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UNIVERSITY OF CALIFORNIA

Los Angeles

Yoruba Word Formation Processes

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Linguistics

by

Stephen Monday Adewole

1995

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1995

friends

there are friends
and
there are *friends*
some can kill
some can heal
what you make
of both
is
what you become

(An adaptation from a Yoruba adage)

Dedicated
to
ALL my FRIENDS

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ABSTRACT OF THE DISSERTATION

Yoruba Word Formation Processes

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This work describes the major processes of word formation in Yoruba, a Kwa language of Western Nigeria. Three morphological processes - affixation, compounding and reduplication are identified as the key operations for the formation of most words in the language. The central claim around which the study develops is that Yoruba words are formed by certain morphological principles which define the internal structure of such words. By the application of such principles, words get their syntactic as well as semantic features which precede phonological rules of adjustment. An analysis of the formal aspects of affixation is presented thus

showing a detailed list of all the prefixes that are involved. The lexical properties thereby established are considered with the functional relations between derived words and their stems to set up criteria that may be used in the determination of morphological classes in Yoruba. The internal structure analysis of the stems shows that prefixes may attach to categories of higher grammatical status than the word (phrases) to produce words at the end of the derivation.

Compounding is described in the second part as the process whereby many Yoruba nouns are formed either from the combination of two or three basic nouns or a basic noun and another one derived from a verbal base. Tone alteration and vowel deletion criteria are discussed as possible means of contrasting compound nouns and genitive phrases.

Reduplication, the third formal type in Yoruba word formation is described in a way that shows the crucial need to consider suprasegmental features to better account for all the major categories in the class. Syntactic as well as semantic properties of the process are also considered.

The attempt to describe what goes on in the lexicon in Yoruba is developed in an interdisciplinary framework which pays more attention to interactional aspects of the phonological, syntactic and semantic components than any other work on Yoruba morphology thereby providing evidence for a richer, more comprehensive account of word formation in the language.

CHAPTER 1

BACKGROUND

1.0. Introduction

The study being presented here is about word formation in Yoruba, a subject that has been discussed in one form or the other in various studies since the first Yoruba grammar was written by Samuel Crowther in 1852. The first part of this chapter will be devoted to some of the significant findings of various studies on different aspects of Yoruba language. Starting with the work by Awobuluyi (1964) the discussion divides the literature review into the three broad categories of phonology, syntax/semantics and morphology.

1.0.1 Phonology

Yoruba phonology has been covered extensively from various perspectives, with most attention paid to suprasegmental features (tonal phenomena) in recent years. Awobuluyi (1964) presents an outline of most of the major morphophonemic processes including vowel deletion (elision), assimilation, nasalization, and a controversial claim about vowel coalescence which will be further discussed in latter chapters of this study. Oyelaran (1971) is a more rigorous attempt in the generative

tradition, tailored after the theory of SPE of Chomsky and Halle (1968), describing similar phonological features and some of the interdisciplinary aspects of Yoruba grammar. Of significance is the amount of attention that Oyelaran (1971) pays to tone but only as one of the features of the vowel (i.e a tone cannot be independent of the vowel that bears it). It is even more significant, however, that this work by Oyelaran contains a feature deletion rule that has the capability of deleting all vowel features except the tone on the vowel. Actually, the attention to tone as a significant aspect of phonological analysis is traceable to earlier work by Ward (1952) which establishes the presence of basic tones as well as gliding tones on polysyllabic forms. Pulleyblank (1983, and others) and Akinlabi (1984, and others) have applied the principles of Autosegmental/Lexical Phonology to the area of tone and its relatedness to morphological structure. Akinlabi (1984) is modeled after the underspecification theory of Pulleyblank (1983) which makes a central claim that only two tones, the High and the Low deserve underlying specification and no rule of phonology should refer to the Mid tone which gets assigned only by default. Folarin (1987) presents a fairly detailed description of derived words and compounds using the principles of Lexical Phonology as the tool of analysis. This work (by Folarin), various aspects of which will be further discussed in latter sections, proposes to divide phonological rules along the binary line of lexical and post-lexical application.

The work by Owolabi (1989) is the most extensive pedagogic description entirely written in Yoruba, detailing all the significant aspects of Yoruba phonology.

1.0.2 Syntax/Semantics

Bamgbose (1963) is the first comprehensive analysis of sentence structure within the Scale-and-Category Theory (Halliday, 1961), which basically analyzes the sentence into smaller clausal units, from the most complex structure to the atomic elements. Awobuluyi (1967) focuses on the syntax of the verb, a description in Transformational Generative terms following Katz & Postal (1964) and Chomsky (1965) of the elements which constitute the VP. Ekundayo (1972, 1976, 1977a, 1977b, 1977c) extends various aspects of the standard theory of the Transformational Generative era (Chomsky, 1965, 1970) to Yoruba. Some of the findings by Ekundayo provide very crucial insight into the link between morphology and syntax in Yoruba. One such finding which is that "... some word derivation prefixes can be used to derive single words from almost any verb phrase regardless of the complexity of its internal structure" (1976:233) will constitute one of the major tenets of the study being presented here. Awoyale's (1974) analysis of nominalization argues for a separate morphological component. This work paid particular attention to the interaction between morphological processes and syntactic as well as semantic rules. Central to Awoyale's thesis is the claim that all nominals in Yoruba cannot be listed in the lexicon because it is unrealistic to attempt

such a proposal. Awoyale thus defines "what should remain in the lexicon, and what should be derived transformationally" (1974:8). We will be reviewing specific aspects of Awoyale's work in the course of this study.

1.0.3 Morphology

The area that studies word formation processes in Yoruba has not received as much attention as the other aspects of the grammar. Some of the works mentioned in the foregoing sections especially the ones by Ekundayo (syntax) and Akinlabi (phonology) contain limited descriptions of morphological phenomena. Folarin (1987) follows the same trend of using morphological processes to elucidate phonological principles. This work touches on various aspects of word formation including affixation and reduplication as well as compounding.

1.0.4 The Present Study

It is my view that all the earlier authors up to and including Folarin (1987) have failed to pay adequate attention to the non-phonological aspects of the word formation process in Yoruba. I will explore the possibility of an analysis that will focus on the purely morphological properties of words with the coverage of phonological phenomena as a secondary goal. Through this approach I hope to be able to show that there is an underlying structure for every word which has to be first established before the application of phonological rules.

I will adopt a descriptive approach based on the assumption that words have internal structure which is built by lexical principles. The domain of such operations is within the lexicon. Words are lexical categories resident in the lexicon, with all their component parts. Various strategies such as affixation, suppletion, compounding, vowel change, reduplication, etc. are used in the process of word formation (see Anderson (1985) for details). I will show here how three such strategies: affixation, compounding and reduplication will account for words in Yoruba. This is done by word formation rules in conjunction with certain structure building principles. At the end of this study, I hope to have achieved a proper categorization of the possible classes of words in Yoruba. Such a classification has to include not only phonological but also syntactic and semantic principles. I will show that where such properties are not manifested on the surface for certain lexical categories, an adequate account has to be established to justify their presence underlyingly. In the next section, an outline is presented of theoretical assumptions underlying the description to be presented here. The ideas are based mostly on the discussion of Anderson (1985) on morphological typology.

1.1 Morphological Theory

During the past twenty years, the new emphasis on the theory of word formation in generative grammar has yielded ample evidence to support the claim that words are not products of syntactic transformation. The word as a category is present in deep

structure. Thus it is argued there has to be an independent morphological component in the grammar of every language. Selkirk (1982) observes that the morphological component contains the *structure of words* and the *system of rules* by which the structure is generated. An account of such a structure and its rules thus places the word at the same level as the phrase which has always been the basic unit of syntactic analysis. Such an account will also bring to light the various areas of similarities and differences between the word (morphology) and the phrase (syntax).

To establish the similarities between morphological and syntactic units, Selkirk (1982) proposes to generate word structure by the same mechanism which serves to produce syntactic structures. So the "syntax of words" has to be based on "a context-free grammar ... appropriate for characterizing the notion "possible word structure of L" ". (1982:2)

Anderson (1985) provides general guidelines to various aspects of morphological analysis which seek to describe the internal structure of words, the basic units of analysis in the morphological component of the grammar. Aronoff (1976) discusses a number of general properties of word formation rules which are also worthy of serious consideration. In the next few sections, I discuss the basic assumptions in the work by Anderson (1985) and Aronoff (1976) which will also

serve as the theoretical point of departure for the description of word formation processes in Yoruba.

1.1.1 Word Derivation

The work being presented in this study covers three broad categories of word formation: affixation, reduplication and compounding. Most complex words will fall under one of the first two categories. The two morphological processes of affixation and reduplication are grouped under the broader category of derivational morphology which is the addition of formatives (morphemes) to bases (stems) to produce new words. Formatives thus added may be prefixes, infixes or suffixes. We will be dealing mostly with prefixes as there are no suffixes in Yoruba. A proper identification and categorization of prefixes will be proposed. For each prefix, there are semantic as well as syntactic features. Affixation in each case is governed by general phonological conditions which usually operate in intervocalic contexts. I will also provide evidence to support the claim that phrasal stems acquire distinctive (syntactic) features within lexical environments.

1.1.2 Derived Words

When a form X is derived from another (Y), X and Y are known to share certain characteristics. Most notable among such characteristics is the semantic relation that exists between X and Y. Thus in English, the agentive suffix **-er** relates verbs to nouns in the process of agentive formation such that [_VX_V]-**er** is given the

interpretation 'that which performs (typically) the action or which is habitually in the state expressed by X'. Secondly, the two forms have phonetic resemblance. Thirdly, like any grammatical class (lexical or syntactic), derived words share semantic relations among themselves. For classes where the affix is uniform this is not surprising but this is also the case with derived words which have different affixes but belong to the same semantic categories. Again, we have in English cases from **-er** and **-ist** suffixation which denote agentive: singer, soloist, helper, linguist, etc.

1.1.3 Classification of Word Formation Rules

Word Formation Rules (WFRs) typically describe the internal structure of lexical items. The classes or categories thereby established are generally expected to be open-ended. Certain members of particular classes may have idiosyncratic properties which must be covered by the WFR that describes the uniform members of that class. The extent to which a particular WFR applies to lexical items within its domain constitutes the productivity of that process. The syntactic or semantic domain of forms is one of the most important factors to be considered in the classification of word formation processes. Closely related to the issue of the domain of application is the degree of productivity which is not only a matter of numbers but also has to do with the scope of membership within a particular domain. Anderson (1985:16-22) illustrates the issue of productivity by citing the formation of ordinal numbers in French as compared to the **-ist** agentive formation in

English. With only one exception - **un** (one), the ordinal suffix **-ième** can be added to any French number, *ad infinitum*. So we get forms such as **quatrième** 'fourth', **onzième** 'eleventh', **quatre-vingt-et-unième** 'eightyfirst', etc. The English **-ist** on the other hand produces nouns denoting 'skilled practitioner' from a variety of stems of different semantic classes such as name of instruments: piano → pianist; art objects: cartoon → cartoonist; styles: novel → novelist; and expertise in the medical or academic fields: anthropology → anthropologist.¹ It is also the case however that there are forms denoting 'skilled practitioner' in English but have suffixes different from **-ist**: *gardenist, *writist, *carvist, etc. The issue of productivity among these two classes will thus not be easy to determine based on numbers. With the French ordinal formation having a potentially infinite domain and the **-ist** rule applying to a wider scope of semantic categories in English, it looks, on first consideration, as if these two rules might share the same (or at least close) level of productivity. But it is also true that complex ordinals in French may be derivable from their simpler counterparts. For instance, we may not want to make a strong morphological distinction between the complex **deux-milles-huit-cent-soixante-dix-septième** '2877th' and the simple **soixante-dix-septième** '87th' and even

¹ Forms which denote behavioral patterns or ideological bias such as alarmist, opportunist, idealist, communist, etc. are not in Anderson's classification but they do not seem to constitute exceptions to the general observation.

simpler **dix-septième** '17th' or **septième** '7th'. So the ordinal formation rule seems to have its limits. When we consider the question of comprehensiveness however, the French ordinal rule clearly has an edge over the English **-ist**. The only exception to the former is **un** 'one' whereas, as noted in the examples above, the **-ist** is only one of the suffixes for agentive formation in English. Thus, the (potential) domain of application of the French ordinal is wider than that of the English **-ist**. The French ordinal is therefore more productive than the English agentive **-ist**.

WFRs are also classified according to the formal nature of the change effected by their application as well as the syntactico-semantic relations between the inputs and the outputs of the process. Among the possible formal changes are affixation, reduplication, suppletion and internal change (involving vowels, consonants or suprasegmentals). There is, in addition, the possibility of zero derivation which leaves the shape of the stem unchanged but a new syntactic/semantic reading is assigned as in English action nominals formed from verbs: attempt, study, love, etc. It will be shown here that some of these formal changes may not be separable one from the other. I will indeed show that there are two derivational categories - affixation and reduplication in Yoruba but various instances of these two processes also manifest elements of the other (sub)processes on Anderson's (1985:23) list.

1.1.4 Some General Properties of WFRs

Aronoff (1976:46ff) discusses certain "...precise claims about the nature of the rules which generate words, their form, the conditions under which they operate, and their relation to the grammar" which are of relevance to the present study on Yoruba. While I do not subscribe to the underlying claim that word formation may be completely word-based (thus undermining the status of the morpheme in morphological analysis), I believe that most of the syntactico-semantic properties outlined for WFRs will be found also in Yoruba. Words bear information attributable to the various components of the grammar: syntax, semantics, phonology and morphology. The syntax/semantics aspects of such information are considered to be of primary relevance to the present discussion and are thus outlined in the next section.

1.1.5 Syntax and Semantics of WFRs

The base (i.e. domain) is syntactically specified, first in terms of categorial class (verb, adjective, etc.) and, as necessary, subcategorization features and selectional restrictions. For example, the nominalizing suffix **-ee** in English takes transitive verbs (addressee, trustee, *dreamee). This is the subcategorization information on this suffix. The suffix may have further restrictions which in the case of **-ee** will be verbs which can take animate or indirect objects. The output of every WFR is identifiable as member of a syntactic category. For example **-able** produces

adjectives from nouns or verbs (acceptable, fashionable, etc.). Semantically, the output has a meaning which is a function of the meaning of its base. Certain examples have been cited above from the agentive **-er** class in which nouns are derived from verbs having the meaning **V-er** → 'one who Vs on a continuous basis', V being the verb in English.

1.2 The Yoruba Word

I divide this study of Yoruba words into the following sections: first, I consider affixation which involves mainly the addition of nominalizing prefixes to verbal stems. The second part describes compounding which combines words of open lexical classes (mostly nouns) to form new words. Finally, a third part is devoted to the description of reduplication of various sorts mostly involving verbal expressions.

A typical Yoruba word consists of at least one stem and (optionally) a prefix. Verbs are mostly monosyllabic in their simple forms. Nouns are known to have at least two syllables. Most of the data to be treated here consist of verbs and their arguments which serve as bases for derived nouns. There are no suffixes in Yoruba. Prefixes take the form of a monosyllabic, single vowel.² Prefixation is sensitive to the phonological processes of Vowel Harmony and Vowel Deletion. The next chapter

² This claim goes against the traditional Yoruba grammar which has prefixes with more than one syllable. I will show in later sections that such "prefixes" (e.g. **àì-** and **oni**) need to be analyzed into simpler units.

will focus on most of the facts of phonology that are going to be relevant to the analysis. In chapter 3 I outline a structural description of the verb phrase thus providing the necessary background information on the elements to be identified as stems for derived words in the chapter that follows. The details of various prefixation mechanisms will be the subject of discussion in chapter 4. It will be shown essentially that prefixes identify the semantic properties of their nouns, and the stems are VPs. Chapter 5 deals with compounding, mostly of the N → N N type. I show in this chapter phonological evidence that contrasts compound nouns and genitive NPs. I extend the description to reduplication in the sixth chapter to show that reduplication can be categorized in terms of the segmental and suprasegmental features of the copied elements. I demonstrate how the analysis proposed here will account for all cases of reduplication in Yoruba including some categories that have hitherto been classified as exceptions (Awoyale, 1974,1980).

1.3 Conclusion

I have attempted to outline, in the foregoing sections, a definition of the general subject to be covered in the rest of this study. I will be presenting, in the chapters to follow, the details of word formation processes in Yoruba. Among the key issues to be discussed are the following: 1) What are the possibilities in terms of affixes (prefixes) and affixation processes? What is the degree of productivity in each case? 2) What kind of formal change is effected in each case and what is the

functional relation between the stem and the derived word? 3) How does the word formation system in Yoruba interact with the phonology to the extent that earlier analyses have almost exclusively treated WFRs as phonological phenomena? To set the background to the proper handling of this last question, we devote the next chapter to a discussion of phonological processes that are relevant to word formation in Yoruba.

CHAPTER 2

YORUBA PHONOLOGY

2.0 Introduction

This chapter is devoted to the various aspects of the phonology of Yoruba which are going to be encountered in later chapters in the description of word formation processes. The line between morphology and phonology in Yoruba is rather thin; so there is no way one would be dealing with phenomena in one component without reference to the other. This is evidenced in current literature on Yoruba linguistics in which most of the analysis on the morphology has turned out to be a documentation of phonological processes. Folarin's (1987) work is a classic example here. I will be considering some aspects of that work in various parts of this study.

The focus in later chapters will be on the morphological phenomena in Yoruba. So this chapter is to be devoted to a presentation of the phonological aspects that will come up in later discussion. This chapter might therefore be perceived both as precursory and as a reference point for the rest of the work. It contains background, foundational information that should facilitate the understanding of the morphology.

Thus, in the rest of the chapter I will discuss such phonological processes as vowel harmony, vowel deletion and vowel assimilation, all of which are going to be encountered at one point or the other in affixation, reduplication and compounding.

The rest of the chapter is organized as follows: In the next section I present, in outline form, a phonemic inventory which lists all the phonemes and tones of Yoruba. Following that is an outline of the major rules of vowel interaction - harmony, assimilation and deletion.

2.0.1 Orthographic Conventions and Notations

Following standard Yoruba orthographic practice. I am using s to represent [š] and vowel followed by n to represent nasalized vowels. A rule which nasalizes vowels after nasal consonants is presupposed in the orthography. e represents [ɛ], o represents [ɔ], j stands for [ɣ] and y represents [j]. The symbol p stands for [kp]. Tones are indicated as follows: [´] = H(igh), [`] = L(ow) and no mark = M(id) .

The following abbreviated forms have been used:

1PS	-	first person singular
2PS	-	second person singular
3PS	-	third person singular
ASP	-	aspect
C	-	consonant

CONJ	-	conjunction
FUT	-	future tense marker
LOC	-	locative
NEG	-	morpheme or word that marks negation
PERF	-	perfective
PRT	-	particle
V	-	vowel or verb (to be determined by context)

2.1 Vowels

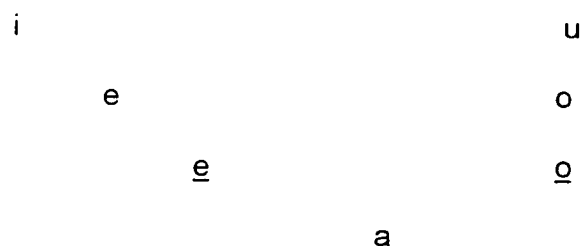
Yoruba has seven oral vowels with the following distinctive features (Archangeli & Pulleyblank, 1989:174):

(1) Vowels

	i	e	<u>e</u>	a	<u>o</u>	o	u
[high]	+	-	-	-	-	-	+
[low]	-	-	-	+	-	-	-
[back]	-	-	-	+	+	+	+
[ATR]	+	+	-	-	-	+	+

Of all the vowels listed in (1), only **e** and **o** cannot be nasalized.

(2) Vowel Chart



Note the following general property with respect to the distribution of vowels in lexical contexts: nasalized vowels and the back, high vowel [u] are not found word-initially.

2.1.1 Consonants

The following is a list of all the consonants in Yoruba:

(3) Consonant Chart

	t	k	kp
b	d	g	gb
	j		
m	n		
	l		
	r		
f	s	š	h
w	y		

The following are some general properties bearing on consonants in lexical items: a) verbs have consonant initials. b) only loan nouns borrowed from other languages can have consonants initially.

2.1.2 Syllable Structure

The typical Yoruba syllable can be a vowel as in (4):

(4)a. **ó** `3rd person singular pronoun'

b. **ó m_o èdè òyìnbó**

3PS know language westerner

`S/he knows English'

c. Ojo ni **ó l_o sí oko**

Ojo BE 3PS go to farm

`It was Ojo who went to the farm'

The syllable can also be a CV as in (5):

(5) **bì** `vomit'; **kò** `reject'; **gbá** `hit'; **ge** `cut'; **rí** `see'; **pín** `share'; **fé** `marry'

Thirdly, the syllable can be a syllabic nasal:

(6)a. **n** `first person singular pronoun'

b. **n ò ní l_o**

1PS NEG FUT go

`I'll not go'

c níbo ni o n-gbé ?

where BE 2PS ASP-live

`where do you live?'

Some general properties of syllables in lexical items are a) verbs are monosyllabic in their basic, underived forms. b) nouns have at least two syllables.

2.1.3 Tone

Every syllable has a tone, usually one of H, L and M, the three possible pitch contrasts in Yoruba. Consider the following:

(7)	a	rá	`disappear'	ra	`rub'	rà	`buy'
	b	k _o	`teach/build'	k _o	`write/crow'	kò	`reject'
	c	b _o	`to drop'	b _o	`worship'	bò	`to broil/come'
	d	bí	`to beget'	bi	`ask'	bì	`to vomit'
	e	gbó	`to bark'	gbo	`squeeze'	gbò	`to shake'
	f	sín	`sneeze'	sin	`bury'	sìn	`worship'
	g	kún	`be full'	kun	`to slaughter'	kùn	`to murmur'
	h	sún	`shift'	sun	`burn'	sùn	`to sleep'

Within the framework of underspecification theory as proposed by Pulleyblank (1983 and others); Akinlabi (1984 and others), only two of the three tones (H and L) need to be specified underlyingly while the third (M) is only manifested on the surface via

a default rule which assigns **M** to any toneless vowel after all other rules have applied. The claim on underspecification will not make any difference to any aspect of the description being presented here; so I will not go into any further details but the interested reader should refer to Pulleyblank (1986:108ff) for a concise summary.

One general property of lexical items to be noted here is that no indigenous word has a H tone on its initial syllable.

Next, we look into some of the details of the phonological processes which, in most cases are rules of vocalic interaction.

2.2 Vocalic Processes in Yoruba

Various studies including Pulleyblank (1986, 1988a,b), Archangeli and Pulleyblank (1989), Akinlabi (1986) and Folarin (1987) have discussed vocalic processes in Yoruba at different levels of detail. The description being presented here draws on evidence and conclusions from such analyses. I will present data on Vowel Harmony (VH), Vowel Deletion, and to a limited extent, Vowel Assimilation all of which are attested in word formation contexts in Yoruba.

2.2.1 Vowel Harmony

Various accounts of Vowel Harmony (Clements, 1981; Ringen, 1975) seem to center around the theme of cooccurrence constraints on vowels within a particular system (language) where such vowels can be grouped into sets based on their distinctive features. This section will be devoted to the discussion of Vowel Harmony in Yoruba using facts presented in earlier work by Awobuluyi (1967), Bamgbose (1967) and Archangeli and Pulleyblank (1989) as point of departure. The discussion here is meant to be a working description tailored in essence to agree with various points that are going to be raised in later chapters on the descriptive analysis of word formation processes.

Since vowel features constitute the central point of focus, we need to outline first the features that are involved in VH in Yoruba.

2.2.1.1 Vowel Features

In addition to the canonical features of tongue height, tongue position and lip rounding, various accounts including Ladefoged (1964) and Lindau (1978) have established the relevance of the advanced tongue root (ATR) feature in the description of vowels in Yoruba and other West African languages. ATR is "... a mechanism involving the size of the pharynx, as controlled by variation in the positions of the root of the tongue and larynx..." (Lindau, 1978:550). Lindau mentions the relevance of the ATR feature with particular reference to the process of

VH which stipulates that vowels must agree in ATR feature specification within each morpheme, thereby making a selection of all vowels within particular combinations from one of two sets. The sample data for illustrating this point in Lindau's work came from Akan which has the following inventory:

(8)

Set 1		Set 2	
i	u	ɪ	ʊ
e	o	ɛ	ɔ
a		ʌ	

It has been argued in more recent work by Archangeli and Pulleyblank (1989) that only the [-ATR] feature need be specified underlyingly in an account of the Yoruba VH system based (partly) on the information contained in the chart in (9), a reduced version of the chart in (1) above..

(9)

	i	e	ɛ	a	ɔ	o	u
[high]		-	-		-	-	
[low]				+			
[back]				+	+	+	+
[ATR]			-		-		

Now, compare the following pattern proposed by Ladefoged (1964) with respect to VH in Yoruba:

(10)	Set 1		Set 2	
	i	u	i	u
	e	o	<u>e</u>	<u>o</u>
	a		a	

Bamgbose (1967:268) notes an “overlap of three vowels in each set”, a scenario which differentiates Yoruba VH from the systems of other West African languages such as Akan as shown above in (8), Igbo, Twi, and, to a more limited extent, Ebirá. The line between harmonic sets appears to be more distinct in those other languages. Archangeli and Pulleyblank (1989) propose an account that takes the underlying assignment of the [ATR] feature from the individual vowels to morphemes while the surface manifestation of the feature will emerge from a combination of rules (context-free and context-sensitive) and constraints. Such rules and constraints, whose details will emerge as we proceed will be assumed in this presentation.

As a first step in establishing the general pattern of VH, an outline of vowel cooccurrence constraints in the Yoruba system is presented in the next section.

2.2.1.2 Co-occurrence Constraints

Presented in (11) below is a chart showing two lines of vowels: vertical and horizontal. In a disyllabic vowel-initial lexical item, the vertical axis indicates the first vowel (V_1) while the horizontal is the second vowel (V_2). A + sign in the axis

between two vowels on each line means they can cooccur while an **x** means they will not. Note that [u] and nasalized vowels are not found word-initially in standard Yoruba and the distribution of nasalized vowels is not different from that of oral vowels with regard to Vowel Harmony.

(11) Vowel Co-occurrence Pattern

	i	e	<u>e</u>	a	<u>o</u>	o	u
i	+	+	+	+	+	+	+
e	+	+	x	x	x	+	+
<u>e</u>	+	x	+	+	+	x	+
a	+	+	+	+	+	+	+
<u>o</u>	+	x	+	+	+	x	+
o	+	+	x	x	x	+	+

From (11), we know the following:

- a) Mid vowels with contrasting [ATR] features cannot co-occur.
- b) A [+ATR] mid vowel may not precede a low vowel.

Next, I give in (12) examples to illustrate the general pattern:

(12)a. igi `tree', iwé `book', ifé `love', igba `200', iyò `salt', ihò `hole', ikú `death',
irin `iron', iyen `that', iwòn `measure', irun `hair'

b. ebi `hunger', eré `play', ejò `snake', ewu `danger', erin `elephant', egúngún
`masquerade'

c. ebí `family', èbè `plea', eja `fish', ejó `case', erù, `load', èrin `laughter', eran
`meat', emu `palmwine'

d. àfi `except', àsè `feast', abe `blade', ara `body', aro `lame', abo `female', àbùkù
`contempt', ààfin `palace', aràn `worm', àrùn `disease'.

e. ode `hunter', òdà `paint', òbo `monkey', òkín `egret', osàn `orange', òfun `throat'.

f. orí `head', olè `thief', odó `mortar', òru `night', orin `song', òórùn `odor'.

So far, what we have is a general picture of what is true for mostly words of VCV shape. Even among these examples, we have cases where the agreement between two vowels is not bidirectional. The rest of the discussion is thus devoted to more

specific details about individual harmony features and what happens in words of more complex structures than what we have seen so far.

2.2.1.3 Harmony Features

A close look at what I have itemized in the foregoing, particularly the two sets of vowels proposed by Ladefoged (1964) in (10) and the chart in (9) as proposed by Archangeli and Pulleyblank reveals the following possible features: a) Whether a vowel is high, mid or low. b) Whether the vowel is rounded or unrounded. c) Whether the vowel is a front or back vowel. d) Whether the vowel is produced with advanced or retracted tongue root. Looking at the data with these possibilities in mind will help us determine the answers to the most crucial questions which are: a) Which features are involved in Vowel Harmony? b) What is the extent of involvement for each feature?

2.2.1.4 High Vowels

The high vowel [i] can cooccur with all vowels on both sides, either as V_1 or V_2 . As already mentioned above, [u] cooccurs with all vowels but only word-finally. Note that this last restriction is not due to Vowel Harmony but only an independent fact of the standard dialect. Consider the following:

(13)	i-initial	i-final	u-final
i	igi 'tree'	igi 'tree'	isu 'yam'
e	ilé 'house'	ebi 'hunger'	eku 'rat'

<u>e</u> ilè 'hand'	<u>e</u> bí 'family'	<u>e</u> rù 'load'
a ilà 'line'	àmi 'sign'	àrùn 'disease'
<u>o</u> itó 'saliva'	<u>o</u> kin 'egret'	<u>o</u> rùn 'neck'
o ìró 'sound'	orí 'head'	ojú 'eye'
u imú 'nose'	—	—

2.2.1.5 Low Vowels

The low vowel [a] can cooccur with any of the other vowels to its right but [a] cannot be the second vowel where [e] or [o] is the first. So we have the following patterns:

(14)	a.	b.	c.	d.
	<u>e</u>a	a..... <u>e</u>	a.....e	*e.....a
	<u>o</u>a	a..... <u>o</u>	a.....o	*o.....a

Next I give examples of a-initial and a-final words in combination with other vowels.

(15)	a-initial	a-final
i	àdí 'palm nut oil'	ilá 'okra'
e	adé 'crown'	—
<u>e</u>	àjé 'witch'	<u>e</u> ja 'fish'
a	àdá 'matchet'	àsà 'custom'
<u>o</u>	aso 'cloth'	<u>o</u> jà 'market'
o	aró 'dye'	—
u	atú 'type of dress'	—

It is to be noted however that the constraints of [**e....a*] and [**o....a*] appear to be violated when there is vowel lengthening which occurs in the last stage of a resyllabification rule illustrated in (16).

- (16) a e-rì-rà → e-ì-rà → eèrà `ant'
 b ò-yì-yà → ò-ì-yà → òòyà `comb'

The resyllabification process is not limited to the vowel [a]; it also affects [e], [o] and [i] where these vowels occur only word-finally and [e] and [o] are the only initial vowels. Consider some examples in (17)

- (17) a e-rù-pe → e-ù-pe → eèpe `sand'
 b è-wì-wò → è-ì-wò → èèwò `taboo'
 b ò-bú-ko → ò-ú-ko → òóko `male goat'

It will be demonstrated later in this discussion that the apparent cases of harmony violation in (16) and (17) are only so on the surface. There is a constraint which stipulates that ATR spread is blocked when there is an adjacent [+high] vowel as is the case for all the underlying forms listed above. The key assumption with respect to the resyllabification data will thus be that VH applies first, before all other rules. It will be shown in later sections (particularly 2.2.1.7) that the attempt to apply VH in (16) and (17) is blocked by the adjacent [+high] vowel.

2.2.1.6 Mid Vowels

Mid vowels are the most constrained (by the VH process) group of vowels in Yoruba. A mid vowel may not occur with another vowel that has a different specification for the [ATR] feature. The pattern is summarized next in (18).

(18)a.	e.....e	e.....o	b.	*e..... <u>e</u>	*e..... <u>o</u>
	o.....e	o.....o		*o..... <u>e</u>	*o..... <u>o</u>
	<u>e</u> <u>e</u>	<u>e</u> <u>o</u>		* <u>e</u>e	* <u>e</u>o
	<u>o</u> <u>e</u>	<u>o</u> <u>o</u>		* <u>o</u>e	* <u>o</u>o

The following are examples of mid vowel sequences with impossible sequences indicated by `-':

(19)	e/o	<u>e/o</u>
e-initial	èdè 'language'	-
	epo 'oil'	-
o-initial	olè 'thief'	-
	owó 'money'	-
<u>e</u> -initial	-	<u>ègé</u> 'cassava'
	-	<u>èkó</u> 'learning'
<u>o</u> -initial	-	<u>ode</u> 'hunter/trap'
	-	<u>okó</u> 'hoe'

Following from the foregoing outline of the distribution of vowels based on the vowel height feature, we can draw the following conclusions in regards to the role of vowel height in simple words containing two syllables:

- a) NEUTRAL : [+high] is neutral (opaque) to Vowel Harmony.
- b) PARTIAL: [+low] is only constrained in the context [+mid, +ATR] ... _____
- c) COMPLETE: [-low, -high] cannot occur with opposing [ATR] value.

Note that only vowel height and the ATR features seem to be relevant so far; there is no indication that the rounding or back feature is crucial to harmony. Now we need to examine more data to see whether these constraints occur in forms that have more than two syllables.

2.2.1.7 “Word-final” Harmony

Certain cases are described as “word-final” harmony by Awobuluyi (1967:4). These are mostly trisyllabic forms with the second and third vowels sharing more features with each other than either of them does with the first vowel.

(20)	a	eruku	`dust'	b	àbùrò	`younger sibling'
	c	àkùrò	`garden'	d	òwùrò	`morning'
	d	èlùbó	`yam flour'	e	àkókò	`time'
	f	òkíkí	`fame'	g	ògiri	`wall'
	h	ìràwò	`star'	i	ahéré	`hut'

j	èkòlò	`earthworm'	k	agídí	`stubbornness'
l	ìròlẹ́	`evening'	m	àdúgbò	`neighborhood'
n	orúko	`name'	o	òkèlè	`morsel'
p	ehoro	`hare'	q	ìrégbè	`trifles'
r	òkíkì	`fame'	s	àtíkè	`make-up powder'
t	àjèjì	`strange'			

Awobuluyi (1967:5) observes that "... the vowels in the last two syllables of these words agree with respect to frontness (nonlabiality) or backness (labiality), the low central vowel **a** being neutral - in the sense that it occurs with both front and back vowels". This observation is motivated in part by statistics - the vowel **a** appears to be less frequent than others in the data in (20); hence the other vowels can be classified while it becomes convenient to assign the "neutral" label to the least frequent. Note that the observation by Awobuluyi does not make any reference to the direction of vowel feature spreading, a factor that may not be ignored in a description of vowel harmony. The question of the direction of spreading was of course later discussed by Archangeli and Pulleyblank (1989) arguing for the leftward spreading of harmonic features.

The data listed in (20) seem to have at least one thing in common: they lack complete harmony. It is also the case that some words appear to bear more harmony than others within this group. To get a better perspective of the data in

(20), we can divide the set into two parts: words in which the last two syllables are identical and words in which all vowels are more limited in similarity to each other.

So we have the following:

(21) IDENTICAL FINAL 2 VOWELS

a	eruku	`dust'
b	òkìkí	`fame'
c	ògiri	`wall'
d	ahéré	`hut'
e	èkòlò	`earthworm'
f	agídí	`stubbornness'
g	òkèlè	`morsel'
h	ehoro	`hare'
i	ìrégbè	`trifles'
j	òkìkì	`fame'

(22) NON-IDENTICAL VOWELS

a	àbùrò	`younger sibling'
b	àkùrò	`garden'
c	àjèjì	`strange'
d	àkókò	`time'

e	àdúgbò	`neighborhood'
f	àtíkè	`make-up powder'
c	èlùbó	`yam flour'
g	ìròlé	`evening'
h	orúko	`name'
i	ìràwò	`star'
j	òwúrò	`morning'
k	ògùrò	`raphia wine'
l	irúbè	`vegetables'
m	ewúré	`goat'

A number of facts can be observed from the two sets of data with respect to the distribution of vowels:

- a) Mid, [-ATR] vowels do not show up word-initially in any of the words listed in (21) and (22). This is consistent enough to rule out the possibility of it being an accident.
- b) In every instance where the second vowel is [-ATR], the final (third) vowel is also [-ATR] whereas the final vowel alone can be [-ATR]. This is predicted by the analysis of Archangeli and Pulleyblank (1989).

Note that a) as stated above is not meant to imply that there are no words with [-ATR], mid vowels in the initial syllable. Consider some such examples:

- (23) a èbora `evil spirit

b	<u>e</u> lédè	`pig'		
c	ò <u>g</u> èdè	`banana'		
d	òpò <u>l</u> ó	`toad'	(òpò <u>l</u> ó	`brain')
e	òyà <u>y</u> à	`cheerfulness'		

Now we can go from the facts stated so far about the distribution of vowels to formulate certain statements that will derive the Vowel Harmony data. First, let us assume that feature spreading is from right to left. Archangeli and Pulleyblank (1989) have established this point. The fact that Yoruba only has prefixes and not suffixes is a strong pointer to such a conclusion. It also seems to be the case that even though they did not make such a claim, earlier analysts such as Awobuluyi (1967) seem to imply the right-to-left direction of harmony through their observation that certain words only bear Vowel Harmony in the two final syllables. In addition to the right-to-left direction, the following constraint will obtain (with respect to feature spreading):

(24) Constraint on feature spreading

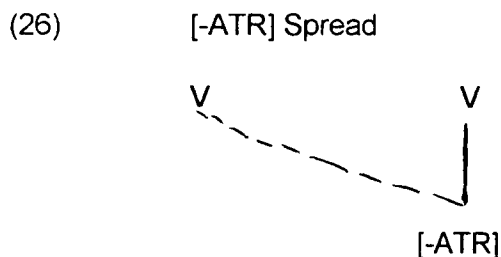
Spreading may not apply when an adjacent vowel is [+high].

Constraint (24) reflects the opaque nature of high vowels to the Vowel Harmony process. This is in agreement with the behavior of the front high vowel [i] in various contexts whereby it undergoes rules that other vowels will not and is left out when other vowels are affected by rules (see Pulleyblank (1988b) for details). Pulleyblank

(1988b) and Pulleyblank and Archangeli (1989) cite such behavior of [i] and the proposal referenced above in (9) that certain features including [+ATR] are underlyingly absent in defending the chart repeated in (25) for the underspecified representation of vowels in Yoruba.

(25)	i	e	<u>e</u>	a	<u>o</u>	o	u
[high]		-	-		-	-	
[low]				+			
[back]					+	+	+
[ATR]			-		-		

Now, the fact of [-ATR], mid vowels not occurring word-initially in certain words will imply that such vowels are placed in the beginning of words by a rule of [-ATR] spreading which, in conjunction with the right-to-left direction, may be formulated as follows:



This is essentially the same rule as proposed in Archangeli and Pulleyblank (1989:179) for the general process of [ATR] spread in Yoruba. It will also be the

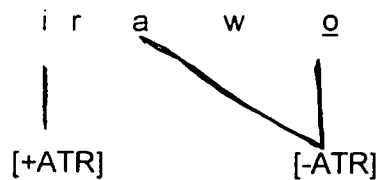
only [ATR] spreading rule that will be needed to account for the data discussed earlier in this section considering that [+ATR] is assigned by default by the end of the derivation to all vowels left out by other rules. Consider the following derivations:

(27)	O g E d E	E h O r O ³	Underlying representation
	<u>o</u> g <u>e</u> d <u>e</u>	E h O r O	
		n/a	[-ATR] Spread
		e h o r o	
	[+ATR]	[+ATR] [+ATR]	Redundant assignment of [+ATR]

The following illustrates how the constraint on [-ATR] spreading when the adjacent vowel is [+high] will hold:

(28)	I r A w O	E w U r E	UR
	I r a w <u>o</u>	* <u>e</u> w u r <u>e</u>	
			[-ATR] Spread
	[-ATR]	[-ATR]	

³ Uppercase letters are used to represent vowels that do not yet have specifications for [ATR]: A = [a], E = [e, e], I = [I], O = [o, o], U = [u].



Redundant assignment of [+ATR]

To conclude this discussion of Vowel Harmony in simple words, I propose the following steps for the derivation of the data.

- 1- Scan from right to left for the first instance of [-ATR] .
- 2- Apply the [-ATR] spread rule up to the first instance of a [+high] vowel.
- 3- All vowels not affected by 2 are [+ATR] by default

One could go on and on in an effort to include other features in the spreading rule but the real question is whether Vowel Harmony is complete (involving all vowel features) or partial in Yoruba. Given the tendency described above with respect to the behavior of individual vowels, it will seem reasonable to conclude that VH is indeed a partial process in (standard) Yoruba; it will only apply if certain conditions are met, including the vowel feature combination in a word. Next we turn to the interaction of the constraints outlined in the foregoing with the morphological rules of affixation and compounding.

2.2.1.8 Vowel Harmony in Polymorphemic Words

Most of the data cited in the foregoing sections consist of simple, non-derived words.

The next question then is what happens to VH in derived or complex words? This is

the focus of this part of the discussion. A general outline is presented on how the facts of Vowel Harmony as described in the foregoing sections play out when a prefix is attached to a stem or when two words come together to form a compound. Note that the data as presented at this point are solely to illustrate VH. I will go into the other details of the internal structure of the words in later chapters.

2.2.1.9 Affixation

Prefixes may be added to verbal bases to derive nouns. I will show in Chapter 4 that such prefixes are single vowels. As expected, many instances of prefixation trigger VH.

(29) e-/e-

a	è-lé	'increment'	<---	lé	'to increase'	(*èlé)
b	è-rò	'thought'	<---	rò	'to think'	(*èrò)
c	è-ro	'machine'	<---	ro	'to fabricate'	(*èro)
d	è-sè	'sin'	<---	sè	'to sin'	(*èsè)

(30) o-/o-

a	o-de	'hunter'	<---	de	'to hunt'	(*ode)
b	ò-sèlú	'politician'	<---	se	'to do', ilú 'city'	(*òsèlú)
c	o-là	'wealth'	<---	là	'to be rich'	(*olà)

d	ò-gbó	`old one'	<--- gbó	`to be old'	(*ògbó)
e	ò-kú	`corpse'	<--- kú	`to die'	(*ò-kú)
f	ò-bí	`parent'	<--- bí	`to beget'	(*ò-bí)
g	ò-jògbón	`learned one'	<--- jé	`to bear'	ogbón `wisdom' (*òjògbón)
h	ò-jòwú	`jealous one'	<--- je	`eat'	owú `jealousy' (*òjòwú)
i	òsìsé	`worker'	<--- se	`do'	+ isé `work'
j	òjísé	`messenger'	<--- jé	`bear'	+ isé `work'
k	òsùká	`porter's head-pad'	<--- sù	`make into a ball'	+ ká `fold'

Data in (30)i, j and k are cited by Archangeli and Pulleyblank to support a claim that whenever the nominalizing prefix attaches to a stem with high vowel ([+ATR]) initially, the prefix is [+ATR]. To further substantiate this claim, I examined data from the Ife dialect (my native dialect) where these forms do take the [-ATR] ([o]) and found that the high vowels take the [-ATR] feature as illustrated in (31) (underlining is used to indicate [-ATR]):

- (31) a òsìsé `worker' <--- se `do' + isé `work'
- b òjísé `messenger' <--- jé `bear' + isé `work'
- c òsùká `porter's head-pad' <--- sù `make into a ball' + ká `fold'

Note that the dialectal variation is very regular (i.e. **o** and **ọ** alternate as allomorphs before stems that start in high vowels) but it is significant to mention that only high vowels are involved as there are no forms like ***òsèlú** 'politician' (cf. 30b) in such dialects. Another point of interest here is that the front high vowel [i] is also a prefix which is freely attached to stems having [-ATR] vowels as shown in (32).

- (32)
- | | | | | | |
|---|---------|---------|------|-----|-------------------------|
| a | ì-wè | 'bath' | <--- | wè | 'to bathe' |
| b | ì-tò | 'urine' | <--- | tò | 'to urinate' |
| c | ì-gbòwó | 'glove' | <--- | gbà | 'take' owó 'hand' |
| d | ì-bòsè | 'sock' | <--- | bò | 'put on' esè 'leg' |
| e | ì-gbálè | 'broom' | <--- | gbá | 'sweep' ilè 'ground' |

The two high vowels are also known to occur with either **e-** or **ẹ-** in some cases:

- (33)
- | | | | | | |
|---|-------|------------|------|-----|--------------------------------|
| a | ẹ-rù | 'load' | <--- | rù | 'carry' (standard) / eru (Ife) |
| b | è-bù | 'piece' | <--- | bù | 'cut' (standard) / èbù (Oyo) |
| c | è-rí | 'witness' | <--- | rí | 'see' (standard) / èrí (Ife) |
| d | è-kún | 'fullness' | <--- | kún | 'be full' |

What we have thus far with respect to the high vowels is a situation where the ATR spread rule applies in the following ways:

- a) As illustrated in (32), [-ATR] in stems may not spread to [+ATR, +high] prefixes. This is not surprising as it agrees with the [+high] blocking constraint in (24).

b) There are cases such as shown in (33) whereby the prefixes are [-ATR] while the vowels in the stem are [+ATR]. We will indeed encounter more cases bearing various forms of this asymmetry below.

c) Dialectal evidence as demonstrated in (31) shows that only the high vowels undergo the [-ATR] spread rule in cases of alternation between the standard and other dialects.

For a better understanding of the situation, I present next, data to illustrate affixation with example from all prefix classes. I will then draw some conclusions to the effect that the ATR spread rule (as demonstrated earlier in (16) and (17)) is one of the earlier rules (usually the first of a set of rules) in most derivations. In derived words of the structure Prefix + VP, ATR spread fails to apply within the VP, thereby giving way to vowel deletion which is discussed in section 2.2.2.

(34)	{i}				
a	<u>s</u> e	--->	ì <u>s</u> e	`act' (s <u>e</u> `do')	
b	lù	--->	ìlù	`drum' (lù `beat')	
c	kú	--->	ikú	`death' (kú `die')	
d	lérí	--->	ìlérí	`promise' (lé `?be up', orí `head'; lérí `to promise')	
e	wè	--->	ìwè	`bath' (wè `to bathe')	
f	fé	--->	ìfè	`love' (fé `to love')	

- g sò → ìsò `shop' (sò `set up shop')
- h díwó → ídíwó `disturbance' (dí `block', owó `hand')
- i selè → ìsèlè `happening' (selè `to happen')
- j rójú → ìrójú `endurance' (ró `suffer', ojú `eye'; rójú `to endure')
- k gbádùn → ìgbádùn `enjoyment' (gbó `hear', adùn `sweeteness';
gbádùn `to enjoy')

(35) {a}

- a dé → adé `crown' (dé `to wear' (on the head))
- b bè → abè `razor blade' (bè `peel/cut')
- c jò → ajò `sieve' (jò `sift')
- d sé → asé `distiller' (sé `distill')
- e gbo → àgbo `concoction' (gbo `squeeze')
- f gbòn → agbòn `basket' (gbòn `shake')
- g gbè → agbè `gourd' (gbè `gather' (liquid))
- h lò → àlò `departure' (lò `go')
- i bò → àbò `return' (bò `come back')

Within the {a} group illustrated above in (35), the following data appear to have violated the ATR spread rule:

j jose ---> àjose 'collaboration' (jo 'together' + se 'do'; jose 'collaborate')

k pèje ---> àpèje 'feast' (pè 'call' je 'eat'; pèje 'call to eat')

(36) {e/e}

a tò ---> ètò 'arrangement' (tò 'arrange')

b so ---> èso 'fruit' (so 'bear fruit')

c lé ---> èlé 'surplus' (lé 'be surplus')

d gàn ---> ègàn 'derision' (gàn 'deride')

e kún ---> èkún 'fullness' (kún 'be full')

f be ---> èbe 'plea' (be 'plead')

g je ---> èje 'pledge' (je 'answer')

h bo ---> èbo 'worship' (bo 'to worship')

(37) {o/o}

a kú ---> òkú 'corpse' (kú 'die')

b bí ---> òbí 'parent' (bí 'beget')

c se ilú ---> òsèlú 'politician' (se 'do', ilú 'town')

d se eré ---> òsèré 'player' (se 'do', eré 'play')

e gbó ojú ---> ògbójú 'bravado' (gbó 'harden' ojú 'eye')

f	<u>sisé</u> ---> ò <u>s</u> isé	`worker'	(<u>s</u> e `do', <u>i</u> sé `work'; <u>si</u> sé `to work')
g	ta ---> ò <u>t</u> a	`expert player'	(ta `to play')
h	wón ---> ò <u>w</u> ón	`scarcity'	(wón `be scarce')
i	pò ---> ò <u>p</u> ò	`abundance'	(pó `be many')
j	dá ---> ò <u>d</u> á	`dryness'	(dá `be dry')
k	là ---> ò <u>l</u> à	`wealth'	(là `be rich')
l	l <u>e</u> ---> ò <u>l</u> e	`lazy person'	(l <u>e</u> `be lazy')
m	dá ò <u>r</u> àn ---> ò <u>ò</u> daràn	`trouble maker'	(dá `create', ò <u>r</u> àn `trouble')
n	dà il <u>è</u> ---> ò <u>d</u> àl <u>è</u>	`traitor'	(dà `turn' il <u>è</u> `ground'; dal <u>è</u> `betray')
o	là o <u>j</u> ú ---> ò <u>l</u> à <u>j</u> ú	`enlightened person'	(là `open', o <u>j</u> ú `eye')

Within the {o/ò} group as illustrated in (37), the following data appear to have violated the ATR spread rule:

p	mu ò <u>t</u> í ---> ò <u>m</u> ùtí	`drunkard'	(mu `drink' ò <u>t</u> í `wine')
---	-------------------------------------	------------	----------------------------------

From the above data on derived nouns and the apparent violations cited for each group, it is possible to deduce that VH is not a crucial property of the verb+noun combination which constitutes the VP base for derived nouns. Another possible reason for violation will be the asymmetric properties of the high vowels as outlined above. I will assume therefore that VH is not a requirement for all derived

words but it may serve as a distinctive feature for the group of nouns whose prefixes can be divided based on the presence or absence of VH. Next, I turn to another word formation process - compounding.

2.2.1.10 Compounding

Compounding may take the form of Noun+Noun or Noun+Verb+Noun to form another noun. A number of vocalic processes including Vowel Harmony will take place. The scenario is mixed with respect to Vowel Harmony which occurs only in some of the N+N compound. Next, consider the various possibilities.

(38) N+N (no VH)

In some cases, there is no feature change among the vowels at the end of the derivation. Note that Vowel Deletion (to be discussed in section 2.2.2) precedes Vowel Harmony when both rules apply.

- | | | | | |
|---|-------------------------|------|-------------------|--------------------|
| a | <u>eye</u> + ilé | ---> | <u>eye</u> lé | `pigeon' |
| | `bird' `house' | | | |
| b | <u>omo</u> + obinrin | ---> | <u>omo</u> bínrin | `lady' |
| | `child' `woman' | | | |
| c | <u>otí</u> + <u>okà</u> | ---> | <u>otí</u> kà | `guinea corn wine' |
| | `wine' `guinea corn' | | | |

d ewé + gbè ---> ewébè 'vegetable'
 'leaf' 'soup'

Archangeli and Pulleyblank (1989:190) observe that the above set constitutes a set of their own - formations that tend to violate VH. Folarin (1987) suggests that because of such cases, morphophonological operations should take place at multiple lexical strata. I maintain the claim that within the set of forms that have more than two syllables (derived and compound words), one should not expect perfect harmonic patterns.

(39) N+N (with VH)

Some cases will behave as predicted whereby the [-ATR] spreads leftwards.

a ògbó + eni ---> ògbéni 'Mister'
 'elder' 'someone'

b ogún + èta ---> ogóta 'sixty'
 'twenty' 'three'

There is at least one case of [+ATR] spread.

c omo + iye ---> omiye 'sibling'
 'child' 'mother'

Summary: The foregoing discussion of Vowel Harmony suggests that the combination of [ATR] Spread and constraints with regards to high vowels will account for most words which are non-derived, and, by implication, typically not more than two syllables. The exceptions are usually due to local factors such as the type of morphological operation or prefix type. Certain situations arise because of the peculiar status of the high vowels which are either opaque or neutral to most phonological operations. The analysis to be proposed in later chapters for affixation and compounding is thus predicated on this possibility of divergence by way of grouping forms into morphological classes based on the internal features that are shared by members of each class.

The other intra-word vocalic process is vowel deletion which is discussed in the next section.

2.2.2 Vowel Deletion

One of the most prominent issues in Yoruba phonology is vowel deletion. This occurs in almost every context where there is a concatenation of two vowels, usually within word and/or morpheme boundaries. I will be referring to such configurations as V_1V_2 . This is understandably one of the effects of the general properties that have been earlier implied: syllables are open, ending in vowels, while nouns usually start with vowels. Yoruba, being an SVO language has a lot of contexts where vowels follow in sequence such as between verbs and their objects and two nouns that

might come together by way of compounding. There is much controversy however as to which one of the two vowels deletes given the rather complicated nature of the system. Most studies on the subject (Awobuluyi, 1964; Bamgbose, 1964; Oyelaran, 1972 and Folarin, 1987) show that either of the two vowels is subject to deletion. Pulleyblank (1988a) argues that it is the first vowel which deletes, based on evidence from tonal features and the interaction between the two rules of deletion and assimilation. In what follows, I present data to illustrate the behavior of each vowel either as the first vowel (V_1) or the second (V_2). Assuming that the tongue height and [ATR] features will be relevant here as they were in the earlier discussion on Vowel Harmony, the data will be classified according to the [ATR] and tongue height features of the vowels.

2.2.2.1 [+ATR, +high] as V_1

As V_1 the front high vowel [i] is deleted before all other vowels while the back high [u] is deleted everywhere except before [i] as shown in the following:

(40)	[i]		[u]
	V_1+V_2		V_1+V_2
a	/i]/[i/ → [i]		/u]/[i/ → [u]
	rí + igi → rígi	'see a tree'	rù + igi → rugi
	see tree		'carry a tree'
			carry tree

	ti + igi → tigi	`push a tree'	
	push tree		
b	/i]+[e/ → [e]		/u]+[e/ → [e]
	jí + ewé → jéwé	`steal a leaf'	mú + ewé → méwé `take a leaf'
	steal leaf		take leaf
c	/i]+[o/ → [o]		/u]+[o/ → [o]
	ní + owó → lówó	`have money'	mú + owó → mówó `take money'
	have money		take money
d	/i]+[e/ → [e]		/u]+[e/ → [e]
	rí + eja → réja	`see fish'	mú eja → méja `catch fish'
	see fish		take fish
e	/i]+[o/ → [o]		/u]+[o/ → [o]
	jí + òbe → jóbe	`steal a knife'	mú + òbe `take a knife'
	steal knife		take knife

f	/i]+[a/ → [a]	/u]+[a/ → [a]
	rí + ajá → rájá 'see a dog'	rù + àga → ràga 'carry a chair'
	see dog	carry chair

2.2.2.2 [+ATR, -high] as V₁

The two mid vowels **e** and **o** are deleted only in the context of their [-ATR] counterparts - e and o except for **o** and o where deletion could affect either of the two vowels. **o** is deleted in the context /-**o**+**e**-/ and **e** is deleted in the context /-**e**+**o**/.

(41)	[e]	[o]
	V ₁ +V ₂	V ₁ +V ₂
a	/e]+[i/ → [e]	/o]+[i/ → [o]
	gbé + igi → gbégi 'carry a tree'	lò + igi → lògi 'use a tree'
	carry tree	use tree
b	/e]+[e/ → [e]	/o]+[e/ → [e]
	gé + ewé → géwé 'cut leaf'	kó + ewé → kéwé 'gather leaves'
	cut leaf	gather leaf

c	/e]+[e/ → [e]	/o]+[e/ → [e]
	se + èfó → sèfó 'cook vegetable'	kó + èja → kéja 'collect fish'
	cook vegetable	collect fish
d	/e]+[o/ → [o]	/o]+[o/ → [o] or [o]
	gbé + omó → gbómo 'carry a child'	rò + obe → ròbè 'stir soup'
	carry child	lò + òbe → lòbè 'use a knife'
		use knife
e	/e]+[o/ → [o]	/e]+[o/ → [o]
	gbé + owó → gbówó 'carry money'	gbé + owó → gbówó 'carry hand'
	carry money	carry hand
f	/e]+[a/ → [a]	/o]+[a/ → [a]
	gbé + àga → gbága 'carry chair'	lò + àga → làga → 'use chair'
	carry chair	use chair

2.2.2.3 [-ATR, -high] as V₁

In most cases of mid and low [-ATR] vowels, the first vowel deletes in a V₁V₂ sequence except where V₂ is [i]. The following sequences may not delete the first vowel: /o+a/, /a+e/, /a+o/ and /a+o/.

- | | |
|--|--|
| <p>(42) [<u>e</u>]</p> <p style="padding-left: 40px;">V₁+V₂</p> <p>a /<u>e</u>+[i]/ → [<u>e</u>]</p> <p style="padding-left: 40px;">b<u>e</u> + i<u>s</u>u → b<u>e</u>s<u>u</u> `peel yam'</p> <p style="padding-left: 40px;">peel yam</p>
<p>b /<u>e</u>+[e]/ → [<u>e</u>]</p> <p style="padding-left: 40px;">j<u>e</u> + ew<u>e</u> → j<u>e</u>w<u>e</u> `eat leaf'</p> <p style="padding-left: 40px;">eat leaf</p>
<p>c /<u>e</u>+[e]/ → [<u>e</u>]</p> <p style="padding-left: 40px;">j<u>e</u> + <u>e</u>k<u>o</u> → j<u>e</u>k<u>o</u> `eat food'</p> <p style="padding-left: 40px;">eat food</p> | <p>[<u>o</u>]</p> <p style="padding-left: 40px;">V₁+V₂</p> <p> /<u>o</u>+[i]/ → [<u>o</u>]</p> <p style="padding-left: 40px;">f<u>o</u> + i<u>g</u>ò → f<u>o</u>gò `break bottle'</p> <p style="padding-left: 40px;">break bottle</p>
<p> /<u>o</u>+[e]/ → [<u>e</u>]</p> <p style="padding-left: 40px;">gb<u>o</u> + èdè → gbédè `know a language'</p> <p style="padding-left: 40px;">hear language</p>
<p> /<u>o</u>+[e]/ → [<u>e</u>]</p> <p style="padding-left: 40px;">f<u>o</u> + <u>e</u>f<u>o</u> → f<u>e</u>f<u>o</u> `wash vegetables'</p> <p style="padding-left: 40px;">wash vegetable</p> |
|--|--|

d	/e̲]+[o/ → [o]	/o̲]+[o/ → [o]
	f̲e̲ + owó → fówó 'want money'	s̲o̲ + òkò → sòkò 'throw stone'
	want money	throw stone
e	/e̲]+[o̲/ → [o̲]	/o̲]+[o̲/ → [o̲]
	j̲e̲ + ob̲è → j̲ob̲è 'eat soup'	k̲ó + om̲o → kóm̲o 'teach a child'
	eat soup	teach child
f	/e̲]+[a/ → [a]	/o̲]+[a/ → [o̲]
	j̲e̲ + ata → j̲ata 'eat pepper'	l̲ò + ata → l̲ota 'grind pepper'
	eat pepper	grind pepper
	[a]	
	V ₁ +V ₂	
g	/a]+[i/ → [a]	
	rà + iwé → ràwé 'buy a book'	
	buy book	
h	/a]+[e/ → [e]	
	tà + ewé → tewé 'sell leaves'	
	sell leaf	

- i /a]+[e/ ---> [e]
 tà + eja ---> teja `sell fish'
 sell fish
- j /a]+[o/ ---> [a]
 na + owó ---> náwó `spend money'
 spend money
- k /a]+[o/ ---> [a]
 là + owó ---> lawó `be generous'
 open hand
- l /a]+[a/ ---> [a]
 rà + adé ---> radé `buy a crown'
 buy crown

Next, we need to consider the V₂ position to see if there is any difference in vowel deletion using the same ATR combined with vowel height criteria.

2.2.2.4 [+ATR, +high] as V₂

The only vowel that is [+ATR, +high] and can occur as a V₂ generally deletes in the V₂ context as illustrated in the following:

(43) $V_1 + V_2$

a /i/+[i/ → [i]

rí + igi → rígi 'see a tree'

see tree

b /e/+[i/ → [e]

gé + igi → gégi 'cut a tree'

cut tree

c /e/+[i/ → [e]

be + isu → besu 'peel yam'

peel yam

d /o/+[i/ → [o]

rò + inú → ronú 'think'

feel stomach

e /o/+[i/ → [o]

ko + ìwé → kowé 'write a letter'

write book

f /a]+[i/ → [a]

rà + iwé → ràwé 'buy a book'

buy book

g /u]+[i/ → [u]

ru + iwé → rùwé 'carry a book' (on the head)

carry book

2.2.2.5 [+ATR, -high] as V₂

Every vowel deletes before [e] while [o] gets deleted when one of the [-ATR] vowels

e , o or a is the first vowel.

(44) [e] [o]

 $V_1 + V_2$
$$V_1 + V_2$$

a /i]+[e/ → [e]

$$/i/ + [o] \rightarrow [o]$$

ri + ewé → réwé 'see a leaf' ri + owó → rówó 'find money'

see leaf

see money

b /e]+[e/ → e

$$/e]+[o/ \longrightarrow o$$

lé + ejò → léjò 'pursue a snake' gbé + odó → gbódó 'carry a mortar'

scare snake

carry mortar

c	/ <u>e</u>] + [e/ → [e] s <u>é</u> + èpè → s <u>é</u> pè `to curse' declare curse	/ <u>e</u>] + [o/ → [<u>e</u>] gb <u>é</u> + odó → gb <u>é</u> dó `carve a mortar' dig mortar
d	/o] + [e/ → [e] lò + ewé → lewé `use leaves' use leaf	/o] + [o/ → [o] lò + omi → lomí `use water' use water
e	/o] + [e/ → [e] k <u>ó</u> + èdè → k <u>é</u> dè `learn a language' learn language	/o] + [o/ → [<u>o</u>] k <u>o</u> + orin → k <u>o</u> rin `sing' sing song
f	/a] + [e/ → [e] pa + ejò → pejó `kill a snake' kill snake	/a] + [o/ → [o] rà + odó → rodó `buy a mortar' buy mortar
g	/u] + [e/ → [e] bù + epo → bepo `fetch oil' fetch oil	/u] + [o/ → [o] bù + omi → bomi `fetch water' fetch water

2.2.2.6 [-ATR, -high] as V₂

All vowels are deleted before [e]. [o] is deleted only when it follows [a] which is
turn deletes as V₂ when [o] is V₁.

- | | | |
|------|---|--|
| (45) | [<u>e</u>] | [<u>o</u>] |
| | V ₁ +V ₂ | V ₁ +V ₂ |
| a | /i/ + [<u>e</u> / → [<u>e</u>] | /i/ + [<u>o</u> / → [<u>o</u>] |
| | rí + <u>eja</u> → ré <u>ja</u> 'see fish' | rí + <u>omo</u> → ró <u>mo</u> 'see a child' |
| | see fish | see child |
| b | /e/ + [<u>e</u> / → [<u>e</u>] | /e/ + [<u>o</u> / → [<u>o</u>] |
| | gbé + <u>eja</u> → 'carry fish' | gbé + <u>omo</u> → gb <u>omo</u> 'carry a child' |
| | carry fish | carry child |
| c | /e/ + [<u>e</u> / → [<u>e</u>] | /e/ + [<u>o</u> / → [<u>o</u>] |
| | jé + <u>eja</u> → je <u>ja</u> 'eat fish' | jé + <u>obè</u> → jo <u>bè</u> 'eat soup' |
| | eat fish | eat soup |
| d | /o/ + [<u>e</u> / → [<u>e</u>] | /o/ + [<u>o</u> / → [<u>o</u>] |
| | kó + <u>eran</u> → ké <u>ran</u> 'get in trouble' | lò + <u>òbe</u> → lò <u>be</u> 'use knife' |
| | collect meat | use knife |

e	/o/ + [e/ → [e] wò + èwù → wèwù `get dressed' wear cloth	/o/ + [o/ → [o] sò + òrò → sòrò `speak' talk word
f	/a/ + [e/ → [e] pa + eja → peja `fish' kill fish	/a/ + [o/ → [a] lá + obè → lábè `lick soup' lick soup
g	/u/ + [e/ → [e] rù + erù → rerù `carry load' carry load	/u/ + [o/ → [o] mú + òbè → móbè `take knife' take knife
	[a] V ₁ +V ₂	
h	/i/ + [a/ → [a] di + àgbà → dàgbà `grow up' become elder	

i /e] + [a/ → [a]

gbé + adé → dádé `carry the crown'

carry crown

j /e] + [a/ → [a]

jé + àgbòn → jàgbòn `eat coconut'

eat coconut

k /o] + [a/ → [a]

lò + agbòn → lagbòn `use the basket'

use basket

l /o] + [a/ → [o]

lò + ata → lóta `grind pepper'

grind pepper

m /a] + [a/ → [a]

rà + ata → rata `buy pepper'

buy pepper

n /u] + [a/ → [a]

mú + ajá → májá 'catch the dog'

catch dog

The process of vowel deletion as illustrated in the foregoing cases can be captured in the following chart where the horizontal axis indicates V_1 and the vertical V_2 . The numbers 1 and 2 are used respectively to indicate whether it is the first or the second vowel that deletes in particular vowel combinations.

(46)

$V_1 \rightarrow$	i	e	<u>e</u>	o	<u>o</u>	a	u
V_2							
↓							
i	-	2	2	2	2	2	2
e	1	-	1	1	1	1	1
<u>e</u>	1	1	-	1	1	1	1
o	1	1	2	-	2	2	1
<u>o</u>	1	1	1	1	-	2	1
a	1	1	1	1	2	-	1

Pulleyblank (1988a) argues that it is necessary to assume that only the first vowel is deleted if we do not want to generate ungrammatical tonal sequences particularly for

cases where the first vowel is high-toned and the second vowel is low-toned. The fact that there are more cases of V_1 deletion than there are of V_2 seems to bear out the claim by Pulleyblank but we still need to account for the fewer cases of V_2 deletion. Pulleyblank's solution for such cases of "apparent" deletion of the second vowel is to assume that an independent rule of vowel assimilation will apply before all cases of vowel deletion. Both vowels will first assume identical features before the first one gets deleted. The process of assimilation is outlined next.

2.2.2.7 Vowel Assimilation

Vowel assimilation is either regressive or progressive. Various scholars (Courtenay (1968), Oyelaran (1971), Akinlabi (1984) and Folarin (1987)) have discussed data involving the two types. Consider the following examples of progressive assimilation from Akinlabi (1984):

- (47) a ìwé + ilé → ìwéélé
 `book' `house' `tax receipt'
- b ɔjà + ɪsu → ɔjàasu
 `market' `yam' `yam market'
- c ará + oko → aróoko
 `native' `farm' `yokel'

The examples given in (47) are across word boundaries but the same process also commonly occurs in a more interesting way within words where an optional rule of consonant deletion in a [V₁CV₂...] context has to apply first to trigger the vowel assimilation. Consider the following:

- (48) a òtító → òótó
 `truth'
- b òtútù → òótù
 `cold'
- c òkánkán → òókán
 `straight location'
- d báwo → bóo
 `how'
- e àtítàn → ààtàn
 `dunghill'
- f òwúrò → òórò
 `morning'
- g òyiyà → òòyà
 `comb'
- h erirà → eèrà
 `ant'

i orúko → oóko

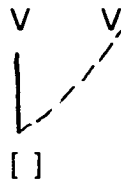
`name'

j egbèwá → egbàá

`two thousand'

This process may be captured as shown in (49) Pulleyblank (1988a:127)

(49) Progressive Assimilation



Regressive assimilation spreads all the features of the trigger vowel back to all others preceding it. This rule interacts with a rule of denasalization which changes /n/ to [l] before all vowels except [i]. Consider the following data in which the formative **oní-** which is analyzed as a single prefix but will be reanalyzed as a prefix and a verb in the next chapter is attached to nouns to form the agentive as follows.

(50) The prefixation of **oní-** to nouns.

a. oní + bàtà → onibàtà `owner of shoe'

shoe

b. oní + aso → aláso `owner of cloth'

cloth

c. oní + emu → elému 'owner of palm-wine'

palm-wine

d. oní + epo → elépo 'owner of oil'

oil

e. oní + otí → olótí 'owner of drinks'

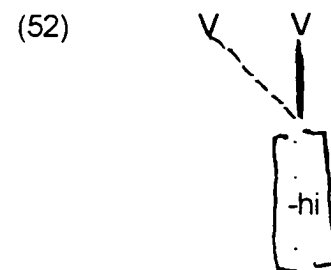
drinks

Note however that the front high vowel [i] will not trigger this backward spreading of features:

(51) oní + igi → onígi 'owner of tree' (*ínígi)

tree

Pulleyblank (1988a:126) proposes a statement as follows:



The solution to vowel deletion thus lies in making sure that assimilation rules precede deletion to the effect that a sequence $V_i V_j$ will become $V_i V_i$ before the deletion of the first vowel. The proposal is attractive for its simplicity but it faces some problems as shown in the following derivations:

(53)a. pa + eja → peja 'fish'

kill fish

b. lá + obe → lábe 'lick soup'

lick soup

a. p a e j a

| | | |

C V V C V

b. l a o b e

| | | |

C V V C V

The forms in (53)a and b should undergo regressive assimilation as shown next.

(54)a. p a e j a

| / | | |
C V V C V

b. l a o b e Regressive Assimilation

| / | | |
C V V C V

The vowel deletion rule will then delete the floating vowel as in the following:

(55)a. p a e j a

| | | |

C V C V

b. l a o b e Vowel Deletion

| | | |

C V C V

And we get the following output, one of which turns out as ungrammatical:

(56)a. p e j a

b. *l o b e

All the cases of second vowel deletion will create this kind of problem for the analysis that proposes the deletion of the first vowel subsequent to vowel assimilation. They include the following which were earlier cited in various sections:

(57)a /o]/[a/ → [o]

lò + ata → lota `grind pepper'

grind pepper

b /a]/[e/ → [e]

tà + ewé → tewé `sell leaves'

sell leaf

c /e]/[o/ → [e]

gbe + odó → gbedó `carve a mortar'

dig mortar

d /o]/[o/ → [o]

ko + orin → korin `sing'

sing song

e /a]/[o]/ → [a]

lá + obe → lábe `lick soup'

lick soup

f /o] + [a/ → [o]

lò + ata → lota 'grind pepper'

grind pepper

In view of this situation, I will, for the purposes of this study go by the statements presented in (40) to (44) in the foregoing sections 2.2.2.1 to 2.2.2.6. Vowel deletion will be assumed henceforth to be a local function of the ATR and height features of V₁ and V₂.

2.3 Conclusion

The foregoing has been an outline of the phonology of Yoruba covering the three major processes of vowel harmony, vowel deletion and vowel assimilation. It has been demonstrated that these vocalic processes interact within word/morpheme boundaries thereby assigning the appropriate grammatical form to morphological structures. Vowel Harmony has been illustrated as the means by which the ATR feature spreads across a word in a right-to-left direction. It is the case however that the more syllables and/or morphemes there are in a word, the less vital the spreading process. Vowel Deletion which seems to be much more complex is shown to involve the first of two vowels in most cases and it may interact with assimilation in certain cases. Since there is no one general statement that will account for all cases of deletion, the assumption in this study will be that vowel deletion is determined by

local conditions resulting from the interaction of the ATR and height features of individual vowels.

The above discussion of phonological phenomena is mainly to serve as a point of reference for issues that will be mentioned in the analysis of Yoruba words. Henceforth, the focus will be on morphological phenomena with the hope that the questions of phonology will not need to be directly addressed except where absolutely required for a clear exposition of the morphology. I assume that the rules of phonology are only for structural adjustment purposes at a later stage of derivation after the words have been formed within the morphological component.

CHAPTER 3

THE YORUBA VERB PHRASE

3.0 Introduction

This chapter is about the internal structure of verbs and verb phrases within lexical contexts in Yoruba. I will attempt to provide foundational information on which the theory of affixation to be developed in the next chapter is to be based. The central claim in the course of this study regarding affixation is that words (mostly nouns) are formed from verbal stems which have VP properties. I am going to focus on such properties in this chapter in order to lay the background for the discussion that will touch on various aspects of the internal structure of the verb. I will thus give a working definition of the Yoruba verb and verb phrase, drawing on various other studies that have focused on the same question over the years (Bamgbose, 1972; Awoyale, 1974, Folarin, 1987, etc.). The chapter is organized as follows: The first section deals with a sketch of the constituent structure of the verb phrase. Section 2 presents an illustration of serial verbs. Negation is discussed in section 3. I introduce affixation in section 4 to show that all VP types will take prefixes to form nouns. Finally in section 5 I outline some general constraints on VP-affixation with the

objective of showing that certain elements which denote reference or specificity may not occur within words.

3.1 VP Constituents

The verb phrase which occurs within derived words may have any one of the following constituent structures: i) **V** where the verb is either in its basic form or is composed of a basic transitive verb and an object noun, ii) a sequence of verbs - **V (N) V**. Each of these possibilities is illustrated next.

(1) VP → V

a. Ojo **kú** 'Ojo died'

Ojo die

b. Ade **lò** 'Ade went'

Ade go

c. Olu **jà** 'Olu fought'

Olu fight

Note that the examples in (1)a to c above will normally be accompanied by some kind of modification in Yoruba to express time, manner and location as shown next in (2).

(2)a. Ojo **kú lánàá** 'Ojo died yesterday'

Ojo die yesterday

b. Ojo ja ní gjà `Ojo fought at the market'

Ojo fight LOC market

c. Ojo ló sí ilé `Ojo went home'

Ojo go to house

The postverbal elements in (2)a to c are usually headed by forms which play the role of prepositions in Yoruba. So, the VP can be defined in view of this additional information as (3).

(3) VP → V (PP)

Aspect, tense and other INFL markers will normally go before the verbal head in Yoruba. These forms have been categorized under names such as auxiliary and defective verbs (Crowther 1843:14); particles for verb inflexions (Bowen 1858), particles (Ward 1952); tense indicators (Abraham 1962) and preverbs (Bamgbose 1967a). The following are illustrations of INFL elements:

(4)a. Ojo n-ló sí ilé `Ojo is going home'

Ojo ASP-go to house

b. Ojo máa ló sí ilé `Ojo will go home'

Ojo ASP go to house

c. Ojo tí ló sí ilé `Ojo has gone home'

Ojo ASP go to house

Following from the suggestion that all preverbal elements will fall under the INFL category, the VP may be further expanded to include such elements as shown in (5).

(5) VP → INFL V (PP)

Note that unlike the PP, the INFL is not optional. The question then arises as to why there is no INFL element in the examples in (1)a to c repeated next as (6)a to c.

- (6)a. Ojo **kú** `Ojo died'
b. Ade **lò** `Ade went'
c. Olu **jà** `Olu fought'

These constructions can only be interpreted as past thereby implying that the INFL element may not be overt, which is indeed the case for the past tense in Yoruba.

Now we can turn to verbs that require NP complements. Consider the following:

- (7)a. Ojo ri Olu ni **ojà**
Ojo see Olu LOC market
`Ojo saw Olu at the market'
b. Olu ra ata ní oko
Olu buy pepper LOC market
`Olu bought some pepper at the market'
c. Ade pa erin
Ade kill elephant
`Ade killed the elephant'

Transitive verbs as illustrated in (7)a to c naturally require NP objects as shown in the examples. Note that the post-verbal optional PP elements can only come after the object NP as the following configurations are ungrammatical:

(7)a'. *Ojo ri ni ojà Olu
 Ojo see LOC market Olu

b. *Olu ra ní oko ata
 Olu buy LOC market pepper

This gives us an addition to the VP as in (8).

(8) VP → INFL V (NP) (PP)

A productive morphological process conjoins the verbal head and its noun complement thereby creating the context described in chapter 2 for vowel deletion to produce what often appear on the surface as complex verbs in Yoruba. This is illustrated in (9).

(9)a Olu **sáré** (sá 'run', eré 'race')
 'Olu ran'

b Ojo **sisé** (sè 'do', isé 'work')
 'Ojo worked'

c Bunmi **jeun** (jè 'eat', oun 'thing')
 Bunmi ate

Some other examples in this category of verbs are:

- (10) a kàwé 'read' (kà 'read', iwé 'book')
- b kòwé 'write' (kò 'write', iwé 'book')
- c bínú 'be angry' (bí 'beget', inú 'stomach')
- d sunkún 'cry/weep' (sun 'cry' ekún 'tears')
- e ronú 'think' (rò 'think', inú 'stomach')
- f rójú 'endure' (ró 'toughen' ojú 'eye')
- g roju 'procrastinate' (rò 'think', ojú 'eye')
- h yonu 'break' (yò 'pull', enu 'mouth')
- i sìnkú 'bury' (sin 'bury', òkú 'corpse')

The constituents may also be two conjoined verbs as demonstrated next.

- (11) a bùse 'be complete' (bù 'cut', se 'do')
- b gbàlà 'save' (gbà 'get', là 'survive')
- c tànje 'deceive' (tàn 'light', je 'eat')
- d báwí 'scold' (bá 'follow' wí 'talk')
- e réje 'cheat' (ré 'cut' je 'eat')
- f gbàgbó 'believe' (gbà 'accept', gbó 'hear')
- g bèwò 'visit' (bè 'beg', wò 'look')

h	jùlò	`be superior to'	(jù `surpass', lò `go')
i	bùkù	`degrade'	(bù `cut', kù `remain')
j	sìsè	`err'	(sì `miss', sè `do')
k	sojì	`revive'	(so `say', jí `rise')

In the sentential context, these VP types `split' into two with the object in between. Because of this feature, various Yoruba grammars call them `splitting verbs', a term known to have been first used by Awobuluyi(1978:53ff). Consider some examples of the `splitting' feature, using the verbs cited above in (11)b, e and g.

(11)b' gbàlà `save'

Ojo **gba** Olu là (*Ojo gbàlà Olu)

`Ojo saved Olu

e' réjè `cheat'

Olu **ré** Ojo **jè** (*Olu réjè Ojo)

Olu cheated Ojo

g' bèwò `visit'

Ojo **bè** Olu **wò** (*Ojo bèwò Olu)

`Ojo visited Olu'

Contrary to Awobuluyi's claim that `splitting' verbs are different from serial verbs (i.e sequence of verbs within the same VP) because the splitting types are "... in the majority of cases idiomatic in meaning" (1978:117), I suggest here that all the

examples in (11) above are serial verbs for a number of reasons. First, even though they are not compositional (thus allowing for sentences in which they occur to be divisible into two or more grammatical sentences as is the case for the regular serial verbs), they share the syntactic feature of V V with other serial verbs. Second, the term 'splitting' which does not seem to have a place in grammatical analysis does indeed apply to other serial verbs whereby the object is placed somewhere between the first verb and the other verb(s) in the serial phrase as illustrated in the following:

(12)a Olu jí omi **mu**

Olu steal water drink

'Olu stole some water and drank it'

b Ojo **sáré gbé** omo **fún** Bola

Ojo run carry child give Bola

'Ojo hurriedly gave the child to Bola'

Given the scenario illustrated above, if any distinction needs to be made among serial verbs, compositional versus non-compositional seem more appropriate than 'splitting'. I conclude therefore that the VP is either a single verb or a sequence of two or more verbs with optional modifiers and/or objects. The next section is devoted to a more detailed discussion of serial verbs.

3.2 Serial Verbs

Serial verb constructions are sequences of two or more verbal expressions within the same complex clause which is usually divisible into two or more simple clauses. These verbs have the same general syntactic properties as the single item VP. Usually, whatever modifier is present in the construction is shared by all the verbs in the series. Verbs have to be ordered according to the sequence of actions and/or events which they denote. The literature on serial verb constructions in Yoruba and other West African languages is already so enormous (see Lord 1989 for references) there would hardly be anything new to add to what has been said, at least for the purposes of this work. The reason for mentioning serial verb constructions at all is to demonstrate that the word formation algorithm being proposed here will extend to all verb phrases in Yoruba. So, we will only give typical examples of serial verbs and test the structural properties in such examples against this claim. Consider the following examples of serial verb constructions:

(13)a. ó mú iwé wá

3PS take book come

'He brought a book'

b. Olu lo aṣo náà gbó

Olu use cloth the worn out

'Olu used the cloth and it became worn out'

(14)a. ó nsún ló

3PS sleeping go

'He is falling asleep'

b. obè náà dún tó

stew the sweet enough

'The stew is delicious enough'

c. ó sọ fún mí

3PS say give me

'He told me'

Historical analysts (Lord, 1989 for instance) claim that some elements within serial verb constructions may have evolved from verbal status to the point where they are only used for marking grammatical relations as shown with the **ní** 'to have' in the following:

(15)a Olu fún mí ní owó

Olu give me **ní** money

'Olu gave me some money'

b. Olu dá mí ní apá

Olu break me **ní** arm

'Olu broke my arm'

c. Olu rán mi ní isé

Olu send me ní work

`Olu sent me on errands'

Constructions like those in (15) cannot occur without the ní.

Some other verbal particles only occur as heads of VPs while accompanied by other verbs or some other category that evolved from a verb.

(16)a. ó fi owó sí enu

3PS put money ?open mouth

`He put money in the mouth'

b. *ó fi owó

(17)a. Olu bá mi lọ

Olu follow me go

`Olu went with me'

The foregoing illustration of serial verb constructions is enough to show that for the purposes of this work, serial verbs tend to share configurational features that are similar to the ones found in all VPs. They will fit into the phrase structure rule in (8) to the effect that a VP contains INFL and optional PP adjuncts. The only distinction between a basic VP and the serial type is that there is only one main verb in the former while the latter usually contains at least two verbs. The recursive property of

rules such as the one stated in (8) should account for this difference as shown in (18).

(18)a. VP → INFL V (NP) (PP)

b. VP → V VP

Given the foregoing discussion, it is expected that if the claim that Yoruba nouns are derivable from VP bases is correct, there should be no problem with serial verbs participating in the nominalization process. Evidence to support this claim will be provided in the rest of this chapter first by discussing another INFL element in the next section following which an illustration of affixation processes will be presented. Note that at this point, the goal is to show what type of VP bases participate in affixation. A more systematic presentation of prefixes and word derivation is done in the next chapter.

3.3 Negation

Negation is expressed by the use of the **kò/ò**, **kì** or **mà** in various contexts as illustrated next.

kò which also occurs as **ò**, negates a simple, basic tense (past, future, continuous) clauses

(19) Ojo **kò** n_{lò} l'ójoójúmó

Ojo NEG n-go daily

'Ojo does not go everyday'

(20) Ojo **kò** lò (lanàá)

Ojo NEG go

‘Ojo did not go’ (yesterday)

For the perfect, the tone changes in the perfect marker **tí** as follows:

(21) Ojo kò **tí** lò

Ojo NEG PERF go

‘Ojo has not gone’

For the future, another element **ní** is used (in place of **máa**) in conjunction with the

kò negator:

(22) Ojo kò ní lò (lólà)

Ojo NEG ní go

‘Ojo will not go’ (tomorrow)

kí negates a clause in the habitual aspect, usually to express a statement that remains true for all times such as the type used in proverbs.

(23) A kíí jeun nílé òtá eni

one NEG eat at-house enemy one

‘One does not eat in the residence of one’s enemy’

má the third negation particle is used with imperative clauses as follows:

(24)a má lò `don't go'

NEG go

b Sò fún Ojo pé kí ó má lò

tell give Ojo that SUBJUNCTIVE he NEG go

`Tell Ojo that he should not go'

Negation is marked with a different morpheme in lexical contexts in Yoruba. Some discussion of this asymmetry is presented in Adewole (1992) which is discussed next.

3.3.1 Adewole (1992)

In his discussion of negation in Yoruba, Adewole (1992:78) notes that the **kò** negator occurs in sentences but not in words. He cites the following examples (with modifications):

(25)a Olu **kò** korin **mó**

Olu NEG sing again⁴

`Olu no longer sings'

⁴ **mó** is glossed as "again" or "more" only in this context, within the scope of the negator **kò** to render "no longer" or "not any more". Adewole's analysis seems to overlook this point, and this is partly why his conclusion is not adequate.

b. *Olu se aláìkorin mó

Note that the connection between (25)a and b is the nominalization of the verb **korin** 'sing' in a. to **aláìkorin** 'the fact of not singing' in b. Adewole then observes that "The non-cooccurrence of the the negative form **aláìkorin** ... and the negative adverbial **mó** ... can be explained by the fact that **aláìkorin** ... is a nominal derived from the verb **korin** ..." (1992:79) thus

(26) oní + àì + korin

It will be shown in the analysis being developed here that Adewole's "explanation" only begs the question. First, note that the so-called "non-cooccurrence" is non-existent given the following:

(27) Olu kò se aláìkorin mó

Olu NEG do non-singing again

Olu has given up his non-singing attitude

So the issue here is that **mó** will not be grammatical without a preceding negator (cf footnote 4. This renders Adewole's explanation moot. Secondly, the analysis of the derived word given in (26) which agrees with the traditional trend in Yoruba grammar does not adequately describe the internal structure of the word which in the present framework is as in (28).

(28) o + ni + NEG + NOM + VP

I will provide further evidence and more detailed discussion in the next chapter to support this analysis

The key question still has to do with why the NEG element occurs in two different forms within the word and within the sentence. Interestingly, all the examples given by Adewole will justify the claim of complementary distribution being made here. I cite such examples next.

(29)a O se é kò gbowó

3PS do it NEG get money

S/He did it without getting any money

b. àse-è-gbowó

PREF-do-PREF-get money

That which is done for no financial reward

c. O se é kò gbowó mó

3PS do it NEG get money again

S/He did it without receiving money any more

d. O se àse-è-gbowó

3PS do PREF-do-PREF-get money

S/He engaged in a gainless ventures

e. *O se àse-è-gbowó mó

3PS do PREF-do-PREF-get money again

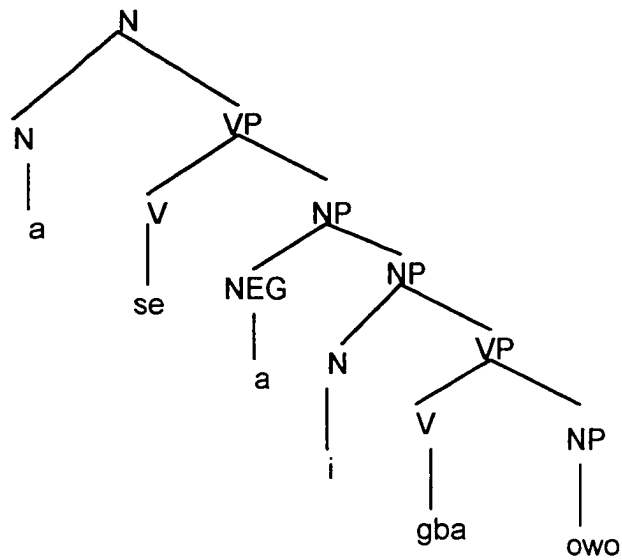
But note that as predicted following (27) above, (29)e will be grammatical with the negator in place.

- (30) Kò se à-se-è-gbowó mó
 3PS/NEG do PREF-do-PREF-get money again
 S/He is no longer engaging in gainless ventures

Adewole attributes this asymmetry to the nominalization of the **kò** negator. Again, this is not true as it is the whole VP (and not just the NEG morpheme) that is nominalized. The negator **kò** just does not occur in words but there is a NEG morpheme (to be shown shortly) in the noun that is derived from the VP that contains it. And, wherever there is no preceding **kò**, the presence of **mó** is equally ruled out. Various other analysts (Awobuluyi, 1972; Banjo, 1974; Nagucka, 1978; and Bamgbose, 1986) have drawn conclusions that are similar to the claim being made here (see Adewole (1992) for details).

Going back to the derivation of the nominalization of the negative VP containing the **kò**, Adewole's claim that "It may be the case that because of the deletion of the consonant /k/ of **kò** ... and the (subsequent) assimilation of the stranded vowel /o/ into the vowel preceding it ..." (p. 81) has no basis within the morphophonological system of Yoruba. We propose here the following derivation for à-se-è-gbowó.

(31)



Pulling down all the nodes on the tree, we have the following:

(32) à-se-à-i-gbà-owó

NOM-V-NEG-NOM-V-N

To derive the surface form, assimilation and vowel deletion will apply as shown next.

(33)	à	<u>s</u>	e	à	i	gb	à	o	w	ó	→	à	<u>s</u>	e	è	gb	o	w	ó	
	V	C	V	V	C	V	V	C	V			V	C	V	V	C	V	V	C	V

Now, we return to the rest of the discussion on the categories that are not found in the VP bases for derived nouns.

3.4 VP and Affixation

Specifically, we will need to identify how all the constituents of the VP fit into derived words which take such VPs as bases. If there is any constituent that will not remain part of a VP which undergoes affixation to form nouns, we will need to explain why such a constituent would not fit. The possibility that there are features of the VP that will not occur in lexical contexts should be a source of support for the claim that VP-based derived nouns are different from phrases even though there are features that are common to both. The question then is: What are the specific properties of the elements that are ruled out of such VPs? Consider the following:

(34) mo **tí** lò `I have gone'

I PERF go

(35) Olu **máa** lò `Olu will go'

Olu FUT go

(36) Ojo **n**lò `Ojo is going'

Ojo n-go

All the boldfaced items in (34) to (36) are not allowed in the VP base of a derived noun. For instance, the verb lò can form nouns by way of affixation but not with any of the markers. In the following illustrations, various nominalization prefixes are

introduced. Pending the detailed analysis of such prefixes in the next chapter, any item PREFIX+VERB can be glossed as a rough equivalent of the 'gerundive -ing' form of the verb in English.

(37)a i-lo 'the fact of going' (*i-ti-lo, *i-máa-lo, *i-n-lo)

b à-lo 'departure' (*à-ti-lo, *à-máa-lo, *à-n-lo)

The second aspect of word derivation in Yoruba is reduplication which has as one of its productive types the copying of the first consonant in a verb as a prefix. It is also the case in this process that none of the tense/aspect markers would be allowed.

(38)a lí-lo 'the act of going' (*lí-ti-lo, *lí-máa-lo, *lí-n-lo)

Some of the other modifiers illustrated earlier in this chapter denote reference to time. These forms are not allowed either within VPs when they take prefixes to form nouns.

(39) Olu lo sí oko lánàá

Olu go to farm yesterday

'Olu went to the farm yesterday'

*ílo sí oko lanaa Olu

'The yesterday going of Olu to the farm'

.It seems to be the case that the VP that participates in the nominalization process is most likely to be without any of the INFL elements. How about the NP constituent within the VP? This question is considered next.

3.5 Reference and Specificity

In the foregoing discussion on modifiers, I illustrated the ungrammaticality of nouns derived from VPs that carry INFL and adverbial elements, particularly adverbs of time. It is also the case that most other forms of reference are not allowed within VPs if they participate in the nominalization process.

I present the following data, first, to show that serial verbs can occur as VP base for words as long as the internal requirements of the verbal head are satisfied (so ungrammaticality in such constructions is not necessarily due to their serial nature). Second, some other items (pronouns and determiners) are added to test if they are allowed within words:

(40)a. ó sò fún mí

3PS say give me

'He told me'

b. a-sòfúnmi (*a-sòfúnmi)

agent-tell one

'one who tells others'

(41)a. Olu lo aṣo náà gbó

Olu use cloth the worn out

'Olu used the cloth and it became worn out'

b. a-losogbó (*a-losonáàgbó)

agent-use cloth wear out

`one who uses clothes until they wear out'

The clear contrast in (40)b and (41)b indicates that pronouns and determiners are not allowed within derived words. Now, we know at least some of the elements of the VP that are not allowed within words. The phenomena observed in the foregoing data seem to support certain claims made by Di Sciullo and Williams (1987) regarding the "generic" property of words. We turn to this crucial property of words in the next section.

3.5.1 The Generic Property of Words

To support their notion of the "atomicity" of words, Di Sciullo and Williams (1987:50ff) claim that words are "generic" in a way that phrases are not. By this is meant that words do not allow reference to time. They compare the word *robber* and the phrase *man who is robbing the bank* and claim that the sentence *John is a bank robber* would not mean 'John is robbing a bank at this very moment'. So, "*Robber* seems to denote a permanent property, whereas *is robbing a bank* is completely timely" (p. 50). Di Sciullo and Williams then observe the possibility of the qualification such as in '*That one time, John was the bank robber and Bill was the getaway man*' where *robber* will be seen as a temporary expression.

It appears the qualification being made is not crucial as such if we consider the fact that it is not only time reference but all adjuncts that are ruled out within words. So the adjunct *that one time* in the last sentence above modifies the fact of being a robber, a phrase, and not *robber*, the word. There is no such word as **robber-that-one-time* or **robber-quickly*. The observations made above about derived words in Yoruba seem to agree with this general claim.

Di Sciullo and Williams observe further that words also constitute "referential islands" for proper nouns and pronouns. So, there is no *it robber* where *it* refers to a bank or *Bill robber* to denote 'one who robbed Bill'. With these observations on English from Di Sciullo and Williams, which may well turn out to be a language universal, we can account for why some constituents cannot be part of words in Yoruba. Consider next some illustrations of these facts with the derived word **ìbànújé** which has as its base a splitting verb **bàjé** 'spoil' which when analyzed into its two parts would not make much sense:

(42)a. ì-bà-inú-jé → ìbanújé

prefix-?-stomach-? (bàjé = spoil)

'sadness'

b. Olu banújé 'Olu became sad'

c. ìbànújé Olu 'Olu's sadness'

Compare the following where the N complement has been altered:

(43)a. Olu ba Ojo jé

Olu V₁ Ojo V₂

'Olu destroyed Ojo'

b. *ibaOjojé

c. *abaOjojé

(43)b. and c. represent an attempt to form nouns from the VP in (43)a. The prefixation of {i} in b. should normally derive consequential or action nouns while the {a} in c. would be agentive when it is rightly constituted. These prefixes and others will be fully discussed in the next chapter. Both are possible but with a variation in the internal structure of the VP. The generic word eni with a possible gloss 'person' or the impersonal 'one' in English usually replaces a proper noun as the noun object in a word. So we have the following:

(44) ibanijé 'the act of destroying somebody's reputation'

(45) abanijé 'one who destroys others'

It is not possible to have **ba eni je** as an independent VP however (i.e in a sentence without another predicate or a determiner).

(46) *Olu ba eni jé

But compare:

(47) Olu jé abanijé

Olu be N

`Olu has the tendency to destroy others' reputation'

or

(48) Olu ba eni kan jé

Olu V₁ person one V₂

`Olu destroyed one person's (or a certain person's) reputation'

Pronouns are not allowed either, within derived words as shown next:

(49)a. Olu bà mí jé

`Olu destroyed me'

b. *ibàmijé

c. *abàmijé

As shown above with **ibànújé** (lit. 'destroy stomach' = **ba inú jé**), any other N object of the verb can constitute part of the derived word.

3.6 Conclusion

In the sketch presented above, I have described the relevant aspects of the verbal group within the context of word formation. It has been shown that there are two basic groups of verbs which can serve as base for derived nouns: the single verb

and the serial verb. Both types take the same kind of modifiers, most of which may not occur with them as bases for derived nouns. Items that are constrained out of the VP base are identified as those that violate the need for the verbal stem to be generic. This provides the necessary background for the discussion on affixation which is fully dealt with in the next chapter.

CHAPTER 4

AFFIXATION

4.0 Introduction

Prefixes play a major role in the formation of Yoruba words. Most of the prefixes attach to verbal forms to derive nouns. It will be shown here that the only affix which has been mentioned in other analyses (Folarin 1987 for instance) as taking nominal arguments has a structure {affix+Verb}. This formative is {**oní**-}, glossed as 'one who has'. It is divisible into {**o**-} 'prefix' and {**ní**} 'to have' but **oní** does not occur alone as a word. Based on evidence from data to be presented in this chapter, I will propose a uniform underlying form for derived nouns in Yoruba as follows:

- (1) N → Prefix + VP

The claim is simply that every derived Yoruba noun has an underlying binary node structure which has a prefix as head and a verb and all the internal arguments of that verb as complement. The verbal complex has properties of verb phrases but they are restricted in certain ways. I will build on the remarks made in the latter part of chapter 3 with respect to the fact that the restrictions on these phrases are

attributable to their presence within words and there is no reason to treat them as different from any other phrase within the language.

The rest of this chapter is organized as follows: First, I present an outline of basic assumptions regarding affixes in general. This will enable a revision of the statement in (1) to reflect the formal properties of prefixes in Yoruba. Second, I discuss the possible affixes in Yoruba using observations in earlier work by Awoyale (1974, 1981) and Folarin (1987) as point of departure. I introduce in this section the hypothesis that there are only prefixes (and no infixes as claimed by Awoyale and others) in Yoruba. I then provide a classification of derived nouns in Yoruba as determined by the semantic properties of their affixes.⁵ Finally, I propose an analysis for all derived nouns which basically shows that every Yoruba noun formed from prefixation has a binary structure as shown in (1) above.

4.1 Structural Properties of Affixes

Affixes do not exist by themselves; they only make sense within the context of a sister category (the base or stem). It is also true however that affixes have certain properties which they contribute to the word derivation process. Without the information contributed by the affix, most WFRs may not have any value. The

⁵ *Classification* is used here loosely to mean grouping based on morphological processes and not to be understood as equivalent to noun classes in certain languages (eg. Bantu). While it is quite possible there might have been some kind of noun classification in Yoruba, it is not the intention here to make such a claim.

question then is what such properties are that affixes add to the bases to derive new words. To answer this question, we need to consider the following: a) the relationship between the affix and the base (domain of productivity); b) the relationship between the affix and the derived word and c) phonological or semantic features of the affix. These properties are considered, next, in that order.

4.1.1 The Affix and its Base

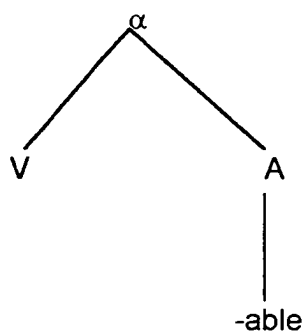
Every WFR has a domain of application which also constitutes the base to which the affix is attached. The base belongs to a syntactic category which has to be identified as part of the lexical entry for the affix in question. For example, the **-able** suffix in English attaches to verbs. So, we can have a subcategorization frame which states this information as follows: [Verb ____] (Selkirk, 1982: 60ff). The X-bar level of the sister category may also be stated as part of the subcategorization information. As a follow-up to the discussion on VPs in the last chapter, I will show in this chapter that Yoruba affixes (prefixes) take sister categories that have both lexical and phrasal statuses. Thus, pending further discussion, the general frame for the prefix in Yoruba may take the form [____ VP]

4.1.2 The Affix and the Derived Word

Every WFR produces an output which, on a syntactic tree, dominates the nodes occupied by the affix and the base. Such outputs are also identifiable as members of some grammatical category, in most cases different from that of the base. The

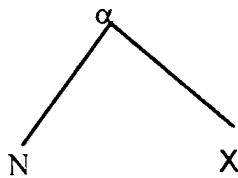
lexical entry for the affix has to contain the category name of the derived word. For example, the suffix **-able** produces adjectives from its combination with verbs in English. In most derived words, the derivation does not occur unless an affix is added to the base whose syntactico-semantic features are thereby altered. That being the case, it makes sense to assume that affixes which introduce such changes are heads following various theories of heads in morphology (Williams 1981; Selkirk 1982; Di Sciullo & Williams 1987). This tells us two things about affixes: first, that affixes may be classifiable like other lexical items into syntactic categories such as N, V, Adj, and so on, and secondly, the derived word in any WFR application belongs to the same category as that of its affix. Thus, for **-able** we have the following:

(2)



The tree in (2) identifies a suffix **-able** which attaches to verbs to form a certain category α whose identity may be derived from the features of **-able**. The derived words being described here all have prefixes (no suffixes) and they are nouns. So we can have a frame such as (3) for a typical prefix in Yoruba:

(3)



Just what constitutes N and X in (3) is the key objective of the description being presented in this chapter.

How do we reconcile the assignment of affixes to syntactic categories with the fact that other morphemes of different lexical status also share the same property? This crucial distinction is embedded in the structural properties of affixes. Di Sciullo & Williams (1987:24ff) observe that if affixes are heads, we only need to know the location of the head to determine the status of each category mentioned in a statement. This may pose problems for languages such as English where the process of affixation is bi-directional (i.e. involves prefixes and suffixes) but for a

language like Yoruba which generally has affixes in a uniform direction, there may not be any need to make a separate statement with regards to the distinction between the two Ns in the following statement:

(4) $N \rightarrow N VP$

which defines a Noun as consisting of another nominal element (a prefix, given the definition of prefixes) and a VP.

4.1.3 Semantic/Phonological Properties

The meaning of the derived word is a function of the meaning of the base and that of the affix. Affixes thus have semantic features which are listed as part of their lexical entry. Such information is crucial in this study since the morphological typology being proposed for derived nouns in Yoruba is based (mainly) on the semantic information of the prefixes. Thus, when X, an N prefix is added to Y, a VP to derive Z, Z is in a morphological class named after the semantic properties of X. This seems to follow from the status of affixes as heads in derived words. Phonologically, Yoruba prefixes are distinct from other parts of the word in that they are constituted by single vowels. The minimal word in the language has a CV syllable structure. Also, there is a set of prefixes whose major distinctive feature is tone. This will be considered in the categorization process which comes later in this chapter. Next I turn to specific data that illustrate prefixes in Yoruba.

4.2 Prefixes

Awoyale (1981:140), citing earlier work (1974:390) lists "seven main ways by which nominal compounds are formed in Yoruba" of which the first groups are copied with original comments and glosses in (5). The **e-/e-** set, which is not on Awoyale's list, has been added for completeness.

(5) "Prefixation attached to a predicative phrase":

- a. à- factive nominal
- b. i- non-factive nominal
- c. a-/o- agentive nominal
- d. ò-/ò- agentive nominal
- e. e-/e- consequential
- f. Cí- gerundive nominal

The list in (5) covers most of the prefixes to be found in derived words in Yoruba. A basic assumption of this work is that morphological types can be established for derived words based on the semantic features of the prefixes.

The fact that these prefixes are "attached to ... predicative" phrases seems to be an interesting feature of Yoruba morphology. Awobuluyi (1978:86ff) calls them "introducers" which "normally appear to the left of the elements they mark". Such elements, Awobuluyi claims, are verb phrases which he defines as "combinations of verbs and other things" such as objects. We will look into the appropriate definition

of this phenomenon in much deeper detail in an attempt to show that they have certain properties that license their participation within such lexical contexts.

In describing the derivation of Yoruba words, Folarin (1987) proposes two groups of prefixes: class-changing and class-maintaining prefixes based on the following context-free rewrite rules:

(6) Prefixation rules (Folarin 1987:51)

- a. $N \rightarrow \text{pre } Vb$
- b. $N \rightarrow \text{pre } VP$
- c. $N \rightarrow \text{pre } N$

All but one (the {**oni**-} mentioned in 4.0 above) belong to the first two (class-changing) groups. I will attempt to show here that there is no need for such a division. I will simply call the result of affixation processes DERIVED WORDS which are analyzable into prefix(es) and stem(s). Following the proposal above and further discussion to be developed in the course of this chapter, I assume here that the only rewrite rule needed for all derived words is the following:

(7) $N \rightarrow N \ VP$

Such a rule which says a noun is derived from the affixation of a noun prefix to a VP is based on the assumption that affixes bear the category of the whole word. The main focus then will be to justify the analysis by explaining the presence of the VP

within a lexical, sub-phrasal structure. This issue which was partially dealt with in the last chapter will be further elucidated in this chapter.

Now, we will look into the details about the prefixes which participate in the derivation of Yoruba words. Most of the descriptive facts about prefixes have been taken from Abraham's (1962) dictionary and some of the examples are from Awobuluyi (1978:88ff).

4.2.1 Prefixes and Morphological Types

I will attempt in this section to show evidence for a systematic categorization of Yoruba derived nouns based on features of prefixes. Each prefix is discussed with examples. Based on the properties manifested by the word, we will define a number of (morphological) classes. Such properties are either syntactic (what type of verb does each prefix subcategorize for?) or semantic (what kind of thematic role is represented in the word after a prefix attaches to a word?). Phonological features (eg. tone) will also be considered in defining these classes. A basic rule of phonology in this regard is that prefixes can take only the M or the L tone as there are no indigenous Yoruba words with H-tone initial. Now we look at the prefixes.

A. {a-} - Agentive 1

{a} denotes agentive when it attaches to a verb to give the meaning "doer of an action" or "one who is in a state of verb". This prefix takes a mid tone. Some examples follow in (8).

(8)a. a + pa eja⁶ → apeja

'kill fish' 'fisherman'

b. a + pa ènìyàn → apànìyàn

'kill person' 'murderer'

c. a + dá ejó → adájó

'create case' 'judge'

d. a + kọ iwé → akòwé

'write book' 'secretary'

e. a + fọ ojú → afọjú

break eye 'blind person'

f. a + di etí → adití

block ear 'deaf person'

⁶ Any apparent verb with 2 or more syllables is either a VP of the type V(erb) N(oun) or V (N) V (cf. chapter 3). Only the morphemic analysis of such verbs are shown here. The details of vocalic processes which determine their internal structure are discussed in chapter 2.

g. a + sé owó → aséwó

change money 'prostitute'

h. a + rú gbó → arúgbó

spring wear out 'old person'

i. a + bi iké → abuké

bear hunchback 'hunchback'

j. a + bi oyún → aboyún

bear pregnancy 'pregnant person'

k. a + bi ilé okó → abiléko

?bear house husband 'married woman'

Most verbs in the above category consist of a transitive verbal head and its argument.

B {a-} - Instrumental

The second group of nouns contains terms which denote tools or implements that are used in an action. Most verbs here have either lost their transitivity or they just do not occur with internal arguments.

(9)a. a + dé → adé

'wear' (on the head) 'crown'

b. a + be → abe
`peel/cut' `razor blade'

c. a + jò → ajò
`sift' `sieve'

d. a + gba oòrùn → agboòrùn
take sun `umbrella'

e. a + sé → asé
distill `distiller'

f. a + gbòn → agbòn
shake `basket'

g. a + gbè → agbè
gather (liquid) `gourd'

C {à-} - Consequential-1

This prefix attaches mostly to intransitive verbs to yield words meaning the result of the action or state expressed by the verb. The transitive verbs in this class do not require noun complements but some are accompanied by other verbal elements thereby constituting a serial sequence.

(10)a. à + lò → àlò
`to go' `departure'

b. à + b̀ò → àb̀ò

`to return' `return'

c. à + j̀o s̀e → àj̀ose

`together' `do' `collaboration'

d. à + p̀è j̀e → àp̀èj̀e

`call' `to eat' `feast'

e. à + gbo → àgbo

`squeeze' `concoction'

f. à + s̀e → às̀e

`be fulfilled' `order'

g. à + pa gbé → àpagbé

kill outrightly `complete elimination'

D {è-} - Consequential-2

This prefix takes monosyllabic verbal stems to form nouns which also appear to be mostly result nouns. The members of this class are semantically very close to the consequential {à} nouns listed in C above. The prefix has alternants **e** and **è** as required by Vowel Harmony. Most verbs are intransitive.

(11)a. è + t̀ò → èt̀ò

`arrange' `arrangement'

- b. è + so → èso
 `bear fruit' `fruit'
- c. è + lé → èlé
 `be surplus' `surplus'
- d. è + gàn → ègàn
 `deride' `derision'
- e. è + kún → èkún
 `be full' `fullness'
- f. è + bè → èbè
 `plead' `plea'
- g. è + jé → èjé
 `answer' `pledge'
- h. e + bọ → ebo
 `worship' `sacrifice'

E {i-} - Consequential-3

This prefix attaches mostly to intransitive verbs to yield words meaning the result of the action or state expressed by the verb in the same way as the {à-} consequential.

Prefix tone is mostly M which changes to L when the first vowel in the stem is either [-ATR] or [+nasal].

(12) a. $\dot{\text{i}} + \text{só} \rightarrow \text{isó}$

`break wind' `the act of breaking wind'

b. $\dot{\text{i}} + \text{kú} \rightarrow \text{ikú}$

`die' `death'

c. $\dot{\text{i}} + \text{tò} \rightarrow \text{ìtò}$

`urinate' `urine'

d. $\dot{\text{i}} + \text{fé} \rightarrow \text{ifé}$

`love' `love'

e. $\dot{\text{i}} + \text{rìn} \rightarrow \text{ìrìn}$

`walk' `walk'

f. $\dot{\text{i}} + \text{yà} \quad \text{òtò} \rightarrow \text{ìyàtò}$

`become' `contrast' `difference'

F. {i-} Action

This class forms action names from transitive and intransitive verbs. Prefix tone is either M or L. Verbs are either intransitive or compounded from the combination of a simple transitive verb and its argument.

(13)a. $\dot{\text{i}} + \text{jà} \rightarrow \text{ìjà}$

`to fight' `a fight'

b. i + jó → ijó

`dance' `dance'

c. i + ya enu → ìyanu

`open' `mouth' `surprise'

d. i + gbà i yàn `ojú → igbiyànjú

`take' PREFIX `appoint' `eye' `effort'

e. i + gbé ara ga → ìgbéraga

`carry' `body' `tall' `pride'

f. i + kó ara eni ni i já enu → ìkóraeniniíjánu

`gather' `body' `person' in PREFIX `break' `mouth' `self discipline'

g. i + se òwò → ìsòwò

`do' `trade' `trading'

h. i + gbà gbó → ìgbàgbó `belief'

take hear

i. i + re etí → ìrètí `hope'

? ear (to hope)

G. {i-} - Implement

This is another low-toned front, high vowel. It attaches to verbs to denote implements. In most cases, the verbs consist of a transitive head and the patient that receives the action of the implement.

- (14)a. $\dot{\text{i}}$ + kó ilè → ikólè
 `collect' `dust' `dust pan'
- b. $\dot{\text{i}}$ + gbá ilè → igbálè
 `kick' `dust' `broom'
- c. $\dot{\text{i}}$ + bọ ọwọ → ibọwọ
 `insert' `hand' `glove'
- d. $\dot{\text{i}}$ + lù → ìlù
 `beat' `drum'

The basic difference between this set and the instrumentals under {a} is phonological. It is also generally the case that while most verbs take nominal arguments in this class, those in the instrumental class do not in most cases.

H. {i-} - Thematic

The nouns in this group are similar to the consequential nouns but they contain mostly human entities. Some of the members of the group may be treated as the animate counterparts of the instrument/implement classes.

- (15) a. ì + rán isé → ìránsé
 `send' `work' `servant'
- b. ì + je oyè → ìjòyè
 `eat' `title' `chief'
- c. ì + bí èjì → ìbejì
 `beget two' `twins'
- d. ì + gbà ìmò → ìgbìmò
 `take knowledge' `committee'
- e. ì + jo → ìjo
 `gather' `congregation'

I. {ò-} - Agentive 2

The {ò} prefix takes stems of no more than two syllables to form nouns with reference to human entities as shown next. By the requirements of Vowel Harmony, this prefix is o or ò. The tone is L, without any variation. Verbs may be transitive or intransitive, though the transitives are extremely few. Like the {a-} of the Instrumental above in B, some transitive verbs may go without objects.

- (16)a. ò + kú → òkú
 `die' `corpse'

b. ò + bí → òbí

`beget' `parent'

c. ò + sisé → òsisé

`to work' `worker'

d. ò + ta → òta

`play' `expert player'

e. ò + pè → òpè

? `novice player'

f. ò + le → òle

`be lazy' `lazy person'

g. ò + se ilú → òsèlú

`do town' `politician'

h. ò + là ojú → òlàjú

`open eye' `civilized person'

i. ò + se eré → òsèré

`do play' `player'

j. ò + dá òràn → `òdaràn

`create trouble' `trouble maker'

k. ò + gbó ojú → ògbójú

`brag eye' `bravado'

l. ò + mu otí → òmùtí
 `drink wine' `drunkard'

m. ò + dà ilè → òdàlè
 `turn ground' `traitor'

In the few cases where the verbs are transitive without objects, it is also the case that such verbs have the implied reading of generic, fixed objects. So in (16)b and d above we know that **bí** `beget' will always take the argument `child' and **ta** is the word for `to play' with specific reference to a particular group of games.

J. {o-} - Result

The nouns in this group are mostly result nouns: they express some sort of outcome of the action expressed by the verb. Prefixes share the same phonological properties as the ones listed in class I (Agentive 2) except for the fact that some of the prefixes in this class have the M tone. Most of the verbs are intransitive.

(17)a. o + di → odi `fortification'
 (di = ?constitute an obstacle)

b. o + sù → osù `month'
 (sù = ?roll into a whole or block)

c. o + gbó → ogbó `old age'
 `wear out'

d. ò + wón → òwón 'scarcity'

'be scarce'

e. ò + pò → òpò 'abundance'

'be many'

f. ò + dá → òdá 'dryness'

'be dry'

g. ò + là → òlà 'wealth'

'be rich'

h. ò + gbìn → ògbìn 'plant'

'to plant'

From the above list of affixes and the nominal categories they represent, we have the following chart which summarizes the main properties of the derived nouns. The first column represents the labels for each class. The second column identifies the prefix. The third column provides information about the internal structure of the VP. Superscripts T and I indicate whether the verb (V) is transitive or intransitive.

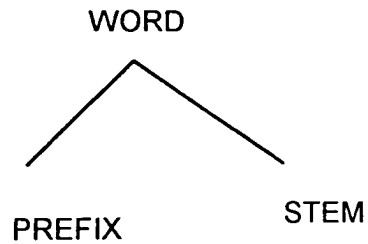
(18) Typology of Derived Nouns

CLASS	PREFIX	VP STRUCTURE
agentive-1	a	V+N
instrumental	a	V ^T (no object)
consequential-1	à	V ^T , V+V, V ^I
consequential-2	è	V ^I
consequential-3	i	V+N, V ^I
action	i	V ^T , V ^I
implement	i	V+N, V ^T
thematic	i	V+N
agentive-2	ò	V ^T , V ^I
result	o	V ^I

4.2.2 Morphological Structure of Prefixation

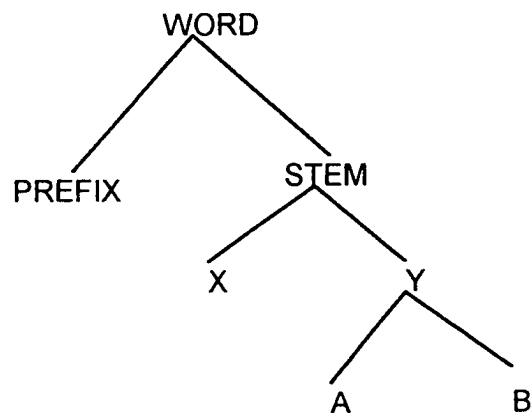
The structural representation for the above data should reflect the binary order of constituents within each word. I have cited some examples earlier. I will show next with a few more examples, a structure which accounts for the morphological operations discussed above. First, the structural representation of all derived words should be based on the following schema:

(19)



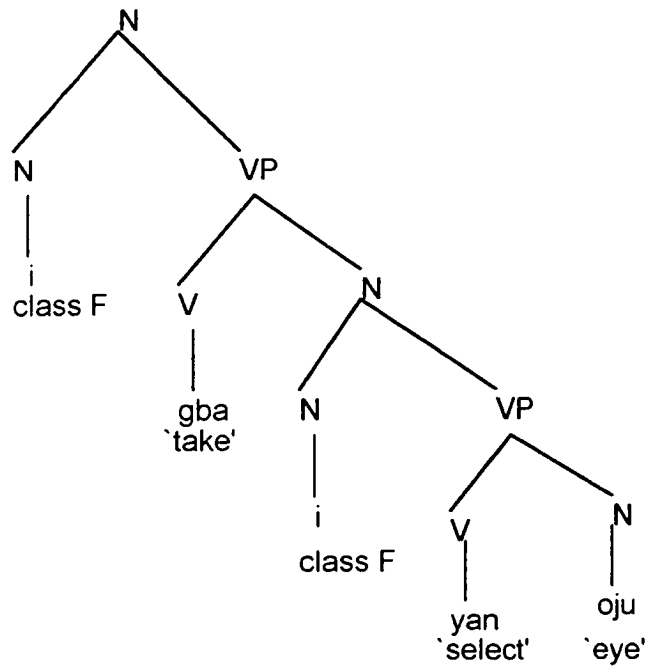
From the above examples, the prefix is a single, non-analyzable unit while the stem may be further analyzable (usually a phrase-like element whose further definition will be taken up later in this chapter). A fully specified structure should show therefore that the stem node has the potential to branch into smaller constituents as shown next.

(20)



To take a real example, consider **ì-gbiyànjú** 'effort' as shown next.

(21)



Next, I turn to some other items which have been identified as single unit prefixes in traditional Yoruba grammar. I want to show that the "prefixes" are indeed further analyzable in a more meaningful fashion by the criteria set in the foregoing analysis of noun classes. The first is {**ài**} and the second is {**oní**}.

4.2.3 {àì-}

This prefix is traditionally (Ekundayo (1976:239), Folarin (1987:56)) described as forming negative nouns from verb stems. Abraham (1962:33) observes that "this prefix negatives verbal nouns⁷ which have the prefix ì-"

(22)a. àì + gbón → àìgbón

'be wise' 'stupidity'

b. àì + jeun → àìjeun

'eat' 'lack of eating'

(je 'eat' + oun 'thing')

c. àì + ní ìdánìlójú → àìnídánìlójú

'have assurance' 'uncertainty'

(ì PREFIX + dá 'be clear' + ẹni 'person' ní PRT + ojú 'eye')

It is only appropriate to ask questions regarding the status of the prefix {àì}. Is it a complex morpheme? If it is a complex morpheme, what is it composed of? Following the data presented above, ì- part of àì- could belong to any of action, consequential-3, implement or thematic classes. The underlying notions are kept

⁷ Citing data from Akan (another West African language), Schachter (1985:10) defines verbal noun as "... a noun which is morphologically related to a verb, but which does itself occur as a verbal predicate". We will discuss this property further in a later section.

with the only difference being that the current set negates the earlier ones. So the {à} here stands for negation.

To better understand the status of the {à} as a negator, consider the following facts about the syntax of negation:

(23) Olu kò mò ìwé kà

Olu NEG know book read

'Olu doesn't know how to read'

from which we have:

(24) àimòwékà Olu 'Olu's inability to read'

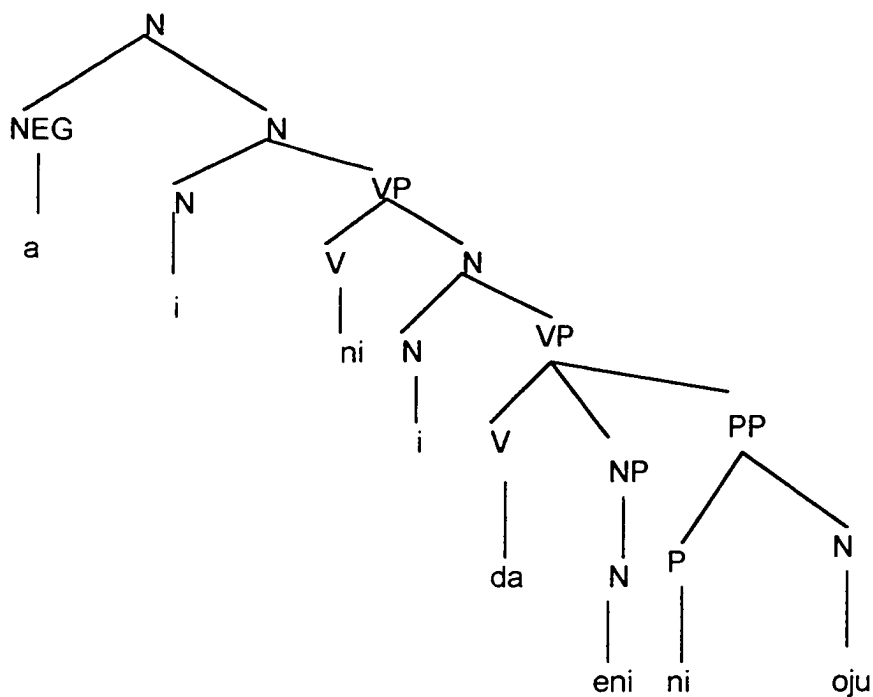
which will contrast with

(25) ìmòwékà Olu 'Olu's ability to read'

What we have then is a separate morpheme which requires a separate node for negation, thereby creating a separate category for such nouns. To illustrate this point, I show next the analysis for àinídánilójú 'uncertainty' {NEG have certainty}.

(26) à-ì-ní-ì-dánilójú 'uncertainty'

NEG-PREF-'have'-PREF-'be certain'



The other item that has been analyzed as a single unit which, within our framework, requires further analysis is taken up next.

4.2.4 {oní-}

Folarin (1987) calls this the "only class-maintaining prefix" because it is seen as attaching to a noun to form another noun. It is glossed as "the owner of" or "one who has" the noun to which it is a prefix. I would add that in several cases, the combination of {oní} with other nouns seems to yield the extended meaning of "doer of" that noun. This meaning is determined by the meaning of the noun (actually VP) which constitutes the base. I give some examples next.

(27)a. oní + ilé → onilé

‘house’ ‘landlord’

b. oní + íṣu → oníṣu

‘yam’ → ‘owner of yam’

Awoyale (1974:404) analyzes the **oní-** morpheme as composed of an agentive prefix **o-** and **ní**, the verb “to have”. In reviewing the various proposals about how to analyze **oní-** as a prefix, Folarin (1987:71) observes that there are some nouns in which **oní+X** may not be glossed as ‘one who has X’. For that reason, Folarin observes, the following examples may not be analyzed as having a stem ‘have X’ and goes ahead to propose {**oní-**} as a single unit. Here are the examples:

(28)a. oníṣòwò ‘a trader’ *níṣòwò

(ṣe owo = to trade; ṣe òwò = trading)

b. oníṣàngó ‘a Sango worshipper’ *níṣàngó

(Sango = god of thunder)

Folarin seems to be looking for total compositionality as the basis for morphological analysis. This problem is not attributable only to Folarin as the analysis of **oní** as a non-complex, single prefix is also found in other works on Yoruba. It may well be the case that this formative has evolved over time from a combination of the prefix **o** and the **ní** to constitute a single prefix especially given the data in (28). One could still go

against this trend however, based on two factors. First, total compositionality is desirable but it is rarely found within morphological systems. There are indeed other cases in Yoruba where there is only partial compositionality. So the fact that data such as illustrated in (28) are not compositional is not enough justification for failing to recognize the complex nature of **oní**. The second basis for my objection has to do with simplicity. If there is anything we can do to reanalyze this morpheme so that it can fall under the same general process as others, why make a case for separating it as the only one that takes a noun as a stem? The analysis being developed here will easily bring the **oní**- words under the generalization $N \rightarrow N VP$ which is going to be used to represent all derived nouns. Furthermore, the fact that two of the ten prefixes identified above for noun classes share the same phonological features as the first vowel in **oní** (all of them being single vowels attaching to VPs) is a clear pointer to the **o**- in **{oní-}** as a separate morpheme.

What class will **oní** words fit into? The most likely candidate is the agentive 2 class which is listed under **{ò}** above. The first indication for this proposal is that the descriptive title of this class (determined by the semantics of its nouns) seems to suit the multiple interpretation of **oní** words which include agent, possessor and a person who is in the habit of doing the action expressed by the verb. Secondly, there is clear phonological similarity between the **{ò}** of agentive 2 and the first vowel in **oní**. The tonal difference is not unusual. Note that the tone in the first vowel of **oní** is M

which has been analyzed as a default tone (Pulleyblank, 1986). This may also have something to do with the tendency for this vowel to assimilate to every vowel except the [i] in the initial slot of the base. To illustrate this, consider the following:

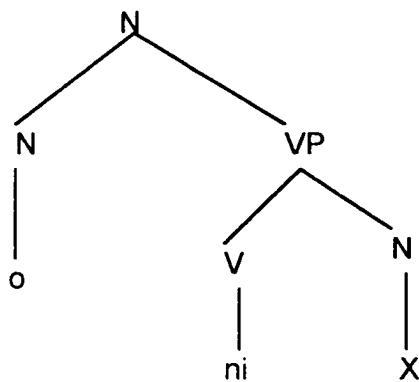
- (29)a. o-ní-òrun → Olórun
 agent-have-heaven 'God' ('the one who has heaven')
- b. o-ní-ègúnsí → eléègúnsí
 agent-have-melon → 'owner of melon'
- c. o-ní-agbára → alágbára
 agent-have-strength 'strong person'
- d. o-ní-etí → eletí
 agent-have-ear 'one who has ears'
- e. o-ní-ojú → olójú
 agent-have-eye 'one who has eyes'

As already demonstrated above, first the front high vowel is deleted, leaving its tone behind and the process of assimilation follows, also keeping the original M tone.

Awoyale's observation that {oní} is a unit of two morphemes seems closer to the truth. The only problem with Awoyale's analysis of oní words lies in the claim that there are two prefixes o and ní. Given the observation made so far about nouns that are formed from verbal stems in this work, we can improve on Awoyale's claim

by recognizing the categorial status of the two elements contained in **oní** which are an N prefix and a verbal head **ní** meaning 'to have'. This jibes perfectly with the N → N VP algorithm for the rest of the data. So a typical word will be represented as follows:

(30)



This analysis takes care of the exceptions noted by Folarin as follows:

(31)a. onísòwò 'a trader' *nísòwò

(sè owo = to trade)

b. onísàngó 'a Sango worshipper' *nísàngó

(Sango = god of thunder)

The example in (33)a - **onísòwò** is a case of an abstract noun forming the base as shown next.

(32) o + ní + ì-sòwò

have the act of trading

where the verb **ní** has acquired the extended meaning of doer in that context. The noun **isòwò** is derived from the combination of the abstract prefix **ì** and the VP **se òwò** (literally "do trade"). The productivity of this process is evidenced by other action nouns.

(33)a. onídírí 'hairbraider'

o + ní + ì + di + orí

plait hair

b. olúgbàlà 'savior'

o + ní + ì + gbà là

save

c. olúsègún 'native doctor'

o + ní + ì + se + oògùn

do medicine

d. olúwòsàn 'healer'

o + ní + ì + wò + sà̀n

look be healed

Similarly, the semantics of **onísàngó** (31b) is derivable as a consequence of extended meaning.

4.2.5 "infixes"

Awoyale (1974, 1981) and other Yoruba grammars have listed some items as infixes based on the position such items occupy within words. In his account, Awoyale makes the following observation:

"Infixation of certain monomorphemic elements between a nominal stem and its copy to express extent of time, degree, particularity, etc." (1981:140 - 141)

- (34) a. ì-gbà-kí-ì-gbà (ì-accept-kú-ì-accept) 'wrong acceptance'
b. ojó-dé-ojó (day-reach-day) 'for days'
c. ayé-rí-ayé (world-see-world) 'for generations'

Pulleyblank and Akinlabi (1988:152) also discuss another "infix" which seems to be one of the most productive. The morpheme is **má** as in the following:

- (35)a. a-nù-mâ-dàró (one who is not missed when he's absent)

PREF-be lost-NEG-miss

'an unimportant person'

- b. à-wá-mâ-ridī (that which is searched but not found)

PREF-search-NEG-discover

'unsearchable thing (mystery)'

c. a-pani-mâ-yodâ (one who kills without pulling a sword)

PREF-kill-NEG-pull out a sword

`silent killer'

As can be seen in the glosses above, **mâ** expresses negation in a word. It takes VP complements. Unlike the other so-called infixes listed above, this morpheme occurs between elements which appear on the surface as two VPs in a structure of the form shown in (36).

(36) a+VP+ma+VP

Pulleyblank and Akinlabi rightly draw an analogy between the distribution of the negation morpheme and the **kí** which is also found between two words to mean 'whichever or any' in the following way:

(37) N+kí+N

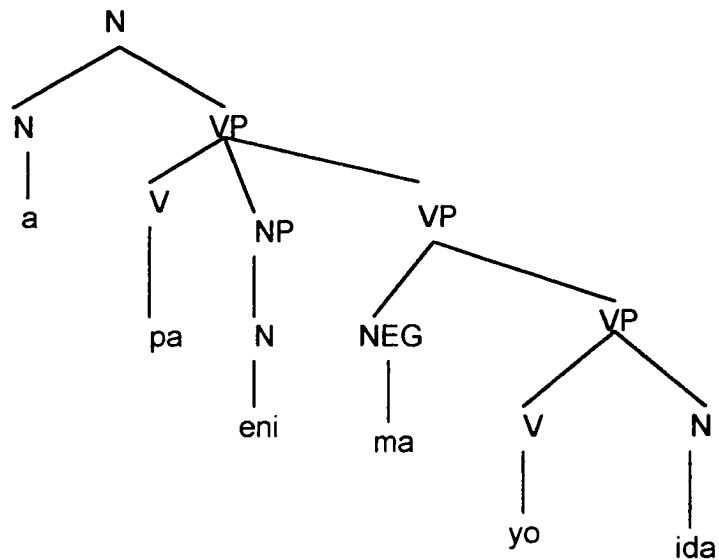
Given that a prefix attaches to the stem at the beginning and a suffix at the end, an infix will be expected to go somewhere inside the stem. The definition by Awoyale which specifies the location of these elements as "between a nominal stem and its copy" does not seem therefore to satisfy this distributional requirement for infixes. Secondly, it has been demonstrated earlier in this chapter that affixes are assignable to syntactic categories based on their features. Neither of the two "infixes" will satisfy this requirement.

It is my view that there are no such things as infixes in Yoruba. I will therefore analyze **kí** and the verbs between two Ns as part of a reduplication process. Reduplication is discussed fully in chapter 4. **má** is a negator that subcategorizes for the VP stem as shown in the following:

(38) a-pani-mâ-yodà (one who kills without pulling a sword)

PREF-kill-NEG-pull out a sword

`silent killer'



The "infix" **mâ** is shown above to be a part of the VP in a structure that indicates the presence of serial verbs in the VP complement in such words. In chapter 3, I

demonstrated the similarity between single item and serial verbs with regards to participation in derived words. The point was made that the key requirement is that the verb has to be in its generic form, without modifiers or specific nouns.

4.5 Conclusion

The foregoing discussion of affixation in Yoruba has been an attempt to show the internal structure of derived words. A number of features have been established: First, it has been demonstrated that derived nouns are categorizable into morphological classes based on combination of semantic, syntactic and phonological factors. Such determinant factors are mostly attributable to the prefixes in each case of derivation. It has been shown that derived words in Yoruba may be analyzed as combination of an N and a VP stem. The {oní-} and {àì-} which are traditionally treated as single units are each analyzed as consisting of a prefix with a stem verb which subcategorizes for Ns.

CHAPTER 5

COMPOUNDING

5.0 Introduction

This chapter is devoted to a description of compounding in Yoruba. Compounding is the word formation process which combines two or more elements of open lexical classes such as verbs, nouns and adjectives. The membership of such elements in the open class usually translates into their ability to constitute independent words. One would therefore expect to find features that have been outlined for derived words in chapter 4 in elements that combine to form compounds in Yoruba. This is one reason why this discussion on compounds has been arranged to come after the description of affixation.

5.1 Compounding in Yoruba

The discussion of compounds in Yoruba will be based on the general assumption that complex words have internal formal structure while the formatives from which such words are constituted share semantic relations. A classification of Yoruba compounding will thus be proposed based on such criteria as the type of lexical category involved in the process; the configuration of the elements and the resultant

effect on their (usually phonological) features; the lexical features of the compound produced from the amalgamation of the two (or more) formatives, and the semantic properties that will guide the interpretation of such compounds. We will consider the possible types and also answer the question regarding the productivity rate of compounding in the following sections.

The data being considered are mainly nouns and verbs, the major categories that constitute open classes in Yoruba. A compound noun (N) can be a combination of two or three nouns (N+N), or a noun and a verb (N+V). Each category is described based on the internal structural properties and semantic relations that exist among the components.

The remainder of the chapter is organized as follows: Section 5.2 deals with N+N compounds which are closely related to genitive NPs. The phonological features of vowel deletion and tone alteration are discussed in a way that shows how a proper understanding of one of these two phonological features may help to render an adequate account of the other. I also discuss data from the compounding process which involves *ibi* 'place' and other nouns. 5.3 contains a discussion of contrasts between compound nouns and genitive phrases to show that they manifest different phonological operations in spite of their common semantic base. In 5.4, I describe compounds of the N+V+N type and show that the algorithm of

N → N VP proposed for derived nouns in chapter 4 will also cover this type of compounds. Section 5.5 is devoted to compounds which involve derived nouns with the negation prefix.

5.2 N+N Compound

Many compound nouns are formed by the concatenation of two or three Ns. Most of the combinations are of the modified-modifier type where one N modifies the other. Compound nouns of this type are formed with the second N serving as an indicator of the type of the first noun. The first noun (N_1) names an entity X while the second noun (N_2) limits the universe of X by indicating a certain property Y which is one of all possible properties of X. Such cases are similar to possessive expressions where the modifier (N_2) possesses the modified (N_1) but it will be seen from the following examples that the semantic features of the modified N in compounds almost always exclude the ability to possess; they are mostly inanimate. In addition, the phonological operations which apply within compound nouns are different from those that apply within possessive NPs.

5.2.1 Phonological Features

Whenever N_2 starts in a vowel, thereby creating a vowel+vowel sequence within morphological boundaries, one of the two vowels deletes. There seems to be more cases where the second vowel (the first in N_2) deletes than those that delete the first

(the final vowel in N₁). The discussion of data which follows will also cover the process of tone alteration.

5.2.1.1 Second Vowel Deletion

(1)a. omi oje → omije 'tears'

water sap

b. omi inú → ominú 'doubts'

water stomach

c. aya oba → ayaba 'queen'

wife king

d. eran oko → eranko 'animal'

beast farm

e. eye ilé → eyelé 'pigeon'

bird house

f. erin omi → erinmi 'hippopotamus'

elephant water

g. omo owó → omowó 'infant'

child hand

It is remarkable that vowel deletion consistently affects the second vowel in noun compounds of the type listed above as the issue of vowel deletion in most other

constructions is usually not that straightforward (see discussion in chapter 2). None of the examples in (1) involve any tone alteration but it is also possible that the deleted vowel may take its tone with it, as illustrated next.

When the first vowel is H and the second is L the H stays.

(2) H+L → H

a. ojú + òde → ojúde 'open space'

eye outside

b. òpópó ònà → òpópónà 'pathway'

street way

c. orí isun → orísun 'source'

head flow

d. orí ìkì → oríkì 'praise name'

head praising

e. òtún òla → òtúnla 'day after tomorrow'

right tomorrow

A category of numerals - groups of 20 also manifests this tonal/vowel deletion process as illustrated in the following:

(3)a. ogún èjì → ogójì 'forty' ogún èta → ogóta 'sixty'

20 2

20 3

- b. ogún èrin → ogórin `eighty' ogún àrún → ogórùn `100'
- 20 4 20 5
- c. ogún èje → ogóje `140' ogún èjo → ogójo → `160'
- 20 7 20 8
- d. ogún èsán → ogósàn `180'
- 20 9

There is an additional rule of assimilation in (3) whereby the remaining vowel, the second of N₁ assumes all the features of the initial vowel of that noun. This will be further illustrated below along with other data that manifest assimilation.

Secondly, when the first vowel is H and the second is M, the post-deletion result is H.

(10) $H+M \rightarrow H$

- a. ewé obè → ewébè `vegetable'
leaf stew
- b. ewé odò → ewédò `moss'
leaf river
- c. èbá odò → èbádò `bank' (river)
side river
- d. ará ayé → aráyé `human beings'
native world

- e. ìgbèrí oko → ìgbèríko `suburb'
headrest farm
- f. òré òkùnrin → òrékùnrin `male friend'
friend man
- g. ará obìnrin → arábìnrin `sister'
acquaintance woman
- h. ògá ogun → ògágun `military officer'
chief war
- i. ojú ilé → ojúlé `family'
eye house
- j. etí ilé → etílé `suburb'
ear house
- k. òdó òmọ obìnrin → òdó mòbìnrin `young lady'
youth child woman
- l. orí ilẹ̀ èdè → orílẹ̀èdè `nation'
head land language

A M+L configuration usually produces a L:

(5) M+L → L

a. irun + àgbòn → irùngbòn 'beard'

hair chin

Numerals in groups of 200 are also known to manifest this tonal process. Consider the following data cited here only as examples of tonal configuration but will be repeated later for further discussion.

b. igba èjì → egbèjì '400' igba èta → egbèta '600'

200 2

200 3

c. igba èrin → egbèrin '800' igba àrún → egbèrún '1000'

200 4

200 5

d. igba èfà → egbèfà '1200' igba èje → egbèje '1400'

200 6

200 7

e. igba èjo → egbèjo '1600' igba èsán → egbèsán '1800'

200 8

200 9

f. igba èwà → egbèwá '2000'

200 10

The foregoing outline of data which delete the second vowel seems to boil down to the fact that there is a systematic relation between vowel deletion and tone alteration. Mostly, the three possible tones seem to give way to each other in the following order: H M L where the least likely to be deleted is determined by its pitch

height level in relation to that of the adjacent tone. An examination of data that delete the first vowel should either confirm or disprove this observation. This is done in the next section.

5.2.1.2 First Vowel Deletion

There is at least one case of first vowel deletion which leaves the H of HL behind:

(6) ògbó + eni → ògbeni 'Mister.'

elder someone

There are cases of first vowel deletion which goes with assimilation of the [+ATR] feature, a clear contradiction to the claim by Archangeli and Pulleyblank (1989, see discussion in chapter 2) that spreading involves only the [-ATR] feature.

(7)a. omo iye → omiye 'sibling'

child mother

b. omo + idan → omidan 'miss'

child virgin

The following data delete the first vowel, spread [+ATR] or the height feature of the second vowel, and, in compliance with the generalization regarding tone, the L tone is left behind in ML sequences.

(8)

a. igba èjì → egbèjì '400'

200 2

igba èta → egbèta '600'

200 3

- | | |
|--|--|
| b. igba <u>è</u> rin → <u>egb</u> <u>è</u> rin `800' | igba àrún → <u>egb</u> <u>è</u> rún `1000' |
| 200 4 | 200 5 |
| c. igba <u>è</u> fà → <u>egb</u> <u>è</u> fà `1200' | igba èje → <u>egb</u> èje `1400' |
| 200 6 | 200 7 |
| d. igba <u>è</u> jo → <u>egb</u> <u>è</u> jo `1600' | igba <u>è</u> sán → <u>egb</u> <u>è</u> sán `1800' |
| 200 8 | 200 9 |
| e. igba <u>è</u> wà → <u>egb</u> <u>è</u> wá `2000' | |
| 200 10 | |

egbèrin `800' is thus derived as follows:

- (9) igba + èrin → igb + èrin → egbèrin
- DELETION ASSIMILATION

Now, why is it that within the category of numbers the second vowel deletes in some (the 20s) while the first vowel deletes in others (the 200s)? For ease of reference, the data on the groups of 20 are repeated below to contrast the 200s above in (8).

- | | |
|--|--|
| (10)a. ogún <u>è</u> jì → ogóji `forty' | ogún <u>è</u> ta → <u>ogó</u> ta `sixty' |
| 20 2 | 20 3 |
| b. ogún <u>è</u> rin → <u>ogó</u> rin `eighty' | ogún àrún → <u>ogó</u> rún `100' |
| 20 4 | 20 5 |

c. ogún èje → ogóje `140' ogún èjo → ogójo → `160'

20 7 20 8

ogún èsán → ogósàán `180'

20 9

An answer to that question may indeed provide a clue to the behavior of vowel deletion in compound nouns in general. If that is the case, we will need to look into all the categories of N+N compounds to see if there is a possible pattern. Also, it will seem to make sense to keep the focus on the interaction between tones and the deleted vowels, in line with the generalization stated earlier.

5.2.1.3 Tone/Vowel Deletion

Some known facts need to be recalled before any attempt to go any further:

- a) No indigenous Yoruba noun has a H tone initial; meaning that in the configuration we are currently looking at, only the first vowel and never the second will have a H tone.
- b) The M tone has the tendency to be the default tone; a fact already alluded to in chapter 2. One would expect that if there is any possibility of tonal hierarchy, the M tone would be of the lowest rank, thus translating to this tone being subject to a higher rate of disappearance in cases of vowel deletion.

Now, the foregoing data on compound nouns yield the following tonal patterns:

(11)

H+L ---> H as demonstrated in (2) and (3).

H+M ---> H as demonstrated in (4)

M+L ---> L as demonstrated in (5)

The pattern in (11) has some interesting implications. First, there is a tonal hierarchy which goes down from H to L to M. Tonal configurations are patterned in such a way that the strong tone will remain if one has to delete. This explains why, among the category of numbers, the first vowel (the M of M+L) deletes in some data while it is the second (the L of H+L) which deletes in others. The second point has to do with the identification of the vowel that deletes in compounding. Given the scenario as heretofore illustrated, it is the second vowel that deletes in compound nouns. The first vowel deletes in most cases where the tone on the second vowel is stronger than that of the first. The analysis of compounds continues in the next section as we focus on another feature that is found in a particular group.

5.2.2 ibi

The word **ibi** 'place' is combined with some action nouns to form locative nouns as shown in the following examples:

- (12)a. ibi i-gbé ---> ibùgbé 'residence'
 place prefix-live

- b. ibi ì-sùn → ibùsùn `bed'
place prefix-sleep
- c. ibi ì-sò → ibùsò `station'
place prefix-stop for a rest
- d. ibi ì-je → ibùje `stable'
place prefix-eat
- e. ibi ì-jokòó → ibùjokòó `headquarters'
place prefix-sit down
- f. ibi ì-dó → ibùdó
place prefix-stop
- g. ibi ì-dó òkò → ibùdókò
place prefix-stop vehicle
- h. ibi òmíràn → ibòmíràn `another place'
place another

In an attempt to explain the vocalic alternation in the **ibi-** words, Awobuluyi (1983) notes that a) standard Yoruba does not have **u-** initial words and b) all the action words that constitute the base for the data above in (12)a to g retain the **i-** prefix in other contexts. To derive the appropriate output, Awobuluyi proposes a rule of “vowel coalescence” whereby **i + i ---> u**. Bamgbose (1986a) suggests that the action nouns in the **ibi** words originally had the **ù** prefix particularly for the fact that

some Yoruba dialects still have such formations. To show that his proposal is more preferable than Awobuluyi's, Bamgbose suggests further that a) the process whereby two front high vowels become back, rounded is not coalescence and b) this rule does not occur in certain formations as shown below.

(13)a. $\text{idí} + \text{ilé} \rightarrow \text{idílé}$ (*idúlé)

bottom house family

b. $\text{orí} + \text{ìsun} \rightarrow \text{orísun}$ (*orúsun)

head stream source of river

c. $\text{orí} + \text{ilé} \rightarrow \text{oríle}$ (*orúlé)

head house place of origin

d. $\text{orí} + \text{ilè} \rightarrow \text{orílè}$ (*orúlè)

head land nation

Folarin (1987) agrees with Bamgbose, noting that it is indeed not only the front high vowels which end up as back, rounded, high vowel. The following possibilities are also found:

(14)a. $a + i \rightarrow u$

$\text{ifá} + \text{gbà} + \text{iyì} \rightarrow \text{ifágbuyì}$

deity take honor ifa took honor

b. e + i → u

ifá + se + iyì → ifásuyì

deity do honor ifa did honor

Two comments are in order here. First, the examples in (14)a and b only occur as proper names, which seems to lend credence to the claim that the **u**- forms existed in some earlier dialects of Yoruba: the language has changed but family names which rarely change still retain the vestiges of an older form. Second, the data in (14) should remove any hunch about **ibi** as the source of the vowel change from front/high to back/rounded. Note also that the **u** in final forms carries a L tone (the stronger of an LM sequence), a fact which has been established for some noun compounds considered in earlier sections. I will therefore suggest the following with regards to the data in this section:

a) The action nouns which form the bases for **ibi** compounds take on their proto-prefix **u** in this morphological context (Bamgbose, 1986a).

b) Vowel deletion (a feature of compounds) affects the first vowel and **M+L** → **L** as predicted.

We thus have the following:

(15)a. ibi + ùgbé → ibùgbé 'residence'

(ìgbé → prefix + gbé 'to live')

- b. ibi + ùsùn → ibùsùn 'bed'
 (isùn → prefix + sùn 'to sleep')
- c. ibi+ ùsò → ibùsò 'station'
 (ìsò → prefix + sò 'to stop for a rest')
- d. ibi + ùje → ibùje 'stable'
 (ìje → prefix + je 'to eat')
- e. ibi + ùjokòó → ibùjokòó 'headquarters'
 (ìjokòó → prefix + jokòó 'to sit down')
- f. ibi + ùdó → ibùdó
 ibi + ùdó òkò → ibùdókò

The following where the vowel in the second noun is neither *i* nor *u* will seem to add more weight to the claim that it is the first vowel which deletes.

- (16) ibi + òmíràn → ibòmíràn 'another place'
 place another

5.3 **Compound Nouns vs. Possessive NPs**

The line between noun compounds and possessive phrases is murky, justifiably because of the semantic relation they share. Typically, an attempt to interpret compound nouns results in restating them as phrases. I will suggest therefore that the most likely place to look for differences between compound nouns and NPs will be in the area of the phonological processes as outlined in the foregoing sections. I

will proceed to demonstrate in this section that vowel deletion occurs in compounds while vowel insertion (Folarin, 1987:165ff) occurs only in phrases and never in compounds. Consider the following set of data:

(17)	Compound	Phrase	Underlying units
a.	irùgbòn `beard'	irun un àgbòn `hair of chin'	irun + àgbòn hair chin
b.	omije `tears'	omi i oje `water of sap'	omi + oje water sap
c.	omowó `infant'	omo o owó `child of hand'	omo + owó child hand
d.	omobìnrin girl	omo o obìnrin `child of woman'	omo + obìnrin child woman
e.	ojúkòkòrò `greed'	ojú u kòkòrò `eye of insect'	ojú + kòkòrò eye insect
f.	ìletò `village'	ìlú u ètò `town of order'	ìlú + ètò town order

The data in (17) reveal the following general properties of possessive phrases:

- a) The genitive marker shows up between the two nouns as a copy of the final vowel of the first noun.

b) The tone on the genitive marker is M regardless of what tone precedes or follows it.

The salient properties which differentiate compound nouns from possessive phrases may be summarized as follows:

i) Compounds bear vowel deletion while genitive phrases add a new vowel. Closely related to this is the fact that within phrases the tones remain intact whereas in compounds, it is more likely that there would be tonal alteration by the end of the derivation. The last example in (17) above repeated next as (21) adequately illustrates this.

(18) ìletò	ìlú u ètò	ìlú + ètò
‘village’	‘town of order’	town order

The original tonal configuration is LH + LL which becomes LML in the compound and LHMLL in the phrase.

ii) The **ibi** compounds discussed in 5.2.2 above retain the **u-** prefix in the second N. This prefix never occurs in phrases. Some of the examples are repeated from (12) to illustrate.

(19)a.	ibi	ì-gbé	—>	ibùgbé	‘residence’
		place		prefix-live	
	ibi i	ìgbé	(ibi i	*ùgbé)	‘place of living’

b. ibi ì-sùn → ibùsùn 'bed'

place prefix-sleep

ibi i ìsùn (ibi i *ùsùn) 'place of sleeping'

c. ibi ì-sò → ibùsò 'station'

place prefix-stop for a rest

ibi i ìsò (ibi i *ùsò) 'place of trading'

d. ibi ì-je → ibùje 'stable'

place prefix-eat

ibi i ìje (ibi i *ùje) 'place of eating'

e. ibi ì-jokòó → ibùjokòó 'headquarters'

place prefix-sit

ibi i ì-jokòó (ibi i *ùjokòó)

iii) The following data, though atypical for the spreading of [+ATR] manifest a sharp contrast between compound nouns and possessives:

(20)a. omo o iye → omiye 'sibling'

child mother

omo o iye (*omi i iye) 'child of mother'

b. omo + idan → omidan 'miss'

child virgin

omo o idan (*omi i idan) 'child of a virgin'

To summarize this section, compounds undoubtedly have similar (mostly identical) underlying structures as genitive phrases but the phonological rules which apply in compounds are mostly different from those that apply within phrases. I discuss a different type of compounds in the next section.

5.4 N + V+ N Compounds

Some compounds are composed from three formatives, N₁ V and N₂ where the V is consistently identical to the verb *ní* 'to have' which takes agentive prefixes to form nouns as discussed in chapter 4. The following are examples:

(21)a. iyá ní ojà → iyálójà 'trader' (female)

mother **ní** market

b. baba ní ojà → babalójà 'trader' (male)

father **ní** market

c. iyá ní òde → iyálóde 'chairlady'

mother **ní** feast

d. ojú ní ìmò → ojúlùmò 'acquaintance'

eye **ní** knowledge

- e. ojú ní owó → ojúlówó 'valuable'
 eye ní money
- f. baba ní awo → babaláwo 'healer'
 father ní healing
- g. ayé rí ayé → ayérayé → 'eternity'
 world see world

The above formations share the same structural analysis with the agentive nouns as proposed in chapter 4. It is to be recalled that the **ní** is interpreted along with the **o-** prefix 'owner of X' or 'one who does X' where X is a Noun. The only difference here is that the N head is a free morpheme. The front high vowel in **ní** is known to delete in most cases within word/morpheme boundaries. The H tone is left behind as predicted in earlier sections. The only exception to the H tone retention is (18)d where the two front/high vowels become back/rounded as in the cases of **ibi + action nouns** discussed above. This is the same phenomenon whereby an earlier prefix form **u** is repeated here, this time adding one more feature: this prefix maintains its original tone, thereby taking precedence over other tonal rules.

The structural affinity between these forms and the prefixation categories in chapter 4 is remarkable and I will propose a generalization that incorporates this

relationship. First consider the following data which are also structurally similar to the items cited thus far in this section.

(22)a. ojú mọ́ ---> ojúmọ́ 'daylight'

eye be clear

b. igba ojú mọ́ ---> gbajúmọ́ 'famous person'

200 eye know

c. omi yà ilé ---> omíyalé 'flood'

water stop-at house

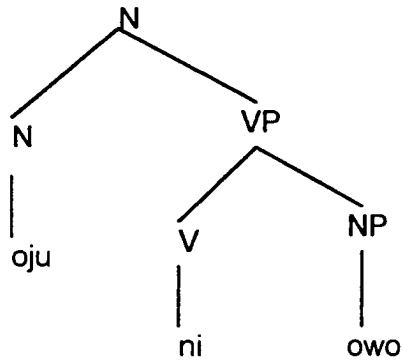
d. ìgbà ní ó dé ---> ìgbàlódé 'modern'

time BE pro come

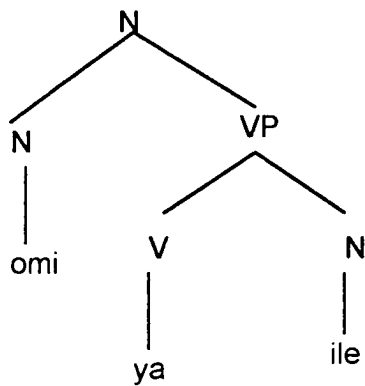
Note that the *ní* in (22)d is different from the other *ní* but the structure reflects all the predictions about tone and vowel deletion: the front/high is deleted, the H is retained. All the items in (22) are N VP sequences, meaning that they all meet our structural description for affixed words in chapter 4. Same goes for the items in (21). The following will therefore be a proper way to capture this important generalization (taking one example each from (21) and (22)):

(23)a (=18e) ojú ní owó —> ojúlówó 'valuable'

eye *ní* money



b (=19c) omi yà ilé ---> omíyalé⁸ 'flood'
 water stop-at house



⁸ The underlying L tone on the verb **yà** becomes M (default) on the surface by a tone neutralization process which applies between transitive verbs and their objects. Pulleyblank (1983:117) states this rule as **L ---> 0 / ___]_v [NP**.

The link between affixation and compounding in Yoruba is not limited to structure as shown above or the fact that the action, deverbal nouns participate in compounding. There are certain other more complex formations. The next section is devoted to a discussion of some data in this category.

5.5 {à} + {NEG} + {i} Compounding

Certain nouns are formed when two derived nouns come together, one from the {à} Consequential-1 class (cf. 4.2.1, C) and the other from the {i} Consequential-3 class (cf. 4.2.1, E) abstract class with the negative {à} prefix. Generally, these nouns are glossed as 'the fact or state of not VP' or some object that is thus characterized. Consider the following:

(24)a. àbíikó 'untutored person' (bí 'to beget', kó 'teach')

(lit. one who is born but not taught)

b. àkóògbà 'one who would not take to teachings' (kó 'teach', gbà 'accept')

c. àṣeèrí 'gainless venture' (ṣe 'do', rí 'find')

d. àwíìgbó 'one who never takes advice' (wí 'to say', gbó 'understand')

In his discussion of these forms, Awoyale (1974:435) proposes underlying forms which have the ì- nominalizer before the second verb in each of the words as shown next.

(25)a. à-bí-ì-kó 'untutored person' (bí 'to beget', kó 'teach')

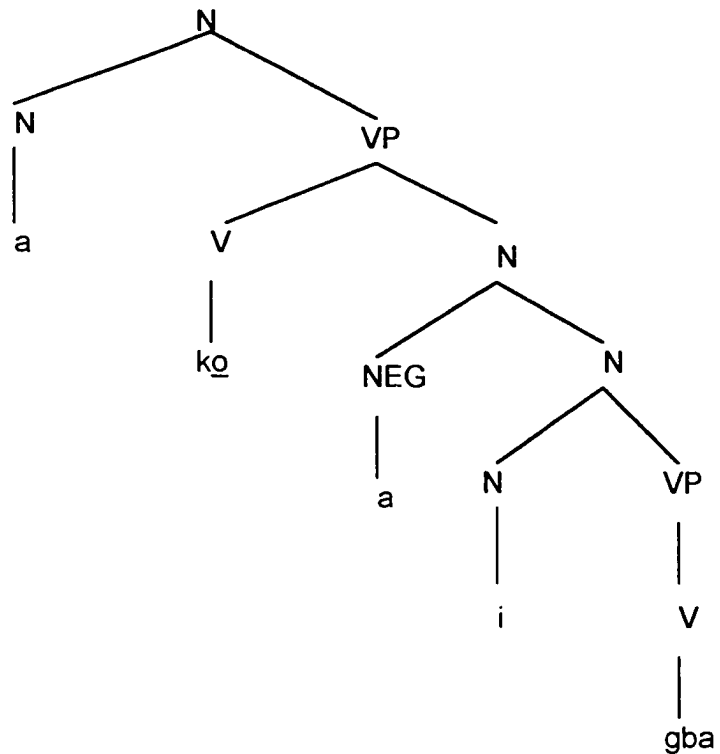
(lit. one who is born but not taught)

- b. à-wí-ì-gbó 'one who never takes advice' (wí 'to say', gbó 'understand')
- c. à-se-ì-rí → à-se-è-rí 'gainless venture' (se 'do', rí 'find')
- d. à-kó-ì-gbà → à-kó-ò-gbà 'one who would not take to teachings' (kó 'teach', gbà 'accept')

Note that the examples in (25) do not contain the {à} negation morpheme in the original proposal by Awoyale. This morpheme is crucial in the present work as without it, the notion of negation will not be clear.

The choice of *i*- as underlying vowel is supported both by morphological as well as phonological considerations. Note that in (25)a. and b. the final vowel of the first verb happens to be *i*, so we have another copy of the vowel. The same copying occurs in other cases but the vowels take different segmental features each time. We know however that none of the verbs would make sense with any vowel other than *i* initially. This *i* has been analysed as a nominalizer. So, what we have here are cases of the nominalizer assimilating in each case to the final vowel of the preceding verb as discussed for similar formations in earlier sections of this chapter. Note also that the consistent assignment of the L tone in each case to this vowel constitutes additional phonological evidence. Next, a typical representation:

- (26) à-kó-ì-gbà → à-kó-ò-gbà 'one who would not take to teachings'
(kó 'teach', gbà 'accept')



Assimilation and vowel deletion will then apply as follows:

(27) à-kò-à-ì-gbà → à-kó-ò-ì-gbà ASSIMILATION

à-kó-ò-ì-gbà → à-kó-ò-gbà VOWEL DELETION

5.7 Conclusion

Data presented in the foregoing sections illustrate the various categories of compound nouns in Yoruba. It has been demonstrated that the internal structure of compounds is composed of the rules of vowel deletion and tone swapping determined by a tonal hierarchy which gives the most strength to the H tone. Vowel

deletion which mostly affects specific vowels within compounds will normally not occur within genitive phrases which also undergo vowel insertion which does not operate within compounds. This may well be a distinctive criterion between lexical and phrasal nouns. Finally, the syntactic structure of compound nouns that contain verbs have been shown to agree with the proposal in chapter four to the effect that $N \rightarrow N VP$.

CHAPTER 6

REDUPLICATION

6.0 Introduction

This chapter is devoted to a description of reduplicative processes in Yoruba. Reduplication copies the stem/base or part thereof. Folarin's (1987) analysis provides details about the phonology of reduplication while Awoyale (1974) gives a list of data with more focus on the semantic aspects of reduplication. The discussion here will include the various types discussed in these two works with an analysis that highlights the morphological properties of reduplication. I intend to show by the end of the chapter that reduplication processes in Yoruba are subject to one basic operation which is the copying of the first basic word in the stem. The basic word, which is usually the first minimal form within the stem that can stand by itself may fall under any of the following categories: i) basic V, N or an adverb; ii) verb phrases of the type V+N (cf. chapter 3) and iii) derived nouns of the form prefix+VP (cf. chapter 4).

The rest of the discussion in this chapter is organized as follows: In section 6.1 I provide background information on reduplication based mostly on the survey

report on the subject in Moravcsik (1978). In section 6.2 some assumptions are presented with regards to the analysis of reduplication in terms of the segmental and suprasegmental features of the copied element. Section 6.3 presents the Yoruba data with a discussion of the salient features manifested in each group. Among such data are items which Awoyale (1974) describes as 'polarizing', and thus different from reduplication. These items are described along with other categories of reduplication in a way that the distinctive feature of 'polarizing' is still kept intact. Finally, I present in 6.4 a proposal that all the forms of reduplication discussed in section 6.3 can be analyzed as word-based processes whereby the scope of reduplication extends in each case only to the first word within the stem.

6.1 Typology

In a framework which defines the goal of language as the manipulation of sounds for the expression of meaning, Moravcsik (1978) observes two logical possibilities for distinguishing linguistic expressions: quantitative and qualitative. Qualitative distinctions have to do with the properties of the sounds or their temporal relation to each other. Quantitative differences focus on the duration of a sound within an utterance. Moravcsik proposes reduplication as a quantitative process.

Moravcsik observes the following as major parameters in a study of reduplication:

- properties of the reduplicated constituent;

- number of times reduplicated;
- presence or absence of additional non-repetitive form differentiation;
- temporal relations that the copy(ies) assume to each other and the rest of the utterance.

Properties may be defined along the following lines:

(1)	MONOMODAL	BIMODAL
REFERENCE TO:	SOUND or MEANING	BOTH

where sound involves a phonetic-phonological unit and meaning covers a syntactic-semantic unit. The process of reduplication as it affects any of the units may be TOTAL or PARTIAL.

A partial process may take the head, non-head, or some particular constituent such as adjective, noun, verb, etc. or purely phonetic-phonological units such as specified parts of the string, some vowel, obstruent or syllable within the string. Total reduplication is an exact, identical copy of the stem.

Moravcsik observes however that only bimodal types (sound and meaning) - total and partial are found in several languages. Monomodal types - total or partial are not found. Hence, the claim that reduplication always affects both sound and meaning.

Reduplication is typically described as a process of affixation or stem modification. Marantz (1982:437) notes that in the process of reduplication, a

morpheme which (phonologically) "...is necessarily identical in whole or in part to the phonemic content of the base form" is affixed to the base form. Moravcsik (1978) shows data from various languages where the copied element ranges from morphemes to words. McCarthy (1979) observes that reduplication usually involves a constituent such as a phoneme, a syllable, a metrical foot, or some other constituent of a morpheme. Marantz (1982) identifies, however, reduplicated elements that could not form constituents of any morpheme, hence the proposal that reduplication is only the affixation of a CV skeletal morpheme to a stem and the association of a copy of the stem's phonemic melody with the affixed skeleton (p. 440).

In the next few sections, data to illustrate the process of reduplication in Yoruba is presented. Each category is described based on the semantic, syntactic as well as phonological properties that are involved when the rules of reduplication apply. Since the central consideration in reduplication processes is the copying of part or the whole of a stem, I will identify the categories based on the internal properties of the stem and whether the copy is identical or different in any way from the stem. It will be shown that reduplicated elements (base and copy) can bear interesting differences in their segmental, suprasegmental and syntactic properties, while at the same time there is evidence of common base. Finally, the syntactic as

well as semantic properties of the forms that result from the reduplication process in each category will be considered.

6.2 Yoruba Reduplication

Most analyses of reduplication in Yoruba (eg. Awoyale, 1974; Folarin, 1987) have focused mainly on the segmental properties of the copied element. It is my view here that the suprasegmental properties of reduplicants (copied elements) should also be considered as part of a detailed analysis of the process. The presentation of data will thus be guided by this assumption that reduplication is determined not only by segmental but also by the suprasegmental features of the copied element. Specifically, the term suprasegmental is used here in reference to tone and syllable structure. It will be demonstrated that reduplication (in Yoruba) could either be partial or total while each of these two broad categories could be further divided into the following subcategories:

(2) TOTAL REDUPLICATION:

I The reduplicant copies all segmental and all suprasegmental features from the base.

(3) PARTIAL REDUPLICATION:

Copying in partial reduplication could take one of three forms:

I The reduplicant copies only the segmental features from the base, so there is a difference in the tonal features (and, in some cases, syllable structure) between the copy and its base at the end of derivation.

II The reduplicant only copies some of the segmental features from the base and also keeps some of the suprasegmental features of the base.

III The reduplicant copies some of the segmental features of the base while at the same time the suprasegmental features are altered.

Here is a summary of the possibilities in the copying process:

(4)

SEGMENTAL FEATURES	SUPRASEGMENTAL FEATURES	TYPE
ALL	ALL	TOTAL
ALL	SOME	PARTIAL
SOME	SOME	PARTIAL
SOME	NONE	PARTIAL

Next, I consider data from each of these categories.

I Reduplicant = copy of all segmental and suprasegmental features

These are the most straightforward and possibly the most productive cases of reduplication in Yoruba. Folarin (1987) refers to some of the data in this category as

"full morpheme reduplication" because the copying process involves the whole stem. The product of the reduplication process could belong to one of three different syntactic categories: it could be what Folarin (1987) and others call "agentive nouns from phrasal verbs", a quantified noun or an adverb of time/manner. Next, I illustrate each group with specific data.

6.3 Agentive Nouns

A verb phrase consisting of a transitive verb and its noun object is copied to form an agentive noun. Almost any transitive verb in combination with its complement can undergo this process in Yoruba.

No intransitive verbs are involved in agentive reduplication.⁹ Usually, the interpretation is in the form of "one who (habitually) X" in the form X+X where X is a combination of a transitive verb and its nominal complement. The regular processes of vowel deletion and tonal displacement which are properties of Yoruba verbs will take place in all relevant contexts. Consider the following examples.

(5)a jà ogun (fight war) → jagunjagun 'warrior'

(jà 'fight' ogun 'war')

b. kó ilé (rob a house) → kólékólé 'thief'

(kó 'gather' ilé 'house')

⁹ Intransitive verbs serve as base for agentive nouns in a different way - prefixation which is fully discussed in chapter 4.

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- l. gbé omo (carry child) → gbómogbómo 'kidnapper'
(gbé 'carry' omo 'child')

Sometimes, the noun is non-human and/or inanimate as in the following:

- (6)a. mu ijè (drink blood) → mùjèmùjè 'anemia'
(mu 'drink' ijè 'blood')
- b. pa ajá (kill dog) → pajápajá
pa 'kill' ajá 'dog'
- c. je eyín (eat teeth) → jeyínjeyín 'gum disease'
(je 'eat' eyín 'teeth')
- d. gbà ohùn (take sound) → gbohùngbohùn 'loud speaker'
(gbà 'take' ohùn 'sound')
- e. tè iwé (print document) → tètèwètèwé 'typewriter'
(tè 'print' iwé 'document')

Some insect names also have two identical parts as in the following:

- (7) lá omi (lick water) → lámilámi 'praying mantis'
(lá 'lick' omi 'water')

Some possible members of this group are not compositional:

- (8)a. kétékété 'donkey'
- b. kòlòkòlò 'fox'
- c. kainkain 'bug'

d. timùtimù 'mattress'

Data in (5) and (6) manifest the phonological processes of vowel deletion and tone displacement. These processes have been outlined in chapter 2. Basically, one of the two vowels within word boundaries is deleted and the following tonal realignment rules will apply:

(9) Tonal Realignment Rules

- | | | | |
|----|-------|---|----|
| a. | L + M | → | M |
| b. | M + L | → | L |
| c. | H + M | → | H |
| d. | H + L | → | HL |

(+ is used here to represent morpheme boundary)

It is to be recalled that there are no word-initial syllables bearing the H tone in Yoruba. What is of interest here with regards to the rules of vowel deletion and tonal processes is the fact that the same internal rules apply in both parts of the reduplicated form. Next, I look at data within the second category in total reduplication - quantified nouns.

6.3.1 Quantified Nouns

The process of noun quantification in Yoruba involves the reduplication of nouns and the addition of a morpheme **kí** which stands between two nouns in a structure **N-kí-N** to yield the interpretation 'any N' or 'some disappointing N'. Almost any noun

(including derived nouns) can undergo this process. Note that while the two nouns yield the quantifying or pejorative reading with the *kí* between them, they are either ungrammatical or to be read as something completely different without the *kí*.

Consider some data from this group.

- (10)a. *ilé* → *ilé-kí-ilé* → *ilékílé* (**ilé-ilé*) 'any house'
house house-kí-house
- b. *eye* → *eye-kí-eye* → *eyekeye* (**eye-eye*) 'any bird'
bird bird-kí-bird
- c. *èyàn* → *èyàn-kí-èyàn* → *èyànkeyàn* (**èèyàn-èèyàn*) 'any person'
person person-kí-person
- d. *omo* → *omo-kí-omo* → *omokómo* (**omo-omo*) 'any child'
child child-kí-child
- e. *adé* → *adé kí-adé* → *adékádé* (**adé-adé*) 'any crown'
crown crown-kí-crown
- f. *ajá* → *ajá-kí-ajá* → *ajákájá* (**ajá-ajá*) 'any dog'
dog dog-kí-dog
- g. *èdè* → *èdè-kí-èdè* → *èdèkedè* (**èdè-èdè*) 'any language'
language language-kí-language
- h. *eran* → *eran-kí-eran* → *erankéran* (**eran-eran*) 'any meat'
meat meat-kí-meat

- i. owó → owó-kí-owó → owókówó (*owó-owó) `any money'
 money money-kí-money
- j. ojó → ojó-kí-ojó → ojókójó (*ojó-ojó) `any day'
 day day-kí-day
- k. bàtà-kí-bàtà (*bàtà-bàtà) `any shoe'
 shoe-kí-shoe
- l. filà-kí-filà (*filà-filà) `any cap'
 cap-kí-cap
- m. tábìlì-kí-tábìlì (*tábìlì-tábìlì) `any table'
 table-kí-table

In each case, the vowel in **kí** is deleted with the following tonal realignment taking place:

- (11) a. H + M → H
 b. H + L → M

Again, what is mostly of interest here is the fact that all features (segmental and suprasegmental) of the noun are copied. I illustrate in the next section, data from the third category of total reduplication - adverbs.

6.3.2 Adverbs

Many adverbs of time/manner are divisible into two equal parts, each part constituting an independent member of a lexical class but within the same class of

adverbs several items do not seem to make sense whenever any part of the reduplicated form is removed from the base. I will refer to these two varieties of adverbs respectively as compositional and non-compositional and some illustrations follow next.

(12) Compositional Adverbs

- a ní owó → lówólówó 'currently'
in hand
- b dá ojú → dájúdájú 'surely'
clear eye
- c díè → díèdíè 'slowly'
little

(13) Non-compositional Adverbs

These forms are also known as ideophones (Awoyale 1974). Usually they have a CVCV-CVCV or CVV-CVV syllable structure.

- a bámúbámú 'totally'
- b ráúráú 'completely'
- c pátápátá 'entirely'
- d kíákíá 'quickly'
- e wéréwéré 'immediately'
- f mósámósá 'promptly'

g	yángáyángá	`entirely'
h	fínnífínní	`meticulously'
i	tónítóní	`neatly'
j	kínníkínní	`strictly'
k	wéléwélé	`frequently'
l	pékípékí	`closely'
m	wàdùwàdù	`hurriedly'
n	kùtùkùtù	`early (in the morning)'
o	pòròpòrò	`dropping endlessly'
p	bòròbòrò	`quickly'
q	bàìbàì	`dimly'
r	ribiribi	`preciously' (also used as an adjective)
s	gidigidi	`really'
t	gedegede	`outstandingly'
u	fíofío	`highly'
v	dáradára	`nicely'
w	mèremèrè	`having a very attractive look'
x	télètélè	`previously'

Data presented so far illustrate total reduplication. As earlier indicated, there are more possibilities in partial reduplication. I turn next to the partial reduplication groups.

I Reduplicant = copy of all segmental features and some suprasegmental features

Again, there are mostly adverbs in this class. There is an equal number of syllables on either side of the CVCV-CVCV structure but the tonal melody is different for each part.

- (14)
- | | | |
|----|------------|----------------------------|
| a. | yánnayànnà | `in a chaotic manner' |
| b. | réderède | `disorderly' |
| c. | rúdurùdu | `disorderly' |
| d. | jálajàla | `confusingly' |
| e. | básubàsu | `in a disorganized manner' |

Some nouns in the group are:

- (15)
- | | | |
|----|------------|------------------|
| a. | mànámáná | `lightning' |
| b. | kòròkóró | `secret corners' |
| c. | màgòmágó | `dirty tricks' |
| d. | yànmùyánmú | `mosquito' |
| e. | labalábá | `butterfly' |

II Reduplicant = copy of some segmental features and some suprasegmental features

Awoyale (1974:434) discusses items which are formed "by combining two semantically opposing verb phrases". These items, Awoyale observes, are different from reduplication and prefixation. The reason for claiming that reduplication is not involved here is "... the two entities (semantically opposing VPs) are different". This statement (based only on segmental features) seems to overlook the fact that polarized forms are only partially different. We cannot ignore the features shared by the two parts. The approach being pursued here whereby the focus is on a combination of all possible aspects of reduplication should adequately account for the fact that parts of these items are copied while the remaining parts seem to differ from the base in a regular way. Consider the following examples:

(16) Polarized Verb Phrases

a. se ihín - se òhún → sèhín-sòhún 'a dubious character'

do here - do there

b. jẹ omi - jẹ òkè → jomí-jòkè 'amphibious creature'

eat water - eat hill

c. se òkè - se odò → sòkè-sòdò 'a double character'

do hill - do river

- d. wo ilé - wo òde ---> wolé-wode `very close friend'
 enter house - enter outside
- e. ní eku - ní eja ---> lékuléja `petty trader'
 have rat - have fish
- f. kò rí - kò sùn `bosom friend'
 not see - not sleep
- g. ro owo - ro ese ---> roworose `easily'
 relax hand - relax leg
- h. já òkè - já odò ---> jákèjádò `all over'
 cut hill - cut river
- i. kí a rà - kí a tà ---> káràkátà `trading'
 CONJ we buy - CONJ we sell
- j. kí a lo - kí a bò ---> kalo-kábò `back-and-forth'
 CONJ we go - CONJ we come
- k. mú ohùn - mú àwòrán ---> móhùnmáwòrán `television'
 catch voice - catch picture
- l. mù tú - mù tè `rebellion'
 pledge break - pledge bend
- m. dá kú - dá jí `very sickly person'
 ?-die-?-wake

- n. jẹ-gúdú-jẹ-rá `greedy person'
eat-some-eat-all
- o. jà-gídí-jà-gan `trouble maker'
fight-rough-fight-real
- p. di-òkun-di-òsà ? `sea wave'
be-ocean-be-lagoon
- q. fi òní kú - fi òla òde —> f-òní-kú f-òla-òde `sickly'
use-today-die use-tomorrow-rise

Now, there are certain features that the polarizing data as presented above share with other reduplication types that have been discussed. First, each part of the polarized unit is a VP, just like most of the data earlier presented for agentive nouns. The key difference between the two groups is that copying affects only the verbal head in these later cases while copying affects the whole unit in the agentive nouns. "Polarizing" may thus be summarized as follows: in a structure where V is the verbal head taking X and Y as complements, X is not identical to Y. But note that X and Y typically belong to the same grammatical category, and in most cases, both have to share some sort of semantic affinity. This point is illustrated in the following set of data where the attempt to substitute other nouns or lexical items of other categories renders the derivations ungrammatical:

(17)a. *se èyí - se òhún (sè ihín- se òhún `a dubious character')

do this - do there

b. *je omi - jeun (je omi - je òkè `amphibious creature')

eat water - eat food

c. *se ilé - se odò (se òkè-se odò `a double character')

do house - do river

d. *wò òde - wò ilé (wò lé-wò òde `very close friend')

enter outside - enter house

e. *kò rí mi - kò sùn (kòrí-kòsùn `bosom friend')

not see me - not sleep

Also, the verb has to be the same; so it cannot be changed as demonstrated in the following:

(18)a. *rò owó - gé esè (rowórosè `easily')

relax hand - cut leg

b. *lò òkè - já odò (jákèjádò `all over')

go hill - cut river

c. *mú ohùn - yà àwòrán (móhùnmáwòrán `television')

catch voice - draw picture

Phonologically, there are at least two interesting features which may be identified as properties of the “polarizing” process. I illustrate those features next.

a) Vowel deletion

By now, it is a well-known fact that vowel deletion occurs within VPs. Much as it is true that it is not always certain which vowel deletes in a sequence of two vowels, it does not seem to be an accident that deletion affects the same vowels on either side of the “polarizing” forms: if the second vowel deletes in the first part, it is the second vowel that deletes in the second part while if the first vowel deletes, it also does so in both parts.¹⁰ Consider the following minimal pair:

(19)a. se òkè - se odò → sòkè-sòdò (*sòkè - sedò) ‘a double character’

do hill - do river

b. já òkè - já odò → jákèjádò (*jòkè - jádò) ‘all over’

cut hill - cut river

c. je orí - je orùn → joríjorùn (*jorí - jerùn) ‘monster’

eat head - eat neck

b) Syllable Structure

¹⁰ The front high vowel [i] poses an exception here as evidenced in **se ihín - se òhún → sèhín-sòhún** ‘a dubious character’. This is not unexpected given the unique properties of this vowel in Yoruba (cf chapter 2).

The syllable structure of the two halves is usually the same in these forms.

There are exceptions to this rule:

(20)a. mú ohùn - mú àwòrán ---> móhùnmáwòrán `television'

catch voice - catch picture

b. je-gúdú-je-rá `greedy person'

eat-some-eat-all

c. jà-gídí-jà-gan `trouble maker'

fight-rough-fight-real

d. fi òní kú - fi òla òde ---> f-òní-kú f-òla-òde `sickly'

use-today-die use-tomorrow-rise

6.3.3 Adverbs and Numerals

Adverbs of time (there is at least one manner adverb in the group) indicating habitual nature of the verb are formed by copying the noun that names the period of time in question. This copying goes with the general rules of vowel and tone assimilation. The assimilation process is regressive, a feature that is also found in compounds (see discussion of assimilation in chapter 2, and compounding in chapter 5). Certain numerals referring to groups (of numbers) are also formed in this way. Consider some examples:

(21) a. alé ---> alé alé ---> alaale
night `every night'

- b. ojúmó → ojú ojúmó → ojoojúmó
 daybreak `every day'
- c. òsè → òsè òsè → òsòòsè
 week `weekly'
- d. èbá → èbá èbá → èbèèbá
 side `sideways'
- e. ogún → ogún ogún → ogooogún
 20 `twenties'
- f. ogbòn → ogbòn ogbòn → ogboogbòn
 30 `thirties'
- g. orún → orún orún → oroorún
 fifth `fives'

Folarin (1987) calls data of this sort "double reduplication". According to that analysis, double reduplication is the prefixation of a first vowel, "and at the same time prefixing the first vowel plus the first consonant to the stem" (1987:91)). Folarin notes further that "a constituent (first V, a syllable) and a non-constituent (first two segments VC of the stem) are reduplicated simultaneously". The following are examples based on Folarin's perception of the process. I have added the `?' to indicate items that cannot be glossed.

(22)a. $\text{al}\underline{\text{é}}$ \rightarrow $\text{al}+\text{a}+\text{al}\underline{\text{é}}$ \rightarrow $\text{alaal}\underline{\text{é}}$ 'every night'

'night' ? ? STEM

b. $\text{oj}\underline{\text{úmó}}$ \rightarrow $\text{oj}+\text{o}+\text{oj}\underline{\text{úmó}}$ \rightarrow $\text{ojooj}\underline{\text{úmó}}$ 'every day'

'daybreak' ? ? STEM

c. $\underline{\text{òsè}}$ \rightarrow $\underline{\text{òs}}+\underline{\text{ò}}+\underline{\text{òsè}}$ \rightarrow $\underline{\text{òsòòsè}}$ 'every week'

'week' ? ? STEM

According to Folarin, (22)a for instance is derived as follows:

(23) $\text{al}\underline{\text{é}}$ 'night'

H	H	H	H
$\text{al}\underline{\text{é}}$	$\text{al}\underline{\text{é}}$	$\text{al}\underline{\text{é}}$	$\text{al}\underline{\text{é}}$
$\text{VC} + \text{V} + \text{VCV} \rightarrow \text{VC} + \text{V} + \text{VCV} = \text{alaal}\underline{\text{é}}$			

This analysis raises a number of questions. First, what is the status of the initial VC? It is neither a syllable nor a morpheme in Yoruba. It only looks like an arbitrary unit which has no place in the morphology. Second, the analysis indicates that the reduplicated noun is repeated three times underlyingly only to show up on the surface as regular reduplication. The approach of focusing on the copied element by its segmental and suprasegmental features should not have these problems. Simply,

what is going on in this group may be summarized as follows: copying is limited to the first two syllables in the word. Typically, this is of the VCV shape. Now, it is not an accident that the first two syllables in each case also constitute a noun. This is the minimum requirement for Yoruba nouns. Note the additional evidence to this claim which is manifested in compound forms taking part in this class of reduplication: only the first part of the compound (the minimal word) is copied.

Consider the following derivation of **ojoojúmó**:

(24) ojúmó ----> ojú + mó

‘daybreak’ eye clear

Copy first 2 syllables (the minimal word): ojúmó —> ojú ojúmó

Vowel Assimilation: ojú ojúmó —> ojóojúmó

Tone Assimilation ojóojúmó —> ojoojúmó

This proposal that it is the first word that is copied extends to most of the other classes of reduplication discussed above. A summary of the syntactic status of the copied elements is presented in the last part of this chapter, after the illustration of other classes of reduplication.

Next I turn to the third group under partial reduplication.

III Reduplicant = copy of some of the segmental features and none of the suprasegmental features

The group being described in this section is composed of processes which all involve some kind of copying but the copied part turns out by the end of the derivation to be different in its suprasegmental features from the base. We will consider the different sets in turn.

6.3.4 Gerundives

The next group is named “syllabic” reduplication by Folarin. In this category, the verb is copied to form gerundive nouns. The “syllabic” tag is interpretable as a reflection of the fact that the minimal verb is monosyllabic in Yoruba. The vowel in the copied verb changes to the front high [i] in all cases.

(25)a. lo ---> lilo

‘go’ ‘the act of going’

b. mu ---> mimu

‘drink’ ‘the act of drinking’

c. gbìyànjú ---> gbígbiyànjù

‘try’ ‘the act of trying’

From the data in (25), two basic facts need to be included in the description. First is the front high vowel which is a property of verb reduplication resulting in gerundive nominals. This vowel consistently has a H tone regardless of the tone on the original

vowel which it displaces in the stem. The second point centers around verbs which have more than one syllable. Since this category of reduplication affects only the verb, the incorporation of the remaining syllables in such verbs needs to be accounted for. First, it is to be recalled that multi-syllabic verbs are derived from either verb+noun, or serial, verb+(noun)+verb phrases.

Consider some examples:

- (26)a. gbìyànjú → gbígbiyànjù
 `try' `the act of trying'
 (gbà+iyànjú → gbà + gbà+iyànjú)
 take+effort
- b. ló síwájú → lílósíwájú
 `progress' (verb) → `the act of making progress'
 (ló+sí+iwájú → lí+ló+sí+iwájú)
 go+to+front
- c. bímo → bíbímo
 `deliver a child' `child delivery'
 (bí+omo → bí+bí+omo)
 beget+child
- d. bímokú → bíbímokú
 `miscarry' `miscarriage'

(bí+om̩+kú → bí+bí+om̩+kú)

beget+child+die

The data presented in (26)a to d indicate that regardless of the phonological or syntactic status of the verb or verb phrase involved in gerundive reduplication, only the verb is affected in the copying process. The stem from which the verb is copied is intact as the object of focus is the copied element. This could also be seen as happening in steps: a) copy the verb; b) first vowel takes the following features: [+high, +front] and the H tone. Again, the rules of vowel deletion are assumed as part of the general properties of the verb.

(27) Verb copying: gbà yànjú → gbà gbà yànjú
 `try' `the act of trying'

Gerundive vowel features: gbà gbà yànjú → gbí gbà yànjú

Vowel Deletion: gbí gbà yànjú → gbí gb yànjú

The generalization is even more strongly borne out in serial verbs as exemplified by (26)d (repeated as (28) with the verbs highlighted), where the copied element is the first of two verbs:

(28) **bímokú** → **bíbímokú**
 `miscarry' `miscarriage'
 (bí+om̩+kú → bí+bí+om̩+kú)
 beget+child+die

Again, this points to the possibility that the copied element in Yoruba reduplication as discussed in the foregoing is subject to certain parameters. This is discussed in the next section.

6.4 Word-based Reduplication

Based on the illustration of the various aspects of reduplication as presented in the foregoing sections, I propose that the reduplicated element in most cases is a word, be it noun or verb. If this proposal turns out to be valid, it has the desired advantage of showing that reduplication shares the property of building its derivatives from words as it has been shown for affixation and compounding in previous chapters. Also, a word-based analysis for reduplication should capture a wider scope than the previous analyses which are based on the smaller units of syllable and CV configurations. The word-based analysis will confirm the following:

(29) WORD-BASED REDUPLICATION HYPOTHESIS

For every category of reduplication the reduplicated form is a basic word, regardless of whether the stem is basic or complex.

By basic word is meant words that are mostly underived which serve as building blocks for the various morphological processes (affixation and compounding) defined in previous chapters. In most cases, such words do not allow any further analysis of their morphological structure. They constitute minimal

meaningful units by themselves. Complex words are those out of the set of simple words, with basic words in their internal structure.

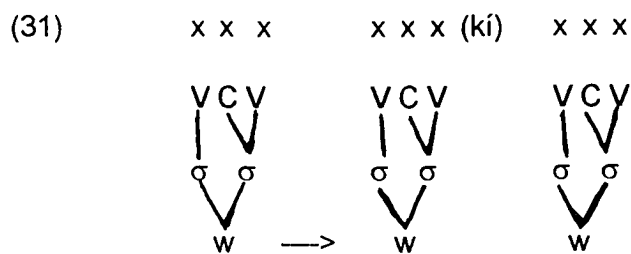
The CV approach defines three possible units of reduplication which are CV, VCV, CVCV while the syllable counting approach proposes that reduplicated forms are either one or two syllable units. It is no accident that any and all of the basic units identified by these two approaches satisfy the definition of the basic word. Next, I present data to illustrate the hypothesis in (29), along with segmentation into CVs and syllables.

6.4.1 Quantification

To illustrate this category, consider some of the data listed above under (10) repeated here as (30).

- (30)a. ilé → ilé-kí-ilé → ilékilé (*ilé-ilé) 'any house'
house house-kí-house
- b. eye → eye-kí-eye → eyekeye (*eye-eye) 'any bird'
bird bird-kí-bird
- c. èyàn → èyàn-kí-èyàn → èyànkeyàn (*èèyàn-èèyàn) 'any person'
person person-kí-person
- d. omo → omo-kí-omo → omokómo (*omo-omo) 'any child'
child child-kí-child

- e. adé → adé-kí-adé → adékádé (*adé-adé) `any crown'
crown crown-kí-crown
- f. ajá → ajá-kí-ajá → ajákájá (*ajá-ajá) `any dog'
dog dog-kí-dog
- h. èdè → èdè-kí-èdè → èdèkedè (*èdè-èdè) `any language'
language language-kí-language
- i. eran → eran-kí-eran → erankeran (*eran-eran) `any meat'
meat meat-kí-meat
- j. owó → owó-kí-owó → owókówó (*owó-owó) `any money'
money money-kí-money



The frame in (31) will also account for data from other (semantic) categories as shown next.

6.4.2 Adverbs, Gerundives and Agentives

- (32)a. alé → alé alé → alaalé
night 'every night'
- b. òsè → òsè òsè → òsòòsè
week 'weekly'
- c. èbá → èbá èbá → èbèèbá
side 'sideways'
- d. ogún → ogún ogún → ogoogún
20 'twenties'
- e. ogbòn → ogbòn ogbòn → ogboogbòn
30 'thirties'
- f. orún → orún orún → oroorún
fifth 'fives'

To further confirm the word-based hypothesis, the category illustrated in (32) contains compound words of the form **word + word** but only the first word is copied as shown in the following:

(33) ojúmó → ojú ojúmó → ojoojúmó

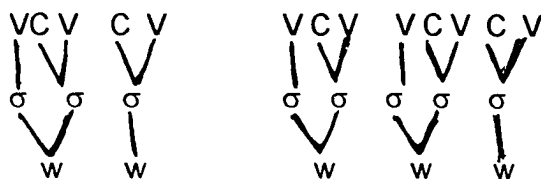
‘daybreak’

‘daily’

The base **ojúmó** is a compound composed of **ojú** ‘eye’ and **mó** ‘be clear’.

Reduplication takes place as follows:

(34) o j u + m o o j u + o j u + m o



Some more data in this group, with the copied word highlighted are:

(35)a ogún + èrin → ogórin → **ogún** + ogún + èrin

twenty four 400

b igba + àrún → egbèrún → **igba** + igba + àrún

200 5 1000

I turn, next to the class of gerundives where the reduplicated element is the basic, monosyllable, CV verb:

(36)a. ló → líló

‘go’ ‘the act of going’

b. mu → mímu

‘drink’ ‘the act of drinking’

c. gbiyànjú → gbígbiyànjù

`try' `the act of trying'

d. ló síwájú → lílósíwájú

`progress' (verb) → `the act of making progress'

(ló+sí+iwájú → lí+ló+sí+iwájú)

go+to+front

e. bímó → bíbímó

`deliver a child' `child delivery'

(bí+mó → bí+bí+mó)

beget+child

f. bímókú → bíbímókú

`miscarry' `miscarriage'

(bí+mókú → bí+bí+mókú)

beget+child+die

The data in (36) present further evidence in support of the claim that only the first word is copied from complex verbal bases. In (36) c, the base is **gbiyànjú** which has the underlying form **gbà** `take' + **iyànjú** `effort' which becomes **gbígbiyànjù**. (36)f shows a serial verb construction as base but only the first verb (word) is copied as shown above. Finally, I turn to verbs of the CVCV type as exemplified in (37).

- (37)a. *jà ogun* (fight war) → *jagunjagun* 'warrior'
 (*jà* 'fight' *ogun* 'war')
- b. *kó ilé* (rob a house) → *kólékólé* 'thief'
 (*kó* 'gather' *ilé* 'house')
- c. *mò ilé* (build a house) → *mólémólé* 'mason'
 (*mò* 'mould' *ilé* 'house')
- d. *pá iná* (put out fire) → *panápaná* 'fireman'
 (*pá* 'kill' *iná* 'fire')
- e. *wò ilé* (look at a house) → *woléwolé* 'sanitary inspector'
 (*wò* 'look' *ilé* 'house')
- f. *pá èjá* (kill fish) → *pejapeja* 'fisherman'
 (*pá* 'kill' *èjá* 'fish')
- g. *tá ofà* (shoot an arrow) → *tafàtafà* 'archer'
 (*tá* 'shoot' *ofà* 'arrow')
- h. *gbé onà* (carve a piece of artwork) → *gbénàgbénà* 'carpenter'
 (*gbé* 'carve' *onà* 'artwork')
- i. *mò òràn* (know issues) → *mòránmòrán* 'savant'
 (*mò* 'know' *òràn* 'issues')
- j. *bé orí* (cut head) → *béribéribé* 'executioner'

Now, it looks as if the rule which says *copy only the first word* has been violated in the examples in (37). Note however that every first item in this set of data is a transitive verb which, in Yoruba will not stand by itself without an accompanying object. This is why the focus is on the *basic word* in the statement in (29). Such a word is necessarily a minimal meaningful unit of utterance. This is why we cannot get the following versions of some of the data in (37):

(37)a jà ogun (fight war) → *jajagun `warrior'

(jà `fight' ogun `war')

b. kó ilé (rob a house) → *kókólé `thief'

(kó `gather' ilé `house')

c. mọ ilé (build a house) → *mómólé `mason'

(mọ `mould' ilé `house')

d. pa iná (put out fire) → *papaná `fireman'

(pa `kill' iná `fire')

e. wò ilé (look at a house) → *wowolé `sanitary inspector'

(wò `look' ilé `house')

f. pa eja (kill fish) → *papeja `fisherman'

(pa `kill' eja `fish')

A second point with respect to the agentive category is that the apparent violation of the algorithm for reduplication is construction-specific. This is a category of nouns

which have only VPs internally, a construction which requires the whole structure to transfer into a new grammatical category. The fact that the gerundive versions of the agentive phrases will behave as predicted (copy only the first word, change first vowel to [i]) bears this out:

(38)a jà ogun (fight war) → jíjagun 'fighting'

(jà 'fight' ogun 'war')

b. kó ilé (rob a house) → kíkólé 'act of robbery'

(kó 'gather' ilé 'house')

c. mọ ilé (build a house) → mímolé 'house building'

(mọ 'mould' ilé 'house')

d. pa iná (put out fire) → pípaná 'putting out fire'

(pa 'kill' iná 'fire')

e. wò ilé (look at a house) → wíwolé 'looking at a house'

(wò 'look' ilé 'house')

This contrast between the agentive and gerundive nouns seems to influence their internal structure in the following way: Within agentive nouns, the action and receiver both have to be specified while the gerundive only names the action. Note also that while agentives can stand alone as subjects or objects, gerundives cannot as shown in the following:

(39)a panápaná ti kú

fireman ASP die

`the fireman is dead'

b. Ojo pa panápaná

Ojo kill fireman

`Ojo killed the fireman'

Gerundive nouns can only occur as part of possessive phrases or in topicalized constructions:

(40)a. lílò Ojo `Ojo's departure'

going Ojo

b. lílò tí Ojo lò `The fact that Ojo left

going that Ojo go

6.5 Conclusion

In the foregoing sections, I have tried to describe the process of reduplication and its various categories in Yoruba in a way that most of the categories can be subject to one basic procedure: *copy α* where α is the first basic word within the base. In addition to the segmental features of the formatives involved in reduplication, I have also addressed the possible participation of suprasegmental features in reduplication. This approach has made it easy to focus on only the copied elements, the central factor in reduplication. The description as presented here adequately

groups reduplication with the other word formation processes which operate on basic units in a similar way as reduplication to produce complex words.

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