

WORD FORMATION IN TIGRINYA

A THESIS  
PRESENTED TO  
THE SCHOOL OF GRADUATE STUDIES  
ADDIS ABEBA UNIVERSITY

IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS IN LINGUISTICS

BY  
TESFAI TEWOLDE  
JUNE 1993  
ADDIS ABEBA

ADDIS ABABA UNIVERSITY  
SCHOOL OF GRADUATE STUDIES

WORDFORMATION IN TIGRINYA

BY  
TESFAI TEWOLDE  
INSTITUTE OF LANGUAGE STUDIES



APPROVED BY:

*Beyo Temam*

Advisor

*DR. ALI TIENJE*

Examiner

*Takkele Tachese*

Examiner

*[Signature]*

*[Signature]*

*[Signature]*

## TABLE OF CONTENTS

	<u>P A G E</u>
ACKNOWLEDGEMENTS.....	I
ABSTRACT.....	II
LIST OF ABBREVIATIONS AND SYMBOLS USED.....	III
LIST OF TABLES.....	V
<u>CHAPTER ONE</u> .....	1
1.0 INTRODUCTION.....	1
1.1 THE LANGUAGE.....	1
* 1.2 REVIEW OF LITERATURE.....	2
* 1.3 THE PRESENT STUDY.....	5
* 1.4 THE THEORETICAL FRAMEWORK.....	5
* 1.5 WORD FORMATION IN TIGRINYA.....	19
NOTES.....	21
<u>CHAPTER TWO</u> .....	25
2.0 SIMPLE DERIVED WORDS OF TIGRINYA.....	25
NOTES.....	37
<u>CHAPTER THREE</u> .....	41
3.0 TIGRINYA COMPLEX WORDS.....	41
3.1 THE BASES.....	41
3.2 EXTERNAL AFFIXES.....	42
3.2.1 X + NON DERIVATIONAL AFFIXES.....	46
3.2.2 DERIVATIONAL AFFIXES'.....	53
3.2.2.1 DERIVATIONAL SUFFIXES.....	54

• 3.2.2.1 X+-ay/ .....	55
• 3.2.2.1.2 X+-awi/ .....	55
• 3.2.2.1.3 X+-'áy na/-'áñña .....	57
• 3.2.2.1.4 X+-ñña .....	58
• 3.2.2.1.5 x+-am .....	59
• 3.2.2.1.6 X+-'á/-e .....	60
• 3.2.2.1.7 X+-nnát .....	61
• 3.2.2.2 PREFIXES .....	63
• 3.2.2.2.1 tá +-x .....	63
• 3.2.2.2.2 ?a+x .....	65
• NOTES .....	68
<u>CHAPTER FOUR</u> .....	75
• 4.0 COMPOUNDING .....	75
• 4.1 IDIOMATIC AND LEXICALIZED PHRASES .....	75
• 4.2 STRICT (LEXICALIZED) COMPOUNDS .....	76
• 4.3 TIGRINYA PLURALS .....	79
• 4.4 LOOSE COMPOUNDS .....	80
• NOTES .....	93
<u>CHAPTER FIVE</u> .....	96
• 5.0 CONCLUSION .....	96
• 6.0 REFERENCE .....	99

ACKNOWLEDGEMENT

My deepest thanks are due to Dr. Alemayehu Haile, my thesis adviser, for his critical supervision and for supplying reading materials that I crucially needed. I consider it an excellent opportunity to have been able to write this thesis under his guidance.

I am very much indebted to Dr. Baye Yimam, my morphology instructor, for his tutoring and guidance in my studies, for his critical comments and for providing me with books whenever I needed them.

Special thanks are also due to Dr. Klaus Wedekind for lending me books and to professor Dimmendaal for his very helpful suggestions and comments.

I thank everyone who has contributed to this study in one way or another. I would like to express my gratitude to my friend and language helper Tekeste Tekle for his comments and for giving me his time whenever I needed his help. I would also like to extend my appreciation to W/rt Selamawit Negasi for her help and insightful suggestions.

Finally I wish to express my heartfelt thanks to my wife, Meheret Elias, who has been of invaluable assistance to me in writing this thesis.

A B S T R A C T.

This thesis deals with word formation in Tigrinya. It employs the theory of generative morphology as explained in Aronoff (1976) and Scalise (1984) among others.

As is the case in other Semitic languages, roots in Tigrinya can be inputs for word formation and accordingly several nominal and verbal patterns which are formed from roots are identified. These stems/words can be the basis for other complex words.

The inputs and outputs of complex words are also investigated. It is argued that many suffixes that may look like derivationals are actually non derivationals. It is assumed that there are only ten derivational morphemes in Tigrinya. The study also shows that suffixes of complex words are heads whereas prefixes are non-heads. The thesis reveals that Tigrinya complex words are right headed.

Moreover, it is made clear that Tigrinya compounds are generally left headed. They may have plural suffixes added to them or the feature [+broken plural] percolated from them to the whole compound.

List of abbreviations and symbols used

A	= adjective
Adv	= adverb
CR's	= compounding rules
CV	= consonant and vowel
ϕ	= deletions
DR's	= derivational rules
ER's	= evaluative rules
f	= feminine
IR's	= inflectional rules
m	= masculine
MUBH	= modified unitary base hypothesis
*	= may be possible but is not actual lexical item.
//	= enclosed are phonological elements, morphemes or lexical items.
N	= noun
--->	= becomes (is realized as)
( )	= enclosed are optional elements
Pl	= plural
RR's	= readjustment rules
S	= singular
SLH	= strong lexicalist hypothesis
SR	= surface representation
UR	= underlying representation
V	= verb
WFR's	= word formation rules

VOWELS

ɨ = high central unrounded vowel

ä = mid central unrounded vowel

CONSONANTS

č̣ = voiceless palatal affricate

G = Gutturals

č̣̣ = voiceless glottalized palatal affricate

? = voiceless laryngeal stop

ħ = voiceless pharyngeal fricative

ḡ = voiced pharyngeal fricative

č̣̣̣ = voiced palatal affricate

ṇ̃ = voiced nasal palatal

p̣̣ = voiceless glottalized bilabial stop

q̣̣ = voiceless glottalized velar stop

ṣ̣̌ = voiceless palatal fricative

ṣ̣̣ = voiceless glottalized dental fricative

ṭ̣̣ = voiceless glottalized dental stop

x̣̣ = voiceless velar fricative

x̣̣̣ = voiceless glottalized velar fricative

L I S T O F T A B L E S

	<u>PAGE</u>
TABLE I.....	22
TABLE II.....	27
TABLE III.....	28
TABLE IV.....	33
TABLE V.....	34
TABLE VI.....	77
TABLE VII.....	81
TABLE VIII.....	86

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 THE LANGUAGE

Tigrinya is a Semitic language spoken in the present day Tigray and Eritrea. Together with Geez and Tigre it forms a group within Semitic known as North Ethiosemitic (see Hetzron (1969:19)).

According to Bender and Hailu Fulas (1978) Tigrinya speakers are mostly Christians who mainly live on farming and their number at that time was 4,000,000. According to the office of the population and housing census commission (1984) the rate of population growth of Ethiopia is 2.9% per annum. Apart from this, the exact number of the Tigrinya speakers may be difficult to know, for the area was until recently a war torn zone where people are normally expected to emigrate.

In the preface in Mauro da Leonessa (1918), Conti Rossini says that documents of 13th century regarding Tigrinya were found in Šimezana (in Akkeleguzay - southern Eritrea). But at the moment, the language is said to have only little literature (cf Ferguson (1972)).

Tigrinya had once been a medium of instruction in primary schools and still serves as a lingua franca in Tigray and Eritrea. However infantile it may be, Bender (1976), Ferguson (1972) and other scholars say that the language has a standard form.

## 1.2 REVIEW OF LITERATURE

Works on the morphology of Tigrinya are not very many in number and the approach followed in these works is generally traditional<sup>1</sup> with systems of classification that exclusively focus on the outputs of word formation (cf Anderson (1985:15)). This, suggests that we need to see the nature of relationship between inputs and outputs.

The fact that the study of the morphology of Tigrinya has until recently not adopted the generative approach is, I assume, not surprising. According to Aronoff (1976:4) "within the generative framework, morphology was for a long time quite successfully ignored". In the 1960's there was a lack of interest in morphology<sup>2</sup>. It was not only considered as part of syntax or phonology, but was also not supposed to account for specific problems. A period of decline for morphology was observed with the emergence of generative grammar since priority was given to syntax (see Matthew (1974), Aronof (1976), and Scalise (1984)). It was only in the 1970's that morphology got a great deal of attention and since then it began to be considered as an autonomous subcomponent of the grammar. Morphological rules led to the discovery of more regularities in the lexicon than it was previously imagined (cf Scalise (1984)).

A recent study of Tigrinya phonology and morphology is Girmay Berhane (1991) and it employs the model of cv phonology.

Nevertheless even in this work, the inputs and outputs

of word formation are not identified. Since everything morphological or everything found in the lexicon is not a study of word formation, the question of how words of Tigrinya are formed has not been explained in the works cited so far.

However, Tsegay W/mariam (1974 E.C) and Tsegay Taffere (1987) have tried to deal with some part of word formation of Tigrinya.

Tsegay W/mariam (1974 E.C.) in his BA thesis "tr. Tigrinya noun formation" "yät+grinña simočč Ammäsärarät" describes the formation of nouns. He lists nouns that he thinks are derived from verbs. He also lists proper nouns that he assumes are derived from verbs. But according to Anderson (1985:37-8), derived forms in Semitic languages may not be the basis for further derivations. For instance the verbs derived from roots such as /qätälä/"he killed" from [qt1] may not be the basis for other derived nouns. Besides, nothing is also said in this thesis about the systematic ways of deriving words from other words, and almost nothing is said about compounding.

Tsegay Taffere's work of word formation is defective too, in that the inputs, the outputs and even the affixes are not well identified. For instance, the output of the combination [Ethiopia]+ [awi]---> [Ethiopiawi] "Ethiopian", according to him is a noun, but we will see later in chapter three that it ought to have been labelled as an adjective. Besides, in his data of affixes we find /-awyan<sup>3</sup> referring to



3rd person plural, though it is only /-an/ that refers to 3rd p.plu. In the same way, /-äyti/, /wäyti/, /täyti/, /-awit/ are said to be used as feminine marker, though we know only /-ti/ and /-it/ are the feminine markers.

Tsegay (1987) also regards derivational morphemes such as /-nnät/ and non derivational morphemes such as /-ät/, /-at/ as variants. Some inflections are also taken as part of word formation. e.g. /-awyan/. The epenthetic vowel /-i/ is regarded as a derivational morpheme and infact it is considered a variant of /-an/, /-o/, /-to/. Some of his claims are not based on evidences e.g. he says /-ät/, /-at/, /-ot/, /nnät/, are derived from /-ät/ but no proof has been forwarded for that. In addition to this, the study does not include the formation of words from roots nor does it consider compounding.

Thus, we can conclude that( 1) the studies are traditional in approach. The focus of these traditional studies is almost exclusively in the output rather than in the nature of relationships. 2) the inputs and outputs of word formation rules are not identified. 3) The heads and the nonheads of complex words are not identified. 4) to the best of my knowledge, no mention is made regarding the change of syntactic categories, subcategorization frames, selectional features and features [+abstract] , [+count], [+animate], [+common], (that hereafter may be refered as as [+abs.], [+c] [+ani.], and [+com] respectively) the formation of words from roots and the process of



inflectional rules (IR,s), and readjustment rules (RR's) (see Scalise (1984)).

But this view is not shared by all. In fact Scalise (1984) indicates that supporters of weak lexicalist hypothesis (WLH) such as Chomsky (1970) claim that inflections are syntactic, while the WLH supporters such as Anderson (1982) say that inflections are phonological.

On the other hand, Scalise (1984) says that supporters of the strong lexicalist hypothesis (SLH) such as Booij (1977), Carrier (1979), Scalise (1980) Kiparsky (1982), McCarthy<sup>4</sup> (1979) among others, claim that the position of inflections is in the lexicon.

According to Scalise (1984) the same rules and principles such as adjacency condition hold for both inflectional and derivational affixes and readjustment rules operate on both of them. In addition to this, Anderson (1985:6) admits that "...it is to some extent artificial to distinguish between inflections and other sorts of morphological complexity and the line is hard to draw" (cf Scalise (1984:127) regarding past participle).

Scalise (1984) argues that the lexical component that incorporates WFR's, IR's and RR's always produces complete words while WFR's may produce an abstract word that cannot occur on the surface. For instance /education/ (i.e /educate+ation/) does not occur on the surface, but after RR's it becomes /education/ and can appear on the surface. We can also observe that /gatt-/ will be complete when it

is inflected and becomes /gatti/ (an Italian word for cats). The absence of inflectional elements in Latin and Italian makes the words bound morpheme for instance /lup-i/ "wolves" becomes /lup-/, and /can-i/ "dogs" becomes /can-/ and we can see that /lup-/ and /can-/ are not free and can not appear on the surface while the inflected words can.

In Semitic languages too stems devoid of inflections can be formed from roots. For instance /katab-/ is formed from /Ktb/. Anderson (1985:162) says "derivation forms words while inflection completes words". So, what we observed in inflectional languages such as Latin or Italian seem to comply with inflectional languages such as Tigrinya or Amharic. For instance /fárád-/, that is derived from the root /frd/, will be complete when it is inflected and becomes /färädä/ "he judged".

Having all these in mind, therefore, I shall follow the SLH.

From what has been said so far, we can assume that the lexicon is the place where we find all kinds of morphemes, but this does not mean that it is the morphemes alone that we find in the lexicon. In fact, according to Goldsmith (1990), there are two distinct but related aspects (i.e. phonology and morphology) in the lexicon itself. Lexical phonology is word bound and its lexical rules, according to Goldsmith (1990) include:

1. Phonological adjustments that are fundamentally triggered by the juxtaposition of morphemes such as the

velar softening of /k/ in English when /-ity/ is added to it e.g /elektrik/---> /electri(s)ity/ and the shortening of vowels in English e.g. /plead/, /pled/ when the past tense inflectional morpheme is suffixed to it.

2. phonological aspects that perform modification in the lexicon so that a word could be complete enough to be pronounced by native speakers (e.g. the epenthetic vowel /i/ at the end of the word /devr/ in Turkish to give /devri / "transfer").

According to Kiparsky (1982), there are different levels<sup>5</sup> in the lexicon. But Kiparsky's stratification is opposed by Aronoff (1976) and Goldsmith<sup>6</sup> (1990). Scalise (1984) also opposes the notion of stratification or ordering given by Kiparsky (1982), but he emphasizes that the blocks of rules such as WFR's, IR's, RR's are ordered.<sup>7</sup>

Kiparsky believes that WFR's<sup>8</sup> come next to the dictionary stored in the lexicon (i.e. by prefixation, suffixation and compounding) but prior to level 3 inflections. This part of his view, is similar to what Scalise (1984) said regarding the level of representation of words/stems and WFR's that is, DR's and CR's are represented one level below the dictionary. Hence, we can say that words/stems, could be inputs to WFR's (cf Scalise (1984:71-76)).

The ordering of the blocks of rules shall be adopted here, but the main concern of the thesis will be WFR's and

not the rest of the rules such as ER's, IR's, RR's and clitics.

According to Jensen (1990), generative grammar is divided into four components, i.e. 1. lexicon 2. syntax 3. phonology 4. semantics or logical form which interact in the formation of sentences. Jensen (1990) believes that morphology is intended to be self contained. However he also says that reference can be made to other components of the grammar mentioned above. As Scalise (1984) argues, the fact that WFR's are sensitive to lexical categories of bases is related to syntax, (e.g. the suffix /-able/ is attached to verbs not to nouns) whereas an affix may be changed to another form in the environment of some phonological features and hence, he says there is a syntactic restriction on the former and a phonological restriction on the latter. In addition to this, he also says, there are semantic and morphological restrictions and these show that the components of grammar interact with one another.

Nonetheless, this interaction does not mean that morphology is deprived of its autonomy and that is why people like Chomsky (1970), Aronoff (1976), Kiparsky (1982), Scalise (1984), Mullen (1986) Halle and Vergnaud (1987) quoted in Gussman (1988), Gussman (1988), and Jensen (1990) directly or indirectly support the autonomy of this component.

Morphology being the study of the internal structure of words, includes all the morphemes of the lexicon.

Morphemes are usually meaningful but not necessarily so and this is in agreement with Bloomfield (1933) Aronoff (1976), Scalise (1984) and Jensen (1990). Nida (1949) argues that morphemes are regarded as a single morpheme when:

1. the forms have a common semantic distinctiveness and identical phonetic shape e.g. the /-er/ in words such as /singer/ and /worker/,

2. the forms have a common semantic distinctiveness but differ in phonetic shape so long as the difference is phonologically definable. e.g. /in-/ and /im-/ in words like |innocent| and |impossible|.

3. the forms have a common meaning and are in complementary distribution i.e. when the environment in which one form occurs is not the environment where another one occurs e.g. the irregular plural allomorph /-ɪn/ of |oxen| and the regular plural marker /-tɪz/ of |boxes|.

4. the forms are in free variation e.g. |either| is pronounced as /aɪðər/ or /i:ðər/ i.e. if they have the same meanings and occur in the same environment but are phonetically different.

Furthermore, Nida (1949) says that homophonous morphemes are regarded as different if they differ in meanings (e.g. /pare/ and /pair/, but homophonous forms, according to him, constitute a single morpheme if they are related in meanings (e.g. /spy/v , and /spy/N).

In addition to this, the morpheme /cran-/ which is meaningless in /cranberry/ is found attached to /berry/ only, but /berry/ occurs in isolation and in combination with other morphemes such as /strawberry/ /blueberry/ etc. Thus /cran/, which seems to convey the meaning of "a kind of berry", has no definite meaning, even though it is considered a morpheme.

Besides, Jensen (1990) says that morphemes are separable if :

- They are in isolation (e.g. /play/, /work/, /out/ etc.)
- They occur together with forms that may occur in isolation or in combination with other constituents (even if the morphemes themselves do not occur alone) e.g. /-er/ suffixed to /play/ or /con-/ prefixed to /contain/ and /condense/ or /cran-/ prefixed to /cranberry/. We can observe that neither /con-/ nor /cran-/ are meaningful but they are affixed to words such as /-dense/ and /-berry/ which can occur alone or in combination with nonunique constituents. Hence, they are different morphemes. This is the reason why Jensen (1990) says morphemes may not necessarily be meaningful. They are primarily structural units, because the meaningless prefixes such as /con-<sup>g</sup> are morphemes since they occur with isolable morphemes such as /dense/.

On the other hand the /-er/ in /hammer/, /ladder/ and /otter/ has no morphemic status. This is because the elements with which /-er/ occurs i.e. /hamm-/ /ladd-/, /ott-

occur only with /-er/. In other words /hamm-/ /ladd-/ or /ott-/ do not occur in isolation or in combination with other constituents. So the /-er/ in /hammer/, /otter/, or /ladder/ is not a morpheme. In fact, Jensen (1990:34) stresses that "you cannot isolate a morpheme in a word that leaves the rest of the word stranded with no morphemic content".

On the other hand, there are cases that Jensen (1990) calls morphological processes such as infixation (insertion of material (s) inside a morpheme) and reduplication<sup>10</sup> (repeating all or part of the morpheme) in languages. According to him, these morphological processes are not regarded as simple affixations. In fact, he does not regard them as morphemes but as processes. I assume his argument does not directly contribute to the development of this thesis, and hence, I do not dwell on it (see Anderson (1985:169-70), Jensen (1990) for a detailed discussion of the issue).

It is obvious that different scholars may not agree on what is meant by the term word. According to Carrier (1979), Scalise (1980) and Jensen (1990), words can be divided into inflected or word form and uninflected word (abstract or lexeme) form. The English word/cats/ may be an example of an inflected word while words like /constitutional/ are uninflected.

According to Lyons (1968), the term word has been used in three senses. There is a phonological word /kʌt/ that

corresponds to orthographic word /cut/. The word /cut/ again corresponds to three grammatical words -i.e. the present tense of /cut/; the past tense of /cut/, and the past participle of /cut/. The phonological word /miit/ corresponds to orthographic words /meat/ and /meet/. Hence according to Lyons there are orthographic, grammatical and phonological words.

Leech (1981) also says that there are Semantic words (homonyms) e.g. /knew/ and /new/. On the other hand, Anderson (1985) admits that there is no satisfactory definition for the term word. For Anderson (1985), it is the grammatical word which is of interest and in this sense the word must be an inflected one. But this view is not shared by others.

Carrier (1979) suggests that words devoid of inflections must also be words. Scalise (1984) adds to this by saying that it is the words that take inflections and not stems. This implies that the Italian stem /can-/ is a word. Since the sequence "word + inflection" rather than "stem + inflection" is the grammatical one, /can-i/ is grammatical and so /can-/ is regarded as a word.

Nonetheless, whether /can-/ of /cani/ is regarded as a stem or a word does not matter much for this thesis since both simple words and stems are represented in the dictionary of the lexicon and hence can be inputs for word

formation(cf Halle (1973)).The focus of this thesis is on WFR's and not on inflections. Infact,Anderson (1985:6) says, "our interest here, however, is not in the productive---categories of inflection, but rather in the internal structure of meaningful core of the word". It is for this reason that Anderson (1985) uses the stems without their inflections in his analysis of word formation.

Scalise (1984) explains that the dictionary contains simple words and stems, and words are labelled with syntactic categories whereas stems are provided with labels that refer to syntactic categories. For instance, the stem /phono/ of /phonic/ is associated with the lexical category noun because /-ic/ is normally added to nouns to form adjectives. So we say /history/<sub>N</sub>--->/historic/<sub>A</sub> and <sup>\*</sup>/phono/<sub>N</sub>--->/phonic/<sub>A</sub>. Thus, stems can be labelled as "SX" (i.e. stem of X where X is a major lexical category).

Scalise (1984) believes that simple words and stems do not have internal structures, be it of the form +(morpheme boundary) or #(word boundary).

Furthermore, Roeper and Siegel (1978:200-1) suggest that the lexical component is divided into a lexical core and a set of WFR's. The lexical core<sup>11</sup> again is divided into what they call atomic core and the complex core. The former (i.e the atomic core) contains words without internal structure (e.g boy, girl, serene) while the latter (i.e. the complex core contains a list of words formed by WFR's and thus have morphological structures (e.g /manhood/).

Roeper and Siegel (1978) also explain that words such as /happily/ and /possible/ that seem to fall inbetween the atomic and the complex core must be listed in the atomic core because they are semantically unpredictable. Thus, so long as they do not have internal structures and /or are not compositional in meaning, words are listed in the atomic core. But the words that have internal structures and semantic predictability are listed in the complex core of the lexicon.

But not all of the words that show semantic predictability are listed in the complex core. According to Roeper and Siegel (1978) some newly formed words are not listed in the core and are analyzed during the time when sentences are processed. Roeper and Siegel (1978:204) also explain that "words with particularly frequent affixes could not all be listed in the lexicon. For instance, the /-ly/ adverbs are so numerous that it would be inefficient to remember each one" and this is the reason why they say that there are two entrances into the syntax that is, one from WFR's directly and the other from the core where one finds semantically predictable and unpredictable simple, and complex words and compounds. In fact, there are also lexicalized phrases and compounds in the atomic core which are neither governed nor formed by word formation rules.

The task of WFR's is to create new words by using the words in the atomic core or in the complex core as inputs. The bases of WFR's may be simple, complex, compound or even

lexicalized phrases. Thus, according to Scalise (1984), Aronoff (1978), Roeper and Siegel (1978) etc, WFR's is located next to the dictionary or next to the lexical core. In the component of WFR's, CR's are represented next to DR's. Hence, words are formed first by derivation and then by compounding.

But WFR's may not always be existent or actual. As Anderson (1985) puts it, word formation rules describe the internal structure of lexical items. But the availability of any possible lexical item is subject to a good deal of idiosyncrasy. Some of them are only possible and not actual. For instance, the English native speakers can say /derive/--->/derivation/, but they do not say /exist/--->/\*existation/ or /arrive/---->/\*arrivation/. The fact that /derivation/ is both possible and existent but /arrivation/ is only possible and not existent is a matter of idiosyncrasy.

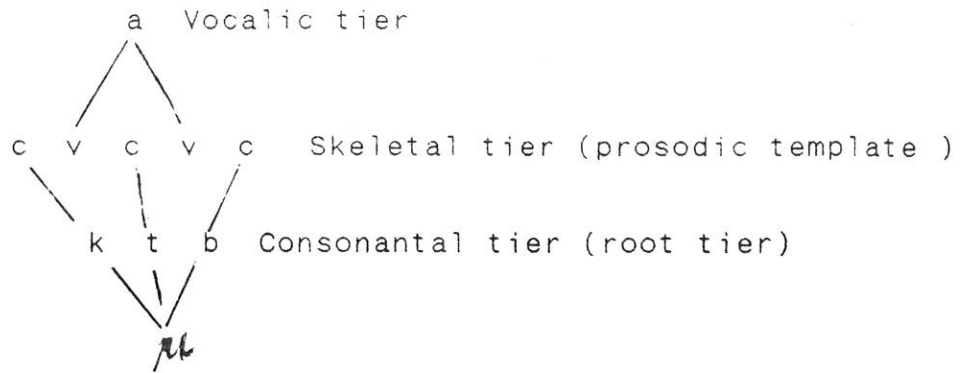
Hence, Roeper and Siegel (1978), Scalise (1984), Anderson (1985) and others admit that there are some idiosyncrasies in word formation rules (WFR's).

So far, we have discussed word formation from the point of view of Scalise (1984), Kiparsky (1982) Roeper and Siegel (1978) and others.

Nonetheless, the fact that words are formed by affixation (derivation) and compounding does not seem to fully comply with the word formation of Semitic languages.

It is true that semitic languages form words by derivation and compounding but that is not all. Semitic languages have word formation rules that are quite different from those of English, Italian etc. which are formed by affixation and compounding. This is because the most frequent way of WFR's in semitic languages is from roots. According to McCarthy (1982:218), "it is absolutely necessary to recognize derivation from roots" in semitic languages.

Hence, semitic languages have verbal (devoid of their inflections) and nominal patterns derived from roots. For instance, /Katab/ "write", /kitaab/ "book" are derived from /Ktb/. As Anderson (1985:37) puts it, "once a root has been put into a given pattern, the only way to put it into another pattern is to replace the entire structure—thus destroying any reflections of the "first stage" in a derivation. Derived forms are usually not the basis of further derivations. Semitic can thus form words by changing consonant and vowel patterns. For instance, verbs in Arabic have three components, i.e. the vocalic tier or vocalism, the consonantal tier or consonantism, and the skeletal tier. These tiers form three different morphemes (cf McCarthy(1982), Girmay Berhane(1992)). Thus, the Arabic perfective form katab (minus the inflection) can be represented as follows:



There are many patterns derived from roots but not all the possible patterns do actually occur. As Anderson (1985:37) puts it, "a single root may appear in several forms, but not all, and the range of forms that actually occur is only partly predictable from the meaning of the root, since it is partly a lexical idiosyncrasy". The fact that some possible patterns of the language are existent while others are nonexistent is a matter of idiosyncrasy. Even those that do occur are not semantically fully predictable. For example, *gäbari* in Tigrinya is "one who performs" but *wäladi* does not only mean one who gives birth, but rather it means parent. This partly idiosyncratic nature of word formation from roots is a property of other word formation rules.

Anderson (1985) and McCarthy (1982) also admit that even in Semitic languages words can be formed by affixation and compounding. For instance although /cicaac/ is a regular noun pattern in Arabic, there is no regular process to show that it is derived from /katab/ etc. So McCarthy, (1982) says it is derived from /ktb/. On the other hand, in

the words /maktab/ "office" and /miftaah/ "key" there is a prefixal consonant m-. McCarthy (1982) again says that Arabic masdars (a type of nominals ( e.g. /taktib/ are derived from perfectives, and other nominals such as nomen vasis(a kind of nominal (e.g. /maktab/ "place where writing is taught") are derived from the imperfectives.

From the discussion made so far, it is clear that in semitic languages, words are formed not only by derivational affixation and compounding, but also by derivation from roots.<sup>12</sup>

Tigrinya is a Semitic language and the task of this study is to describe the WFR's of this language in the light of this theoretical framework.

#### 1.5 WORD FORMATION IN TIGRINYA -

The three major lexical categories<sup>13</sup> in Tigrinya are nouns, verbs, and adjectives. Aronoff (1976) and Scalise (1984) say that the inputs and outputs are all major lexical categories. The lexical categories can be changed from one into another. This is done by adding derivational affixes to the inputs. But prior to affixation, the inputs that are simple words and/or stems can also be derived from roots and this is in agreement with Selkirk (1982) and McCarthy (1982).

This thesis will neither attempt to analyze the phonological processes of deriving words/stems from roots, nor the derivation of nominals from verbs (e.g. perfectives

or imperfectives). These are beyond the scope of this study.

The concern of this thesis being wordformation, the patterns which can be the basis for derivational affixes shall be identified and listed. The assumption is that the bases together with affixes form other words. The words/stems that are listed as the basis for derivational affixes are either possible or actual.

In this thesis, the terms "simple" and "complex" are adopted in such a way that "simple" is used for those derived from roots and "complex" is used for the words formed by affixation (cf Moscati and et al (1964)). Finally, Tigrinya word formation by compounding will also be dealt with.

N O T E S

1. Anderson (1985:15) argues, "when we consider the traditional systems of classification, we see that they focus almost exclusively in the outputs of word formation processes... not to the nature of relationships".

2. During the time of structuralists, morphology was a central field of study but with the emergence of generative grammar, morphological studies declined. There was an apparent parallel progress of morphology in the 1940's and early 1950's. Nonetheless, 1960's was a period of syntax and morphology was neglected till the 1970's (cf Matthew (1974:4), Scalise (1984)).

3. /-wi/ is a derivational morpheme and -an as in /kibur/-->/kiburan/ "dear" is an inflectional morpheme.

4. Within the group of SLH supporters there are those who maintain that derivational and inflectional affixes are essentially the same (cf McCarthy (1982:217) and Scalise (1984:102))

5. Kiparsky (1982) believes that there are three levels in the lexicon. Thus, he says that there are primary English affixes (e.g... /-al/, /-ous/ /-ity/ /-th/) and the irregular plurals (e.f. /kept/, /met/) at level 1. He also argues that there are secondary derivations (e.g. /-hood/, /-ness/) and compounding at level 2 whereas inflections such as the regular plural markers are found at

level 3.

6. Goldsmith (1990:271) argues that "in summary then, we have here an argument against affix ordering generalizations, and thus against a stratal approach to English morphology and to lexical phonology".

7. Scalise (1984) believes that the blocks of WFR's are normally ordered in the following manner.

words	stems	----> inputs(bases)
WFR's		
ER's		
IR's		

Table 1

As far as the inputs of complex and compound words are concerned this ordering will be adopted but the focus of attention of this thesis is the WFR's.

8. Scalise (1984:43-4) says:-

the latter (affixes) carry "relational" information (e.g. the suffix /-able/ forms adjectives from verbs). The information  $V \rightarrow A$ , as one can see, is a WFR, even if abridged in form. In other words, in this proposal the representation of an affix is the WFR which attaches the affix to its base.

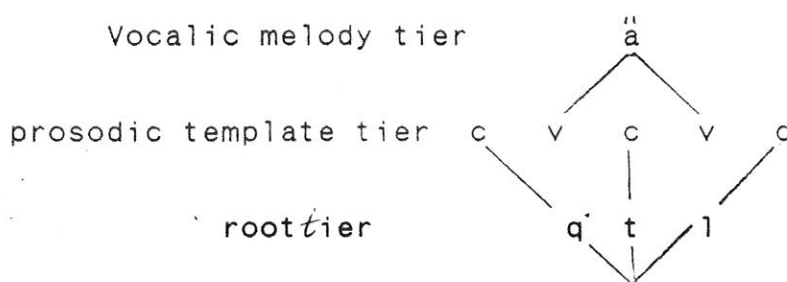
9. See also the morphemes /per-/ and -mit/ in /permit/ from McCarthy (1982:123).

10. This thesis is not concerned in the study of reduplication processes. I assume, it does not contribute to its development.

According to Scalise (1984 and 1988), derivational affixes are represented in the WFR's. They differ from reduplication processes ER's 1R's and clitics in that they change the syntactic categories, and/or subcategorization features, selectional and other features (i.e. [ $\pm$ common], [ $\pm$ abstract], [ $\pm$ count], [ $\pm$ animate]) of inputs. The description of affixes shall be limited to the derivational ones unless the researcher thinks the description of other affixes may help to have a better idea of the affixes that are represented in WFR's.

11. The division of lexical component into a lexical core and a set of WFR's and a further division of the lexical core into atomic core and complex core is regarded by scalise (1984) as interesting.

12. stems such as /qätá1-/ constitute three tiers (cf Girmay Berhane (1992)) as shown below.



Hence, we see that this is similar to the vocalic, skeletal and consonantal tiers of other Semitic languages such as Arabic (cf McCarthy (1982)).

13. Kiparsky (1982), Scalise (1984) and Mullen (1986)

believe that the major lexical categories in languages are verbs, nouns and adjectives. Aronoff (1976:19-25) believes that the major lexical categories are nouns, adjectives, verbs and adverbs. But, in Ethiosemitic languages such as Amharic, Baye (personal communication) suggests that the adverbial function may be accomplished by other categories. I assume, the same is true for Tigrinya. For instance /bi-/ "by" and /qǝltuf/ "quick" give /biqǝltuf/ "quickly". Thus, we see that the function of adverb is accomplished by combining other categories, a preposition and an adjective in this case.

## C H A P T E R   T W O

### 2.0 SIMPLE DERIVED WORDS OF TIGRINYA

According to Girmay Berhane (1991) and Tesfai Tewelde (1987) Tigrinya radicals are generally three or four in number (cf Anderson (1985:35) and McCarthy(1982:154) regarding Arabic). Consonants bear the basic meanings while vowels form different patterns (in agreement with McCarthy (1982), Alemayehu and Al Mtenje (1988), among others).

While the most commonly occurring types of word formation in languages such as English are affixation and compounding, this is not true of Ethiosemitic languages. According to Mullen (1986), stems are built from consonantal roots before other words are built from stems. Mullen also says that there are verbal stems of Amharic such as (1) perfective, e.g /Säbbär-/ (2) imperfective, gerundive, e.g - /säbr-/, and (3) jussive, and infinitive e.g /-sbär/ with templates /-CVCCVC/ /-CVCC/ and /-CCVC/ respectively.

Furthermore, affixes are added to these simple verbals and to other stems that are labelled as nouns and adjectives (cf Kiparsky (1982), Mullen (1986)) .

Words /stems in Semitic languages are generally formed from roots. However, the verbal conjugation in Ethiosemitic is some what different from that of other Semitic languages such as Arabic. In Ethiosemitic languages, verbs are grouped into types A, B and C (see Bender (1976) and Girmay Berhane



(1991)) and each of them are conjugated in the perfective, imperfective, gerundive, jussive, imperative and infinitive. As Girmay Berhane (1991) puts it, the grouping of verbs into types A, B and C is listed in the lexicon. Since there is no way of identifying whether a particular verb must be assigned to type A, B, or C, they must only be memorized. Whereas in Arabic for instance, a root such as /K t b/ can be conjugated in forms (binyanim) such as I, II, III and thus can be said kataba, kattaba, kaataba, this is not possible in Ethiosemitic. In Ethiosemitic, a root is assigned to only one of the types, A, B, or C and not to all of them as it is the case of Arabic. Thus, verbs do not, for instance, change from type A into type B etc.

A list of nominal and verbal simple-stems formed from consonantal roots and vowel patterns that can be used as the bases for derivational affixes are presented below. The verbal stems are classified in accordance with their verb types and conjugations. The list includes the perfective, the imperfective, the jussive and the gerundive but not the imperative, whose simple stem is similar to that of the jussive. e.g. /sbär/ (as in /yäsbar/ and /sibär/). The patterns that are presented are either possible or actual.

For the sake of convenience first simple nominal and verbal stems derived from triradicals and then those derived from quadriradicals will be presented (see tables II, III, IV, and V).

Thus, we can observe that the nominal stems listed in

## SIMPLE NOMINAL STEMS DERIVED FROM TRIRADICALS

NO	CV PAT- TERN	EXAMPLES VOCALIC PATTERN			UR OF STEM	SR OF STEM	GEMIN- ATION	GLOSS	REMARKS
		ROOT	UR	SR					
1	ccc	frd	-	-t-i	frd	fard <sup>u</sup>		judgement	
2	cccc	sbr	-	-t-t-	sbr	s-bbar	✓	act of breaking	ɣ-----/ cc - c #
3	cvcvc	scr	-ā-a-	-ā-a	šābar	šābar		broken	
		sɣi	-ā-a	-ā(a)-a-	sāɣal	sā(aɣ a) <sup>3</sup>		cough	ā-->a/ - G(optional)
4	cvcvc	wsx	-ā-ā-	-ā-ā-	wāsax	wāsax		additional	
		ɣms	-ā-ā	-a-ā-	ɣāms	ɣarās		rebellion	ā--- a/G - (obligatory)
5	cvcvc	mri	-ā-ī-	-ā-ī-	mārīh	mārīh		leader	
		ɣmi	-ā-ī-	-a-ī-	ɣāmīl	ɣamīl		customer	
6	cvcvc	kdn	-ī-a-	-ī-a-	kīdan	kīdan		loyalty	
7	cvccvc	dfr	-ā-a-	-ā-a-	dāffar	dāffar	✓	bold	
		hfr	-ā-a-	-a-a-	hāffar	hāffar	✓	snr	
8	cvccvc	rzn	-ā-ī-	-ā-ī-	rāzzīn	rāzzīn	✓	heavy	
		hfs	ā-ī	a-ī	hāffīs	hāffīs	✓	concentrated	
9	ccvc	mi?	--u-	-t-u-	mi lu?	mi lu?		fur	
10	ccvc	kdn	-a-	-t-a-	kān	kān <sup>u</sup>		clothes	
11	ccccvc	qds	-u-	-t-u-	qāddūs	qāddūs	✓	poly	
12	ccccvc	wld	-a-	-t-a-	gāmmād	gāmmād	✓	piece	
13	cvcc	ftl	-ā-	-ā-ī	fātīl	fātīl <sup>+</sup>		tread	-----> / --- #
		sm	-ā-	-a-ī	ɣāsm	ɣāsmī		done	
14	cvcc	sm	-ā-	-a-ī-	sāmɣ	sāmɣ		witness	

TABLE 11

## SIMPLE VERBAL STEMS DERIVED FROM TRIRADICALS

E X A M P L E S									
NO	CV PATTERN	ROOT	VOCALIC PATTERN		UR OF STEM	SR OF STEM	GEMINATION	TYPE AND CONJUGATION OF VERBS	REMARKS
			UR	SR					
15	CVCVC	qtI ʃrq sʃm	-ä-ä-	-ä-ä-	qätäl-	qätäl- <sup>5</sup>		type A perfective	
16	CVCVC	brk	-a-ä-	-a-ä-	baräx-	baräx-		type C, perfective	
17	CVCVC	qtI ʃtr shI	-ä-i-	-ä-i-	qätil-	qätil-		type A gerund	ä-i-i-g [ʃyl] thi (oblig. 1)
18	CVCVC	brk	-a-i-	-a-i-	barix-	barix-		type C, gerundive	
19	CVCCVC	ʃs'm hkm	-ä-ä-	-ä-ä-	fässäm-	fässäm-	✓	type B perfective	
20	CVCCVC	ʃsm ʃdg	-ä-i-	-ä-i-	fässim-	fässim-	✓	type B gerundive	
21	CVCC	mrk	-a-	-a-i-	-märk	-märix	✓	type C jussive	
22	CVCC	mrk	-a-	-a-i-	-märk	-märix		type C, imperfective	
23	CCVC	qtI	-ä-	-ä-	-qtäl	-qtäl <sup>6</sup>		type A, jussive	
24	CVCCC	ʃs'm ʃim	-ä-	-ä-i-	-fässm	-fässim	✓	type B jussive	
25	CVCCC	sdr ʔsr sʃr	-ä-	-ä-i-	-säbbr	-säbbir	✓	type A imperfective	
26	CCCC	sdr	-	-i-i-	-sddr	-siddir	✓	type B imperfective	

1-14 in table II, differ from each other in the vowel patterns and/or in gemination in their CP. Even those that seem similar at the SR, are different in their arrangements of vowels and consonants. For example, if we observe the /-ā-i/ and /-ā-i-/ in māwqi "heat" and /gādīm/ "veteran" respectively /i/ in the former one is found word finally whereas in the latter it is not. We can also note that the /i/ in the former one is epenthetic vowel that is underlyingly  $\emptyset$ , while the latter is an underlying /i/. since the syllabic structure of Tigrinya is (at least on the surface) cv and c v c (cf Girmay Berhane (1991), Hayward (1988), and Schein (1982), and since the consonant cluster at word final is not permitted in the syllabic structure of the language the word final /i/, for instance, in /fātli/ "thread", /?igri/ "foot", etc is inserted to help assign a well formed syllable structure (cf Goldsmith 1990:218). Girmay Berhane (1991) says that the epenthetic vowel /i/ is either deleted or changed to /ɨ/ when followed by another suffix. The following are examples.

?igri "foot" (final /i/ is an epenthetic vowel)  
1. ?igri+u --> ?igru "his foot"  
   foot his  
2. ?igri-na --> ?igrina "our foot"  
   foot our

In the first example we see that the epenthetic vowel /i/ is deleted while in the second case it is changed to /ɨ/. But when the final /i/ is not epenthetic, it remains as it is, and this may be shown by the following examples.

qätali "killer"  
qätali-u → qätali?u "his killer"  
killer-his

säma<sup>ʕ</sup>i "listener"  
säma<sup>ʕ</sup>i-u → säma<sup>ʕ</sup>i?u "his listener"  
listener-his

Hence, the /i/ in /ʔiɡri/ and fätli is not an affix. In fact /i/ and /t/ are phonetic realizations that can underlyingly be represented as  $\phi$  (cf Kenstowich and Kisseberth (1979) regarding epenthesis in Harari).

Regarding the verbal stems (listed in 15-26), we observe that the vast majority of verbs in type A, type B and type C are different in their consonant gemination and/or vowel patterns (at least underlyingly) in the perfective, and also the jussives, imperfectives or gerundives. In the perfective, for example the vowel patterns for types A, B and C are (1) /-ä-ä-/, (2) /-ä-ä-/  
with medial consonant gemination, and (3) /-a-ä-/  
respectively.

Eventhough there seem to be some similarities in the vowel patterns, many of these similarities are only phonetic realizations that we get due to guttural sounds. For instance in /qätali-/, the vowel pattern is /ä-i/, but when the medial radical of the stem such as /sihib-/ is a guttural the vowel pattern is /t-i-/ and when the initial radical of the stem is a guttural (e.g. /ʔasir-/) the vowel pattern is /a-i/. Underlyingly, they are all /ä-i/ (see also Girmay Berhane (1991)) i.e. underlyingly different from /a-i/ of /marix-/.

We can say that the patterns in the basic stems (i.e. the simple stems derived from roots) listed in (15-26) are all different from each other except those listed in (24) and (25), and (21) and (22). Even here, one can differentiate (24) and (25) by observing the affixes attached to the imperfectives of type A. For instance, whereas it is possible to say /fās'sīm/ "(you) complete, imperative" or /yifās'sīm/ "let him complete, jussive", it is not possible to say /-ʔasstr/ or /-sabbtr/. This shows that the imperfective needs prefixes and suffixes in order to be fully meaningful. The following are additional examples:-

yisābbir- "he breaks"  
y-sābbirallo "he is braking"

Thus, even though the vowel patterns and consonant geminations of the two basic stems are similar, one can easily identify the two by the inflectional affixes attached to them. Hence, in our examples here, the simple stem of the imperfective, /-sābbtr/, needs prefixes and/or suffixes in order to be complete.

The same thing may also be said regarding the imperfective bound stem **[-martx]** and the free stem of jussive/imperative **[martx]**, listed in (21) and (22). Thus, we can assign v (verb) to the free ones and v-1 to the bound ones in the lexicon (see also Jensen (1990)). Apart from these, the simple verbal stems we have seen so far are different from each other due to their difference in the

vowel patterns and/or their consonant geminations. Nevertheless, there are some similarities between the vowel patterns and/or the consonant gemination of the simple nominal and verbal stems. Even here, it is not difficult to identify the distinction between the nominal and the verbal simple stems, because these verbal stems generally need inflectional affixes (except the imperatives) in order to be complete words that can be inserted into syntactic structures, whereas the nominal simple stems do not necessarily need inflections in order to be complete.

So far, we were dealing with stems derived from triradicals. Now, we shall move to those derived from quadriradicals. As observed in triradical stems, the basic meaning of the root of quadriradicals can also be modified by vowel changes and/or geminations. Hence, we get the unaffixed nominal and verbal stems of Tigrinya derived from quadriradicals<sup>9</sup> that we are going to see on tables IV and V.

The simple derived nominals are listed in (1-10) while the unaffixed verbals are listed in (11-13). If we look at the stems, we can see that they are different either in their cv patterns or in their UR vocalic patterns.

If we see the list of triradical and quadriadical nominals and verbals, the penultimate consonants may geminate, and the sequence of the vowels may vary. For example, we have the pattern /-t- a-/ in words such as /siqay/ "suffering"

SIMPLE NOMINAL STEMS DERIVED  
FROM QUADRIRADICALS

NO	CV PAT- TERN	ROOT	EXAMPLES				GEMIN- ATION	GLOSS
			VOCALIC PATTERN		UR OF STEM	SR OF STEM		
			UR	SR				
1	CVCCVC	snkm hnks	-ä -a- -ä -a-	-ä -a- -a -a-	sänkam hänkas	sänkam hänkas		evil coer- sive
2	CVCCVC	gnzo	-ä -ä-	-ä -ä-	gänzab	gänzab		money
3	CVCCVC	wncn gkqn	-ä -i- -ä -i-	-ä -i- -a -i-	wänçif hällqim	wänçif hällqim		sling thin necked
4	CVCVCCV	brkt	-ä -ä -ä-	-ä -ä -ä-	bäräkät	bäräkät		blessing
5	CVCCVC	drby	- a -	- a - a -	orday	dérday		unworthy
6	CCCV	snki	- u -	- i - u -	snkul	sinkul		handicapped
7	CCCV	çfçf	- ä - ä -	- ä - ä -	çfçf	çfçf		destruction
8	C C C C	dngl	-	- t - t -	dngl	dngl		virgin
9	CCCC	mskr	-	- t - t - t -	mskr	miskkr	✓	witness

table iv

SIMPLE VERBAL STEMS DERIVED FROM QUADRIRADICALS

№	CV PATTERN	ROOT	E X M P L E S				TYPE AND CONJUGATION OF VERBS	REMARKS
			VOCALIC PATTERN		UR OF STEM	SR OF STEM		
			UR	SR				
10	CVCCVC	drby hbtm	- ä - ä - - ä - ä -	- ä - ä - - a - ä -	därbäy- häbtäm-	därbäy- häbtäm-	perfective	
11	CVCCVC	mskr hnks	- ä - i - - ä - i -	- ä - i - - a - i -	mäsķir- hänķis-	mäsķir- hänķis-	gerundive	
12	CVCCVC	mskr hnks	- ä - - ä -	- ä - + - - a - + -	-mäsķir -hänķis	-mäsķir -hänķis	<i>jussive</i>	
13	CCVC	drby	-	- ä - ä -	-drby	-drby	imperfective	the stem needs a prefix in order to be meaningful

table 4

and the pattern /-a- t-/ in words such as /sam<sup>17</sup>/ "witness". We can also observe that patterns can be differentiated by the number of consonants they contain (e.g. /gǎnzǎb/ "money", /wǎsǎx/ "additional" even when their vowel patterns are the same (i.e. both /-ǎ-ǎ-/ in this case).

The CV patterns of verbal stems are not always different from those of nominal stems. Both the sequence and number of consonants within the stems and their vowel patterns may all be the same. For instance, in words /wǎsǎx/ and /sǎbǎr-ǎ/ "he broke", we see that the patterns are the same except that we get /-a/ (i.e.3ms) suffixed to the verb, but not to the nominal stems. Thus, even though the patterns of the nominal stem /wǎsǎx/ and the verbal stem /sǎbǎr-/ are exactly alike, they are differentiated by the fact that verbal stems obligatorily must be inflected for agreement <sup>10</sup> whereas the nominal stems may not do so.

In this language, we have observed different patterns that have different functions. But it is not surprising to find forms having different functions not one to one since the relationship of many to many is also regarded as part of the nature of the word formation in Semitic <sup>11</sup> languages themselves. One pattern may have different meanings or many patterns may have one meaning (see Anderson 1985).

So far, we have tried to identify the list of unaffixed derived nominal and verbal stems of Tigrinya. Such simple derived stems can be the bases for the

word formation of Tigrinya.

Eventhough the words/stems of Semitic languages are, as Anderson (1985:35) puts it, generally formed from roots, it is also possible that Tigrinya and other Semitic languages employ affixation that can be added to the simple derived stems or words and even to complex or other lexicalized items in a way that is similar to the word formation of English and other European languages (cf Selkirk (1982)).

N O T E S

1. Word initial consonant cluster is not permitted in Tigrinya. So the underlying /sbar/ becomes /sɨbär/ after the insertion of the epenthetic /ṭ/ (cf Girmay Berhane (1991)).

2. Girmay Berhane (1991) quoting pam (1973) says  $\dot{i} \rightarrow i$  /---#. Thus the  $\dot{i}$  in stems such as /kɨbri/ is not a derivational affix. Infact it is an epenthetic vowel that is basically  $\dot{i}$ . Since /ṭ/ and /i/ in this case are only phonetic realizations they can be regarded as  $\emptyset$  in the underlying representation (see Girmay Berhane (1991) for a detailed discussion on epenthesis). But this thesis does not include any further analysis on this issue because it is not part of wordformation.

3. In type A verbs, the vowel /ä/ that immediately follows or precedes gutturals can be changed to /a/. As Girmay Berhane (1991) puts it, in the first case /ä/ changes to /a/ due to the lowering effect of the gutturals and in the second case, the /ä/ that is changed to /a/ can assimilate with the /a/ that precedes the gutturals. For instance, |säʃarä| becomes |saʃarä| "he tried" due to the lowering influence of |ʃ| and the vowel /a/ optionally changes the /ä/ preceding the guttural to /a/. Hence, the native can either say |säʃarä| or |saʃarä|. In addition to this, /ä/ is realized as /ṭ/ in the imperfective and the gerundive when the medial radical of type A verb is a guttural. But, since this kind of changes ( $\ddot{a} \rightarrow a$  or  $\ddot{a} \rightarrow ṭ$ )

can easily be predictable, the vowels /á/ and /t/ are regarded as underlyingly /a/ and, hence, are considered as variants (see tables II-V).

4. We can also say that the final /i/ in words such as /fátli/ "thread" is an epenthetic vowel. In Tigrinya, word final consonant clusters are not permitted within a single syllable, since its syllable structure is only cv or cv and cvc (according to Girmay Berhane (1991), it is cv, but according to Schein (1982) and Hayward (1988) (quoted in Girmay Berhane (1991)) etc it is cv and cvc).

5. It is only when they are inflected that they give full meaning. So they are not translated.

6. I have treated the glides in a paper that I expect to present in a seminar of the ILS in 1993. The stems that have one or more glide radicals have patterns that are underlyingly similar to other stems shown on PP. 28-9 and on pp 34-5. But, the patterns of stems that are changed due to the peculiar properties of glides are not treated in this thesis, because they are not part of word formation.

7. Despite earlier claims that gutturals are not geminated, Girmay Berhane (1991) says there are cases where one could find a geminated guttural consonant e.g. /~~h~~háyá/ (3ms) "he sieved", becomes /yihíhñá/ in the passive imperfective. But the vowel changes that we see in the context of gutturals, or glides are not to be discussed

here because (1) they are not part of word formation (2) they were dealt with by Girmay Berhane (1991).

8. According to Mullen (1986) and Jensen (1990) V-1 are stems that are bound and hence not complete words.

9. verbs with four radicals are grouped as type C due to their pattern of gemination in their conjugation (cf Bender (1976)).

10. According to Chung and Timberlake (1985:202), "tense locates the event in time. Aspect characterizes the internal temporal structure of the event. Mood describes the actuality of the event in terms such as possibility, necessity, or desirability". For instance, I worked, I work and I shall work are used for past, present and future tenses respectively. I am carrying, I have carried, and I carry are used for progressive, perfective and habitual aspects respectively (cf Hein (1984) too). Chung and Timberlake (1985:206) also say that there are correlations between mood, aspect and tense. For example, we can find a correlation between a nonactual potential mood and a future tense because the event that occurs after the speech moment refers to future and this correlates with mood since it is also non-actual and potential. The progressive (incompletive or imperfective) aspect and present tense correlate too when the event is ongoing and not complete and overlaps with the speech moment.

11. As Anderson (1985:35) in his discussion of word

here because (1) they are not part of word formation (2) they were dealt with by Girmay Berhane (1991).

8. According to Mullen (1986) and Jensen (1990) V-1 are stems that are bound and hence not complete words.

9. verbs with four radicals are grouped as type C due to their pattern of gemination in their conjugation (cf Bender (1976)).

10. According to Chung and Timberlake (1985:202), "tense locates the event in time. Aspect characterizes the internal temporal structure of the event. Mood describes the actuality of the event in terms such as possibility, necessity, or desirability". For instance, I worked, I work and I shall work are used for past, present and future tenses respectively. I am carrying, I have carried, and I carry are used for progressive, perfective and habitual aspects respectively (cf Hein (1984) too). Chung and Timberlake (1985:206) also say that there are correlations between mood, aspect and tense. For example, we can find a correlation between a nonactual potential mood and a future tense because the event that occurs after the speech moment refers to future and this correlates with mood since it is also non-actual and potential. The progressive (incomplete or imperfective) aspect and present tense correlate too when the event is ongoing and not complete and overlaps with the speech moment.

11. As Anderson (1985:35) in his discussion of word

formation in semitic languages, puts it,

given the limited number of patterns available, a single derivational pattern may have several uses partly out of necessity and partly as a result of individual changes in meaning of lexical items. The other side of this coin is the fact that more than one pattern may come to serve the same function.

The relationship between functions and forms in Semitic languages is in principle many to many (cf Anderson (1985))

## CHAPTER THREE

### 3.0 TIGRINYA COMPLEX WORDS ✓

The formation of words by affixation in Tigrinya is more or less similar to many other languages such as English (see Selkirk (1982:2)). The base and the output of this type of word formation must be members of major lexical categories that could either be possible or actual.

#### 3.1 THE BASES

The base of word formation for Tigrinya may be either simple words, stems, complex words or other lexicalized items. Derivational affixes must be added to the bases to form other words. The following are some examples.

1. /fɨθi/N "justice", --> /fɨθawi/A "just",
2. /fišsum /A "perfect" --> /fišsuminnät/N "being perfect"
3. /gɨbri/N "deeds" --> /gɨbrawi/A "practical"

The inputs in the above examples are /fɨθi/, /fišsum/ and /gɨbri/ that were earlier derived from the roots /fθ/, /fšm/ and /gbr/ respectively. The derivational affix /-awi/ changes the noun into another nominal (i.e. adjective) in (1) and (3). The derivational affix /-nnät/ changes the adjective into a noun in (2)

### 3.20 EXTERNAL AFFIXES

There are, as we have said earlier, different derivational affixes attached to the base. Some people (e.g. Tsegay Taffere (1987), and Asmeret K/mariam (1983) regard all or almost all of the following external affixes 1-19 as derivational affixes.

1. - nnät e.g. Ethiopiawi-nnät "being Ethiopian"  
ftssumtnnat "perfection"
2. - äyna(-äñña) e.g. färäsayna/färäsäñña "horse man"
3. -ñña<sup>u-j'</sup>afarñña "language of the ?afars"
4. - ta e.g. mafäsäm-ta "ending" stqta "silence" sälamta "greetings"
5. - am e.g. sänkam, "unlucky and evil" märgäm "curse"  
hinzam "poisonous"
6. - ä/e e.g. ftssam-ä (e) "completeness" sibbaq-ä (e) "beauty"
7. - o e.g. mirco "loot"
8. - awi e.g. Ethiopiawi "Ethiopian"
9. - nna e.g. ztmdinna, "relationship" qwtmñna "leprosy"
10. - an' e.g. q'bdan "insanity" stxran "intoxication"
11. - ät/at e.g. nñwhat, length: qitläät "killings"
12. - it e.g. qidmit "front" qäatalit (f) "killer"
13. - ti e.g. mäh rämti "beating", ?alämti (pl.) "weavers"
14. - a e.g. fäxära, "boasting" stfra "place"
15. - ttay/ättay e.g. Tigrä-ttay/bilenättay "belonging to Tigrä /to Bilén"
16. - Way e.g. Šärc-way "some thing that looks like powdered pea"



to Scalise(1984), derivational and inflectional affixes can differ because the syntactic categories, subcategorization features, selectional features or the features [ $\pm$ count], [ $\pm$ animate] [ $\pm$ abstract], [ $\pm$ common] of inputs can be changed from one into another due to the affixation of derivational morphemes whereas the addition of inflectional morphemes brings about no change of these sorts to the inputs. The affixes that indicate number, gender, person, tense aspect etc are inflectional<sup>3</sup> and are not expected to change the syntactic category and other features (that are listed above) of the inputs. But derivational morphemes ought to show some changes<sup>4</sup> in the syntactic category and other features of the inputs.

According to Girmay Berhane (1991) and Mullen (1986), clitics<sup>5</sup> are attached to the right of inflectional morphemes. For instance, in the words qät'aluwwo "they killed him" and qätäla?ä "they killed her" the underlined /o/ "him" and /ä/ "her" respectively are clitics. This position of clitics makes them different from derivational morphemes. In fact, their position even differentiates them from evaluative and inflectional morphemes (see scalise (1984)).

Apart from this, whereas derivationals may change the syntactic categories of their inputs clitics do not do so (see Scalise (1984:183-5) for further details).

In the case of evaluative affixes<sup>6</sup> that are common in Romance languages, Scalise (1984) says they are not

derivational, because the syntactic features, subcategorization ( $\pm$ transitive) and other features such as [ $\pm$  animate] (mentioned earlier) of the inputs and outputs are the same. If we take the Italian words /fuoco/--> /fuocorello/-->/fuocorellino/ "fire-little fire-nice little fire" the features of the outputs are similar to the features of inputs. In Tigrinya, evaluative suffixes do not seem to be well developed as those in Romance languages are. Nevertheless, I assume there are some such suffixes, as we can see below.

/mɨhrát/N--> /mɨhrátáy/N "mɨhrát /beloved mɨhrát"  
[-com] [-com]

/wáddi/N--> /wáddáy/N "son /beloved son"  
[+com] [+com]

Tigrinya also has some evaluative suffixes borrowed from Italian such as /-ino/ and /ina/.

/Aster/N--> /Asterina/N "Aster /beloved Aster"  
[-com] [-com]

As Scalise (1984:132) puts it, "...the attachment of an evaluative suffix not only does not change the syntactic category of an item, it does not change any of the features attached to the base either".

Thus, both clitics and evaluative affixes will not be discussed in this thesis since they are not derivational and, hence, not word formatives. In fact they are not located in the subcomponent of WFR's that includes only DR's and CR's.

Hence, the affixes that we discuss in this thesis are only those that show changes in syntactic categories or syntactic category features, subcategorization, selectional or other features such as [ $\pm$ animate] of their outputs in relation to their inputs. In other words, the affixes that we discuss in this thesis are only derivational affixes.

On the other hand, there are affixes that to some people may look like derivational ones and hence need verification. Thus, we will have a brief discussion on them below in relation to their bases designated by x.

### 3.21 X+ NONDERIVATIONAL AFFIXES

The affixes that I regard them as non derivational morphemes are the following :

- |              |           |
|--------------|-----------|
| 1. /-ät/-at/ | 5. /-o/   |
| 2. /-a/      | 6. /-nna/ |
| 3. /-an/     | 7. /-ta/  |
| 4. /-it/     | 8. /-ti/  |

As one can see from the following examples many of the affixes 1-8 can clearly be identified as inflectional ones. The following are examples:

/qätäl-ä(3pfpī.)/ "they killed" ?  
/qätäl-ät/ "she killed" ?  
/kībur/ "dear" ---> /kībur-an(3pmpī)/ "dear"

Some of them can also be identified as clitics (see Scalise.(1984), Mullen (1986), Girmay Berhane (1992) for further details). The following are examples:

/qätäl -a-?o/ "they (f) "killed him"  
/qätäl -a-?a/ "they (f) "killed her"

In the examples qätäla?o "they killed him" and qätäla?a "they killed her" the underlined ones are clitics referring "him" and "her" respectively

But it is not always that they are referred to in this way. If a native speaker says /kibri/ or /kibrät/ "respect" and if they are similar in meaning, we can not say that in this context they are used as inflectional morphemes or as clitics. As we noted earlier, derivational affixes change the syntactic category or other features such as [+abstract]. But these affixes do not seem to do so.

We shall hereafter see their inputs and outputs and try to identify whether they are derivational morphemes or not. In order to have a better understanding of all these, let's first observe the following list of examples.

- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1. /firdi/N "justice"           | 22. /stmrät/N "unity"              |
| 2. /hilmī/ N "dream"            | 23. /wirdät/N "humiliation"        |
| 3. /gibri/ N "deeds"            | 24. /ʃibdan/N "insanity"           |
| 4. /gibri/N "tribute"<br>[-abs] | 25. /hīrfan/N "greediness"         |
| 5. /gädli/N "struggle"          | 26. /ʃirqan/N "poverty"            |
| 6. /saʃri/N "effort"            | 27. /ʔirgan/N "oldage"             |
| 7. /rahsī/N "humidity"          | 28. /zimdtinna/N<br>"relationship" |
| 8. /sifri/N "measurement"       | 29. /sinfinna/N "laziness"         |
| 9. /kibri/N "respect"           | 30. /diltifinna/N "speediness"     |
| 10. /ftrqi/N "half"             | 31. /mihro/N "education"           |



- |                               |                                    |
|-------------------------------|------------------------------------|
| 11. /sɪdri/N "cubit:          | 32. /mɪrco/N "loot"                |
| 12. /fɪlmi/N "furrow"         | 33. /hɪlco/N "intrigue"            |
| 13. /zɪbɪ/ "h yena"<br>[-abs] | 34. /tɪwyo/N "twisted<br>material" |
|                               | 35. /çɪfra/N "group"               |
| 14. /ʔɪgri/N "foot"<br>[-abs] | 36. /kwɪmra/N "collection"         |
|                               | 37. /sɪfra/N "place"               |
| 15. /dɪfrāt/N "courage"       | 38. /gɪrma/N "grace"               |
| 16. /mɪsʔat/N "the last day"  | 39. /gɪttim/N "competition"        |
| 17. /fɪrhat N "fear"          | 40. /fɪttihit/ "solution"          |
| 18. /ʔɪmnāt/N "Belief"        | 41. /gɪbbirit/N "deeds"            |
| 19. /sɪgʔat/N "tension"       | 42. /ʔaragit/A "old"               |
| 20. /rɪgʔat/N "stability"     | 43. /fɪttih/N "divorce"            |
| 21. /kɪbdat/N "weight"        |                                    |

As we can see from the list of examples, all except 1-14 have nonderivational affixes suffixed to them.

In the examples 1-14, the UR of the simple stem is /ccc/(or /cac/). The last vowel, /-i/ is, according to Girmay Berhane (1991), an epenthetic vowel (see also Kenstowich & Kisseberth (1979:224) regarding an epenthetic vowel in Harari). Since /i/ is not part of the base it is attached to, it must be analysed within the syllabic structure of the language. Among the examples 1-14, Nos 4, 12 and also 13 and 14 are the only concrete nouns. Thus, the majority are [+abstract] [-animate], [-count] and [+common]. On the otherhand, the examples 15-23 are [+abstract] ,

[-animate],[ -count] [+common] except no.21 that may be[-abstract] or [+abstract]. Therefore,there is no convincing reason that shows any change from abstract to concrete or concrete to abstract because almost all the nouns with suffixed /-ät/ -at/ are [+abstract] and most of the nouns with<sub>out</sub> /-ät/ -at/ are also [+abstract]. Regarding the other features such as [+count] we can see that the inputs and out<sub>puts</sub> are more or less similar. So, the few words such as /t+lmi/ and /g+bri/ might have become concrete nouns by zero derivation and infact the word /g**+**bri/ could be either [+abstract] or [-abstract]. In addition to this, the natives say /k**+**ibri/ or /k**+**ibrät/ and both of them mean "respect" [+abstract], [-animate] [-count] and [+common] noun. Thus, this is a sign that /-ät/ or /-at/ do not look like derivational morphemes.

We can also cite other examples from Arabic. According to McCarthy (1982),the Arabic feminine marker /-at/ can idiosyncratically be added to different nominals. For instance, we can observe the free variation of the nomen instrumenti which have the pattern /miccac/. If we take the classical Arabic words /Misrah/ and /Misrah**+**at/ "comb", the first word has no**+**at while the second one has the Arabic feminine marker /-at/ suffixed to it. But McCarthy calls them free variants. McCarthy also cites similar examples in the nomen vasis (nouns of place or time) and in the mimimasdars (i.e. a type of infinitive or gerund). In the masdars (i-e. a type of nouns which McCarthy says are derived from the perfective) too there are free variants

with and without feminine ending /-at/ ( e.g. /taktiib/ and /taktibat/). These two lexical items, /taktiib/ and /taktibat/ are the same except the fact that /i/ is shortened in the second one due to, the idiosyncratically suffixing of /-at/ (cf McCarthy(1982)).

The same thing could be said about the feminine ending /-ät/at/<sup>s</sup> and the plural ending /at/ of Tigrinya. For instance, /kibri/ and /ktbrät/ can be regarded as free variants. On the other hand because there are lexical items such as /firdi/ "justice" and /stirrät/ "unity"\*/Símri/ can be regarded as a possible word. Thus, just as /kibri/ and /ktbrät/, /\*símri/ and /símrrät/ can be assumed as possible free variants.

Other examples of free variants are /fírhi/ and /fírhat/ "fear". Besides, even though /wirdi/ "bet" and /wirdät/ "humiliation" are not free variants, the fact that both are [+N] and [-abstract] [-count] [-common] [-animate] shows /-ät/ plays no role of being a derivational. Hence, the occurrence of /-ät/ may be because, as Moscati and et al (1964 :78) say: "...long vowels may be replaced by the feminine ending-at", or even because of some other idiosyncrasies. What is clear is that it is not a derivational morpheme.

I assume the same argument holds for other nouns with or without the endings /-o/, /it/, /-an/, /-a/ /-nna/ that are suffixed to the stems idiosyncratically and without any function.

In fact some of them are free variants. The following are examples:

1. gābān/gābāna "fault"
2. wāsāx/wāsāxa "additional"
3. hīrfi/hīrfan "greediness"
4. mīttar/mīttaro "a piece of an item"
5. fīttar/ fīttaro "a clutched material"
6. qwīntar/qwīntaro " a few"



Regarding /-it/, we can observe that it is not derivational affix. For example if we compare the words /fittih/ "divorce" and /fittihit/, the /-it/ in /fittihit/ "solution" does not show any change in syntactic categories, subcategorization features, selectional features or other features such as [±abstract]. In the case of /-nna/, we can see that it can be suffixed to the pattern /c+cc/ such as /k+bri/ "respect". If it is compared with its output, i.e. /x+-nna/, it can be seen that they are mostly similar in syntactic categories or other features that are mentioned earlier.

Furthermore, the participle form cvc(v)c(c)vov with a prefixed /m-/ is lexicalized because it shows phonological and semantic idiosyncrasies<sup>11</sup> as we can see below.

1. mī + ?adāngwayi → mādāngwāyi "reason for being late"
2. ?axbari "one who respects"
3. māxbāri "one who respects/reason to respect"

Thus, example (1) shows that there is a phonological change. Besides, example (3) shows that it also takes the meaning of the active participle/?axbari/.

The fact that participles are lexicalized is not peculiar to Tigrinya alone. As Moscati and et al (1964:158) put it, "the participle in Ethiopic has become a lexical item rather than a regular morphological feature". In some

Semitic languages (e.g. syriac) /ma-/ is reduced to /mā-/ that in its turn is contracted with the prefix /ʔ/. For example /\*māʔaqberʔ-->/maqber/ (cf Moscati and et al (1964:158)). I believe that this holds true for Tigrinya too. The /mā-/ that seems to show mood in words such as /māqātālā/ "he would have killed" (formed from /mā-/ and /qātālā/ "he killed) has become a part of a single lexical item in the participles contracted with the prefix /ʔ/.

In addition to this, /-ta/ is suffixed to the participle form /māccāc-/. But, it does not change the syntactic category or features of the input. Sometimes the input and the output (i.e./x+ta/) may even be free variants as we can see from the examples such as /māǰāmmāri/ /māǰāmmārta/"beginning". However, once the lexical items are listed in the permanent dictionary of the lexicon, it is highly probable that they undergo semantic changes or other idiosyncrasies that can not be governed by WFR's (cf Scalise (1984)).

Furthermore, we can observe that the affix /-ti/ is also idiosyncratically suffixed to the participle form /māccāc-/ which is related to type A verbs (cf McCartney (1982) regarding /-it/ in Arabic). As we can see from the examples below, /-ti/ is not a derivational morpheme.

1. mābrīhi--> mābrahti "one(s) who enlighten(s)".
2. mābrīhi--> mābrahti "one who enlighten/lamp".

The example (1) shows that /-ti/ is a plural marker. But the affix /-ti/ in (2) shows that it is neither inflectional nor derivational. It is simply suffixed to /mābrah-/ idiosyncratically and without any function.

Thus, from what we have said so far, one can understand that /-at/at/, /-an/, /-a/ /-it/, /-nna/, /-ta/, /-ti/, and /-o/ are not derivational morphemes, because unlike derivational affixes, these do not change the syntactic categories and other features such as [ $\pm$ animate] or [ $\pm$ count] of the inputs.

### 3.2.2.0 DERIVATIONAL AFFIXES

So far we have been dealing with external suffixes which are believed to be non derivationals.

The lexical component may incorporate the dictionary, WFR's, ER's, and IR's. But derivational affixes are represented in the WFR component. They precede ER's,<sup>13</sup> and IR's.

On the other hand, derivationals change the syntactic categories, subcategorization frames, selectional or other features such as [ $\pm$ common] of the input. These make derivational affixes distinct from the evaluative and inflectional affixes<sup>14</sup> that occur outside WFR<sup>15</sup> component.

We may not expect every derivational affix (specially the prefixes) to change the syntactic category and the above cited features of an input, but it is assumed that we must at least observe the change of some of these features in the output when a derivational affix is attached to the input.

As Anderson (1985) puts it, the inputs of word formation in semitic languages are usually roots. But

Selkirk (1982) also claim that Semitic can also be formed by adding derivational affixes to the base. This seems to hold true for Tigrinya.

### 3.2.2.1. DERIVATIONAL SUFFIXES

As is the case in other Semitic languages, the derivational suffixes of this language are only a few when compared to those of other languages such as English (cf Selkirk (1982:80-1) and Anderson (1985:37-8)). Tigrinya, as far as I know has 8 suffixes, but about half of them seem to be borrowed from other languages. Six of the suffixes change nouns into adjectives while the rest change adjectives into nouns.

According to Jensen (1990:27), "two or more forms are in free variation if they have the same meaning, are phonetically distinct and may occur in exactly the same environments". For example, either can be pronounced as [i:ʕar] or [ayʕar] and for many English native speakers they may be equivalent. But the variant forms that are associated with social class, style etc differences may not be free variants (cf Jensen 1990:27)). Having this in mind I believe that none of the suffixes that we are going to discuss below are in free variation.<sup>15</sup>

Hereafter, each of them shall be briefly dealt with, so that one will have a clearer understanding of their inputs and outputs.

3.2.2.1.1 X+-ay

The morpheme /-ay/ can be suffixed to [-common] nouns such as /Tembien/. For instance, /Tembien/ "a name of a place in Tigray" becomes /Tembienay/ "one who is from Tembien", /Hamasiēn/ "a name of a province in Eritrea" becomes /Hamasiēnay/ "one who is from Hamasiēn".

The morpheme /-ay/ can also be suffixed to [+common] nouns such as /ḥamli/ "vegetable" to become /ḥamlay/ "green" (derived from the green colour of vegetables). It can be realized as /-way/ if the [+common] noun ends in a vowel such as /o/, (e.g. /štro/ "powdered peas" → /štroway/ "that looks like powdered peas/yellow" or if the last epenthetic vowel /i/ is substituted by /ä/ (e.g. /ḥamli/ "vegetable" → -/ḥamläway/ "that looks like vegetable /green").

Hence, we can see that /-ay/ (and its allomorphs) change the inputs which are nouns, into the outputs that are adjectives. This is because the heads (the adjective suffixes) take precedence over the stems to which they are suffixed and make the complex words adjectives.

3.2.2.1.2 X+-awi

The base of /-awi/ is usually [-common] noun. But the output is [+common] adjective. For instance:

Ethiopia → Ethiopiawi "Ethiopian"  
Engliz → Englizawi "English"

If we compare /-ay/ ( and its allomorphs) and /-awi/ (and also /-wi/) we can generally say that the basis (i.e. [-common] nouns) and also their outputs (i.e. [+common] adjectives) are similar. For instance, /Tembien/---> /Tembienay/ "some one who is from Tembien" /Ethiopia/--> /Ethiopiawi/ "Ethiopian". But just as in the case of /-ay/ and its allomorphs it is possible that /-awi(wi)/ can also be suffixed to [+common] nouns. For instance:

mtdri	---->	mtdrawi	"terrestrial"
sālam	---->	sālamawi	"peaceful"
sāmay	---->	sāmayawi	"which has the colour of the sky/blue".

However, their outputs are adjectives. Thus, if x is the base, then /x+-awi/(/-wi/) gives adjectives (and the same holds true for the /x+-ay/ (and its allomorphs)). As far as the usage is concerned, /-awi/(/-wi/) seems restricted to [+learned]. In other words, it is usually the intellectuals who use /-awi/(/-wi/) together with nominals related to Geez

or names of countries e.g. /Ethiopia/-->/Ethiopiawi/, /sāmay/--->/sāmayawi/ "celestial" /mtdri/-->/mtdrawi/, /ʔaf/ "mouth"--->/ʔafʔawi/ "superficial".

The morpheme /-awi/(/-wi/) is not frequently used by the unlearned native speakers. For example, the illiterate says /ʔingliz/ to mean "England" or English" or /t'aliyan/ to mean "Italy" or "Italian". Furthermore, words like /ʔafʔawi/ may be substituted by other words with similar meanings or may be used as one lexical item. For instance /sāmayawi/ "blue" is used as one lexical item, not derived

by word formation, just as /red/ or /black/ is. This shows that /-awi/(/wi/) may be a borrowing from Geez or relic of ancient Semitic.

From what has been said above, it is possible that:

- 1) /-ay/ and /-awi/ (and their allomorphs) are different and it does not seem that one is derived from the other.
- 2) semantically they are more or less similar.
- 3) /-awi/ is a typical suffix of Geez <sup>22</sup> i.e. Ethiopic (cf Moscati et al (1964)).

Hence, what is said by Moscati <sup>and</sup> et al (1964) supports the fact that in Tigrinya /-awi/(/wi/) and /-ay/(and its allomorphs) are not phonological derivatives.

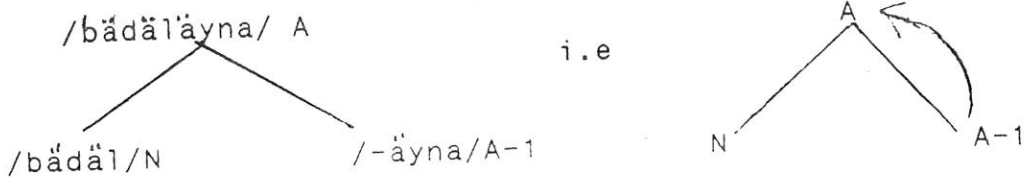
### 3.2.2.1.3 X+-äyna/-ännä

The function of /-äyna/ is similar to /-ännä/. But /-ännä/ is not typically Tigrinya because the unlearned native speakers cannot pronounce /-ñ/. It is used by city dwellers or the literate groups and might be a borrowing from Amharic. The illiterate uses /-äyna/ and the literate can substitute it by /-ännä/. Hence, they have the same meaning. For instance:

1. bädäl--→ bädäläyna/bädälännä "one who commits crime"
2. nägär--→ nägäräyna/ nägärännä "not sincere"
3. ?af--→ ?afäyna/ ?afännä "talkative /good speaker"
4. ḥayli--→ ḥayläyna/ ḥaylännä "strong"
5. färäs--→ färäsäyna/färäsännä "horseman"
6. maṣat--→ maṣatäyna/maṣatännä "extraordinary"



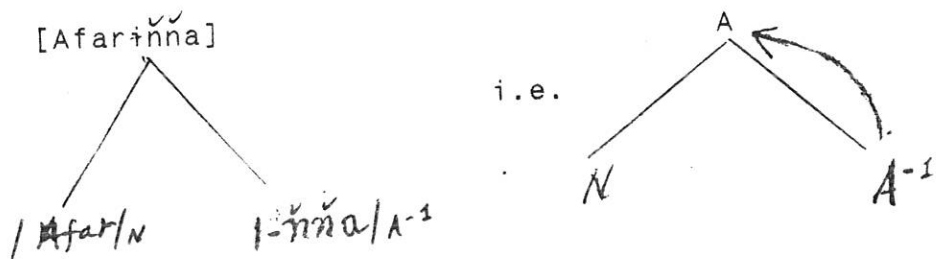
The bases for the /-äyna/ and /-äñña/ are nouns. But their outputs are adjectives. For example, //bädäl/N +äyna/A--->/bädäläyna/A.



From the representation we can see that the base +/-äyna/ is an adjective because the head /-äyna/ is an adjective and it is by percolation that bädäläyna becomes an adjective. We have said earlier that the suffixes are Semantically similar, but because one is commonly used in the country sides and the other in the cities, I assume they are not free variants.

3.2.2.1.4 X+-ñña

This morpheme is not a typical Tigrinya morpheme for the same reason that we have said earlier i.e. /-ñ/ is not pronounceable by the illiterate natives. If /-ñña/ is added to a name of a nation or nationality, the output may become the name of the language of that group. For instance, //Afar/N+/-ñña/A--> /Afarñña/A. Thus, the head /-ñña/ being an adjective, the complex word is also an adjective. This is due to feature percolation convention. For example:



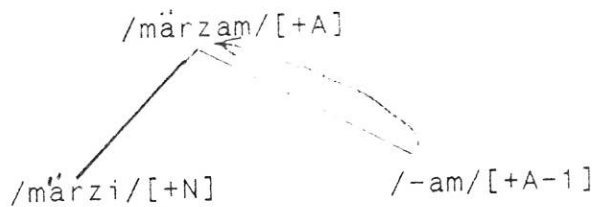
3.2.2.1.5 X+-am

This morpheme is a category changing one. It changes nouns to adjectives. Hence, it is a derivational morpheme.

According to Yohannes G/egziabher (1956) <sup>23</sup> /-am/ is suffixed to about six Tigrinya inputs. The followings are some of them:

- <sup>24</sup> / k'arsi/N "belly"-->/k'arsam/A "greedy"
- /h'inzi/N "poison"-->/h'inzam/A "poisonous"

The head of the complex word is /-am/. As we can see below the feature [+A] is percolated from it to the complex word dominating both the base and the head.



The suffix is semantically similar to /-äyna/, but it is rare and may be neglected (cf Aronoff (1976:48-9) and Scalise (1984:14)). However, we can observe that there is a distinction between the two. Whereas /-äyna/ is usually suffixed to words with more than one syllable (e.g. /b'adäl/-> -/b'adäläyna/ "one who commits crime"), /-am/ is suffixed to underlying monosyllabic words (e.g. /gud/-->gudam/ "fantastic/extraordinary").

According to Aronoff, (1976:51-2) the features of

complex words such as [+latinate] are abstract properties of morphemes rather than of bases. He also says that monomorphemic words easily lose their properties such as [+latinate] or [+native].

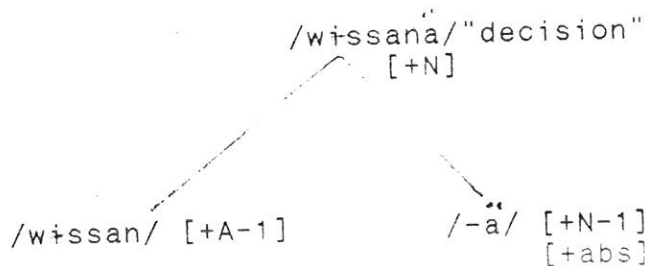
In the same manner, we may say that /-am/ (that is very common in Amharic) may be assumed to be [+Amharic] suffixed to monomorphemic Tigrinya nouns to form adjectives (cf /-ity/ i.e. [+latinate] and its rival /-ness/ i.e. [+native] in Aronoff (1976:51)).

25

3.2.2.1.6 X+-ä/e

The derivational suffix /-ä/(/-e/) is affixed to the pattern /c+ccac/ (e.g. /w+ffay/A "donated" and /q+rram/A "collected"). If we say s+bbar t+rmuz, "a broken piece of glass", here /s+bbar/ "a broken piece of" is an adjective qualifying some concrete nouns. But if /-ä(e)/ is suffixed to the pattern /c+ccac/, then the output becomes an abstract noun. observe the following

/\*s+bbaq/-->/s+bbaqä/ "beauty"  
[+A-1]                    [+N]  
                                  [+abs]



Thus , from this we can understand that the category of the new word i.e. the complex word is an abstract noun and this is due to the head suffix /-ä/.

The derivational morpheme /-ä/(/-e/) is usually suffixed to possible words. The middle radical of the base may be geminated or the base may be a quadriliteral one. For instance :

/\* sɨmbad-/A-->/sɨmbadä/N  
[+abs]

We can say /\*sɨmbad-/ is a possible adjective because we have other adjectives that are formally similar to it e.g. dirbay "worthless".

The derivational morpheme /-ä/ is different from the inflectional /-ä/ (3ms) or the semantically insignificant one that we find attached to /-ta/ as in /näqäfäta/ because their outputs do not have any similarities in meanings, category labels or other syntactic or semantic features. In fact Scalise (1984) believes that phonological forms can not be regarded as a single suffix if their output produces different categories or different semantics.

#### 3.2.2.1.7 X+nnät

The morpheme /-nnat/ changes the base nominal into another nominal. But the inputs could either be concrete nouns or adjectives qualifying concrete nouns, where as the output of the derivation could be abstract nouns. The

followings are examples:

/ħaw/[+N] "brother" /ħiwinnát/ [+N] "brotherhood"  
[-abs] [+abs]

/ʔínsisa/[+N] "animal"/ʔínsannát/[+N] "animalism"  
[-abs] [+abs]

/ʧašša/ [+A] "foolish"/ʧiššinnát/ [+N] "foolishness"  
[+abs]

/ħara/ [+A] "free" /ħarinnát/[+N] "freedom"  
[+abs]

/bartya/ [+N] "slave"/bartinnát/ [+N] "slavery"  
[-abs] [+abs]

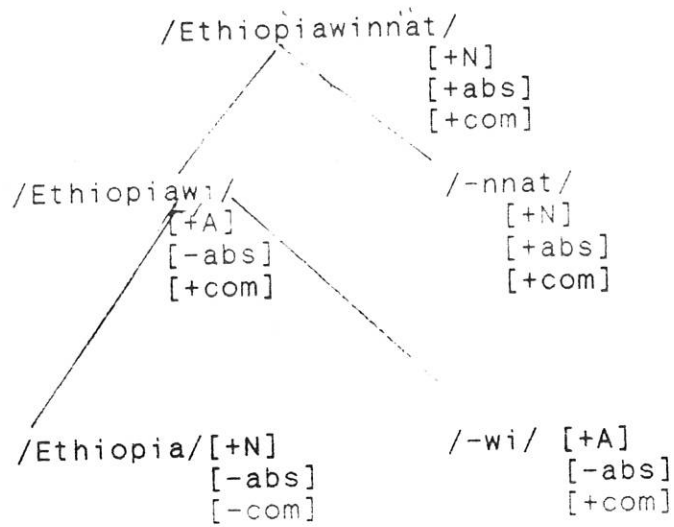
/ʧtbara/ [+A] "thin" /ʧtbarannát/[+N] "thinness"  
[+abs]

/mámhír/ [+N] "teacher" /mámhírtinnát/[+N] "teaching"  
[-abs] [+abs]

/ʔarámáne/[+A] "cruel"/ʔarámánennát/ [+N] "cruelty"  
[-abs]

In all the examples shown so far the output is  
[+abstract] noun. Semantically, /-nnát/ expresses the notion  
"the fact of being x". For instance ʧarki "friend" refers to  
concrete noun and ʧírkinát "friendship" refers to an  
abstract nominal of ʧarki, i.e. the notion of being a  
friend.

In order to see this more clearly let's see the  
following structure.



From this example, it is clear that not only the category but also the features [+abstract] and [+common] are percolated from the head to the next dominating node.

#### 3.2.2.2.0 PREFIXES

Derivational suffixes, as we have seen earlier, are heads and this is a general characteristic of other languages too. (cf Williams (1981), Scalise (1984), Tromelen and Zonneveld (1986)).

On the other hand, prefixes are not necessarily heads and do not usually determine the category of the complex word (see Scalise (1984) and others). The following is a discussion on the prefixes of Tigrinya together with their bases .

#### 3.2.2.2.1 tã+x

The prefix /tã-/ is derivational and its bases are the perfective pattern /cã(a)c(c)ãc-/ and the traditionally called gerundive pattern /cã(a)c(c)ic/. The past perfective

and the gerundive are semantically similar in that both of them may refer to past action. The followings are examples:

\*q'ammát'á---→táq'ammát'á "he sat down"  
barixu--- tábarixu "he was blessed"  
q'átilu--- táq'átilu "he was killed"  
bálq'á--- tábálq'á "he was eaten".

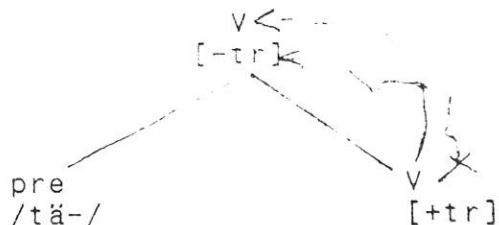
From the examples above one can see that the bases may either be possible (e.g. /\*q'ammát'á/ or actual (e.g. /q'átilu/ words. Unlike 1R's, DR's can change subcategorization features (cf Scalise (1984:110)). Thus, the derivation of /táq'átálá/ from q'átálá/ changes the subcategorization of the transitive verb (-NP) to intransitive (-pp). For example, ?anbása q'átálá "he killed a lion", ?áti ?ambása bikwínat táq'átálá "the lion was killed with spear".

DR's also change selectional features. If we compare ?ambása q'átálá "he killed a lion" and ?ábása táq'átlá "a lion was killed" the selectional restriction on the subject of the verb q'átálá is [+animate] whereas that of táq'átlá is [-unit] since it underlyingly has no subject (cf Scalise (1984:110-1)).

Regarding the head of the complex word, a prefix is not necessarily a head. In fact, in this case, /q'átálá/ seems to be the head and the percolation of lexical category to the higher V node can take place from it .

It is probably true that there is a double percolation in a single process. Hence, the category label of the higher V node is percolated from the head, whereas subcategorization features are percolated from the prefix

/tá-/ as we can see below (see Scalise (1984)).



Thus, the prefix /tä-/ does not change the category verb of the head, but it changes the transitive feature of the head.

3.2.2.2.2. ?a+-x

The bases of this morpheme are similar to the bases of /ta-/. This morpheme is prefixed to either possible or actual forms such as the following.

- \*lāqqāhā--> ɔalāqqāhā "he borrowed"
- sālfānā "he became civilized"-->?asālfānā "he made others civilized"
- sārḥā "he made"-->?asrḥā "he made others work"
- fārḥā "he became frightened"-->?afriḥā "he made others frightened"
- bāiṣā "he ate"-->?abiṣā- "he made someone eat"

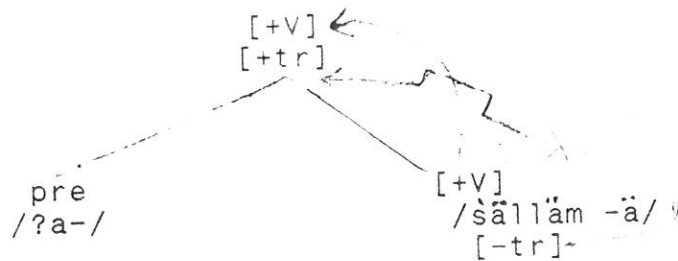
The morpheme /?a-/ being derivational morpheme, changes the subcategorization features. For instance:

1. Kābbādā ?anbāsa qātālā "K.killed a lion"
2. Kābbādāntbarha ?anbāsa ?aqātālā "K. caused Berhe to kill a lion".

In (1) the lion is killed by Kābbādā. In (2) the lion is killed by Berhe (since K. is only a cause).

In addition to this, if we say Daniel sāllāmā "D.became

black" and Daniel ntmandäq ?asällämä" D. made the wall black", the intransitive verb is changed to transitive and subcategorization features are changed accordingly. This, obviously, is due to the role played by the derivational morpheme /?a-/. The complex word such as /?asällämä/ is composed of the prefix /?a-/ and the verb /sällämä/. The head /sällämä/ (which is [-tr]) percolates the feature [+V] and the /?a-/ percolates the feature [+tr]. Hence, the complex word /?asällämä/ has the features [+tr] and [+V] which came into being due to double percolation from both the prefix/?a-/ and the verb /sällämä/ as the following illustration shows (see Scalise (1984)).



From our discussion of derivational affixes so far we can observe the following :

Tigrinya has 2 prefixes, i.e. /tā-/ and /?a-/. Besides, it has 8 suffixes. We can have the following observations regarding them:

- a) /-ay/ and /-awi/ are semantically similar (cf Moscati and etal (1964:83)). They give the meaning "belonging to". But /-ay/ is [+native] whereas /-awi/ is [+Geez] (cf Aronoff (1976:51-2) regarding [+latinate] and [+native] affixes).
- b) /-äyna/ and /-ännä/ are exactly the

same in meaning. Nonetheless, the first is [+native] whereas the second is [+Amharic]. There is also another suffix i.e. /-am/ that is semantically similar to /-äyna/. It is limited to about six monosyllabic bases with dental endings. But I assume it may be neglected because it is rare (cf Aronoff 1976:48) and Scalise (1984:141)).

c) /-ñña/ is [+Amharic] and has the meaning "some one who speaks x (x being the input)".

d) /-ä/ and /-nnät/ attach to <sup>NS</sup>nominal inputs and yield the same category in outputs (i.e. nouns) with features [+abstract] and [-animate]. They can be compared to /-ity/ and /-ness/ of English. These suffixes can have similarities in meaning: even though they sometimes may differ as in /fiššamá/ "last/end" and /fiššuminnät/ "perfection" (cf Scalise (1984:157-8), Jensen (1990:89)).

On the otherhand, /-ä/ is nearly always suffixed to bound stems that are formally similar to other simple derived ~~nominals~~. But /-nnät/ is always attached to simple derived or complex adjectives that are not bound.

N O T E S

1. For instance if /im-/ is prefixed to the possible adjective /\*maculate/ or the actual adjective /mature/, the outputs are /immaculate/ and /immature/ respectively.

2. It is not always obligatory that derivational morphemes should change all of the syntactic categories, or other features such as subcategorization, selectional, (e.g. the change of an object from [-animate] to [+animate] (see Scalise (1984:110-1)), [ $\pm$ abstract], [ $\pm$ common], [ $\pm$ count], and [ $\pm$ animate] of the inputs. It is also possible that only some of them can be changed.

3. According to Scalise (1984) and Girmay Berhane (1991) inflections are normally found to the right of derivational morphemes, whereas clitics are found to the right of inflectional morphemes.

4. The changes in declensional class of nouns and conjugational class of verbs do not seem to be relevant to Tigrinya-. For instance, in Italian the 3rd conjugation /dormire/ "to sleep" is changed to 1st conjugation /dormichiare/ "to doze" due to the suffixation of derivational morphemes. But, as far as I know, there are no such things in Tigrinya. Even the verbs of type A, B, and C do not show any change of one from the other and are simply listed in the lexicon (cf Girmay Berhane (1991)).

5. According to Scalise (1984:183-185) some of the

points that make clitics different from derivationals are the following:

1. Clitics normally occur to the right of inflections
2. Clitics do not change syntactic categories.
3. Clitics normally occur attached to verbs.
4. Alternative orderings of clitics are not usually possible.

The points listed 1-4 seem to hold true for Tigrinya too (cf Mullen (1986) and Girmay Berhane (1992)). Scalise (1984:184) also says that clitics can not be regarded as affixes.

6. According to Scalise (1984:136), an evaluative suffix attached to a verb has usually a "frequentative" value". The following examples are taken from (Scalise 1984:136):

/giocare/V----->/giocherellare/V "play-play around"  
/mangiare/V----->/mangiucchiare/V "eat-nibble"

7. /-ay/ "my" seems to have an extension of meaning "beloved". Besides, the attachment of an evaluative suffix to the base does not change the syntactic categories or any of the features such as [ $\pm$  animate] (cf Scalise (1984:132)).

8. /-ät/ and /-at/ are feminine markers in say /säbärät/ "she broke" and /k#burat/ (fem.plu.) "dear" (/ -at/ is least formally limited to feminine plural). But /-at/ can also be a plural marker e.g. /säb/-->/säbat/ "man/men". Nonetheless

/-<sup>h</sup>at/ are meaningless when we compare /kibri/ and /kibrat/ "respect" and also /fārhi/ and /fārhat/ "fear".

9. Moscati and et al (1964) say, the base and the affix (i.e. x+an) give an abstract nominal. This is also true for Tigrinya e.g. ḡābdan "insanity". According to him /-an/ was originally a masculine plural marker in Ethiopic (Geez). But /at/ has long ago started to expand at the expense of /-an/ e.g. /May/-->/mayat/ "water/s". In Tigrinya too, this holds true e.g. fālut' (m) sab "a known man" becomes filutat (m.plu.) sābat "known men".

10. It is important to note that the non derivational affixes are only rarely suffixed to quadrilaterals. This is in harmony with the idea that in some Semitic languages (e.g. Akkadian) short nouns can be reinforced by suffixes such as /-an/ that have no specific significance (cf Gelb (1952) quoted in Moscati and et al (1964)).

11. According to Scalise (1984:105) irregular forms such as /tooth/-->/teeth/, /go/-->/went/, /good/-->/best/ etc are listed in the lexicon as separate (suppletive) forms. One item can not be derived from the other. According to McCarthy (1982) broken plurals are derived from roots and are morphological idiosyncracies. I assume, they must be treated in the same way as the English suppletive forms (see also Anderson (1985:170-1)).

12. I assume that the /<sup>h</sup>a/ following the next to the last syllable is derived from /a/ due to the prefixation of



/mɨ-/ (cf McCarthy (1982) regarding the shortening of long /a/ after the suffixation of /-ti/). But the /a/ following /?/ is underlyingly /ä/ (cf Girmay Berhane (1991)). After the deletion of /?/, /t+ä/ is assumed to be /ä/. For instance /mɨ+/?aqt'alo/--> /mäqt'alo/ "he would cause (be the cause) to kill him".

13. (cf Scalise (1984:132)).

14. (cf McCarthy (1982:217) and Scalise (1984:102)).

15. (cf Scalise (1984:44)).

16. Selkirk (1982:103) says that there are homophonous affixes (e.g. /-ment/1 and /-ment/2 , /-able/1 and /-able/2) that can be regarded as two different morphemes. The reasons for this may be because they are found in different levels of the lexicon or can be preceded or followed by different morphemes. This idea is also supported by Aronoff (1976).

17. But /-ay/ remains as it is only when the [-common] base ends in a consonant e.g. /Bilen/--> /Bilenay/ "one who belongs to Bilen". When the [-common] input (e.g. /s'arayä/, /saho/) ends in /a/, /o/, /ä/ or when a vowel /ä/ is attached to an input such as Bilen that ends in a consonant, the affix becomes /-ttay/ e.g. /s'arayä/--> /s'arayättay/ "one who belongs to a place called s'arayä", /Bilen/--> /Bilenättay/ "one who belongs to a nationality called Bilen", /qolla/--> /qollättay/ "one who lives in a lowland".

18. (cf Girmay Berhane (1991)).

19. The /-ay/ /-iy/ of Semitic languages have functions similar to /-ay/ (and its allomorphs) of Tigrinya (cf Moscati and et al (1964)).

20. /awi/-->/wi/ ~~a-#~~ - . But, this thesis will not focus on any deletions or additions of vowels and /or consonants between the base and the suffixes /-awi/, or /-ay/, since I believe, these must be treated by RR which is outside the WFR.

21. Scalise (1984) quotes Saciuk ((1969) as saying that the [+learned] (non native) can be classified into [+Latin], [+Greek] etc. According to Aronoff (1976:51-2) these features i.e. [+Latin] etc. are the properties of morphemes (affixes) and not inputs.

22. Regarding /-iy/, /-ay/ /-awi/ Moscati and et al (1964:83) say :

When attached to other themes these suffixes produce adjectives with the meaning "belonging to" (e.g. Ar. 'ardiy "terrestrial", AKK. Mahru (< mahriyu) "first", Bibl -Aram. Kasday "chaldaean", Heb. y'dhudi "Jewish", etc). The suffix -āwi is characteristic of Ethiopic (Geez) (e.g. njgūšawi "royal") (note that the /-ā/ in /-āy and /-āwi/ above is long /a/ and " " in 'ardiy is "?").

23. According to Moscati and et al (1964:81) Akkadian words can be formed by dissimilation. For example /m/-->/n/ due to the dissimilation of labials /m/ and /p/ in words such as /\*mapharu/--> /napharu/ "sum".

In the case of Tigrinya the inputs of /x+am/ end in /r/, /z/, /d/, /s/ (since the last vowel /i/ in words like

/mä'zi/ is epenthetic). We can observe that all the possible and actual words end in dentals. Hence just as /m/ is changed to /n/ by dissimilation we may assume that dissimilation process changes /-an/ (the non derivational affix in words like ṣābdan) into /-am/ because the /n/ in /-an/ and the endings of the bases are all dentals. If this is the case one can say that /-am/ is derived from /-an/.

But the fact that /-am/ is category changing whereas /-an/ is not shows that the two do not have the same function.

24. The other words that are bases of /x+am/ are ,/gud/ "extraordinary", /mä'zi/ "poison", /\*säxr-/ , /wäzz-/. The inputs are underlyingly monosyllabic, since the final /i/ in words such as /mä'zi/ is epenthetic inserted to break the cluster of consonants that is not permissible in the language.

25. In Tigrinya /-ä/ (or some times /-e/ may be suffixed to the possible word /\*simbad/ since we have an actual adjective /dārbay/ "worthless" which is formally similar to /\*simbad/.

26. There are however cases whose bases seem to refer to [+abstract] nouns e.g. /märiḥ/. But even /märiḥ/ is not a counter example, because its meaning may mean "a leader" that is [-abstract].

27. As is indicated in Scalise (1984) the Italian sentence *ridere di Antonio* "laugh at A."---->*deridere di Antonio* "deride A" we see a change of subcategorization features of the verb from intransitive to transitive.

28. I assume, the Semantic differences and similarities between /x+ä/ and /x+nnät/ is due to:

1. the inputs *c+ccuc* (e.g. /f<sup>t</sup>s<sup>s</sup>um/ "perfect" *w+ffuy* given /donated/devoted" and *c+ccac-* (e.g. /s<sup>i</sup>bbar/ "a broken part of" or /*w+ffay*/ "donated/gift").
2. the bases and their affixes may show semantic drift in the lexicon (see Scalise (1984:54)).

## CHAPTER FOUR

### 4.0 COMPOUNDING

Compounding is the result of two or more words/stems combining into a single morphological unit (see Jenson (1990), Sears (1972)). It is one type of word formation and is located in the WFR component of the lexicon (see Aronoff (1976), Scalise (1984), and Jenson (1990)). In order to have a better understanding of the compounding that is located in the WFR component, we shall first briefly discuss other types of compoundings, idiomatic and lexicalized phrases, which are formed prior to compoundings of WFR's.

### 4.1 IDIOMATIC AND LEXICALIZED PHRASES<sup>1</sup>

The bases of WFR's are only major lexical categories i.e. N.A.V. and not phrases (see Roeper and Siegel (1978), Allen (1978), and Scalise (1984)). But as we can see from the examples below there are phrases that take affixes just as words do.

//black and blue/A. ness/N.  
//blood and thunder/A ish/A

The affixes belong not to the individual members of the phrase, but to the entire phrase. This shows that each of the phrases is taken as a single lexical item. Moreover, such phrases refer to one sense unit. In other words, their meanings are not compositional. Lexicalized or frozen phrases, sentential and verbal phrase idioms (e.g. make oneself scarce) are listed in the permanent lexicon, i.e.

prior to the WFR component, and operate as single words (see Sears (1972), Allen (1978), Scalise (1984)).

This holds true for Tigrinya. The followings are examples.

k+i+y+id m+ts+i? "to and fro"  
w+ir+ad d+ä+y+y+b "argumentative"  
s+ä+l+ah+g+ul+d+im "silent but evil person"  
l+ä+g+l+nt+ah+t+n "ups and downs"  
?+it+w w+is+i? "to and fro"  
w+ah+s?aw+r+ad+ä "avoid ones responsibility in court"

Each word in such phrases does not have an isolated meaning of its own. The meanings are not compositional and predictable. In other words, each of the lexicalized phrases and idioms refer to a semantically single lexical referent (item).

#### 4.2 STRICT (LEXICALIZED) COMPOUNDS

This type of compounds are stored in the lexicon and so are not treated by WFR's. This is so, because they are located in the dictionary of the lexicon, just as simple words are, prior to the subcomponent of WFR's (cf Allen (1978), Scalise (1984)).

According to Sears (1972), such lexicalized or strict compounds (as he calls them the old compounds) are considered by native speakers to be virtually the same as simple words and often show phonetic and/or semantic reduction. For example //awe+/+full//--> /awful/, /bone/ +/fire//---> /bonfire/, //supra+/+abito//--> /suprabitto/

"overcoat". Scalise (1984) and Allen (1978) also agree with sears (1972) in the Semantic and phonological amalgamation of such compounds.

In Tigrinya, the Semantic criteria seems to be better in differentiating strict compounds from loose compounds. We shall see below a Semantic amalgamation of such compounds.

Head position	Non head position	lexicalized meanings
1. lāmlām "fertile"	riʔsi "head"	"front part of the head"
2. mārʔat "bride"	sinni "tooth"	"front teeth"
3. hamat "mother in law"	tāmān "snake"	"a kind of lizard"
4. harʔi "wastematter"	hasin "Iron"	" a kind of iron"
5. harʔi "waste matter"	ʔixli "cereal"	"a kind of plant"
6. hawwi "fire"	layto "night"	"a kind of insect"
7. hārʔi "waste matter"	qwalʔa "child"	"yellow"
8. sinni "tooth"	bitay "calf"	"maize that is not matured enough to be eaten by men"
9. stnni "tooth"	ʔamas "rebellion"	" the first baby teeth"
10 ʔayni "eye"	mədri "earth"	"toilet"

table vi

In loose compounds, the meaning of the whole compound

is the meaning of the head qualified by the non head member. But we can understand from the examples above that this is not the case with strict compounds they have no heads and the meanings of these words is not predictable from the constituent members of the compound. We do not see any compositionality in meanings and there is semantic reduction or amalgamation in them. For instance, one cannot predict the meanings of /*ḡaynimidri*/ "toilet" from the isolated meanings of the words *ḡayni* "eye" and *midri* "earth". This shows the words are semantically amalgamated.

We have said earlier that phonological amalgamation is also seen in strict compounds. In the same way, evidence from other related Semitic languages and the English number compoundings<sup>2</sup> (cf Sears (1972)) can help us have an insight into Tigrinya number compoundings. Observe the following :

1. *ḡassārtä kadä*<sup>3</sup> "eleven"  
ten + one
2. *ḡassārtä kilittä*<sup>4</sup> "twelve"  
ten + two
3. *ḡarbiḡa* derived from *ḡarbatä* + *ḡassārtä* "forty"
4. *ḡābḡa* derived from *ḡābattä* + *ḡassārtä* "seventy"
5. *tāsḡa* derived from *tāšḡattä* + *ḡassārtä* "ninety"

If this holds true for Tigrinya, then we can apply the semantic and phonological amalgamation to Tigrinya strict compounds too. Infact, there are other instances of phonological amalgamation such as the following:

*ḡaw-ḡabbo* ---> *ḡawibbe* "uncle"  
*ḡawti-ḡinno* ---> *ḡatinno* "aunt"  
*ḡasār-niffay* ---> *ḡasārnifay* "outer part of wheat etc"

lomi-q̄t̄na---→lomq̄t̄na "this week"  
lomi-maḡalti---→lāmmāḡalti "today"

Regarding the external pluralization of strict compounds, we can see that either they do not have inflections suffixed to them as in e.g. /mārʔaygās/ "gift" or the suffixes are added to the whole compound and not to constituent members of the compound e.g. /ḥawibbo/---→ /ḥawibbotat/ "uncle/s", /ḥat̄inno/---→ /ḥat̄innotat/ "aunt/s" /l̄ibwällād/---→ /l̄ibwällädat/ "fiction/s", /dārho-may/---→ /dārhomayat/ "duck/s", /maḡarām̄ssu/---→ /maḡaram̄ssūt̄at/ "a kind of plant".

Hence, the compounds that show semantic and or phonological amalgamation and also the suffixation of plural markers to the whole compound rather than to the heads are called strict<sup>5</sup> compounds and operate as single lexical items (cf. Sears (1972) Scalise (1984)).

#### 4.3 TIGRINYA PLURALS

According to Tesfai Tewelde (1992)<sup>6</sup>, the plurals of Tigrinya are divided into two (see also palmer (1958), Bender (1976 and others)). The first group are those that have plural morphemes suffixed to their stems. The suffixes<sup>7</sup> are /-at/ e.g. /sáb/---→ /sābat/ "man/men", and /-tat/ e.g. /ʔins̄isa/---→ /ʔins̄isat̄at/ "animal/s".

But, not all nominals of this language have this form of pluralization. The other form of plurals is what is known as broken plural which can also be divided into two. One of

these is the morphologically or lexically restricted one (cf McCarthy (1982)). The feminine marker /-ti/ of Tigrinya is found suffixed to the base and the vowel preceding the last consonant of the basic stem is changed to /ä/. The affixation of /-ti/ is generally limited to agentives and adjectives.<sup>8</sup> Some examples are presented below.

gätami---→gätä<sup>ä</sup>mti "poet/s"  
räzzin---→räzzä<sup>ä</sup>nti "heavy"  
mäḡadi---→mäḡad<sup>ä</sup>ti "one/s who give(s) advice".

The other type of broken plurals are not based on their singulars. As is the case in other Semitic languages, the plurals have a separate prosodic template. The followings are examples:

kälbi---→?axaalib<sup>g</sup>/?axlabat "dog/s"  
käwhi---→?axaawih<sup>g</sup> "rock/s"  
mäfläs---→mäfaal<sup>is</sup>/mäfäll<sup>is</sup> "warthog/s"  
täxli---→?ataxil<sup>ti</sup>/?atkilti "plant/s"  
gwaal---→?awaal<sup>id</sup> "girl/s"

The basic plural pattern for Tigrinya is cvcvvcvc<sup>ii</sup> and the other forms seem to be derived from this (see McCarthy (1982), Tesfai Tewelde (1992)).

#### 4.4 LOOSE COMPOUNDS<sup>12</sup>

Loose compounds, unlike strict compounds, are headed. They are the kind of compounds that native speakers feel to be compound words. In other words, they are recognized not as simple words but as compounds with heads qualified by other members of the compound (see Sears (1972) Scalise (1984)). They are not lexicalized words i.e. they are formed

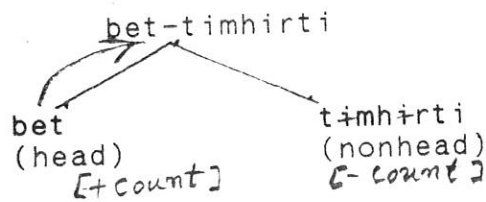
in the WFR's sub component rather than being listed in the dictionary which is the level of representation before WFR's. According to Kiparsky (1982), endocentric<sup>13</sup> compounds are combinations of words formed at level 2 that Scalise (1984) may call WFR sub component and are generated by regular word formation processes.

Hence, our focus of attention will be on this type of compounding and we will hereafter refer to them as compound(s) instead of loose or endocentric compound(s). These compounds contain heads and non-heads and the category of the head is the category of the whole compound. The nonhead member only restricts the meaning of the whole, but basically the meaning of the compound is that of the head. For instance, a //mail/N /man/N/ is a man and a /black/A/board/N/ is a board and each of the compounds has the category of the head i.e. the category of the head percolates to the whole compound. As we can see from the following table and also the discussion following it the same seems to hold true for Tigrinya.

Head member	Non head member	Compound	Gloss
márfi?	šaráqqi	márfi? šaráqqi	small sized needle
mátfi?i	hawwi	mátfi? hawwi	fire brigade /extinguisher
zawwari	makkina	zawwar makkina	car driver
bet	tímhirti	bet tímhirti	school
bet	firdi	bet firdi	court
bet	mástá	bet mástá	bar
babur	mídri	babur mídri	train
babur	báhri	babur báhri	ship
hállaw	kábtí	hállaw kábtí	shepherd
hímam bašal	baria	hímam bašal baria	epilepsy

table vii

In all these examples, the left member of the compound is the head while the right side is a non-head. Even though the members are all nominals the features percolated to the whole compound are those of the heads. If we take the compound word /bet timhirti/ composed of /bet/ "house" and /timhirti/ "education", it is [+count] and the illustration below shows this is percolated from /bet/ and not from /timhirti/ because /timhirti/ is [-count] whereas /bet/ is [+count].



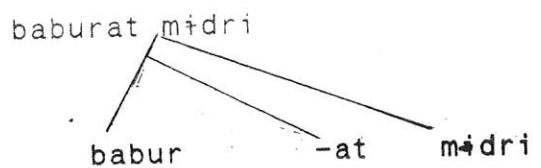
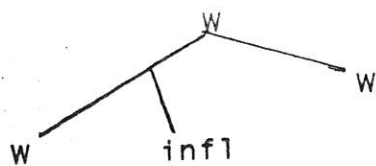
In the case of meanings, the head plays a dominant role. For instance, /mät'fi? hawwi/ is basically /mät'fi?i/ "extinguisher" and not /hawwi/ "fire" and hence, /mät'fi?i +hawwi/ becomes /mät'fi? hawwi/ "fire extinguisher". The words are combined to form one lexical item. The important point here is that a compound is not a sum of two conceptions expressed by two elements, but rather it is one word and one concept (cf Sheard (1961)). If we assume black board, which refers to any board which is black, it is composed of two words i.e. an adjective and a noun. But the compound word /blackboard/ refers to a material that we write on which may not even be black. The meaning of, for instance, /fireman/ can be a man who is a member of a fire brigade and this is conventionally selected from a range of possible but not actual meanings such as a man who worships



fire. The compound word /hállaw kábtí/ "shepherd" which literally may mean one who looks after cows, oxen etc might have been used to refer to a man involved in veterinary/ but it is not. /mäblíḥ qwírsi/ "a dish like cultural material" literally may mean a material from which we eat breakfast. The head of the compound word is /mäblíḥi/ "a material that men eat from", but it is not only /qwírsi/ "breakfast" that people eat from. Hence, the examples show that each of the compounds refer to one lexical item bearing one concept.

Scholars tell us that compounds are different from simple words in that they have internal structures and also behave differently in cases of derivations and inflections (cf Sears (1972) Scalise (1984)). In other words, as far as compounds are concerned inflections are affixed to heads and derivations are affixed to one of the members of the compound.

\* Tigrinya compounds are left headed. Hence, we can see below that the inflections are attached to these heads.



Other examples similar to this are /mängáddi babur/ --> -/mängáddítat babur/ "railway/s", /babur baḥri/ ---> /baburat baḥri/ "ship/s".

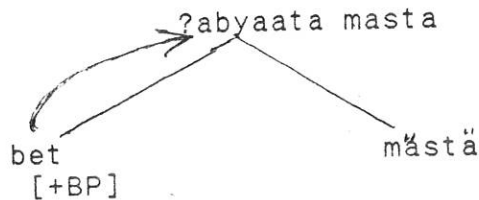
In the case of lexically restricted broken plurals, /-ti/i is also suffixed to the head. The followings are examples:

ḥallaw kăbti---→ḥallāwti kăbti "shepherd/s"  
 mărăḥ makkina---→mărăḥti makkina "car driver/s"  
 mărăḥ māngiṣti---→mărăḥti māngiṣti "head of state/s"  
 ?alayit ḥimumat---?alāyti ḥimumat "nurse/s/(dresser/s)"

There are also other forms of compounds whose heads are not based on their singulars and have separate prosodic templates. The followings are some of them:

bet timḥirti---→?abyaatā timḥirti "school/s"  
 mārifi? ḥarāqqi---→māraafi? ḥarāqqi "small sized needle/s"  
 bet māstä---→?abyaatā māstä "bar/s".

According to ATC (atom condition) of Williams (1981 a) the [+BP] feature of the head percolates to the higher node that dominates the members of the compound as illustrated below.

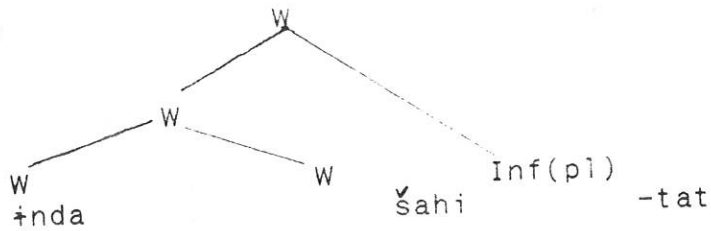


What we have seen so far is that, it is the left member of the compound that percolates the [BP] or has plural suffixes attached to it. But even though the most common phenomenon is that plural markers are observed attached to or percolated from the head on the left side of the compound, there are also cases where suffixes are attached to or percolated from the right side member of the compound that we find on the nonhead position. For instance, /wanna šaḥafi/---→/wanna šaḥafti/ "general secretary/ ies", /mīkittīl prāsīdant/---→/mīkittīl pīrāsīdantītat/ "vice president/s", /tnda bani/ ---→/tnda banītat/ "bakery/ies", /

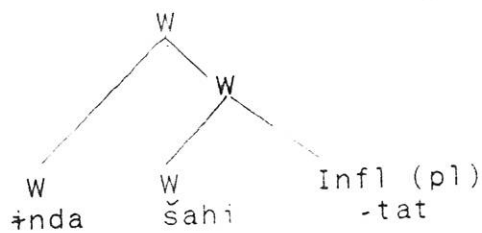
inda šahi/--->/inda šahitāt/ "tea room/s". But, we can also see that /wanna/ "owner" loses its original meaning "owner" when it becomes a member of the compound, /m+kittil/ is, I think, a borrowing from Amharic and has no clear cut meaning of its own. The word /inda/ is usually used by old people to mean "house", recently it is loosing its separate lexical meaning and is usually found as a member of a compound only. Thus, these examples can be regarded as strict compounds, or else it may also be an influence of Amharic just as, according to Sears (1972), there are left headed English compounds due to the influence of French into English.

Hence, one of the following can occur.

1.



2.



Thus, if it is a lexicalized item it takes the form of No. 1 above, because, as mentioned earlier, Strict or lexicalized items affix inflectionals to the whole compound rather than to individual members of the compound. But, if it is an influence of Amharic, it is a loose compound with

external plural suffix attached to the right member of the compound because Amharic compounds are right headed.

These sorts of ambiguities are not peculiar to Tigrinya alone. For instance, the Italian word /portalettere/ "mail man" is formed from /porta/, a noun derived from a verb, and /lettere/, another noun. Scalise (1984) says /porta lettere/ is exocentric, but he quotes Marchand (1969), and zuffi (1981) who regards it as endocentric.

On the other hand, we also see that all compounds are not always observed to be taking inflections attached to or BP's percolated from their heads. There are compounds such as those in the following table that can be used as singulars or plurals.

Head member	Non head member	compound	plural form	gloss
bīrhan mäblīʕi	śahay qwīrsi	bīrhansaśahay mäblīʕi qwīrsi	- -	sunshine dish like cultural object
ħamli	?adgi	ħamli ?dgi	-	a kind of vegetable
ħimam	mārzān	ħimam mārzān	-	headache
mībraq	śahay	mībraq śahay	-	east
ʕarat	zāqzāq	ʕarat zāqzāq	-	wooden bed
śāra	ħizbi	śāra ħizbi	-	anti people
strrā	wīsti	sirā wīsti	-	pant
māgwīdīʕi	bun	māgwīdīʕi bun	-	coffee grinder
?imni	mat'ħan	?imnimāħan	-	millstone
qāmīś	wīsti	qāmīśwīsti	-	an underwear for women
fīnat	maʕakkor	fīnatmāʕakkor	-	buttock
ʕarki	rīʕsi	ʕarkirīʕsi	-	closest friend chosen to accompany the bridegroom

table viii

As we have said earlier, these compounds can be used as singulars or plurals. For instance, it is possible to say *k+l+ttá/hadá /s+rrá w+št'i/* "two/one pant/s". Thus */s+rrá w+št'i/* is singular, but when we put *k+l+ttá* "two" before it, the members of the compound need not add or undergo any external or internal process of pluralization.

The fact that singular compound can be used with plural meanings is not surprising if we look at the nouns of Tigrinya. In Tigrinya one can say *salasta biḡray li* literally meaning "three ox" to mean *s'alästä ?abḡuur* "three oxen". Thus, whenever there are numerals before the nouns we can use the singular form instead of the plural.

Hence, from our discussion regarding compounding, we can say that compounds of Tigrinya can be divided into those that have a singular form with singular and plural meanings and those that have separate singular and plural forms.

It seems to me that the compounds that have separate plurals and singulars are marked because:

1. many of these compounds are associated with recently borrowed concepts and technical advancements, e.g. *mät'f+? ḡawwi* "fire extinguisher".
2. the singular forms of some of these compounds can be used instead of the plural form, for instance: */babur m+idri/* (sg) instead of */baburat m+idri/*

A number of tests may be applied for the definition of

true (loose) compounds and among them are the phonological, semantic and morphological criteria that we have discussed earlier. But Semantic test, according to Jespersen and Sheard quoted in Sears (1972), are central. This seems to hold true for Tigrinya compounding too, because, as we have seen earlier, it is the semantic criteria that helps us to define better what the true (loose) compounds are.

Compounds differ from phrases in that the constituents of the compound do not function independently with respect to syntactic processes i.e. they cannot be factored out and in fact, as Scalise (1984:93) puts it, "behave instead as islands' from which no material can be extracted". For instance:

1. John bought a red coat and I a black one
2. I saw a very green house
3. ?azzia gāzzaf gāza "very big house"
4. \*I saw a very green house

Factoring out is possible in cases of nos 1, 2 and 3 since the underlined words function independently. But the constituents of the compound word in (4) above /green house/ cannot function independently, i.e. the compound word as a whole is a noun and hence we cannot say very /green house/ just as we cannot say very man (since adverbs do not modify nouns). So, the sentence I saw a very /green house/ becomes illformed if the word /green house/ is a compound word. The members of the compound together form one lexical item with one concept.

If some one says /blackboard/ referring to the compound,

true (loose) compounds and among them are the phonological, semantic and morphological criteria that we have discussed earlier. But Semantic test, according to Jespersen and Sheard quoted in Sears (1972), are central. This seems to hold true for Tigrinya compounding too, because, as we have seen earlier, it is the semantic criteria that helps us to define better what the true (loose) compounds are.

Compounds differ from phrases in that the constituents of the compound do not function independently with respect to syntactic processes i.e. they cannot be factored out and in fact, as Scalise (1984:93) puts it, "behave instead as islands' from which no material can be extracted". For instance:

1. John bought a red coat and I a black one
2. I saw a very green house
3. ?azzia gāzzaf gāza "very big house"
4. \*I saw a very green house

Factoring out is possible in cases of nos 1,2 and 3 since the underlined words function independently. But the constituents of the compound word in (4) above /green house/ cannot function independently, i.e. the compound word as a whole is a noun and hence we cannot say very /green house/ just as we cannot say very man (since adverbs do not modify nouns). So, the sentence I saw a very /green house/ becomes illformed if the word /green house/ is a compound word. The members of the compound together form one lexical item with one concept.

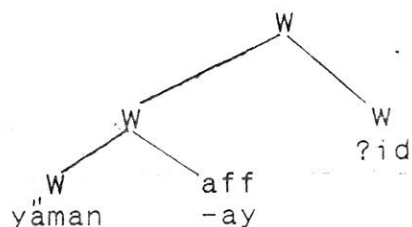
If some one says /blackboard/ referring to the compound,

it does not mean that they are two words composed of black and board. They form one lexical item which is generally black. We also know a /fountain pen/ is a /pen/ not a /fountain/ and a /pen/. If any one says /märfé? ʃaräqqi/, it means it is a type of /märfé?/ "needle" which is small in size. It is possible to say gäzzif marfi? "big needle" but not gäzzif märfé? ʃaräqqi "big small sized needle". Again it is not reasonable to say ni?isto märfé? ʃaräqqi "small small sized needle", unless someone wants to compare the small sized needles themselves. This is because märfé? is part of the compound and cannot be independent of the whole.

Regarding the derivational morphemes Scalise (1984) says that they are affixed to one of the compounds rather than the whole. For example

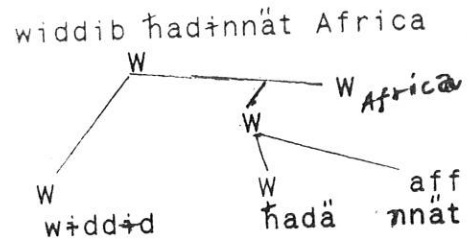
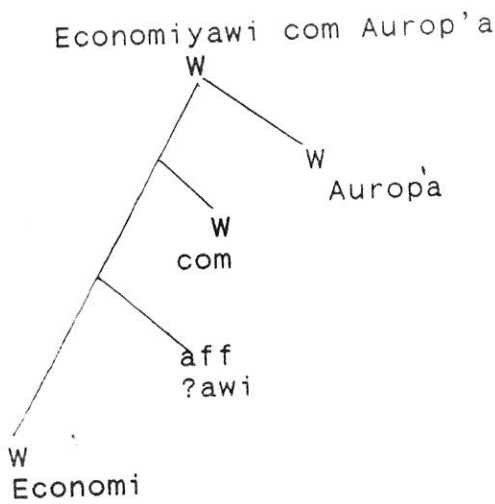
//inhospitable/ /looking//  
//heroic/ /sounding//

This is also true in Tigrinya. For example in /yāmanay ?idd/ "right hand" /-ay/ is affixed to /yāman/.



Hence, eventhough /yāmanay?id/ is one word it is suffixed to /yāman/ not to the whole compound as is the case in strict compounds. Other newly coined words and names of organization also comply with this. For example /widdib

ḥadinnät Africa/ "organization of African Unity"  
 /Ekonomiyawi com Aurop'a/ "European Economic Commission"  
 /g̃inbar ḥarinnät Oromo/ "Orom liberation front"

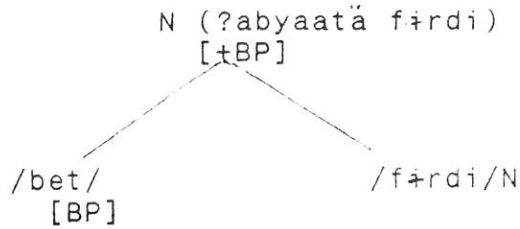


WFR's are lexical rules that completely operate within the lexicon, and according to Scalise (1984) (also cf Wasow (1973)), there are properties of WFR's. Among them are locality which includes AtC and Adc (adjacency condition) and binary branching.

Regarding the property of binary branching, our examples cited earlier show that this is also true of Tigrinya compounds.

As far as AtC and Adc are concerned, we can see that they can be applied to the compounds that we are dealing with. Adjacency, according to Williams (1991) quoted in Scalise (1984), allows morphological rules and makes reference to those that are immediately adjacent to the affix. On the other hand, he says that Atc allows reference to features realized on morpheme/s/ in head position. Observe the

following illustration:



To conclude, we have observed that as far as compounds (i.e. Tigrinya compounds) are concerned:

1. they have heads
2. the syntactic category of the head is similar to that of the whole
3. many of them have either singular or plural meanings with no need of plural morphemes attached to them
4. they can have inflections referring to number, attached to heads or BP's percolated from heads
5. they have derivational affixes attached to either of the members of the compound
6. they are left headed (except the members that suffix <sup>16</sup> /-ay/ and /awi/ e.g /yāmanay ?id/
7. the meaning of the head is basically the same as that of the whole. For example, /mä's'haf qiddus/ "Bible" is basically /mäš'haf/ "book" eventhough /qiddus/ "sacred" differentiates it from other kinds of books.
8. each has a conventional meanings out of a range of possible ones. For example /mäš'haf qiddus/ is a

sacred book but all sacred books such as /koran/  
are not called by this name. /betá kiristian/  
"church" is a house for christians but any house  
that is meant for christians is not necessarily a  
/betákiristian/.

9. they represent a single lexical item rather than  
two or more than two.
10. they may have nominal constituent members (see also  
Scalise (1984:190-1))<sup>17</sup>

N O T E S

1. According to Sears (1972) lexicalized phrases are also called lexicalized compounds.
2. According to Sears (1972) the English number compoundings show this type of amalgamation. For example, eleven and twelve are derived from /an+leven/ and /twa+leven/ (i.e. from one above ten and two above ten) respectively. Besides, it is also said that thirty is derived from three tens and ninety from nine tens etc.
3. Arabic numerals 11-19 are formed by compounding (cf McCarthy (1982)).
4. It is also possible to say ḡassārtāw ḡadā, ḡassārtāw kīlittā etc. The /w/ that is found in between the constituents of the compounds looks like the Geez /wā/ "and". If this is so, the compounds might have originally been phrases.
5. The Universally accepted Semantic and /or phonological amalgamation of strict compounds and also the addition of sound plurals to the entire compound and not to heads holds true for Tigrinya strict compounds (in agreement with Sears (1972) and Scalise (1984)).
6. I do not think it is necessary to repeat the whole analysis of the paper "Tigrinya plurals" that I presented to the (1992) Seminar of Kotebe Teachers' college. But I have tried to present the gist of that paper so that

the reader can have some understanding of Tigrinya pluralization and hence can better identify the inputs and outputs of the members of compound words.

7. /-at/ is suffixed to nominals ending with consonants and /-tat/ is suffixed to nominals ending with vowels (see also Tesfai Tewelde (1992)).
8. ( cf McCarthy (1982:196-8))
9. The pattern /cvcvvcvc/ is regarded by McCarthy (1982) as the basic template in Arabic and others are derived from it. A similar template is also very common in Tigrinya and is used as an alternative for nearly all other variants of broken plurals in this language (cf Tesfai Tewelde (1992)).
10. Girmay Berhane (1991) and Lowenstamm (unpublished paper) believe that Tigrinya has long vowels. But in this thesis the length of vowels is not taken into consideration except in the case of broken plurals.
11. I assume, plural morphemes such as /?awaal+d/ may be changed to /?awlaad/ by a process of metathesis. Plural forms such as /?atax+lti/ or /?atk+lti/ are also assumed to be derived from /\*?ataax+l/ since the suffixation of /-ti/ may result in the shortening or deletion of long /a/. Other plural forms such as /?axlabat/ are assumed to be derived from /?axlaab/ that I assume are again derived from /?axaal+b/ by a metathetic process. Thus, metathesis and the

idiosyncratic suffixation of /-at/ or /-ti/ may result in the modification of the basic pattern (in agreement with McCarthy (1982) Tesfai Tewolde (1992)).

12. There are lots of arguments among scholars regarding synthetic and primary compounds (cf Selkirk (1981,1982), Botha (1984), Jensen (1990)). Lieber (1983), (quoted in Botha (1984) believes the difference between synthetic and primary are merely terminological and Allen (1978) treats both of these types of compound in the same way. This seems applicable to Tigrinya more than it does to, say English, because this language forms words not only by affixation and compounding, as is the case in languages such as English, but it also forms words from roots.
13. The terms endocentric and loose compounds are alternatively used in this thesis.
14. Amharic and English compounds are right headed whereas Italian is left headed (cf Scalise (1984)).
15. The plural of the Italian word pomodoro was originally pomodoro, but nowadays the form pomodori is usually used. This is because it is becoming a strict compound (cf Scalise (1984)).
16. (cf McCarthy (1982) and Scalise (1984)).
17. Italian has N+N, N+A, A+N combinations of endocentric compounds (see Scalise (1984:190-1)).

## CHAPTER V

### 5.0 CONCLUSION

Tigrinya word formation involves roots, in addition to derivations and compoundings. Regarding the formation of words from roots, there is an interaction of vowels and consonants. Consonants do not change but vowels vary in a particular pattern with or without consonant gemination. Together with this, there are some suffixes which do not have any semantic value. These forms can be regarded as free variants of the words formed by the interaction of vowels and consonants e.g. /ktbri/ and /ktbrāt/"respect".

Concerning the formation of words by adding derivational affixes to bases, different Tigrinya affixes are suffixed or prefixed to the base. As a result of this, changes of syntactic categories, subcategorization features, selectional features, and other features such as [ $\pm$  animate], [ $\pm$  abstract], and [ $\pm$  common] take place. The complex word is composed of a head and non head. Suffixes are always heads and, hence, the syntactic categories and the different features we have mentioned above are all percolated from the head. But as far as the prefixes are concerned, they are not always heads, and a kind of percolation which scalise (1984) calls "double" may take place such as the percolation of features from prefixes, and the syntactic categories from the heads.

Compounding is another way of forming words. In the last chapter we have discussed the idiomatic and lexicalized

phrases, strict compounding and broken plurals, so that we can have a better understanding of the members of loose compoundings.

Regarding the lexicalized compounds phrases and idioms, we have seen that they act as simple words. This is in agreement with what we observe in other languages such as Italian and English.

Regarding the BP's we can note that they are formed from roots and not affixed to words as the sound plurals do. On the other hand, we have observed that Tigrinya compoundings generally comply with the properties of compoundings in other languages. Tigrinya compounds are left headed, and have their broken pluralized or suffixed members on the left. But, there are also compounds which do not have pluralized members though they act as either plural or singular.

Nonetheless, they all have heads and non heads, and they also are semantically and phonologically non amalgamated (cf the points 1-10 mentioned at the end of the last chapter).

Compounds of this language also show properties of WFR's such as [+count], (e.g. /betämangisti/ "palace"). i.e. the feature [+count] is percolated from the head (bet) to the entire compound. In addition to this, other features such as [+animate] (e.g. /zäwwar makkina/ "car driver"), /märañ mängisti/ "Head of state"), [-animate] (e.g. /mäṣalt'i wäläddi/ "parents' day"), [+common] (e.g. /ḥimam baṣal

baria/ "epilepsy") percolate from the head too.

From our discussion so far, we can conclude that the complex Tigrinya words are right headed, whereas the compound words of the language are mostly left headed and this is similar to the WFR's of languages such as It<sup>h</sup>lian (see also Scalise (1984)).

6.0 REFERENCE

- Alemayehu Haile and Al Mtenje (1988). "In Defence of the Autosegmental Treatment of Non-concatenative Morphology". Journal of Linguistics, 24:433-55.
- Allen, M.R. (1978). Morphological Investigation. Doctoral Dissertation. University of Connecticut, Storrs Connecticut.
- Anderson, S.R. (1982). "where's morphology?" Linguistic Inquiry 13:571-612.
- (1985). "Typological Distinction in Word Formation" in Timothy Shopen, ed, Language Typology and Syntactic Description. Cambridge University press, Cambridge. 3:3- 56.
- (1985). "Inflectional Morphology", in Timothy shopen, ed, Language Typology and Syntactic Description. Cambridge University press. Cambridge. 3: 150-21
- Aronoff, M. (1976). Word Formation in Generative Grammar (Linguistic Inquiry Mono. graph 1) MIT press, Cambridge, Massachusetts.
- Asmeret K/Mariam (1983). "The Morphophomemics of Noun and Verb in Tigrigna". BA Thesis. Addis Abeba University.
- Bender, M.L. and Hailu Fulas (1978). Amharic Verb Morphology. African studies centre, Michigan state University, Michigan.

- Bender, M.L. and etal (1976). Language in Ethiopia. Oxford University press, London.
- Bloomfield, L. (1933). Language. Holt, New York.
- Booij, G. (1977). Dutch Morphology. A Study of Word Formation in Generative Grammar. The peter de Ridder presse, Lisse.
- Botha, R.P. (1981). "A Base Rule Theory of Africaans Synthetic Compounding", in M. Moortgat and T. Hoekstra, eds, The Scope of Lexicalist Rules. Foris, Dordrecht 1-77.
- (1984). Morphological Mechanisms, Lexicalist Analysis of Synthetic Compounding. Perganon press, Oxford, UK.
- Carrier, J.L. (1979). "The Interaction of Morphological and phonological Rules in Tagalog: A study in the Relationship Between Rules Components in Grammar". Unpublished doctoral dissertation. MIT. Cambridge (Mass.).
- Chomsky, N. (1970). "Remarks on Nominalization", in A. Jacobs and P.S. Rosembaun, eds, Readings in English Transformational Grammar. Ginn and co. Waltham (mass.), 184-221.
- ContiRossini (1940). Lingua Tigrigna Parte prima: Elementied essercisi Casa Editrica A. Mondatori. Milano.

- Chung, S. and Timberlake, A. (1985). "Tense, Aspect, and Mood", in Timothy Shopen, ed, Language Typology and Syntactic Description. Cambridge University press, Cambridge. 3:202- 258.
- Dunkan, J.C. (1985). "Linking of Thematic Roles in Derivational Word Formation". Linguistic Inquiry 16:1-34.
- Ferguson, C.A. (1972). "The Role of Arabic in Ethiopia, a Sociolinguistic perspective", in pride, J.B. and Homes, J. Sociolinguistics. Penguin Books, New York, 112-124.
- Girmay Berhane (1991). "Issues on the Phonology and Morphology of Tigrinya". Doctoral Dissertation. University du Quebec, A Montreal.
- (1992). "Word Formation in Amharic". Journal of Ethiopian Languages and Literature . No.2, PP 50-74.
- Gold Simth, J.A. (1990). Autosegmental and Metrical Phonology. Basil Black well Ltd, Cambridge Massachetts.
- Gussman, E. (1988). "k.P.Mohanan, The Theory of Lexical Phonology (based on Mohanan's dissertation and revised by Gussman)". Journal of Linguistics 24:232- 239.

- Halle, M. (1973). "Prolegomena to a Theory of Word Formation".  
Linguistic Inquiry 4:3-16.
- Hetzron, R. (1969). The Classification of Ethiopian Semitic Languages. University of California, California
- Jensen, J.T. and Jensen, M.S. (1984). "Morphology is in the lexicon". linguistic inquiry 15: 474-498.
- Jensen, J.T. (1990). Morphology, Word structure in Generative Grammar. John Benjamins Publishing Company. Amsterdam Philadelphia.
- Jespersen, O. (1954). A Modern English Grammar on Historical Principles. Ejnar Munksgaard, Copenhagen.
- Kiparsky, P. (1982b). "From Cyclic Phonology to Lexical Phonology", in Harry Van der Hulst and Norval Smith, eds. The Structure of Phonological Representations. Foris, Dordrecht. 131-175.
- Leech (1981). Semantics. Harmondsworth, Penguin Books Ltd.
- Lowenstamm, J. (unpublished), universite du Quebec (professeur directeur groupe de recherche en linguistique Africaniste, departement de linguistique).
- Lyons, J. (1968). Introduction to Theoretical Linguistics. Cambridge University Press, Cambridge.
- Mattews, P.H. (1972). Inflectional Morphology. Cambridge University Press, Cambridge.
- (1974). Morphology: On Introduction to the History of Word Structure. Cambridge University Press, Cambridge.

- Marchand, H. (1966). The Categories and Types of Present-Day English Word Formation. University of Alabama press. Wiesbaden, Harrassowitz.
- Mauro da Leonessa (Padre) (1928). Grammatica Analitica della Lingua Tigray. Tipografire Poliglotta Vaticana, Roma.
- McCarthy, J.J. (1982). Formal Problems in Semitic Phonology and Morphology. University of Texas, Austin.
- Moscatti, S. and et al (1964). An Introduction to the Comparative Grammar of Semitic Languages. Otto Harrasso Witz, Wiesbaden.
- Mullen, D.S.(1986). "Issues in the Morphology and phonology of Amharic. The Lexical Generation of Pronominal clitics". Doctoral dissertation. University of Ottawa, Ottawa.
- Nida, E.A. (1949). Morphology. The Descriptive Analysis of Words. The University of Michigan Press. Ann Arbor.
- Palmer (1958). "Gemination in Tigrinya". Reprinted from the Bulletin of the School of Oriental and African studies, Miscellanea 1: 139-148
- Population and Census Commission (1984). Population and Housing census Preliminary Report 1.1. Addis Ababa.

Roper, T. and Siegel, E.A.M. (1978). "A Lexical Transformation for Verbal Compounds". Linguistic Inquiry 9:199-260.

Scalise, S. (1980). "Towards an "extended" Italian Morphology". Journal of Italian Linguistics 3:159-210.

----- (1983). Morphologia Lexicale. Clasp, padova.

----- (1984). Generative Morphology. Foris publications, Dordrecht -Holland/cinnaminson-USA.

----- (1988). "Inflection and Derivation". Linguistics. 26:561-581.

Schein, B. and Striade, D. (1986). "On Gemination". Linguistic Inquiry. 17: 691-744.

Sears, D.A. (1972). "The System of Compounding in Modern English". Linguistics. An International Review. No 91: 31-88.

Selkirk, E.O. (1982). The Syntax of Words. The MIT press, Cambridge (Mass.)

Sheard J.A. (1966). The Words of English. W.W. Norton Newyork.

Tesfai Tewolde (1984). "Yamarññanna Yatigrñña yägiss qitñyawočč nišisštr". BA Thesis. Addis Abeba University.

----- (1987). "Yätigrĩña Yägiss ?igročč. Zena lissan,  
7:3, 24-31.

----- (1992). "Plurals of Tigrinya", paper presented  
at the first annual language seminar of  
Kotebe College Teacher Education. Addis  
Abeba.

----- (1992). "Idiosyncrasy and Roots in Tigrinya",  
paper presented at the second National  
conference of Ethiopian Studies. Addis  
Abeba.

----- "Glides in Tigrinya", paper to be presented  
at the 1993 ILS Language seminar. Addis  
Ababa University.

Tsegay Taffere (1987). "Derivations of Nouns in Tigrinya". BA  
thesis. Addis Abeba University.

Tsegay W/Mariam (1982). "Yätigrĩña Simočč ?ammäsárarät". BA  
thesis. Addis Abeba University.

Trommelen, M. and Zonneveld, W. (1986). "Dutch Morphology:  
Evidence for the Right hand Head Rule".  
Linguistic Inquiry. 17:1, 147-169.

Williams E. (1981a). "On the Notions "Lexically Related" and  
"Head of a word". Linguistic Inquiry.  
2: 245-74.