

**THE SEQUENCE OF DERIVATIONAL AND INFLECTIONAL MORPHEMES IN
SELECTED SESOTHO WORD CATEGORIES**

BY

MOSELANE ANDREW NHLAPO

Submitted in fulfilment of the requirements in respect of the Master's degree qualification **Magister Artium** in the department of **African Languages** in the faculty of **Humanities** at the University of the Free State.

Supervisor: Dr E.N. Maletle

NOVEMBER 2015

DECLARATION

I, the undersigned, declare that the Master's Degree research dissertation that I herewith submit for the Master's Degree qualification **Magister Artium** at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education. I am aware that the copyright is vested in the University of the Free State.

.....

M.A. NHLAPO

25 NOVEMBER 2015

DEDICATION

I dedicate this dissertation to my late parents, Mohau and Tankiso Nhlapo. I wish you were here to witness this attainment.

ACKNOWLEDGEMENTS

TO GOD BE THE GLORY

I would like to acknowledge and express my gratitude to my supervisor, Dr E.N. Malete: thank you for your meticulous guidance, time, patience and everything. To my grandfather Belo Nhlapo and uncle, Malefetsane Nhlapo: thank you for your support and sacrifice, I am honoured and grateful for everything you have done for me. To my friend, Dieketseng Moloji: thank you for your love, support and understanding. To my family: thank you for your love and everything.

ABSTRACT

This study examines the sequence of Sesotho derivational and inflectional morphemes in open class word categories (verbs and deverbative nouns). It examines how these morphemes are ordered and based on Greenberg's universal clause, which states that 'if both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection' (Greenberg 1963:93). This statement has been tested in Sesotho word categories such as verb phrases and deverbative noun phrases. A brief description, classification, linear and hierarchical arrangement of Sesotho grammatical morphemes have been given in terms of the X-Bar theory and Beard (1995)'s, Lexeme-Based – Morphology as a background theory to contextualise the analysis of the sequence of Sesotho lexical morphemes. Sample word categories were chosen from Sesotho noun class list, and a range of Sesotho word categories were selected from the list and analysed to determine the sequence and various combinations of derivational and inflectional morphemes.

It has been observed that inflectional morphemes in verbs are always amid the root and the closing vowel known as the verbal end. Secondly, it has been observed that when inflectional morphemes appear with derivational morphemes in the formation of a new word category, the derivational morphemes, in this case noun prefixes, always appear at the beginning of the word as in (Mosebeletsi [*Worker*]), and also appear at the end of the word as in this example (Tshwarelo [*Forgiveness*]). This study argued that Sesotho as one of the agglutinative languages, employs noun class prefixes as nominal derivational morphemes, which appear at the beginning of the noun and it also employs locative suffixes [-eng] to form locative nouns which function as adverbs. The suffix [-eng] therefore also functions as derivational morpheme but in this case it appears at the end of the noun locatives. This study therefore concludes that Sesotho does not conform to Greenberg's (1963) universal statement.

ABSTRAK

Hierdie studie ondersoek die volgorde van Sotho afgeleide en inflectionele morfeme in die oop klas woord kategorieë (werkwoorde en deverbatiwe naamwoorde). Dit ondersoek hoe hierdie morfeme bestel gebaseer op Greenberg se universele klousule, wat bepaal dat 'if both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection' (Greenberg 1963:93). Hierdie stelling is getoets in Sotho kategorieë woord soos werkwoorde frases en deverbatiwe naamwoord frases. 'n kort beskrywing, klassifikasie, lineêre en hieragiese reëling van Sotho grammatikale morfeme gegee in terme van die X-Bar teorie en Beard (1995) se Leksim-Gebaseerde-Morfologie as 'n agtergrond teorie aan die ontleding van die volgorde van Sotho leksikale morfeme kontekstualiseer. Monster woordklasse is gekies uit Sotho naamwoord klaslys, en 'n verskeidenheid van Sotho kategorieë woord is gekies uit die lys en ontleed om die volgorde en verskillende kombinasies van afgeleide en inflectionele morfeme te bepaal.

Dit is waargeneem dat inflectionele morfeme in werkwoorde is altyd te midde van die wortel en die sluitingsdatum vokaal bekend as die verbale einde. Tweedens, is dit opgemerk dat wanneer inflectionele morfeme verskyn met afgeleide morfeme in die vorming van 'n nuwe word kategorie, die afgeleide morfeme, in hierdie geval voorvoegsel naamwoord, verskyn altyd aan die begin van die word soos in (Mosebeleletsi [*Werker*]), en ook aan die einde van die word soos in hierdie voorbeeld verskyn (Tshwarelo [*Vergifnis*]). Hierdie studie aangevoer dat Sotho as een van die agglutinerende tale, dit werk naamwoord klas voorvoegsels as nominale afleiding morfeme, wat verskyn aan die begin van die naamwoord en dit werk ook lokatiewe suffikse [-eng] te lokatiewe naamwoorde wat funksioneer as bywoorde vorm. Die agtervoegsel [-eng] funksioneer dus ook as afgeleide morfeem maar in hierdie geval is dit verskyn aan die einde van die naamwoord lokatiewe. Hierdie studie sluit dus dat Sotho voldoen nie aan Greenberg (1963) se universele verklaring.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
ABSTRACT.....	v
ABSTRAK.....	vi
CHAPTER 1: INTRODUCTION	
1.1 Background Information.....	1
1.2 Problem Statement.....	4
1.3 Research Design and Methodology.....	5
1.4 The Value of Research.....	5
1.5 Organisation of Study.....	5
CHAPTER 2: THEORETICAL APPROACHES AND METHODOLOGY	
2.1 Introduction.....	7
2.2 Morphemes in African languages.....	7
2.2.1 Notion of head in Syntax.....	11
2.2.2 Notion of head in Morphology.....	11
2.2.3 Relativized head.....	13
2.2.4 Argument structure in Syntax.....	15
2.2.5 Argument structure in Morphology and the causative affix [-is-].....	15
2.2.6 Argument structure of the causative affix [-is-].....	16
2.2.7 Argument structure of the passive affix [-w-].....	17
2.2.8 Argument structure of the neuter passive affix [-eh-].....	18
2.2.9 Argument structure of the applicative affix [-el-].....	19

2.2.10	Argument structure of the reciprocal affix [-an-].....	19
2.2.11	Argument structure of the extensive affix [-ak-].....	20
2.2.12	Argument structure of the reversal affix [-h/l-].....	20
2.2.13	Combination of affixes.....	21
2.2.13.1	Affixes [-is-in-].....	21
2.2.13.2	Affixes [-is-el-].....	23
2.2.13.3	Affixes [-el-an-].....	24
2.2.13.4	Affixes [-an-el-].....	25
2.2.13.5	Affixes [-el-el-].....	26
2.2.13.6	Affixes [-el-w-].....	27
2.2.13.7	Affixes [-is-el-an-].....	27
2.3	X-Bar theory in word Syntax.....	30
2.3.1	A syntactic category.....	31
2.3.2	Affixes as lexical items.....	32
2.3.3	Nominal affixes in Sesotho.....	35
2.3.4	Structures of nominal modifiers.....	37
2.3.5	Combination of derivational prefixes.....	38
2.3.6	Combination of derivational suffixes [-el-ng-].....	39
2.4	Agreement in Sesotho.....	40
2.5	Word categories.....	41
2.6	Word-formation processes.....	42
2.7	Conclusion.....	43

CHAPTER 3: ANALYSIS OF THE SEQUENCE OF INFLECTIONAL

MORPHEMES IN SESOTHO

3.1	Introduction.....	44
3.2	Analysis of the sequence of inflection.....	44
3.3	Conclusion.....	85

CHAPTER 4: ANALYSIS OF THE SEQUENCE OF DERIVATIONAL

MORPHEMES IN SESOTHO

4.1	Introduction.....	88
4.2	Sesotho noun classes.....	88
4.3	Derivation of verbs to deverbative nouns.....	91
4.4	Analysis of the sequence of derivation.....	93
4.5	Conclusion.....	115

CHAPTER 5: SUMMARY AND CONCLUSION

5.1	Observations of the sequence in inflectional morphemes.....	117
5.2	Observations of the sequence in derivational morphemes.....	119
5.3	Conclusion.....	121

BIBLIOGRAPHY.....	122
--------------------------	------------

Chapter 1: Introduction

1.1 Background Information

Greenberg's *Universal 28* clause says: 'if both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection' (Greenberg 1963:93). In other words, when derivational and inflectional morphemes follow each other in forming a word category, either before or after the root, the place where formation takes place is between the root and the inflectional morpheme, meaning that the sequence will always be: lexical root + **derivational morpheme** + inflectional morpheme. The fact that this rule is universal, means that it applies to all languages.

Sesotho is one of the African languages classified as an agglutinative language, and according to Acha (2009) agglutination is the process of adding affixes to the lexeme of the word. Agglutinative languages have a series of morphemes attached to one word; each morpheme may have one function and meaning. In Sesotho, noun phrases and verb phrases are open classes that can have numerous morphemes attached to form various word categories. These morphemes are classified as derivational morphemes and inflectional morphemes.

This study will examine how these morphemes in Sesotho, namely derivational and inflectional morphemes are ordered in open class word categories, based on Greenberg's universal clause statement. That statement will be tested on Sesotho word categories such as verb phrases and deverbative noun phrases only. A brief description, classification, linear and hierarchical arrangement of Sesotho grammatical morphemes will be given in terms of the X-Bar theory. Beard (1995)'s Lexeme-Based – Morphology will be used as a background theory to contextualise the analysis of the sequence of Sesotho lexical morphemes.

According to Chomsky's (1970) X theory, a syntactic category is a pair consisting of a category type or level of specification and a feature specification or category name. The category type of syntactic word is zero $[N^0, A^0, v^0]$ and a feature specification is a category name like nouns, adjectives and verbs. Morphological categories are entities

that are formally identical in character to syntactic categories, meaning that each morphological category is a pair also, bearing a category type and a category name but in morphology word categories have no bars, they start with a word category.

X theory applied in morphology will therefore yield four word categories listed below:

- (1) N⁰> Lexical item
- N⁻¹> STEM
- N⁻²> ROOT
- N^{AF}> AFFIXES

According to Radford (1997), morphology is the study of how words are formed out of smaller units which are traditionally called morphemes. Beard (1995) says morphology is superficially the sum of all the phonological means for expressing the relations of the constituents of words in phrase, and of the phrasal constituents of sentences. The key element of morphology is the WORD, a symbol comprising mutually implied sound and meaning. The central purpose of morphology, therefore, is to map sound to meaning within the word and between words. The issues of morphology is what constitutes linguistic sound, what determines linguistic meaning, and how the two are related.

Beard (1995), goes further to define lexeme as a sign which appear in open classes, as direct specified sequence of phonemes, grammatical features and semantic intentions. The open classes, according to Blake (1993), have large membership and have more words added to them as the language grows and changes. They have definable meaning and are also called lexical words. Lexemes are nouns, verbs and adjectives found in the lexicon. A lexeme belongs to a particular syntactic category, has a certain meaning (semantic value), and in inflecting languages, has a corresponding inflectional paradigm; that is, a lexeme in many languages will have many forms.

In many formal theories of language, lexemes have sub-categorization frames to account for the number and types of complements within sentences and other syntactic structures. The notion of lexeme is very central to morphology, and thus, many other notions can be defined in terms of it. For an example, the difference between inflection and derivation can be stated in terms of lexeme: inflectional rules relate a lexeme to its forms, and derivational rules relate a lexeme to another lexeme.

Lexemes are often composed of smaller units with individual meaning called morphemes, according to **root morpheme + derivational morphemes + desinence**.

The root morpheme is the primary lexical unit of a word, which carries the most significant aspect of semantic content and cannot be reduced to smaller constituents. The derivational morphemes carry only derivational information. The desinence is composed of all inflectional morphemes, and carries only inflectional information. The compound root morpheme + derivational morpheme is often called the stem. The decomposition stem + desinence can then be used to study inflection.

Beard (1995: 46), postulates that lexemes are the only minimal grammatical elements in the language and each lexeme has a set of three representations. They are phonological representation [p], grammatical representation [g], and the semantic representation [r].

When words are formed, there is a meaningful sequence of sounds that occurs among those words. Kosch (2006) defines a morpheme as a smallest meaning-bearing unit of grammatical analysis; morphemes are generally described as minimal meaningful units of which words are composed. There are two types of morphemes, that is, free and bound morphemes. Free morphemes can stand on their own while bound morphemes need affixes in order to be a word.

In most cases, morphemes are used when giving a plural and tense of an English word in a sentence and therefore (-s and -ed) represent morphemes. Some of the morphemes can be used as words because they can make certain meaning on their own, for instance, *anti-* and *-ism*, *anti-* means against something and *-ism* on the other hand means 'a set of beliefs'.

As a minimal meaningful element, a morpheme helps a lot in the formation of words. When words are formed, it is either there are new words with different part of speech from the previous ones or words that relate with each other without a change in part of speech. There is an inflectional and derivational morpheme.

Inflectional morphemes do not change anything on word classes but a relationship of words is being kept. Wurzel (1989) states that operations of inflectional morphology do not change word classes. With respect to this criterion, there seems to be hardly

any problems concerning nouns and adjectives: all number and case forms will maintain their nominal character, even if they function as adverbs in the sentence. Both derivation and inflection are functional categories that fall under affix morphemes but they form words differently. With derivational morpheme, new words are formed from the existing word, for instance, the English adjective **beautiful** can be formed from a noun **beauty**. While with inflection a part of speech remains the same, on a verb **play**, there is an addition of a morpheme, **-ed** for example from the word **played** and an addition of **-ing** which will turn to be **playing**. All those three words are verbs and that means they fall under one grammatical category. The same applies to Sesotho word formation strategy: with the verb root /rek-/, derivational morpheme /mo-/ will be added to form the noun /mo-rek-i/, but if an inflectional morpheme /-el-/ is added to the verb root /rek-/, to form /rek-el-a/ then the verb does not change its category.

Moreover, Katamba (1993) defines derivational morphemes as those that focus on forming new words and they change a word-class that a base belongs to. Furthermore, he says unlike derivational morphemes, inflectional morphemes do not change referential and cognitive meaning. These morphemes modify the form of a word so that it can fit into a particular syntactic slot. What Lieber (1954) says about inflectional and derivational morpheme is that only derivational affixes will have full categorical signature. Inflectional affixes on the other hand will be marked only with individual features for which they contain specified values. The sequence of morphemes is how morphemes are ordered in a sentence.

1.2 Problem Statement

According to Greenberg's *Universal 28* clause: 'if both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection' (Greenberg 1963:93). In other words when derivational and inflectional morphemes follow each other in forming a word category, either before or after the root, the place where formation takes place is between the root and the inflectional morpheme, meaning that the sequence will always be: lexical root + **derivational morpheme** + inflectional morpheme. The fact that this rule is universal, means that it applies to all languages.

The central aim of this study is to investigate whether Greenberg's (1963) Universal 28 clause can apply to Sesotho word formation processes, looking only into verb phrases and deverbative nouns. This study will argue that while Greenberg's (1963) Universal 28 may apply in Sesotho nominal derivations, it is not the case in Sesotho deverbative nouns (nouns formed from verbs). Sesotho data will be used to illustrate that Sesotho derivational morphemes are basically noun class prefixes which appear at the beginning of the nouns or at the periphery of the nouns as locative derivational morphemes.

1.3 Research Design and Methodology

This study will assume an explanatory research design, working from Greenberg's (1963) proposition to propose various conclusions based on observations made from tested Sesotho data. A brief description, classification, linear and hierarchical arrangement of Sesotho grammatical morphemes will be given in terms of the X-Bar theory. Beard's (1995) Lexeme-Based – Morphology will be used as a background theory to contextualise the analysis of the sequence of Sesotho lexical morphemes and to give a distinction between derivational and inflectional morphemes.

1.4 The value of Research

This study will provide more insight into the African Languages morphology with regard to word formation strategies and influence empirical data with regard to the sequencing of derivational and inflectional morphemes. The findings that the sequence of morphemes in Sesotho does or does not conform to Greenberg's (1963) Universal 28 will also be significant to other African Languages.

1.5 Organisation of Study

This research study will be divided into five chapters, where Chapter 1 will serve as an introduction; Chapter 2 will be dedicated to literature review and theoretical approaches to morphology, to provide information with regard to studies done on types of morphemes, functional categories of morphemes; Chapter 3 and 4 serve as the core chapters where Sesotho data will be tested on the sequence of derivational and

inflectional morphemes against Greenberg's (1963) Universal 28. Chapter 5 will serve as a concluding chapter where observations are summarised. The dissertation structure will look as follows:

Chapter 1: Introduction

Chapter 2: Theoretical approaches and methodology

Chapter 3: Analysis of the sequence of inflectional morphemes in Sesotho

Chapter 4: Analysis of the sequence of derivational morphemes in Sesotho

Chapter 5: Summary and conclusion

Chapter 2: Theoretical Approaches and Methodology

2.1 Introduction

The focus of this chapter is on research conducted on types and categories of morphemes in African languages. The main focus of this research is to test the sequence of derivational and inflectional morphemes in selected Sesotho word categories with regards to Greenberg's (1963) clause that was introduced in the previous chapter. This chapter will go further by including particular word-formation processes and specific word categories.

This chapter is organized into five sections: 2.1 introduces the chapter, 2.2 focuses on morphemes, 2.3 is on word-categories, 2.4 is word-formation processes and 2.5 serves as a conclusion.

2.2. Morphemes in African languages

According to Haspelmath (2002), morphology is the study of the internal structure of words; somewhat paradoxically, morphology is both the oldest and one of the youngest sub-disciplines of grammar. Morphology is the set of combinations that reign how words in the language are made up out of morphemes. This serves as an umbrella that covers the morphemes.

Faab et al (2015) in their article of implementation of a part-of-speech ontology on morphemic units of Bantu languages looked at morphemes that form subject concords of Northern Sotho and IsiZulu. These two languages and other Bantu languages have a distinction between noun class dependent and noun class independent categories. They have bound and free root and word formation affixes. Faab et al (2015) state that derivation and inflection are part of word formation where there is a glue of prefixes and suffixes. As for the part of infixes, they do not use them as one of morphemic categories because in Bantu languages, infixes cannot be easily defined. Faab et al (2015) presume that inflectional and derivational morphemes are glued to word-forms that are not yet finished, meaning that they do not have a final morpheme therefore the final verbal or nominal morpheme is used as an ending of derivational process. Furthermore, Faab et al (2015) provide a distinction between two kinds of morphemes (roots and affixes).

In Bantu languages, the root is the one that carries the meaning of a word while affixes are glued to the root basically as part of word-formation.

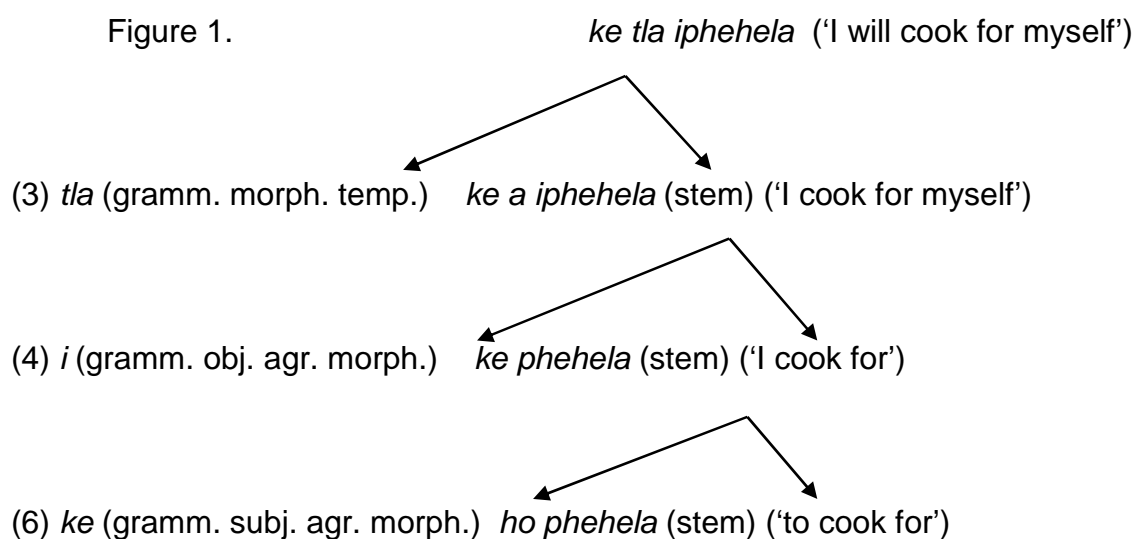
In addition, Bosch and Eiselen (2005) studied IsiZulu morphemes and they claim that IsiZulu and other Bantu languages are structured according to agglutinating morphology. What this means is that these languages require morphemes to be attached to the root in order for a word to be formed. The structure has two fundamentals which are nominal classification system and concordial agreement system. What is meant by nominal classification system is that nouns are classified using the prefixal morphemes, concordial agreement on the other hand is the system that basically looks at the syntax. Those two systems are very important and Sesotho also uses them. Bosch and Eiselen (2005) define derivational morphology as the combination of morphemes to produce a new word in a different category. An example of IsiZulu is used to show how nouns are derived from verb roots using a noun prefix and a deverbative suffix: 1. U-(lu)-hamb-o (*journey*) and 2. U-m(u)-hamb-i (*traveller*). [-hamb-] is the verb root and –ulu; -umu are noun prefixes. Inflectional morphology on the other hand is defined as an insertion of morphemes in words of the same category (does not change) but provides tense and number. IsiZulu example: 1. U-m(u)-lilo (*fire*) and 2. I-mi-lilo (*fires*). What changed is U- (singular) to I- (plural) as in *umu* to *imi*. In a case of tense: 1. Ngi-ya-buz-a (*I am asking*) and 2. U-buz-ile (*He asked*).

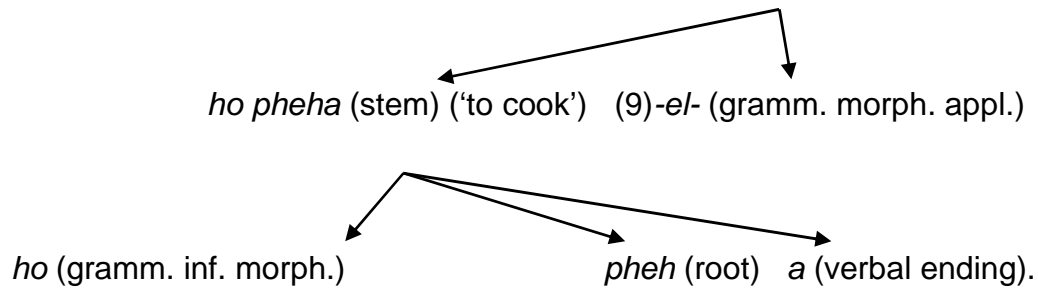
Similarly, Bosch et al (2008) describe morphemes as polysemous, being one of the fundamentals that mark agglutinating languages are the operation to calibrate form and meaning. Each morpheme carries one grammatical category or different lexical meaning. They looked at derivation in IsiZulu whereby derivational morphology in Zulu is defined as a combination of morphemes which may either produce a new word in a different word category or may leave the word category (class membership) unchanged. Derivational morphemes produce words from a different class through a process of affixation. Compared to English, a verb *soften* is derived from adjective *soft* using the suffix –en. In African languages affixation uses prefixes + suffixes, *umlimi - olimayo*. Bosch et al (2008) postulate that derivational morphology is an instrument that produces new lexical items whose meanings have systematical relations to those of the base forms. Furthermore, the derivation of nouns from verbs is so fruitful in IsiZulu. This derivation requires both noun prefix and suffix to get glued next to the verb root. They provided a Zulu example of a noun formed from a verb root –fund-

(*learn*) which is [u(m)u-fund-i (*student*)]. The same noun can have more than one suffix, for instance: u(m)u-fund-is-i (*teacher*). The –is- is a causative which literally gives the root –fund- a different meaning of “to cause to learn”.

Pretorius (2014) gives an overview of the sequence and productivity of Setswana verbal suffixes. Sesotho, like Setswana is a Bantu language which can be found in the South-Eastern zone of Guthrie’s (1971) zonal topogram. Sesotho has a rich verbal morphology, thus called an agglutinative language. Compared to Setswana one can string together several morphemes. According to Pretorius (2014), the order in which affixes occur in agglutinative languages implies that affixes which are relevant to the action referred to by the verbal suffix will appear close to it. The same applies to Sesotho using the very same example given by Pretorius (2014), and it can also be said the reciprocal suffix –an- in Sesotho serves as a good example. Pretorius (2014) uses a Setswana verb stem *kwala*, in Sesotho it will be *ngola*, so he states that it is not compatible by providing this example: *re a kwalana (‘we write each other’) and in Sesotho it will be: *re a ngolana (‘we write each other’). The reciprocal meaning can only be compatible if the suffix is related to the verbal stem, as he used [*re a kwalelana* (we write to each other)]. That suffix is the same in Sesotho, for an example: *re a ngollana* (we write to each other). Figure 1 which is an example of a hierarchical analysis of a Setswana verb can be applied in Sesotho:

(3) (4) (6) (9)





Pretorius (2014) uses a Xerox project for linear order of morphemes. According to him when using that project, morphemes are divided by + and identified with the text directly below each morpheme. The same method used in Setswana can also be applied in Sesotho. Here is evidence: [Setswana {Ke tla ikapeela (dijo). ('I will cook (food) for myself'), Ke + tla + i + apay + -el- + a

AgrSubjP1sg + Fut + Refl + cook + Appl + VerbEnd }.

Sesotho { Ke tla iphehela (dijo). ('I will cook (food) for myself'),

Ke + tla + i + pheh + -el- + a

AgrSubjP1sg + Fut + Refl + cook + Appl + VerbEnd }.

Sesotho also conforms to Setswana's NCHLT project whereby each morpheme is preceded by \$ and then categorised in square brackets, here is an example:

Setswana: Ke tla ikapeela (dijo). ('I will cook (food) for myself')

\$ke[csP1]\$tla[temp]\$i[ref]\$apay[vr]\$el[app]\$a[ve].

Sesotho: Ke tla iphehela (dijo). ('I will cook (food) for myself')

\$ke[csP1]\$tla[temp]\$i[ref]\$pheh[vr]\$el[app]\$a[ve].

According to Pretorius (2014), in cases where both inflectional and derivational affixes co-occur, the derivational affixes generally (but not necessarily) occur closer to the root than the inflectional ones. Pretorius used the following Setswana example:

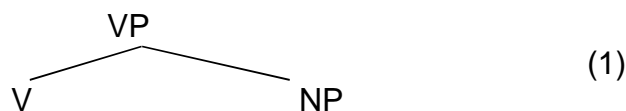
[-bofologilê ('became loose') root (-bof-) + derivational morpheme (-olog-) (reversive intransitive + inflectional morpheme (-il-) (perfect).]

Tokenisation is used to break up the string of characters in a text at the periphery of words. It is important to differentiate between orthographic words and linguistic words for Setswana and the very same thing should be done to Sesotho. Setswana verbs occur with two to three suffixes but it was previously thought that they can occur with more than that.

The theories of Sciullo and Williams (1987) are based on the notion that words have head just as phrases in syntax. The identifying feature of heads in both syntax and morphology is that the properties of the head are those of the whole; there is a complete agreement feature between the head and the whole. They give the notion of head, derivation of argument structures and the use of affixes in Sesotho:

2.2.1 Notion of head in Syntax

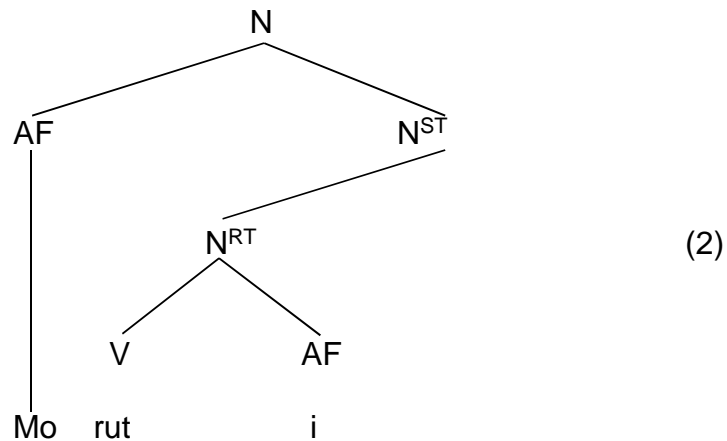
The notion of head in syntax can be identified by virtue of an intrinsic property i.e. the number of bar levels where the lexical daughter of the phrase is not a maximal projection, and the daughter and the phrase share the same categorial features as in (1).



In (1), V is the head of the phrase because it is a daughter of VP and share the same feature of [+ V]. It is clear that the head determines the properties of the whole phrase, if the head is verbal, the phrase is verbal.

2.2.2 Notion of head in Morphology

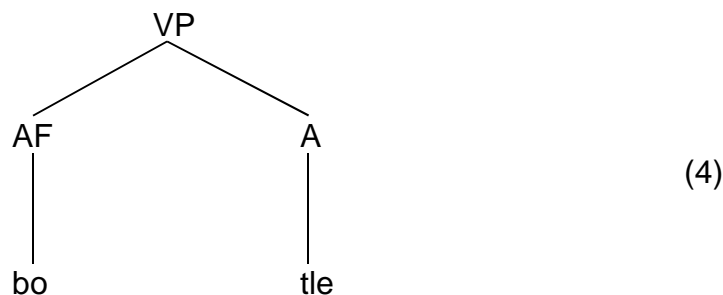
As opposed to syntax, morphology identifies the head of a word contextually, meaning the head of a word is the rightmost member of the word. The notion head and its identification as the rightmost element can be extended to the words formed by affixation as proposed by Sciullo and Williams (1987). The affixation rules give one two structures, one for prefixes and one for suffixes, but because suffixes are always the rightmost members, only suffixes will be heads of words, and not prefixes with the results that suffixes will determine the lexical categories as shown in (2) below:



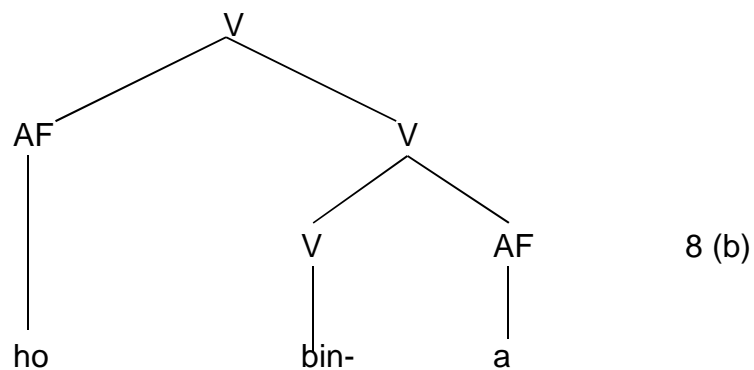
In (2) the rightmost element is the suffix [-i], so [-i] is the head of the word [mo-rut-i] and will therefore determine the properties of the word: The suffix [-i] belongs to the category of nouns because it is a nominal suffix. The notion of head as the rightmost element of the word has some problems. In Southern Sotho two problems can be identified (Ramone: 1992:78). In Sesotho, it is clear that not all rightmost elements can determine the category of the word with diminutive suffixes such as [-hadi] and [-ana] illustrated in (3)

- | | | | |
|-----|-----|-----------|---------------------------|
| (3) | (a) | Noun | kgomo-hadi
leqhekw-ana |
| | (b) | Adjective | kgolo-hadi
Motshw-ana |

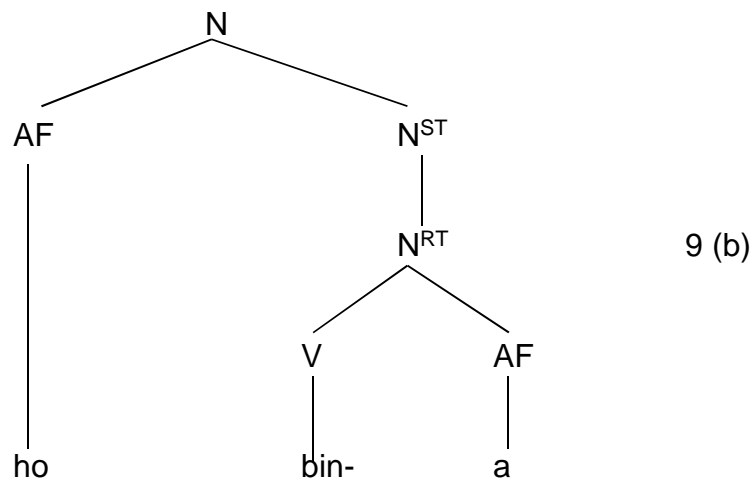
In (3) the suffixes [-hadi] cannot specify for one category like prefixes, so they cannot be heads even if they occupy the rightmost position. Secondly, not only suffixes can determine the category of the words but prefixes can also do in Sesotho as illustrated in (4):



(8) (a) Ke rata [ho bina] (Verbal infinitive)



(9) (a) Ho bina ha bona (Nominal infinitive)



In [ho bina], [ho] and [-a] can be heads, but the problem is that [ho bina] can be both nominal and verbal categories. If the head is the prefix as in (9), then the word is nominal but if the head is the suffix [-a], the word is verbal as in (8).

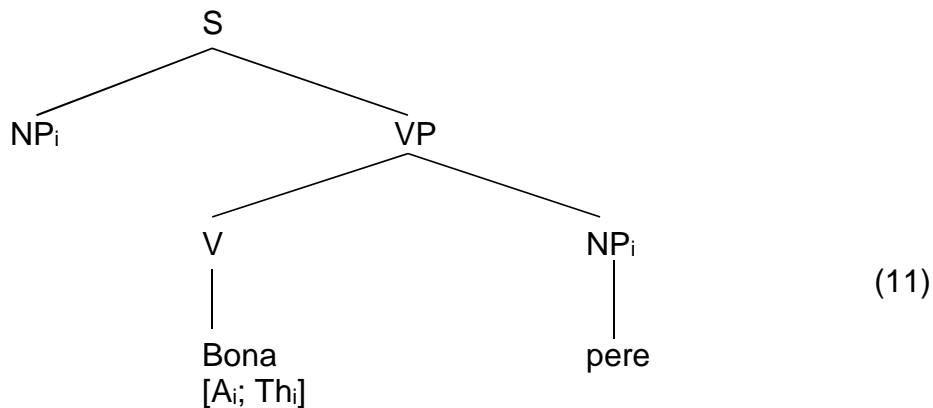
The solution to the problem of the notion head in morphology in other words, is the application of the notion of function composition. According to Sciollo and Williams (1987), the affix as the head combines with the stem as the non-head affix to form the complex predicate. This leads us to the discussion of argument structures of affixes.

2.2.4 Argument structure in Syntax

The argument structure of a predicate is a list of its theta-roles and one of the arguments is the external argument as in (10)

- (10) (a) Bon- [A, Th.]
 (b) Monna o bona pere
 (A) (Th.)

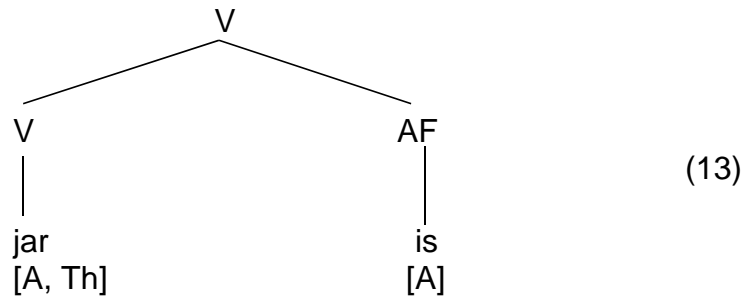
The verb [bon-] has two arguments, [A, Th]. Theme is the external argument and is assigned to the NP within the first projection. Agent is the external argument passed up to the maximal projection and assigned to the subject of the predicate by rule of predication. The external argument is the head of the argument structure and found outside the maximal projection as illustrated in (11):



2.2.5 Argument structure in Morphology and the causative affix [-is-]

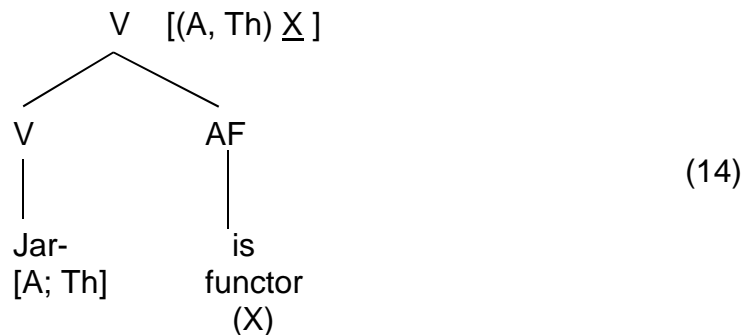
Sciullo & Williams (1987:22), retain the earlier idea that affixes have argument structures. If affixes have the feature of argument structure, then the affix will determine which morpheme is the head. Thus the head of the word formed by affixation determines the external argument. This is the case with the causative affix [15] as shown in (12) and (13):

- (12) Mme o jar-is-a ngwana mokotla



According to the structure in (13), the verb [jar] has two arguments: [A; Th], but with the addition of the affix [-is], one extra argument is added [Agent], and it becomes the now external argument, so [-is] is the head, [jar-] becomes non-head. Furthermore, the external argument of a non-head is not used up as it is in theta role satisfaction. In that way [jar-] is not an argument of [-is] or its external argument will be absorbed. To resolve the problem, in morphology, the affix will be a functor by virtue of its semantic type. In other words a functor combines two arguments: if an affix is the head, the argument of a head and argument of the non-head become one which is the notion of function composition.

2.2.6 Argument structure of the causative affix [-is-]



In (14) the verb [jar – is] has three arguments because they are passed up to the verb, they are not used up as in syntax. The verb [jar-] has two arguments [A, Th] and the affix [-is] adds another argument [A]. Because [-is] is the functor, the arguments of [jar-] which are [A, Th] are taken over as arguments of the whole as indicated in (14). The [X] argument of [-is] will be an argument of the whole because [-is] is the head. The old external argument is not the external argument of the whole because the verb [jar-] is not the head.

If the affix [-is] does not add the new external argument, it means it has lost its function as the head as indicated in (15) below:

(15) Ke sebedisa sesepa.

All in all, [is] has the meaning of cause, and because it is the head, it provides the new external argument. As the functor, it combines the argument structure.

2.2.7 Argument structure of the passive affix [-w-]

Morphology has certain means of specifying relations among arguments in an argument structure and this is by means of control. Control must be involved to explain the differences between the deverbative suffixes [i] and [o] as in (16) and (17):

(16) (a) Thabo ke morut-i

(b) Morut - ik
 [A TL_k][R]

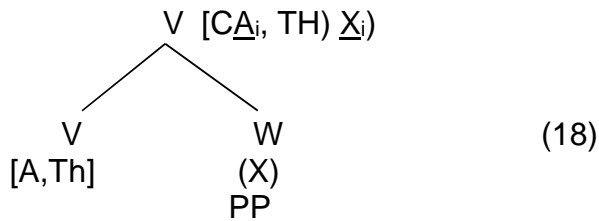
In (16) R controls the external argument of the predicate and [i] will take the argument of theme. Theme is controlled by [i] but it is not used up.

(17) (a) Thut-o ke matla

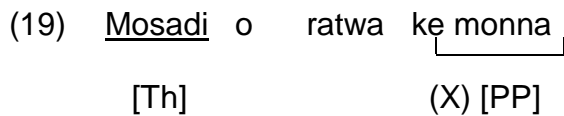
(b) Thut - o
 [A, Th R]

In (17) [-o] eliminates the external argument and will therefore control theme. If [-o] is the functor, it will control the Agent which is not available, meaning the subject position does not have theta role anymore. The whole verb will therefore have no external argument as in (17) above.

The verbal passive morpheme [-w] has no external argument, but because it appears in head position with no external argument, the word formed will have no external argument because the external argument of the stem is internalized and realized by the marker of Agent theta role [PP] [ke]. The passive will assume the following structure in (18):



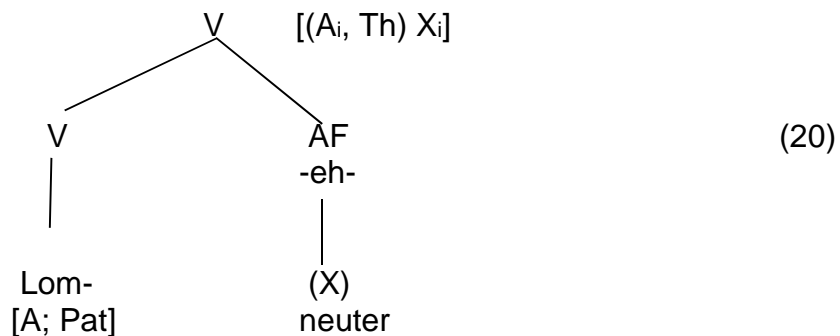
The passive [-IN] is a functor, the arguments of the non-head [A, Th] will be taken over as arguments of the whole. [X] Argument will be an argument of the whole because [-W] is the head. The external argument of the non-head does not become the external argument of the whole because it is controlled by [X], prepositional phrase argument of the head, so the whole has no external argument as in (19):



[-IN-] controls the agent argument because of the prepositional phrase [ke monna]. [Monna] has been taken out of the verb stem [rat-] into the prepositional phrase, so [-w-] controls the external argument through prepositional phrase.

2.2.8 Argument structure of the neuter passive affix [-eh-]

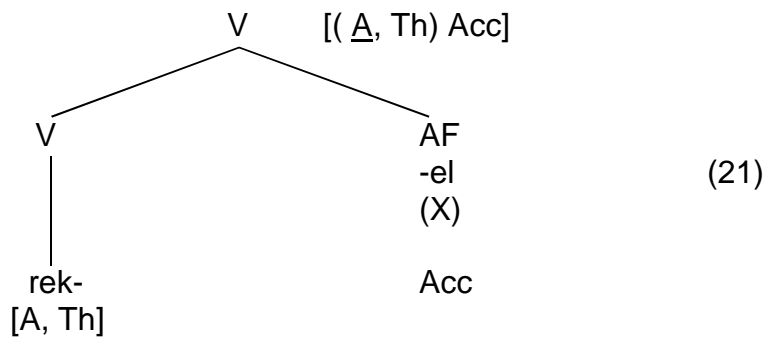
Bohobe bo a lomeha.



In (20) the neuter passive affix [-eh] is the head, it is the functor and so the argument of [lom-] must be controlled. [-eh] Controls the external argument through the meaning of neuter. It neutralizes the agent with the results that there is nothing outside [-eh] which controls the external argument. The meaning of [lomeha] controls the argument. No external argument in [loma] and [lomeha].

2.2.9 Argument structure of the applicative affix [-el-]

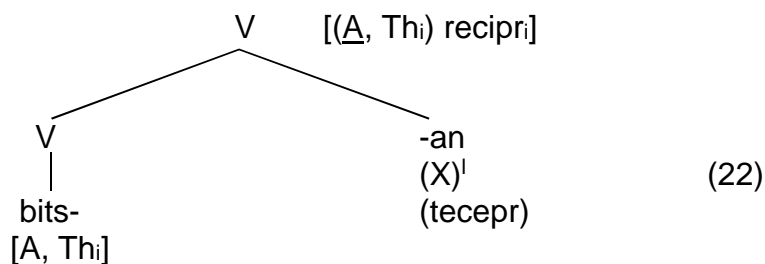
Ntate o rekela ngwana buka.



The affix [-el] does not supply the new external argument to the whole because the external argument of [rek-] is not controlled by [-el] as head, so the external argument of [rek-] is the external argument of the whole. Because [-el] is a functor, all arguments of the stem will be carried over. The [X] argument of [-el] will be an argument of the whole verb. The affix [-el] will further be realized as accusative. The applied suffix is the head in some absolute sense, but it is not the head with regard to the external argument. The stem [rek-] supplies the index of its external argument.

2.2.10 Argument structure of the reciprocal affix [-an-]

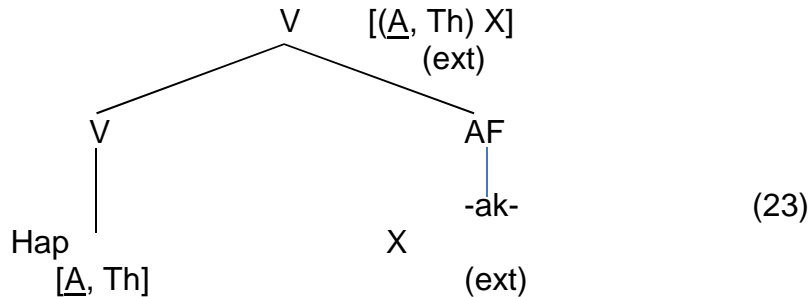
Batho ba a bitsana.



The verb [bits-] has two arguments, [A, Th]. The theme argument is bound by the agent argument of [bits-]. The reciprocal affix [-an] does not supply the new external argument because the external argument of the stem [bits-] is coindexed with theme. The reciprocal affix [-an] is a functor and therefore arguments of [bits-] are carried over to the verb.

2.2.11 Argument structure of the extensive affix [-ak-]

Morena o hapa dikgomo
 Morena o hapaka dikgomo



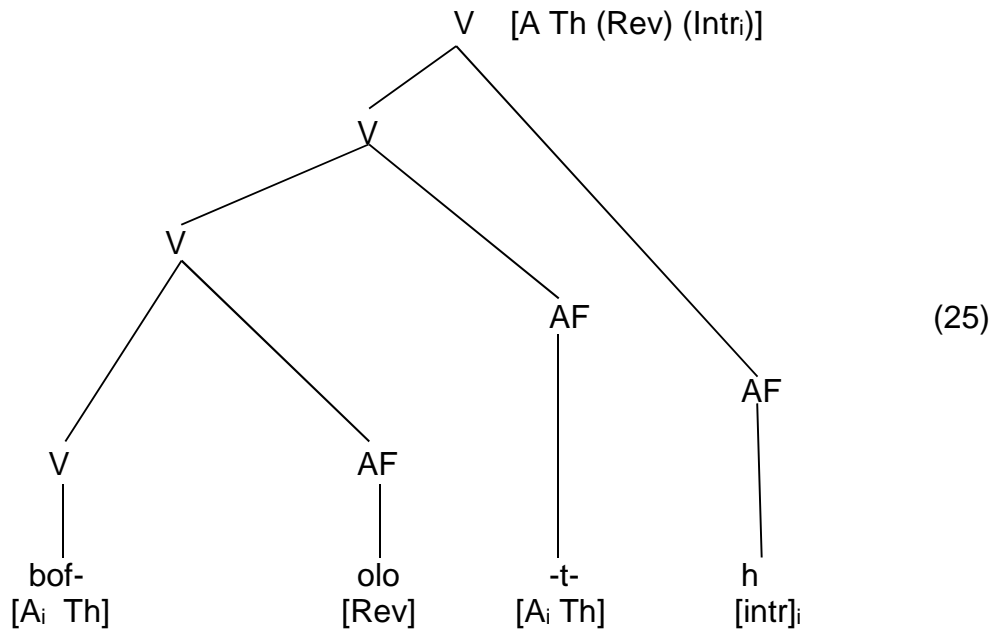
In (23), the verb [hap-] has two arguments, [A, Th]. The extensive affix [ak-] does not add any extra argument to the structure. The affix [-ak-] as a functor carries the arguments of the stem [hap-] which is [A, Th], and as a head the affix [-ak-] controls the argument of [hap-] which is the external argument (agent) through the meaning of extensive.

The affix [-ak] can lose its function as the head where it is used but with no meaning of extensive as illustrated in (24) below:

- (24) (a) *Thabo o roha ngwana
 (b) Thabo o rohaka ngwana.

2.2.12 Argument structure of the reversal affix [-h/l-]

Monna o bofolla thapo
 Thapo e a bofoloha



There is a common thing between the two verbs viz. [bofolla] and [bofoloha]. Both have the common affix [-olo-] with the meaning of reversal, but the contribution of the suffixes is not the same: [-l-] controls the theme [thapo] because it adds an argument to the verb making it transitive as in (26) below;

(26) Monna o bofolla [thapo]

[-h-] Controls the agent of [bof-] because it makes the verb intransitive as indicated in (27):

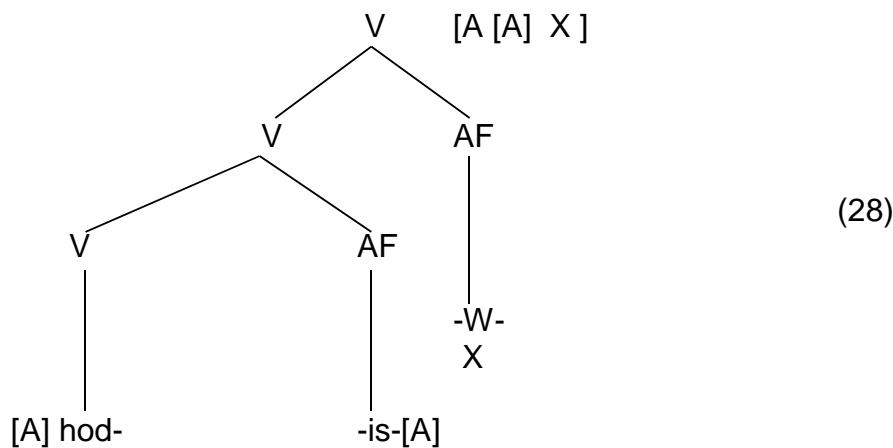
(27) Thapo e a bofoloha [____]

Both the suffixes [-h] and [-i-] are heads, but they don't change the argument structure. They have an influence on the word.

2.2.13 Combination of affixes

2.2.13.1 Affixes [-is- in-]

e.g. Ngwana o hodiswa ke mme



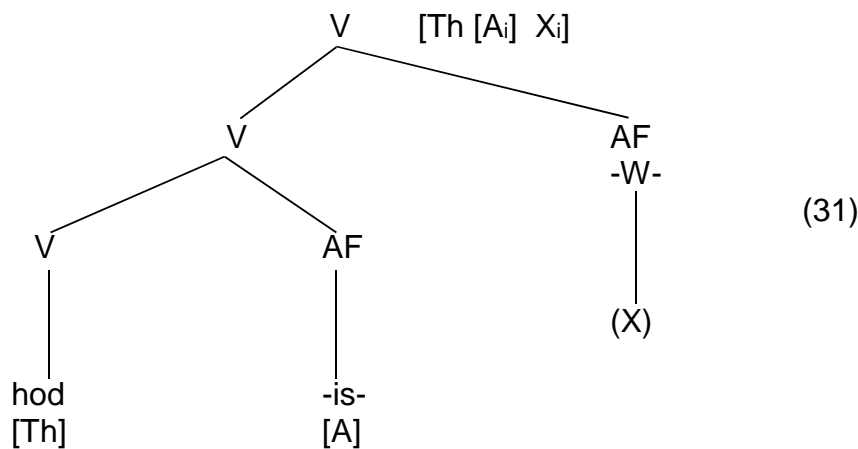
[-is-] is the head of [hodi], meaning that it controls the meaning of the external argument. [hodi-] has its own external argument [ngwana]. The affix [-is] supplies the new external argument [mme]. [-is] is the functor, it composes the argument of the two i.e. the verb stem and affix are not used up, they are still available. The meaning of [-is] is that of cause.

[-IN-] is the head, it controls the external the external argument because the external argument may appear in the prepositional phrase as in (29):

(29) Ngwana o hodiswa ke mme

[-IN-] is also a functor, so it composes the argument of the stem [hadi-] but on the other hand [-IN-] can do away with the internal argument as in (30) and (31)

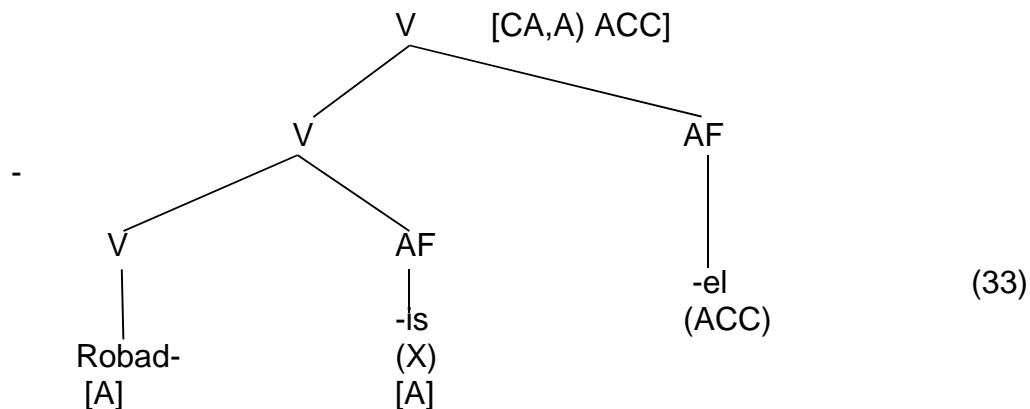
(30) Ngwana o a hodiswa



In intransitive verbs, the theme is not influenced by [-is] and [-IN-]. The theme is added but morphological structure in the same. In the place of agent it will be theme as in (31) above.

2.2.13.2 Affixes [-is-el-]

(32) Ke robadisetsa mme ngwana



[-el-] is the head of the word, the head of the argument structure but not the head of the external argument. The affix [-is] is a functor, it combines the two arguments i.e. the new external argument and the old as in (34):

- (34) a. Ngwana o a robala
 b. [Thabo] o robadisa [ngwana]

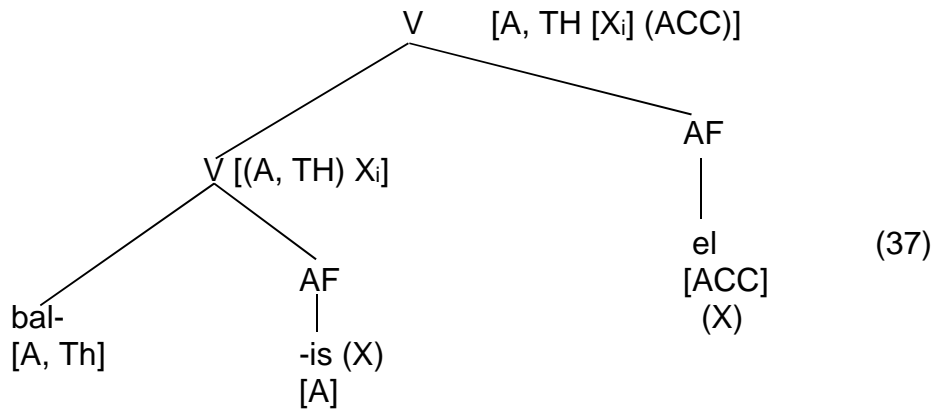
[-el] adds the accusative argument as indicated in (35):

(35) Thabo o robadisetsa [mme] ngwana.

In transitive verbs, there should be four arguments, viz.

Agent: Theme and Agent plus Accusative argument as in (36) with its structure in (37):

- (36) a. Ntate o bala buka
 b. Titjhere o badisa ntate buka
 c. [Titjhere] o badisetsa [ntate] [buka] [sekolong]

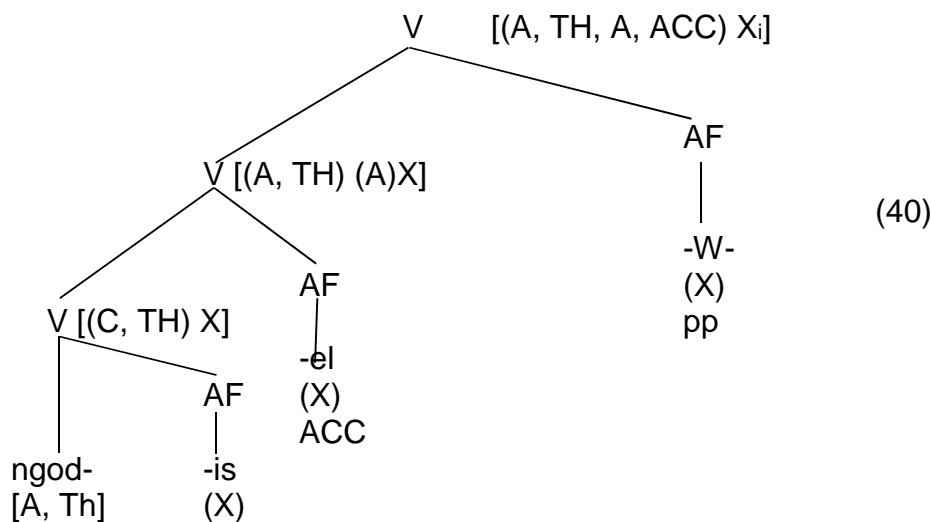


The verbal stem [bal-] has two arguments [A, Th]. The affix [-is] supplies the new external argument and as a functor it combines the two arguments, which is the new and the old external arguments. [-el-] brings in the accusative argument, as a functor it is the head of the whole excluding the external argument brought in by the stem. [-el-] may indicate place or location such as [sekolong] can still remain but it will be an adjunct as in (38) below:

(38) Titjhere o badisa ntate buka [sekolong]

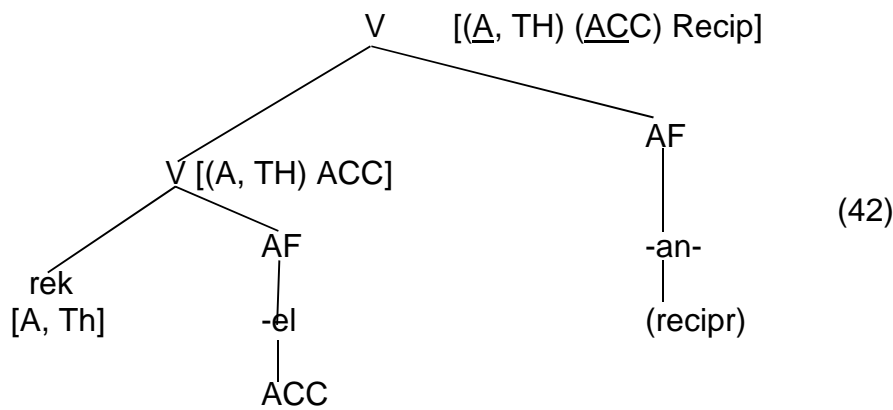
It is also possible to add [-W-] to the affixes [-is-el] as in (39):

(39) Ntate o ngodisetswa buka sekolong ke titjhere. The above sentence will assume the following structure:



2.2.13.3 Affixes [-el- an-]

(41) Bana ba rekelana dipompong

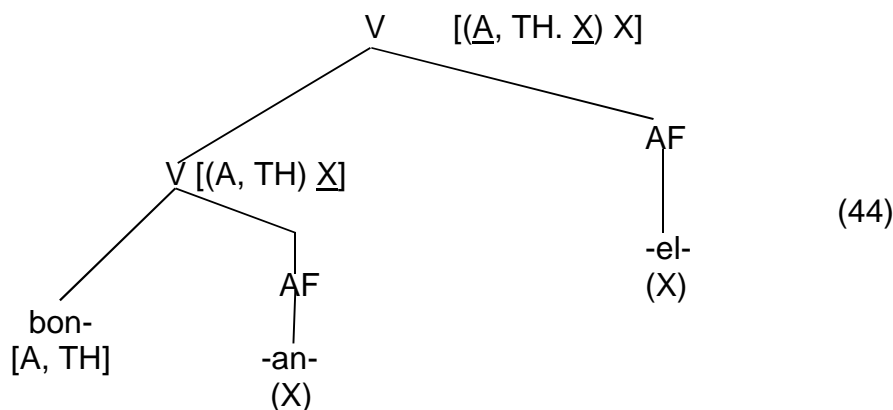


[-el-] is a functor and also the head of the word because the head of the argument structure is always the external argument which is the agent [rek-] will have two arguments, [A, Th].

[-an-] is a functor, the external argument, [Agent], binds the internal argument [-el-] with the meaning of reciprocal. [-an-] makes the agent to bind the accusative. The reciprocal does not add the argument, it causes the agent to bind the accusative. It takes away the syntactic object and as a result, the external and internal arguments are binded together.

2.2.13.4 Affixes [-an-el-]

(43) Bana ba bonanela sekolong

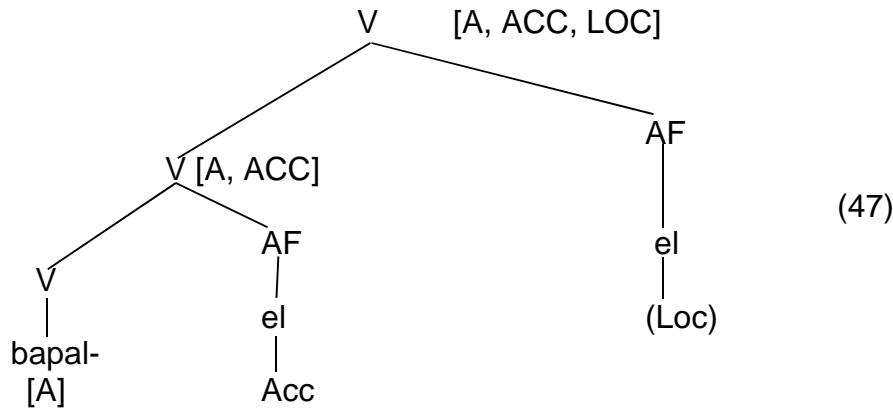


[-an-] is the functor, it binds the external argument (Agent) and the internal argument (theme). [-el-] is the head of the whole and brings about the locative meaning. Without [-el-], the locative is unnecessary as shown in (45):

(45) Bana ba a bonana

2.2.13.5 Affixes [-el-el-]

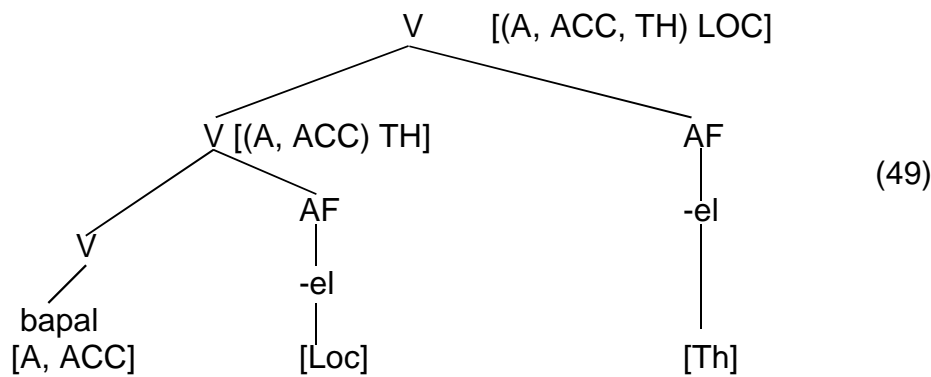
- (46) (a) Bana ba a bapala
 (b) Bana ba bapalla [sekolo]
 (c) Bana ba bapallela bolo [sekolong]



The non-head verbal stem [bapal-] has one argument of Agent only in intransitive verbs as in 46(a). The first affix [-el-] is the head and supplies the accusative argument [sekolo], as the functor it combines the external argument and the internal argument together, as indicated in the structure in (47) and in the sentence in 46(b). The second affix [-el-] adds the second argument of location which is [sekolong] in 46(c) above. The second [-el-] has the meaning of locative and it is the head of the whole word, meaning that as a functor, all the arguments of [bapal-] and [bol-] are carried over to the verb.

With transitive verbs there must be four arguments whereas with intransitives there were three arguments. Theme is added to the three existing arguments which are [Agent], [ACC] [LOC]. This is illustrated by sentences in (48) with the structure in (49):

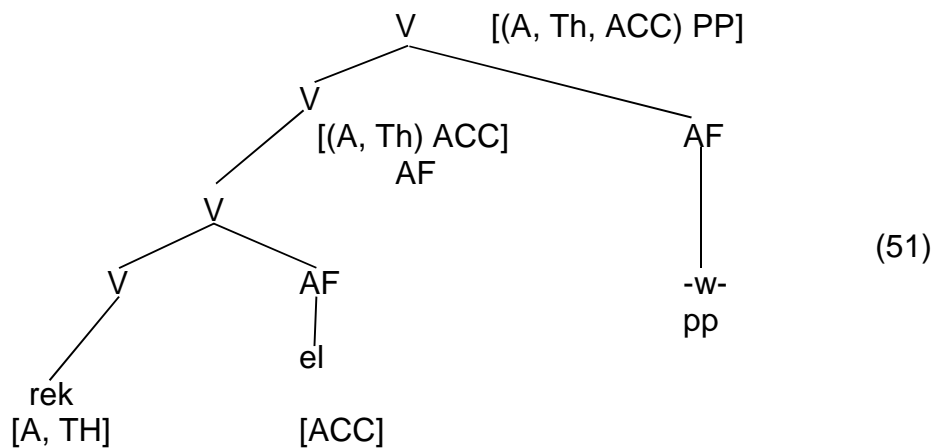
- (48) (a) Bana ba a bapala.
 (b) Bana ba bapalla bolo Gauteng.
 (c) Bana ba bapallela bolo ya sekolo Gauteng.



The non-head stem [bapal-] has two arguments [A, ACC] as shown in 48(a). The first [-el] supplies the new argument of location as in 48(b). The second [-el] add theme which is [sekolo] in 48(c). All in all there are four arguments: [A, ACC, LOC, Th].

2.2.13.6 Affixes [-el-w-]

(50) Bana ba rekelwa diphahlo ke ntate



The verbal stem [rek-] as a transitive verb has two arguments, [A, Th]. The affix [-el] adds the accusative argument as in (52):

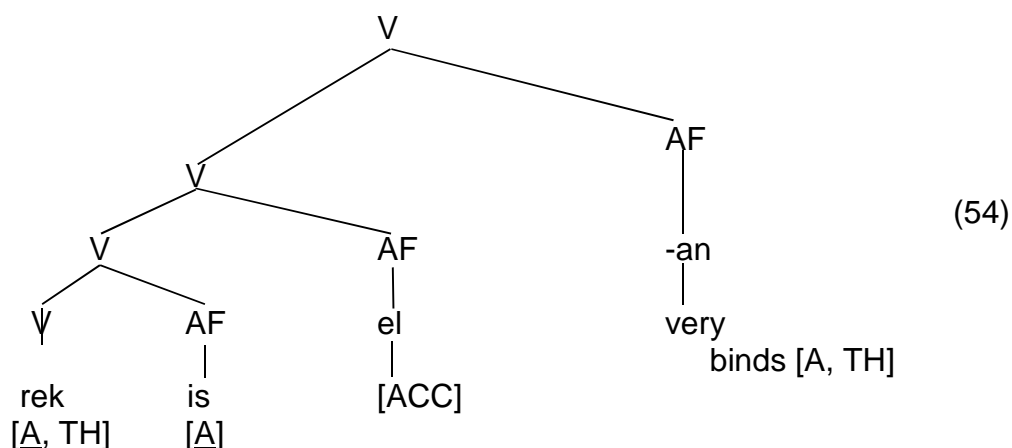
(52) Ntate o rekela [bana] diphahlo

[-el-] as the functor combines two arguments and all are carried over to the verb.

[-IN-] is the head, it controls the external argument because the external argument may appear with the prepositional phrase as in (50) above. [-w-] is also a functor, it composes the arguments of [rek-] which are [A, Th] and that of [-el-] which is [Acc].

2.2.13.7 Affixes [-is-el-an-]

(53) Batho ba rekisetsana diaparo



[-is-] in this example is not a head because it does not supply any argument which is new as the verb [rekisa] has got a different meaning from that of [rek-].

[-el] supplies the accusative argument [diaparo].

[-an-] binds theme which is the internal argument taken by [-an-] with the external argument agent.

In addition, syntax of a word is the structure of words and the system of rules for generating that structure. Apart from the word category itself, the categories involved in word structure are different from those of the syntactic structures but have the same general formal properties as syntactic structure which is generated by the same sort of rule system.

The type of grammar that is dealt with in the structure of a word is a context-free constituent grammar, where words have internal constituent structures, and word structure rules assign a labelled tree to every word of the language. It also allows for the reclusiveness and it embodies the claim that there is no principled bound on the length of words.

As in Syntax, where there is syntactic base component consisting of P.S. rules and the lexicon, there is also a morphological component consisting of word structure rules which do not introduce elements of the terminal string; a list of lexical items including affixes and other bound morphemes and the lexical insertion rule.

The first component is the word structure rules that generate word structures. In other words the structure of words is the result of this system of rules as they appear in (1)

- (1) (a) N → AF N
 (b) N → AF ST
 (c) N → NR AF

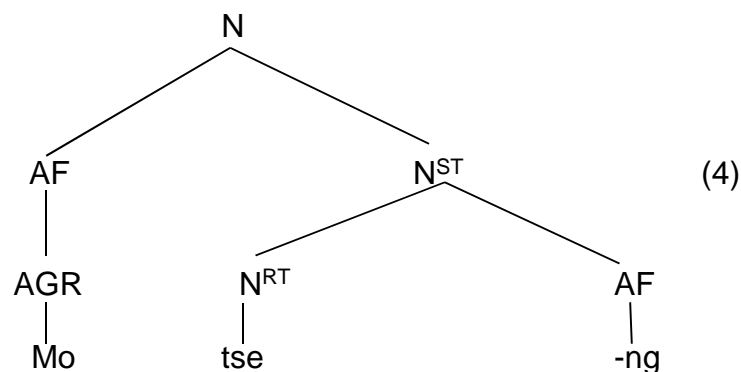
The second component is the lexical item that includes affixes. Affixes belong to categories and have idiosyncratic properties listed as part of the lexical entry as in the example in (2).

(2) [-ng] of motseng

- (a) Category [N^{AF}]
 (b) Sub-categorization [N^{RT} —]
 (c) Meaning [Locative]
 (d) Phonological [-ng)

The third component of morphological component is lexical insertion rule which completes the structure generated by the rewriting rules by inserting items from the lexical extended dictionary subject to conditions such as inserting items in appropriate categories and its sub-categorization. With these components, words are given tree diagrams according to their word structure rules as in (3) and (4):

(3) Motseng



This is the model for the rule system generating word structure. In (4) there is a structure generated by rules in (1). Affixes are inserted appropriately under their

suitable categories, and it can be seen that the affix (-ng) is sub-categorized by the root [-tse-].

2.3 X-bar theory in word syntax

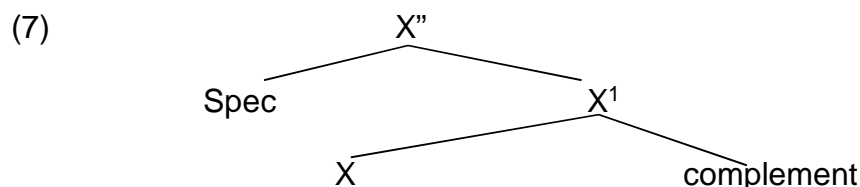
One of the sub-theories of Government-Binding theory is X theory, that was introduced due to the need for a general characterization of possible phrase structure rules, and as a result, the rules we abandoned because this was a repetition of words constructions used together with X theory. Lexical entries containing a subdivision called sub-categorization was introduced to replace Phrase Structure Rules as in (5):

(5) Category [-N; +V]
 Sub categorization [NP]—

If X theory is used in morphology, the same will happen as in syntax. Word structure rules are abandoned and lexical entries are used, meaning that stems and roots must have lexical information like verbs in syntax as in (5). The same method can be applied in morphology as in (6)

(6) -ng
 Categorical feature [N^{AF}]
 Sub categorization [N^{RT} -]

Word structure rules are replaced by sub-categorization because they are operating in the same way. Morphological structures will then abide with information in the lexical entries and have binary structures following the X schema as in (7)



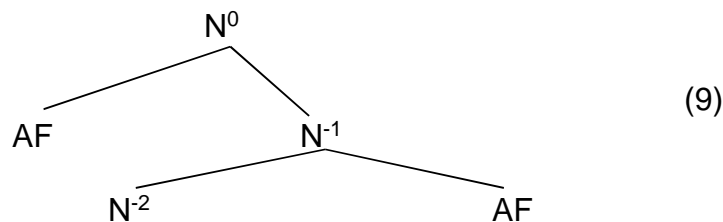
These are two basic ideas of X theory, that of syntactic categories having a category type and a category name. The second idea is that of the head, where phrases are headed by categories at zero level. These two basic ideas can also be applied to morphology.

2.3.1 A syntactic category

According to X theory a syntactic category is a pair consisting of a category type or level of specification and a feature specification or category name. The category type of syntactic word is zero [N^0 , A^0 , v^0] and a feature specification is a category name like nouns, adjectives and verbs.

Morphological categories are entities that are formally identical in character to syntactic categories, meaning that each morphological category is a pair also, bearing a category type and a category name but in morphology word categories have no bars, they start with a word category.

The general principle for X theory is $X^n \rightarrow X^{n-1}$, then if X represents n, there shall be the structure in (9):

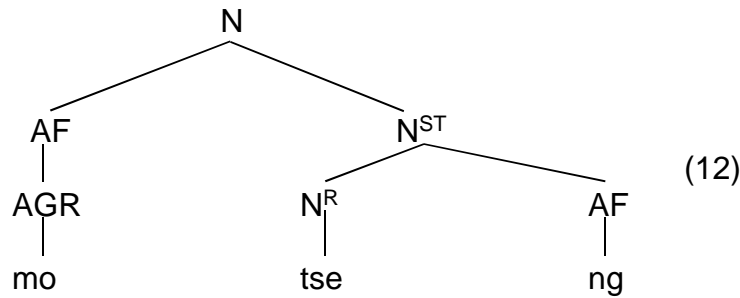


When X theory is applied in morphology, it is expected to produce four word categories listed in (10) below:

- (10) (a) N^0 > Lexical item
 (b) N^{-1} > STEM
 (c) N^{-2} > ROOT
 (d) N^{AF} > AFFIXES

The categories in (10) can be illustrated by the word [motseng] through dissecting it into four categories as in (11), with its structure in (12):

- (11) (a) N^0 >Word [motseng]
 (b) N^{-1} >Stem [-tseng]
 (c) N^{-2} >Nominal Root [-tse-]
 (d) N^{AF} >prefix [mo-]



From (11) above, it is clear that the word is at zero level, the stem is one bar less than the word and is composed of the root and the suffix. The root is two bars less than the word and it carries meaning. Affixes are divided into suffixes and prefixes.

Going back in (9) and (10) where the X schema has been applied to yield four categories, the first three categories fall within the X hierarchy and affixes fall outside the X hierarchy. The position of affixes is a special one in that they are not ordered within the X hierarchy. Affixes are therefore the type of their own; they have two properties that distinguish them from word category or root: they are preterminal and are always sisters to non-affix category type in word structure. For this reason, affixes are falling outside the hierarchy within which a word is of level zero. They are a category lower than a word.

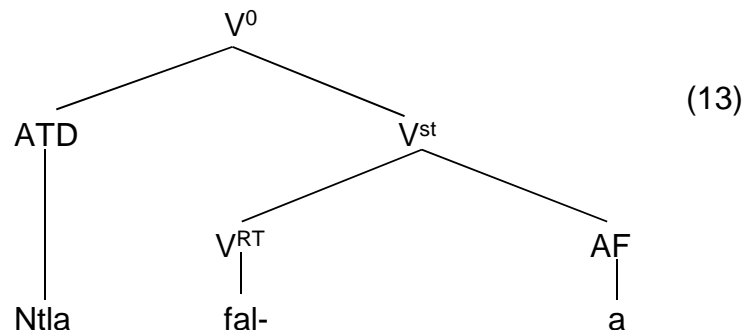
2.3.2 Affixes as lexical items

Affixes are lexical items because they are assigned to categories such as nominal affixes and verbal affixes, and have lexical entries, but the problem is how to determine the name of the category.

One of the basic ideas of X theory is the notion of the head. This means that word structure rules can generate structures in which one of the daughters, either the affix or its sister bears the same syntactic feature as the dominating category, which will then determine the category of its word; this is not the case with regard to morphology. There are severe limitations.

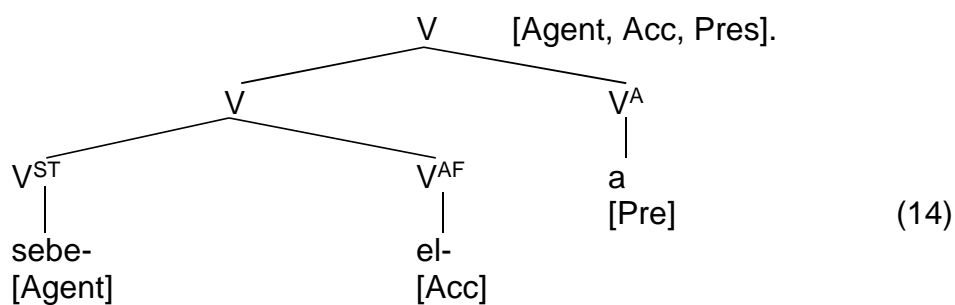
According to X theory, heads determine the properties of their phrases; it determines the category of the mother i.e. the head of the noun phrase will be noun and the head of the verb phrase will be the verb. In morphology words also have heads, but

contextually determined. In that way heads of words may not share the same morphological properties as in phrases, but the right most element is taken to be the head of the word as shown in (13)



According to Selkirk (1982:61), when a category of an affix's mother is not the same as the category of its sister, the affix is the head. So in (13) the head is [-a] which is the suffix, and therefore the suffix [-a] can determine the category of the word [ntlafala], which is the verb, hence [-a] is the notion of the head in syntax as the suffix [-a] does not share the same properties as the mother.

To resolve this problem of sharing properties i.e. the affix and its mother, peculation is used. Selkirk (1982:65), the affix is strictly sub-categorized for sister of a particular category name depending on its position in the word structure, either its features or its sister's will be in peculation relation to the mother node, meaning that it is entirely possible to consider that word structures generated by affixation rules containing no category names acquire names through lexical insertion and peculation. According to the principle of peculation, features of the affix are the features of the mother and vice versa, as illustrated in (14)



According to (14) if the verb stem [sebe-] assigns the theta role of agent to the external argument, and the verbal affix [-el-] assigns accusative case and the affix [-a] present

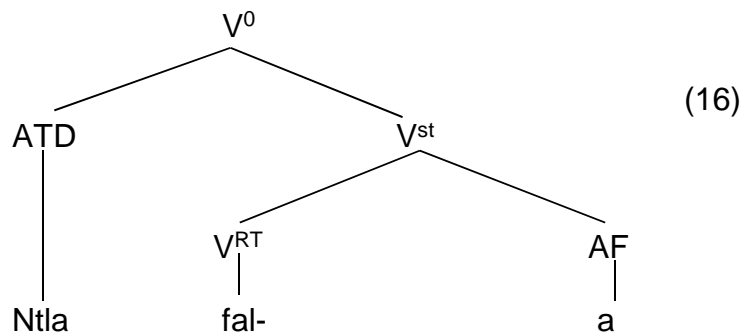
tense, all these feature percolate to the mother node. They are also properties of the mother node. In this way affixes also share same properties as their mother nodes and can therefore determine lexical categories of words. These affixes are therefore verbal affixes.

On the other hand, there are affixes which cannot be stated as adjectival or nominal affixes such as those in (15) below:

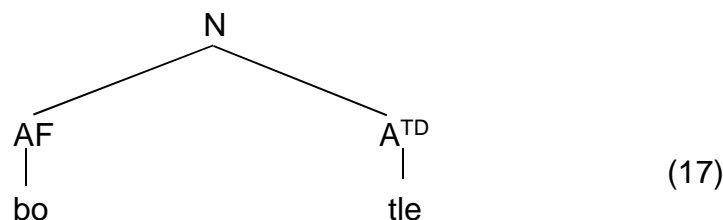
- (15) (a) -hadi [kgomo-hadi] nominal affix
 [kgolo-hadi] adjectival affix.

In that way as in (15) there are affixes which cannot belong to one category.

Another problem of the notion of head in morphology is that it is contextually determined, where the rightmost element is the head. This was illustrated in (13), where the suffix [-a] was the rightmost and so the head, repeated here in (16)



The problem is that there are prefixes which can be head of the word even though not positioned on the right as in (17) below:



In (17) the prefix [bo-] is the head of the noun [bottle]. This means that prefixes and suffixes can be heads. So this poses a problem. To resolve this problem the notion of relativized head is used whereby the head of a word will appear with feature F. The

head with feature F may then be the head with respect to the feature F where F may be a category like Noun or Verb.

If affixes function as categories and features of affixes percolate to the mother node, then affixes are lexical items and can therefore be assigned categories. As lexical items they are having lexical entries as shown in (2), repeated here with affixes like [-el-] in (18):

	EI-		
category		[+V;-N]	
sub-categorization		[V ST]	— (18)
Semantics		[Beneficiary]	
Argument Structure		[Accusative]	

Affixes are therefore lexical items which can be assigned categories, they determine the word categories, and because word structure rules are replaced by lexical entries, the next discussion will be on nominal affixes, demonstratives, adjectives and verbal affixes.

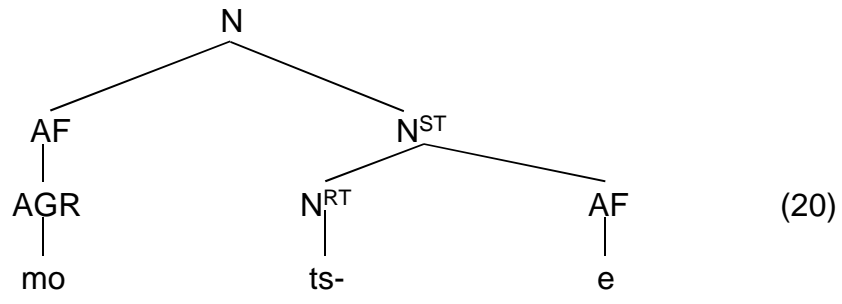
2.3.3 Nominal affixes in Sesotho

Sesotho has the following affixes/suffixes that form the morphological structure of nouns listed in (19):

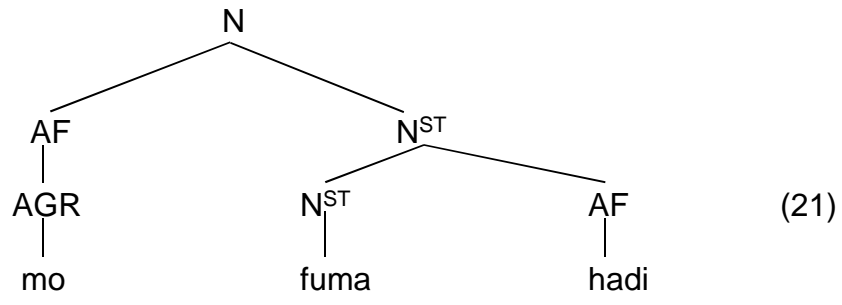
- (19) (a) i/o > mosuti/m
- (b) -hadi > Mofumahadi
- (c) -ana > Motsana
- (d) -hadi > Mothohadi
- (e) -eng > motseng

The suffixes in (19) have the following structures:

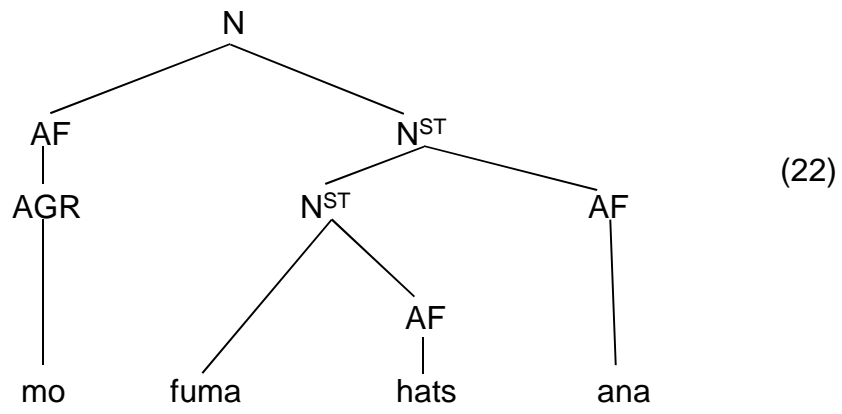
Motse:



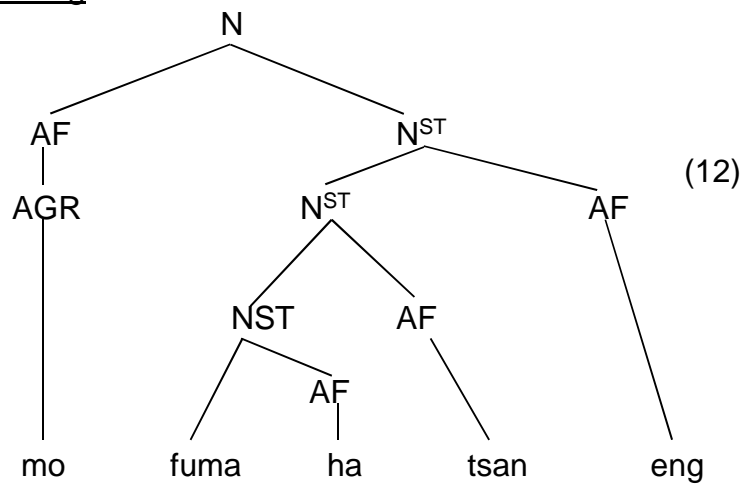
Mofumahadi



Mofumahatsana



Mofumahatsaneng

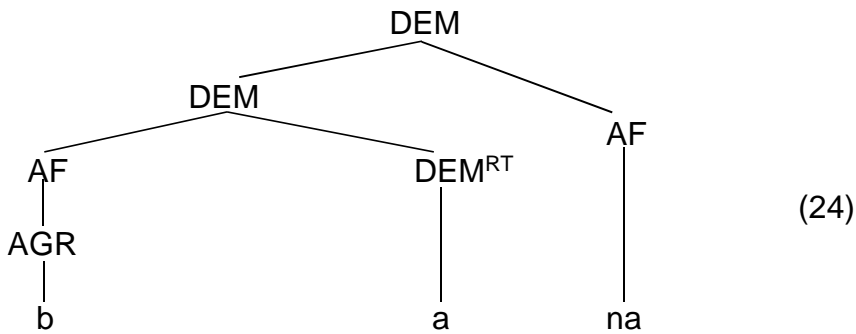


2.3.4 Structures of nominal modifiers

Nominal modifiers include demonstratives, quantifiers and possessives:

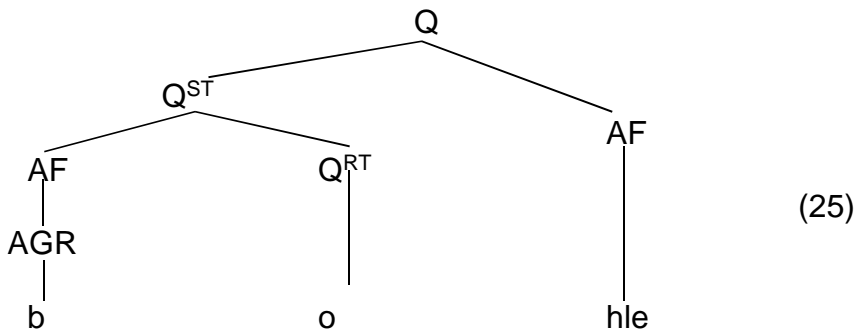
- DEMONSTRATIVES

The demonstrative structures don't have stems because the first position is included in the second position.

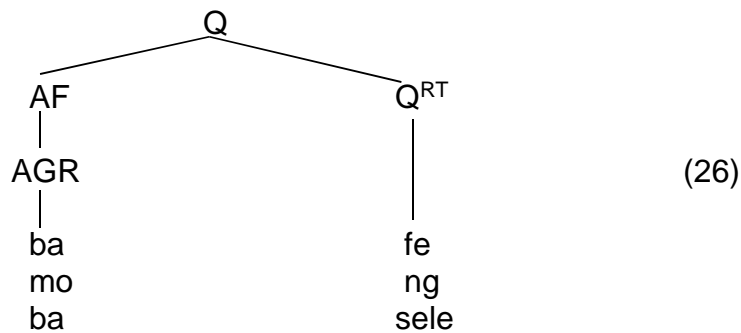


- QUANTIFIERS [OHLE]

Quantifiers include both the stem and the root:

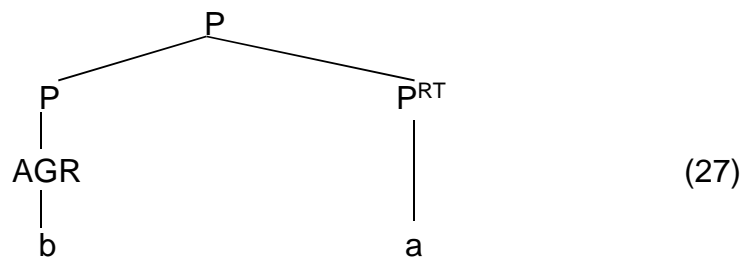


- QUANTIFIER [fe; ng; sele]



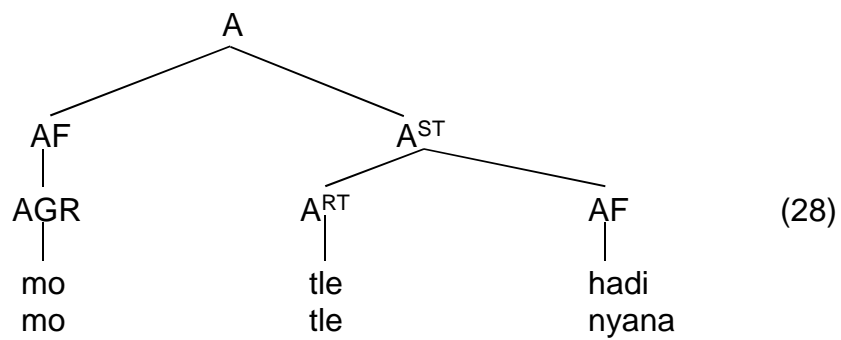
- POSSESSIVE

Possessive have roots only:



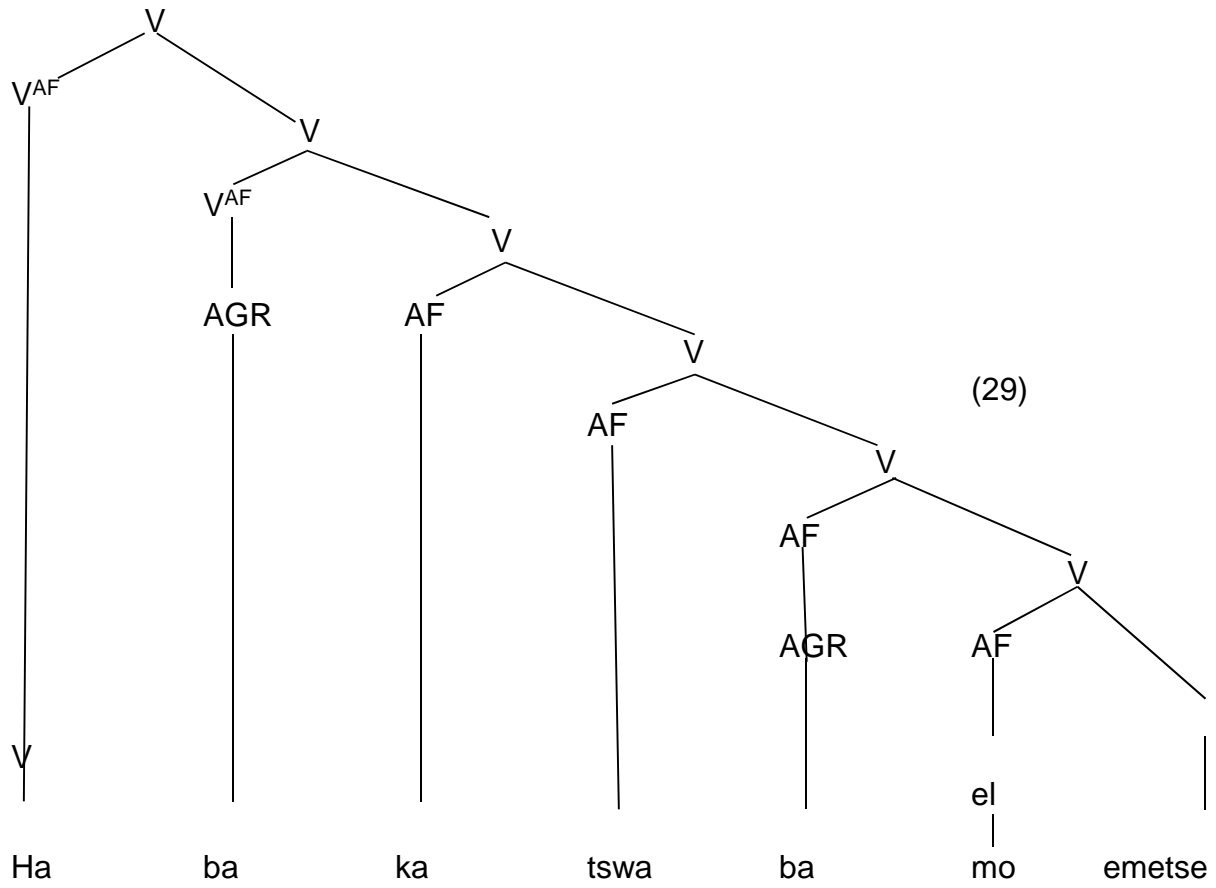
- ADJECTIVES

Adjectives have stems and roots:



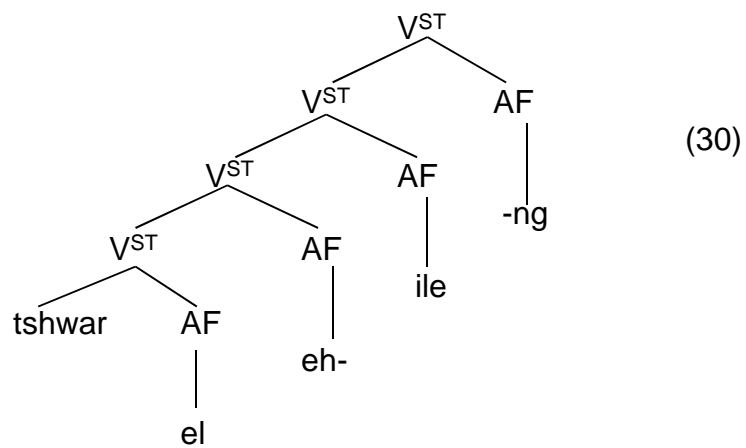
2.3.5 Combination of derivational prefixes

In Sesotho six prefixes can occur in one word as illustrated below in (29):



2.3.6 Combination of derivational suffixes [-el – ng-]

(a) Tshwarelehileng:



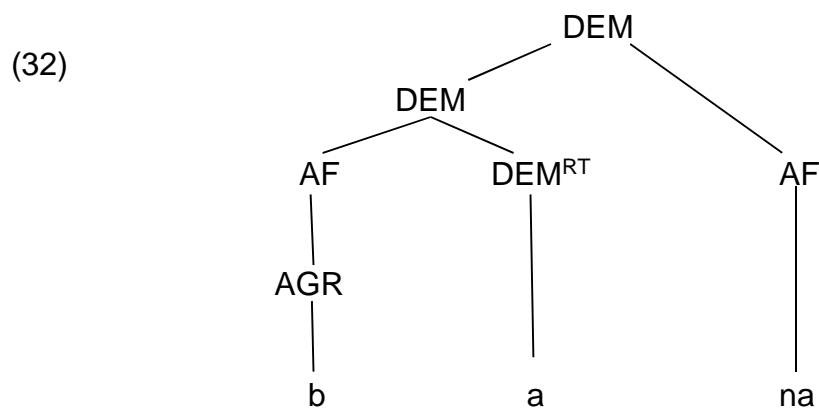
Four suffixes can occur in one word in Sesotho as the in the structure in (30).

2.4 Agreement in Sesotho

In Sesotho, the agreement prefixes are found in nouns and in verbs with the exception of infinitives. Factors that influence agreement are tense, mood and negatives. In Sesotho all agreements are to the left i.e. the agreement is always before the root. All agreements are found before the root and the stem because of the word order; the agreement likes to be near the element it appears with as in (31) below:

(31) Batho ba (ba)-holo

With regard to verbs, the verbal agreement was born in the subject, so the agreement will precede the verb. If we take demonstrative for instance, south demonstrative is after the noun, so it will be the demonstrative agreement followed by the demonstrative root. In this way, the agreement is derived from the subject prefix, so the agreement comes first in the structure of demonstrative as in (32)



There are differences between inflectional and derivational morphemes in general. Lieber (1954) states that between derivational and Inflectional morpheme it is only in derivational affixes where one will find a full categorical signature. In Inflectional affixes on the other hand there will be a marking at individual features that contain specified values. In derivational word formation the value for a feature of a head morpheme will supersede or override that of an inner morpheme. Features from inflectional morphemes can never override features from their bases, but can only fill values unspecified in the categorical signatures of their bases. Benjamin et al (1988) claim that derivation changes a word class completely while inflection does not change a

word class but it extends the function of a category by giving number, tense to mention few.

2.5 Word categories

In this study, the sequence of inflectional and derivational morphemes will be tested on verbs and deverbatives (nouns formed from verbs). According to Lombard (1985), a verb is described by the structural elements which are root plus verbal ending as its basic characteristics and verbs that have a zero ending. Verbs signify the action or state of substantive. “Verb is a word that characteristically is the grammatical centre of a predicate and expresses an act, occurrence, or mode of being, that in various languages is inflected for agreement with the subject, for tense, for voice, for mood, or for aspect, and that typically has rather full descriptive meaning and characterizing quality but is sometimes nearly devoid of these especially when used as an auxiliary or linking verb.” <http://www.merriam-webster.com/dictionary/verb> (2015).

Deverbatives are nouns formed by using verbal roots to add prefixes and suffixes. According to Mletshe (2010), most African languages have a special way of deriving nouns from other word categories. “Deverbatives are derived by prefixing the required class prefix and suffixing the required ending to the root” Ziervogel and Mabuza (1976:28). Du Plessis (1997) claims that the process of changing a verb to a noun takes place in accordance with the rules of lexical derivation. There are two types of deverbatives, personal and non-personal.

The difference in the derivation of personal and non-personal deverbatives is outlined by Poulos and Msimang (1998). Personal deverbatives are presented by the occurrence of class prefixes which have an inclusion of personal nouns and the suffix –i. The non-personal deverbatives on the other hand have class prefixes which contain impersonal nouns and the suffix –o. They used IsiZulu examples:

Personal deverbatives

- a) -fund- *learn* (verb root) > um-fund-i (*Student*)
- b) –theng- *buy* (verb root) > um-theng-i (*Customer*)
- c) –hamb- *go* (verb root) > um-hamb-i (*Traveller*)

Non-personal deverbatives

- a) –baz- *chop* (verb root) > Im-baz-o (*Axe*)
- b) –lil- *cry* (verb root) > Isi-lil-o (*A cry*)

2.6 Word-formation processes

Kosch (2011) classifies derivation and inflection as word-formation processes. She claims that derivational word-formation gives rise to new lexical items in the language while inflectional word-formation does not form new words but rather yields different forms of the same basic item as required by grammar and syntax.

Furthermore, Kosch (2011) states that there are two approaches to word-formation in the Bantu languages, root-based approach and word-based approach. Root-based approach means that when lexemes are derived, their original form is not a word or word-form but only becomes part of word-form once certain affixes are added to it. “In a word-based approach, a full word is accepted as the base-form (input form) for morphological operations. This is the way in which derivational and inflectional processes were originally construed” (Kosch 2011:93).

Also, word-formation can be processed by means of concatenation and non-concatenation. Concatenation consists of compounding, incorporation and affixation. Non-concatenation on the other hand consists of conversion, back-derivation, clipping, blending and acronyms. Conversion is a special case of derivational morphology; instead of adding an affix to a stem, the stem takes a zero form (*bank* [noun] – *bank* [verb]). According to Bauer (1983) conversion is the change in form class of a form without any corresponding change of form. Thus the change whereby the form *napalm*, which has been used exclusively as a noun came to be used as a verb (*They decided to napalm the village*).

Back-derivation is deriving a new word from a more complex form, for instance, *stage-manager* to *stage-manage* or *burglar* to *burgle* (moves from noun to verb). Marchand (1969) defines back-formation as of diachronic relevance only, it consists of the

extraction of a new word from an already existing word: *aggress* was back-formed from the noun *aggression*.

Clipping is a form from which a part has been cut off. It is a shortening process whereby a part of speech stays the same. These words have been shortened and it's amazing that we got used to the clipped form of words than their original form, for instance, *refrigerator* to *fridge*, *perambulator* to *pram*. In *telephone* the first part has gone so that we have *phone* and *to phone*. Bauer (1983) states that clipping refers to the process whereby a lexeme is shortened, while still retaining the same meaning and still being a member of the same form class.

Blending is a process of taking two words and then putting them together in new a form. Blending of words like education and entertainment will give one this output: *edutainment*, breakfast and lunch will be *brunch*. Blending is defined by Bauer (1983) as a new lexeme formed from parts of two (or possibly more) other words in such a way that there is no transparent analysis into morphs.

Acronym is a composition of the first letter or letters of a chain of words. People tend to use acronyms everyday in avoidance of having to say every word. These are the acronyms: FIFA (Federation of International Football Association), RADAR (Radio Detecting And Ranging). Bauer (1983) defines acronym as a word coined by taking the initial letters of the words in a title or phrase and using them as a new word, for example *Strategic Arms Limitation Talks* gives SALT. For a new word to be called an acronym it has to be pronounced as a word and not be pronounced as a series of letters like HIV or STD, those are abbreviations or initials.

2.7 Conclusion

The findings from this review reveal that while Sesotho is one of the African languages similar to Setswana and probably isiZulu, there is a need to look into their word formation strategies in particular by following Kosch (2011), Bosch (2008), Pretorius (2014) and Faab et al's (2015) treatment of African morphology. While Pretorius (2014) uses a linear approach in analysing the word morphology, this study will also use that X Bar scheme to analyse word structure in Sesotho, where the hierarchical relations are given.

Chapter 3: Analysis of the Sequence of Inflectional Morphemes in Sesotho

3.1 Introduction

Sesotho is one of agglutinative languages that use a lot of verbal morphology whereby particular morphemes are attached to each other (Kruger 2006). That verbal morphology consequently requires an application of inflectional morphemes to those languages. An Inflectional morpheme does not change class of a word but extends relationship between words. In the previous chapter, the literature relating to inflectional morphemes was stretched further. Bubenik (2003) defines inflectional morpheme as a change in the form of a word to express its relation to other words in the sentence.

This chapter will analyse how the sequence of inflectional morphemes occurs in Sesotho. It is important to examine whether Sesotho does or does not conform to Greenberg's (1963) Universal 28.

The sequence will be observed in verbal inflectional morphemes, verbs will be given in terms of their lexical entries and analysis will follow. The linear and hierarchical structure of various word categories will be used for illustrations.

3.2 Analysis of the sequence of inflection

a. kganna (*Drive*)

Lexical entry:

Category [+V – N]

Sub-category [– N]

Meaning [Agent] + [Theme]

Analysis of inflectional morphemes will be based on the following verbal inflectional suffixes of Sesotho:

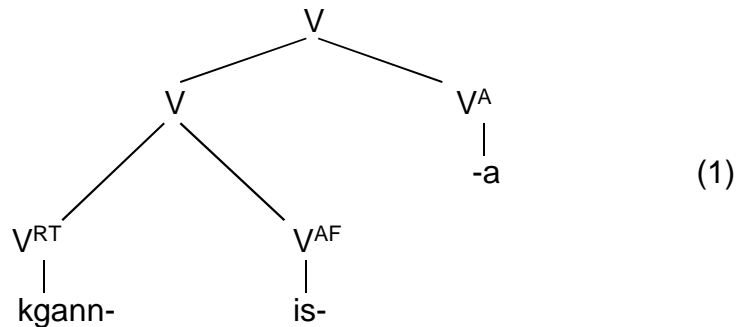
- (1) –is- (Causative)
- (2) –an- (Reciprocal)
- (3) –el- (Applicative)
- (4) –eh- (Neuter)
- (5) –w- (Passive)

(6) –oll- (Reversive)

Possible combinations:

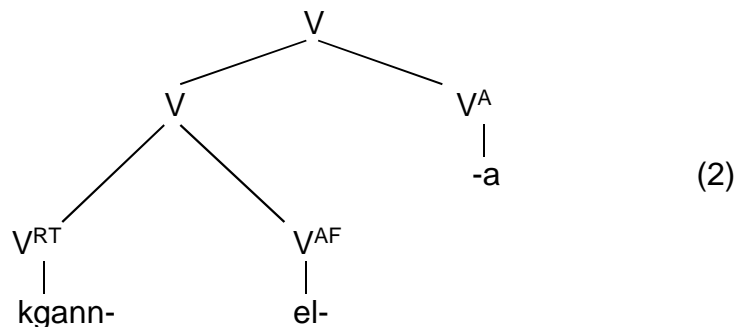
A verbal root (kgann-) precedes a causative suffix (-is-) followed by a verbal end (-a) to form the verb (kgannisa). The causative suffix (-is-) is a verbal extension found between the root and the verbal end as indicated by a diagram in (1) below:

(i) kgann –is– a (*Cause to drive*)



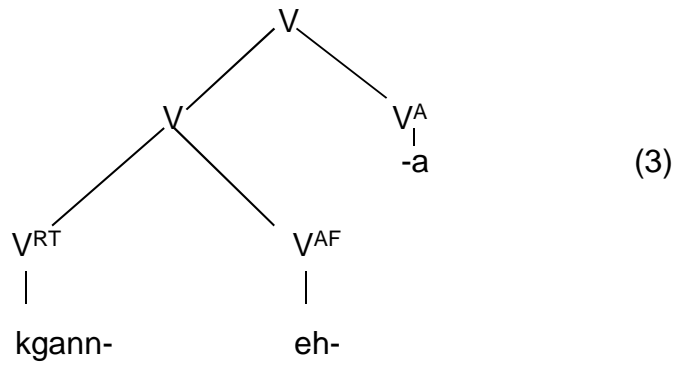
A verbal root (kgann-) is combined with an applicative suffix (-el-) before a verbal end (-a). In this case, the root (kgann-) comes before the applicative suffix (-el-) followed the verbal end (-a) to form the verb (kgannela) as indicated by the diagram in (2) below:

(ii) kgann- el- a (*Drive for*)



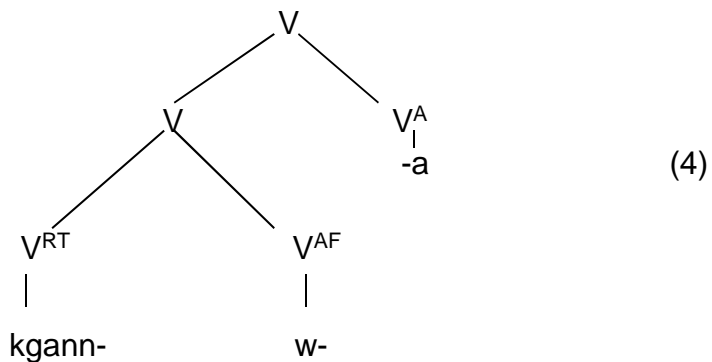
A verbal root (kgann-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (kganneha). The neuter suffix (-eh-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (3) below:

(iii) Kgann-eh-a (*Drivable*)



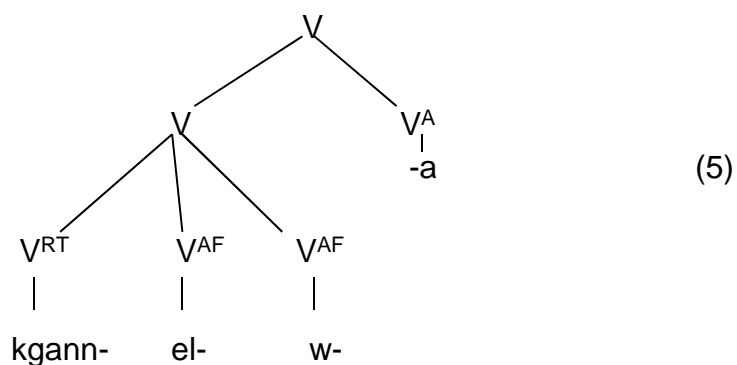
A verbal root (kgann-) is combined with a passive (-w-) before a verbal end (-a). In this case, the root (kgann-) comes before the passive (-w-) followed by the verbal end (-a) to form the verb (kgannwa) as indicated by the diagram (4) below:

(iv) Kgann-w-a (*Driven*)



An applicative suffix (-el-) and a passive (-w-) are combined together between the root and the verbal end. The root (kgann-) comes before the two suffixes (-el- and -w-) followed by the verbal end (-a) to form the verb (kgannelwa). See diagram (5) below:

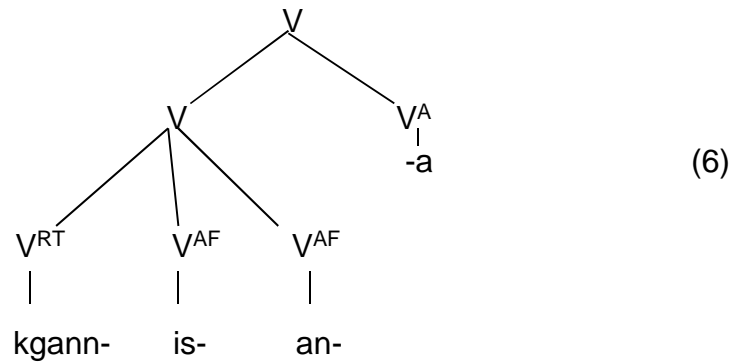
(v) kgann-el-w-a (*Being driven*)



A causative suffix (-is-) and a reciprocal (-an-) co-occur after the root followed by the verbal end to form the verb (kgannisana). In this case, (kgann-) is the root starting the

verb followed by the causative suffix and the reciprocal before the verbal end as indicated by the diagram in (6) below:

(vi) kgann-is-an-a (*Driving with each other*)



Analysis: The above examples show that the verbal root is at the beginning of the verb followed by a verbal extension or two of them to extend the function of the verb (kgannisa/kgannisana). The root comes before the verbal inflectional morpheme(s) that precede(s) the verbal end which is always –a.

b. reka (*Buy*)

Lexical entry:

Category [+V – N]

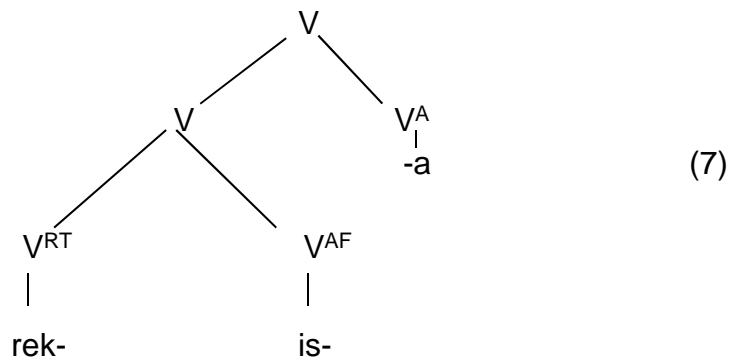
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

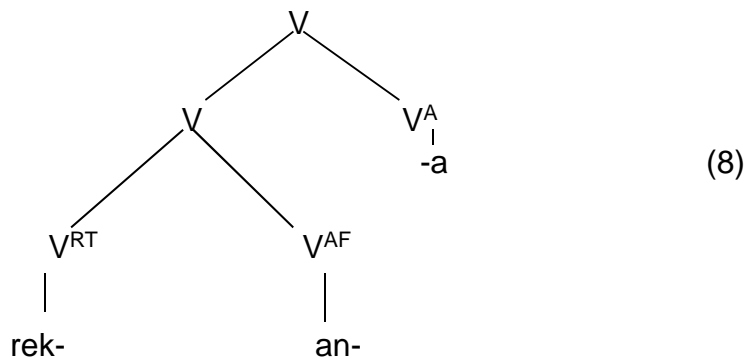
A verbal root (rek-) is followed by a causative suffix (-is-) to form the verb (rekisa) and the verb ends with a verbal end (-a). The causative suffix (-is-) is a verbal extension found between the root and the closing vowel as indicated by the diagram in (7) below:

(vii) rek-is-a (*Sell*)



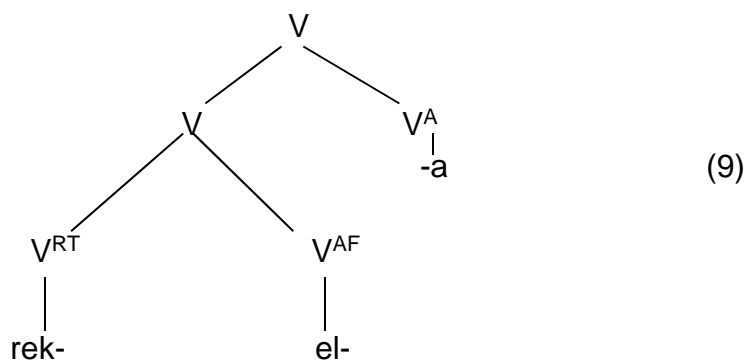
A verbal root (rek-) is combined with a reciprocal suffix (-an-) before a verbal end (-a). In this case, the root (rek-) comes before the reciprocal suffix (-an-) followed by the verbal end (-a) to form the verb (rekana) as indicated by the diagram (8) below:

(viii) rek-an-a (*Buying each other*)



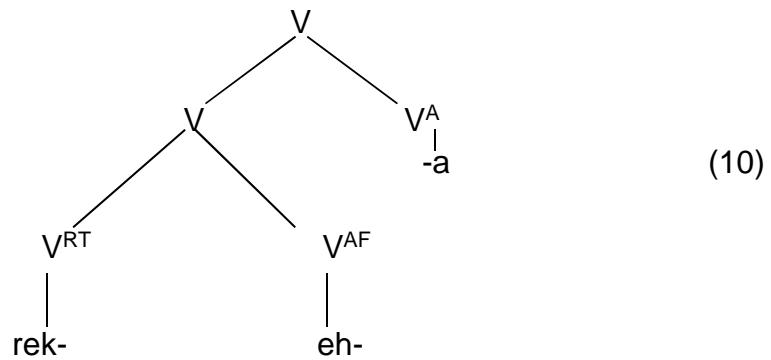
A verbal root (rek-) is combined with an applicative suffix (-el-) before a verbal end (-a). In this case, the root (rek-) comes before the applicative suffix (-el-) followed the verbal end (-a) to form the verb (rekela) as indicated by the diagram in (9) below:

(ix) rek-el-a (*Buying for*)



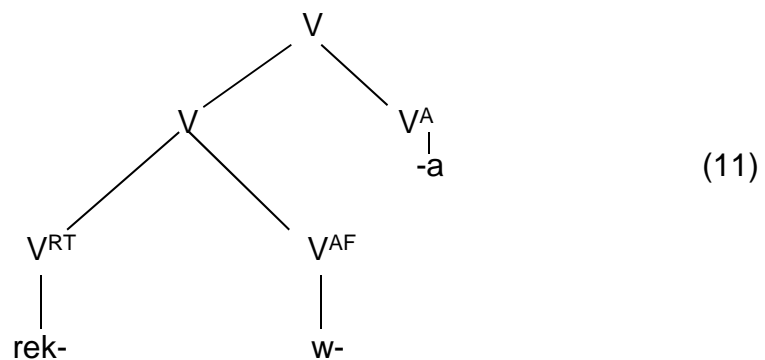
A verbal root (rek-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (rekeha). The neuter suffix (-eh-) is a verbal extension found between the root and the closing vowel as indicated by the diagram in (10) below:

(x) rek-eh-a (*Buyable*)



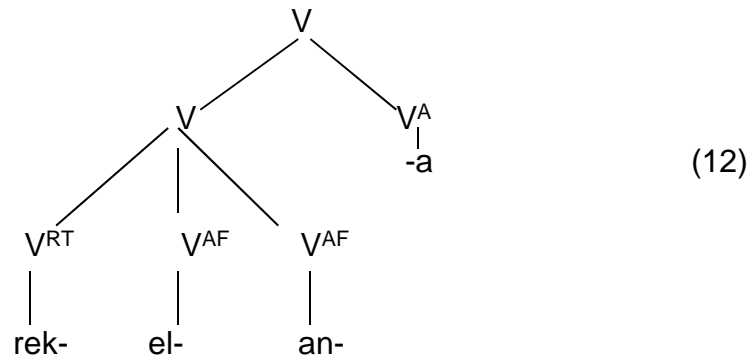
A verbal root (rek-) is combined with a passive (-w-) before a verbal end (-a). In this case, the root (rek-) comes before the passive (-w-) followed by the verbal end (-a) to form the verb (rekwa) as indicated by the diagram (11) below:

(xi) rek-w-a (*Bought*)



An applicative suffix (-el-) and a reciprocal suffix (-an-) are combined together between the root and the verbal end. The root (rek-) comes before the two suffixes (-el- ; -an-) followed by the verbal end (-a) to form the verb (rekelana). It is indicated by the diagram in (12) below:

(xii) rek-el-an-a (*Buying for each other*)



Analysis: In these examples, a function of the verb is changed by a variety of verbal extensions found between the root and the verbal end as in: (rekana) and (rekelana). In this case, the verbal root (rek-) starts the verb followed by inflectional morpheme(s) before the verbal end (-a).

c. tshwara (*Hold*)

Lexical entry:

Category [+V – N]

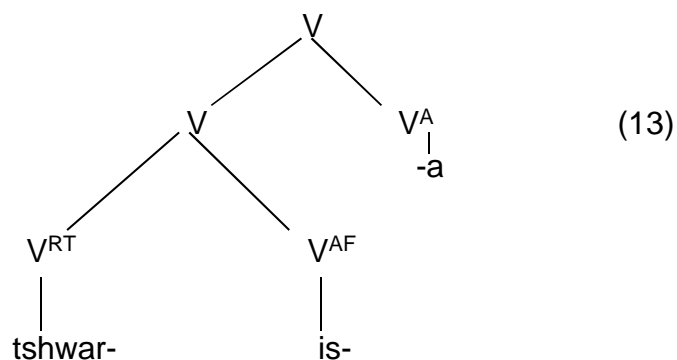
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

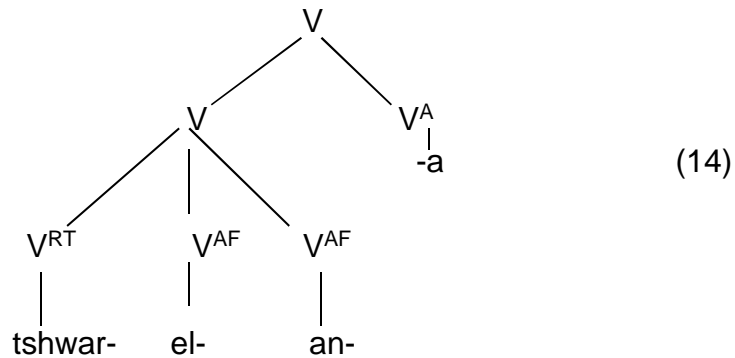
A verbal root (tshwar-) comes before a causative suffix (-is-) followed by a verbal end (-a) to form the verb (tshwarisa). The causative suffix (-is) is a verbal inflectional morpheme found after the root and the verbal end as indicated by a diagram in (13) below:

(viii) tshwar-is-a (*Cause to hold*)



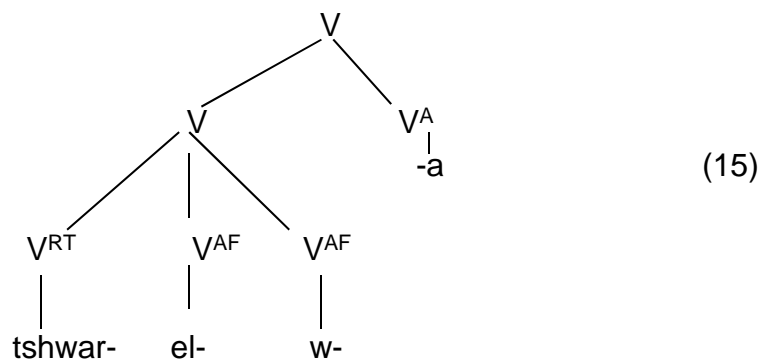
A verbal root is followed by an applicative suffix (-el-) and a reciprocal suffix (-an-) to form the verb (tshwarelana) and the verb ends with a verbal end (-a). The root (tshwar-) comes before the two suffixes (-el- ; -an-) followed by the verbal end (-a) as indicated by the diagram in (14) below:

(xiv) tshwar-el-an-a (*Forgiving each other*)



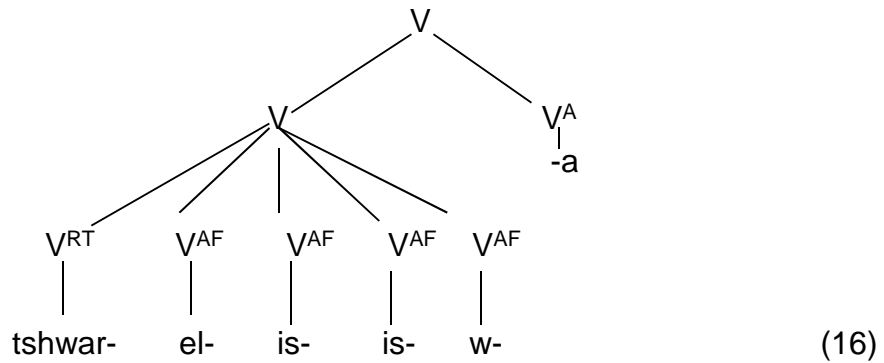
A passive (-w-) and an applicative suffix (-el-) co-occur after the root followed by the verbal end to form the verb (tshwarelwa). In this case, (tshwar-) is the root starting the verb followed by the applicative suffix and the passive before the verbal end as indicated by the diagram in (15) below:

(xv) tshwar-el-w-a (*Being forgiven*)



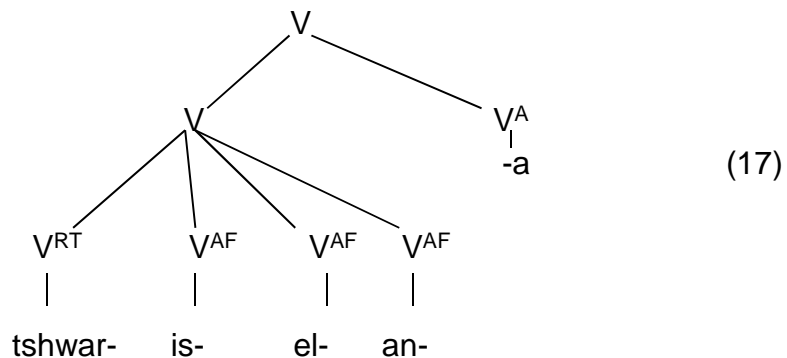
Two causative suffixes (-is-) follow each other after an applicative (-el-) and they come before a passive (-w-). All of them are between the root and the verbal end. In this case, the verbal root (tshwar-) precedes the inflectional morphemes (-is-, -el- and -w-) followed by the verbal end (-a) to form the verb (tshwarelisiswa), as indicated by the diagram in (16) below: However, this combination is not acceptable in Sesotho.

(xvi) *tshwar-el-is-is-w-a (*Being forgiven*)



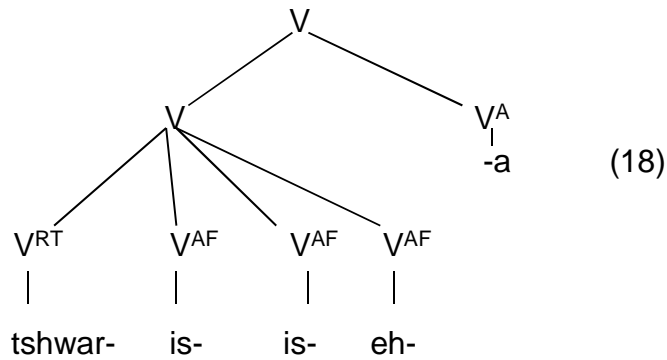
A verbal root (tshwar-) is followed by a causative suffix, an applicative (-el-) [becomes –ets- in pronunciation] and a reciprocal suffix (-an-) to form the verb (tshwarisetsana) and the verb ends with a verbal end (-a). The root (tshwar-) comes before the three suffixes (-is-, -el- ; –an-) followed by the verbal end (-a) as indicated by the diagram in (17) below: However this combination, while possible and plausible in Sesotho, it is not commonly used.

(xvii) *tshwar-is-el-an-a (*Holding for each other*)



Two causative suffixes (-is-) follow each other before a neuter suffix (-eh-), they come after the root (tshwar-) to form the verb (tshwarisiseha) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (18) below: However this combination, while possible and plausible in Sesotho, it is not commonly used.

(xviii) *tshwar-is-is-eh-a (*Can be held tight*)



Analysis: In the examples given above, two or more verbal suffixes can occur together without changing a category of the verb as in (tshwarelisiswa) or (tshwarisiseha). The verbal root precedes inflections followed by the verbal end (-a) as always. These combinations can be generated by morphological rules, but they are not commonly used. They are grammatical but not acceptable.

d. pheha (*Cook*)

Lexical entry:

Category [+V – N]

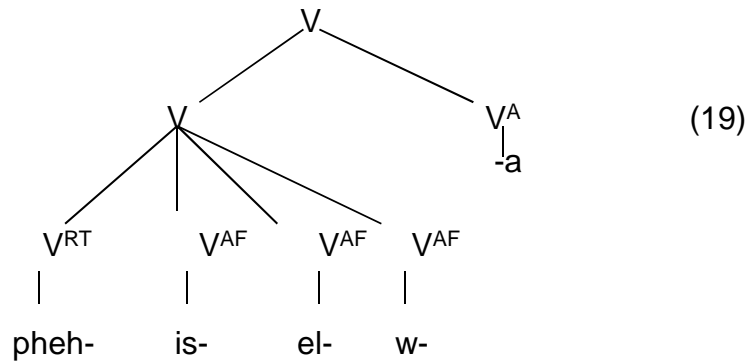
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

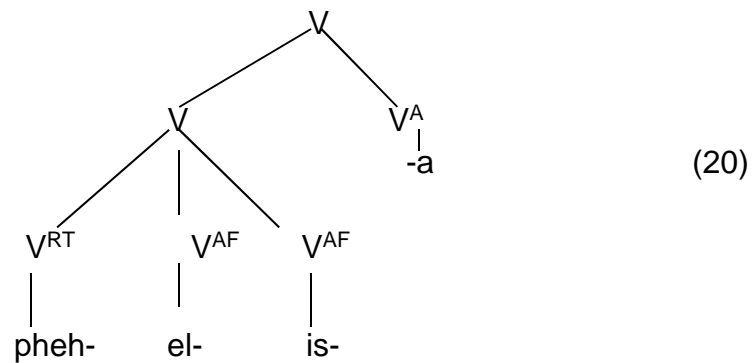
A verbal root (pheh-) is followed by a causative suffix, an applicative (-el-) [becomes –ets- in pronunciation] and a passive suffix (-w-) to form the verb (phehissetswa) and the verb ends with a closing vowel (-a). The root (pheh-) comes before the three suffixes (-is-, -el- ; –w-) followed by the verbal end (-a) as indicated by the diagram in (19) below:

(xix) pheh-is-el-w-a (*Being cooked for*)



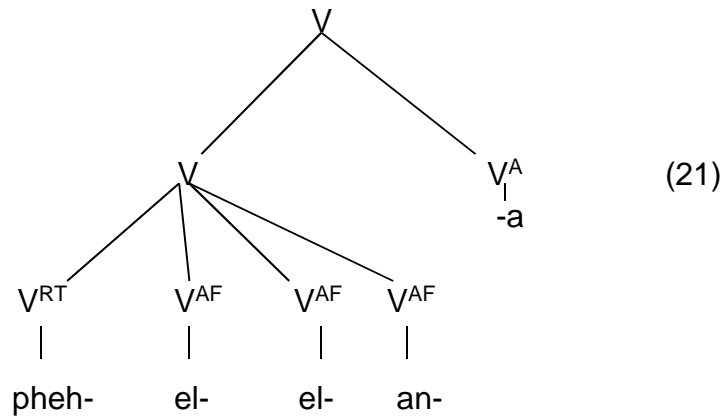
A verbal root (pheh-) is followed by an applicative (-el-) and a causative suffix to form the verb (phehelisa) and the verb ends with a verbal end (-a). The root (pheh-) comes before the two suffixes (-el- and -is-) followed by the verbal end (-a) as indicated by the diagram in (20) below: This combination is not grammatical but can be generated.

(xx) *pheh-el-is-a (*Cause to cook*)



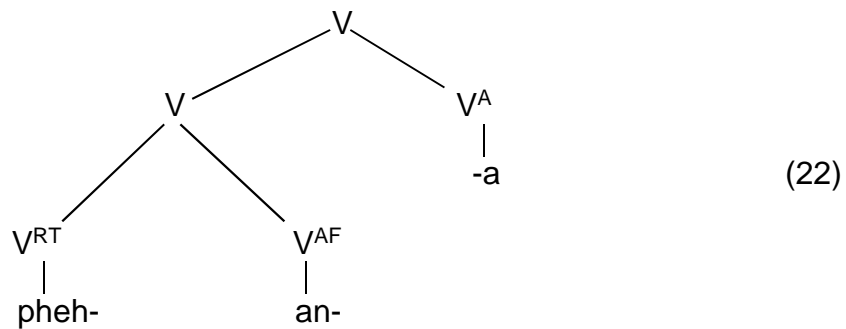
Two applicative suffixes (-el-) follow each other before a reciprocal suffix (-an-) and they are in the middle of the root and the verbal end. In this case, the verbal root (pheh-) precedes the inflectional morphemes followed by the verbal end (-a) to form the verb (phehelelana) as indicated by the diagram in (21) below: This generation/combination is not grammatical in Sesotho.

(xxi) *pheh-el-el-an-a (*Cooking for each other*)



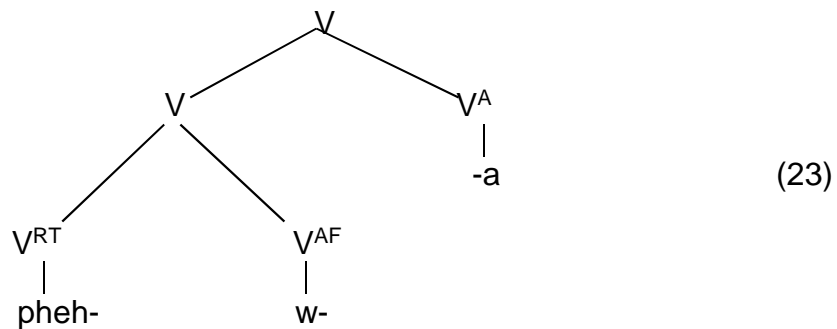
A verbal root (pheh-) is combined with a reciprocal suffix (-an-) before a verbal end (-a). In this case, the root (pheh-) comes before the reciprocal suffix (-an-) followed by the verbal end (-a) to form the verb (phehana) as indicated by the diagram (22) below:

(xxii) pheh-an-a (*Cooking each other*)



A verbal root (pheh-) is combined with a passive (-w-) before a verbal end (-a). In this case, the root (pheh-) comes before the passive (-w-) followed by the verbal end (-a) to form the verb (phehwa) as indicated by the diagram (23) below:

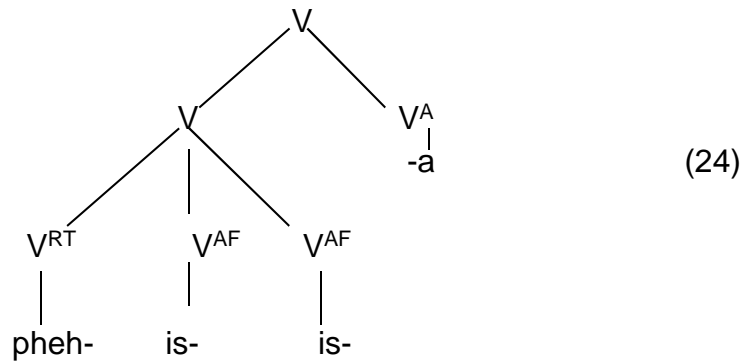
(xxiii) pheh-w-a (*Being cooked*)



Two causative suffixes (-is-) follow each other after a verbal root (pheh-) to form the verb (phehisisa) and the verb ends with a verbal end (-a). In this case, the inflectional

morphemes are between the verbal root and the verbal end as indicated by the diagram in (24) below:

(xxiv) pheh-is-is-a (*Cause to cook over again*)



Analysis: In these examples, the function of the verb is changed by a variety of verbal extensions found in the middle of the root and the verbal end as in: (phehisisa) and (phehelelana). In this case, the verbal root (pheh-) is found at the beginning of the verb followed by inflectional morpheme(s) before the verbal end (-a).

e. phetha (*Complete*)

Lexical entry:

Category [+V – N]

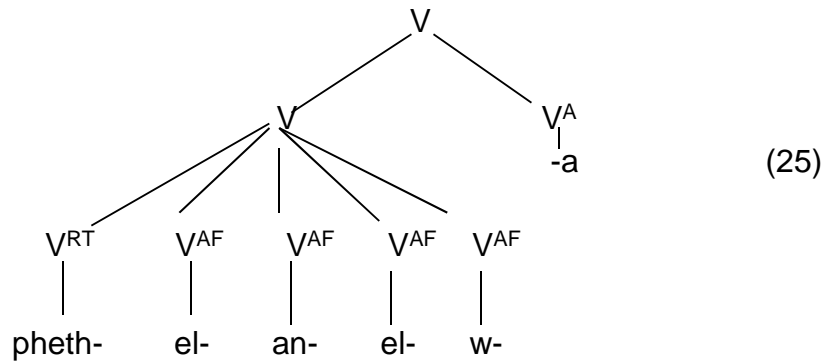
Sub-category [– N]

Meaning [Agent]

Possible combinations:

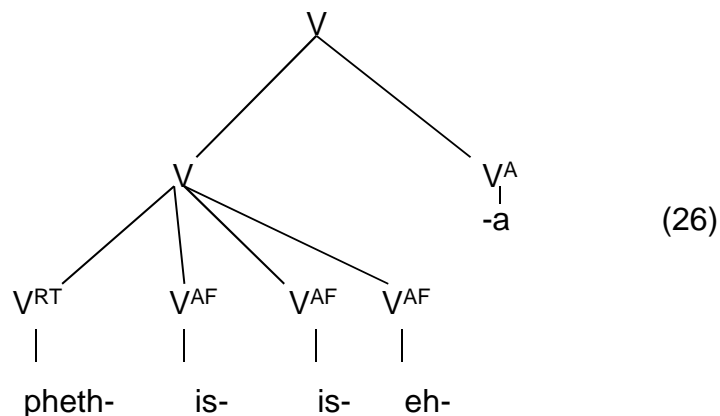
An applicative suffix (-el-) is used twice before and after a reciprocal (-an-) followed by a passive (-w-). All of them are between the root and the verbal end. In this case, the verbal root (pheth-) precedes the inflectional morphemes (-el-, -an- and -w-) followed by the verbal end (-a) to form the verb (phethelanelwa) as indicated by the diagram in (25) below: This combination is possible but not acceptable in Sesotho.

(xxv) *pheth-el-an-el-w-a (*Being completed for each other*)



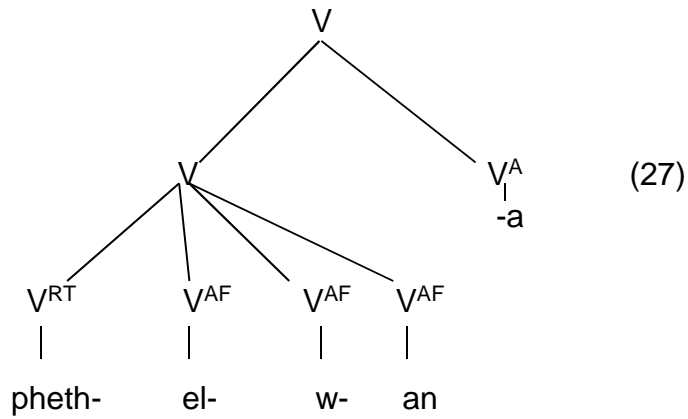
Two causative suffixes (-is-) and a neuter suffix follow a verbal root (pheth-) to form the verb (phethisiseha) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (26) below:

(xxvi) pheth-is-is-eh-a (*Causing to be completed*)



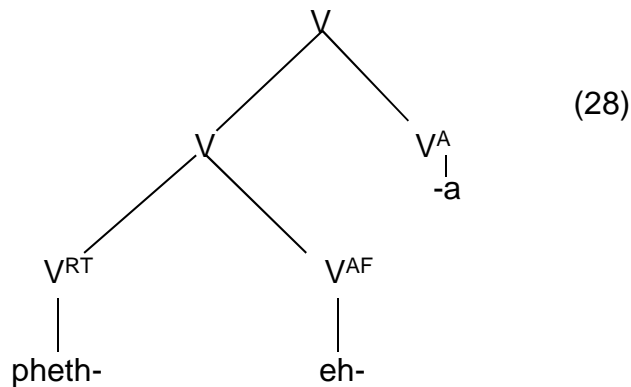
An applicative suffix (-el-) occurs before a passive (-w-) and a reciprocal (-an-). All of them are between the root and the verbal end. In this case, the verbal root (pheth-) precedes the inflectional morphemes (-el-, -an- and -w-) followed by the verbal end (-a) to form the verb (phethelwana) as indicated by the diagram in (27) below: Possible combination but not acceptable.

(xxvii) *pheth-el-w-an-a (*Being completed with each other*)



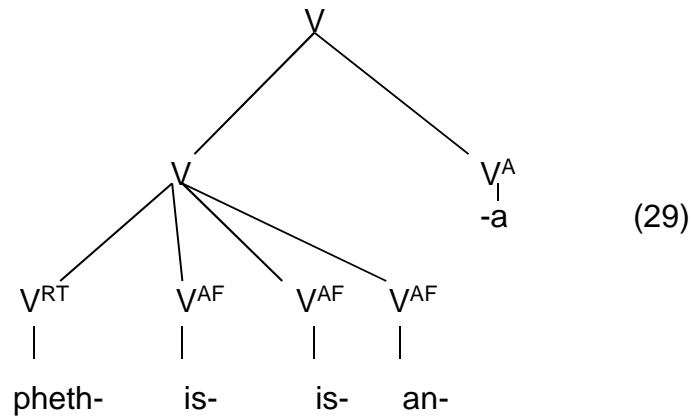
A verbal root (pheth-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (phetheha). The neuter suffix (-eh-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (28) below:

(xxviii) pheth-eh-a (*Completable*)



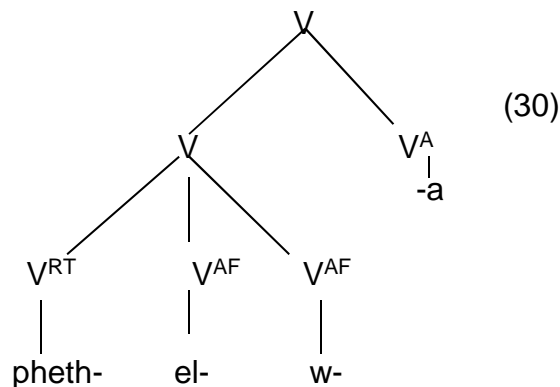
Two causative suffixes (-is-) are combined with a reciprocal suffix and they follow a verbal root (pheth-) to form the verb (phethisisana) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (29) below: Not acceptable as in (27)

(xxix) *pheth-is-is-an-a (*Cause to complete each other*)



A verbal root (pheth-) is followed by an applicative (-el-) and a passive suffix to form the verb (phethelwa) and the verb ends with a verbal end (-a). The root (pheth-) comes before the two suffixes (-el- and -w-) followed by the verbal end (-a) as indicated by the diagram in (30) below:

(xxx) pheth-el-w-a (*Being completed*)



Analysis: In these examples, two or more verbal suffixes can occur together without changing a category of the verb as in (phethisisana) or (phethelwana). The verbal root comes before the inflectional morphemes followed by the verbal end (-a). Those combinations are possible but not acceptable in Sesotho.

f. ruta (*Teach*)

Lexical entry:

Category [+V – N]

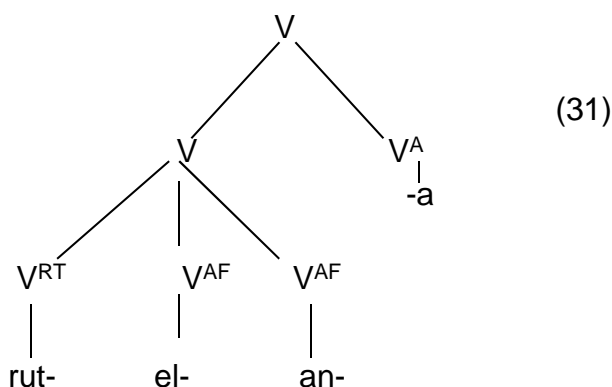
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

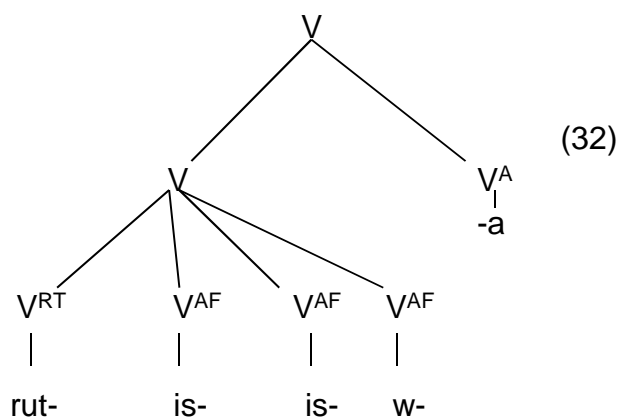
A verbal root (rut-) is followed by an applicative suffix (-el-) and a reciprocal suffix (-an-) to form the verb (rutelana) and the verb ends with a verbal end (-a). The root (rut-) comes before the two suffixes (-el- ; -an-) followed by the verbal end (-a) as indicated by the diagram in (31) below:

(xxxii) rut-el-an-a (*Teaching each other*)



Two causative suffixes (-is-) are combined with a passive suffix (-w-) and they follow a verbal root (rut-) to form the verb (rutisiswa) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (32) below:

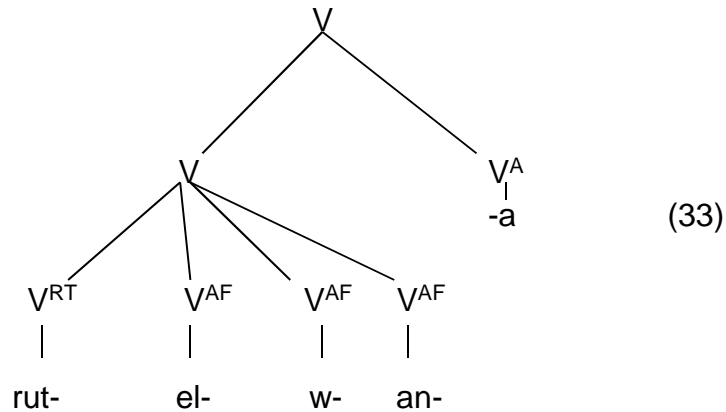
(xxxii) rut-is-is-w-a (*Being taught over and over*)



An applicative suffix (-el-) occurs before a passive (-w-) and a reciprocal (-an-). They are all found between the root and the verbal end. In this case, the verbal root (rut-) precedes the inflectional morphemes (-el-, -an- and -w-) followed by the verbal end (-

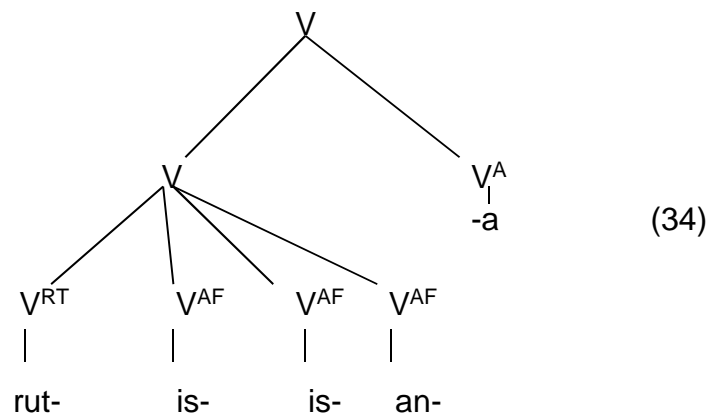
a) to form the verb (rutelwana) as indicated by the diagram in (33) below: However, this combination is not grammatical in Sesotho.

(xxxiii) *rut-el-w-an-a (*Teaching each other*)



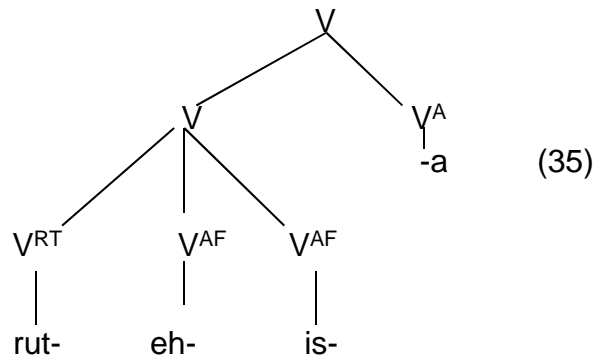
Two causative suffixes (-is-) are combined with a reciprocal suffix and they follow a verbal root (rut-) to form the verb (rutisisana) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (34) below: Combination not grammatical as in (33).

(xxxiv) *rut-is-is-an-a (*Teaching each other over and over*)



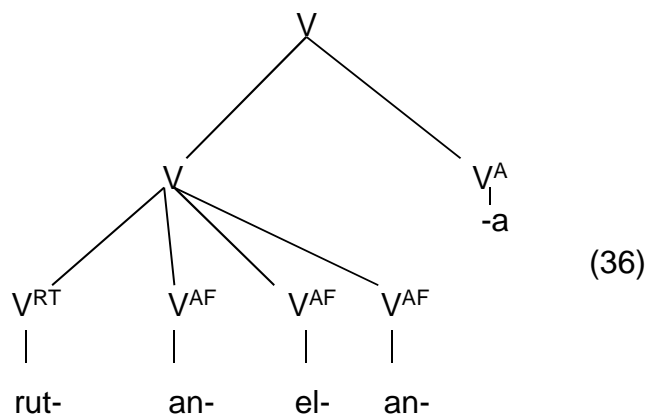
A verbal root (rut-) is followed by a neuter suffix (-eh-) and a causative suffix (-is-) to form the verb (rutehisa) and the verb ends with a verbal end (-a). The root (rut-) comes before the two suffixes (-eh- and -is-) followed by the verbal end (-a) as indicated by the diagram in (35) below: This combination is grammatical but not acceptable in Sesotho.

(xxxv) *rut-eh-is-a (*Educating someone*)



A reciprocal suffix (-an-) occurs twice before and after an applicative (-el-) after a verbal root (rut-) to form the verb (rutanelana) and the verb ends with a verbal end (-a). In this case, the verbal root (rut-) precedes the inflectional morphemes (-an-, -an- and -el-) followed by the verbal end (-a) in order to form the verb (rutanelana) as indicated by the diagram in (36) below:

(xxxvi) rut-an-el-an-a (*Teaching each other*)



Analysis: In these examples, a verbal root comes before verbal extensions followed by a verbal end to form various verbs. In that case, the verbal root is found at the beginning of the verb followed by the inflectional morphemes and the verbal end (-a). Some of the combinations are grammatical but not acceptable while others are totally ungrammatical.

g. ngola

Lexical entry:

Category [+V – N]

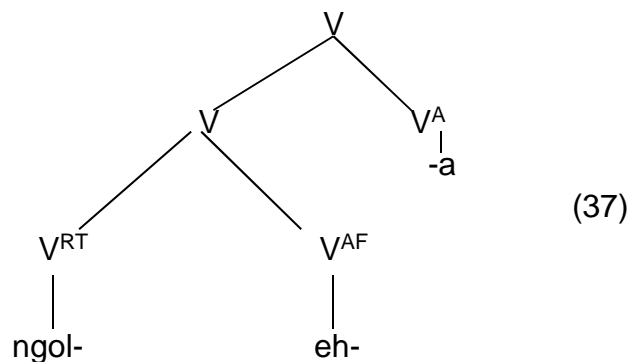
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

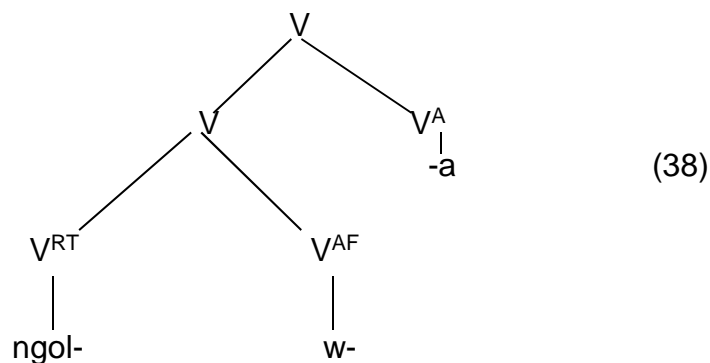
A verbal root (ngol-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (ngoleha). The neuter suffix (-eh-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (37) below:

(xxxvii) ngol-eh-a (*Writable*)



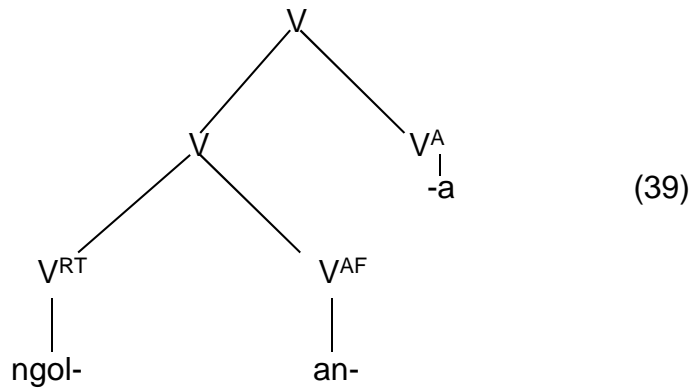
A verbal root (ngol-) is combined with a passive (-w-) before a verbal end (-a). In this case, the root (ngol-) comes before the passive (-w-) followed by the verbal end (-a) to form the verb (ngolwa) as indicated by the diagram (38) below:

(xxxviii) ngol-w-a (*Being written*)



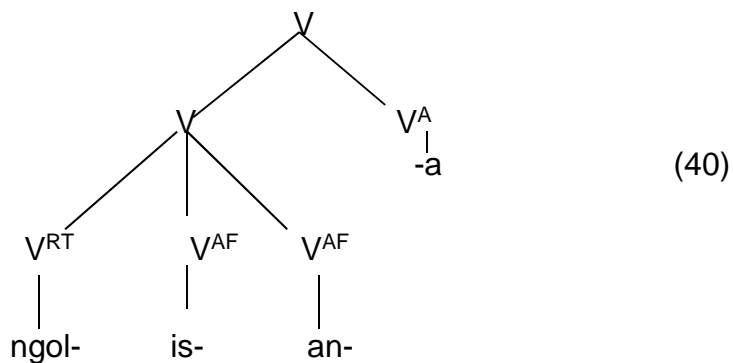
A verbal root (ngol-) is combined with a reciprocal suffix (-an-) before a verbal end (-a). In this case, the root (ngol-) comes before the reciprocal suffix (-an-) followed by the verbal end (-a) to form the verb (ngolana) as indicated by the diagram (39) below:

(xxxix) ngol-an-a (*Write one another*)



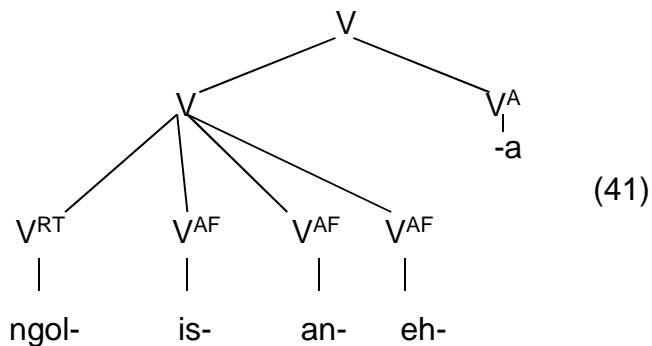
A causative suffix (-is-) and a reciprocal (-an-) co-occur after the root followed by the verbal end to form the verb (ngodisana). In this case, (ngol-) is the root starting the verb followed by the causative suffix and the reciprocal before the verbal end as indicated by the diagram in (40) below:

(XL) ngol-is-an-a (*Causing to write for each other*)



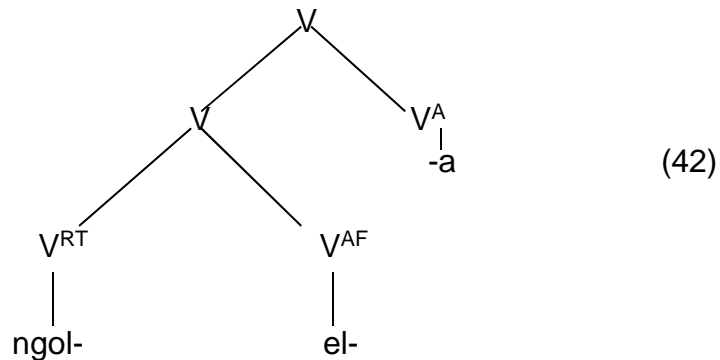
A causative suffix (-is-) is combined with a reciprocal (-an-) and a neuter (-eh-) between the root and the verbal end. The root (ngol-) comes before the three verbal inflectional suffixes (-is-, -an- and -eh-) followed by the verbal end (-a) to form the verb (*ngodisaneha). See diagram (41) below: This combination is not grammatical.

(XLI) *ngol-is-an-eh-a (*Able to write for each other*)



An applicative suffix (-el-) is attached to the root to form the verb (ngolla) and the verb ends with a verbal end (-a). In this case, the verbal root (ngol-) comes before the applicative (-el-) followed by the verbal end (-a) as indicated by the diagram in (42) below:

(XLII) ngol-el-a (*Writing for*)



Analysis: The above examples show that the verbal root is at the beginning of the verb followed by verbal extension(s) to extend the function of the verb. The root comes before the verbal inflectional morpheme(s) that precede(s) the verbal end which is ‘-a’. Some of the combinations used above are not grammatical in Sesotho.

h. batla (*Look for*)

Lexical entry:

Category [+V – N]

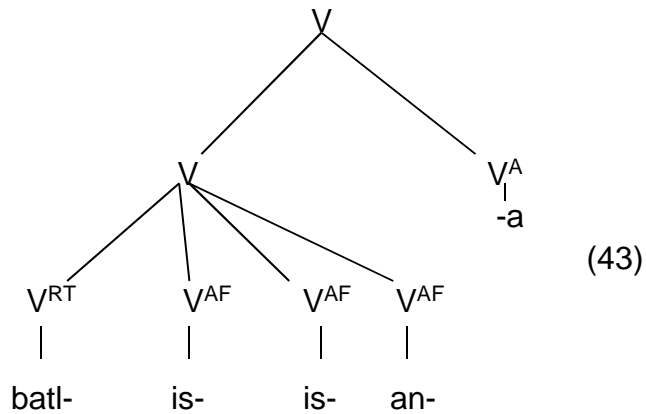
Sub-category [– N]

Meaning [Agent]

Possible combinations:

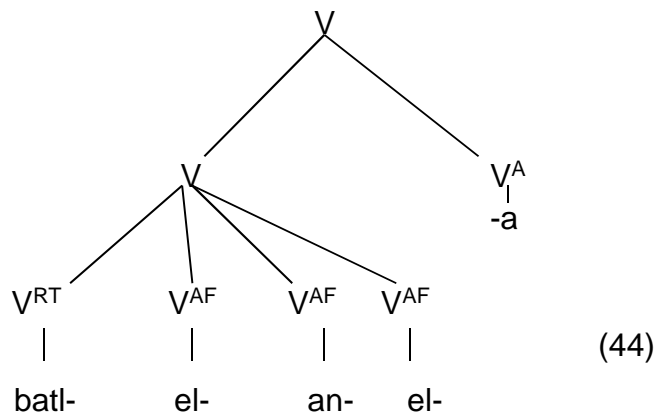
Two causative suffixes (-is-) follow each other before a reciprocal suffix (-an-), they come after the root (batl-) to form the verb (batlisisana) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (43) below:

(XLII) batl-is-is-an-a (*Looking for each other*)



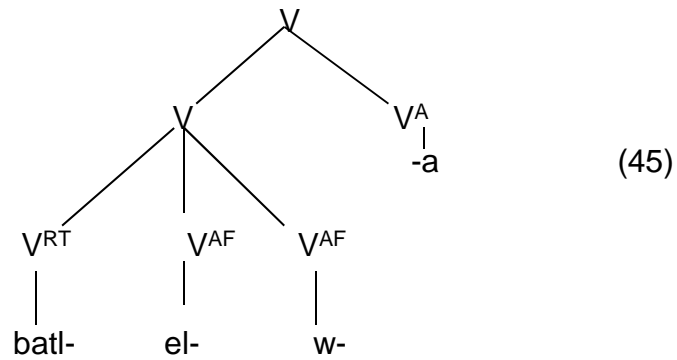
An applicative suffix (-el-) occurs twice before and after a reciprocal (-an-) next to a verbal root (batl-) to form the verb (*batlelanela) and the verb ends with a verbal end (-a). In this case, the verbal root (batl-) precedes the inflectional morphemes (-el-, -an- and -el-) followed by the verbal end (-a) as indicated by the diagram in (44) below: However, this combination is not grammatical in Sesotho.

(XLIII) *batl-el-an-el-a (*Looking for something on each other's behalf*)



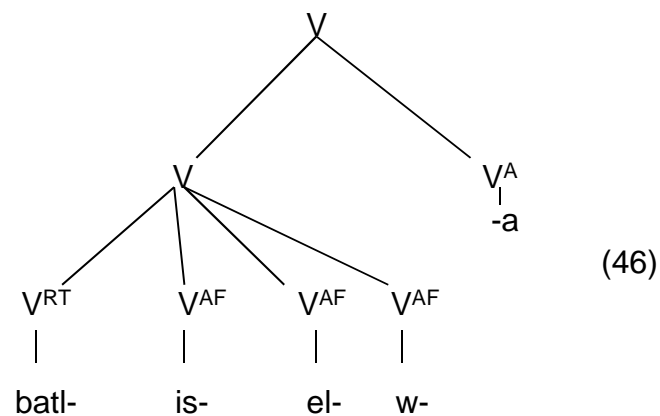
An applicative suffix (-el-) and a passive (-w-) are combined together between the root and the verbal end. The root (batl-) comes before the two suffixes (-el- and -w-) followed by the verbal end (-a) to form the verb (batlelwa). See diagram (45) below:

(XLIV) batl-el-w-a (*Being looked for*)



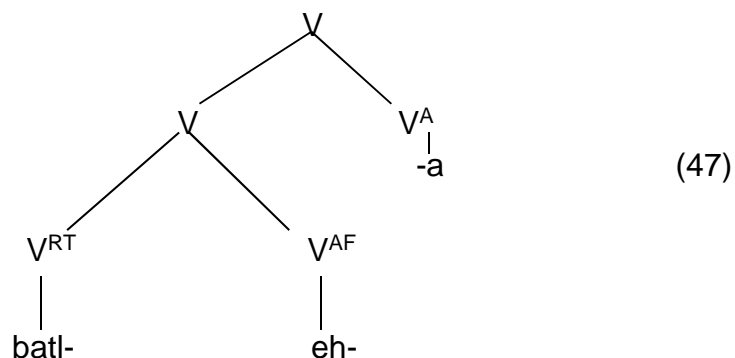
A verbal root (batl-) is followed by a causative suffix, an applicative (-el-) and a passive (-w-) to form the verb (batlisetswa) and the verb ends with a verbal end (-a). In this case, three inflectional morphemes co-occur between the root (batl-) and the verbal end (-a) as indicated by the diagram in (46) below:

(XLVI) batl-is-el-w-a (*Looking for something on one's behalf*)



A verbal root (batl-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (batleha). The neuter suffix (-eh-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (47) below:

(XLVII) batl-eh-a (*Wanted*)



Analysis: In these examples, a verbal root comes before verbal extensions followed by a verbal end to form various verbs. In this case, the verbal root (batl-) is found at the beginning of the verb followed by the inflectional morphemes and the verbal end (-a). Some of the combinations used above are not grammatical in Sesotho.

i. bitsa (Call)

Lexical entry:

Category [+V – N]

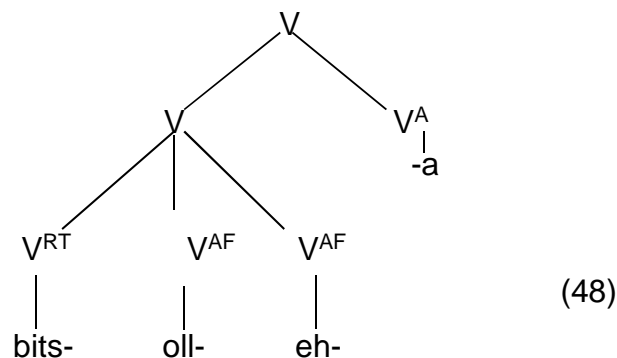
Sub-category [– N]

Meaning [Agent]

Possible combinations:

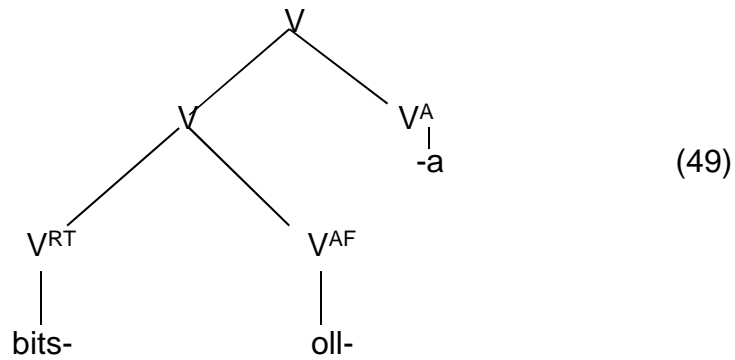
A reversive suffix (-oll-) is attached with a neuter suffix (-eh-) next to a verbal root (bits-) to form the verb (bitsolleha) and the verb ends with a verbal end (-a). The verbal root comes before the reversive and the neuter followed by the verbal end as indicated by the diagram in (48) below:

(XLVIII) bits-oll-eh-a (*To be insulted*)



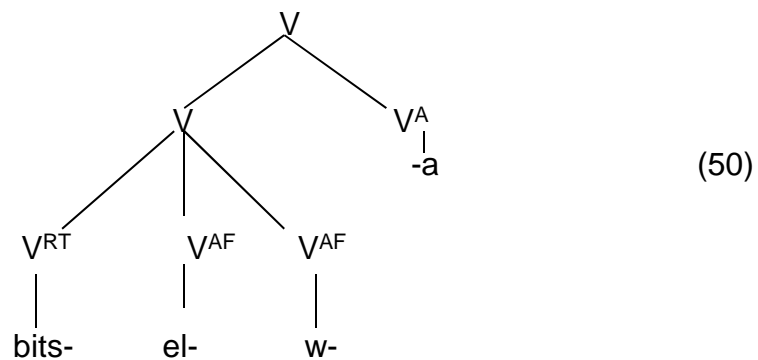
A verbal root is followed by a reversive suffix (-oll-) to form the verb (bitsolla) and the verb ends with (-a). In this case, the verbal root precedes the reversive followed by the verbal end (-a) in (49) below:

(XLIX) bits-oll-a (*Insult*)



A passive (-w-) and an applicative suffix (-el-) co-occur after the root followed by the verbal end to form the verb (bitsetswa). In this case, (bits-) is the root starting the verb followed by the applicative suffix and the passive before the verbal end as indicated by the diagram in (50) below:

(L) bits-el-w-a (*Being called for*)



Analysis: In the above examples, the reversive suffix is introduced, and it is attached to the root before the verbal end as in (bitsolla). A function of the verb can be extended further by adding the applicative suffix (-el-) and the passive (-w-) as in (bitsetswa). The verbal root starts the verb followed by the extensions then ends with the verbal end (-a).

j. sebetsa (Work)

Lexical entry:

Category [+V – N]

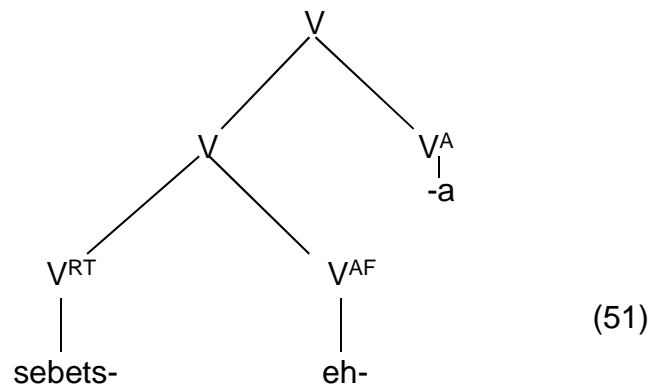
Sub-category [– NP_{Loc}]

Meaning [Agent] + [Theme]

Possible combinations:

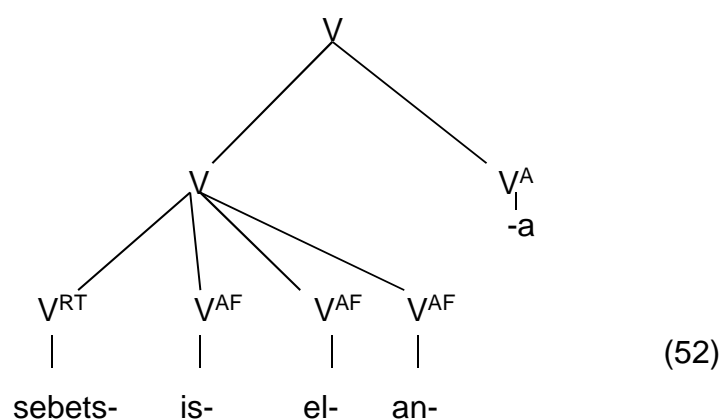
A verbal root (sebets-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (sebetseha). The neuter suffix (-eh-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (51) below:

(LI) sebets-eh-a (*Workable*)



A verbal root (sebets-) is followed by a causative suffix (-is-), an applicative (-el-) and a reciprocal suffix (-an-) to form the verb (*sebedisetsana) and the verb ends with a verbal end (-a). The root (sebets-) comes before the three suffixes (-is-, -el- ; -an-) followed by the verbal end (-a) as indicated by the diagram in (52) below: However, this combination, while possible and plausible in Sesotho, it is not commonly used.

(LI) *sebets-is-el-an-a (*Used for one another*)



Analysis: In the examples given above, two or more verbal suffixes can occur together without changing a category of the verb as in (sebedisetsana). The verbal root precedes the extensions followed by the verbal end (-a). Some combinations used above can be generated by morphological rules, but they are not commonly used.

k. *apara* (*Wear*)

Lexical entry:

Category [+V – N]

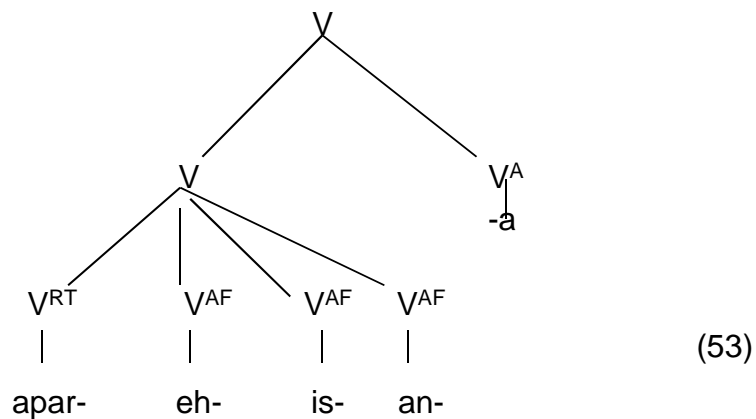
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

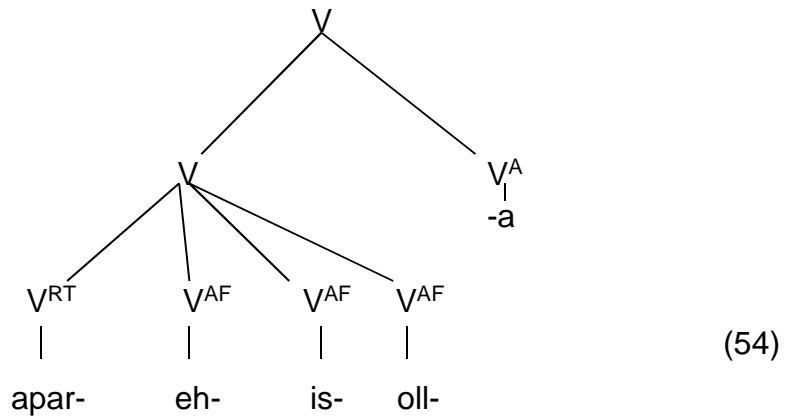
A verbal root (*apar-*) is followed by a causative (*-is-*) and a reciprocal (*-an-*) to extend a function of the verb (*apara*). That combination forms the verb (*apesana*). See diagram (53) below:

(LIII) *apar-is-an-a* (*Dress one another*)



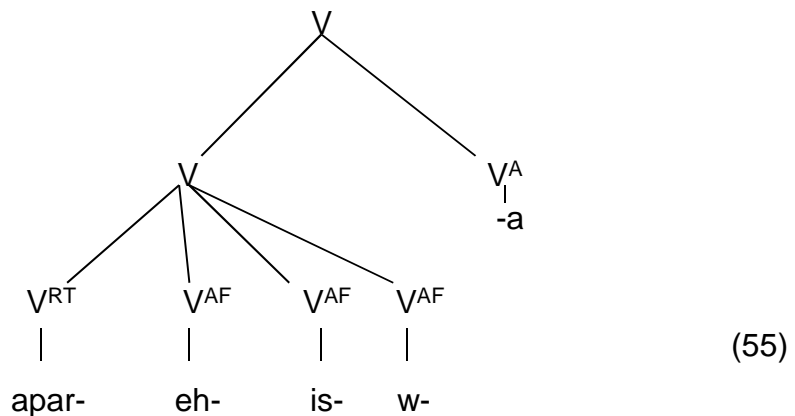
A causative (*-is-*) co-occurs with a reversive (*-oll-*) next to a verbal root (*apar-*) to form the verb (*apesolla*) and the verb ends with a verbal end (*-a*). In this case, the verbal root (*apar-*) precedes the inflectional morphemes (*-is-* and *-oll-*) followed by the verbal end (*-a*) as indicated by the diagram in (54) below:

(LIV) *apar-is-oll-a* (*Undress*)



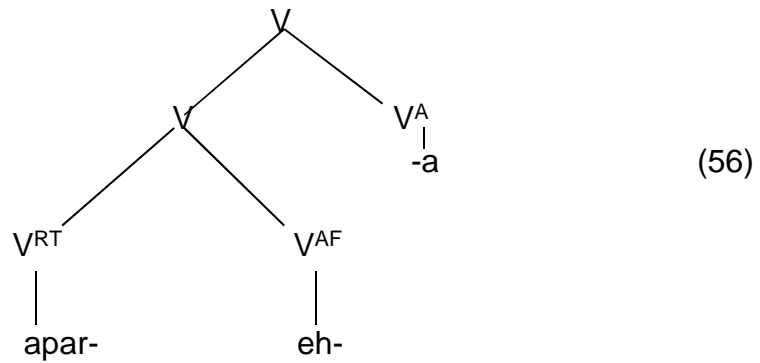
A causative (-is-) once again co-occurs with a passive (-w-) next to a verbal root (apar-) to form the verb (apeswa). In this case, the verbal root (apar-) comes before the inflectional morphemes (-is- and -w-) followed by the verbal end (-a) as indicated by the diagram in (55) below:

(LV) apar-is-w-a (*Being dressed*)



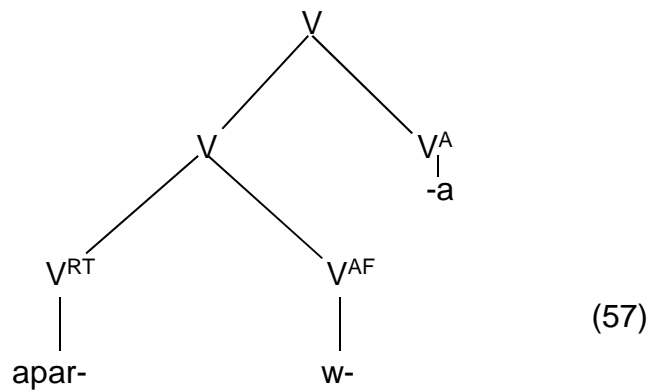
A verbal root (apar-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (apareha). The neuter suffix (-eh-) is a verbal inflectional morpheme found between the root and the verbal end as indicated by the diagram in (56) below:

(LVI) apar-eh-a (*Wearable*)



A verbal root (apar-) precedes a passive suffix (-w-) followed by a verbal end (-a) to form the verb (aparwa). The passive suffix (-w-) is a verbal extension found between the root and the verbal end as indicated by the diagram in (57) below:

(LVII) apar-w-a



Analysis: The function of a verb is extended by attaching certain inflectional morphemes next to the root followed by the verbal end. In this case, it is the verbal root followed by verbal extension(s) then ends with the closing vowel (-a) as the verbal end.

I. roka (Sew)

Lexical entry:

Category [+V – N]

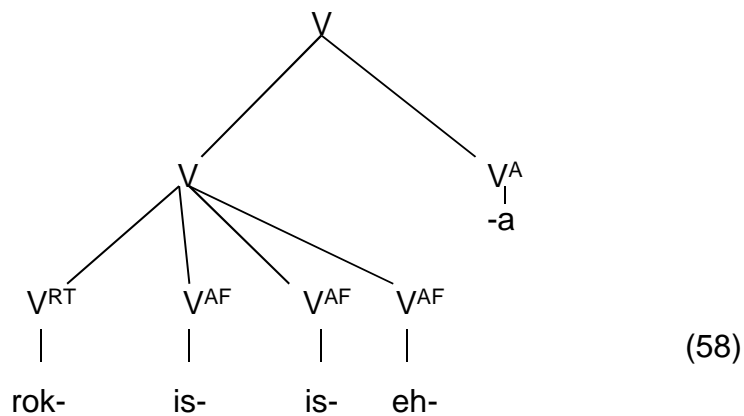
Sub-category [– N]

Meaning [Agent] + [Theme]

Possible combinations:

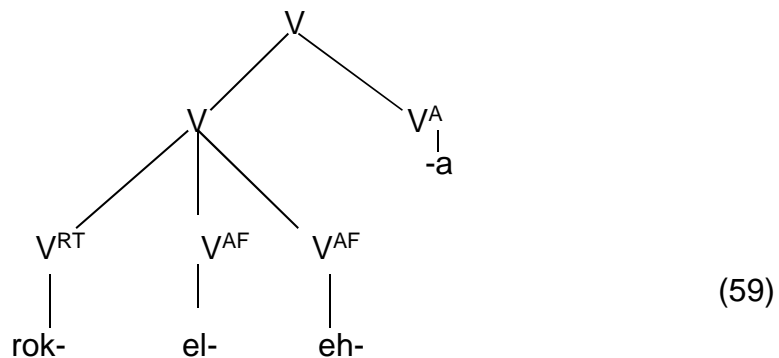
Two causative suffixes (-is-) are combined with a neuter suffix (-eh-) and they follow a verbal root (rok-) to form the verb (rokisiseha) and the verb ends with a verbal end (-a). In this case, the inflectional morphemes are between the verbal root and the verbal end as indicated by the diagram in (58) below: This combination is possible but not commonly used.

(LVIII) *rok-is-is-eh-a (*Can be sewed*)



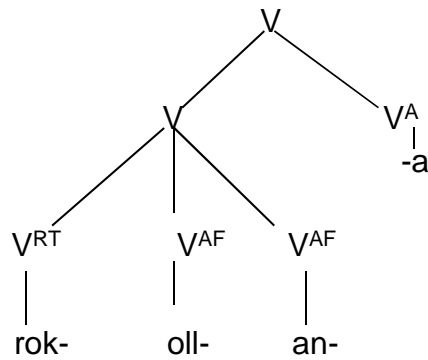
A verbal root (rok-) is followed by an applicative suffix and a neuter to form the verb (rokeleha) and the verb ends with a closing vowel (-a). A verbal end (-a) comes after two verbal inflectional morphemes as indicated by the diagram in (59) below:

(LIX) rok-el-eh-a (*Can be sewed*)



A reversive suffix (-oll-) is attached with a reciprocal suffix (-eh-) to a verbal root (rok-) to form the verb (rokollana) and the verb ends with a verbal end (-a). The verbal root comes before the reversive and the reciprocal followed by the verbal end as indicated by the diagram in (60) below: Combination acceptable but not commonly used.

(LX) *rok-oll-an-a (*Unsewing one another*)



(60)

Analysis: In these examples, the verbal inflectional morphemes are always in the middle of the root and the closing vowel. The root is followed by the suffixes whereby the verb ends with the verbal end (-a). Some combinations are acceptable but not commonly used in Sesotho.

m. eta (*Visit*)

Lexical entry:

Category [+V – N]

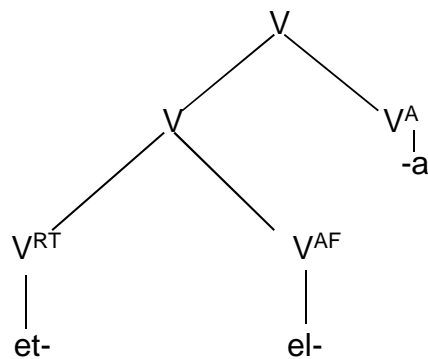
Sub-category [– N]

Meaning [Agent]

Possible combinations:

A verbal root (et-) is combined with an applicative suffix (-el-) before a verbal end (-a). In this case, the root (et-) comes before the applicative suffix (-el-) followed the verbal end (-a) to form the verb (etela) as indicated by the diagram in (61) below:

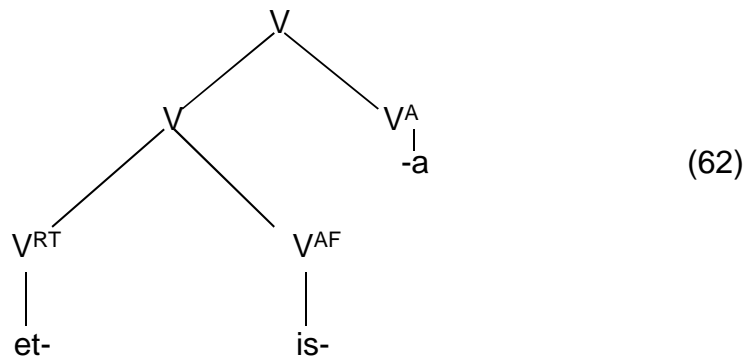
(LXI) et-el-a (*Visiting*)



(61)

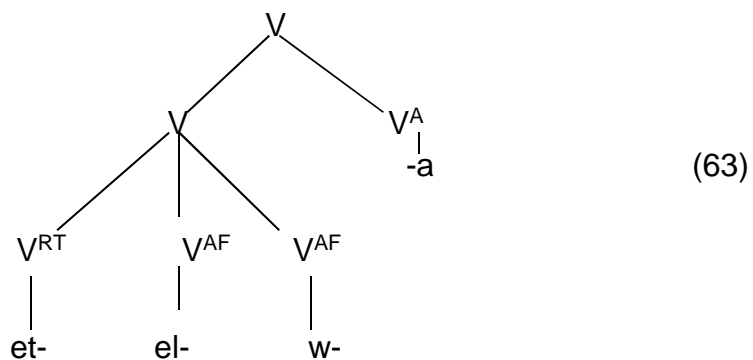
A verbal root (et-) precedes a causative suffix (-is-) followed by a verbal end (-a) to form the verb (etisa). The causative suffix (-is) is a verbal extension found between the root and the verbal end as indicated by a diagram in (62) below:

(LXII) et-is-a (*Cause to visit*)



An applicative suffix (-el-) and a passive (-w-) are combined together between the root and the verbal end. The root (et-) comes before the two suffixes (-el- and -w-) followed by the verbal end (-a) to form the verb (etelwa). See diagram (63) below:

(LXIII) et-el-w-a (*Being visited*)



Analysis: The above examples show that the verbal root is at the beginning of the verb followed by a verbal extension or two of them to extend the function of the verb. The root comes before the verbal inflectional morpheme(s) that precede(s) the verbal end -a.

n. ema (*Wait*)

Lexical entry:

Category [+V – N]

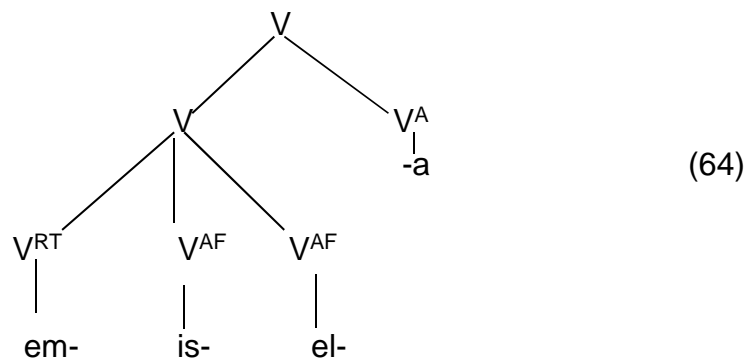
Sub-category [– NPLoc]

Meaning [Agent] + [Theme]

Possible combinations:

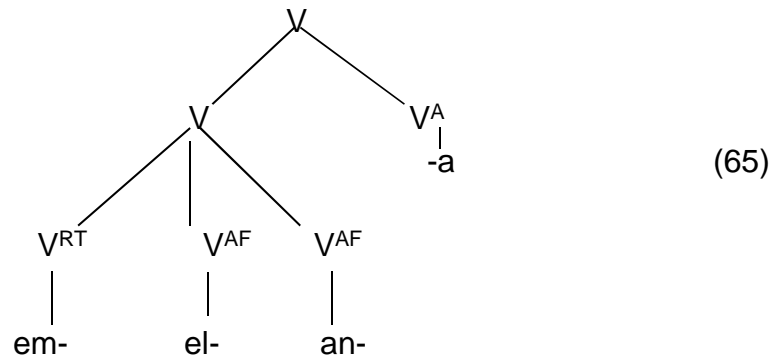
A verbal root (em-) is followed by a causative suffix (-is-) and an applicative (-el-) to form the verb (emisetsa) and the verb ends with a verbal end (-a). The root (em-) comes before the two suffixes (-is- and –el-) followed by the verbal end (-a) as indicated by the diagram in (64) below:

(LXIV) em-is-el-a (*Stopping someone for something*)



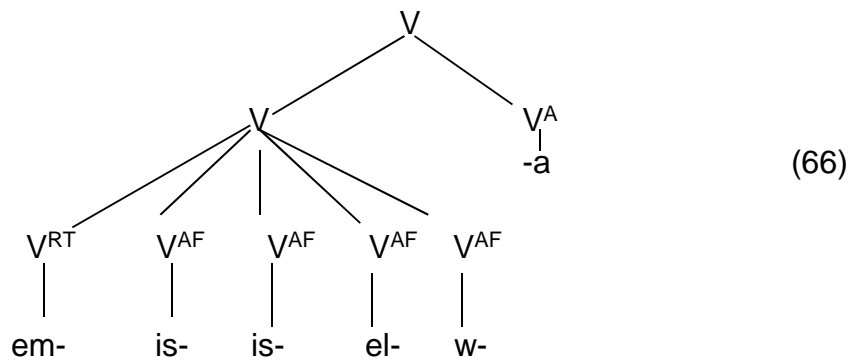
An applicative suffix (-el-) and a reciprocal (-an-) co-occur after a root followed by a verbal end to form the verb (emelana). In this case, (em-) is the root starting the verb followed by the applicative suffix and the reciprocal before the verbal end as indicated by the diagram in (65) below:

(LXV) em-el-an-a (*Wait for one another*)



Two causative suffixes (-is-) co-occur with an applicative suffix (-el-) and a passive (-w-) after a root to form the verb (*emisetswa) and the verb ends with a closing vowel (-a). In this case, the inflectional morphemes are between the verbal root (em-) and the verbal end (-a) as indicated by the diagram in (66) below: This combination is not grammatical.

(LXVI) *em-is-is-el-w-a (*Being kept waiting*)



Analysis: In the examples given above, two or more verbal suffixes can occur together without changing a category of the verb as in (*emisetswa) or (emisetsa). The verbal root precedes the verbal extensions and they are followed by the verbal end (-a). The other combination is ungrammatical in Sesotho.

o. rua (To be rich)

Lexical entry:

Category [+V – N]

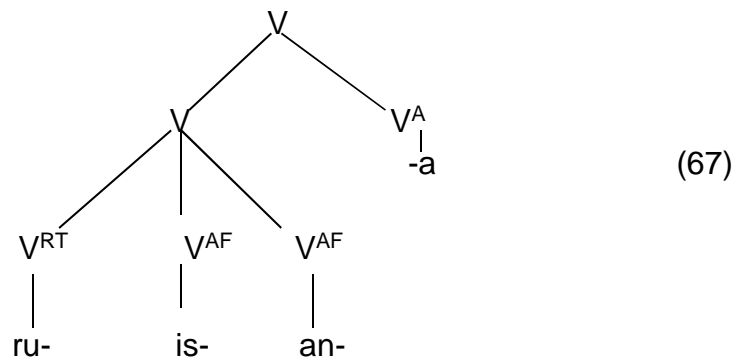
Sub-category [– N]

Meaning [Agent]

Possible combinations:

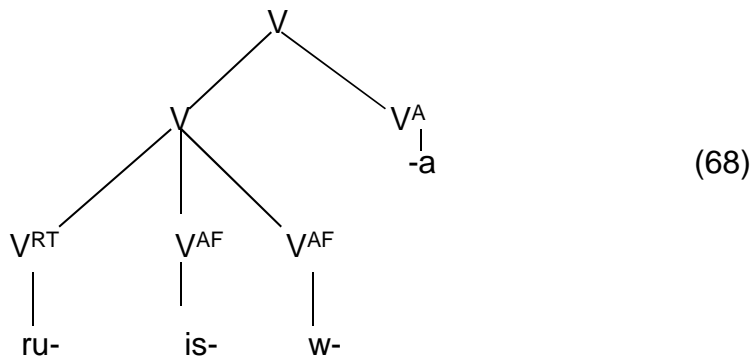
A verbal root (ru-) comes before a causative suffix and a reciprocal to form the verb (ruisana) whereby (-a) is a verbal end. See figure (67) below:

(LXVII) ru-is-an-a (*Enriching one another*)



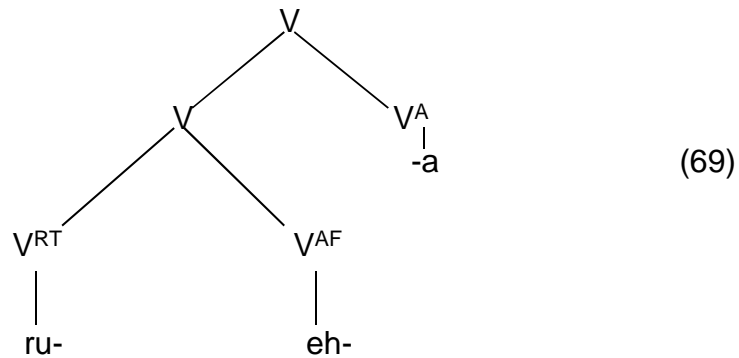
A causative suffix (-is-) and a passive (-w-) are combined together between a root and a verbal end. The root (ru-) comes before the two suffixes (-is- and -w-) followed by the verbal end (-a) to form the verb (ruiswa). See diagram (68) below:

(LXVIII) ru-is-w-a (*Being enriched*)



A verbal root (ru-) precedes a neuter suffix (-eh-) followed by a verbal end (-a) to form the verb (rueha). The neuter suffix (-eh-) is a verbal extension found in the middle of the root and the verbal end as indicated by the diagram in (69) below:

(LXIX) ru-eh-a (*Can be owned*)



Analysis: These examples show that a verb can be extended further by attaching verbal extensions to the root and the verbal end. The root is followed by the verbal inflectional morphemes and the verbal end.

p. bina (*Sing*)

Lexical entry:

Category [+V – N]

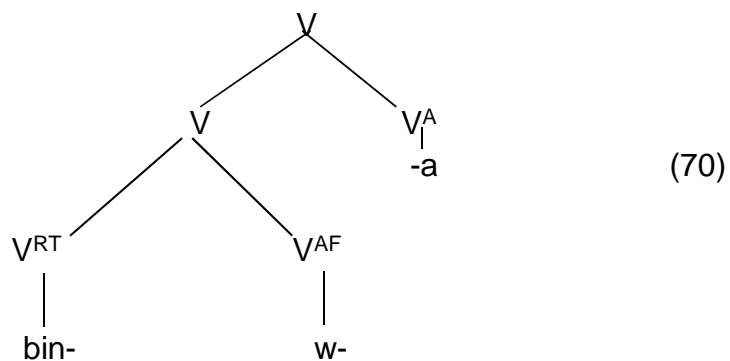
Sub-category [– N]

Meaning [Agent]

Possible combinations:

A verbal root (bin-) is combined with a passive (-w-) before a verbal end (-a). In this case, the root (bin-) comes before the passive (-w-) followed by the verbal end (-a) to form the verb (binwa) as indicated by the diagram (70) below:

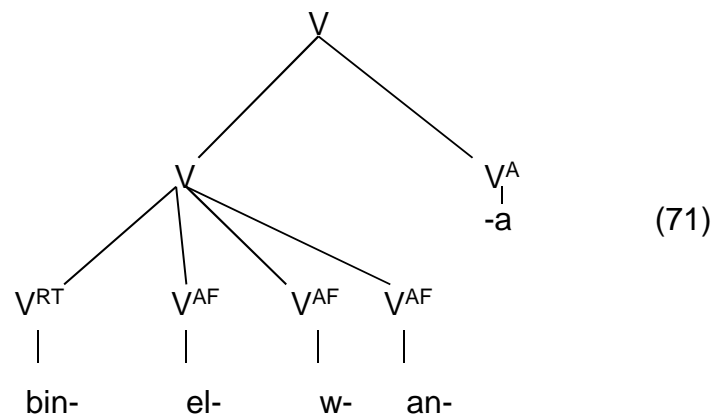
(LXX) bin-w-a (*Sung*)



A verbal root (bin-) is followed by an applicative suffix (-el-) and a passive (-w-) and a reciprocal (-an-) to form the verb (*binelwana) and the verb ends with a verbal end (-

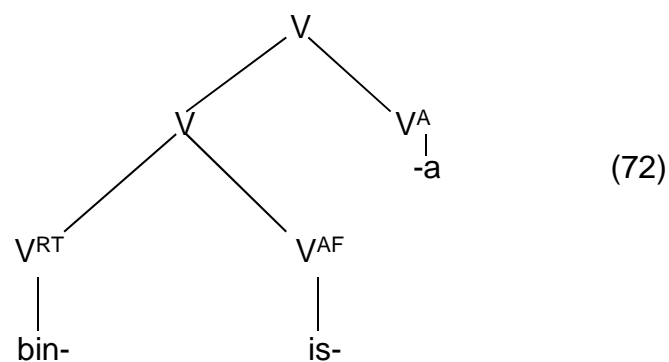
a). In this case, three inflectional morphemes co-occur between the root (bin-) and the verbal end (-a) as indicated by the diagram in (71) below: This combination is possible but not acceptable in Sesotho.

(LXXI) *bin-el-w-an-a (*Singing for one another*)



A verbal root (bin-) precedes a causative suffix (-is-) followed by a verbal end (-a) to form the verb (bintsha). The causative suffix (-is-) is a verbal extension found between the root and the verbal end as indicated by a diagram in (72) below:

(LXXII) bin-is-a (*Cause to sing*)



Analysis: The above examples show that the verbal root is at the beginning of the verb followed by verbal extension(s) to extend the function of the verb. The root comes before the verbal inflectional morpheme(s) that precede(s) the verbal end which is ‘-a’. Some of the combinations used above are possible but unacceptable in Sesotho.

q. *bu* (*Talk*)

Lexical entry:

Category [+V – N]

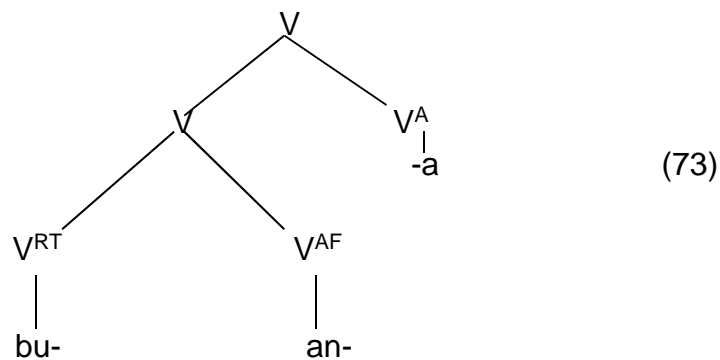
Sub-category [– N]

Meaning [Agent]

Possible combinations

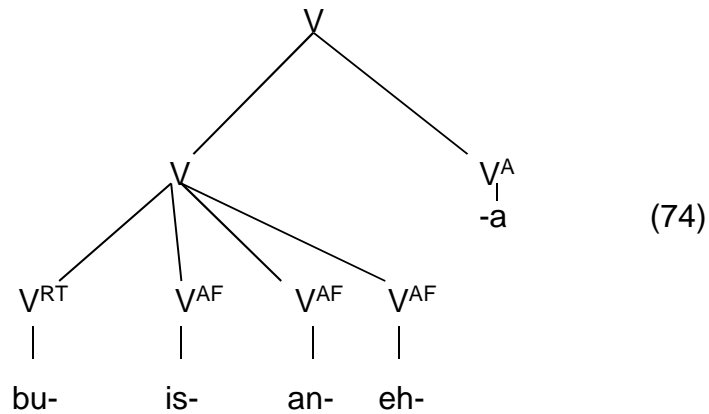
A verbal root (*bu-*) is combined with a reciprocal suffix (*-an-*) before a verbal end (*-a*). In this case, the root (*bu-*) comes before the reciprocal suffix (*-an-*) followed by the verbal end (*-a*) to form the verb (*buana*) as indicated by the diagram (73) below:

(LXXIII) *bu-an-a* (*Talk behind each other's back*)



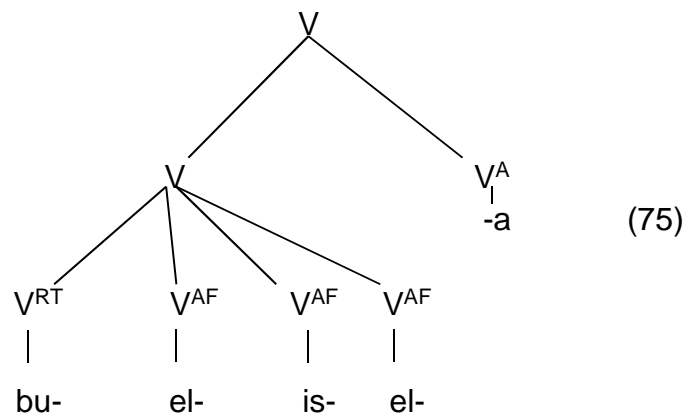
A causative suffix co-occurs with a reciprocal and a neuter between a root and a verbal end. The root (*bu-*) is followed by the causative, the reciprocal and the neuter to form the verb (*buisaneha*). See figure (74) below: Possible combination but not commonly used in Sesotho.

(LXXIV) **bu-is-an-eh-a* (*Able to be talked about*)



A verbal root (bu-) is followed by an applicative (-el-) that occurs twice before and after a causative suffix (-is-) to form the verb (*buelisetsa) and the verb ends with a verbal end (-a). The root (bu-) comes before the two suffixes (-el- , -is- and -el-) followed by the verbal end (-a) as indicated by the diagram in (75) below: Combination is acceptable but not commonly used in Sesotho.

(LXXV) *bu-el-is-el-a (*Cause to talk*)



Analysis: The verbal root is followed by verbal inflectional morphemes that occur before the verbal end. The verbal inflections are in the middle of the root and the closing vowel. Some of the combinations can be generated by morphological rules but they are not commonly used.

r. tsoma (*Hunt*)

Lexical entry:

Category [+V – N]

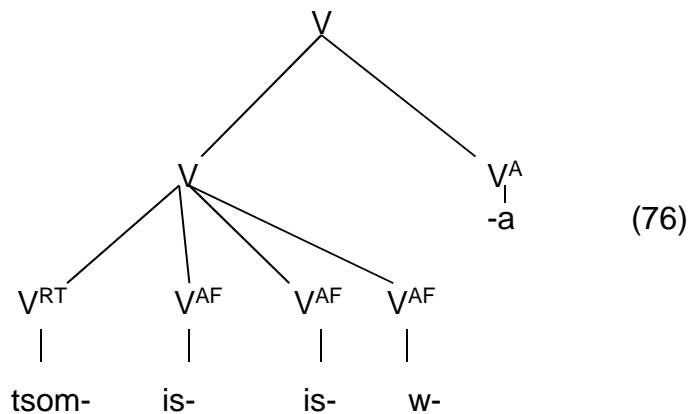
Sub-category [– N]

Meaning [Agent]

Possible combinations

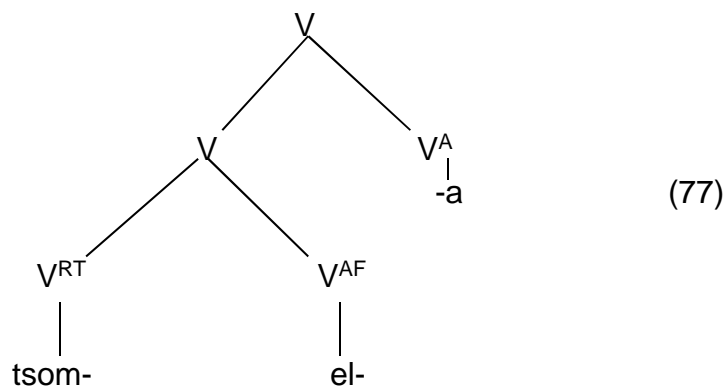
A verbal root is followed by two causative suffixes (-is-;-is-) occurring with a passive (-w-) before a closing vowel (-a). The verb (tsomisiswa) is formed by adding the inflections between the root and the verbal end as in figure (76) below: The combination is not grammatical in Sesotho.

(LXXVI) *tsom-is-is-w-a (*Being taken to hunting*)



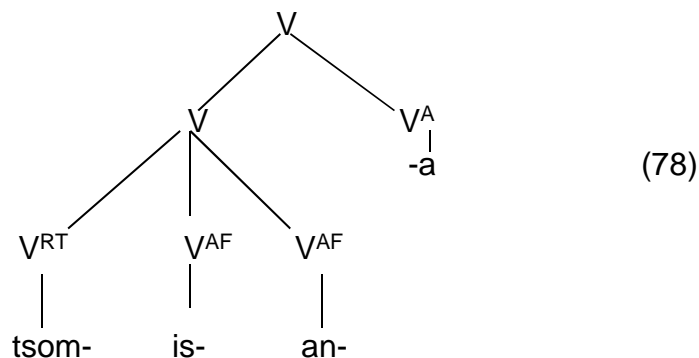
A verbal root (tsom-) is combined with an applicative suffix (-el-) before a verbal end (-a). In this case, the root (tsom-) comes before the applicative suffix (-el-) followed the verbal end (-a) to form the verb (tsomela) as indicated by the diagram in (77) below:

(LXXVII) tsom-el-a (*Hunt for*)



A causative suffix (-is-) and a reciprocal (-an-) co-occur after a root followed by a verbal end to form the verb (tsomisana). In this case, (tsom-) is the root starting the verb followed by the causative suffix and the reciprocal before the verbal end as indicated by the diagram in (78) below:

(LXXVIII) tsom-is-an-a (*Cause to hunt with one another*)



Analysis: In these examples, a function of the verb is changed by the use of various verbal extensions found in the middle of the root and the verbal end as in: (tsomisana), (tsomisiswa) and (tsomela). In this case, the verbal root (tsom-) starts the verb followed by inflectional morpheme(s) before the verbal end (-a). The other combination is ungrammatical in Sesotho.

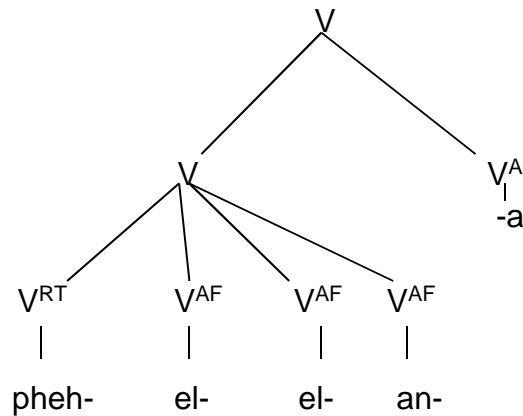
3.3 Conclusion

This chapter provides an overview of how inflectional morphemes are arranged when forming syntactic relations in Sesotho sentence constructions. Sesotho lexical verbs were given in terms of lexeme-morpheme based-morphology which states that lexemes and morphemes are two independent but related categories, where verbal suffixes as morphemes are attached to the root and it proved that suffixes always come after the root. This is illustrated by the example in [b(x)] on page 50, indicated here below:

Reka -> rek- a -> rek-eh -a

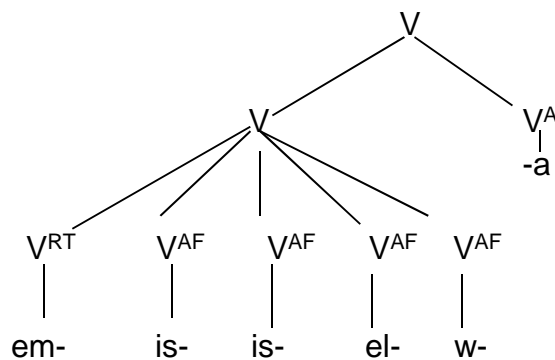
In terms of hierarchical analysis of the word structure as demonstrated in figure 21 the same observation applies, where inflectional morphemes follow the root. It is a verbal root followed by the inflectional morpheme, then followed by the verbal end which is always /-a/. Figure 21 is repeated here below:

(78)



The sequence of inflectional morphemes was examined using Sesotho verbs. According to the linear and hierarchical arrangements made, verbal inflections occur after the root and they follow one another like a chain (in other verbs) as in figure (66), repeated here as figure 79:

(79)



Furthermore, it has been observed that some combinations of verbal suffixes do not form grammatical word categories such as:

*tshwar-el-is-is-w-a in (XVI)

*pheh-el-is-a in (XX)

*pheh-el-el-an-a in (XXI)

*rut-el-w-an-a in (XXXIII)

*rut-is-is-an-a in (XXXIV)

*ngol-is-an-eh-a in (XLI)

*batl-el-an-el-a in (XLIII)

*em-is-is-el-w-a in (LXVI) and

*tsom-is-is-w-a in (LXXVI).

This means, such words are not correct Sesotho constructions, even though they can be generated by morphological rules.

It has also been observed that while other combinations have plausible meaning, and they are possible combinations, they are not commonly used in Sesotho, for instance:

tshwar-is-el-an-a in (XVII)

tshwar-is-is-eh-a in (XVIII)

sebets-is-el-an-a in (LI)

rok-is-is-eh-a in (LVIII)

rok-oll-an-a in (LX)

bu-is-an-eh-a in (LXXIV) and

bu-el-is-el-a in (LXXV).

Moreover, it has been observed that other combinations of verbal suffixes are possible and grammatical but not acceptable in Sesotho, here are the examples:

pheth-el-an-el-w-a in (XXV)

pheth-el-w-an-a in (XXVII)

pheth-is-is-an-a in (XXIX)

rut-eh-is-a in (XXXV) and

pbin-el-w-an-a in (LXXI).

From the above observations, it is clear that Sesotho inflectional morphemes will follow the verbal or nominal root in most cases.

Chapter 4: Analysis of the Sequence of Derivational Morphemes in Sesotho

4.1 Introduction

Baker (2011) describes a word as the smallest unit which one would expect to possess individual meaning. Words can be used by themselves in a language and still be meaningful. Formation of new words is based upon derivational morphemes. The previous chapter dealt with inflectional morphemes, how the sequence occurs in Sesotho whereby various verbs were examined in a linear and hierarchical method.

This chapter will focus on the analysis of the sequence once again but this time looking at derivational morphemes. "Derivation is a morphological process whereby affixes are used to modify the lexical content of the base they are attached to and they operate on a syntax independent level" Kosch (2006). Unlike inflectional morphemes, derivational morphemes form new words from a lexeme. It is important to analyse the sequence of both morphemes because of Greenberg's universal clause 28.

Since nouns are going to be used in this chapter, it will be of great importance to give an outline structure of Sesotho noun classes and their contents. The sequence will be tested on derived deverbative nouns of Sesotho using the same method from the previous chapter.

4.2 Sesotho noun classes

Sesotho like other African languages has noun classes that help nouns to be grouped together into a specific class based on their prefixal morphemes. Nouns are basically formed by a prefix and a noun stem (Guma: 1971).

Guma (1971) gives an outline structure of Sesotho noun classes as follows:

Class 1 /mo- ~ m- ~ ngö- /

Class 1a / Ø- /

Class 2 / ba- ~ be- /

Class 2a / bo- /

Class 3 / mo- ~ m- ~ ngö /

Class	4	/ me- /
Class	5	/ le- ~ l- /
Class	6	/ ma- ~ me- /
Class	7	/ se- /
Class	8	/ li- /
Class	9	/ N- ~ ng- ~ ngö- ~ ny- /
Class	10	/ liN- /
Class	14	/ bo- /
Class	15	/ ho- /
Locative	}	16 / fa- /
Classes		17 / ho- /
		18 / mo- /

Guma (1971) discussed the contents of the above noun classes and he states that class 1 is a singular class; its plurals are usually in class 2. It is in this class where we find nouns that indicate human beings like monna (*man*), moradi (*daughter*), mong (*owner*), mochana (*nephew/niece*) and so forth. This class also contains names of ethnic groups like Mosotho (*a Mosotho national*), Motswana (*a Motswana national*) and others whom Basotho were close to. Most of the nouns that are found in this class are formed from verbs by affixation and Bauer (1983) describes affixes as “bound morphs which do NOT realize unanalysable lexemes” (1983:18). Class 1a contains proper names of people for instance, Tshupo and Teboho. The plurals of these nouns are found in class 2a as in boThabo. Class 3 has a wide range of singular nouns like motse (*village*), molato (*debt*) etc. Nouns that indicate (i) body parts are found in this class: molala (*neck*), molomo (*mouth*), mohatla (*tail*), (ii) natural phenomena: mohodi (*mist*), moru (*forest*), (iii) names of trees: morara (*vine*), moduwane (*willow tree*), (iv) names of plants: moroho (*spinach*), mokopu (*pumpkin*), (v) names of birds: moholodi

(*blue crane*), mokotatsie (*white stork*) and (vi) names of diseases: mokaola (*syphilis*), mofikela (*cold in the head*). The plurals of those nouns are found in class 4.

Class 5 has a prefix (le-) and it contains a great range of singular nouns like (i) miscellaneous: lerata (*noise*), lejwe (*stone*), (ii) animals, birds and ants: lehodi (*pied starling*), lengau (*cheetah*), lerwana (*species of ant*), (iii) liquids and other watery substances: lesheleshele (*soft porridge*), leting (*light beer*), lemina (*slime from the nose*), (iv) plants and vegetables: lekgala (*aloe*), lehlokwa (*bit of dry grass*), lebele (*corn*), (v) ethnic groups: Leswatsi (*a Swazi*), Letebele (*a Ndebele*), Lejuta (*Jew*). All given nouns have their plurals in class 6 with the prefix /ma-/ or in class 10 with the prefix /lin-/. Guma states that: "class 7 with prefix /se-/ is miscellaneous in content. Examples of nouns found in this class are: (i) Languages: Sesotho (Sotho language), Seburu (Afrikaans), Senyesemane (English), (ii) instruments, tools and household effects: selepe (*an axe*), sefapano (*cross*), sefalo (*pot scraper*), (iii) terms indicating strong people: senatla (*a strong man*), seqhobane (*giant*), (iv) nouns with collective significance: sehlopha (*group*), semana (*type of bees*), setjhaba (*nation*), (v) natural phenomena: seretse (*mud*), sefako (*hail*), setsukutsuku (*whirlwind*)"(Guma 1971:52-55).

Class 7 is associated with the class 8 /li-/ for plural formation. Furthermore, Guma gives an overview and contents of class 9, he says: "class 9 has the prefix /N-/ which is a homorganic nasal consonant that is phonologically conditioned and may become /m/, /n/, /ny/ or /ng/ depending on the organic position of the consonant to which it is prefixed, (i) bilabial nasal with 'm' as prefix: mpho (*gift*), mphi (*army*), (ii) alveolar nasal 'n' as prefix: ntsu (*eagle*), nta (*louse*), ntho (*thing*), (iii) pre-patal nasal 'ny' as prefix: ntja (*dog*), (iv) alveolar nasal 'ng' as prefix: nku (*sheep*), nkgo (*water-pot*), (v) parts of the body: peta (*chest*), tsebe (*ear*), (vi) names of animals: tau (*lion*), pere (*horse*), (vii) natural phenomena: naha (*country*), thaba (*mountain*)"(Guma 1971:57). Plurals of class 9 will follow in class 10.

Class 14 has abstract nouns that have no plural form but there are few that have a plural and they take the prefix of class 6 'ma', for instance: bosiu (*night*) > masiu, bodiba (*deep pool*) > madiba. Nouns that are found in this class are: (i) abstract nouns formed from noun stems: borena (*chieftainship*), boshodu (*thieving*), bonna

(*manhood*), (ii) abstract and semi-abstract nouns: boima (*weight*), bohloko (*pain*), bodutu (*loneliness*) (Guma 1971).

Nominal infinitives that are formed from noun stems are all found in class 15. They begin with infinitive prefix 'ho' (*to do something*), for an example: ho-i-thuta (*to teach oneself*). Class 16, 17 and 18 are locative classes that function as adverbs like 16 with prefix "fa-": fatshe (*down*), 17 with prefix "ho-": hodimo (*on top/above*) and 18 with prefix "mo-": mose (*across*) (Guma 1971).

4.3 Derivation of verbs to deverbative nouns

Agglutinative languages require affixes to be attached next to a lexeme in order for a word to be formed properly. Sesotho is one of those languages hence there is a need of the same process for its words to be formed. The reason why the noun classes in 4.2 were introduced is because nouns that are formed through a process of derivation also fall under those classes. Sesotho nouns can be formed by deriving them from verbs, adjectives, relatives and/or adverbs.

Nouns that are derived from verbs are called deverbative nouns and here is how deverbatives are formed in Sesotho:-

The following verbs will form nouns that fall under a specific class:

- Sebetsa (*Work*)
- Tshwara (*Arrest*)
- Kganna (*Drive*)
- Aparara (*Wear*)
- Roka (*Sew*)
- Sebetsa (*Work*)
- Eta (*Visit*)
- Ema (*Stand*)
- Rua (*To become rich*)
- Bina (*Sing*)
- Bua (*Speak*)
- Tsoma (*Hunt*)

Nouns can be derived from the above verbs and be classified as deverbative nouns and therefore have classes according to their prefixes. These are deverbative nouns in the same order as the above verbs:-

- Mosebeletsi (*Worker*)
- Motshwaruwa (*Prisoner*)
- Mokganni (*Driver*)
- Moaparo (*Clothing style*)
- Moroko (*Sewing*)
- Mosebetsi (*Work*)
- Leeto (*Journey*)
- Leemedi (*Pronoun*)
- Leruo (*Wealth*)
- Sebini (*Singer*)
- Sebui (*Speaker*)
- Setsomi (*Hunter*)

Now that there is a derivation from verbs to nouns, the above nouns need to be situated in specific classes. According to an outline structure of Sesotho noun classes, this is how it will be:-

Class	1	/mo- Mosebeletsi (<i>Worker</i>) Mokganni (<i>Driver</i>) Motshwaruwa (<i>Prisoner</i>)
Class	2	/ ba- Basebeletsi (<i>Workers</i>) Bakganni (<i>Drivers</i>) Batshwaruwa (<i>Prisoners</i>)
Class	3	/ mo- Moaparo (<i>Clothing style</i>) Moroko (<i>Sewing</i>) Mosebetsi (<i>Work</i>)
Class	4	/ me- Meaparo (<i>Clothing styles</i>)

Meroko (*Sewings*)

Mesebetsi (*Works*)

Class 5 / le- Leemedi (*Pronoun*)

Leeto (*Journey*)

Leruo (*Wealth*)

Class 6 / ma- Maemedi (*Pronouns*)

Maeto (*Journeys*)

Maruo (*Wealths*)

Class 7 / se- Sebini (*Singer*)

Sebui (*Speaker*)

Setsomi (*Hunter*)

Class 8 / li- Dibini (*Singers*)

Dibui (*speakers*)

Ditsomi (*Hunters*)

4.4 Analysis of the sequence of derivation

The same Sesotho verbs that were used previously will head the process of derivation in this section. There will be linear and hierarchical arrangements used in order to analyse deverbative nouns. In the analysis, lexical entries of every word category will be given, followed by a derivational process and a summary of analysis.

a. sebetsa (*work*)

Lexical entry:

Category [+V – N]

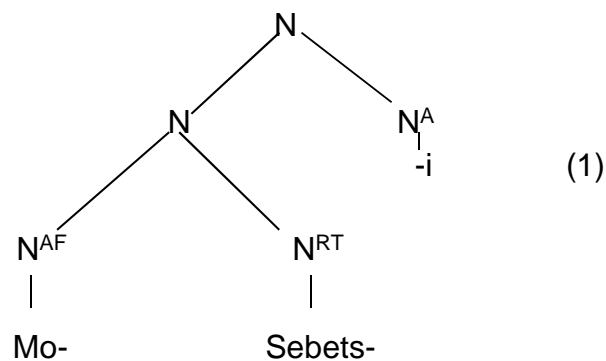
Sub-category [– NP_{Loc}]

Meaning [Agent] + [Theme]

Derivation:

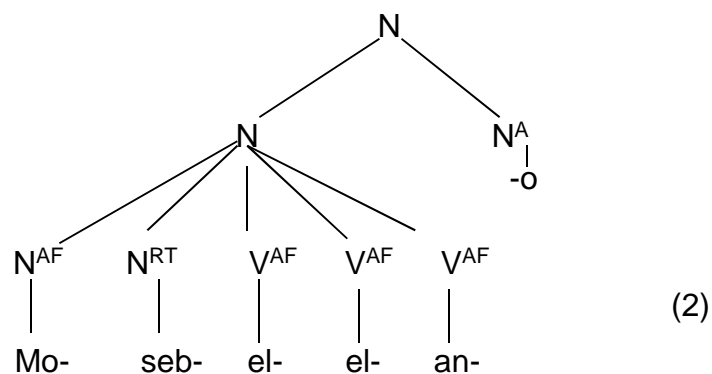
A derivational prefix (Mo-) comes before a noun root (-sebets-) to form the noun (Mosebetsi) and the noun ends with a nominal suffix (-i). In this case (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the closing vowel (-i) as indicated by the diagram in (1) below:

- (i) Mo-sebets-i (*work*)



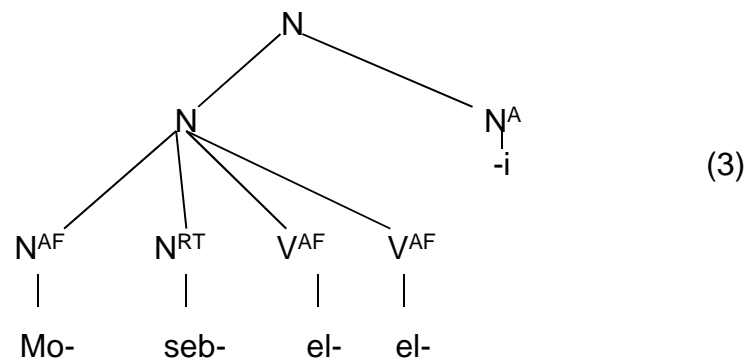
A derivational prefix (Mo-) is followed by a noun root (-seb-) to form a noun (Mosebeletsano) where the noun ends with a prefix (-o). There are two applicative suffixes (-el-), the second one that is followed by reciprocal suffix (-an-) is pronounced as “ets”, these are found between the root and the closing vowel (-o) as indicated by the diagram in (2) below:

- (ii) Mo-seb-el-el (ets)-an-o (*Work of one another*)



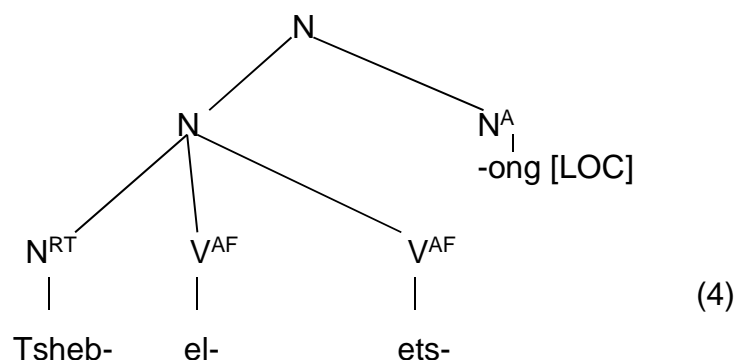
A derivational prefix (Mo-) occurs before a noun root (-seb-) to form the noun (Mosebeletsi) and the noun ends with a nominal suffix (-i). In this case (Mo-) is a nominal derivational morpheme that occurs before the root, followed by two applicative suffixes (-el-) whereby the second one is pronounced as –ets-, followed by the closing vowel (-i) as indicated by the diagram in (3) below:

(iii) Mo-seb-el-el (ets)-i (*Worker*)



A noun root (Tsheb-) is followed by applicative suffixes (-el-), the second one pronounced as –ets- to form a locative noun (Tshebeletsong) and the noun ends with a suffix (-ong). In this case, the suffix (-ong) is preceded by two applicative suffixes (-el-) and it marks the derivation as indicated by the diagram in (4) below:

(iv) Tsheb-el-ets-ong (*At the service*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root and the closing vowel, as in (Mosebetsi). The noun can further be derived from other inflectional morphemes where two applicative and the reciprocal

suffixes are used. Again, the prefix can be absent as in (tshebeletsong) but the (-ong) suffix will mark a derivation. In this case, the derivational morpheme comes before the root, and the inflectional morphemes follow the root or the root is followed by the inflectional morphemes then ends with the derivational morpheme.

b. tshwara (*Hold*)

Lexical entry:

Category [+V – N]

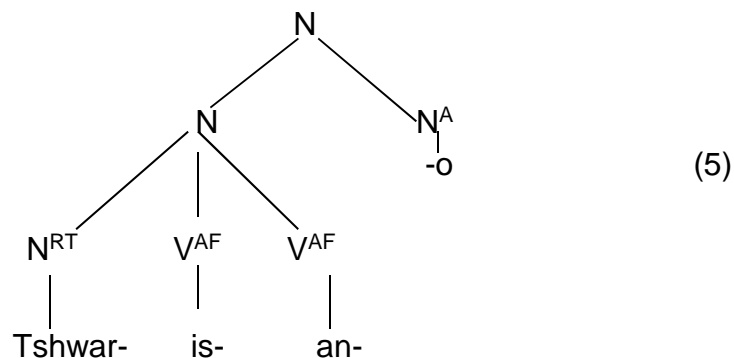
Sub-category [– N]

Meaning [Agent] + [Theme]

Derivation:

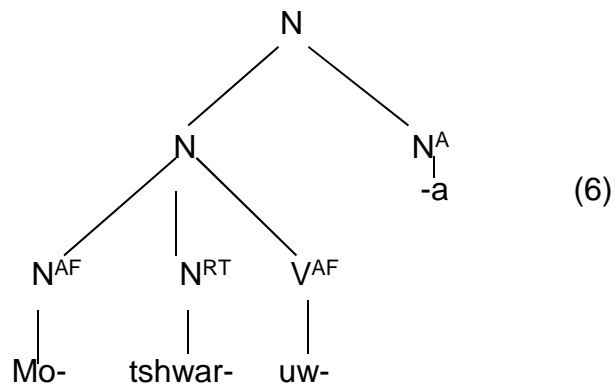
A noun root (Tshwar-) is followed by a causative suffix (-is-) and a reciprocal (-an-) to form the noun (Tshwarisano) and the noun ends with a deverbative suffix (-o). In this case, (Tshwar-) is the root followed by the causative (-is-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (5) below:

(v) Tshwar-is-an-o (*Cause to hold for each other*)



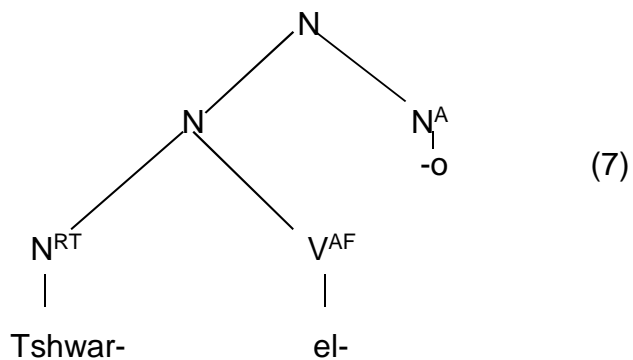
A derivational prefix (Mo-) comes before a noun root (-tshwar-) to form the noun (Motshwaruwa) and the root is followed by a passive (-uw-) whereby the noun ends with a nominal suffix (-a). In this case (Mo-) is a nominal derivational morpheme that occurs before the root, followed by the passive (-uw-) then closes with the vowel (-a) as indicated by the diagram in (6) below:

(vi) Mo-tshwar-uw-a (*Prisoner*)



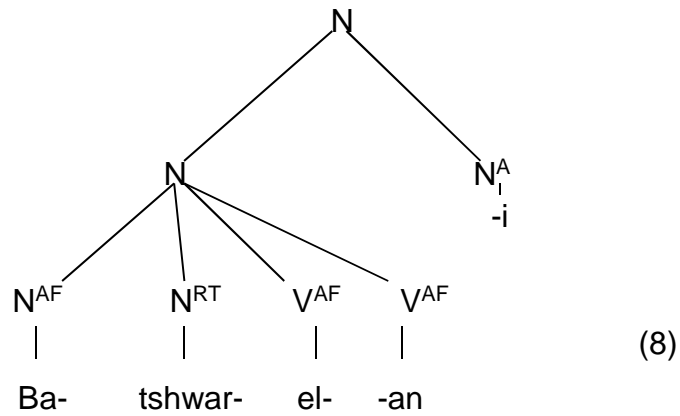
A noun root (Tshwar-) is followed by an applicative suffix (-el-) to form a noun (Tshwarelo) and the noun ends with a deverbative suffix (-o). In this case, (Tshwar-) is the root followed by the applicative (-el-) that comes before the suffix (-o) as indicated by the diagram in (7) below:

(vii) Tshwar-el-o (*Forgiveness*)



A derivational prefix (Ba-) is followed by a noun root (-tshwar-) that precedes an applicative suffix (-el-) and a reciprocal (-an-) to form a noun (Batshwarelani), and the noun ends with a suffix (-i). In this case (Ba-) is a nominal derivational morpheme and it comes before the root, followed by the applicative suffix (-el-) and reciprocal (-an-) followed by the closing vowel (-i) as indicated by the diagram in (8) below:

(viii) Ba-tshwar-el-an-i (*Forgivers*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root preceding two inflectional suffixes or one then a closing vowel as in (Motshwaruwa and Batshwarelani). The noun can further be derived from other inflectional morphemes where the causative and the reciprocal suffixes are attached to the root. In this case, the derivational morpheme comes before the root, and the inflectional morphemes follow the root or the root is followed by the inflectional morphemes then ends with the derivational morpheme.

c. kganna (*Drive*)

Lexical entry:

Category [+V – N]

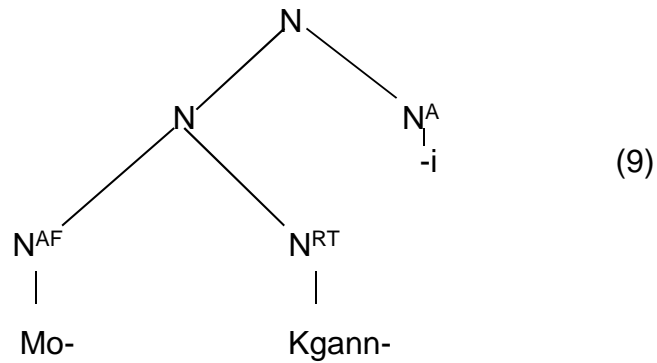
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

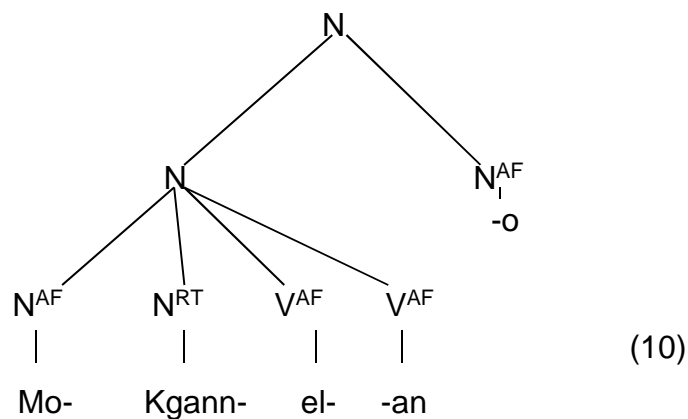
A deverbative prefix (Mo-) comes before a noun root (-kgann-) to form the noun (Mokganni) and the noun ends with a nominal suffix (-i). In this case (Mo-) is a deverbative morpheme that comes before the root, followed by the closing vowel (-i) as indicated by the diagram in (9) below:

(ix) Mo-kgann-i (*Driver*)



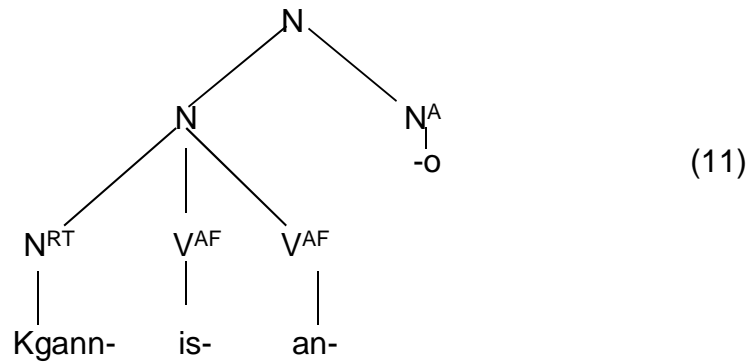
A deverbative prefix (Mo-) is followed by a noun root (-kgann-) that precedes an applicative suffix (-el-) and a reciprocal (-an-) to form a noun (Mokgannelano), and the noun ends with a suffix (-o). In this case (Mo-) is a deverbative morpheme and it comes before the root, followed by the applicative suffix (-el-) and the reciprocal (-an-) followed by the closing vowel (-o) as indicated by the diagram in (10) below: However, this combination is not commonly used in Sesotho.

(x) *Mo-kgann-el-an-o (*Turn-taking drive*)



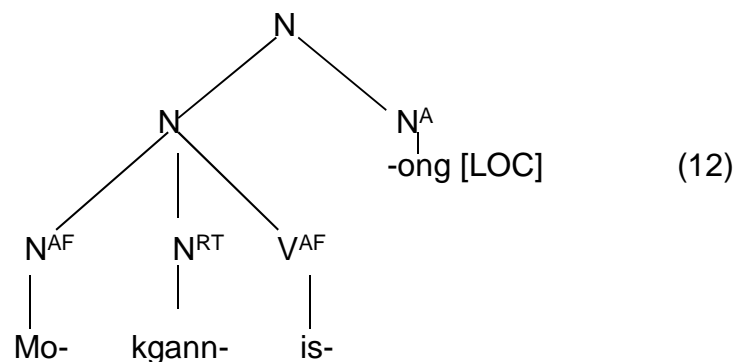
A noun root (Kgann-) is followed by a causative suffix (-is-) and a reciprocal (-an-) to form the noun (Kgannisano) and the noun ends with a deverbative suffix (-o). In this case, (Kgann-) is the root followed by the causative (-is-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (11) below:

(xi) Kgann-is-an-o (*Turn-taking drive*)



A derivational prefix (Mo-) comes before a noun root (-kgann-) followed by a causative suffix (-is-) forming the noun (Mokgannisong) and the noun ends with a locative suffix (-ong). In this case (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the causative suffix (-is-) and the locative suffix (-ong) as indicated by the diagram in (12) below: This combination is not commonly used.

(xii) *Mo-kgann-is-ong (*Driving place*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root that comes before inflectional suffix(es) then a closing vowel. The noun can further be derived from other inflectional morphemes where the applicative and the reciprocal suffixes are attached to the root and in other instances there is only one causative occurring after the root then the locative closes. In this case, the derivational morpheme comes before the root, and the inflectional morphemes follow the root or the root is followed by the inflectional morphemes then ends with the derivational morpheme.

d. *apara* (*Wear*)

Lexical entry:

Category [+V – N]

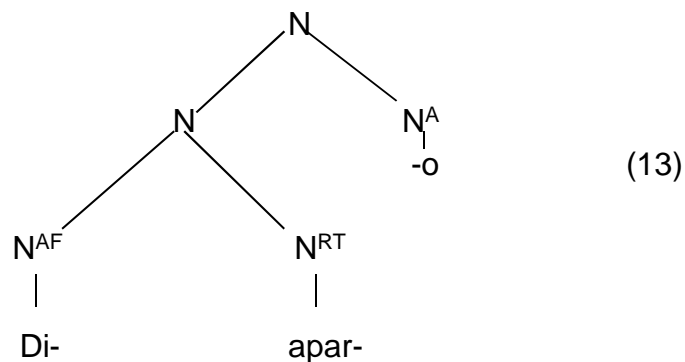
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

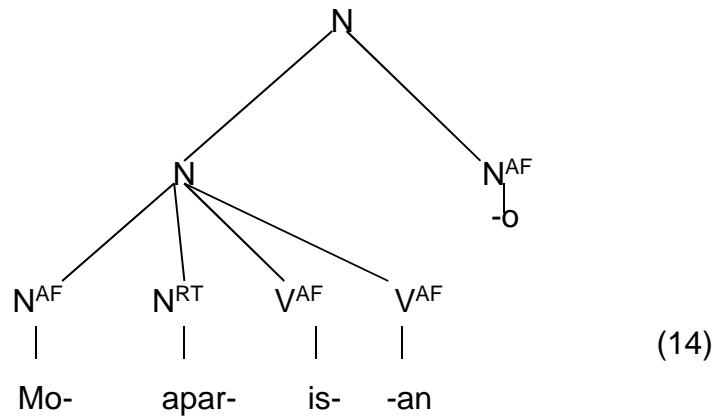
A derivational prefix (Di-) precedes a noun root (-apar-) to form the noun (Diaparo) and the noun ends with a suffix (-o). In this case (Di-) is a nominal derivational morpheme which marks number and it comes before the root, followed by the suffix (-o) as indicated by the diagram in (13) below:

(xiii) Di-*apar*-o (*Clothes*)



A derivational prefix (Mo-) comes before a noun root (-apar-) followed by a causative suffix (-is-) and a reciprocal (-an-) to form the noun (Moaparisano) and the noun ends with a suffix (-o). In this case, (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the causative suffix (-is-) and the reciprocal suffix (-an) that ends with the deverbative suffix (-o) as indicated by the diagram in (14) below: This combination is not commonly used in Sesotho.

(xiv) *Mo-*apar-is-an*-o (*A process of wearing each other's clothes*)



Analysis: In the examples given above, the noun class prefix is the derivational morpheme, followed by the root then the closing vowel as in (Diaparo). The noun can further be derived from other inflectional morphemes where the causative and the reciprocal suffixes are attached to the root. In this case, the derivational morpheme comes before the root, and the inflectional morphemes follow the root then ends with the derivational morpheme.

e. roka (Sew)

Lexical entry:

Category [+V – N]

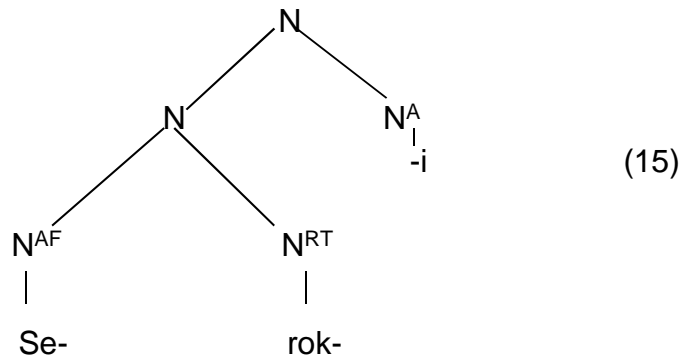
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

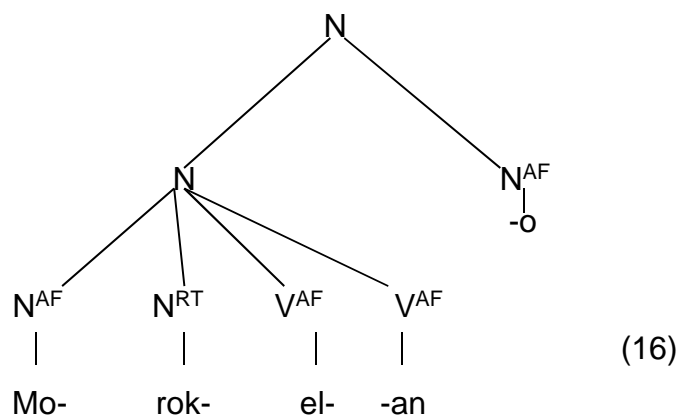
A derivational prefix (Se-) precedes a noun root (-rok-) to form the noun (Seroki) and the noun ends with a suffix (-i). In this case (Se-) becomes a nominal derivational morpheme that comes before the root, followed by the suffix (-i) after the root as indicated by the diagram in (15) below:

(xv) Se-rok-i (*Tailor*)



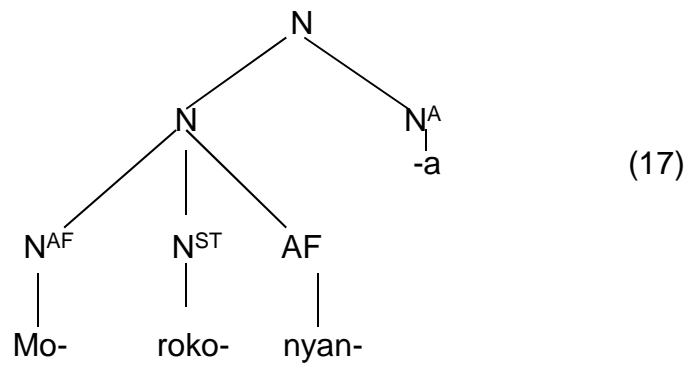
A derivational prefix (Mo-) is followed by a noun root (-rok-) that precedes an applicative suffix (-el-) and a reciprocal (-an-) to form a noun (Morokelano), and the noun ends with a suffix (-o). In this case (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the applicative suffix (-el-) and reciprocal (-an-) followed by the closing vowel (-o) as indicated by the diagram in (16) below:

(xvi) Mo-rok-el-an-o (*A process of sewing for each other*)



A derivational prefix (Mo-) is followed by a noun stem (-roko-) that precedes a diminutive affix (-nyan-) to form a noun (Morokonyana), and the noun ends with a suffix (-a). In this case (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the diminutive affix (-nyan-) then closes with (-a) as indicated by the diagram in (17) below:

(xvii) Mo-roko-nyan-a (*A little seam*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the stem that comes before diminutive affix then a closing vowel. The noun can further be derived from other inflectional morphemes where the applicative and the reciprocal suffixes are attached to the root and the noun ends with the suffix. In this case, the derivational morpheme comes before the root or the stem, and the inflectional morphemes follow the root or the diminutive affix follows the stem then a closing vowel follows.

f. eta (*Visit*)

Lexical entry:

Category [+V – N]

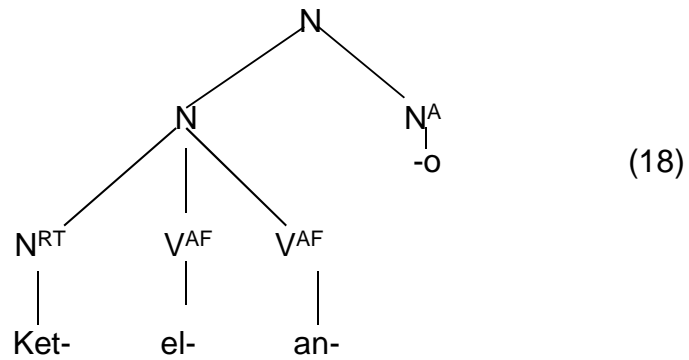
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

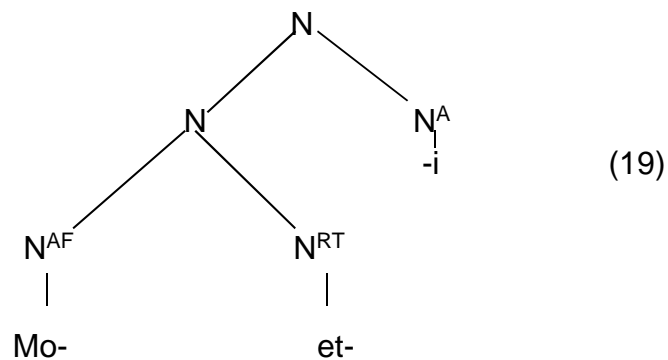
A noun root (Ket-) is followed by an applicative suffix (-el-) and a reciprocal (-an-) to form the noun (Ketelano) and the noun ends with a deverbative suffix (-o). In this case, (Ket-) is the root followed by the applicative (-el-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (18) below:

(xviii) Ket-el-an-o (*A process of visiting each other*)



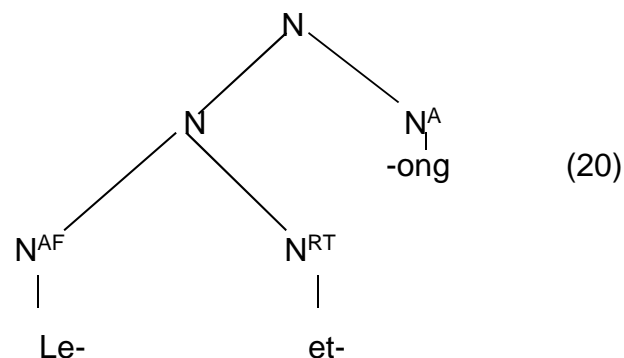
A derivational prefix (Mo-) comes before a noun root (-et-) to form the noun (Moeti) and the noun ends with a nominal suffix (-i). In this case (Mo-) is a nominal derivational morpheme and it comes before the root, followed by the closing vowel (-i) as indicated by the diagram in (19) below:

(xix) Mo-et-i (*Visitor*)



A derivational prefix (Le-) comes before a noun root (-et-) to form the noun (Leetong) and the noun ends with a locative suffix (-ong). In this case (Le-) is a nominal derivational morpheme that comes before the root, followed by the locative suffix (-ong) as indicated by the diagram in (20) below:

(xx) Le-et-ong (*In a journey*)



Analysis: In the examples given above, the noun class prefix is the derivational morpheme, followed by the root then the closing vowel as in (Moeti). The noun can further be derived from other inflectional morphemes where the applicative and the reciprocal suffixes are attached to the root and the locative suffix can be used. In this case, the derivational morpheme comes before the root followed by the closing vowel; the root precedes the inflectional morphemes followed by deverbative suffix and the noun class prefix occur before the root followed by the locative suffix.

g. ema (*Stand*)

Lexical entry:

Category [+V – N]

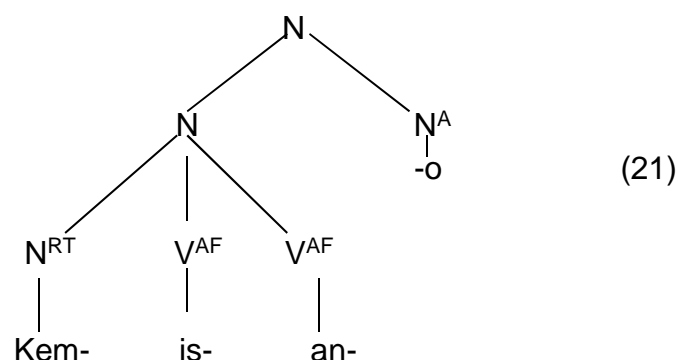
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

A noun root (Kem-) is followed by a causative suffix (-is-) and a reciprocal (-an-) to form the noun (Kemisano) and the noun ends with a deverbative suffix (-o). In this case, (Kem-) is the root followed by the causative (-is-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (21) below:

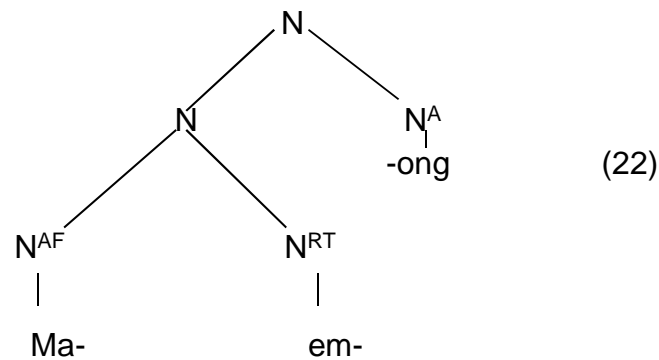
(xxi) Kem-is-an-o (*A process of waiting for one another*)



A derivational prefix (Ma-) comes before a noun root (-em-) to form the noun (Maemong) and the noun ends with a locative suffix (-ong). In this case (Mo-) is a

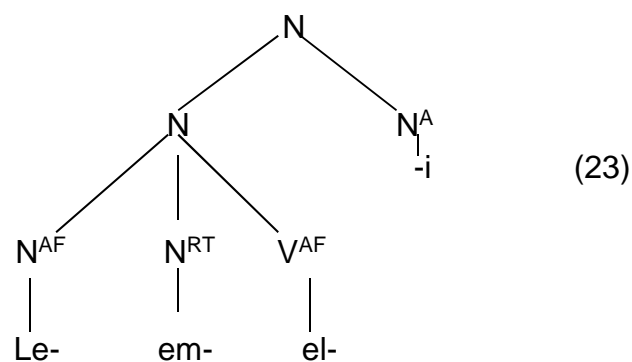
nominal derivational morpheme and it comes before the root, followed by the locative suffix (-ong) as indicated by the diagram in (22) below:

(xxii) Ma-em-ong (*In a situation*)



A derivational prefix (Le-) comes before a noun root (-em-) followed by an applicative (-el-) to form the noun (Leemedi) and the noun ends with a suffix (-i). In this case (Le-) is a nominal derivational morpheme and it comes before the root, followed by the applicative suffix (-el-) ending with (-i) as indicated by the diagram in (23) below:

(xxiii) Le-em-el-i (*Pronoun*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root that comes before the causative and the reciprocal suffixes then a closing vowel. The noun can further be derived from other inflectional morphemes where the applicative suffix is attached to the root and the noun ends with the suffix. The locative can also be attached to the root as a suffix. In this case, the derivational morpheme comes before the root, followed by the inflectional morphemes.

h. rua (Rich)

Lexical entry:

Category [+V – N]

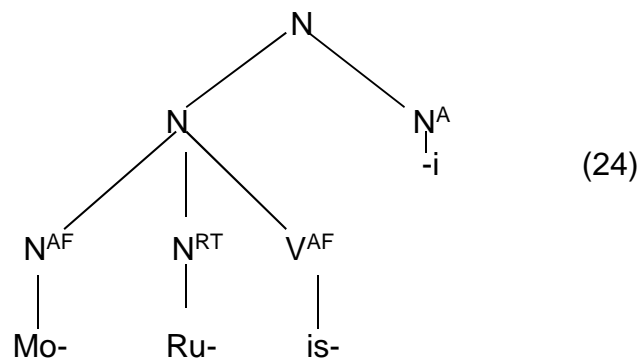
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

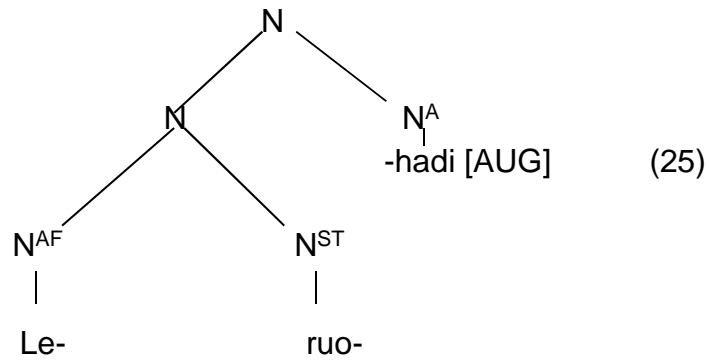
A deverbative prefix (Mo-) comes before a noun root (-ru-) to form the noun (Moruisi) and the root is followed by a causative suffix (-is-) and the noun ends with a nominal suffix (-i). In this case (Mo-) is a deverbal morpheme that comes before the root, followed by the causative (-is-) then closes with the vowel (-i) as indicated by the diagram in (24) below:

(xxiv) Mo-ru-is-i (*Enricher*)



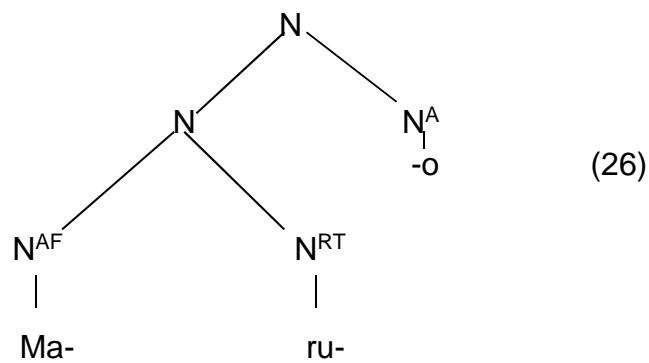
A derivational prefix (Le-) occurs before a noun stem (-ruo-) to form the noun (Leruohadi) and the noun ends with an augmentative affix (-hadi). In this case (Le-) is a nominal derivational morpheme that comes before the stem, followed by the augmentative affix (-hadi) as indicated by the diagram in (25) below:

(xxiv) Le-ruo-hadi (*Great wealth*)



A derivational prefix (Ma-) comes before a noun root (-ru-) to form the noun (Maruo) and the noun ends with a nominal suffix (-o). In this case (Ma-) is a nominal derivational morpheme and it comes before the root, followed by the closing vowel (-o) as indicated by the diagram in (26) below:

(xxv) Ma-ru-o (*Wealths*)



Analysis: In these examples, the noun class prefix becomes a deverbative morpheme, followed by the root that comes before the causative suffix then a closing vowel. The noun can further be derived using the augmentative affix next to the root as a suffix of the noun. And the noun class prefix can also precede the root followed by the closing vowel. In this case, the derivational morpheme comes before the root, followed by the inflectional morpheme.

i. bina (*Sing*)

Lexical entry:

Category [+V – N]

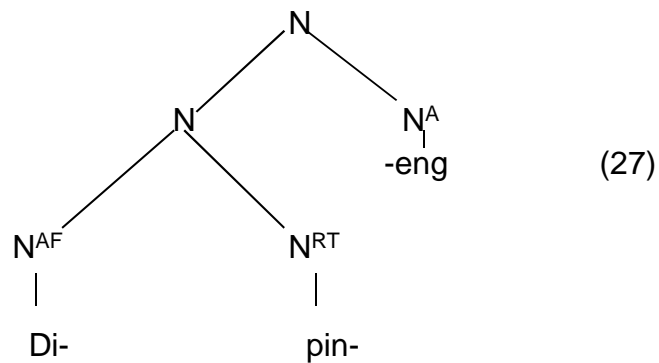
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

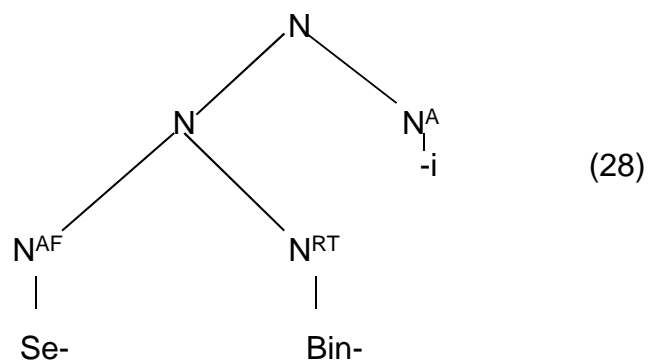
A derivational prefix (Di-) comes before a noun root (-pin-) followed by a locative (-eng) to form the noun (Dipineng). In this formation, (Di-) is a nominal derivational morpheme and it comes before the root, followed by the locative (-eng) as indicated by the diagram in (27) below:

(xxvi) Di-pin-eng (*On the songs*)



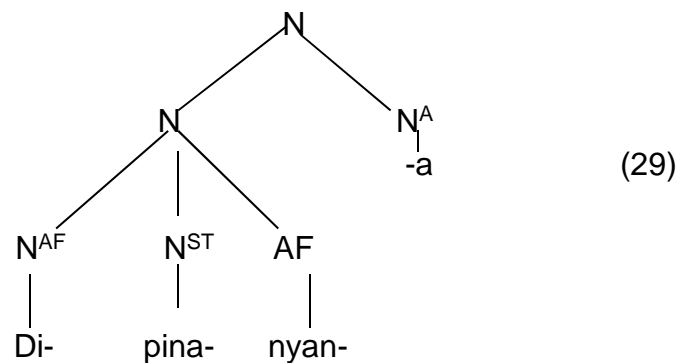
A derivational prefix (Se-) comes before a noun root (-bin-) to form the noun (Sebini) and the noun ends with a suffix (-i). In this case (Se-) is a nominal derivational morpheme and it comes before the root, followed by the suffix (-i) as indicated by the diagram in (28) below:

(xxvii) Se-bin-i (*Singer*)



A derivational prefix (Di-) is followed by a noun stem (-pina-) that precedes a diminutive affix (-nyan-) to form a noun (Dipinanyana), and the noun ends with a suffix (-a). In this case (Di-) is a nominal derivational morpheme and it comes before the root, followed by the diminutive affix (-nyan-) then closes with (-o) as indicated by the diagram in (29) below:

(xxviii) Di-pina-nyana (*Little songs*)



Analysis: The above examples show that the noun class prefix is the derivational morpheme, followed by the root that comes before a closing vowel. The noun can further be derived using the diminutive affix next to the root. And the noun class prefix can also precede the root followed by the closing vowel. In this case, the derivational morpheme comes before the root, followed by the diminutive affix next to the suffix.

j. *bu* (*Speak*)

Lexical entry:

Category [+V – N]

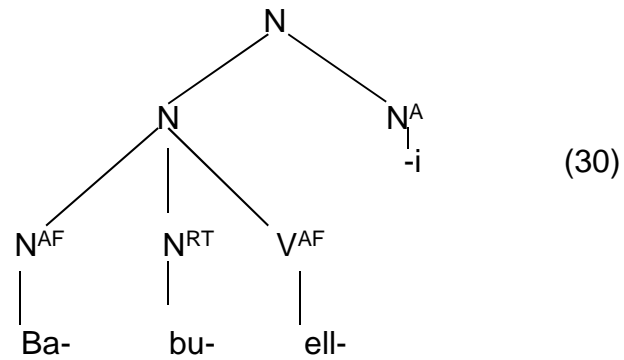
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

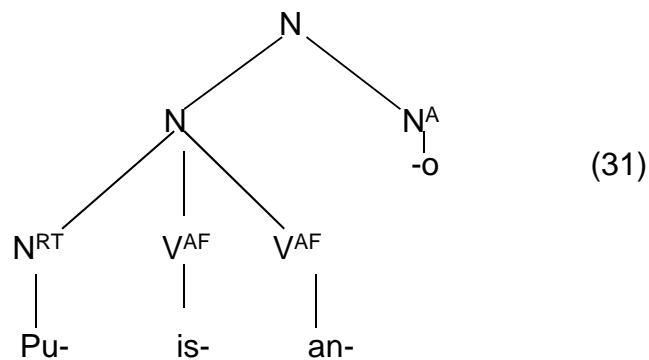
A derivational prefix (Ba-) occurs before a noun root (-bu-) followed by an applicative suffix (-ell-) to form the noun (Babuelli) and the noun ends with a suffix (-i). In this case (Ba-) is a nominal derivational morpheme and it comes before the root, followed by the applicative suffix (-ell-) ending with (-i) as indicated by the diagram in (30) below:

(xxix) Ba-bu-ell-i (*Attorneys*)



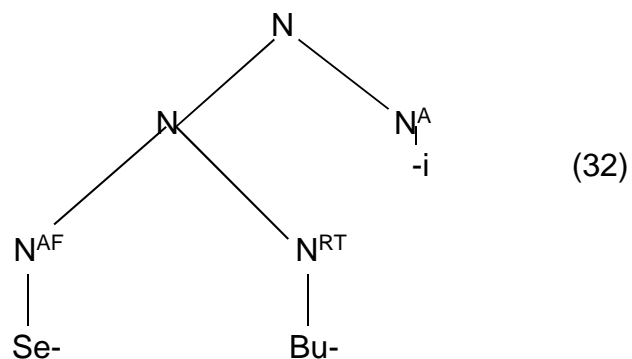
A noun root (Pu-) is followed by causative suffix (-is-) and reciprocal (-an-) to form the noun (Puisano) and the noun ends with a deverbative suffix (-o). In this case, (Pu-) is the root followed by the causative (-is-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (31) below:

(xxx) Pu-is-an-o (*Communication*)



A derivational prefix (Se-) comes before a noun root (-bu-) to form the noun (Sebui) and the noun ends with a suffix (-i). In this case (Se-) is a nominal derivational morpheme and it comes before the root, followed by the suffix (-i) after the root as indicated by the diagram in (32) below:

(xxxi) Se-bu-i (*Speaker*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root that comes before the causative suffix and the reciprocal then a closing vowel. The noun can further show derivation by class prefix next to the root on the left hand side. In this case, the derivational morpheme comes before the root, and the inflectional morpheme follow the root. Where the prefix is absent, the root is followed by the inflectional morphemes and the deverbative suffix.

k. tsoma (*Hunt*)

Lexical entry:

Category [+V – N]

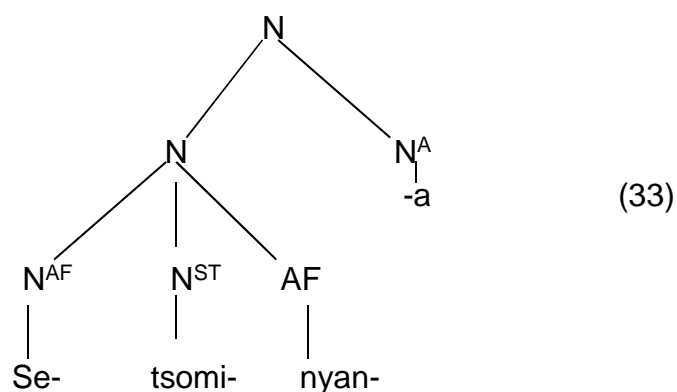
Sub-category [– NP]

Meaning [Agent] + [Theme]

Derivation:

A deverbative prefix (Se-) is followed by a noun stem (-tsomi-) that precedes a diminutive affix (-nyan-) to form a noun (Setsominyana), and the noun ends with a suffix (-a). In this case (Se-) is a nominal derivational morpheme and it comes before the root, followed by the diminutive affix (-nyan-) then closes with (-a) as indicated by the diagram in (33) below:

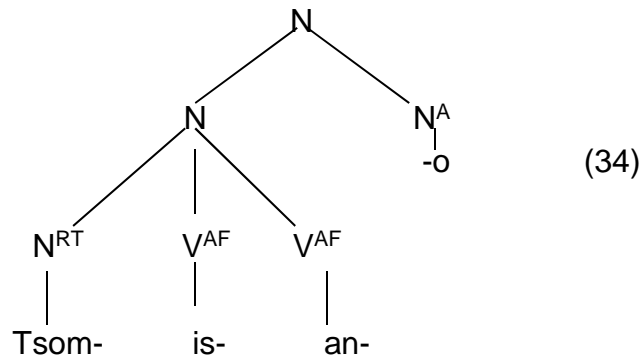
(xxxvi) Se-tsominyana (*A little hunter*)



A noun root (Tsom-) is followed by causative suffix (-is-) and reciprocal (-an-) to form the noun (Tsomisano) and the noun ends with a deverbative suffix (-o). In this case,

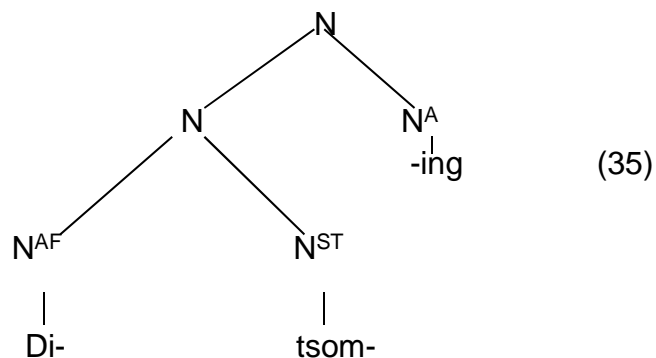
(Tsom-) is the root followed by the causative (-is-) and the reciprocal (-an-) that come before the suffix (-o) as indicated by the diagram in (34) below:

(xxxiii) Tsom-is-an-o (*A hunt with one another*)



A derivational prefix (Di-) comes before a noun root (-tsom-) followed by a locative (-ing) to form the noun (Ditsoming). In this case (Di-) is a nominal derivational morpheme and it comes before the root, followed by the locative (-ing) as indicated by the diagram in (35) below:

(xxxiv) Di-tsom-ing (*At the hunters*)



Analysis: In these examples, the noun class prefix is the derivational morpheme, followed by the root that comes before the causative suffix and the reciprocal then a closing vowel. The noun can be derived further by attaching the locative and the diminutive next to the root. In this case, the derivational morpheme comes before the root, and the inflectional morphemes follow the root. Also, the locative and the diminutive function as the suffixes.

4.5 Conclusion

In this chapter, the sequence of deverbative nouns was examined by looking at both the linear and hierarchical arrangements to see whether Sesotho conform to Greenberg's clause, which stipulates that a derivation always occurs between the root and the inflectional morphemes.

The findings indicate that deverbative nouns can either have a prefix as a marker of derivation or the root can start the noun then ends with a deverbative suffix. Other noun affixes such as diminutives, augmentatives and locatives can be used as part of formation of new words.

It has also been observed that the most commonly used combinations in Sesotho deverbative nouns are [el + an] and [is + an], for instance:

[el + an]

Ba-tshwar-el-an-i in (VII)

Mo-rok-el-an-o in (XVI)

Ket-el-an-o in (XVIII)

[is + an]

Tshwar-is-an-o in (V),

Kgann-is-an-o in (XI),

Kem-is-an-o in (XXI),

Pu-is-an-o in (XXX)

Tsom-is-an-o in (XXXIII).

Furthermore, it has been observed that affixes such as diminutives and augmentatives always occur with a stem, here are the examples:

Mo-roko-nyana in (XVII)

Le-ruo-hadi in (XXIV)

Di-pina-nyana in (XXVIII) and

Se-tsomi-nyana in (XXXVI).

Moreover, what has been found is that Sesotho deverbatives can end with locatives [-eng and -ng] such as:

Tsheb-el-ets-ong in (IV)

Le-et-ong in (XX)

Ma-em-ong in (XXII)

Di-pin-eng in (XXVI)

Di-tsom-ing in (XXXIV).

The next chapter will include the summary and observations of the sequence of inflectional and derivational morphemes.

Chapter 5: Summary and Conclusion

The aim of the study was to observe and analyse the sequence of inflectional and derivational morphemes in Sesotho verbs and deverbative nouns. The central aim was also to investigate whether Greenberg's (1963) Universal 28 clause can apply to Sesotho word formation processes, looking only into verb phrases and deverbative nouns. This study argued that while Greenberg's (1963) Universal 28 may apply in Sesotho nominal derivations, it is not the case in Sesotho deverbative nouns (nouns formed from verbs). Sesotho data were used to illustrate that Sesotho derivational morphemes are basically noun class prefixes which appear at the beginning of the nouns or at the periphery of the nouns as locative derivational morphemes.

Chapter 1 served as an introduction where the aim was stated, the design and methodology and how the study was going to be organised. The second chapter reviewed previous studies on morphology and morphemes, two word categories and word-formation processes. Chapter three strictly dealt with the analysis concerning the sequence of inflectional morphemes and chapter four was about the analysis of the sequence looking at derivational morphemes.

This chapter will be divided into three sections, 5.1 observations of the sequence in inflectional morphemes, 5.2 observations of the sequence in derivational morphemes, and 5.3 conclusion.

5.1 Observations of the sequence in inflectional morphemes

The sequence of inflectional morphemes in Sesotho was analysed and examined in chapter 3. It was based on linear and hierarchical method using lexeme-morpheme based and X-bar theory. Eighteen verbs were tested on possible inflectional combinations.

Looking at the verbs in chapter 3, it is evident that Sesotho verbs always begin with a root then end with a verbal end like in 3.2 a.Kganna (*drive*) and d. Pheha (*cook*) and it is quite amazing that they all end with an "a". To examine possible combinations, verbal extensions such as causative, applicative, neuter, reversive, passive and reciprocal were used.

One verbal extension was used as an inflectional suffix in 3.2 (vii) rek-(is)-a (*sell*), this causative suffix extends the function of the verb and it occurs next to the root before the verbal end. The very same suffix (causative) can be combined with another suffix to extend the function, in 3.2 (XL) ngol-is-an-a (*Cause to write for each other*) and figure 40 proves it. According to the observed data, it is only causative and applicative that can occur simultaneously as in is+is and el+el following each other, look at 3.2 (xxi) pheh(-el-el)-an-a (*cooking for each other*). There is no instance where all verbal extensions occur together in the same Sesotho verb.

Furthermore, it has been observed that some combinations of verbal suffixes do not form grammatical word categories such as: tshwar-el-is-is-w-a in (XVI), pheh-el-is-a in (XX), pheh-el-el-an-a in (XXI), rut-el-w-an-a in (XXXIII), rut-is-is-an-a in (XXXIV), ngol-is-an-eh-a in (XLI), batl-el-an-el-a in (XLIII), em-is-is-el-w-a in (LXVI) and tsom-is-is-w-a in (LXXVI). This means, such words are not correct Sesotho constructions, even though they can be generated by morphological rules.

It has also been observed that while other combinations have plausible meaning, and they are possible combinations, they are not commonly used in Sesotho, for instance: tshwar-is-el-an-a in (XVII), tshwar-is-is-eh-a in (XVIII), sebets-is-el-an-a in (LI), rok-is-is-eh-a in (LVIII), rok-oll-an-a in (LX), bu-is-an-eh-a in (LXXIV) and bu-el-is-el-a in (LXXV).

Moreover, it has been observed that other combinations of verbal suffixes are possible and grammatical but not acceptable in Sesotho, here are the examples: pheth-el-an-el-w-a in (XXV), pheth-el-w-an-a (XXVII), pheth-is-is-an-a (XXIX), rut-eh-is-a (XXXV) and bin-el-w-an-a in (LXXI).

Now, the sequence and order of Sesotho inflectional morphemes is that, the root comes first followed by a verbal suffix or a combination of two to four of them then a verbal end. These formations do not change the word categories but their influence applies to syntax. A combination of both derivational and inflectional morphemes is also possible: where derivational morphemes are employed, word category changes as in the example in (i) below:

(i) Kgola (to *earn*) - **verb**

Mo -kgolo (*wage*) – **noun** = prefix /mo-/ is a nominal derivational morpheme

Mo-kgod – is –an- o (paying each other) = still a **noun** but two inflectional morphemes are added with no change in word category. This sequence does not concur with Greenberg's proposition: In this sequence we have derivational morpheme /mo-/ + root /kgol-/ + inflectional morpheme /-is-/ + inflectional morpheme /-an-/ + closing vowel /-o/. In Sesotho derivational morphemes are found at the beginning of the word as per the example above. On the other hand, the locative suffix /-ong/ does not change word category but brings along secondary function, which is that of being a locative adverb.

Mo-kgod-is –an-ong (at place of paying each other)

In a sense, this can also be regarded as derivational process where a noun has assumed a new function and name. This study will then argue that the sequence of morphemes in Sesotho does not conform to Greenberg's universal arrangement. Derivational morphemes are rather found in the periphery of the word as in the above example.

In terms of the X Bar scheme, the notion relativized head permits the possibility that words could have two heads, where inflectional endings on verbs must appear in head position, meaning that a verb and an inflectional affix complete for head position. The verb determines the argument structure of the whole and the affix passes up its inflectional features. In this way the verb (kgol-) will be the head of the argument structure while the affixes (-is-) and (-ng) will be heads of the inflectional features.

5.2 Observations of the sequence in derivational morphemes

In chapter 4, Sesotho data were examined on the sequence of derivational morphemes based on deverbatives (nouns formed from verbs). The test was on linear and hierarchical methods like in chapter 3.

Firstly, Sesotho verbs were used to derive nouns according to particular noun classes. After the formation of deverbative nouns, the sequence was examined on possible combinations that a deverbative can have by extending it. In 4.4 (i), a noun *mosebetsi (work)* was derived from the verb *sebetsa (work)*, a prefix *mo-* was attached to the root *–sebets-* and the suffix changed to *–i*. The noun was extended by adding inflections

like in 4.4 (ii) where applicative (-el-) co-occurred with reciprocal (-an-) mosebeletsano (*When people work for each other*).

According to the tests, it could be easily seen that Sesotho derivations are at the beginning as prefixes and at the end as suffixes. This remained the same even though the same nouns were inflected. In 4.4 (viii) ba-tshwar-el-an-i (*forgivers*) was derived from a verb tshwara (*hold*), deverbative prefix precedes the root then what follows is two inflections (applicative and reciprocal) which occur before deverbative suffix -i.

There are other instances where derivation did not allow the prefix, however a deverbative suffix marked the derivation. It means that even if there is no prefix the noun can still be seen as derived because of the suffix, it is clear that prefixes are not the only determiners of noun derivation in Sesotho. This was tested in 4.4 (xi) kgann-is-an-o (*turn-taking drive*) and 4.4 (xxx) pu-is-an-o (*communication*), it happens when the root is combined with causative followed by a reciprocal then -o will have to be a deverbative suffix.

It has also been observed that the most commonly used combinations in Sesotho deverbative nouns are [el + an] and [is + an], for instance: Ba-tshwar-el-an-i in (VII), Mo-rok-el-an-o in (XVI) and Ket-el-an-o in (XVIII) for the former and Tshwar-is-an-o in (V), Kgann-is-an-o in (XI), Kem-is-an-o in (XXI), Pu-is-an-o in (XXX) and Tsom-is-an-o in (XXXIII) for the latter.

Furthermore, it has been observed that affixes such as diminutives and augmentatives occur with a stem in most cases, here are the examples: Mo-roko-nyana in (XVII), Leruo-hadi in (XXIV), Di-pina-nyana in (XXVIII) and Se-tsomi-nyana in (XXXVI).

Moreover, what has been found is that Sesotho deverbatives can end with locatives [-eng and -ng] such as: Tsheb-el-ets-ong in (IV), Le-et-ong in (XX), Ma-em-ong in (XXII), Di-pin-eng in (XXVI) and Di-tsom-ing in (XXXIV).

The tests reveal a different thing from what Greenberg's (1963) clause 28 says. Using the same examples of Sesotho given above, it is conspicuous that both inflection and derivation follow the root but inflection turns to be the one between the root and the derivation not the other way around. Take note that Greenberg's (1963) clause says 'if both the derivation and inflection follow the root, or they both precede the root, the

derivation is always between the root and the inflection'. The sequence or order of derivational morphemes in Sesotho will be as follows:

- (i) derivation + root + derivation (Mo-sebets-i) or
- (ii) derivation + root + inflection + derivation (Mo-kgann-is-o) or
- (iii) root + inflection + derivation, (Tshwar-el-o)

5.3 Conclusion

Both derivational and inflectional morphemes were examined to find the applicable order or sequence. It was imperative to examine Greenberg's (1963) clause because it is assumed to be universal, meaning it applies to all languages across the globe including African languages, and in our case Sesotho.

The findings indicate that Sesotho does not conform to that universal clause as stipulated by Greenberg (1963). According to the clause the sequence of morphemes will always be like this: *lexical root + derivational morpheme + inflectional morpheme*, if both the derivation and inflection come after the root or they both precede it the derivation is always between the root and the inflection in all languages. When coming to Sesotho, it is different because the tested sequence of morphemes is as follows: (1) *lexical root + inflection + derivation* or (2) *derivation + lexical root + inflection + derivation*. This is because Sesotho as one of the African languages is an agglutinative language using noun class prefixes as nominal derivational morphemes. In Sesotho deverbative nouns, inflectional morphemes are allowed to appear within nouns as nominal inflectional morphemes which do not affect the change in word category.

BIBLIOGRAPHY

- Acha, Joana. 2009. Reading development in agglutinative languages: Evidence from beginning, intermediate, and adult basque readers. *Journal of experiment child *psychology* 105: 359-375, 2009. © 2009 Elsevier Inc.
- Aronoff, M. 1992. *Morphology now*. Albany, N.H: State University of New York Press.
- Baker, M. 2011. *In other words*. A coursebook on translation [2nd ed]. London and New York: Routledge.
- Bauer, Laurie. 1983. *English Word-formation*. Cambridge: Cambridge University Press.
- Beard, R.1982. *The plural as a lexical derivation*. *Glossa* 16: 133-148.
- Beard, R.1995. *Lexeme - Morpheme Base Morphology*. New York: SUNY Press.
- Benjamin, F. Elson & Velma, B. Pickett. 1988. *Beginning Morphology and Syntax*. United States: Sil International, Global Publishing.
- Blake, B.1994. *Case*. Cambridge: Cambridge University Press.
- Blake, N.F & Moorhead, J. 1993. *Introduction to English Language*. London: Palgrave Macmillan.
- Bosch, E. & Eiselen, R. 2005. *The effectiveness of morphological rules for an isiZulu spelling checker*. Pretoria: University of South Africa.
- Bosch, S. Fellbaum, C & Pala, K. 2008. Derivational relations in English, Czech and Zulu wordnets. *Literator* 29(1) April 2008: 139-162
- Bubenik, Vit. 2003. *An Introduction to the study of morphology*. München: Lincom Europa.
- Du Plessis, J.A. & Visser, M.W. 1992. *Xhosa Syntax*. Pretoria. Via Afrika.

Du Plessis, J.A. & Visser, M.W. 1995. *Sesotho Syntax*. Stellenbosch Communications in African Languages. Stellenbosch: University of Stellenbosch.

Du Plessis, J.A. 1997. *Morphology of the African Languages*. Stellenbosch Communications in African Languages. Stellenbosch: University of Stellenbosch.

Faaß, G, Bosch, S. & Taljard, E. 2015. Implementation of a part-of-speech ontology: morphemic units of Bantu languages. *Nordic Journal of African Studies* 21(3) 118–140.

Greenberg, H. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In: Id. (ed.) *Universals of Language*. Cambridge Mass: MIT Press, 73-113.

Guma, S.M. 1995. *An outline structure of Southern Sotho*. Pietermaritzburg. Shutter and Shooter (Pty) Ltd.

Haspelmath, M. 2002. *Understanding morphology*. New York: Oxford University Press.

Katamba, F. 1993. *Morphology*. London: Palgrave Macmillan

Kosch, I.M. 2006. *Topics in Morphology in the African Language context*. Pretoria: Unisa Press.

Kosch, I.M. 2011. *Descriptive issues of derivation and inflection in Sesotho sa Leboa (Northern Sotho) with particular reference to 'number'*. *Southern African Linguistics and Applied Language Studies*, 29:1, 89-96.

Krüger, C.J.H. 2006. *Introduction to the morphology of Setswana*. Lincom studies in African linguistics 69. Munich: Lincom Europa.

Lieber, R. 1954. *Deconstructing Morphology: word formation in syntactic theory*. Chicago: The University of Chicago Press.

Lombard, D.P, Van Wyk, E.B & Mokgokong, P.C. 1985. *Introduction to the grammar of Northern Sotho*. Pretoria: Van Schaik.

Marchand, H. 1969. *The categories and types of present-day English word-formation*. München: Carl Beck.

Matthews, P.H. 1974. *Morphology: An Introduction to the theory of word-structure*. Cambridge: Cambridge University Press.

Mletshe, L.K. 2010. *Deverbal nominals in Xhosa*. D.Phil. (African Languages). Stellenbosch: Stellenbosch University.

Poulos, G. & Msimang, C.T. 1998. *A Linguistic study of Zulu*. Pretoria: Via Afrika Limited.

Pretorius, R. 2014. *The sequence and productivity of Setswana verbal suffixes*. Stellenbosch Papers in Linguistics Plus, Vol. 44, 2014, 49-70.

Radford, A. 1997. *Syntactic theory and the structure of English: A minimalist approach*. Cambridge: Cambridge University Press.

Ramone, P.M. 1992. *Ditransitive applied verbs in Southern Sotho*. Unpublished thesis.

Sciullo, A.M. & E. Williams. 1987. *On the Definition of Word*. Cambridge: MIT press.

Selkirk, E.O. 1982. *The Syntax of Words*. Cambridge, Massachusetts: MIT Press.

Spencer, A. 1991. *Morphological Theory: An introduction to word structure in generative grammar*. Cambridge, Massachusetts: Blackwell.

Wurzel, W.U. 1989. *Inflectional morphology and naturalness*. Netherlands: Springer

Ziervogel, D & Mabuza, E.J. 1976. *A Grammar of the Swati Language (siSwati)*. J.L, Van Schaik Limited.