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I hereby recommend that this dissertation prepared under my direction by Henriette Van der Merwe Murray entitled A Stratificational Analysis of Afrikaans Syntax and Morphology be accepted as fulfilling the dissertation requirement for the degree of Doctor of Philosophy.

As members of the Final Examination Committee, we certify that we have read this dissertation and agree that it may be presented for final defense.

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SIGNED: H. Murray
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ABSTRACT

The syntax and morphology of a spoken dialect of Afrikaans is analyzed in terms of stratificational grammar. This involves the analysis and description of the relationships and behavior of the elements of this dialect on the morphotactic, lexotactic and semotactic strata, as well as in the lexicon.

On the morphotactic level phonemic transcription is used to demonstrate the distribution and alternation of inflectional endings in adjectives and nouns, and in the formation of verbs and adverbs by derivation. In all cases the specific conditioning factors involved in each option are mentioned and at least one case of lexical conditioning is discussed in detail.

Three different elements are analyzed on the lexotactic level, namely the Noun Phrase, the Verb Phrase, and the Sentence. The structure of the Noun Phrase and the different elements involved are discussed, as well as their peculiar lexical, realizational and lexotactic restrictive characteristics. A potential problem in time sequencing involving such a case of lexotactic conditioning is discussed and solved by placing the conditioning in the realizational portion, while micronotation is used to
describe in the finest detail the factors involved in the behavior of the possessive marker *se*. Different types of the Verb Phrase are discussed in detail. One type shows the syntactic nature of past tense formation in Afrikaans, as well as the behavior of modals, of which there can be as many as three in one Verb Phrase. Another type of Verb Phrase is used to demonstrate an instance where the 'obligatory' second element in Afrikaans negation is absent. As a result of the stratificational analysis of this phenomenon a new theory is proposed that differs significantly from the one on Afrikaans negation proposed in 1973 by Ponelis in *Grondtrekke van die Afrikaanse Sintaksis*. The three basic simple sentence types are discussed in terms of structure when used as simple sentences, as well as inversion resulting from subordination or compounding. An expandable model for compounding of any type of element is given.

On the semotactic level the different sememes involved in determining sentence structure on the lexotactic level are given, with an example and discussion of one such type of conditioning imposed by attaching focus to the goal sememe to obtain the passive voice on the lexotactic level.

A new model for a stratificational lexicon is discussed, namely that of a free-hanging, stratal bypass
lexicon in which each individual lexical item does not have
to be carried through each stratum with costly diamond
connections to the realizational portion and semantic con-
figuration. The proposed model is less costly in overall
cell-count and therefore preferable in terms of the
stratificational simplicity principle.
CHAPTER 1

INTRODUCTION

In this study I describe in stratificational terms the syntax and morphology of spoken Afrikaans. The data base is my own native dialect, crosschecked with three other native speakers.¹ In no way is this work to be regarded as an attempt to produce a prescriptive grammar of Afrikaans with judgments about right or wrong ways to structure the language. It is simply an account of those features of the language that occur in my spoken dialect, and, more specifically, it is a stratificational analysis of those features in terms of their relationships in the semology, lexology, morphology, and lexicon.

In order to shed light on certain peculiar characteristics of Afrikaans, discussed later, a concise history of the Afrikaans language is desirable.

Afrikaans—Its Origin and Development

Afrikaans developed in the southernmost part of Africa from the language brought by the first Dutch settlers of the Cape in 1652. Speakers of languages other

¹. There are only three native speakers of Afrikaans other than myself in Tucson at the present time.
than Dutch, both European and Non-European, played an important part in the development of a new language from this one. Perhaps the most important factor was their role in the simplification of the morphology. In the small Dutch settlement, thousands of miles from the Netherlands, the many different nationalities living there had to use Dutch as their common means of communication. Germans, French Huguenots, (Raidt 1975, p. 26), Hottentots, and the slaves with their Malay and Creole Portuguese languages (Valkoff 1966, p. 10) had to acquire enough Dutch to make themselves understood to government officials, traders and Dutch colonists. Inevitably the Dutch language became simplified and changed to suit the needs of the people at this isolated new settlement of civilization. In this way, for instance, verb-inflection was gradually simplified, until by the early 1800's all verbs were already used in their uninflected forms, both by the immigrants and the Cape-born colonists (Raidt 1975, p. 26). In similar fashion nominal endings were dropped and case-inflections remained only in a few idiomatic expressions.

Like any other language in its early stages of development Cape Dutch inherited several features from the native languages of its users. Some characteristics were inherited from Dutch dialects, e.g., 1) the omission of -t
after voiceless consonant endings, as in nag 'night' instead of the High Dutch nacht; 2) the double negative; 3) combinations like staan en lees 'stand reading,' or lit. 'stand and read' which have peculiar syntactic properties, discussed in Chapter 3; and 4) the -s ending in plural formation instead of the regular -en ending in Dutch. In a less obvious way Cape Dutch was influenced by German and French, and after 1800, especially in its lexicon and stock of idiomatic expressions, by English. From Malay it probably inherited, among other expressions and vocabulary items, the use of repetition in expressions like lag-lag lit. 'laugh-laugh,' e.g., Die kinders het lag-lag weggeloop 'The children walked away laughing.' Hottentot probably gave it the ability to join a proper noun and the third person plural pronoun in one expression to identify the person and whoever else had been discussed with him more clearly, still in the third person, e.g., Johan-hulle in sentences like Johan-hulle was hier 'They (John and the others) were here.' The slaves were the first to use vir 'for' before objects other than indirect objects, e.g., Ek het vir hom gesien, lit. 'I saw for him' or 'I saw him' (Raidt 1975, p. 26).

Despite all these foreign influences, Afrikaans retained its Germanic structure, especially in syntax and word formation.
The history of the colony itself was probably the most important cause for the eventual establishment of Afrikaans as one of the two official languages of the Republic of South Africa. The settlers had to face so many problems and suffer such injustice at the hands of both their Dutch and later British colonial governments, that they rebelled and started a stubborn, desperate struggle to develop and maintain a separate identity. They saw the social and official recognition of Afrikaans as a language, their language, as the best way to do this. Though Cape Dutch was often scorned by purists as a "kitchen language," it soon became for many the symbol of a new independence and spirit of freedom. Influenced by the efforts of philologist Arnoldus Pannevis in the mid 1860's, the 'Genootskap van Regte Afrikaners' ('Fellowship of true Afrikaners') was established in 1875 (Kotze 1975) to promote the recognition and acceptance of the new language. Until then only two languages had been recognized as worthy of use, i.e., High Dutch and English. Slowly, sometimes rather reluctantly, Cape Dutch, now Afrikaans, began to be accepted as a language worthy of use in reading and writing, from the pulpit and in parliament.

Today, after nearly three hundred years of struggle, frustration, and development, Afrikaans is finally regarded socially as a language worthy of recognition along with
languages like English or Dutch. Like all other spoken languages, Afrikaans continues to change and grow with time, and so does its literature. Along with English it is now an official language of the Republic of South Africa.

**Afrikaans Phonemes**

In some places in this study I will be transcribing Afrikaans into phonemic notation. The segmental taxonomic phonemes of Afrikaans are presented in Tables 1.1 and 1.2 without further discussion.

**The Stratificational Model**

The basic principle of stratificational grammar is that language is a system of relationships rather than an item-and arrangement or an item-and process system (Lockwood 1972, p. 287). A stratificational analysis of a language would therefore provide a description of the relationships which form the structure of that language in terms of several strata. Each stratum consists of a tactic pattern and its associated realizational patterns. The tactic rules specify how the units on each stratum combine with one another, while realizational rules connect the strata and describe how the units of one stratum are linked to those of another (Algeo 1973, p. 7).
Table 1.1

Afrikaans Vowels and Diphthongs

Vowels

Phonemic

\(/i/\quad /u/ \quad /I/ \quad \sqrt{y}/ \quad \sqrt{u}/ \quad /e/ \quad /\ddot{o}/ \quad /o/ \quad /\ddot{e}/ \quad /\ddot{o}/ \quad /\ddot{o}/ \quad /e/ \quad /\ddot{o}/ \quad /a/ \quad /\ddot{a}/\)

Phonetic

\([+]\quad [v] \quad [i:] \quad [y:] \quad [v:] \quad [e:] \quad [o:] \quad [a] \quad [a]\)

Diphthongs

Short

Phonemic

\(/ey/ \quad /\ddot{o}y/ \quad /oy/ \quad /iw/ \quad /ow/ \quad /\ddot{i}w/ \quad /\ddot{u}y/ \quad /ay/ \quad /aw/ \quad /\ddot{a}y/\)

Phonetic

\([e>j] \quad [\ddot{o}y] \quad [oj] \quad [y\ddot{a}] \quad [\ddot{a}w] \quad [i\ddot{a}] \quad [v:j] \quad [a:j]\)
### Table 1.2

**Afrikaans Consonants**

<table>
<thead>
<tr>
<th>Phonemic</th>
<th>Bilabial</th>
<th>Labio-Dental</th>
<th>Apico-Alveolar</th>
<th>Dorso-Palatal</th>
<th>Dorso-Velar</th>
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<th>Glottal</th>
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Figure 1.1 (taken from Christie 1973, p. 2)\textsuperscript{2} is a rough diagram of the total model of a stratificational grammar which reflects the connection of meaning and sound. Only the top three of the strata shown will be discussed here for Afrikaans. In this model the realizational portion of the grammar is represented as an inverted, truncated cone where the link is made between any given configuration in the area of meaning and the corresponding configuration in the area of articulation/audition. All the signals involved in communication have to go through the various coding filters called the tactic patterns of the grammar. The latter are shown in Figure 1.1 as the planes extending to the right of the cone. Although there is some partial overlap in area with the realizational portion, the tactics is separate from it. Between the different tactic planes there are several merger and choice points in the connections in the realizational portion which makes up the alternation patterns of the grammar, shown to the left of the cone. For most of the tactic patterns there are two alternation patterns. Signals from the tactic patterns condition the alternations. A sign pattern below the lower alternation pattern specifies the constituent segments at that level.

\textsuperscript{2} Figures and node descriptions from this work copyrighted in 1973 by William Christie, are used by permission of the author.
Figure 1.1. A Model of Stratificational Grammar.
Source Christie 1973 Figure 1.
The stratum shown at the top of the cone consists of the semotactics and its associated realizational portions, the semologic alternation pattern and the sememic sign pattern. This level of semology is the level most closely associated with meaning. The semology generates or characterizes the (infinite) set of well-formed sememic networks for a language. It also controls the lexology which produces the infinite set of grammatical sentences of a language which can be nonsensical if uncontrolled, but both grammatical and 'sensical' only if controlled by the sememic networks (Lamb 1973, p. 51). The semology seems to have a somewhat obscure structure, which seems to differ most from that of the other strata. The semotactics apparently blends into the realizational portion above it which is the whole conceptual system of the speaker/hearer, rather than having another alternation pattern like the others. When a message is encoded, its first basic linguistic structuring is handled in the semotactics, which specifies the semantic categories that will have realizations in the rest of the linguistic system. When a message is decoded, on the other hand, the signals from the realizational portion structured in these basic categories are taken as input by the semotactics and connected with the related conceptual configurations.
The next stratum down shows the level of lexology which specifies the clause structure of any given utterance. It consists of the lexotactics and its corresponding realizational alternation and sign patterns. Basic constituent order and such categories as surface case, number, and tense are dealt with by the lexotactics. The lexology also controls the morphology by specifying what choices are to be made where there are alternatives.

The next level, that of the morphology, contains the morphotactics and its corresponding realizational alternation and sign patterns. Here the morphotactics deals with the internal structure of words including the ordering and connections of traditional morphemes, as well as some of the characteristics of internal morpheme structure.

The above mentioned are the three strata which will be dealt with in this study, while the next two strata, the phonology and the hypo-phonology, will be outside of the scope of this work.

I will examine the so-called "free hanging lexicon," a phenomenon which has also been called the "stratal bypass," and whose structure has not heretofore been fully developed. It represents the 'open lexical classes' for which membership is given only in the semology, whence signals are sent down directly to the morphology, without passing through the lexology.
In stratificational grammar a relational network notation is used to describe the relationships of a grammar within the framework outlined above. These relationships are thus described by a network of lines connected in various ways and a set of nodes defining the types of connection. Conjunctive and disjunctive relationships are described by the basic nodes. The relationships may be ordered or unordered. In the case of conjunction, the order signifies succession, while in the case of disjunction it signifies priority. These basic nodes are supplemented by modified nodes with special functions. The macronotation nodes used in this work are shown here and described as far as their function in encoding is concerned.

a) The downward AND nodes, (Δ) in which the line extending upward from the triangle symbolizes the combination or constitute, and the lines extending downward its components or constituents.

(1)  

NAME: Downward ordered "and"  
SIGNIFICATION: A is realized as B followed by C.
b) The downward OR nodes (¬) in which the upward line symbolizes the realizate and the downward lines its alternate realizates.

(i) \[ \begin{array}{c}
\text{A} \\
\downarrow \\
\text{B} \\
\downarrow \\
\text{C}
\end{array} \]

NAME: Downward ordered "or".

SIGNIFICATION: A is realized as B in unmarked or normal cases where conditioning is present.

(ii) \[ \begin{array}{c}
\text{A} \\
\downarrow \\
\text{B} \\
\downarrow \\
\text{C}
\end{array} \]

NAME: Downward unordered "or".

SIGNIFICATION: A is realized as either B or C.

c) The upward AND nodes (\lor) which handle portmanteau realization. Here the upward lines symbolize components and the downward line the constitute.
(i) \[ \begin{array}{c}
A \\
\downarrow \\
B \\
\uparrow \\
C 
\end{array} \]  
**NAME:** Upward ordered "and".  
**SIGNIFICATION:** If A is followed by B, they are realized together as C.

(ii) \[ \begin{array}{c}
A \\
\downarrow \\
B \\
\uparrow \\
C 
\end{array} \]  
**NAME:** Upward unordered "or".  
**SIGNIFICATION:** A and B in any order are realized simultaneously as C.

d) The upward OR nodes (\(\uparrow\)):  
(i) \[ \begin{array}{c}
A \\
\downarrow \\
B \\
\uparrow \\
C 
\end{array} \]  
**NAME:** Upward ordered "or".  
**SIGNIFICATION:** Either A or B is realized as C in encoding. In decoding a signal from C will pass to B in unmarked cases, but to A in marked cases.

(ii) \[ \begin{array}{c}
A \\
\downarrow \\
B \\
\uparrow \\
C 
\end{array} \]  
**NAME:** Upward unordered "or".  
**SIGNIFICATION:** Either A or B is realized as C.
e) The one way AND nodes (▲):

(1) \[ \begin{array}{c}
\text{A} \\
\downarrow \\
\text{B} \quad \text{C}
\end{array} \]

**NAME:** One-way ordered "and".

**SIGNIFICATION:** A is realized as B followed by C. As the arrowhead indicates, the line to C is unidirectional and is not used for decoding. This line is used primarily for conditioning.

(11) \[ \begin{array}{c}
\text{A} \\
\downarrow \\
\text{B} \quad \text{C}
\end{array} \]

**NAME:** One-way unordered "and".

**SIGNIFICATION:** A is realized as B and C simultaneously. Again the line is unidirectional as indicated.

f) The DIAMONDS are used to indicate the intersections of tactic and realizational portions. All lines marked A in the diamonds connect to higher parts of the realizational portion, while those marked D lead to lower parts of the realizational portion. Lines marked B lead to higher parts of the tactics, and lines marked C to lower parts of the tactics.
(i) NAME: Diamond.
SIGNIFICATION: A and B together are realized as C in encoding. In decoding a signal from D will pass to A only if there is also a signal from B.

(ii) NAME: Diamond.
SIGNIFICATION: Same as (i) with the downward connection to C instead of D.

(iii) NAME: Determined element diamond.
SIGNIFICATION: B is realized as C and D simultaneously.

(iv) NAME: Determined element diamond.
SIGNIFICATION: Intersection marker.
g) Special nodes:

(i) **NAME**: Sign pattern "and".
**SIGNIFICATION**: A is realized as B followed by C in encoding. In decoding no signal from C can reach A until a prior signal has come from B.

(ii) **NAME**: Tactic "or".
**SIGNIFICATION**: Either A or B is realized as C, but the signals must originate at A or B. A signal from C cannot reach A or B unless it is the feedback to a signal from one of them.

(iii) **NAME**: Zero element.
**SIGNIFICATION**: A has no realization and is normally used as part of the ordered "or" node described below.
(iv) **NAME:** Optionality element.
**SIGNIFICATION:** A is optionally realized as B (under specified conditions) otherwise as zero.

(v) **NAME:** Memory "or".
**SIGNIFICATION:** Once A has been realized as B or C, any further signal from A must be realized in the same way until a signal from K restores the full range of choices.

In decoding most of the nodes operate on an approximate inverse of their operation in encoding. There are exceptions, however. (a) for example is normally found only in the tactics although (a) and (g) have similar functions. Signals passing through (a) are initiated at A only, while in (g) signals can be initiated from either direction because (g) occurs in the realizational portion. The so-called feedback hypothesis is described as follows. In the operation of the network system all lines are bidirectional, except where arrowheads show that lines are one way only.
When a message is encoded, signals in the realizational portion move downward to execute the functions described by the nodes. Once they have executed the specified functions, they send feedback signals upward to indicate that execution has taken place. When a message is decoded, signals generally move upward along the same lines used for feedback during encoding. The operation of the signals in the tactics is somewhat different. Here a signal will move down to the intersection with the realizational portion where the connecting line of the realizational portion will function in either encoding or decoding. A feedback signal to the tactics then allows the next signal in sequence to proceed. The tactics therefore acts as though it were always encoding even when the rest of the system might be decoding.

Occasionally it is desirable to specify the details of a certain structure more precisely. For this purpose a more detailed notation, i.e., micronotation, is used. Cells like the one shown in Figure 1.2 are the basic network units used in this system. As indicated in Figure 1.2 each cell (A) consists of a converging system of input lines (B), a cell body (C), represented by a circle with a threshold

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3. I use here a modification (used by Christie 1973) of the notation of McCulloch and Pitts (1943) as reprinted in McCulloch (1965).
Figure 1.2. A Micronotation Cell.
Source Christie 1973 Figure 4.
integer in it (here +2), and a branching system of output lines (D). All lines are unidirectional. The ends of the input lines are called synapses while the output branches end in terminals which may be excitatory (F) or inhibitory (E). Excitatory terminals are represented by arrowheads, while inhibitory terminals are represented by circles. Each excitatory terminal attaches to some synapse in another cell, while each inhibitory terminal attaches to some point along any line.

Within the network impulses travel along cell lines. An impulse can be stopped if an active inhibitory terminal is attached to the line along which the impulse is travelling. Each line or branch has a +1 potential, which remains +1 even after two lines or branches have merged. A cell like the one described in Figure 1.2 functions as follows. A certain number of impulses will pass from the excitatory terminals of another cell into the synapses of cell A at time T. These impulses will converge and travel along input lines B to cell body C. Each input line will have a +1 potential. If there are any inhibitory terminals attached to any of the input lines that are active at time T, the impulse along that line will be blocked, but the others will proceed. When these impulses along input lines B reach cell body C, their total potential
is added up and if it is equal to or greater than the threshold integer of the cell body (in this case +2), the cell starts to fire. Now an impulse travels along output line D to the excitatory terminals (F), as well as to the inhibitory terminals (E). Here, too, impulses can be blocked by active inhibitory terminals. While passage is assumed to be instantaneous within each cell, a delay of one time unit occurs when impulses pass from the terminals to the synapses or lines of another cell.

Figure 1.3 shows the structure of the memory cell which plays a very important part in micronotation. When an excitatory signal reaches cell A along line E, the cell will fire, and send out an impulse along line B. It will diverge, with one impulse traveling along B and another along C. C will keep cell A firing along E until an inhibitory impulse along D blocks the passage of the impulse along loop C and cell A is turned off.

The conversion of the basic macronodes into micronodes is shown and discussed below.

a) The downward AND nodes:

(i) NAME: Downward ordered "and".
SIGNIFICATION: This macronode contains no micronodes. Impulses simply proceed along the lines in order.
Figure 1.3. A Memory Cell.
Source Christie 1973 Figure 5.
b) The downward OR nodes:

NAME: Downward unordered "or".
SIGNIFICATION: Downward moving impulses attempt both branches. If the node represents an exclusive disjunction, the exclusion provisions are made lower in the network. Upward moving impulses simply converge.
(ii) NAME: Downward ordered "or". SIGNIFICATION: This node normally operates as straight through lines to the right. An impulse from the conditioning line at A will block the right branch and activate the left branch, however.

c) The one-way ordered AND:
SIGNIFICATION: The line carrying the upward or feedback signal branches.

d) The DIAMOND:
SIGNIFICATION: A signal from the tactics allows a signal to proceed in either direction in the realizational portion.
SIGNIFICATION: An incoming downward signal proceeding down the left branch sends another impulse to the cell on the right branch. This cell cannot fire yet, because it has a threshold of +2. As soon as feedback is received from the left branch, the cell which has been held ready, fires because now the +2 threshold has been satisfied. An impulse can now proceed down the right branch. The feedback from the left branch simultaneously sends an impulse to the cell on the feedback line, upward from the node. As soon as feedback from the right branch is received, this cell too will fire. When this happens, feedback can travel all the way up the line above the last cell.
and the operation of the node is completed. There can be no output without downward input.

f) Zero element:

SIGNIFICATION: The line simply loops back without activating any other cells.

I do not describe all the macronodes in micronotation because I will use micronotation only to a very limited extent, for which the elements above should suffice.

In using the stratificational model of linguistic structure described in the preceding pages as the framework for my investigation of the syntax and morphology of my spoken Afrikaans dialect, I hope to shed some light on at least some of the linguistic issues that are presently matters of debate.
CHAPTER 2

THE NOUN PHRASE

The Lexotactic Level

Figure 2.1 shows the structure of the Noun Phrase on the Lexotactic Level. The ordered "and" node BB makes provision for the occurrence of appositives in the Noun Phrase. Line CC leads through upward unordered "or" nodes EE and A to the ordered "and" node B which dominates the structure of the Noun Phrase. It is followed by optional line DD which converges with CC at node EE. Line DD is the one which allows another Noun Phrase to follow the first as an appositive.

Line C leads to Figure 2.2 which shows the options in the structure of Noun Phrases with nouns or pronouns as heads. Since Figure 2.2 describes the only obligatory feature of the Noun Phrase, I discuss it first. The downward ordered "and" node F shows the structure of Noun Phrases containing nouns as heads (Fc). These nouns can optionally be preceded either by determiners (Fa) and/or adjectives (Fb). Because of the optionality lines Fa and FB are marked for optionality with a circle.
Figure 2.1. The Noun Phrase (A).
Figure 2.2. The Noun Phrase (B).
Line Pa leads to a downward unordered "or" node, G, which provides the range of choices in determiners. It is unordered since no choice is marked with respect to the others. Node G divides the choice of the determiners into three groups. Ga leads to the options in determiners which can only be used with singular nouns. Gb leads to those which can precede both singular and plural nouns, and Gc to those which can precede plural nouns only.

Head nouns are marked for optional plurality as is shown by the structure of the ordered "and" node P. When the head of the Noun Phrase is a singular noun, Pa alone would be the choice. Pb would follow Pa only when a signal along the line Ha is received at diamond Q to indicate that the head noun should be plural.

In order to ensure that only the determiners or adjectives that can precede plural nouns occur when Pb follows Pa, an unordered "and" node H handles the conditioning which originates in the realizational portion. Simultaneous signals are sent out along lines Ha, Hb, Hc, Hd, and He to mark plurality throughout the Noun Phrase. Ha, which meets Pb at diamond Q, ensures that the plural morpheme is added to the noun only when the decision to use a plural Noun Phrase has been made. At the same time a signal is sent along Hb to block Ga which leads to those determiners which can occur only with singular nouns.
Yet another signal travels along He to block the occurrence of those adjectives that can occur only with singular nouns at Ma. The signal travelling along Hd makes possible the choice of "plural only" adjectives through diamond Mx on Mb. A signal along line Hc activates diamond L on Gc to make available the choice of "plural only" determiners. Since lines Gb and Mc lead to those determiners and adjectives allowed with both singular and plural nouns, they need no inhibitors or conditioners like Ga, Ma and Mb do.

The conditioning imposed by the number of the noun could be handled in another way, i.e., one could handle everything in the tactics, as is done in Figure 2.3. Here a one-way unordered "and" node, Q, is used to control the choice of determiners and adjectives in the Noun Phrase. If a singular noun is head of the phrase, i.e., if Pa occurs alone, there is a choice between the "singular only" determiners on Ga, the "singular or plural" determiners at K, and the unmarked line Ia on line Gb (which does not lead anywhere since it ends in a zero marker). For adjectives there is the choice between the "singular only" adjectives on Ma or the unmarked choice, Oa, on line Mb. The latter does not lead anywhere of course as the zero-marker at the end of Oa shows. If a plural noun occurs,
Figure 2.3. A Problem of Time Sequence in Lexotactic Conditioning.
optional line Pb would follow Pa at ordered "and" node P, and Q would be activated to send a signal along Qa to one-way unordered "and" node R. Four signals would be sent out simultaneously to mark plurality throughout the Noun Phrase. Ra places a block on Ga to ensure that no "singular only" determiners will occur in the plural Noun Phrase. Rb conditions line Ib so that the "plural only" determiners become available. Rc blocks Ma which leads to the "singular only" adjectives, while Rd places a conditioner on line Ob to ensure that the "plural only" adjectives can be used only in the plural Noun Phrase.

This model of conditioning unfortunately does not work in reality. When one attempts to handle all the conditioning in the tactics in the way just described, one runs into a problem. G, N and P are dominated by an ordered "and" node, F, which implies the occurrence of the determiners, adjectives and nouns in a specific order. This order is implied both in the actual phrase, and in time sequence. It would not be feasible, therefore, to have the conditioners for the choice of determiners depend on the noun which has to follow both the determiner and the adjective according to the sequence implied by its position in the ordered "and" node, F.
In order to eliminate this timing problem it would seem preferable to handle the conditioning in the reali-
tational portion as was done in Figure 2.2, where the choices of the plural noun, plural determiners and plural adjec-
tives are made simultaneously before the tactics is reached. The only possible resolution in the tactics would be to put the control node (Q in Figure 2.3) on the first element in the noun phrase. But since determiners, adjectives, or nouns can come first, such a procedure would require three separate but interlocked control nodes, adding a great amount of excess surface information to the grammar.

I now return to Figure 2.2. When Pa alone is the choice, i.e., if the head is singular, the noun can be preceded by any of the determiners provided by G. For instance it could be preceded 1) by the "singular only" determiners like the indefinite article 'n 'a' (Ga), e.g., 'n man 'a man'; 2) by (Ka) de 'the', e.g., de duivel 'the devil'; 3) by (Kb) 't 'the', e.g., aan't werk.

1. de is a relic from Dutch left in Afrikaans. It occurs in several idiomatic expressions where both de and the noun would be inflected, e.g., 'n steen des aanstoots 'something offensive', where the normal form of the noun would be aanstoot. New expressions formed occasionally in emotional language or for emphasis are done so by analogy to those expressions already existing in the language.
'working;' 4) by the definite article die 'the,' e.g., die man 'the man' (Kc); 5) any demonstrative pronoun (Kd), e.g., daardie 'that'/ 'those;' or 6) by any of the possessive pronouns (Ke), e.g., sy 'his.'

If the head of the Noun Phrase is a plural noun, Pa would be followed by Pb (which leads to the diamond Q, indicating the plural lexeme and providing connections to the plural morpheme on a lower level). When this is the case, the choice of determiners would be limited to those provided by Gb and Gc since Ga is blocked by Hc. The plural noun can therefore be preceded 1) by de (Ka); 2) by 't (Kb); 3) by the definite article die (Kc); 4) by demonstrative pronouns (Kd) like hierdie 'these;' 5) by possessive pronouns (Kc) like hulle 'their;' or 6) by one of the "plural only" determiners, e.g., party 'some.'

As line Fb indicates, Noun Phrases with nouns as heads can contain adjectives, which could be preceded by adverbs (Na), e.g., 'n baie arm man 'a very poor man.' Any adverbs present in such a Noun Phrase would always precede and modify some adjective. Therefore an ordered

2. 't is another Dutch relic, also occurring in idiomatic expressions. As for de, the nouns after 't are inflected for case, e.g., aan't huile 'crying', where the normal form of the noun is hul. These two forms, de and 't, precede the only noun case-inflections still left in Afrikaans.
"and" node, N, is used to indicate the proper place of the adverb with respect to the rest of the phrase. The fact that N is used instead of a separate line from F to the adverbs indicates that no adverbs can occur in such Noun Phrases without the presence of adjectives.

Since the adjectives behave like the determiners in that there are certain ones which can occur only with singular nouns and others that can precede only plural nouns, it is necessary to use an unordered "or" node M to provide three choices. Ma leads to the adjectives that can only occur with single nouns, e.g., een 'one.' When Pa alone is the choice in the Noun Phrase it can therefore be preceded 1) by Ma, e.g., een kind 'one child,' or 2) by Mc which provides the choice of adjectives which can occur with both singular and plural nouns, e.g., 'n soet kind 'a good child.' When Pb follows Pa, the plural noun can be preceded 1) by Mb which leads to the "plural only" adjectives, e.g., baie kinders 'many children,' or 2) Mc, e.g., die soet kinders 'the good children.' The block on Ma ensures that only Md and Mc are available for plural Noun Phrases, while the diamond Mx ensures that Mb is not available for single Noun Phrases.
Since in Afrikaans proper nouns behave like common nouns in that they can be preceded by determiners and adjectives, common and proper nouns are treated alike under the heading 'Nouns' (Fc).

An unordered "or" node, D, provides choices for alternative forms of the Noun Phrase. Line Db leads to unordered "or" node R which shows the options for Noun Phrases with pronouns as heads. The first choice, Ra, leads to ordered "and" node S which reflects the structure of Noun Phrases with personal pronouns (Sb) as heads. Personal pronouns can be preceded by the definite article, die, followed by one of the adjectives which can occur with both singular and plural nouns, e.g., die arme hy, lit. 'the poor he.' The ordered "and" node, T, which precedes lines Ta and Tb, shows that the die cannot occur unless an adjective is also present. Since the die does not always have to occur when the adjective does, however, line Ta is marked for optionality, e.g., arme hy. Personal pronouns can, of course, occur alone; therefore line Sa has to be marked for optionality too.

Lines Rb and Rc lead to Noun Phrase types which cannot be preceded by determiners or adjectives, i.e., demonstrative pronouns (Rb) and indefinite pronouns (Rc).
In Figure 2.1 line V shows that the Noun Phrase can be modified predicatively by a Prepositional Phrase. The noun (object of preposition) can be further modified by a Prepositional Phrase which, added to the fact that the Prepositional Phrases themselves can contain any of the features already discussed, necessitates the use of loop Xb which leads back into upward unordered "or" node A to provide for all these possibilities, e.g., oor die arme Johan in die uiterst beknopte ou kamertjie agter die ou huis op die verste hoek van die straat 'about poor John in the extremely cramped little room behind the old house on the furthest corner of the street.'

Since the Noun Phrase is not the only place in the sentence where a Prepositional Phrase can occur, line Wa leading upwards from the unordered upward "or" node W makes provision for its occurrence elsewhere.

The Noun Phrase can contain Relative Clauses which would follow any Prepositional Phrases that might be present as modifiers of the head, as the position of Y leading from ordered "and" B indicates, e.g., die man in die motor wat gister sy hoed verloor het 'the man in the car who lost his hat yesterday.' These Relative Clauses
can occur as central embeddings to a depth of two, and sometimes three.  

Line Y, which is marked for optionality since Relative Clauses are not always present, leads to ordered "and" node Z which shows the structure of the Relative Clauses. Such a clause would consist of a relative pronoun (Za) followed by a "sentence" (Zb). (Since it would lack at least one of its principal elements, So is not, in reality, a full sentence in the usual sense. Its structure is discussed in Chapter 4). Za leads to the choice between nonpossessive relative pronouns (ZCa) like wat 'that' and the possessive relative pronoun wie se 'whose' (ZCb), provided by unordered "or" node ZC. An ordered "and" node, Zb, precedes wie se because se, which always follows wie in order, is not only used to form a possessive relative pronoun, but also as possessive marker for all nouns. A separate line, ZDb, is therefore needed for se so that line AA can join it at upward unordered "or" node Ze to provide for cases where se would follow the Relative Clause. Where se is attached to the relative pronoun, it would be followed by So (Zb) like the other relative pronouns, with the condition

3. For a fuller discussion of central embeddings see Christie (1976) and Murray (1977). See also the discussions on the finiteness of natural language by Chomsky (1957, 1965) and Reich (1968, 1969).
that a Noun Phrase of the structure of F in Figure 2.2 has to follow it before a verb does. To ensure that this does happen, ZFb loops back from ordered "and" node Zf to upward unordered "or" node A. This means that any of the Noun Phrase elements already discussed can precede the So (unless blocked by line Zx; see below). Now since line C is not blocked anywhere between B and F, and has no optionality marker in that space either, the Noun Phrase containing nouns as heads has to be the first element to follow se once the loop has activated C again.

To ensure that the first choice, that of the Noun Phrases with nouns as heads, is taken at D and not the second one with pronouns as heads, a block is placed on Db at Ua before the loop (ZFb) is activated. For this purpose a one-way unordered "or" node, ZG, is placed on line ZFa. When se has occurred, a signal is sent along ZGa to one-way unordered "and" node U (Figure 2.2). From there two simultaneous signals are sent out to block Fa at Ub, and Db at Ua. While Ua ensures that a Noun Phrase with a noun as head would follow se, Ub blocks the occurrence of determiners in that Noun Phrase. The only elements that can follow se in the Noun Phrase would therefore be adverbs and adjectives (Fb) and nouns (Fc), e.g., Jan se baie arm pa 'John's very poor father.' Since these blocks are regulated by the node ZG which is
placed on the first obligatory line off ordered "and" node ZF, and followed by the loop ZFb, it is obvious that the blocks would be activated before the loop is. Also, since they are both ultimately dominated by the unordered "or" node ZC, it is obvious that the blocks will only occur when the loop does, so that further occurrences of Noun Phrase which are not preceded by se would not be affected by them.

In order to understand the operations of these inhibitors better, a micronation analysis of the same operation is done in Figure 2.4. The label indicates correspondence to macronodes in Figures 2.1 and 2.2.

Once the choice has been made that se will occur, an impulse will move down ZFa through ZG along ZGb to se. The impulse along AGb will then diverge with one impulse travelling along ZGa to cell U. When the impulse along ZGa reaches the memory cell U with its threshold of +1, the cell starts to fire itself. It continues to do so along line Uc while impulses are sent along lines Ua and Ub to the inhibitory terminals attached to lines Db and Fa. The purpose of these inhibitory terminals is to block the passage of any impulses along Db and Fa when they should occur. As long as cell U keeps firing itself, the two inhibitory terminals
Figure 2.4. A Micronotation Description of the Behavior of se.
remain active, even though at this stage no impulses are attempting to travel down Db and Fa yet.

Once cell U has been activated, a feedback impulse activates loop ZFb and impulses are sent down line C. At unordered "or" node D they will try to move down Da and Db simultaneously. Since cell U is still firing and sending impulses to the inhibitory terminal Ua, the impulse along Db will be blocked and only the one down Da will be able to proceed. This ensures that only Noun Phrases containing nouns as heads will follow se.

The impulse moving along Da will reach ordered "and" node F and try all the branches in succession. It will be unable to move down Fa, where it will be blocked by inhibitory terminal Ub, which is also still receiving impulses from cell U. In this way the occurrence of determiners after se is prevented.

The impulse will also attempt to proceed along lines Fb and Fc. Since these lines are not blocked by inhibitors, it will succeed here. Once it has proceeded through Fc, the impulse will travel along feedback line Fcf and ultimately reach node D, whence a line leads to an inhibitory terminal Fcft attached to line Uc. Since the passage of any impulses along line Uc is now blocked, cell U stops firing. No further impulses are sent to Ua and Ub; so
the blocks on Fa and Db are deactivated. They will remain ineffective until cell U is activated again by the occurrence of a se and the whole process is repeated. This ensures that no other Noun Phrases are affected by the blocks since they are activated only by the impulses moving through ZG when se occurs, and they remain active only until the principal part of the Noun Phrase following se has been completed and the inhibitory terminal can shut off cell U.

Line AA (Figure 2.1) leads to the possessive marker for all nouns, se. Since se would follow all the elements discussed under V and Y (if they are present), it is of course the last line leading down from ordered "and" node B. It would be the last element in a possessive Noun Phrase, e.g., die man met die hoed waarmee hy vir almal waai se (hond...), lit. 'the man with the hat with which he is waving to everybody's (dog...).'

Line AA is conditioned by line Eb which originates at the one-way ordered "and" node E on line Da. This is to ensure that se occurs only when a Noun Phrase with a noun as head occurs, but not when one with a pronoun as head occurs, since in the latter case possessive pronouns would indicate possession, rather than the possessive marker.
The Morphotactic Level

As a result of the processes discussed in Chapter 1 Afrikaans morphology is relatively simple. Afrikaans has primarily natural gender and there are no case endings for nouns determined either by the type of verb or preposition used, or by the function of the noun in the sentence. Where case endings do exist, they are part of a class of idiomatic expressions and therefore belong in the lexicon rather than the morphology.

The noun is inflected for diminution and number, however, as Figure 2.5 shows. An ordered "and" node, A, dominates the different possibilities for noun inflection. Line B leads to the noun stems. Although Afrikaans has predominantly natural gender, all nouns reflect gender in some way or another. Nouns denoting inanimate objects are neuter and are always uninflected. There are three ways to form the masculine and feminine gender, however. 1) It can be formed by inflection, which is shown in unordered "or" node G. 2) It can be formed by adding certain words as prefixes or suffixes to the noun (cf. English she-/he-), e.g., mannetjie-/mannetjie / manĩkĩ/ 'male' as leemannetjie /lĩwɔmánĩkĩ/ 'male lion,' and wyfie-/wyfie /veyfi/ 'female' as in wyfieψisant /veyfĩ-fĩsant/ 'hen pheasant.' 3) It can be

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4. Phonemic transcription is used to represent the inflectional endings throughout the Morphotactic Level in Chapter 2.
Figure 2.5. Noun Inflection for Plurality, Diminution and Gender.
formed by using different words to distinguish masculine and feminine nouns, e.g., seun /siwn/ 'son,' dogter /doxtir/ 'daughter.'

The second and third ways of marking gender are not to be treated in the morphotactics. The third, utilizing separate lexical items, clearly is to be treated in the lexicon. Further, since the formatives involved in the second method are themselves members of an open lexical class, nouns, the second process is, in fact, simply noun compounding, which also belongs in the lexicon.

When gender is marked by inflection, line C will follow B. Since masculine and neuter are unmarked in the morphology, gender marking, provided by line F, is always feminine. If a noun is feminine, a signal from the realizational portion received at diamond Fx will make available the options of feminine inflectional endings dominated by unordered "or" node G. Since no ending is marked with respect to the others, there is no need for ordering in G. There are five feminine inflectional endings, e.g., 1) (Ga) /-in/ as in heldin /heldin/ 'heroine;' 2) (Gb) /-i/ as in sekretaresse /sikritaresi/ 'lady secretary;' 3) (Gc) /-es/ as in prinses /prinses/ 'princess;' 4) (Gd) /-si/ as in aktrisē /aktrīsi/ 'actress;' and 5) (Ge) /-stir/ as in bakster /bakstir/ 'lady baker.'
Nouns can also be inflected for diminution. Such nouns can also be doubly marked by being preceded by diminutive adjectives like *klein* /kleyn/ 'little/small/tiny,' e.g., *klein badjie* /kleyn baykǐ/ 'small bath,' which can be further modified by adverbs like *baie* /bayl/ 'very.' When a diminutive is needed, therefore, the diamond H on line D is activated so that the different diminutive inflectional endings become available to follow the noun stem or feminine inflectional ending. An ordered "or" node, I, precedes these endings, because one option is unmarked with respect to the others. /-kǐ/ (Ib) is the unmarked diminutive inflection, e.g., in *lepel*tjǐe /lĕpilkǐ/ 'little spoon.' Line Ia leads to unordered "or" node J which precedes the marked diminutive inflectional endings. There are three options: 1) (Ja) /-ǐkǐ/, e.g., in *lammet*tjǐe /lămṁkǐ/ 'little lamb;' 2) (Jb) /-pǐ/, e.g., in *boompie* /bōmpǐ/ 'small tree;' and 3) (Jc) /-ǐ/, e.g., in *lied*tjǐe /lĭtkǐ/ 'little song' or *huisie* /hoysǐ/ 'small house.'

The conditioning for these endings are provided by the phonotactics. Since the phonotactics is not treated in this study, I will mention only briefly the conditioning. 1) /-kǐ/ (Ib) will follow words a) ending in /d/ or /t/; b) ending in /l/, /n/ or /r/ preceded by a long vowel, a diphthong or a short unaccented vowel; c) ending in a
vowel or diphthong; and d) in all nouns of two or more syllables. 2) /-īkī/ (Ja) will follow nouns ending in /l/, /m/, /n/, or /r/ preceded by a short accented vowel. 3) /-pī/ (Jb) will follow nouns ending in /m/ preceded by a long vowel, a diphthong, an unaccented vowel, /i/, /u/, or the consonants /l/ or /r/. 4) /-ī/ (Jc) will follow those nouns that end in /s/, /k/, /p/, /x/ or /f/.

Not all nouns are diminutives, of course; therefore line D is marked for optionality. Feminine and diminutive suffixes can be combined in a single word, thus onderwyser /ondirveysir/ 'male teacher' (diminutive onderwyserji /ondirveysirkī/), onderwyseres /ondirveysires/ 'female teacher,' diminutive onderwyseressie /ondirveysiresī/.

Nouns are inflected for number. The last line (E) off ordered "and" node A leads to the inflectional endings for plural nouns. As soon as an impulse from the realizational portion activates diamond K, any one of the options provided by ordered "or" node L can follow the noun stem, the feminine inflectional ending or the diminutive ending. Line Lb leads to the unmarked plural inflections /-i/ and /-s/, which are dominated by unordered "or" node N since they are unmarked with respect to each other. An example of a noun with an /-i/ ending is boome /bōmi/ 'trees,' while onderwijzers /ondirveysirs/ 'male teachers' has the /-s/ ending. Line La is the marked choice for plural
inflections and leads to unordered "or" node M which precedes the different options. There are five possible endings in this group: 1) (Ma) /-iri/, e.g., in liedere /l̥idiri/ 'songs;' 2) (Mb) /-ins/, e.g., in beddens /bedins/ 'beds;' 3) (Mc) /-irs/, e.g., in kinders /kindirs/ 'children;' 4) (Md) /-di/, e.g., in deugde /diwxdı/ 'virtues;' and 5) (Me) /-s/, e.g., in mans /mans/ 'men.'

The conditioning for the plural morphemes originates in two different parts of the grammar. While the unmarked options for plural formation, /-i/ and /-s/, are conditioned by the phonotactics, the marked choices, /-iri/, /-ins/, /-irs/, /-di/, and /-s/ are all conditioned by the lexical items themselves, i.e., their conditioning originates in the lexicon. L has to be ordered to distinguish between the marked and unmarked plural endings, since the unmarked ones, /-i/ (Na) and /-s/ (Nb) are the ones that would be used by the native speaker to form new plurals, with the choice of suffix being conditioned phonologically: /-i/ occurs after a stressed final syllable (including monosyllables), while /-s/ occurs after unstressed final syllables. This /-s/ is to be distinguished lexotactically from the marked /-s/, which is lexically conditioned, occurring in the plurals saals /s̥als/ 'saddles' and mans
/mans/ 'men,' environments that, if phonologically conditioned, would require /-i/.

Figure 2.6 shows the inflection of adjectives. Adjectives can be used attributively or predicatively. When they are used attributively, some adjectives are inflected by the addition of the ending /-i/ to the stem. Almost all non-monomosyllabic ones ending in /d/, /f/, /x/, or /s/ get the /-i/ ending for attributive use. One cannot say that these endings are phonologically conditioned, however, since there are exceptions to the /d/, /f/, /x/, and /s/ ending rule, e.g., fris in 'n fris man /? fris man/ 'strong man' as well as to the rule that monosyllabic adjectives do not change, e.g., duur in dure les /döriles/ 'costly lesson.' In the latter case the inflection is semologically conditioned. When used figuratively or with strong emphasis, monosyllabic adjectives that would not normally be inflected do get the /-i/ ending. One has to assume that the conditioning for the co-occurrence of the /-i/ is therefore lexically conditioned, with further semological conditioning imposed in the case of figurative use or stress, as Figure 2.6 shows.

An ordered "and" node, A, dominates the adjective stem and inflectional /-i/ ending in the morphotactics. From here line Aa leads to diamond B from which line Ba
Figure 2.6. Adjective Inflection for Attributive Use.
leads to the adjective stem. Diamond B is activated only when an impulse is received from line Oa in the lexotactics through diamond P. This will happen only if ordered "and" node O (described in Figure 2.2) does occur, i.e., if an attributively used adjective occurs. In such a case the possibility of the occurrence of an /-i/ ending exists, so an impulse along line Ob and through diamond Q will activate diamond C. An impulse moving down AB on the morphotactic level will therefore be able to proceed through diamond C along Ca in the realizational portion where the lexical conditioning is imposed. At the ordered "or" node E, the unmarked choice would be Ea, which leads to the /-i/ ending. This will happen when there is no lexical conditioning imposed, i.e., when the word has two or more syllables, e.g., besig in die besige man /dɪ bɛsɪxɪ mɛn/ 'the busy man,' or when it is monosyllabic and ends in /d/, /f/, /x/, or /s/ and does not belong to the special group of words with these endings that do not take the /-i/ending, e.g., koud /kowt/ in koué water /kɔwɪ vɔtɪr/ 'cold water.'

The marked choice, Eb, which leads to a zero-marker, is conditioned by the lexicon along line Ha. In the lexicon one-way ordered "and" node F handles the monosyllabic adjectives which do not take /-i/ endings, with Fa ultimately leading to those monosyllabic adjectives and Fb leading to one-way ordered "or" node H from which Ha
does the conditioning on Eb. One-way ordered "and" node G handles the special class of adjectives which change endings but do not take the /-i/ inflectional ending for attributive use. In this class, for instance, the adjective lank /λανκ/ 'long' will change to lang /λαŋ/ for attributive use. The unmarked form of this adjective would be lank. It would be reached along line Ja off ordered "or" node J. The marked form would be lang which would be reached along line Jb. Jb is conditioned by line Da from one-way ordered "and" node D in the realizational portion of the morphology. This will happen only if an attributive adjective occurs and impulses reach D through both diamonds A and C. Thus Jb will be available only if adjectives are used attributively. While Ga thus leads to this special group of monosyllabic adjectives, Gb leads to one-way unordered "or" node H, from which Ha conditions the occurrence of Eb. What happens then, is that whenever one of the adjectives governed by F or G occurs, the marked zero-marker off ordered "or" node E will be chosen to follow the adjective stem, resulting in an unflected adjective, e.g., duur, as in duur klere /dør klēri/ 'expensive clothing.'

As I have mentioned earlier, the lexical conditioning is itself further conditioned by the semology, as the presence of the conditioner I on line Fb shows. When
figurative use or strong emphasis is intended (determined on the semological level) a block is placed on Fb by I so that those monosyllabic adjectives dominated by F that would not otherwise be inflected for attributive use can be inflected.

As Figure 2.7 shows, the adjective is inflected to indicate the degrees of comparison. In the tactical portion of the diagram an ordered "and" node A dominates the positive or adjective stem (Ab) and the options to form the comparative and superlative adjectives. The usual way to form the comparative degree is to add /ir/ to the adjective, e.g., *groter /xrotir/* 'bigger.' Since it is used as a suffix, line Ac which ultimately leads to this option follows line Ab. An unordered "or" node, E, separates the comparative ending (Ea) from the superlative inflection, /sti/ (Eb), which would occur in words like *grootste /xrotstt*l 'biggest.' These inflectional endings can occur only if the diamonds F and G are activated by signals from the realizational portion to indicate the comparative or superlative degrees. Since these two are the unmarked comparison inflections, they are conditioned by lines Hb and Ib leading from ordered "or" nodes H and I in the realizational portion. As the presence of line Aa indicates, there is the possibility in
Figure 2.7. Degrees of Comparison in Adjectives.
Afrikaans of preceding the positive form of the adjective with meer /mër/ 'more' (Ba) to form the comparative degree, e.g., meer afgeleë /mër afxilēi/ 'more isolated', and with mees /mēs/ 'most' (Bb) to form the superlative degree, e.g., mees afgeleë /mēs afxilēi/ 'most isolated'. Since these would be the marked forms, diamonds C and D are activated by signals from marked lines Ha and Ia in the realizational portion.

The occurrence of either meer and mees or /-ir/ and /-sti/ is further governed by the lexicon, as the presence of the conditioners Qa and Qb on lines Ia and Ha indicates. The marked comparative form /mër/ and the marked superlative form /mēs/ would thus occur only if impulses from the lexicon activates the conditioners Qa and Qb when words which take these comparative or superlative forms occur. Otherwise the /-ir/ and /-sti/ endings will occur.

Nouns can be formed by derivation as shown in Figure 2.8. All the prefixes and suffixes in Figure 2.8 are governed by diamonds since they are all allomorphs and therefore belong in the realizational portion rather than in the tactics. The choice of prefix or suffix in each case is lexically conditioned. For the sake of clarity this lexical conditioning is not included in the diagram. The
Figure 2.8. Noun Formation by Derivation.
mechanism for the conditioning is the same as is indicated in Figure 2.7, except that the lines provide the conditioning below the diamonds rather than above. In Figure 2.9, discussed further below, the conditioning is provided separately on lines Hb, Hc, Ma, and Mb, that is, above the upward "or" nodes dominating /lik/ and /irix/. Because these two phoneme sequences pattern with two different types of morphemes (nouns and verbs), they should be regarded as belonging to separate morphemes themselves in these occurrences. Thus their conditioning lines must be kept separate.

In Figure 2.8 an unordered "or" node A precedes the five options for noun derivation. Line Aa leads to the simple noun which does not contain any prefixes or suffixes. Line Ab leads to ordered "and" node B which shows the structure of nouns derived from verbs. Line Ba leads to the one-way ordered "and" G whose first line, Ga, leads into diamond H, and then via line Ha to the prefix /xi-/ which can be added to verbs to form nouns like 'n gekla /? xiklā/ 'a complaining.' When /xi-/ precedes the verb, it can be followed optionally by suffix /-irey/ (Lb), e.g., gelaggery /xilaxirey/ 'laughing.' To ensure that no other suffix can follow the verb, line Gb activates Ib which is the marked choice off ordered "or" node I and
Figure 2.9. The Nominal Infinitive Phrase.
which leads to either La, the zero-marker, or Lb, the suffix /irey/. Line Bb leads to the verbs. They can be followed by any one of the six suffixes offered by unordered "or" node C, the unmarked choice off ordered "or" node I: 1) (Ca) /-i/, e.g., in *voltooing* /foltōjiŋ/ 'completion;' 2) (Cb) /-är/, e.g., in *vroetelaar* /frutilār/, lit. 'someone who fidgets;' 3) (Cc) /-dir/, e.g., in *verloorder* /firlōrdir/ 'loser;' 4) (Cd) /-ir/, e.g., in *wenner* /venir/ 'winner;' 5) (Ce) /-irey/, e.g., in *huilery* /huylirey/ 'crying;' and 6) (Cf) /-sil/, e.g., in *kooksel* /kōksil/ 'batch.' (Only the productive prefixes and suffixes are included in the morphology. The unproductive ones, with the words in which they occur, belong in the lexicon).

Line Ac leads to a second option in noun-formation by derivation, i.e., where a noun can be followed by certain suffixes to form a new noun. This structure is reflected in ordered "and" node D. Line Da leads to the noun which can be followed by one of three suffixes. The suffix options, Ea /-ir/, Eb /-ismi/, and Ec /-dom/, are dominated by unordered "or" node E. A combination of Da and Ea would produce a noun like *Johannesburger* /juhanisbörgir/ 'Johannesburger.' Da and Eb would produce one like *pessimisme* /pesīmismi/ 'pessimism,' and Da and Ec one like *Christendom* /xristindom/ 'Christianity.'
When adjectives are the basis of the derivation, they can be followed by the ending /-heyt/, as the structure of ordered "and" node F on line Ad shows. An example is doofheid /dōfheyt/ 'deafness.'

Line Ae leads to the ordered "and" node B in Figure 2.9 which dominates a special type of noun formation, i.e., the use of an Infinitive Phrase as the subject or object in a sentence.

The only obligatory element in this type of structure is the verb (infinitive) reached by line Bb, e.g., Slaap is belangrik 'Sleep is important.' Optional line Ba leads to unordered "or" node C which dominates the three optional elements that can precede line Bb. Line Ca leads to ordered "and" node D which dominates the optional elements that can be present in an om te V Infinitive Phrase. The only two obligatory elements in this type of structure are (line E) om and (line I) te, e.g., Om te slaap is belangrik 'To sleep is important.' Several other elements can be present in the om te phrase, however. If the verb is of the type that takes a reflexive pronoun, line F has to be present with either jou / 'n mens 'you,' or with another pronoun, e.g., om jou/'n mens te bekommer help nie 'Worrying is useless.' In this type of phrase there can also be an adverb (line G), e.g., om jou so te bekommer
'to worry like that,' as well as an object (line I) in the form of a Prepositional Phrase, e.g., om jou so oor geld te bekommer 'to worry about money like that.' The om te phrase can also contain an object alone (line H), e.g., om huise te verf 'to paint houses,' or it can contain certain modals (line J), e.g., om (huise) te kan verf 'to be able to paint (houses).'. It can also contain an adverb (line G) only, e.g., om goed te verf 'to paint well.' Line Cb off unordered "or" node C leads to the second optional element which can precede line Bb, i.e., an object only, e.g., Huise verf 'painting houses.' Line Cc leads to the third option, an adverb, e.g., Genoeg slaap 'to get enough sleep.'

Figure 2.10 reflects the formation of adjectives by derivation. Here, too, as explained earlier, the diamonds indicate that the prefixes and suffixes are in the realizational portion, and the endings are all lexically conditioned.

Line B leads to the simplex adjectives without any prefixes or suffixes. Line C leads to ordered "and" node F which reflects the structure of adjectives derived from nouns (Fa). Nouns can be followed by any of the four suffixes dominated by unordered "or" node H, e.g., 1) (Ha) /-axtix/ as in stormagtig /stormaxtix/ 'stormy,'
Figure 2.10. Adjective Formation by Derivation.
2) (Hb) /-lik/ as in vroulik /frowlik/ 'feminine;`
3) (Hc) /-irix/ as in klonterig /klontirix/ 'lumpy;'
and 4) (Hd) /-los/ as in manloos /manlös/ 'husbandless.'

Line D leads to ordered "and" node I which dominates those adjectives derived from other adjectives. These adjectives (Ib) are preceded by the prefix /-on/, e.g., in onmenslik /onmenslik/ 'inhuman;'

Line E leads to ordered "and" node K which shows the structure of adjectives derived from verbs. When a past participle is used as an adjective, the verb (Kb) will be preceded by /-xi/ (Ka) and followed by /-di/, the unmarked line Oa off the ordered "or" node 0 on line Nb. This will result in an adjective like geperfumeerde /xiparfömerdi/ 'perfumed.' The addition of this /xi-/ is phonologically conditioned. If the word starts with /bi-/ /xi-/, /er-/, /her-/, /ont-/, or /fir-/, or if it is disyllabic with the stress on the second syllable, the /xi-/ prefix will not occur, though the /-di/ suffix will. If the word ends in /k/, /p/, or /t/, or in /f/, /x/, or /s/ immediately preceded by a short vowel (except /u/ and /ū/), however, the marked choice /-ti/ off line Ob would follow the verb, e.g., gekapte /xikapti/ 'chopped.' When the present participle is used as an adjective, /-indi/ (line Nc) will follow the verb, e.g., verbasende /firbāsindi/ 'surprising.'
Other adjectives can be formed by the verb being followed by one of the three suffixes dominated by unordered "or" node M. 1) If Ma is the choice, the result will be an adjective like werkerig /verkirix/, lit. 'worky.' 2) If Mb /-lik/ follows Ka, the result will be an adjective like veranderlik /firandirlik/ 'changeable.' 3) If Mc /-bār/ follows the verb, the result will be an adjective like rekbaar /rekbār/ 'stretchable.'
CHAPTER 3

THE VERB PHRASE

The Lexotactic Level

Figure 3.1 reflects the options in the structure of the Verb Phrase on the Lexotactic Level.¹ Line Aa leads from ordered "and" node A to the unordered "or" node B which provides the five options in Verb Phrase structure while line Ab leads to Neg. 2, nie, the second part of the negative element that will occur at the end of the Verb Phrase in negated sentences regardless of the option chosen for Verb Phrase structure (except in the circumstances described in Figure 3.3). (Figures 3.1 through 3.6 follow.)

Line Ba leads to ordered "and" node E which shows the structure of Verb Phrases in which the first elements are modals in their present or past tense forms, or where het precedes the verb to mark the past tense. Line Bb leads to the ordered "and" node C₀ in Figure 3.3 that dominates the structure of Verb Phrases in which main verbs are the first elements, while line Bc leads to the ordered "and" node D₀ in Figure 3.4 that shows the

¹ Only the declarative form is discussed on this level. Types of sentence inversion will be handled in Chapter 4.
Figure 3.1. Past Tense Formation in the Verb Phrase.
Figure 3.2. Modal Behavior.
Figure 3.3. The Main Verb as First Element in the Verb Phrase.
Figure 3.4. The Staan en Construction as First Element in the Verb Phrase.
Figure 3.5. The Passive Verb Phrase.
Figure 3.6. The Copulative Verb Phrase.
structure of Verb Phrases in which the first element is staan en, sit en, le en, or loop en. Line Bd leads to the ordered "and" node $E_0$ in Figure 3.5 that shows the structure of passive Verb Phrases and line Be leads to the ordered "and" node $F_0$ in Figure 3.6 that shows the structure of copulative Verb Phrases. In all figures encircled reference letters indicate points of connection with another diagram. Unless otherwise specified, encircled letters in Figures 3.2, 3.3, 3.4, 3.5 and 3.6 refer to connections with Figure 3.1.

In Figure 3.1 line Ea leads to the unordered "or" node F which provides the choice of modal auxiliaries (Fa) or het (Fb) as the first element in the Verb Phrase. The modals or het will always be followed by the main verb, dominated by line Er near the right end of node E. Between these may occur a number of optional elements, to be discussed below. Before we discuss these options, however, it is desirable to examine the possible forms of the modals, dominated by node $A_0$ in Figure 3.2, and connected to Figure 3.1 by line Fa.

If the Verb Phrase is future, line B in Figure 3.2 will be the option chosen. Diamond Bz will be activated by a signal from the realizational portion to indicate the occurrence of the future tense. At ordered "or"
node BB the signal will proceed down the unmarked line BBa to sal as in sal gaan 'will go.' The form sou, representing a combination of past, future and modality, will be discussed below.

If the Verb Phrase is in the present tense any of the following modals can precede the verb:

1) (Line C) behoort 'ought to,' which has to be followed by te before the verb. To ensure that this happens line CCb off one-way ordered "and" node CC sends a signal through one-way unordered "and" node AE in Figure 3.1 along line AEa to activate line En which leads to te, e.g., behoort te gaan 'ought to go.' If the verb is preceded by a particle, line AEb will activate Em so that the particle will precede En, e.g., behoort weg te gaan 'ought to go away.'

2) (Line D) (Figure 3.2) hoef 'need to,' which also has to be followed by te before the verb. Line Ddb therefore also leads to one-way unordered "or" node AE in Figure 3.1 to result in hoef te gaan 'need to go,' or hoef weg te gaan 'need to go away;'

3) (Line E) (Figure 3.2) mag 'be allowed to,' as in mag gaan 'be allowed to go;'

4) (Line F) moet 'must,' as in moet gaan 'must go;''
5) (Line G) kan 'can/may/be able to,' as in kan gaan 'can go;'

6) (Line H) durf 'dare,' as in durf gaan 'dare go;' and

7) (Line I) wil 'want to,' as in wil gaan 'want to go.'

As the presence of line AZa in Figure 3.1 shows, Afrikaans can have more than one modal in one Verb Phrase. The unordered "or" node B_0 in Figure 3.2 dominates the options for second and third modals.

Line K leads to those modals which can follow sal as the presence of the conditioner off one-way ordered "and" node Bx shows. The options are dominated by unordered "or" node Q. Line Qa leads to mag, which can follow sal, as in sal mag doen 'will be allowed to do.' Line Qb leads to ordered "and" node Qx, for cases of sal followed by hoef te. If hoef te alone follows sal, line Qxa will be the only one to follow line B, as in sal hoef te gaan, lit. 'will need to go.' If another modal follows hoef te, optional line Qxb off ordered "and" node Qx will follow Qxa. Line Qxb leads through QR to unordered "or" node QT, which provides two choices: 1) (QTa) moet, as in sal nie hoef te moet gaan nie 'will not need to have to go;' and 2) (QTB) kan, as in sal hoef te kan doen 'will need to be able to do.' Line Qc leads to the cases where sal is
followed by moet and/or kan. Moet (Ra) can be the only modal to follow sal, as in sal moet gaan 'will have to go;' or moet can be followed by kan (Rb), as in sal moet kan gaan 'will have to be able to go;' or sal can be followed by kan alone, as in sal kan gaan 'will be able to go.' Line Qd leads to durf which can follow sal as in sal ... durf gaan 'will dare to go.' Line Qe leads to wil, which can follow sal, as in sal wil gaan, lit. 'will want to go.'

The second line off unordered "or" node B₀, line L, is conditioned from one-way ordered "and" node Cx, so that mag can follow behoort te, as in behoort te mag gaan, lit. 'ought to be allowed to go.' Line L is also conditioned from one-way ordered "and" node Fx, thus allowing mag to follow moet, as in moet mag gaan 'have to be allowed to go.'

The third line from B₀, line M, is also conditioned from one-way ordered "and" node Cx to allow the options provided by unordered "or" node MR to follow behoort. These same options can also follow hoef, as the additional conditioning from one-way ordered "and" node Dx indicates. Line MRa off unordered "or" node MR leads through QR to unordered "or" node QT which provides the same two options that could follow sal hoef. 1) (QTa) moet as in behoort te moet gaan, lit. 'ought to be forced to go;' and 2) (QTb) kan, as in behoort te kan gaan, lit.
'ought to be allowed to go.' A further option is provided by MRb which leads to wil, as in behoort te wil gaan 'ought to want to go.'

As noted above the conditioning from Dx ensures that the modals reached along line M can also follow hoef. This would result in one of three forms: 1) (D+QTA) hoef te moet gaan 'need to have to go;' 2) (D+QTB) hoef te kan gaan 'need to be able to go;' and 3) (D+MRb) hoef te wil gaan 'need to want to go.'

The fourth line from B₀, line N, leads to those modals that can follow both mag and moet. N is thus conditioned from one-way ordered "and" nodes Ex and Fx. Line N leads to unordered "or" node T, which dominates the options available. If Ta is chosen, the result will be moet kan gaan 'have to be able to go.' If Tb is chosen, the result will be either one of the two choices provided by unordered "or" node TT, i.e., 1) (F+TTa) moet durf gaan 'must dare to go,' or 2) (F+TTb) moet wil gaan 'must want to go.' For these choices following mag the result will be mag kan gaan 'may be able to go,' mag durf gaan 'may dare to go,' or mag wil gaan 'may want to go.'

The fifth line off B₀, line O, is conditioned from one-way ordered "and" node Gx. Line O leads through TR to unordered "or" node TT which dominates
the two modals which can follow kan. If line TTa is chosen, the result will be kan durf gaan 'may dare to go,' while TTb will result in kan wil gaan 'may want to go.'

The last line off B₀, line P, which is conditioned from one-way ordered "and" node Hx, leads to wil, the only modal which can follow durf, as in durf wil gaan 'dare to want to go.'

As indicated by the absence of any conditioners off line I, wil cannot be followed by other modals.

The modality constructions described above (except for durf alone, which has no past tense form) can be used in the past as well as the present (or future) tense. The tense structure is found at the left of Figure 3.2, a representation of the realizational portion of the grammar. At the top we can see that futurity is indicated by sal. But futurity can combine with the past tense through upward unordered "and" node U to yield sou 'would,' which indicates a future reference in the past time, e.g., sou gaan 'would have gone.' The other modals except durf can also indicate modality in the past. For wil, kan, and moet the indication is made by the use of separate forms, wou, kon, and moes, respectively, e.g., moes gaan 'had to go,' kon gaan 'could go,' and wou gaan 'wanted to go.' These are all portmanteau realizations (Lamb 1966) of the specific modality plus past tense, as indicated by the upward "and"
nodes under these modals in the realizational portion. Furthermore, these are all marked choices, as indicated by the ordered "or" nodes under past and the modals. The unmarked past form, used other than with modals, is the het ge-construction at W described below. The unmarked modals, of course, are the present forms.

For the modals hoef, behoort, and mag, the past formation is somewhat different. These forms are not themselves replaced by others, but they are supplemented by the ge-het construction, but with the het following the verb. The portmanteau for these modals is at V in Figure 3.2, and it connects at Hx with Figure 3.1. In the latter figure the connection at Hx provides for the ge-prefix on the verb (FZx from Ep/Dza or Ef/Fza) and het following the verb (EZx from Es).

Two additional notes are required. First, when there are two or more modals, the second determines the form of the past marking. Thus in the modal sequence hoef te kon, the kon marks the past tense, and the ge-het construction is not used. Therefore in Figure 3.2 the conditioners from the one-way ordered "and" nodes above nodes Fw, GW, Y, and IN all come together at X to block the occurrence of ge-het. These conditioning lines branch off the lines dominating moes, kon, durf, and wou as second modals. As can be seen from the figure, the lines
representing these as first modals join at upward "or" nodes immediately below the one-way "and" nodes, so that the occurrence of these as first modals will not have the blocking effect.

The second note concerns a special use of the ge-het construction. In addition to its use to mark the simple past for hoef, behoort, and mag, ge-het can also be used with any construction to indicate far past time or completed action. The far past line joins at Z the line leading to ge-het. Because it joins below the block at V, it is unaffected by the presence of moes, kon, durf, or wou as a modal. The far past also connects with the past tense construction at AA, thus indicating that in this construction the modals moet, kan, and wil may not occur, but that the past tense forms moes, kon, and wou must. Examples of this construction follow: 1) moes kon geslaan het 'had to have been able to hit,' and 2) behoort te kon geslaan het 'ought to have been able to have hit.'

We may make one final observation here. When the past tense form of sal occurs, it does not necessarily have to be followed by the past tense forms of the modals off B_0. In fact, the choice of present or past tense form for the second modal is used to express subtle meaning differences. Sou kon gaan, for example, means "would have been
able to go,' while sou kan gaan means 'might still be able to go depending on some conditioning factor in the future.'

The simple past tense is marked by the het ge- construction, the auxiliary het and the prefix ge- on the verb. This construction will be signaled by an impulse from W in Figure 3.1, the past tense sememe. The signal along line Wb will trigger the het at Fx, provided for in the tactics by Fb from F. In addition, a signal along Wa through FHx to FZx will provide for the ge- on the verb, thus het gekom 'came.' If there is a pre-verbal particle, as in omgooi 'overturn,' the past tense would be formed by inserting the ge- between the particle (FZb) and the verb (FZd). e.g., omgegooi 'overturned.' The conditioning for this ge- is the same as that discussed in Chapter 2 for the ge- /xi-/ prefix in adjective formation by derivation from verbs.

Since an indefinite number of verbs can occur in this slot of the Verb Phrase, it is necessary to provide for compounding. An optional line, Et, leads to ordered "and" node Q, whence line V leads through the upward "or" node U to the options in conjunctions that can occur, and line W through upward "or" node Y to FZ which dominates the verb structure. This will allow one repetition as in het opgehou en opgestaan 'stopped and got up.'
When more are necessary, optional line R will lead through upward "or" node S to the ordered "and" node T. If a conjunction occurs before each repetition, optional line Ta will be used. Line Tb leads to FZ again to allow for one repetition of the verb. Followed by V and W which will always be the last two elements in a compound predicate, this will result in a verb like het opgehou en opgestaan of omgedraai 'stopped and got up or turned round.' Since the conjunction Ta is optional, the line Tb can occur alone to result in het opgehou, opgestaan en omgedraai 'stopped, got up and turned round.' If more verbs are necessary, optional loop Tc will be used to provide as many verbs and optional conjunctions along lines Tb and Ta as are needed. To provide for correlative conjunctions like of - of 'either - or' the first line off ordered "and" node FZ, line FZa, leads to an unordered "or" node which provides the options in the first element in correlative conjunctions. The second element will be provided by the unordered "or" on line X. To ensure that these conjunctions always occur in pairs, simultaneous signals from the realizational portion will activate the diamonds on the right members of such a pair only if the occurrence of this pair is signified in the realizational portion.
The verb can be preceded optionally by line Ep which leads to the ordered "and" node DZ, showing the structure of the special staan en construction. When the Verb Phrase is in the present tense, line DZb will be the first line used. It leads to unordered "or" node DZ which provides four options, sit 'sit,' staan 'stand,' le 'lie,' and loop 'walk,' each of which is followed by en 'and' (DZc). These four options are used to describe and emphasize the position of the body when the verbal action takes place, e.g., staan en lees has the meaning of 'stand while reading' rather than 'both stand and read,' where the emphasis would be on both actions equally. When the staan en constructions is used with ge- in the past tense, the ge- precedes sit, staan, le, or loop rather than the verb, e.g., het gestaan en lees 'stood while reading.' Any pre-verbal particles occur between the staan en construction and the verb, as the presence of optional line FZb off ordered "and" node FZ shows, e.g., sit en opkyk 'sit while looking up.'

In addition to the staan en construction, which indicates body position, three other auxiliaries indicating continuity and modality of verbal action can occur. If the second modal construction is present, these auxiliaries will follow it. The three auxiliaries, bly 'continue,'
gaan 'go,' and kom 'come' are dominated by an unordered "or" node CZ of line Eq. None of them take the ge- prefix to mark the past tense. They are only preceded by het. Examples of these auxiliaries are as follows: 1) Hy bly vroetel 'He keeps fidgeting;' 2) Hy sal kan gaan kuier 'He will be able to go visiting;' 3) Hy het kom kuier 'He came visiting.'

Some Verb Phrases will contain indirect objects, which normally follow the first modal or het immediately, as optional line Eb shows, e.g., sal hom vertel 'will tell him.' A prepositional phrase in place of the indirect object will follow the direct object and any adverbs, as line El indicates, e.g., sal dit sommer gou duidelik vir hom se 'will quickly and explicitly tell it to him.'

The direct object, too, has two positions. If it is a pronoun, it will occur immediately after a simple indirect object and before any adverbs, line Ec, e.g., sal hom dit sommer gou gaan se 'will go tell it to him quickly.' On the other hand, if the direct object is not a pronoun, it is unordered with respect to adverbs in the sentence (El in the midst of Ed, Eh, and Ek). The only restriction is that it must follow the negative particle Neg. 1, line Eg, and that it must precede a Prepositional Phrase used as an indirect object (El). Thus we
can have: 1) sal gou die storie vertel 'will tell the story quickly;' 2) sal die storie sommer gou vertel 'will tell the story rather quickly;' 3) sal nie die storie dadelik vertel nie 'will not tell the story immediately;' and 4) sal nie die storie dadelik vir Jan vertel nie 'will not tell the story to John immediately.'

Sentential negation which is discussed in detail in Heiberg 1972, and Ponelis.1973, p. 27, is accomplished with the negative particle nie, or by one of its variants geensins and g'n, whose location is shown by line Eg. Any other negative element, (pronoun, determiner or adverb), will occur in the normal position for non-negative elements of the same type. This Neg. 1 would follow the indirect object without preposition as well as the pronominal object, e.g., sal hom dit nie kan vertel nie 'will not be able to tell him it.' When the direct object is a noun, however, it would follow Neg. 1, as noted above, e.g., sal hom nie die storie kan vertel nie 'will not be able to tell him the story.'

As indicated by lines Ed, Eh, and Ek, adverbs must follow a pronominal direct object or any preceding element, must precede a Prepositional Phrase used in place of an indirect object, or any following element, and are otherwise unordered with respect to the negative particle
Neg. 1 and a nominal direct object, e.g., 1) sal hom buite sien 'will see him outside;' 2) sal dit dadelik by sy huis vir hom gaan gee 'will go and give it to him at his house immediately;' 3) sal eenvoudig more net nie sy mond kan oopmaak nie/sal eenvoudig net nie more sy mond kan oopmaak nie/sal net eenvoudig nie sy mond more kan oopmaak nie, lit. 'will simply just not be able to open his mouth tomorrow.'

There does not seem to be any restrictions on the particular sequence of the adverbs as far as type is concerned (e.g., Adverb of Time + Adverb of Manner + Adverb of Place). The ability to shift these adverbs around at will to obtain a desired effect or shift in emphasis is apparently a rather powerful tool in the language. What restriction in sequencing does exist seems rather to be imposed by the function of each specific adverb in the sentence, e.g., in an adverb of manner, whether it modifies the verb specifically or whether it emphasizes some quality, attitude or posture of the person while he is doing the action. All of these patterns would be represented not in the tactics, but by traces\(^2\) in the realizational portion.

The only element between the lines Ec and En that does have a relatively fixed position with respect to the adverb types is nie (line EG). It is normally preceded

\[\text{2. For trace theory see Christie 1973, Chapter 3.}\]
only by adverbs of modality and adverbs of time, e.g., sal dall nie 'possibly will not' and kan more nie 'cannot to-morrow.' It can, however, precede both of these adverb types, as well as all the others, of course. This restriction, too, will be handled by realizational traces.

One of the characteristics of the Afrikaans language is its ability to pile up a whole series of identical parts of speech in a single sentence. This is most easily illustrated with adverbs. In fact, a sentence of twenty-two words which contains a sequence of as many as fifteen adverbs is quite possible, e.g., Jy kan hom mos nou darem nie sommer so goedsmoeds hier uit die bloute uit so vreeslik hier kom staan en uitskel nie, which generally means 'you should not come here scolding him so terribly without any apparent reason.' In order to get this apparently unlimited repetition of the adverb, all lines for adverbs off ordered "and" node E will converge at upward unordered "or" node I. A single line will lead to ordered "and" node J from which optional line Ja will lead to the unordered "or" node K which dominates all these options in adverb types and line Jb will loop back into upward "or" node T to provide for the repetition.

Figure 3.3 describes the structure of the Verb Phrase in which the verb is the first element. Line C_0
in Figure 3.1 leads to the ordered "and" node A in Figure 3.3 which dominates all the options possible in this type of structure. Line B in Figure 3.3 leads to the verb, which is the only element which has to be present in this Verb Phrase, e.g., hulle speel 'they are playing,' where speel is an intransitive verb. When such an intransitive Verb Phrase is negated, line F will be followed by optional line H which leads to the options for Neg. 1. If one of the variants of nie occurs here, line Ab leading to Neg. 2 will occur, e.g., hulle speel g'n nie 'they are not playing.' What happens here is that a signal from the realizational portion activates diamond Hx so that the impulse can proceed from La through the diamond to unordered "and" node HAX. Two simultaneous signals are then sent out, one along HAXa to signify the occurrence of nie, and one along HAXb to place a temporary block on line Ab to stop the occurrence of the second nie. Instead of the usual memory cell in prohibiting lines, this line will have a certain number of synapses built in that will delay the occurrence of the second nie long enough to see whether any other elements occur between the Neg. 1 nie and the second nie. If there are any such elements present, e.g., a direct object or an adverb, the block on line Ab will just die, and the second nie will occur, e.g.,
hulle speel nie nou nie 'they are not playing now.' If there are no such elements, however, the second nie will not be allowed to occur, so that the result will be hulle speel nie.

This treatment of the Afrikaans negative differs from that in Ponelis 1973, p. 27. He states that the negation head (Neg. 1) is dropped if there is no other element between it and the second nie. Since he claims that geensins, g'n and niks are variants of the head nie, one would expect them to be subject to this rule too. As shown earlier, they are not, since they can occur in this environment. It is only when nie is the head that one of the nie's is dropped. As the rule applies only to two identical lexical items, the claim that it is the head that is dropped is refutable. What in fact is happening is that a sequence of two nie's in a row is not permitted, but is simplified to a single nie. Since the general category of head is inappropriate, only considerations of simplicity in the grammar can determine which nie is lost. Ponelis gives no justification for his choice of the first nie as the one to drop, so we must evaluate both possibilities. If the first nie were the one lost, we would need a block from the second nie to the first, plus time delay structures on the first so that it could not actually be realized until it could be
blocked (or until some other element could intervene). There would further have to be blocking lines from all the possible intervening elements to block the block. The present analysis requires the one blocking and the timing elements on that line only, a structure simpler than would be required if the first nie were the one lost. Thus the present analysis, being simpler, is to be preferred according to the principles given in Lamb 1966 Chapter 3.

If there is a pre-verbal particle, as in opstaan 'get up,' the particle (H) will be postposed in this type of Verb Phrase, e.g., hulle staan op 'they are getting up.' In non-negative Verb Phrases this particle will always be the final element while in negative ones the final element will always be Neg. 2 as indicated in Figure 3.1.

There are, of course, several other elements which can occur optionally between the verb and its particle. Two of these have fixed positions in the Verb Phrase. 1) The indirect object without preposition (C in Figure 3.3) will always occur immediately after the verb if it is present, e.g., gee hom 'n boek 'give him a book.' 2) The direct object, if it is a pronoun (D), will always follow the indirect object without a preposition if both are present, e.g., vertel hom iets 'tell him something.'

If a Prepositional Phrase is used in place of the indirect object (F), it will follow the direct object
pronoun (D), e.g., *gee dit vir hom* 'give it to him,' but it will precede the direct object noun (G), e.g., *gee vir hom die boek* 'give the book to him.' All of the elements described above will precede the particle, as in *gee vir hom die boek aan* 'hand him the book.'

If only the elements mentioned so far are present in the Verb Phrase, the position of Neg. 1 is fixed, line E. When adverbs occur in this type of Verb Phrase, the positions of lines H, I, and J become relative, however, as described in Figure 3.1. The adverbs have to occur after line G or any elements preceding it, and before line K. They can precede the negative on line H, e.g., *hulle vertel hom darem gelukkig nie die storie nie* 'fortunately they are not telling him the story.' They can follow the negative, e.g., *hulle vertel hom nie nou die storie nie* 'they are not telling him the story now.' Apparently only the modal adverbs which do not have any grammatical function but which add modality to the meaning, can precede the verb, and they will also precede any other adverbs after it. The conditioning for this will be handled by traces in the realizational portion. Adverbs can precede or follow the indirect object if it is a Prepositional Phrase, e.g.,

*hulle vertel nie vandag geredelik vir hom 'n storie nie/
hulle vertel nie vir hom vandag geredelik 'n storie nie*
'they are not telling him a story willingly today.' They can also precede or follow the direct object, e.g., *hulle slaan nou vinnig die tent op/ hulle slaan die tent nou vinnig op* 'they are pitching the tent quickly now.'

This structure with the verb as first element can be used to express a past tense action through the use of adverbs rather than a past tense modal or *het ge-V*, e.g., *gee hom toe gister 'n boek* 'gave (lit. 'give') him a book yesterday.' Even the addition of the word *toe* alone can indicate past tense, depending on the sentence context, e.g., *gee hom toe 'n boek* 'gave (lit. 'give') him a book then / at that time.'

The structure of Verb Phrases with *sit, le, staan,* or *loop* as the first element is described in Figure 3.4. Line B leads to the unordered "or" node D, which provides the choice among these four elements. Line C leads to an unordered "or" node E which dominates the two options in the structure of that part of the Verb Phrase which follows B.

Line F leads to the first option, which is dominated by ordered "and" node H. From H line J leads to en which would be the first element after the option chosen from D, and line K leads to the verb which would follow en. These two are the only elements which have to
be present in this type of structure, e.g., hy sit en lees 'he sits while reading.' If the sentence is negative, Neg. 1 will follow L, e.g., hy sit en lees nie 'he does not sit there reading.' This is another instance of the blocking of the second nie that was described in Figure 3.3. The Neg. 1 can be followed by sit en lees vir hom 'n boek 'sit reading a book to him.'

In this structure adverbs can occur only after the first negative element (line M), or any elements which precede it, and before the second Noun Phrase (line O), e.g., sit en lees nie nou sommer net daar buite 'n storie nie 'does not just sit reading a story out there now.'

Line G off unordered "or" node E leads to the ordered "and" node I which dominates the second type of structure that can follow line B. These two structures are free variants in the absence of a verbal particle and a direct object. With the verbal particle and the direct object both present structure I will necessarily be chosen as structure H cannot accommodate the construction. In this type of structure (dominated by I), if the Verb Phrase is negative, the first element would be Neg. 1 (P) unless an indirect object without a preposition is present. The Neg. 1 will have to be followed by line S which leads to en, as well as line U which leads to the verb, e.g.,
sit nie en lees nie 'does not sit reading.' The verb can be preceded by a particle (T), e.g., hy sit (nie)en omkyk (nie) '(does not) sit looking back.' When this verb is transitive, en can be preceded by a direct object (R), e.g., sit die boek en lees 'sit reading the book.' The direct object in turn can be preceded by an indirect object (Q) sit vir hom die boek en lees 'sit reading the book to him.' If the indirect object with an implied preposition is present, line Y will precede line P, e.g., sit hom nie 'n leuen en vertel nie 'does not sit telling him a lie.'

This type of structure can also be used in the past tense with the aid of adverbs as described in Figure 3.3. In the structure dominated by "and" node H, the adverb of time would be placed between lines L and M, e.g., sit en lees toe nie 'did not sit reading then.' In the structure dominated by "and" I, toe would precede line P, e.g., sit toe nie vir hom en lees nie 'did not sit reading to him then.'

Adverbs in I have to occur after line P. They can precede the Prepositional Phrase used as indirect object (line Z), e.g., sit nie nou lekker vir hom stories en vertel nie 'does not sit willingly telling him stories now.' They can follow the Prepositional Phrase indirect object
(line AA), e.g., sit vir hom goed die waarheid en vertel 'sit telling him off thoroughly.' They can also follow the verb (line BB), e.g., sit vir hom en lees daar voor op die grasperk 'sit reading to him there on the front lawn.'

Figure 3.5 describes the structure of the Verb Phrase in the passive voice. An ordered "and" node \( E_0 \) dominates this structure and determines the order in which the elements can occur.

Line F leads to the unordered "or" node \( Q \) which dominates the options in elements that can occur first in passive Verb Phrases. Line \( Q_a \) leads to the unordered "or" node \( T \) which provides two choices: 1) \( T_a \) leads to \textit{word}, the present tense passive marker, and 2) \( T_b \) leads to \textit{is}, the past tense passive marker. Line \( Q_b \) leads to another option that can occur first in the passive Verb Phrase, i.e., the choice of modals described in \( A_0 \) in Figure 3.2. In order for either of these elements to occur, a signal must be received from the realizational portion to indicate passive voice. Such a signal would originate in unordered "and" node \( R \), whence two signals are sent out simultaneously. One travels along line \( R_a \) to the ordered "or" node \( S \), while the other one travels along line \( R_b \) to activate diamond \( W_x \) on line \( W_a \). This will ensure that all verbs in the passive voice are preceded
by \textit{ge-}, unless they belong to the group specified in Chapter 2 which do not take the \textit{ge-} prefix.

If the passive Verb Phrase is in the present tense and does not contain a modal as first element, a signal along unmarked line Sb will activate diamond TSx on line Ta to ensure the occurrence of \textit{word} as the first element, e.g., \textit{word gestraf} 'is being punished.' If the passive Verb Phrase is in the past tense without a modal, on the other hand, a signal will proceed along marked line Sa to converge with another along line Z at upward unordered "and" node U. One signal will then proceed to diamond TSy on line Tb to ensure the occurrence of \textit{is}, e.g., \textit{is gestraf} 'was punished.'

When the first element is a modal, a signal will travel along marked line Sc to activate diamond Px on line P to ensure that the verb will be followed by \textit{word}. Line Sc is conditioned by line Xb from one-way ordered "and" node X on line Qb to ensure that this will happen only when a modal occurs, e.g., \textit{moet gestraf word} 'must be punished,' or \textit{moes gestraf word} 'had to be punished.'

As shown in Figure 3.5 the passive Verb Phrase can contain several optional elements. If the first element is one of the modals, the verb (L) can be followed by a second group of modals (N) as described in Figure 3.1,
e.g., kan gesien wil word 'may want to be seen.' When either behoort or hoef is the choice off line N, te (line O) has to follow the second modal, e.g., sal gesien hoef te word 'will have to be seen.' If the first modal (Qb) is either behoort or hoef, however, te (line M) has to follow the verb immediately, e.g., behoort gesien te kan word, lit. 'ought to be able to be seen.'

Another important option in the passive Verb Phrase is the Noun Phrase (line I) in which the Noun Phrase (line Vb) will be preceded by deur 'by' (Va), as in word deur die man gestraf 'is being punished by the man.'

Two types of indirect object can occur. An indirect object with an implied preposition will always follow F immediately and precede I, e.g., is hulle deur die kinders vertel 'was told (to) them by the children.' When the indirect object contains a preposition, it will follow I, e.g., is deur die kinders aan hulle vertel 'was told to them by the children.'

If the passive Verb Phrase is negated by nie, Neg. 1 (line H) will follow F if G is not present, e.g., word nie gestraf nie 'is not being punished;' otherwise it will follow G, e.g., is hulle nie (deur die kinders) vertel nie 'was not told to them (by the children).'
The verb (L) can contain a particle. The particle will always precede the ge- as the position of optional line K shows, e.g., word afgeskeur 'is being torn off.'

Adverbs have to occur between lines G and K in the passive Verb Phrase. The positions of the elements between these two points on the diagram become relative as soon as adverbs occur, as shown in Figure 3.1 also. Some adverbs can precede line H, e.g., daardie kinders word dan juist vandag nie gestraf nie 'those children are specifically not being punished today.' They can also follow Neg. 1 and precede line I, e.g., hulle is nie vandag goed deur die kinders gevoer nie 'they were not fed well by the children today.' Adverbs can follow or precede the agent Noun Phrase and precede or follow the indirect object Prepositional Phrase, e.g., die boek word hardop deur hulle vir die seuns voorgelees / die boek word deur hulle hardop vir die seuns voorgelees / die boek word deur hulle vir die seuns hardop voorgelees 'the book is being read aloud to the boys by them.' Adverbs have to follow the indirect object with an implied preposition (line G) or any elements preceding it, e.g., word hom bra vinnig deur hulle toegese 'is promised to him rather quickly by them.'
Figure 3.6 describes the structure of the copulative Verb Phrase. As shown, there are two options in the structure of such phrases. An unordered "or" node $F_0$ dominates these.

Lind A leads to ordered "and" node C which dominates the structure of copulative Verb Phrases in which the copulative verb is the first element. Line Ca leads to unordered "or" node D which provides three options in type of copulative verb. Line Da leads to the copulative verb *heet* which can be followed only by a predicate nominative. Line Db leads to unordered "or" node F which provides the copulative verbs which can take both predicate nominatives and predicate adjectives. Line Dc leads to those copulative verbs that can take only predicate adjectives.

Line Cc leads to the unordered "or" node H which provides the choice of predicate nominative and predicative adjectives to follow the verb. If the choice off D is Da, a predicate nominative (Ha) will follow Ca. To ensure that this does happen, line Ob which originates in the one-way ordered "and" node O on line Da places a block on line Hb so that a predicate adjective cannot occur. Since there is only one copulative verb off Da, i.e., *heet* 'be called (named),' if Da is followed by Ha, the result will be a phrase like *heet Paul* 'is called Paul.'
If Db is the first element, the choice of H can be either Ha, e.g., word 'n dokter 'becomes a doctor,' or Hb, since any of the options of F can take both predicate nominatives and predicate adjectives. If Hb is the choice, the predicate adjective can have one of the three structures dominated by unordered "or" node I.

1) The adjective can be a single word (Ia), e.g., word siek 'becomes ill.' 2) It can also be an idiomatic Prepositional Phrase (Ib), e.g., is buite bereik 'is out of reach.' 3) It can be an Infinitive Phrase of the special type dominated by ordered "and" node J. The two obligatory features in the Infinitive Phrase are te (line Jb) followed by a verb (line Jc), e.g., te koop 'for sale.' The te can be preceded optionally by a Prepositional Phrase, e.g., aan hom te danke 'attributable to him.' If such an Infinitive Phrase is the predicate adjective after Db, the result will be a phrase like bly te koop 'remains for sale.' 4) Another option is the type of Infinitive Phrase off line Id where all the elements are obligatory, e.g., noodsaklik om the slaap 'essential to sleep,' which would occur in sentences where the expletive dit 'it' starts the copulative verb sentence, dit is noodsaklik om te slaap 'it is essential to sleep.'
When line Dc is the choice in the copulative verbs, only those elements provided by unordered "or" node I off line Hb can follow it, e.g., lyk mooi 'look nice.' To ensure that no predicate nominative will follow line Dc, a block is placed on line Ha by line Pb which originates in the one-way ordered "and" node P on line Dc.

If the copulative Verb Phrase is in the past tense, all the copulative verbs will be preceded by het ge-, except the verb 'to be,' wees, for which was will be used in the past tense, and is in the present tense. This is different from the special passive marker shown in Figure 3.5 where is marks the past tense. When the verb 'to be' has to occur after a modal, wees is used, e.g., sal soet wees 'will be good.'

Any adverbs occurring in this type of copulative Verb Phrase have to occur immediately after the copulative verb (line Cb), e.g., is nou sommer baie siek 'is very ill now.'

Copulative Verb Phrases can also have modals as their first elements. The structure of such copulative Verb Phrases is dominated by unordered "and" node L off line B. Line La leads to unordered "or" node A₀, described in Figure 3.2, which provides the options in modals which can occur first. The next element which has
to be present is the line Le which leads to the choice in copulative verbs, e.g., hy sal hier wees 'he will be here.'

All other optional elements that are present will occur between the modal and the copulative verb. The modal can be followed by adverbs (Lb), e.g., kan nou daar wees 'may be there now.' Depending on the type of copulative verb, there can also be a predicate nominative (Ha), e.g., kan koning word 'may become king,' or a predicate adjective (Hb), e.g., moet soet wees 'must be good (well-behaved).'

To ensure that the right element will follow the right type of copulative verb as described for ordered "or" node C, the blocks placed on lines Ha and Hb are reciprocal so that in this type of copulative Verb Phrase the blocks are placed on lines Da and Dc from one-way ordered "and" nodes M and N to eliminate a problem in time sequence.

There can also be a second group of modals (Ld) as discussed in B₀ in Figure 3.2, e.g., sal soet moet kan wees 'will have to be able to be good.'

**The Morphotactic Level**

The Verb Phrase is extremely simple on the Morphotactic Level.³ Verbs and adverbs can be formed by derivation only on this level. Past tense verb inflection is

³. Here, as in the Noun Phrase Morphotactics, phonemic transcription is used.
handled in the lexotactics by the het ge- construction and for the verb 'to be' as discussed in the copulative Verb Phrase.

Figure 3.7 shows the formation of verbs by derivation. As indicated there are only two prefixes that are still productive and then only if they are used to form transitive verbs from intransitive ones. When this happens, either /bi-/ (E), or /fir-/ (F), dominated by an unordered "or" node D, will precede the intransitive verb (C), e.g., arbei /arbey/ 'work' becomes bearbej /biarbey/ 'cultivate/work' and werk /verk/ 'work' becomes verwerk /firverk/ 'process' or bewerk /biverk/ 'work/cultivate.'

Where adverb formation by derivation is concerned, there are a few suffixes that can be added to verbs, nouns, or adjectives to form new adverbs as Figure 3.8 shows. An "or" node A precedes the three options for adverb formation. Line B leads to ordered "and" node F which reflects the structure of adverbs derived from verbs. Such adverbs would consist of a verb (G) followed by the suffix /-irix/ (H), e.g., rukkerig /rokirix/ 'jerkily.' Line C leads to ordered "and" node I which reflects the structure of adverbs derived from nouns. The noun (J) can be followed by any one of five suffixes, e.g., 1) (M) /-irix/ as in stokkerig /stokirix/ 'woodenly;' 2) (N) /-halvi/ as in pligshalwe /plixshalvi/ 'dutifuly;' 3) (O)
Figure 3.7. Verb Formation by Derivation.
Figure 3.8. Adverb Formation by Derivation.
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/-liks/ as in weekliks /vekliks/ 'weekly;' 4) (P) /-värts/
as in rivierwaarts /rifīrvärts/ 'towards the river;' and
5) (Q) /-t/ as in huistoe /hɔystu/ 'home.'

Line D leads to the ordered "and" node R which
shows the structure of adverbs derived from adjectives.
Such adverbs would consist of adjectives (S) followed by
the suffix /-irix/ (T) as in swakkerig /svakirix/ 'poorly/
indifferently.'
CHAPTER 4

THE SENTENCE

The Lexotactic Level

Three basic sentence types are discussed on this level: 1) the declarative sentence, 2) the imperative, and 3) the question.

Figure 4.1 shows the structure of the simple declarative sentence. The structure of its two main components, the Noun Phrase and the Verb Phrase, has already been discussed in detail in Chapters 2 and 3. An ordered "and" node A dominates these two components and determines their order on the Lexotactic Level. Line B leads to the ordered "and" node D which handles the structure of the first component of the declarative sentence, the Noun Phrase, (line J), whose structure was shown fully in Figure 2.1. Since the Noun Phrase can occur an indefinite number of times in the subject slot, provision has to be made for compounding with the addition of optional line F leading to ordered "and" node K. The structure below K will function in the same way as the verb compounding structure in Figure 3.1, while optional line I off ordered "and" node H will take care of the occurrence of correlative conjunctions as described in Figure 3.1.

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Figure 4.1. The Simple Declarative Sentence.
Line C off ordered "and" node A leads to the second essential component of the simple declarative sentence, the Verb Phrase. Again provision has to be made for the possibility of compounding. It is done in the same way as verb compounding in Figure 3.1. Line T leads to unordered "or" node U which offers the same options in Verb Phrase structure as Figure 3.1 did. This "or" is unordered, since none of the structures are marked with respect to the others, and since any of the different options can be combined in a compound predicate, e.g., sou vanoggend buite speel maar is nou siek en word dus in die bed gehou 'were going to play outside this morning, but are sick now and are therefore being kept in bed.' The addition of a subject Noun Phrase to the construction above will make it a simple declarative sentence, e.g., Die kinders langsaaan sou vanoggend buite speel maar is nou siek en word dus in die bed gehou. 'The children next door were going to play outside this morning, but are sick now and are therefore being kept in bed.'

Since there is no number concord between subject and verb in Afrikaans, joining subject Noun Phrase and predicate is the straightforward conjunction with no conditioning between the conjuncts. The only restrictions on elements allowed in the declarative sentence are those imposed by the lexicon.
Figure 4.2 describes the structure of the Afrikaans imperative. An ordered "and" node A dominates the structure of the imperative sentence, with line Aa leading to the ordered "or" node B which provides the two options in its internal structure, and line Ab leading to Neg. 2, nie, which will always be the last element in the negative imperative.

Line Ba leads to the ordered "and" node C which dominates the structure of the type of imperative which has a Noun Phrase as its first element. Line Ca leads to the unordered "or" node F which provides the four options in this severely restricted subject phrase, i.e., 1) (Fa) u 'you' (polite form); 2) (Fb) jy 'you' (singular familiar form); 3) (Fc) julie (plural familiar form); and 4) (Fd) which leads to ordered "and" node G with its two obligatory elements, julie 'you' (Ga) followed by a noun (Gb), e.g., kerels 'guys.' The other obligatory element in C is the verb ( Ea off unordered "or" node E on line Cb), e.g., jy begin 'You start.' If there is a verbal particle in such an imperative, it will be postposed (line Ce), e.g., jy skop af 'You kick off.'

The only auxiliary allowed in the imperative is the modal moet 'must/have to.' If it occurs, line Eb will follow the subject. From one-way ordered "and" node L
Figure 4.2. The Imperative.
on Eb a signal will then be sent to line Cd so that the optional verbal particle Na and the verb Nb off ordered "and" node M can follow moet, e.g., Jy moet opstaan 'You must get up,' or Jy moet staan 'You must stand.' Note that in this case the verbal particle is not postposed.

Since the optional elements in C and D are the same and behave in the same way, they are all shown as dominated by ordered "and" node M off lines Cc and Dc which occur in the same position as these optional elements would have, i.e., between lines Cb and Cd, and between Db and Dd.

Neg. 1 (Md) always has to follow the pronominal direct object (Mb) or any of the elements preceding it, e.g., Jy se hom dit nie 'You do not tell him that,' or Jy moet hom dit nie se nie 'You must not tell him that.' It also has to precede the Prepositional Phrase as direct object (line Mf) or any of the elements following it, Jy moet nie vir hom daardie storie vertel nie 'You must not tell that story to him.' (Here moet nie instead of the normal contracted form which would be realized below the morphotactics as moenie is used for the sake of clarity.) Jy vertel nie daardie storie vir hom nie 'You will not tell that story to him.'
As shown off ordered "and" node M there are three positions for a structure functioning as indirect object. If it is a Noun Phrase, it occurs immediately after the verb or moet (line Ma), e.g., Jy vertel hom dit nie 'You are not telling him that' or Jy moet hom dit nie vertel nie 'You must not tell him that.' If it is a Prepositional Phrase, it can occur either before or after the direct object Noun Phrase on Line Mb (with the possibility of adverb intervention at Mg and Mi), e.g., (line Mf) Jy moet nie vir hom die storie oorvertel nie 'You must not repeat the story to him,' of (line MJ) Jy moet nie die storie vir hom oorvertel nie 'You must not repeat the story to him.' In similar fashion, the direct object has two places: 1) line Mb if it is pronominal, e.g., Jy moet dit vir hom vertel 'You must tell him that,' and 2) line Mh if it is nominal, e.g., Moet nie vir hom die storie vertel nie 'Do not tell him the story.'

Adverbs are distributed between the pronominal direct object and the verb (line Cd) in C, or the particle (line Dd) in D, in positions Mc, Me, Mg, Mi, Mk. They can occur before or after Neg. 1, e.g., Jy moet hulle darem nou nie sommer so goedsmoeds sulke leuens vertel nie 'You really should not deliberately tell them such lies.' They can also occur before or after the
nominal direct object or Prepositional Phrase serving for the indirect object, with the different positions providing different emphases, e.g., Jy moet nou more die storie vir hulle met netsoveel oorgawe vertel/Jy moet nou vir hulle more met netsoveel oorgawe die storie vertel/Jy moet nou die storie vir hulle more met netsoveel oorgawe vertel 'You must tell the story to them with just as much enthusiasm tomorrow.' If the verb occurs first instead of moet, the order of the remaining constituents will still be as described above.

Line Bb off unordered "or" node B leads to ordered "and" node D which dominates the second option in imperative structure. In this type there is the option of either moet or the verb as first element. Line Da leads to the unordered "or" node H which provides this option. If moet (Ha) is the first element, it is to be followed by Neg. 1, line Md, which is conditioned by line Ib from one-way ordered "and" node I, as well as by the verb (line Kb) which would be the unmarked choice off ordered "or" node K on line De, e.g., Moet nie staan nie 'Do not stand.' If a verbal particle is present, it will precede the verb (line Dd, e.g., Moet nie opstaan nie 'Do not get up.') In this type of imperative Neg. 1 cannot occur unless moet is also present, and vice versa.
If the second option off unordered "or" node H, line Hb, is taken, a verb will be the first element. When this is the case, line Jb from one-way ordered:"or" node J will ensure that the marked line Ka off ordered "or" node K will be chosen so that the verb does not occur twice, e.g., Staan 'Stand.' If there is a verbal particle, line Dd will follow Hb, e.g., Staan op 'Get up.'

In the structure dominated by D the use of the subject is optional. If it occurs, line Db will follow line Da, e.g., Moet jy nie opstaan nie 'Don't you get up,' and Staan jy op 'You get up.'

In the full firm imperative the subject precedes the verb as in C, e.g., Jy staan op/Jy moet opstaan. If the subject occurs in D, the result is the full polite imperative, e.g., Staan jy op/Moet jy nie opstaan nie. If the subject does not occur at all, the sentence is an instance of the regular brief imperative.

Figure 4.3 describes the structure of the Afrikaans question. As shown there are two options for first element: a) optional line B which leads to unordered "or" node BB that provides the options in question words (cf. English wh-words), and b) line C which leads to unordered "or" node CC which provides the choice of first verbal elements. In both cases the first verbal element has to
Figure 4.3. Question Inversion.
precede the subject unless the subject itself is the question word. This characterizes question inversion as opposed to the declarative described in Figure 4.1 where the subject always has to precede the first verbal element.

General question inversion with line C as the first element is discussed first. In this type of question, activated at diamond Ax from Q1, only the first verbal element in any of the five Verb Phrase structures discussed in Chapter 3 can be chosen to precede the subject.

If Figure 3.3 is the choice, the only obligatory elements in the question would be lines C and D, e.g., Staan hulle? 'Are they standing?' In this case, if the question is negated by nie, the block (Rz) on Neg. 2 will apply as described for negative declarative sentences in Figure 3.3 to result in a question like Staan hulle nie? 'Are they not standing?' A block is placed on line P to ensure that none of the elements off ordered "and" node S can occur in this type of question. If a verbal particle is present, it will be postposed (line 0), e.g., Staan hulle_op? 'Are they getting up?' If this is negated, both negative elements will occur, e.g., Staan hulle nie_op nie? 'Are they not standing up?'

If any of the other Verb Phrase types is chosen to provide the first element of the question, line P will
become obligatory. At least line U, the verb, has to occur then, with the other optional elements around it being used when so conditioned by the specific nature of the first element. If Figure 3.1 is the choice, there are two possibilities off CC, i.e., a) modal, or b) het. The choice of (a) will produce a question like Kan julle staan? 'Can you stand?', where only line U was used. If the modal has to express far past, both ge (J) and het (Ya) have to be used. With (b) optional line T has to be used also, e.g., Het julle gestaan? 'Did you stand?' When Figure 3.4 is the choice, there are again two possibilities, depending on the specific structure chosen (i.e., H or I in Figure 3.4). If H is the selection, a block would prevent line P from occurring, e.g., Sit en lees hulle? 'Are they sitting reading?' If this is negated by nie, block Rz will prevent the second nie from occurring, e.g., Sit en lees hulle nie? 'Are they not sitting reading?'. When I is the choice, only the verbal element preceding en will precede the subject, e.g., Sit hulle en lees? where line U would then have to consist of en + lees. If Figure 3.5 is the choice off CC, either is or word can precede the subject, depending on the tense, and they have to be completed by both lines T and U, e.g., Is/word hulle geslaan? 'Were/are they being hit?' If a modal is the first passive
element, line U has to be followed by line Yb off ordered "or" node Y, e.g., *Kan hulle geslaan word? 'Can they be hit?* In copulative sentences (Figure 3.6), either *is* or *was*, or any other copulative verb, can precede the subject, and again P would be blocked, and either a predicate nominative or a predicate adjective can complete the question, depending on the specific copulative verb as described in Figure 3.6.

Line E leads to LM₀ in Figure 4.2 where the ordered "and" node M dominates all the optional elements that can occur between lines D and 0 in Figure 4.3. Since none of these options are affected by this type of subject verb inversion, and they have all been discussed in the imperative, further discussion of their positions and behavior would be superfluous.

If line B is the first element in the question, certain other elements in the sentence are blocked and replaced by the relevant question word off BB. The conditioning for this is handled in the realizational portion. One such a type of conditioning is shown to the left of line B. If the nominal direct object is the person or thing asked about, a signal from Q₂ will converge with one along marked line Zb at upward unordered "and" node QX to send one signal to activate diamond BBax, which would ensure the occurrence of an appropriate question word.
Since the nominal direct object can occur only if diamond $L_x$ is activated by a signal along unmarked line $Z_a$, it will be blocked by the use of line $Z_b$ as no impulse would be travelling along $Z_a$. This will result in a question like: *Wat wil jule he?* 'What do you want?' or *Vir wie slaan julle?* 'Whom are you hitting?'

In a similar way other elements can be blocked and replaced by question words off line B. For this purpose there is an unordered "or" node $F$ showing other unspecified lines not leading to $Q_x$ which will attach to other roles, e.g., agent, instrument, etc., as well as an upward unordered "or" node $G$ on line $Q_{xa}$ into which lines from other question-role converging upward "and" nodes like $Q_x$ will lead. At $H$ there are shown two conditioners, $I_a$ and $I_b$, which provide conditioning from the conceptual apparatus to choose *wie* or *wat* on the basis of the intended semantic property + animate. With the type of conditioning described, the result will be questions like: 1) *Wat sal dan gebeur?* 'What will happen then?' (Subject blocked); 2) *Waar gaan jy?* 'Where are you going?' (Adverb blocked); 3) *Hoe voel jy?* 'How are you feeling?' (Predicate adjective blocked); 4) *Vir wie vertel julle dit?* 'To whom are you telling that?' (Indirect object blocked.)
Compounding

Any of the three simple sentence patterns discussed above can be used as compound sentences. This would be accomplished by the addition of a device such as the one described in Figure 3.1 for verb compounding to the top of each of Figures 4.1, 4.2 and 4.3, since theoretically an indefinite number of such simple sentence, or main clauses in the case of a compound, could occur in such a compound structure. If the declarative sentence is compounded, the result would be a sentence like *Of hulle gaan en ons pas die kinders op, of almal gaan en Julie bly met die kinders in die park.* 'Either they go and we take care of the children, or everybody goes and you stay in the park with the children.' When the imperative is compounded, the result will be a sentence like *Gaan Julie maar solank, maar koop dan die kaartjies en wag buite vir ons.* '(You) go (in the meantime), but get the tickets then and wait for us outside.' Compounding of the question will result in a question like *Ry Julie nog more of het Julie intussen van plan verander?* 'Are you still leaving tomorrow, or have you changed your minds in the meantime?'

Since repetition of the Main Clause does not change its independent function, there is no change of word order as for Dependent Clauses. Whenever *en* 'and' or *maar* 'but' are followed by an adverb or an Adverbial Clause in the
adverb slot, however, the word order in the Independent Clause that it precedes does change. In such cases, the adverb would be followed by the first verbal element preceding the subject as described in Figure 4.3 for question inversion where C is the first element, e.g., Ons sou saamgaan, maar nou is ons siek. 'We would have gone with you, but now we are sick,' or Sy lees en intussen slaap die baba 'She is reading and in the meantime the baby is sleeping.' This type of inversion in compound declarative sentences differs from that in Subordinate Clauses in complex sentences.

An alternative way of compounding any element is shown in Figure 4.4. Here three downward ordered "and" nodes A, B and C are used to show compounding for nouns, verbs and sentences. More such "and" nodes can be added if compounding for other types of elements needs to be described as the unspecified lines leading upward from tactic "or" node D and those leading downward from unordered "or" node I shows. Between these two "or" nodes the compounding is handled for all the elements plugged into D. The number of such elements makes no difference to the functioning of the nodes between D and I.

If noun compounding is necessary, optional line Aa will lead to one-way unordered "and" node K whence line Kb will lead into tactic "or" node D to the
Figure 4.4. An Expandable Compounding Device.
compounding device and a simultaneous conditioner will be placed by Ka on line Ia to ensure that only nouns would be used in the compounding process. From D the signal will travel through upward unordered "or" node E to ordered "and" node F. From F line Fa leads through upward unordered "or" node G to ordered "and" node H on which only line Ha is obligatory. Ha leads to unordered "or" node I which provides the options of elements to be compounded. Since Ka has already conditioned Ia to occur in noun compounding, the signal would move along Ia to result in the choice of a noun. If there is another noun following this one without intervention of a conjunction, the optional loop Hb will be used so that a signal will once more proceed down Ha and Ia to select another noun. This process can theoretically be repeated an indefinite number of times to select however many or few nouns occur before the conjunction. Once the appropriate number of such nouns have been selected, line Fb will be used, so that the string of nouns will now be followed by an en 'and' or another appropriate coordinate conjunction. Since loop Fc is optional, the next element can now be line Ab off ordered "and" node A which leads to a noun again. Tactic "or" node D ensures that feedback will go back along line Kb so that a noun will follow off line Ab.
The occurrence of Ab here ensures that the last noun in the compound Noun Phrase will always be preceded by a conjunction, e.g., Johan, Paul en Andrew 'John, Paul and Andrew.' If only one element is necessary before the conjunction, optional loop Hb would simply not be used so that the result would be Johan en Andrew 'John and Andrew.' When a conjunction is needed between all the elements, optional loop Fc will be used, but not loop Hb. This will result in Paul en Johan en Andrew 'Paul and John and Andrew.' In this example, loop Fc would have been used only once to produce en Johan while line Ab will follow Fb to produce en Andrew. The two loops can also be used to produce compounds like Johan, Andrew en Paul of Marie, Jean en Susan 'John, Andrew and Paul, or Mary, Jean, and Susan' in which loop Hb will produce Andrew and Jean and loop Fc en Paul of Marie, with en Susan being produced by Fb followed by Ab.

The other ordered "and" nodes shown, B and C, will function in exactly the same way for verb and sentence compounding with lines Lb and Mb ensuring that only verbs will occur in verb compounding and only sentences in sentence compounding. Any number of other elements needing compounding can thus be added, or one or two of the ones shown removed without affecting the compounding structure.
Subordination

The three simple sentence types discussed in Figures 4.1 through 4.3 can be changed into Subordinate Clauses. Figure 4.5 reflects the structure of Subordinate Clauses whose characteristic is the postposing of the first verbal element if a subordinate conjunction is present. Line Z of ordered "and" node A is the normal position for the first verbal elements as shown in all the Verb Phrase options in Chapter 3. The presence of line B which leads to the option in subordinate conjunctions blocks the occurrence of line Z, however, from one-way ordered "and" Y, while the first verbal element is moved as far as possible to the right of the clause. All the optional elements shown in Figure 4.2 under node M, reached via line D in Figure 4.5, have to precede this postposed verbal element. If it is a modal, line E would be used, e.g., dat hulle sal kan weggaan 'that they will be able to go away.' If the verb itself is the only verbal element, line M has to be used, e.g., dat hulle more weggaan 'that they are leaving tomorrow.' Any of the elements shown off line H has to follow the rest of the Verb Phrase if they would normally occur where line Z would be, e.g., dat hulle gegaan het 'that they went,' or dat hulle geslaan moet word 'that they must be spanked.' As shown only the Neg. 2 can follow these postposed verbal elements, except where they are modals.
Figure 4.5. Subordinate Clause Inversion.
The imperative and question can be changed only into Noun Clauses of a specific form. If the imperative has to be used as the basis of a Subordinate Clause, only the full firm imperative with the subject as first element can be used. It would be preceded by dat 'that' to form the clause, e.g., Hy het gese dat julle dadelek moet weggaan 'Hy said that you had to leave immediately.' When the question is changed into a Subordinate Clause, it becomes a Noun Clause preceded by of 'if/whether' if line C in Figure 4.3 is the first element, e.g., Hulle het gevra of julle nog more weggaan 'They asked if you were still leaving tomorrow.' If line B is the first element, however, the Dependent Clause would be introduced by the appropriate question word, e.g., Hulle het gevra wanneer julle weggaan. 'They asked when you were leaving.'

The declarative sentence, on the other hand, can be changed into several different types of Subordinate Clauses. If it is changed into a Noun Clause, it would be preceded by dat, e.g., Ons weet dat hulle more moet weggaan 'We know that they have to leave tomorrow.' When the conjunction is not present, the second clause is not inverted, e.g., Ons weet hulle gaan more weg 'We know they are leaving tomorrow.' If it is changed into an Adverbial Clause, it can be introduced by any of the subordinate conjunctions, e.g., Ons sal
almal bly as jule nie kan saamgaan nie 'We will all stay if you cannot go along.' As shown in Figure 4.5 the Subordinate Clause word order is inverted after the subordinate conjunction. If the Subordinate Clause precedes the Main Clause, the word order in the Subordinate Clause is inverted to show subordination, while that in the Main Clause is inverted as described in the section on compounding for coordinate conjunctions immediately followed by adverbs, e.g., As jule nie kan saamgaan nie, sal ons almal bly 'If you cannot go along, we will all stay.' Declaratives can become adjectival. A special kind of adjectival Subordinate Clause has been mentioned but not discussed in Figure 2.1, i.e., So, or the Relative Clause, which is introduced not by a subordinate conjunction but by a relative pronoun. If such clauses are used adjectivally, they would always have a noun or pronoun as antecedent, e.g., Is dit die meisie wat jy gister toe ons by die mark was, gesien het? 'Is it the girl that you saw yesterday when we were at the market?' or Daar is die man wie se fiets gister gesteel is 'There is the man whose bicycle was stolen yesterday.' The structure of So, the Relative Clause, is that of the Subordinate Clause shown in Figure 4.5 with the first verbal element as close as possible to the end of the clause and the choice off line B a relative pronoun.
Even when Relative Clauses are used without antecedents as Noun Clauses, they have this form, e.g., *Wat julle ookal nou se, gaan my nie aan nie* 'Whatever you say now does not concern me.' This is simply because they can never function as Independent Clauses, even if they do not have antecedents. Some Verb Phrase, at least, has to complete the sentence. It should be obvious then why *So* cannot be called a sentence in the full sense. First of all, it does not have the word order of a true sentence, but that of a Dependent Clause, and, second, it can never function as a Main Clause as the three sentence types in Figures 4.1 through 4.3 can.

The Subordinate Clauses described above can be added to the three basic sentence types to form complex sentences. The type of the final product depends on the Main Clause, e.g., a question Main Clause used with a Subordinate Clause remains a question, as in *Sal julle ouers julle laat gaan as ons ouers besluit dat ons nie kan saamgaan nie?* 'Will your parents let you go if our parents decide that we cannot go along?' where a question Main Clause is followed by both an Adverbial and a Noun Clause. The same will happen if Dependent Clauses are added to the imperative, e.g., *Besluit nou dadelik terwyl ons nog hier is wat julle wil doen.* 'Decide (now) immediately, while we are still here,
what you want to do.' Examples of the addition of Dependent Clauses to declarative sentences have already been given in the discussion of Subordinate Clauses.

Compound complex sentences can be formed by the addition of both Main and Dependent Clauses, e.g., Ons sou more vertrek, maar aangesien die kinders nou almal siek is en die dokter aanbeveel het dat hulle in die bed gehou moet word, sal ons maar moet wag tot hulle weer gesond is. 'We were going to leave tomorrow, but since all the children are sick now and the doctor recommended that they be kept in bed, we will just have to wait until they are well again.'

A special type of inversion, which can only occur in intransitive sentences, needs to be mentioned briefly. As shown in Figure 4.6 two words, daar 'there/it' and dit 'it' (line B), can be used like the English expletive to displace the subject which would normally occur off line C. The subject would then move to either line F, if it is a Noun Phrase of the type described in Figure 2.1, or to line H if it is either a Noun Clause or an Infinitive Phrase. If the subject is a Noun Phrase (line F), it will follow both the first verbal element and any of the options off M in Figure 4.2 (except those which cannot occur in intransitive Verb Phrases), e.g., Daar is dadelijk 'n dokter ontbied, lit. 'There was immediately a doctor
Figure 4.6. **Dit** and **Daar** Inversion.
called (A doctor was called immediately).’ This type of Noun Phrase can only occur after daar.

When either a Noun Clause (La) or an Infinitive Phrase (Lb) follows daar or dit, it has to occur after the whole predicate, i.e., after line G, e.g., line La Daar is besluit dat julle moet loop 'It was decided that you had to go;' Dit maak nie saak dat julle siek is nie 'It does not matter that you are sick;' and line Lb Daar is besluit om te loop, lit. 'It was decided to go;' Dit is goed om baie melk te drink 'It is good to drink plenty of milk.'

The Semotactic Level

Figure 4.7 provides a general description of the Semotactic Level and its associated realizational portion. It is the semotactics that controls and determines clause structure on the Lexotactic Level.

Each clause is realized as a specific type of prediction on the Semotactic Level, depending on the combination of the event semenes (Af) with any of the semenes to the right of it (Aj-Ay) as participants in the action. Further control is imposed by combining focus (AL) with either goal (Ex) or agent (Cx) when focus is signalled from L in the realizational portion of the semotactics. Thus the basic elements in the semotactics
Figure 4.7. The Semotactics and Associated Realizational Portion.
involved in specific clause structure are those shown as lines Af through Al off unordered "and" node A. Some of these would always be present in any structure with the event sememe, e.g., in *Hulle slaan die bal* 'They are hitting the ball,' the event sememe (Af), 'to hit' would be accompanied by both agent (Al) and goal (Ag). Any other modifications like tense, adverbs, etc., would be added by one of the circumstantial attributes shown to the left of the event sememe, i.e., Aa: aspect; Ab: time; Ac: location, etc., which can never be in focus.

One type of conditioning imposed on clause structure by the semotactics is shown in Figure 4.7, i.e., the determining of an active or passive voice sentence. If the sentence is in the passive voice, an impulse from L will activate diamond Mx on line Al to signal the occurrence of focus. It will then proceed to upward unordered "and" node 0 to converge with marked line NB off ordered "or" node N which would have received a signal from the "object" portion in the nominal complex through diamond Ex on line Ag. Normally this signal would just proceed along unmarked line Na to activate diamond Fx to signal the occurrence of goal as direct object. Since focus is not attached to goal, however, the signal does not proceed along line Na, but along Nb to 0. From here the signal would
travel to one-way unordered "and" node P to send one signal along Pa through ordered "or" Q along the marked line to activate diamond Dx and signal the occurrence of goal as subject. Simultaneously a signal along Pb will enable the agent to occur only as a Prepositional Phrase on marked line Rb off ordered "or" node R. Attaching focus to goal thus always results in a passive construction where the direct object becomes the subject, e.g., *Die bal word geslaan* 'The ball is being hit' with the active voice subject optionally occurring as a Prepositional Phrase, e.g., *deur hulle* 'by them'.

Since the active voice is the normal form, it is regarded as being unmarked with respect to the passive. Therefore, if goal is not in focus, a signal will simply proceed from K through diamond Cx on line A1 through ordered "or" nodes R and Q along their unmarked lines to activate the diamond Dx on the lexotactic subject which would then be agent, e.g., *Hulle slaan die bal* 'They are hitting the ball'.

In a similar way other sentence types can be determined by the semotactics, e.g., by combining a topic sememe with any of the other sememes off unordered "and" A, or by signalling in addition the occurrence of a question from the realizational portion of the semotactics.
Thus, though the actual internal ordering of sentences is handled on the Lexotactic Level, the control for the specific type of structure to be used in each case is determined by the interaction of the event sememe with other sememes on the Semotactic Level and the specific conditioning exercised in each case by the elements in the associated realizational portion of the semotactics.
CHAPTER 5

THE LEXICON--THE STRATAL BYPASS

In Figure 5.1 the nominal complex is used to illustrate the structure of the stratal bypass model of the lexicon. All other word types belonging to the open lexical classes of which the stratificational lexicon consists will function in a similar fashion from their respective points of origin, and therefore they will not be discussed.

When a speaker wants to say something, he not only selects the words he wants to use, but also their roles in the utterance. At the outset when the speaker selects a noun, a signal will travel down A to specify the semantic configuration of the chosen noun, and will then wait at upward "and" node V for a signal along Ha that would signify that the role selection has been made, the lexotactic place assigned, and morphological well-formedness established.

In order to get this signal along Ha at V a signal will travel along B to the unordered "or" node C where a specific role has to be chosen for that noun from all the options available at C, e.g., agentive, goal,
Figure 5.1. The Stratal Bypass Lexicon.
instrumental, locative, temporal, dative, etc. If the goal role is to be assigned to the noun, for instance, the signal will proceed down line Cc to upward ordered "and" node E where it will converge with a signal from D, which connects to the semantic properties of the goal role, to travel down to unordered "and" node H. Here one signal will wait for Ha to be conditioned from Ta and Sa. The second signal will proceed along Hb to activate diamond Jq, attached to the goal sememe in the semotactics. If the chosen noun is to be the subject of a passive Verb Phrase, the signal will proceed down marked line Kb off ordered "or" node K. At upward unordered "and" node L it will converge with one from FF that will ensure that focus is attached to goal so that the noun will now become the lexotactic subject. From L the signal will proceed to one-way ordered "and" node N. One signal will then proceed down Na through ordered "or" node 0 to activate diamond Px connected to the lexotactic subject. Upon feedback to N from Px the conditioning signal will be sent from N along Nb through unordered "or" node T to condition line Ha and signal to Ha that a lexotactic position had been assigned. From diamond Px the first signal from N will proceed to diamond Sx on the Morphotactic Level. It will activate the diamond, which in turn
signals line Ha that morphotactic well-formedness has been ensured for the chosen noun.

Only now that both conditioners on Ha have been activated can the signal along Ha proceed to unordered "or" node Q with the information that the role of goal has been assigned to the chosen noun. Unordered "or" node Q dominates the choice of all nouns that can have goal roles assigned to them. All the role possibilities available at unordered "or" node C will have ordered "and" nodes like H leading to unordered "or" nodes like Q with the appropriate options in lexical items available for that specific role. They will all function in the way described for E through Sa.

At Q the specific lexical item desired will be chosen, for instance saal (line Qc), which would be connected to unordered "or" node U where all other possible case roles for that item will attach. The signal will then proceed to upward "or" node V where the signal from A is still waiting. If this signal signifies a semantic configuration like 'a device used on a horse's back to make riding more comfortable,' a portmanteau realization of A and Qc would produce the word saal 'saddle,' rather than saal 'hall' for which another semantic configuration would have been necessary.
This lexical item *saal* 'saddle' will now proceed down Va without any diamond connections to the different strata, hence the term "stratal bypass." If it belongs to a class of words which imposes certain constraints on the other members of its sentence environment, or upon morphophonemic forms which might be added to it to form plural, etc., conditioners will be sent out from one-way ordered "and" nodes on Va to the appropriate strata as shown in the lexical conditioning imposed on the way the comparative and superlative degrees of certain adjectives can be formed in Chapter 2. One such a conditioning one-way ordered "and" node X is shown here for *saal*. From Xb a signal will plug into unordered "or" node Y, into which all such conditioning lines from other lexical items belonging to the same class of lexical items will plug. The characteristic of this class of nouns is that they do not take the phonologically conditioned, unmarked /-i/ ending for plurality in words of their phonological shape, but the marked, lexically conditioned /-s/ ending, shown in Figure 2.5. This conditioning line from Xb will thus ensure that in the morphophonemic sign pattern an /-s/ ending will be used to mark plurality on *saal*. This is also the way in which conditioning would be imposed at other levels, as from a reflexive verb like *verbeel* 'imagine,'
which has to be followed by a reflexive pronoun, e.g., jy verbeel jou dit 'you are imagining it.'

In the meantime a signal would have travelled down Xa to W so that the word saal can be realized in its phonological shape, first of all as the single syllable saal, then as the individual phones /s/, /a/ and /l/. It can be demonstrated that for Afrikaans it is considerably more economical to have nodes representing syllables between the word and its individual segments, rather than to move straight down from word to phone. A simple experiment with three words sharing at least one syllable will demonstrate that, if the method of measuring simplicity described in Lockwood 1972, pp. 58-9, is used, the excess surface information is far greater in the case of no syllable nodes between the word and its phones than in the model used in Figure 5.1. This happens despite the fact that the other structure looks simpler because of the absence of the number of extra ordered "and" nodes needed for the intervening syllables. Furthermore, if the formula posited in Christie 1973, p. 102 (footnote 11) is used it can be shown that for Afrikaans this would definitely be the most economical structure to use in the free-hanging lexicon.

The stratal bypass model of the lexicon described in Figure 5.1 seems to be a more feasible and economical
model to use than one in which every lexical item has to be carried through every stratum. In such a model every line in the tactic patterns leading to an open lexical class would have to have an unordered "or" node like Q above the diamond. The big expense would not be these "or" nodes themselves, but the number of diamonds required by each of these lexical items in their connection to the realizational portion and the semantic configuration on every stratum. Since exact timing in the model described is crucial, each such a diamond would have a cell count of four, while the upward "and" node that would be needed for each noun like the one described at V in Figure 5.1, would each have a cell count of three. In the long run this would amount to a considerable savings in total cell count in the system. In keeping with the simplicity principle of stratificational description the stratal bypass model of the lexicon\(^1\) described in Figure 5.1 would therefore be preferable to the alternative model where each individual lexical item has to pass through the whole system.

1. The fact that a free-hanging stratal bypass model of the lexicon can and does work in a stratificational analysis seems prima facie to refute one more transformationalist criticism of stratificational theory, i.e., the claim in Postal (1968) that stratificational theory is incompatible with a lexicon.
LIST OF REFERENCES


