat   die dokter die been rek   om dit reguit
            he says that the doctor the leg   stretches for it straight

            te kry.
            to get

            "He says that the doctor is stretching the leg in order to
            straighten it."

(ii) Hy sê dat sy haar bene rek.
     he says that she her legs stretch

     "He says that she is stretching her legs."

13. Cf. Savini 1983:31-34 for a more detailed account of this argument.

14. There are also two types of non-phrasal compounds for which there
     are no corresponding phrasal compounds.

     (i) een - bedryf
         one act

         "one act play"

     (ii) eina - gesig
         ouch face

         "ugly face"

     (i) is a non-phrasal compound consisting of a numeral/quantifier and
     a noun, while (ii) is a non-phrasal compound consisting of an inter-
     jection and a noun.

15. I adopt the following convention for the use of brackets around num-
     bers: numbers in square brackets represent numbers or page numbers
     in the work being referred to or discussed. Numbers in this paper
     are always enclosed in round brackets.

16. Cf. Savini 1983:138-158 for a detailed analysis and discussion of
     unacceptable and marginally (un)acceptable phrasal compounds in Afri-
     kaans.

17. The other meaning which may be assigned to wuif-groet is "wuif-wuif
     groet" (= "to greet in a waving fashion").

18. It may be noted that slaapsak-onder-die-sterre could be analyzed as
     an NP generated by the rule NP —> N - PP. Compare in this regard
     the corresponding phrase in the sentence below.

     (i) Die slaapsak onder die sterre sal nat word as dit reën.
         the sleeping-bag under the stars will wet become if it rains

         "The sleeping-bag which is lying under the stars will get wet
   if it starts to rain."

However, analyzing slaapsak - onder die sterre in slaapsak-onder-die-sterre-vakansie as an NP prevents us from assigning the correct seman-tic interpretation to this phrasal compound. That is, the semantic interpretation "holiday of sleeping-bags under the stars"/"holiday during which there are sleeping-bags under the stars" would be as-signed to the phrasal compound rather than the interpretation "holiday during which one sleeps in a sleeping-bag under the stars".

19. Cf. Savini 1983:68-73 for a detailed analysis of AP + N phrasal com-pounds.

20. English grammarians like Emonds (1976:166ff.) and Hendrick (1978) have also argued that prenominal adjectives differ from predicate adjectives in that the latter may be followed by a PP or $\bar{S}$ comple-ment but the former not. They do not however draw a distinction between a prenominal Adj node and a predicate AP node but propose that both prenominal and predicate adjectives are generated under a node AP.

21. Following Nanni (1980:574-579) I use the term "A - to - V sequence" to refer to sequences consisting of an easy-type adjective and a single infinitive which may appear prenominally and which Nanni ana-lyzes as complex adjectives.

22. I use the abbreviation "A + PP + INF" to refer to a sequence which con-sists of an easy-type adjective subcategorized to take a for - PP and an infinitival complement.

23. I use the abbreviation "A + INF + INF" to refer to a sequence which consists of an easy-type adjective followed by more than one infini-tival complement. Nanni (1980:572) uses the term "adjective + seve-ral infinitives" for such constructions.

24. Nanni (1980:573) uses the abbreviations "A + INF" and "A + PP" for sequences consisting of an adjective and a single infinitive and an adjective and a single PP, respectively. The adjective in each of these sequences is not an easy-type adjective.

25. The number 6 in (94) indicates a note number in (Nanni 1980:575).
In this note Nanni refers to an observation by Joseph Emonds that the
rule (94) "has an effect parallelling a transformation in the lan-
guage" and that "it is not unusual for a language to have lexically
derived sequences which, to some degree, mirror transformationally-
derived constructions". If the similarities between such construc-
tions are not "purely accidental", they should be motivated by
something in the theory according to Nanni.

26. In note 5 Nanni (1978:574) refers to a proposal by Michael Kac that
prenominal A - to - V sequences may be accounted for by introducing a
base rule of the form "AP → A - to - V" or "AP → A (-to-V)" as the
to - V sequence is optional. Nanni notes two problems with this pro-
posal. First, Kac's proposal is inconsistent with the fact that
adjectives with post-head complements do not usually appear prenomi-
nally in English. Second, Kac's proposal fails to explain why A - to - V
sequences may participate in the formation of verbal compounds ending
in -ing. Nanni believes her "lexical approach" to be preferred as it
encounters neither of the above-mentioned problems.

27. Hendrick (1978) proposes that adjectives in English have no posthead
complements in the base. Posthead complements of A/AP, like $\bar{S}$ and
PP, are generated as sister nodes to the predicate AP node. The
structure underlying sentence (i) below may be represented as (ii).

   (i)   <u>Mary feels distrustful of John.</u>   [36a]

   (ii)
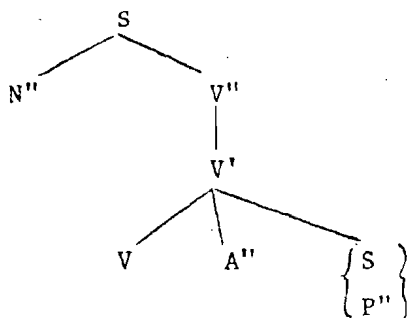
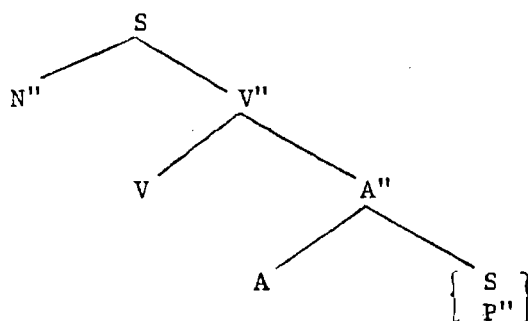   [34]

The rule Move-wh applied to the structure (ii) underlying sentence
(i) yields the well-formed interrogative (iii).

   (iii)   <u>How distrustful of John does Mary feel?</u>   [36b]

An optional rule of Adjective Complement Formation can make an $\overline{S}$ or PP complement the daughter of AP for the purposes of the rule Move-wh. Thus, the rule of Adjective Complement Formation can change the struc- ture underlying sentence (i) from (ii) to (iv).

(iv)

    [35]

If the rule Move-wh is applied to the structure (iv) underlying sen- tence (i), the well-formed interrogative (v) is yielded. This inter- rogative is a well-formed variant of (iii) above.

(v)   How distrustful does Mary feel of John?   [36c]

28.   If, in a sequence like easy $[_{\overline{S}}$ to $[_{VP}$ tease $]]$, the A/AP easy and the infinitive to tease constituted a single constituent AP, the ex- traction of the A/AP easy alone would be blocked by the A – over – A condition.

29.   Cf. Savini 1983:11-12 for a brief discussion of this rule of nominal compounding.

30.   I use the terms "non-head" and "head" rather than "initial immediate constituent"/"specificans" and "final immediate constituent"/"speci- catum" respectively which Botha (1968:154ff.) uses in his discussion of link phonemes in Afrikaans.

31.   Of the sixty-three compounds with blom as non-head which are listed in Tweetalige Woordeboek, the link phoneme -(m)e is present in only sixteen cases and is optional in six of the sixteen. As in the case of the link phonemes discussed by Botha (1968:157ff.) it appears that the presence, absence or optional presence/absence of -(m)e cannot be predicted on the basis of phonological, semantic and/or syntactic con- siderations.

32.   Of the fifty-seven compounds with <u>vrug</u> in the non-head position which
       are listed in the <u>Tweetalige Woordeboek</u>, the link phoneme <u>-(t)e</u> is
       present in thirty-nine and optional in one. The presence, absence or
       optional presence/absence of <u>-(t)e</u> cannot be predicted on the basis
       of phonological, semantic and/or syntactic considerations.

33.   Cf. Ogulnick 1983 for a critical analysis, and rejection, of Lieber's
       proposals about stem allomorphy.

34.   Cf. Wissing 1971: §4.3.2 for a discussion of the phonological reali-
       zation of the grammatical formative PL (plural) in Afrikaans within
       the framework of a Transformational Generative Grammar.

35.   Cf. in this regard De Villiers in preparation.

36.   Cf. Bakker 1968:143ff. and Stutterheim 1971:172ff. for a discussion
       of the problems associated with the analysis and interpretation of
       similar forms in Dutch.

37.   Botha (1968:168) gives <u>doodsengel</u> as an example of a nominal com-
       pound in which the phonological representation of the non-head of the
       compound, viz. <u>dood</u>, is characterized by the presence of a link pho-
       neme <u>-s</u>.

38.   Cf. Savini 1983 : 13-36 for a more detailed discussion.

39.   In note 15, in (Botha 1981a : 19), reference is made to (Roeper and
       Siegel 1978 : 213-214) as an example of work in which evidence from
       English is presented in support of the NPC.

       In note 16 Botha (1981a : 19) refers to evidence from English provided
       by Aronoff (1976 : 23ff.) for the NPC. This evidence is, according to
       Botha, less than convincing as it "involves controversial assumptions
       about the phonological cycle in English and the status of back forma-
       tion in a theory of synchronic morphology".

40.   Cf. Chomsky 1978 : 12-13, 1981a : 7-8, 1981b : 726, 1981c : 38 for a
       discussion of the distinction between the core (one of the systems

derived by fixing the parameters of UG in one of the permitted ways)
and the periphery of marked elements and structures of a grammar.

41.   Cf. Chomsky 1980 : 66, 68, 141, 179, 180, 1981a : 7-8, 11, 1981b:
       123-127, 1981c : 34, 38-39 for a discussion of UG as a highly struc-
       tured and restrictive system of principles with open parameters
       which are fixed by experience.   As these parameters are fixed, a
       core grammar is determined.

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