

THE LEMMATIZATION OF TSHIVENḐA LEXICAL ITEMS

BY

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DECLARATION

I, AVHAVHUDZANI VIRGINIA MANTSHA declare that the dissertation **-THE LEMMATIZATION OF TSHIVENDA LEXICAL ITEMS-** is my own work and that all the sources that I have used have been acknowledged by means of complete references.

.....
AVHAVHUDZANI VIRGINIA MANTSHA

.....
DATE

DEDICATION

This research is dedicated to my husband Aifheli Ozni Magoloi, children Vhulenda Vhuhwavho Magoloi and Vhulondo Magoloi, Grandmother Kutame Mutsharini Mphaphuli and Mantsha family who have always stood by me and dealt with my absence from many family occasions with a smile.

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ABSTRACT

The study focuses on the lemmatization of lexical items in Tshivenda. It was conducted by reviewing selected Tshivenda dictionaries and the lexical items investigated were nouns, locatives, verbs and adjectives. The analysis looked at the approaches used in the macro- and micro-structural treatment of these important lexical items in dictionaries. The study also covered the treatment of the morphological, syntactical and semantic aspects of these lexical items in Tshivenda.

This research ended with recommendations that will help dictionary compilers to overcome challenges they experience when lemmatizing nouns, locatives, verbs and adjectives.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This study focuses on the treatment of lexical items in Tshivenda dictionaries and it was conducted by reviewing Wentzel and Muloiwa's *Improved Trilingual Dictionary* (1982), Van Warmelo's *Venda Dictionary* (1989), Tshikota's *Tshivenda/English Dictionary* (2006) and Tshikota's *Thalusamaipfi ya luamboluthihi ya Tshivenda* (2010). The following lexical items were investigated: nouns, locatives, verbs, and adjectives. The analysis looked at approaches used in the macro- and micro-structural treatment of these important lexical items in dictionaries. The whole study was limited to the analysis of the entry and treatment of these lexical items with special reference to Tshivenda dictionaries. The study will help to develop a theoretical framework as to how lexical items should be treated in Tshivenda dictionaries; as well as the morphological, syntactical and semantic aspects of these lexical items.

1.2 RESEARCH PROBLEMS

According to Wiegand (1977b) as quoted by Tshikota (2000:15), the sole purpose of compiling dictionaries is to meet the needs of their users. The users can be grouped from learners to advanced users; all of whom have different skills in using dictionaries. The compilers must write dictionaries to meet the needs of these users; that will enable users to retrieve the correct meaning of lexical items. Tshivenda dictionary compilers however wrote dictionaries that in some cases did not meet the needs of the users.

For example, in Van Warmelo's (1989) dictionary, verbs and adjectival stems are hyphenated and dictionary users may not know the difference between verbs and adjectival stems.

For example:

- (1) (a) **-babamela** flutter (Van Warmelo, 1989:6)
(b) **-gada** (Eng.) guard, watch (Van Warmelo, 1989:63)

- (2) (a) **-tswu** (adj.; 9,10) black; dark in colour (Van Warmelo, 1989:443)
(b) **-vhi** (adj.; cl 9, 10) bad, evil

In examples (1a and b) and (2a and b), Van Warmelo's treatment of verbs and adjectival stems is the same. Dictionary users may be unable to retrieve the correct meanings as they will not know the difference in usage of these lexical items. Therefore, the study will try to rectify this approach of hyphenating both verbs and adjectival stems.

The compilers must develop a common and accurate pattern of treatment of lexical items in their dictionaries. The process of compiling lexical items in Tshivenda dictionaries starts with the selection of lemmas to be treated. Lexical items are arranged in alphabetical order, either vertical or horizontal, at times with strict alphabetical order in, before or after the sinuous file. According to Tshikota (2000:28), vertical ordering maintains the strict alphabetical arrangement of lexical items but in the horizontal ordering there is no strict alphabetical arrangement. Therefore, horizontal ordering of lexical items confuses users because lemmas are treated according to morph-semantic field which some dictionary users cannot handle (Tshikota, 2000:28).

For example:

- (3) **haya** 17 (pl.mah) home, in general; locat. **hayani** home, specific (Van Warmelo, 1989:82)

In example (3), Van Warmelo uses horizontal ordering of lexical items. Lemma 'hayani' which is a locative is treated as an article structure of lemma 'haya' which is a noun. This treatment according to morph-semantic field confuses users. Therefore, the study will attempt to rectify this dictionary treatment of lemmas.

Other issue of equal importance to be undertaken by this research is how to define lexical items. This aspect is part of the micro-structural component of dictionaries while micro-structural component is an information category which deals with semantic and pragmatic information (Tshikota, 2000:9). Semantic information is provided by a description of meaning and semantic relations. Lexicographical definitions, polysemy and homonymy fall under semantic relations and pragmatic information deals with lexicographical labels, examples and citations or quotations. Zgusta (1971: 257-258) states that lexicographical definitions are guided by four principles, namely:

- All words used in a definition should be described elsewhere in that particular dictionary.
- The definitions should not contain words that are more difficult to understand than the definiendum itself.
- The definiendum itself or derivations or combinations thereof may not be used in the definiens, unless they are defined separately.
- The definiens should correspond to the lexical category of the definiendum where possible.

Lexicographical definitions can be divided into descriptive definitions and synonymy definitions. Descriptive definitions include generally descriptive definitions, genus differentia definitions and circular definitions. What Zgusta suggests apply mostly in monolingual dictionaries, translation dictionaries only give the translation equivalents. In some cases, Tshivenda dictionaries did not follow what Zgusta has suggested.

For example:

(4) (a) **madoni** *dzin* vhuswa vhune ha bikiwa nga vhukhopfu ha mavhele a no bva tshisikuni (Tshikota, 2010:83)

(b) **mudzungu** *dzin* mukusule wa phuri (Tshikota, 2010:197)

In examples (4a and b) Tshikota (2010)'s definitions are not guided by the principle that says all words used in a definition should be described elsewhere in that particular dictionary. In example (4a) words like **bikiwa** and **tshisiku** were not described elsewhere in the dictionary. And in (4b) all the words except **wa** were also not described elsewhere in a dictionary. This indicates the unsatisfactory treatment of lexicographical definitions because these definitions are not guided by the principle that Zgusta has suggested above. Therefore, this study will try to rectify this type of treatment.

The lexical items of a language, according to Gouws (1991:74) are regarded as potential lemmas; however not all words qualify as lexical items. Words that occur only as components of multiword lexical items should not themselves be regarded as lexical items. Before selecting lemmata for a specific dictionary the lexicographer must specify the linguistic criteria according to which these lexical items are identified; these criteria will determine the choice of lemmas. Different types of lexical items are treated in dictionaries as different types of lemmata. Words are treated as lexical lemmata, sub-word lexical items as sub-lexical lemmata and multiword lexical items as multi-lexical lemmata. There are some Tshivenda dictionaries that did not follow what Gouws has suggested. They regard words that occur only as components of multiword lexical items as lexical items. For example:

(5) **-u zwa** (musanda lang., of chief only) wash own person or garment. A caus.of *-uvha<-kuvha wash (Van Warmelo, 1989: 447)

In example (5) Van Warmelo (1989) regards **-u zwa** as a lexical item whereas those words are components of an infinitive from class (15), and **u zwa** is a language of the royal family which means 'to speak'. A proper treatment should have been as follows:

(6) **zwa** – speak (royal)

Dictionaries do not treat many of the lemmata with a limited lexicographic treatment. These are the variant lemmata, synonym lemmata and self-explanatory lemmata. The variant lemmata include the variant of a lexical item. The treatment of variant

lemmata is given in the article of one of these lemmata. The other lemmata which have a limited lexicographic treatment would be indicated by a cross-reference to the lemma where the full treatment is given. But some of the Tshivenda dictionaries have not done this.

For example:

(7) bafu (bavu) *dzin* bath, tub (Tshikota, 2006:4)

(8) garadzhi/giradzhi/giratshi (dzi-) cf Afr garage/garage (Wentzel and Muloiwa, 1982:18)

In examples (7) and (8) Tshikota (2006) and Wentzel and Muloiwa (1982) did not treat variant lemmata with a limited lexicographic treatment. They both grouped together variant lemmata in one article as in self-explanatory lemmata instead of giving full treatment to the variant lemma that is frequently used and indicate the other one by a cross-reference.

A proper treatment should have been as follows:

(9) bavu - bath, tub

bafu - **see** bavu

(10) garadzhi - garage

giradzhi - **see** garadzhi

giratshi - **see** garadzhi

In some cases, Wentzel and Muloiwa (1982) indicate variant lemmata by a cross-reference. For example:

(11) giradzhi cf garadzhi (Wentzel and Muloiwa, 1982:18)

giratshi cf garadzhi (Wentzel and Muloiwa, 1982:18)

These two different approaches of treating variant lemmata by Wentzel and Muloiwa (1982) indicate that there is inconsistency in the treatment of variant lemmata and this study will try to rectify this by giving an effective strategy of treating variant lemmata.

Synonym lemmata also have a limited treatment in today's dictionaries according to Tshikota (2000:16). They may be provided as word lists. Only the synonym with the higher usage frequency will receive a comprehensive treatment and the synonym with lesser frequency gets a cross-reference; the synonym with the higher usage frequency will be written first. Tshivenda dictionaries treat synonym lemmata as follows:

- (12) (a) **fobvu** (ma-) dief/thief (Wentzel and Muloiwa, 1982:16)
mbava (dzi-) dief/thief (Wentzel and Muloiwa, 1982:37)
- (b) **fobvu** (ma) *dzin* thief (Tshikota, 2006:20)
mbava (dzi) *dzin* thief (Tshikota, 2006: 34)

In examples (12a and b) Wentzel and Muloiwa (1982) and Tshikota (2006) did not give a limited treatment of synonym lemmata. Instead of giving a comprehensive treatment of the synonym with a higher usage frequency and cross-referencing the others with lesser frequency, they give comprehensive treatment to all synonyms. A proper treatment should have been as follows:

- (13) **fobvu** - see mbava
mbava - thief

According to Tshikota (2000:17), self-explanatory lemmata appear grouped together in one article and have internal alphabetical ordering. The dictionary user should be able to retrieve the meaning by looking at the meaning of its components. For example, for a lexical item that ends with the suffix **-ni**, a dictionary user of the source language will conclude that, that lexical item is a locative because of the locative suffix **-ni**.

The inclusion of lexical lemmata is determined by the typological criteria; these are words including the simplex and complex lexical lemmata. The sub-lexical lemmata are included in a dictionary in a haphazard and an arbitrary way (Gouws, 1997:3). These include the inclusion of stems and affixes. Sub-lexical lemmata form part of a lexical item but cannot function as lexical items. Multi-lexical lemmata, according to Gouws (1991a:77), are single lexical items consisting of more than one word. This category is constituted by certain loan words, idioms and fixed expressions and particle verbs. Loan word group includes words derived or borrowed from other languages without any change in form and pronunciation; multiword particle verbs are single lexical items that should be treated as multi-lexical lemmata (Gouws, 1991a:80).

1.3 AIM AND OBJECTIVES OF THE STUDY

1.3.1 Aim of the Study

The aim of this study is to investigate how lexical items have been lemmatized in Tshivenda dictionaries. This aim will be achieved by answering the following research questions:

Which approaches have been used when lemmatizing Tshivenda lexical items?

Which strategies are effective in the lemmatization of lexical items?

1.3.2 Objectives of the Study

The following are the objectives of the study:

- To find out the approaches used when lemmatizing Tshivenda lexical items.
- To identify effective strategies in the lemmatization of lexical items in Tshivenda dictionaries.

1.4 METHODOLOGY

In order to achieve the aim of the study, the researcher used qualitative method. In addition, from each of the selected dictionaries, pages were randomly selected and an investigative analysis was done on the basis of how each one of these dictionaries has treated lexical items. The discussions explored the traditional approach used by Tshivenda dictionaries in lemmatizing lexical items and the advantages and disadvantages of these lemmatization approaches in each dictionary.

1.4.1 Data Collection

Data was collected from existing dictionaries, namely, *Improved Trilingual Dictionary* (1982), *Venda Dictionary* (1989), *Tshivenda/English Dictionary* (2006) and *Thalusamaipfi ya luamboluthihi ya Tshivenda* (2010). A comparative analysis was also made to see how other dictionaries were written and their treatment of lexical items. In addition, information already documented by various scholars were consulted. These include information from books on theory of lexicography, papers presented at conferences, journals, dissertations, theses and internet.

1.4.2 Data Analysis

As a comparative research, the data analysis was descriptive and comparative in nature.

1.5 SIGNIFICANCE OF THE STUDY

This examination of the lemmatization of Tshivenda lexical items attempts to show dictionary compilers and users different approaches for lemmatizing Tshivenda lexical items. This study will, amongst others, contribute to knowledge on the treatment of lexical items in Tshivenda dictionaries. Such a research should have widespread relevance to the Tshivenda language.

In conclusion, one can say there is still a gap to be filled in Tshivenda dictionaries as far as the lemmatization of lexical items is concerned. Some of the Tshivenda dictionaries for example, lemmatize words that occur only as components of multiword lexical items which themselves are not regarded as lexical items while others did not give full treatment of variant lemmata and synonym lemmata.

1.6 ORGANIZATION OF THE STUDY

Chapter One serves as the introduction of the study where the aim, objectives and methodology received attention.

Chapter Two is the literature review where views of various scholars dealing with lemmatization of items come under scrutiny.

Chapter Three deals with the lemmatization of nouns and locatives. The emphasis here is on strategies that can be used effectively to reflect lexical items in dictionaries.

Chapter Four concentrates on the lemmatization of verbs and adjectives. As in Chapter Two, this Chapter also presents ways and means of listing verbs and adjectives in dictionaries so that users end up comprehending what is being presented.

Chapter Five presents the conclusion, summary, findings and recommendations of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The aim of this chapter is to present the views of various scholars on the lemmatization of lexical items. The chapter will highlight aspects such as ways that are utilised in the treatment of nouns, stems, affixation, adjectives and locatives. The chapter has concentrated on the works of a few prominent scholars in this field, such as Du Plessis (1996), Gouws and Prinsloo (1997) and Van Wyk (1995).

2.2 WAYS UTILISED IN THE TREATMENT OF NOUNS

Van Wyk (1995:85) is of the view that nouns pose no problem in the case of the word tradition. They are entered in their complete forms, that is, prefix plus stem, and classified under their prefixes. Van Wyk (1995:85) supports his thesis by using an example of the word **motho**, a Northern Sotho word for 'a person', consisting of the prefix **mo-** and the stem **-tho**. This word is consequently lemmatized as **motho**, and the related word for 'humanity', consisting of **bo-** and **-tho** as **botho**.

2.2.1 Lemmatization of nouns through noun class prefixes

Nouns in African languages such as Tshivenda are lemmatized through noun class prefixes. Du Plessis (1997:21) states that nouns in African languages are specified for certain noun classes and through prefixes which are also known as 'noun class prefixes'. Similarly, Tshikota (2000: 33) states that nouns in Tshivenda are classified according to the noun class prefixes when such prefixes are present. In other words, when these noun class prefixes are available they can be used to lemmatize nouns. Below are examples of class noun prefixes that are available in Tshivenda:

(1) Class 1 [MU-]

MU-THU

Class 2 [VHA-]	VHA-THU
Class 1a [-]	KHO-TSI
Class 2a [VHO-]	VHO-KHOTSI
Class 3 [MU-]	MU-RI
Class 4 [MI-]	MI-RI
Class 5 [L̥I-]	L̥I-IVHA
Class 6 [MA-]	MA-IVHA
Class 7 [TSHI-]	TSHI-ᵐNONI
Class 8 [ZWI-]	ZWI-ᵐNONI
Class 9 [N-]	KHOLOMO
Class 10 [DZI-N]	KHOLOMO
Class 11 [LU-]	LU-FHANGA
Class 14 [VHU-]	VHU-LUNGU
Class 15 [U-]	U- SHUMA
Class 16 [FHA-]	FHA-SI
Class 17 [KU-]	KU-LE
Class 18 [MU-]	MU-RAHU
Class 20 [KU-]	KU-BUDZI
Class 21 [ᵍI-]	ᵍI-KOLOMO

Furthermore, Tshikota (2000:33) indicates that dictionaries such as Van Warmelo's *Venda dictionary* (1989) and Wentzel and Muloiwa's *Improved Trilingual dictionary of Venda - Afrikaans - English* (1982) have captured nouns according to the above noun class prefix system, when such prefixes are present or by the initial sounds when such class prefixes are not present.

As far as Tshikota (2000:35) is concerned, the treatment of nouns as applied in Tshivenda dictionaries by using noun class prefixes could also be realised in other African language dictionaries such as Cuenod's *Tsonga-English Dictionary* (1967), Kriel and Van Wyk's *Pukuntsu* (1989) and *Pharos' Popular Northern Sotho dictionary*. The following examples confirm this idea:

- (2) (a) **Moroki**, snw dev kl.I LHL... (Kriel and Van Wyk, 1989: 170)
 (b) **Rendzo** 11 (or riendzo, pl. tiendzo) cf. -endza, journey.

(Cuenod, 1967: 172)

- (c) **Moroki**, one who sews (Kriel, Prinsloo and Sathegke, 1997: 180)

Again, Tshikota (2000:36) has indicated that the two Northern Sotho dictionaries and the Tsonga – English dictionary have, as well, treated the entry of the nouns by utilising the noun class prefixes. Lastly, Tshikota (2000:36) shows a similar treatment of nouns where the noun class prefixes have been applied for lemmatization in the dictionaries compiled by Kriel and Van Wyk (1989), Kriel, Prinsloo and Sathegke (1997), Cuenod (1967) Wentzel and Muloiwa (1982) and Van Warmelo (1989).

2.2.2 Lemmatization of nouns according to visible noun class prefixes

Visible noun class prefixes are used to lemmatize nouns as opposed to invisible noun class prefixes. Tshikota (2000: 34) argues that nouns in Tshivenda dictionaries may be treated according to visible noun class prefixes regardless of whether they are derived nouns or diminutives or augmentatives. Nouns in Tshivenda dictionaries may be treated according to visible noun class prefixes, for example, Class 1: (MU):

- (3) (a) **murungi** (vha-) kleremaker/dressmaker, tailor (Wentzel and Muloiwa, 1982: 43)
(b) **muṭhavhi** 1 (cf.- ṭhavha) one who stabs, cf. mubai (Van Warmelo, 1989:249)

Both Van Warmelo (1989) and Wentzel and Muloiwa (1982) have used the prefix system to capture nouns belonging to the above category. The nouns **murungi** (tailor) and **muṭhavhi** (one who stabs) have been lemmatized using the noun class prefix **Mu-**. The entry and treatment of these nouns have been done through a noun class prefix system. Some more examples of nouns in these two Venda dictionaries which adhere to this strategy are as follows:

- (4) Class 3: Mu- (Muri; tree)
Class 5: Ḳi- (Ḳinngo; mango fruit)

- Class 7: Tshi- (Tshiṅoni; bird)
- Class 9: N- (Nngu; sheep)
- Class 11: Lu- (Lufo; wooden spoon)
- Class 14: Vhu- (Vhutshilo; life)

2.2.3 Lemmatization of nouns according to initial sounds

Initial sounds can also be used to lemmatize nouns. In this case lemmatization takes into account the absence of the visible noun class prefixes. For example:

- (5) Class 1a: makhadzi, malume (aunt, uncle)
- Class 5: goṅoṅo, dzina (beetle, name)
- Class 9: lufo, thanda (wooden spoon, long pole)

Nouns in example (5) above have invisible noun class prefixes hence have been classified according to the initial sound. Tshikota (2000:39) confirms this when he states that in Tshivenda, certain nouns belonging to a noun class system have invisible noun class prefixes. Such nouns are simply classified according to the initial sounds and usually appear in the following classes:

- (6) Class 1a: Malume (uncle)
- Class 5: Dzedze (sand flea)
- Class 9: Thanda (long pole)

Tshivenda dictionaries which have lemmatized nouns according to this category are those dictionaries written by both Van Warmelo (1989) and Wentzel and Muloiwa (1982). They have lemmatized nouns belonging to this category as follows:

- (7) (a) **dzina** (Ma-) naam; naam word; opskrif; title/name; noun; title
- dzedze** (Ma-) sandvlooi/huis/sandflea/louse
- malume** (Vho-) swaer; oom/ brother-in-law / uncle (Wentzel and Muloiwa, 1982)

- (b) **dzedze** 5 1. lice on dogs, fowl 2. sandflea
malume 1 (pl. vho, lit. "male mother") 1. Mother's brother 2. Wife's brother (also mulamu) 3. Wife's brother's son (Van Warmelo, 1989)

Nouns without visible noun class prefixes as in the above mentioned examples have been treated by their initial sounds. According to Tshikota (2000:40), this treatment of nouns does not pose any problem in dictionaries such as those which belong to Xitsonga and Northern Sotho languages:

- (8) (a) **tatana** 1, father
dzedze 5, flea
hosi 9, chief king (Cuenod, 1967)
- (b) **Malome** my maternal uncle
Tata, father
Tate, father
Kgosi chief, king (Kriel, Prinsloo and Sathegke, 1997)
- (c) **Tata**, snw. Leenw. KI la LH vader
Tate, snw. KI la LH. Vader
Kgosi, snw. KI. 9 ...koning, Hoofman, vors, meneer
Malome, snw. KI. la LHL .oom aan moederskant (Kriel and van Wyk, 1989)

The examples in (8) evidently show that there is no problem with the treatment of nouns without visible noun class prefixes in the above dictionaries.

2.2.4 Lemmatization of nouns according to the stems

Lemmatization of nouns according to stems sometimes poses problems as is evident in some Nguni, Southern Sotho - English and Setswana -English -Afrikaans dictionaries. These four dictionaries may be regarded as stem dictionaries because

the entry of nouns is through a stem tradition. Nouns which appear in class 9 are difficult to handle in stem dictionaries:

- (9) (a) **-Khosi** (inkosi, amakhosi) king, paramount chief (Doke, Vilakazi, Malcolm and Sikakana, 1990: 405)
- (b) **in-kosi** bin 9/10: paramount chief (Pahl, Pienaar and Ndungane, 1989: xxxv) adopted from paragraph 5)
- (c) **Malome** (bo) my maternal uncle (Paroz, 1988: 280)
- (n) **tate** (bo) my father, father sir (Paroz, 1988: 489)

In Pahl, Pienaar and Ndungane (1989) dictionary the noun, **inkosi**, could have been entered in the alphabetical position of KO and not of KHO as in the Doke, Vilakazi, Malcolm and Sikakana (1990) dictionary. The Doke, Vilakazi, Malcolm and Sikakana (1990) dictionary has entered **inkosi** according to an underlying stem, that is, initial consonant transformed into an ejective consonant under the influence of a preceding **n**. Pahl, Pienaar and Ndungane (1989) and Doke, Vilakazi, Malcolm and Sikakana (1990) have also treated the entry of the noun **inkosi**; but differently. Doke, Vilakazi, Malcolm and Sikakana (1990) have used an underlying form, **khosi**, whereas Pahl, Pienaar and Ndungane (1989) have used the noun **inkosi** as it exists in the language today. This indicates the failure of stem dictionaries to accommodate nouns of classes 9 and 10 as lexical entries. These types of entries are better dealt with in word dictionaries. Another serious problem is the entry of the noun **Malome** in Paroz (1988) dictionary. The Paroz (1988) dictionary has lemmatized the noun **Malome** according to the letter of alphabet 'L'. To Paroz (1988), the **Ma-** before **-lome** in **Malome** is a class prefix and **-lome** (suffix) is a stem. In order to make the entry in line with other stem entries Paroz (1988) had to lemmatize it as a noun with visible class prefix [**Ma-**]. This type of entry could have been avoided in a word dictionary where it could have been lemmatized by its first letter.

Furthermore, Tshikota (2000: 49-54) explores the entry and treatment of nouns derived from parts of speech such as other nouns, verbs, diminutives and locatives.

As far as the derivation of nouns is concerned, Tshikota (2000) points out that nouns derived from other nouns in Tshivenda may be derived by affixation.

Tshikota (2000:41) states that lemmatization of nouns is different in dictionaries that belong to the Nguni, Southern Sotho and Setswana languages as is evident below:

(10) (a) **Um.Siki** b/n 112: Umuntu osika, e thunga impahla: dressmaker, tailor, kleremaker, snyer, kleremaakster (Pahl, Pienaar and Ndungane, 1989: 193)

(b) **-Siki** (Umsiki 2.63.9. abasiki) n. [< sika] 1. Cutter, one who cuts out patterns 2. Tailor, dressmaker (Doke, Vilakazi, Malcolm and Sikakana, 1990:754)

Tshikota (2000:36) states that the noun **Umsiki** in Pahl, Pienaar and Ndungane (1989) dictionary has been entered as it exists in the language today, and not according to an underlying stem initial consonant. In the Doke, Vilakazi, Malcolm and Sikakana (1990) dictionary, the noun **Umsiki** has been entered not as it exists in the language today but according to an underlying stem initial consonant. This system of treatment of nouns as stems is in contrast with the system of treatment of nouns as words which has been done by Van Warmelo (1989), Wentzel and Muloiwa (1982) and by Paroz (1988). The latter work enters nouns as they exist in Sesotho language today, but the alphabetical arrangement of the nouns is through a stem system.

(11) (a) **molora (me)** n., ash, ashes

(b) **loti (ma)** n. cl.3, mountain, high mountain with gorges; mountain range. (Paroz, 1988)

The noun **Molora** has been treated with its singular class prefix [**Mo-**] but the noun [**loti**] has been treated without its singular class prefix [**Le**]. This is also the case in the *Dictionary of Setswana - English - Afrikaans* (Snyman, Shole and Le Roux, 1989):

- (12) **Lodi** (lodi) 1. n. Mo-Me- whistling / / 2. rel Mo-, melodious, painted (Snyman, Shole and Le Roux, 1989)

The noun **molodi** (whistling) has been lemmatized according to the stem. Nouns in African languages are not specified for gender; which means that it is extremely difficult in African languages to determine the feminine and masculine features when using a noun.

2.2.5 Lemmatization of nouns derived by affixation

Nouns may be formed by affixing prefixes and suffixes to other words to form new words. Tshikota (2000: 37) states that derived nouns in classes 15, 20 and 21 are meant for infinitives, diminutives and augmentatives respectively. Tshikota (2000: 38) reveals that infinitives are derived from verbs while diminutives and augmentatives are derived from other nouns as exemplified below:

Class 15	Class 20	Class 21
Infinitive	Diminutive	Augmentative
u-shuma (to work)	Kwana [<h̄wana] (small child, child)	Ḑana [<h̄wana] (big ungainly child, child)
u-tshimbila (to walk)	Kuri [<muri] (small tree, tree)	Ḑiri [<muri] (big tree, tree)

Tshikota (2000:38) indicates that nouns such as **kwana / Ḑana / kuri/ Ḑiri** were derived from other nouns and that the infinitives **u- shuma** and **u- tshimbila** were derived from verbs **shuma** and **tshimbila** respectively. More examples in this regard are as follows:

- (13) (a) **Kudambo (zwi-)** riviertjie/rivulet
Kuduna (zwi-) kwaal, siekte/ailment
Kuitele (zwi-) manie, van doen, prosedure / way of doing;

kind in the Venda dictionaries by Van Warmelo (1989). **U zwa** in the language of the royal family means 'to speak', but it must be reflected as **-zwa**.

Other African languages such as Sesotho, Xitsonga and isiZulu do not have noun classes (20) and (21), but they all have infinitive classes as illustrated below:

(16) (a)

	Sesotho	Xitsonga	isiZulu
Infinitive class	Ho-	Ku-	-ku-
Examples	Ho-sebetsa	Ku-tivha	Ukusebenza

(b) **Uku-sebenza** nz/v work, labour, toil; do manual or mental work; perform a service (Pahl, Pienaar and Ndungane, 1989: 160)

Tshikota (2000: 49) states that suffixes such as **-nyana** and **-ni** may be used to form new words in Tshivenda. In addition, words may also be formed by using other suffixes such as **-ana**, **ku-**, **-lume** and **-ana**. These morphemes may be summarised as follows:

- (17) (a) The locative suffix **-ni**
 (b) Diminutive affixes **ku-**, **nyana** and **-ana**
 (c) Gender suffixes such as **-lume**, **-kadzi**, **-nyana** and **-ana**

Van Warmelo (1989) and Wentzel and Muloiwa (1982) have treated nouns with derivational affixes. These nouns are formed by affixing prefixes and suffixes.

- (18) (a) **hayani**, huis toe, tuis/ at home
khofheni, in/on the face
ñwananyana (vhananyana) meisie/girl
ngwana lam/lamb
malume (vho) swaer; oom/ brother in law; uncle

mufumakadzi (vha) mevrou/woman (Wentzel and Muloiwa, 1982)

- (b) **haya** (pl. mah) home, in general; locat; hayani home
khofheni 15 (loc of khofhe) face, visage
ñwananyana 1 (pl. vhananyana) girl; daughter
ngwana 9 (cf. nngu) lamb
malume 1. (pl. vho; lit "male mother")
mufumakadzi 1. married woman of rank (Van Warmelo, 1989)

Wentzel and Muloiwa (1982) have treated nouns derived from derivational affixes as lemmas in their own alphabetical places of arrangement in the dictionary. On the other hand, Van Warmelo (1989) has used two approaches in treating nouns **hayani** and **ngwana**. Van Warmelo (1989) has treated nouns as lexical items and as part of other lexical items. In Van Warmelo (1989) the noun **hayani** has been treated as part of another lexical item **haya**. There are other African language dictionaries which have treated nouns in a similar way to Wentzel and Muloiwa (1982):

- (19) (a) **Morakeng**, at the cattle ranch tseleng, on/in the road
Ngwananyana, a little girl
Tselana, small road
Malome, my maternal uncle
Mohumahadi, lady, queen, Mrs. (Kriel, Prinsloo and Sathegke, 1997)
- (b) **ngwanenyana** snw. Dim kl 1 klein meisie
tselathokwana kl. 9 sypadjie.
malome, snw. K1. la. LI + L oom aan moederskant
mohumagadi, snw. Fem k11. LH1 + LL: dam vrou, eggenote.
(Kriel and Van Wyk, 1989)

The above mentioned two Northern Sotho dictionaries have treated nouns derived from derivational affixes as lexical items. The majority of African language dictionaries have treated nouns in a similar way to Van Warmelo's approaches.

Most of these dictionaries have treated these nouns as lexical items and as entries within article structures of other items. For example:

- (20) (a) **Xitiko**. 7 fireplace; loc. **Xitikweni**, centre of hut floor. (Cuenod, 1967:248)
- (b) *intaba* ncp dim. Intatyana loc **entabeni**
entabeni ltd loc < intaba
 in. tatyana b/ n ncp < intaba: dim < intaba
 in. tlungu b/n 9/10 = hlungu ltd/ loc. **Entlungwini** (sorrow, grief, sadness, distress) (Pahl, Pienaar and Ndungane, 1989)
- (c) mo.raka (me) n. cattle post; loc **moraka**, **morakeng** o hole, at a distant cattle post; **meraka**, **merakeng**.
Tsela' (di) n. road, way path; manner, method;
 Journey.....
 loc **tseleng**; dim. Tselana. /tsela/
ngwana (bana) n. cl. 1, Child.....
 ngwanana (banana) n. cl. 1,
 Girl.....
loc. **Ngwananeng**, at the home of a girl; dim
 ngwananyana, little girl (Paroz, 1988)

The above dictionaries have treated nouns derived from derivational affixes as lexical items and within the article structure of other lexical items. Pahl, Pienaar and Ndungane (1989) have treated the nouns **entabeni** and **intatyana** as lemmas and as entries within the article structure of the lexical item **intaba**. In contrast, Doke, Vilakazi, Malcolm and Sikakana (1990) have entered the nouns derived from affixes differently as illustrated below:

- (21) (a) **-ana** dim suff. added to nouns and qualificatives to indicate;
 (i) a small object. e.g. intwana a little thing.
 (ii) a young one, e.g. inkonyana (calf) < inkomo

(iii) a small a few, e.g. izinsukwana (a few days) < izinsuku

- (b) **kazi** aug suffix
- (c) **kazi** fem. suffix

- (d) **Malume** (umalume/omalume) lit. My male mother. (Doke, Vilakazi, Malcolm and Sikakana, 1990: 480)

2.2.6 Lemmatization of plural nouns

In Tshivenda the plural forms of nouns are indicated in two ways. Both Van Warmelo (1989) and Wentzel and Muloiwa (1982) give the full plural in brackets after the entry and these plural forms are again entered separately in the dictionary as lexical items. For example:

- (22) (a) **bango** (mapango) groot paal/big pole
mapango cf. bango
gopwa (magopwa/makopwa) armholte/armpit
makopwa cf. gopwa
iṅo/ḽiṅo (maṅo) tand/tooth
maṅo cf. lino
kwana (zwana) kindjie/small child
zwana cf. kwana
luhura (khura) heining/fence, hedge
khura cf. luhura
ṅwaha (miṅwaha) jaar/year
miṅwaha cf. ṅwana. (Wentzel and Muloiwa, 1982)
- (b) **bango** 5 (pl. mapango) pole
mapango 6 pl. of bango
gopwa 5 (pl. mag, mak) armpit
makopwa 6 pl. of gopwa
iṅo 5 (pl. maṅo) tooth

- maṅo** 6 (pl. of iṅo) teeth
kwana 20 (pl. zwana) small child
zwana 8 pl. of kwana small child
luhura 11 (pl. khura 10) outer Fence or stockade round a village or garden
khura 10 pl. of luhura
ṅwaha 3. (pl. miṅwaha) year
miṅwaha 4. pl. of ṅwaha (Van Warmelo, 1989)

The above treatment of nouns in Van Warmelo (1989) and Wentzel and Muloiwa (1982) increases noun redundancy and potential spaces for other important lexical items are occupied unnecessarily. Van Warmelo (1989) and Wentzel and Muloiwa (1982) provide the entry of plural nouns with a cross-reference to the singular nouns. In Wentzel and Muloiwa (1982) and Van Warmelo (1989), the plural nouns are not explained but are only distinguished through the entry of both the singular and plural nouns. The entry of both the singular and plural nouns as lexical items is supposed to be found in word dictionaries rather than in stem dictionaries. The word dictionary uses various class prefixes in the lemmatization of nouns whereas a stem dictionary is expected to use the initial letter of the nominal stem for both singular and plural nouns as exemplified below:

- (23) (a) **Moreki**; buyer
Bareki; buyers, customers (Kriel, Prinsloo and Sathegke, 1997)
- (b) **Mogwe**, snw kl 1 LH: swaar, skoonseun
Bagwe, snw kl 2 LH: skoonouers. (Kriel and Van Wyk, 1989)

2.2.7 Lemmatization of deverbative nouns

Van Warmelo (1989) and Wentzel and Muloiwa (1982) have treated deverbative nouns in their dictionaries. However, the entry and treatment of deverbative nouns in these dictionaries are different:

- (24) (a) **mushumi** (vha) werker/worker
muloro (mi) droom/dream
pfunzo (dzi) opvoeding/education (Wentzel and Muloiwa, 1982)
- (b) **mushumi** 1. (cf. -shuma) worker
muloro 3. (cf. -lora) dream
pfunzo 9 (cf. -funza) teaching (Van Warmelo, 1989)

Wentzel and Muloiwa (1982) have treated deverbative nouns **mushumi**, **muloro** and **pfunzo** in their own alphabetical order. These nouns are derived from verbs -**shuma**, -**lora** and -**funza** respectively. What is interesting here is that these scholars have entered and treated these nouns without giving reference to the verbs from which they are derived. Derivations are not treated within the article structure of other lexical items from which they are derived. In other words, the lexical items have no reference to each other in Wentzel and Muloiwa (1982). This is in contrast to Van Warmelo (1989) who has treated the deverbative nouns in a similar way to Doke, Vilakazi, Malcolm and Sikakana (1990):

- (25) **-sebenzi** (umsebenzi /abasebenzi) [< -sebenza] worker
phupho (I (li) phupho/amaphupho) n. [< -phupha] dream.
fundo (imifundo, sg only) [< -funda] education, learning (Doke, Vilakazi, Malcolm and Sikakana, 1990)

Both Van Warmelo (1989) and Doke, Vilakazi, Malcolm and Sikakana (1990) indicate the derivative after the entry of the noun and the class prefix designation (Van Warmelo) and after the part of speech designation. The other dictionaries which indicate deverbative nouns and parts of speech from which they are derived

are the *Southern Sotho - English Dictionary* (Paroz, 1988), *Pharos' Popular Northern Sotho Dictionary* and the *Greater Xhosa Dictionary* (Pahl, Pienaar and Ndungane (1989) :

- (26) (a) **dira** v.t. to do.....
tiro, n. action, deed; use
 ruta, v.tt. to teach, to preach.....

moruti (ba) n. teacher, minister, preacher, pastor, missionary
thuto (di) n. teaching, doctrine, dogma, religion, lesson,
 subject; sermon; education, instruction (Paroz, 1988)
- (b) **mosomi**, snw. dev kl. 1. LHHL: werker
thutho, snw. dev kl 9 HL: les, leerstelling,
 onderwysers, onderrig, studie, kursus, verhandeling
toro², snw. dev. Kl9, HL: droom. (Kriel and Van Wyk, 1989)
- (c) **uku. Sebenza** nz/v: work, labour
 toil; do manual or mental work; perform a service.
 b/n Y 1/2 umsebenzi; 3/4 1 ncp/dim
umsetyenzana ltd/loc
emsebenzini. work, labour
um. sebenzi. b/n 1/2 employee, workman, labourer (Pahl,
 Pienaar and Ndungane, 1989)
- (d) **mosomi**, worker, labourer.
toro, dream
thuto, teaching, lesson, doctrine education (Kriel, Prinsloo and
 Sathegke, 1997)

Treating nouns with reference to the verbs from which they were derived has both advantages and disadvantages. The approach does not reduce noun redundancy but treat nouns in such a way that it would be extremely difficult to extract the correct meaning.

2.3 WAYS UTILISED IN THE TREATMENT OF VERBS

Verbs are not normally lemmatized in their full forms just like what happens to nouns. In most African language dictionaries verbs are lemmatized by their stems. Van Wyk (1995: 85) states that verbal lemmas are based on the positive infinitive "verbs" and the user is expected to be able to combine these with the appropriate prefixal "words".

Prinsloo (1992:179) states that reflexives pose a great challenge to lexicographers because if one were to reflect a verb twice, it would bring about redundancy. It is therefore up to the lexicographer to choose a strategy that would not be redundant but user-friendly at all times.

2.3.1 Attention to the problem of stem identification

Prinsloo (2011:169) provides a critical evaluation of lemmatization strategies for nouns and verbs in isiZulu with specific attention to the problem of stem identification. Prinsloo (2011:170) argues that stem lemmatization is an accepted, or even the best strategy for conjunctively-written languages, but that word lemmatization is a better option for disjunctively-written languages. Prinsloo (2011:172) states that in disjunctively-written languages, such as Sepedi, Setswana, Sesotho, Tshivenda and Xitsonga; nouns, verbs, concords, etc. are written as separate orthographic words. Stem lemmatization refers to the selection of the verbal and nominal stems from their forms whereas word lemmatization refers to the selection of the lemma from the paradigm of words.

2.4 WAYS UTILISED IN THE TREATMENT OF ADJECTIVES

Gouws and Prinsloo (1997:45) state that one of the greatest challenges to compiling better dictionaries for the African languages is developing sound strategies for the structure of the dictionaries. In this regard all the structural components of a dictionary, including the macrostructure, microstructure, mediostructure and access structure come into play. They further indicate that the haphazard entry of words in a

dictionary can no longer be justified but the user-perspective must compel the compiler to enter words according to a typological category to which a specific dictionary belongs.

2.4.1 Lemmatising of adjective forms

Gouws and Prinsloo (1997:45) state that the lemmatization of adjectives may no longer be done in an arbitrary way. A detailed analysis of the problems and possible solutions is a prerequisite for the compilation of a proper macrostructure. Each and every aspect should be subjected to a similar analysis before one could think of tackling the microstructure. In this regard the lexicographer has to rely on the results of metalexicographical research.

Gouws and Prinsloo (1997:47) discuss the lemmatization of adjectives in the *Klein Noord-Sotho Woordeboek* where only two forms of a specific adjective are entered into the dictionary and *Sediba* where all nine possibilities for each stem are included as lemmas in the central word list of the dictionary.

The construction of a specific dictionary adheres to the user-perspective by taking not only the linguistic needs but, especially, also the reference skills of the intended target user into account. User-friendliness in dictionaries implies that the contents of the dictionary are made as accessible to the user as much as possible. Attempts to enhance the retrievability of information are often impeded by a high degree of textual condensation.

Gouws and Prinsloo (1997:47) state that a lexicographer who lemmatizes adjectives has to do a thorough examination of adjectives by firstly finding out its affixal components. Also, other aspects such as the target user's needs, affordability of the dictionary, proper presentation and treatment of the lemma, and decisions regarding the data categories to be given, should be taken into consideration.

Gouws and Prinsloo (1997:47) indicate that many dictionaries do not live up to expectations as they are unable to answer the questions most likely to be asked by

their target users, who in most instances are mainly scholars and students who wish to learn the language involved.

Gouws and Prinsloo (1997:48) point out that the challenge with adjectives is that they tend to take the nominal prefixes of the different noun classes. For instance, the user of the Sepedi dictionaries who comes across the adjective **-golo**, will find this lexical item used as the stem of a complex form in which the item **-golo** is preceded by a prefix. The dilemma of the lexicographer is that the educational level of the user of the dictionaries, may not provide the user with the expertise to apply the necessary word-formation rules in order to retrieve information about an adjective like **mogolo** from merely consulting the articles of the sublexical lemmas **ma-** and **-golo** as indicated by Gouws (1989). For economic reasons and saving of space, only the most important forms of adjectives could be lemmatized and others may be cross referenced (Gouws and Prinsloo 1997:47)

2.5 WAYS UTILISED IN THE TREATMENT OF LOCATIVES

2.5.1 Lemmatizing nouns derived from attaching the suffix **-ni**

Tshikota (2000:49) shows that nouns that are derived from attaching the suffix **-ni** result in locatives. These nouns are lemmatized in their own alphabetical places of arrangement in the dictionary and are treated as lexical items. For example:

- (28) (a) **hayani** (byw/adv) huis toe, tuis /at home
khofheni in die gesig, gesig / face, in/on the face (Wentzel and Muloiwa, 1982)
- (b) **hayani** *libufhe* at home
khofheni *libufhe* on the face (Tshikota, 2006)

In examples (28a and b) above, these locatives resulting from attaching the suffix **-ni** are lemmatized in their own alphabetical places of arrangement in the dictionary and they have been treated as lexical items.

- (29) (a) **Xitiko**. 7 fireplace; loc. **Xitikweni**, centre of hut floor. (Cuenod, 1967:248)
- (b) **intaba** ncp dim. Intatyana loc entabeni
entabeni ltd loc < intaba
in. tatyana b/ n ncp < intaba: dim < intaba
in. tlungu b/n a/10 = hlungu ltd loc. Entlungwini (sorrow, grief, sadness, distress) (Pahl, Pienaar and Ndungane, 1989)
- (c) **mo.raka** (me) n. cattle post; loc **moraka, morakeng** o hole, at a distant cattlepost; **meraka, merakeng**.

Tsela' (di) n. road, way path; manner, method;
 Journey.....
 loc **tseleng**; dim. **Tselana**. /tsela/
ngwana (bana) n. d. 1. Child.....
**ngwanana (banana)** n. d. 1.
 Girl.....
loc. **Ngwananeng**, at the home of a girl; dim
ngwananyana, little girl (Paroz, 1988)

The above dictionaries have treated nouns derived from derivational affixes as lexical items and within the article structure of other lexical items. Pahl, Pienaar and Ndungane (1989) have treated the nouns **entabeni** and **intatyana** as lemmas and as entries within the article structure of the lexical item **intaba**. In contrast to dictionaries discussed above, Doke, Vilakazi, Malcolm and Sikakana (1990) have entered the nouns derived from affixes differently.

2.5.2 Lemmatizing locative nouns derived from attaching the prefix **ha-** and **kha-**

Poulos (1990:406) states that when the prefix **ha-** is added to nouns or other categories which indicate people, then the two possible meanings may be expressed, namely: the idea of, to, from, at, the person himself or to, from, at, the place of the person.

Poulos (1990:407) shows that locative nouns may be formed by using the prefix **ha-** together with certain proper names. In such cases the prefix **ha-** is written together with the name as one word and should be lemmatized by the first letter of the locative prefix **ha-**.

- (30) **Hasikhukhuni** (lokat/locat) Sekoekoenieland / Sekukuniland
 Hatshivhasa Sibasa (Wentzel and Muloiwa, 1982)

In the above dictionary, the locatives resulting from attaching the prefix **ha-** are lemmatized in their own alphabetical places of arrangement in the dictionary and they have been treated as lexical items.

Poulos (1990:407) states that the prefix **kha-** commonly occurs with pronouns and demonstratives, and in such cases it generally translates the various prepositions which are associated with the notion of place. Poulos (1990:408) also indicates that the prefix **kha-** may also be added to nouns in which case the idea of “on top of” or “on” is usually expressed.

- (31) kha ᵐone (on it)
 kha nᵑe (to or on me)
 kha bugu (on the book)

The locative prefix **kha-** (31) was not treated as part of the multi-lexical items in Tshivenda dictionaries but as individual words without reference of place.

2.5.3 Lemmatizing locative nouns without visible locative prefix

Numerous words which belong to other categories or parts of speech, may take on the function of locative without the addition of any prefixes or suffixes according to Poulos (1990:411). In other words, a lexical item is taken as it is and used as a locative. In this case, for example, a number of place names do not take any prefixes or suffixes. These nouns are lemmatized in their own alphabetical places of arrangement in the dictionary and are treated as lexical items.

- (32) (a) **vhubvaḍuvha** 14 the East, place where the sun rises and which varies considerably with the seasons
vhukovhela 14 (cf.-kovhela) the West, the direction of sunset (Van Warmelo, 1989)
- (b) **Vhubvaḍuvha** East
Vhukovhela West (Tshikota, 2006)

In the dictionaries mentioned above, the locatives without a visible locative prefix are lemmatized in their own alphabetical places of arrangement in the dictionary and they have been treated as lexical items.

CONCLUSION

In conclusion, one can say although authors have written about the lemmatization of lexical items, there is still a number of items that need to be scrutinized as far as the lemmatization of lexical items in Tshivenda dictionaries is concerned. Prominent scholars like Van Wyk, Prinsloo, Du Plessis have written about the ways utilized in the treatment of lexical items such as, nouns, locatives, adjectives and verbs. Van Wyk (1995) indicates that nouns as lexical items are captured in their complete forms and classified under their prefixes. Similarly, Tshikota (2000) states that nouns are classified according to the noun class prefixes when such prefixes are present. As far as the ways utilised in the treatment of verbs are concerned, verbs are not normally lemmatized in their full forms, but by their stems. But with adjectives, their

most important forms could be lemmatized as they normally tend to take nominal prefixes of different classes. With ways utilised in the treatment of locatives, all nouns derived from attaching suffix **-ni** result in locatives and they could be lemmatized in their own alphabetical places in a dictionary.

CHAPTER 3

THE LEMMATIZATION OF NOUNS AND LOCATIVES

3.1 INTRODUCTION

This chapter looks at the lemmatization of nouns and locatives in Tshivenda dictionaries. The aim of this study is to analyse the approaches used when lemmatizing these lexical items. The analysis will focus on the macro- and micro-structural components of these lexical items in selected Tshivenda dictionaries. The highlights will be on how these lexical items were represented morphologically, syntactically and semantically in Tshivenda dictionaries.

3.2 THE LEMMATIZATION OF NOUNS IN TSHIVENḐA DICTIONARIES

3.2.1 What is a noun?

A noun is defined by Hornby (2010:1006) as “a word that refers to a person, a place or a thing, a quality or an activity”.

Crystal (1991:237) defines a noun as “a term used in grammatical classification of words, traditionally defined as the name of a person, place or thing”. Crystal adds that nouns are items which display certain types of inflection (for example, case or number), have a specific distribution. They may follow prepositions but not, for example, modals, and can perform a specific syntactic function (for example, as a subject or object of a sentence)

A noun is defined by Hartmann and James (1998:100) as “a part of speech which serves to name or designate entities”.

A noun is defined by Collins (1994:203) as “a word used to refer to a person, a thing, or an abstract idea such as feeling or quality”.

When looking at the above definitions of a noun, one can say that a noun is a word which refers to a person, place or thing.

3.2.2 Nouns in Class Prefixes

Tshikota (2000:33) states that nouns in Tshivenda are classified according to the noun class prefixes when such prefixes are present.

In Tshivenda there are 18 noun classes and their examples are indicated hereunder:

(1) Class 1 [MU-]	MU-THU
Class 2 [VHA-]	VHA-THU
Class 1a [-]	KHO-TSI
Class 2a [VHO-]	VHO-KHOTSI
Class 3 [MU-]	MU-RI
Class 4 [MI-]	MI-RI
Class 5 [L̥I-]	L̥I-BU
Class 6 [MA-]	MA-BU
Class 7 [TSHI-]	TSHI-MANGE
Class 8 [ZWI-]	ZWI-MANGE
Class 9 [N-]	KHUUHU
Class 10 [DZI-N]	KHUUHU
Class 11 [LU-]	LU-FHANGA
Class 14 [VHU-]	VHU-LENDI
Class 15 [U-]	U- BIKI
Class 16 [FHA-]	FHA-SI
Class 17 [KU-]	KU-LE
Class 18 [MU-]	MU-RAHU
Class 20 [KU-]	KU-DAMBO
Class 21 [D̥i-]	D̥I-KOLOMO

In most cases dictionaries enter nouns according to the above mentioned noun class prefixes when such prefixes are present. The analysis of Tshivenda dictionaries should prove whether the same classification is applicable in Tshivenda language. When such noun class prefixes are not present dictionaries often use initial sounds.

3.2.3 Morphology of nouns in Tshivenda

Brown and Miller (1991:159) state that morphology is the study of the internal structure of words. That means it studies the amount of its meaning units (morphemes) and of the ways these units combine into larger units (words) as indicated by *Encyclopaedia Americana Volume 16* (1992: 728-729). For example:

- (2) lu- + -fha- + -nga > lufhanga (knife)
- ma- + -bu > mabu (wasps)
- tshi- + -ma- + -nge > (cat)

In the above examples, the noun **lufhanga** (knife) has three morphemes, that is [**lu-**], [**-fha-**] and [**-nga**].

In morphology of the noun we study the formation and structure of nouns, the morphemes of a noun and the way in which they are joined together to make words. Nida (1975:84) states that the morpheme of the noun is the smallest unit of the linguistic internal structure of the noun and cannot be divided. For example:

- (3) miri (trees) > mi- + -ri
- muthu (person) > mu- + -thu
- muḏi (home) > mu- + -ḏi
- tshinḓoni (bird) > tshi- + -ḓon- + -i

In the examples above, the noun **muḏi** [home] has two morphemes, that is [**mu-**] and [**-ḏi**] and cannot be divided further into smaller meaningful parts.

As indicated above, nouns in Tshivenda are classified into different classes. These noun classes differ from each other according to their functions and they provide a concordial morpheme through their class prefixes. Du Plessis (1997:1) has identified two principles of morphology in African languages including Tshivenda which are the following:

- Nouns consist of phonological, grammatical and semantic representations
- Nouns constitute open classes.

In phonological representation of nouns, the analysis is according to sounds.

For example:

(4)

Noun	Phonological representation
Muthu (person)	m-u-th-u
Muri (tree)	m-u-r-i
Vhana (children)	vh-a-n-a
Kholomo (cow)	kh-o-l-o-m-o
Tshimange (cat)	tsh-i-m-a-ng-e

In semantic representation of nouns, nouns are subcategorized according to their distinctive semantic features.

For example:

(5)

Noun	Semantic representation
musidzana (girl)	+animate
	+human
	-male
	+female
mukalaha (old man)	+animate
	+human
	+adult

	+male
	-female
muthu (person)	+animate
	+human
	+adult
	+male
	+female

In Tshivenda, as one of the African languages, nouns also form an open class because from them other lexical items can be derived and nouns can be derived from other lexical items. Nouns in Tshivenda can be derived from verbs, adjectival stems and other parts of speech. For example:

(6)

(a) Nouns derived from verbs

mu- + shuma > mushumo (work)

mu- + lima > mulimi (farmer)

mi- + shuma > mishumo (works)

(b) Nouns derived from adjectival stems

mu- + -hulu > muhulu (bigness)

vh- + -lapfu > vhulapfu (tallness)

vh- + -tswu > vhutswu (blackness)

In examples (6) above, the noun **mushumo** (work) is derived from the verb **-shuma** (work), **mulimi** (farmer) from the verb **-lima** (farm) and **mishumo** (works) from the verb **-shuma** (work). And the noun **muhulu** (bigness) is derived from the adjectival stem **-hulu**, **vhulapfu** (tallness) from **-lapfu** and **vhutswu** (blackness) from **-tswu**.

As far as the derivation of nouns in Tshivenda is concerned, Musehane (1995:83) indicates that we have nouns that have been transformed from one noun class to another by changing the class prefix and without changing the nominal stem.

For example:

(7) Mu-ri (tree)

The above noun **muri** (tree) can change its form by transferring it to different noun classes as shown at (8) below:

(8) tshi-ri

ḽi-ri

ku-ri

lu-ri

vhū-ri

The above nouns are possible by just adding new class prefixes and replacing the former ones without changing the nominal stem.

3.2.4 Syntax of nouns in Tshivenda

According to Brown and Miller (1980:12) syntax is concerned with ways in which words combine to make sentences. In other words, syntax is a description of the way words are put together to make sentences (*The World Book Encyclopaedia*, 1991:852). The syntax describes the internal arrangement of sentences, such as the order of the subject and the verb, the position of auxiliary words and objects and the relation of modifiers to the words they modify. Miller (1985:25-27) states that any serious study of syntax must take account of dependency relation:

the central idea of dependency theory is that every syntactic construction contains an obligatory controlling or governing constituent and one or more optional modifies the head was the constituent in a construction that had the same distribution as the whole construction...

Du Plessis *et al* (1996:1) state that the study of syntax relies on structural relations in the sentence and not on the word order. In order to understand the syntax of a

language one should then firstly know that sentences consist of phrases. And such knowledge of phrase structure of sentences will make it easy to understand how phrases not words may be moved around in sentences. The second principle which plays a major role in syntax is the head parameter which is dependent on the X-bar theory. Tshikota (2000:57) states that an essential requirement of the X-bar theory is that the head of the phrase belongs to a particular category related to the type of phrase.

The syntactic category of nouns in Tshivenda can be recognized through the three main functional positions it may occupy in a sentence, that is, nouns may occur as subject or object of a sentence or a complement of a preposition, according to Crystal (1991:237). For example:

(9) [Vhathu] avha vha lima [tsimu] nga [madzembe]

(These people plough the field with hand hoes)

In the example above, lexical items which appear in these three functional positions are nouns. The noun **vhathu** [people] is the head of the noun phrase **vhathu avha** [these people] and it is influenced by inflectional feature which is found in syntax. In all the noun phrases, the head is the noun and in Tshivenda the heads are always first in a phrase. Du Plessis *et al* (1996:2) refer to this as the 'head-first principle'.

3.2.5 Semantics of nouns in Tshivenda

According to Hurford and Heasley (1983:1) semantics deals with the study of meaning in a language. Meaning of a lexical item is through its definition. Gouws (1996:102) states that when defining the meaning of lexical items it is not too difficult to find an apt definition of words because they have a definite meaning which can be analysed.

There are different kinds of meaning that can be expressed by the Tshivenda nouns; meaning can be expressed by nouns in context and nouns as lexical items.

The noun **phukha** [animal] has a lexical meaning and a contextual meaning expressed by its usage. The noun **phukha** is a genus of the following: **mbudzi** (goat), **nngwe** (leopard), **ndau** (lion) etc., and these are found in the same semantic field. But the noun **[mbudzi]** may be polysemous in Tshivenda. The noun has the meaning of **[+ animal]** and **[+human]**. In Tshivenda the noun **[mbudzi]** may also refer to someone who is a coward. Here the noun **[mbudzi]** is used in its derogatory sense.

Noun such as **[dzingandevhe¹]** and **[dzingandevhe²]** are distinct because of the homonymous meaning they have:

- (10) (a) dzingandevhe¹ +animal
 +HUMAN
 +count
 +deaf
- (b) dzingandevhe² +animal
 +INSECT
 +count

The two nouns **dzingandevhe¹** (deaf person) and **dzingandevhe²** (insect) are regarded as homonyms. Homonyms are studied because of their etymological and historical development. The historical development of nouns is difficult to prove hence this makes the distinction between them a problem. Nouns may be treated differently in one language because of these homonymous characters. In Tshivenda a noun may at one stage be treated as polysemous and at another stage be treated as homonymous. Native speakers of Tshivenda may not agree as to whether a particular noun is a polysemy or whether it is a homonym. For example:

- (11) (a) **dzingandevhe** 5 1 deaf person; (fig.) person who refuses to listen to orders or advice, who is too full of himself to heed what is said by others. 2 smallest kind of winged termite (not eaten), see madzinga-ndevhe (Van Warmelo, 1989:41)

- (b) **dzingandevhe**¹ (ma) *dzin* muthu ane ndevhe dzawe dzi sa pfe
dzingandevhe² *dzin* neme neme dzi sa liwi dzi no anzela u bva
musi mvula i tshi khou na (Tshikota, 2010)

In (11a) Van Warmelo (1989) treats the noun **dzingandevhe** as a polysemy whereas Tshikota (2010) in (11b) treats it as homonymy. This indicates that the authors do not agree as to whether the noun **dzingandevhe** is a polysemy or homonymy.

Nouns in Tshivenda carry denotative meaning when they are used directly. When the noun **mbudzi** is in its denotative sense it means a [goat] the animal that we all know. But when the noun **mbudzi** is used connotatively it has emotive meaning, that is, that of 'a sluggish animal'.

The noun **mbudzi** [goat] in context may carry contextual meaning.

- (12) Mbudzi yo dzwala zwibudzana zwivhili
(The goat gave birth to two offsprings)

In the context the noun **mbudzi** represents a female goat which gave birth to two offsprings. This type of meaning is derived in accordance with the meaning of other main lexical item **dzwala** (giving birth to offspring) one would not know whether the goat **mbudzi** is [+male] or whether is [+female]. It is through the usage of the noun **mbudzi** with other lexical items that we know that it is [+ female].

- (13) Mbudzi dzo xela mulovha
(Goats were lost yesterday)

The noun **mbudzi** has the following features in itself [+ singular] and [+ plural]. It is only in usage that we are able to know whether the noun **mbudzi** has a reference to one goat or it has a reference to many goats. The noun **mbudzi** in 13 has a reference to many [goats] indicated by **dzo**. Nouns in Tshivenda may provide meaning equivalents (synonyms) and its compatibleness of meaning (antonyms).

3.2.6 Analysis of the lemmatization of nouns in Tshivenda dictionaries

Nouns are normally lemmatized in their full forms. That means they are entered in their complete forms, that is prefix plus stem. The approach will be to use initial letters of the noun class prefixes when present and visible stem letters or initial sounds when prefixes are absent. This will be the case when lemmatizing deverbatives and plural nouns. The variant and synonyms are also treated in the dictionary through a particular methodology.

3.2.6.1 Lemmatizing nouns through noun class prefixes

Nouns in Tshivenda are lemmatized through noun class prefixes when such prefixes are there. And the noun class prefixes that are available in Tshivenda were indicated in (1) above. The nouns lemmatized through noun class prefixes maintain the strict alphabetical arrangement when captured in Tshivenda dictionaries. The Tshivenda dictionaries have lemmatized nouns belonging to this category as follows:

- (14) (a) **kudambo** (zwi-) riviertjie/rivulet
(b) **libu** (ma-) perdeby/wasp
(c) **milora** (ekv/sing mulora nie algeneem/not common) as/ash
(d) **muthu** (vha-) mens, menslike wese / person, human being
(e) **tshikukwana** (zwi-) kuiken / chicken (Wentzel and Muloiwa, 1982)
- (15) (a) **kudambo** (zwi) *dzin* rivulet
(b) **libu** *dzin* wasp
(c) **maiti** *dzin* verbs
(d) **muthu** *dzin* person, mankind
(e) **tshikukwana** *dzin* chick (Tshikota, 2006)
- (16) (a) **kudambo** (zwi) *dzin* mulambo muṭuku
(b) **libu** (ma) *dzin* tshikhokhonono tsha lushaka lwa thunzi tshi no dzula
kha maṭaha tsho dinginaho vhukati tshi no luma nga maanḁa
(c) **maiti** *dzin* maipfi ane a ri vhudza nga ha zwi no khou itea
(d) **muthu** (vha) *dzin* tshisikwa tsha ndeme tshine tsha fana na

Mudzimu nga tshivhumbeo

(e) **tshikukwana** (zwi) *dzin* nwana wa khuhu musi a tshi kha di vha muṭuku (Tshikota, 2010)

- (17) (a) **kudambo** 20 (cf. mulambo) small river, spruit
(b) **libu** 5 (B. -vu) wasp
(c) **milora** 4 (sing. uncommon) = ashes, ash
(d) **muthu** 1 a person, human being; pl. vhatu people, men, mankind
(e) **tshikepe** 7 (Afr. skip) boat, ship (Van Warmelo, 1989)

In the examples above, the four Tshivenda dictionaries, that is, Van Warmelo (1989), Wentzel and Muloiwa (1982), Tshikota (2006) and Tshikota (2010) have captured nouns through noun class prefixes and they maintained the strict alphabetical arrangement of those lemmata in their dictionaries. For example, in (17) the noun **kudambo** was lemmatized through the noun class prefix [ku-] of Class 20, **libu** [li-] of Class 5, **milora** [mi-] of Class 4, **muthu** [mu-] of Class 1 and **tshikepe** [tshi-] of Class 7.

3.2.6.2 Lemmatization of nouns according to visible noun class prefixes

Visible noun class prefixes are prefixes that are capable of being seen attached to the noun stem. Visible noun class prefixes are used to lemmatize nouns. Nouns in Tshivenda dictionaries may be treated according to visible noun class prefixes regardless of whether they are derived; they are diminutives or augmentatives. That means nouns in Tshivenda may be treated according to visible noun class prefixes. For example:

Class 7 [TSHI]

- (18) (a) **tshikepe** 7 (Afr. skip) boat, ship (Van Warmelo, 1989:404)
(b) **tshikokovhi** (zwi-) reptile/reptile (Wentzel and Muloiwa, 1982:68)
(c) **tshikhodo** *dzin* praise poem (Tshikota, 2006:76)
(d) **tshisiwana** (zwi) *dzin* nwana a si na vhabebi (Tshikota, 2010:175)

Class 1 [MU]

- (19) (a) **musidzana** *dzin* girl (Tshikota, 2006:49)
(b) **mualavhi** (vha-) matroos/sailor (Wentzel and Muloiwa, 1982:39)
(c) **muṭhavhi** 1 (cf. -ṭhavha) one who stabs, cf. mubai (Van Warmelo, 1989:242)
(d) **muongi** (vha) *dzin* muthu ane a londota vhalwadze sibadela (Tshikota, 2010:104)

Van Warmelo (1989), Wentzel and Muloiwa (1982), Tshikota (2006) and Tshikota (2010) have used the prefix system to capture nouns belonging to the above categories. The nouns **tshikepe** (boat), **tshikokovhi** (reptile), **tshikhodo** (praise poem) and **tshisiwana** (orphan) in (18) above have been lemmatized using the noun class prefix **Tshi-** of Class 7 whereas the nouns **muṭhavhi** (one who stabs), **mualavhi** (sailor), **musidzana** (girl) and **muongi** (nurse) in (19) above have used the noun class prefix **Mu-** of Class 1. This indicates that the entry and treatment of nouns have been done through the visible noun class prefix system.

3.2.6.3 Lemmatizing nouns according to the initial sounds

Initial sounds can also be used to lemmatize nouns in word dictionaries. Here lemmatization takes into account the absence of the visible noun class prefixes. Therefore, nouns with invisible noun class prefixes are lemmatized according to the initial sound. For example:

- (20) (a) **gumba** (makumba) *dzin* egg
(b) **dzenengu** *dzin* cricket (Tshikota, 2006)
- (21) (a) **bokoṭo** (ma-) bokram/ billy-goat/he-goat
(b) **bara** (dzi-) cf Eng *kruywa*; kroeg/wheelbarrow; bar (Wentzel and Muloiwa, 1982)

- (22) (a) **gariki** (dzi) *dzin* tshiendisi tsha u kokodziwa nga donngi
 (b) **fuyu** (mahuyu) *dzin* mutshelo wa muvhala wa dzivha u no aṅwa
 kha muhuyu (Tshikota, 2010)
- (23) (a) **gwitha** 5 (pl. makhwitha, makwita, magwitha) spotted eagle owl,
 giant eagle owl & generally any large owl
 (b) **goloji** 9 (NS TSW SS koloi, Tso golonyi, Xho inqwelo, Zu inqola,
 Sho via Ndeb ngoro) wagon, cart; vehicle (Van Warmelo, 1989)

In the above examples, the Tshivenda dictionaries lemmatized nouns with invisible noun class prefixes according to their initial sounds. That means the nouns **gumba** (egg), **dzenengu** (cricket), **bokoṭo** (billy-goat), **bara** (wheelbarrow), **gariki** (cart), **fuyu** (fruit of baobab tree), **gwitha** (owl) and **goloji** (vehicle) have been lemmatized according to their initial sounds. That is to say in (20a) the initial sound is **[g]** and (20b) is **[d]**, (21a) and (21b) is **[b]**, (22a) is **[g]** and (22b) is **[f]** and (23) is **[g]**. Furthermore, these nouns maintained the strict alphabetical arrangement in the dictionaries. The treatment of nouns with invisible noun class prefixes does not pose any problem with Tshivenda dictionaries and they were treated as they exist in the language today. But this system of treatment can pose a problem when the user of the dictionary only wants the plural of the nouns found in this category. Without the presence of the noun class prefix system the user may not know whether the plural of a particular noun, for example, **gwitha** (owl), takes the prefix (**ma**) or (**dzin**) for the plural.

3.2.6.4 Lemmatization of deverbative nouns

Deverbative nouns are nouns derived or formed from verbs. Van Warmelo (1989), Wentzel and Muloiwa (1982), Tshikota (2006) and Tshikota (2010) have treated deverbative nouns in their dictionaries. However, the treatment of these nouns is different as exemplified below:

- (24) (a) **mulingi** (vha-) eksaminator, versoeker/ examiner; tempter
 (b) **mulisa** (vha-) herder, veewagrer, beeswaster/ herdsman, herd boy,

shepherd

(c) **muloro** (mi-) droom/dream (Wentzel and Muloiwa, 1982)

In (24) above, Wentzel and Muloiwa (1982) have treated deverbative nouns **mulingi** (examiner), **mulisa** (shepherd) and **muloro** (dream) in their own alphabetical order and they have also indicated their plural prefixes. What is not good here is that the compilers have entered and treated these nouns without giving reference to the verbs from which they are derived. In other words, these lexical items have no reference to each other.

- (25) (a) **mulingi** *dzin* tempter; tester, examiner, inspector, assessor
(b) **mulisa** *dzin* shepherd, herd man
(c) **muloro** *dzin* dream (Tshikota, 2006)

The treatment of deverbative nouns by Tshikota (2006) is similar to that of Wentzel and Muloiwa (1982). In (25) (a) to (c) above, the nouns **mulingi**, **mulisa** and **muloro** have been entered and treated without giving reference to the verbs from which they are derived. This treatment is also similar to that of Tshikota (2010) as shown in (26) below.

- (26) (a) **mulingi** (vha) *dzin* 1 muthu ane a dzudzanya mbudziso dza
vthagudiswa zwikoloni 2 muthu ane a dzhenisa vhañwe khakhathini
(b) **mulisa** (vha) *dzin* muthu ane a londota zwifuwo
(c) **muloro** (mi) *dzin* zwithu zwine muthu a vhona musi o edela
(Tshikota, 2010)

Wentzel and Muloiwa (1982) have treated deverbative nouns in similar way to that of Tshikota (2006) and Tshikota (2010) who did not give the reference to the verbs from which they are derived. They should have given reference to the verbs from which they were derived as exemplified below:

- (27) (a) **mulingi** (cf. -linga) examiner (Van Warmelo, 1989: 223)
(b) **mulisa** (cf. -lisa) herd boy (Van Warmelo, 1989:223)

(c) **muloro** (cf. -lora) dream (Van Warmelo, 1989:224)

The treatment of deverbative nouns by Tshikota (2006), Wentzel and Muloiwa (1982) and Tshikota (2010) is in contrast to Van Warmelo (1989) who has treated deverbative nouns by indicating the deverbative after the entry of the noun. That means Van Warmelo (1989) has treated deverbative nouns with reference to the verbs from which they were derived as is exemplified below:

- (28) (a) **mulingi** 1 (cf. -linga) 1 examiner. 2 school inspector
(b) **mulisa** 1, 3 (< -lisa) 1 herdsman, herd-boy; hence anything which accompanies sg else as 2 (pl. mi-) the string of cotton worn together with or instead of, the tshiala of women who have been through thondo
(c) **muloro** 3 (cf. -lora) dream (Van Warmelo, 1989)

The nouns **mulingi**, **mulisa**, and **muloro** in (28) above, have been treated by indicating the deverbative in brackets after the entry of a noun. The verb of **mulingi** is **-linga**, **mulisa** is **-lisa** and **muloro** is **-lora**.

3.2.6.5 Lemmatization of plural nouns

Plurals in grammar are used to denote two or more things. Plural forms of nouns in Tshivenda dictionaries may be indicated in two different ways. Firstly, dictionaries may give the full plural in brackets after the entry of nouns and these plural forms may again be entered separately as lexical items. Secondly, dictionaries may give plural prefixes in brackets after the entry of nouns. For example:

- (29) (a) **bango** (mapango) groot paal/big pole
(b) **mapango** cf. bango
(c) **gopwa** (magopwa/makopwa) armholte/ armpit
(d) **makopwa** cf. gopwa
(e) **gwitha** (makhwitha) uil/owl
(f) **makhwitha** cf. gwitha (Wentzel and Muloiwa, 1982)

In the examples **bango** (big pole), **gopwa** (armpit) and **gwitha** (owl) above, Wentzel and Muloiwa (1982) gave the full plural in brackets after the entry of nouns. This treatment of plural forms increases noun redundancy as they provided the entry of plural nouns with a cross-reference to the singular nouns as indicated by the symbol **cf.** as in **mapango**, **makopwa** and **makhwitha** in (29b,d and f))where **mapango** has been cross-referenced to **bango**, **makopwa** to **gopwa** and **makhwitha** to **gwitha**:

- (30) (a) **bango** 5 (pl. mapango) pole
 (b) **mapango** 6 pl. of bango
 (c) **gopwa** 5 (pl. mag, mak) armpit
 (d) **makopwa** 6 pl. of gopwa
 (e) **gwitha** 5 (pl. makhwitha, makwita, magwitha) spotted eagle owl, giant eagle owl & generally any large owl
 (f) **makhwitha** 6 pl. of gwitha (Van Warmelo, 1989)

The treatment of plural nouns by Van Warmelo (1989) in (30) above is similar to that of Wentzel and Muloiwa (1982). Van Warmelo (1989) also gives the full plural in brackets after the entry of nouns as in (30a) **bango** and (30e) **gwitha**. Van Warmelo (1989) also provides the entry of plural forms with reference to the singular nouns as in **mapango** (30b) and in **makhwitha** (30f).

- (31) (a) **bango** *dzin* big pole
 (b) **gopwa** (ma) *dzin* armpit
 (c) **gwitha** (makhwitha) *dzin* owl
 (d) **magwitha** (makhwitha) *dzin* owls; chicken (royal) (Tshikota, 2006)

- (32) (a) **bango** (mapango) *dzin* danda 1a u vala danga
 (b) **gopwa** (ma) *dzin* bako 1i re nga fhasi ha shaḍa
 (c) **gwitha** (makhwitha) *dzin* 1 tshinoni tshihulwane tsha maḍo mahulu tshine tsha tshimbila vhusiku 2 khuhu ya musanda
 (d) **magwitha** *dzin* 1 zwinoni zwihulu zwa maḍo zwine zwa tshimbila vhusiku zwa eḍela masiari 2 khuhu dza musanda (Tshikota, 2010)

In (31) and (32) above, the treatment of plural nouns by Tshikota (2006) and Tshikota (2010) is similar to that of Wentzel and Muloiwa (1982) and Van Warmelo (1989) where they gave full plural in brackets after the entry of nouns as in **gwitha** (**makhwitha**). But in some cases, Tshikota (2006, 2010) gives the plural prefixes in brackets after the entries of nouns as in **gopwa** (armpit) in (31b) and (32b) where there is the plural prefix (**ma**) after the entry of a noun. This treatment by these authors confuse dictionary users as they have used two different approaches of treating plural nouns and those approaches were not explained in the first sections of the dictionaries, where the users' guide is given.

The authors of the above dictionaries should have given the lemmas with their plural prefixes following to reduce noun redundancy and inconsistency in the treatment of plural nouns. Apart from that, they should have also given lemmas and full plural forms of plurals that have sound changes, but not lemmatizing again all those plural forms. For example:

- (33) (a) **bango** (mapango) big pole
(b) **gwitha** (makhwitha) owl
(c) **muri** (mi-) tree
(d) **muthu** (vha-) person

3.2.6.6 Lemmatization of variant nouns

Variant lemmata are lemmata with variant spellings where all ways in which a word had been written are being shown. In this case, variant lemmata include the variant of a lexical item. The treatment of variant lemmata is given in the article of these lemmata but the other lemmata which have a limited lexicographic treatment would be indicated by a cross-reference to a lemma where the full treatment is given. For example, in Tshivenda the lemma **garadzhi** (garage) has its variant **giradzhi** and **giratshi**. The Tshivenda dictionaries have treated variant nouns as follows:

- (34) (a) **garadzhi/giradzhi/giratshi** (dzi-) cf. Afr. garage/garage

- (b) **giradzhi** cf garadzhi
- (c) **giratshi** cf garadzhi
- (d) **bisi/basi** (dzi-) cf Afr/Eng bus/bus
- (e) **basi** cf bisi (Wentzel and Muloiwa, 1982)

In the above examples, Wentzel and Muloiwa (1982) did not treat variant lemmata with a limited lexicographic treatment. They both grouped together variant lemmata in one article instead of giving full treatment to the variant lemma that is frequently used and indicate the other one by a cross-reference as in (34a) **garadzhi/giradzhi/giratshi** and (34d) **bisi/basi** where all variant lemmata were grouped together. But in some cases, Wentzel and Muloiwa (1982) indicate variant lemmata by a cross reference as in **giradzhi** (34b), **giratshi** (34c) and **basi** (34e) where **giradzhi** and **giratshi** were cross-referenced to **garadzhi** and **basi** to **bisi**. These two different approaches of treating variant lemmata by Wentzel and Muloiwa (1982) indicate inconsistency in the treatment of variant lemmata.

- (35)
- (a) **garadzhi** (giradzhi) *dzin* garage
 - (b) **giradzhi** (garadzhi) *dzin* garage
 - (c) **giratshi** *dzin* garage
 - (d) **basi** *dzin* bus
 - (e) **bisi** *dzin* bus (Tshikota, 2006)

The treatment of variant lemmata by Tshikota (2006) is similar to that of Wentzel and Muloiwa (1982) in some cases, as the author also grouped variant lemmata as in **garadzhi (giradzhi)** (35a) and **giradzhi (garadzhi)** (35b) instead of giving full treatment to the variant lemma that is frequently used and indicate the other one by a cross-reference.

A proper treatment should have been as follows:

- (36)
- (a) **garadzhi** - garage
 - (b) **giradzhi** - **see** garadzhi
 - (c) **giratshi** - **see** garadzhi

- (d) **basi** - bus
- (e) **bisi** - **see** basi

The treatment of variant lemmata by Tshikota (2010) and Van Warmelo (1989) differs from that of Wentzel and Muloiwa (1982) and Tshikota (2006). They both gave full treatment to one lemma and the other ones were indicated by a cross-reference as in examples (37) and (38) below:

- (37) (a) **garadzhi** *dzin* 1 fhethu hune zwiendisi zwa lugiswa hone 2 tshifhaṭo tsha u shela piṭirolu
 (b) **giradzhi** *dzin* vhonani **garadzhi**
 (c) **giratshi** *dzin* vhonani **garadzhi**
 (d) **basi** (dzi) *dzin* tshiendedzi tshihulwane tsha mavhili a rathi tshi no hwala vhanameli nga vhanzhi
 (e) **bisi** (dzi) *dzin* vhonani **basi** (Tshikota, 2010)

In (37) above, Tshikota (2010) gave full treatment to lemma **garadzhi** and the other ones **giradzhi** and **giratshi** were indicated by the cross reference whereas Van Warmelo (1989) in (38) below, gave full treatment to lemma **giradzhi** and **garadzhi** was indicated by a cross reference.

- (38) (a) **garadzhi** 5 see giradzhi
 (b) **giradzhi** 5 (Eng.) garage
 (c) **basi** 9, 5 (Eng. ; bisi) bus
 (b) **bisi** 9,5 (Eng. ; pl. 10,6) 1. bus, omnibus for passengers 2. bass (in music) (Van Warmelo, 1989)

3.2.6.7 Lemmatization of synonym nouns

Synonym nouns also have a limited treatment in today's dictionaries. Only the synonym with the higher usage frequency will receive a comprehensive treatment and the one with lesser frequency gets a cross-reference. The Tshivenda dictionaries have treated synonym lemmata as follows:

- (39) (a) **fobvu** 5 (cf. So. lehodu) notorious habitual thief
 (b) **mbava** 9 (Kar. Idem) thief (Van Warmelo, 1989)
- (40) (a) **fobvu** (ma-) dief/thief
 (b) **mbava** (dzi-) dief/thief (Wentzel and Muloiwa, 1982)
- (41) (a) **fobvu** (ma) *dzin* thief
 (b) **mbava** (dzi) *dzin* thief (Tshikota, 2006)

In examples (39), (40) and (41) above, Van Warmelo (1989), Wentzel and Muloiwa (1982) and Tshikota (2006) did not give a limited treatment of synonym lemmata. Instead of giving a comprehensive treatment to the synonym with a higher usage frequency and cross-referencing the other with lesser frequency, they gave a comprehensive treatment to all synonyms. That is, they all gave a comprehensive treatment to both **fobvu** (thief) and **mbava** (thief).

A proper treatment should have been as follows:

- (42) (a) **fobvu** - **see** mbava
 (b) **mbava** - thief

3.3 THE LEMMATIZATION OF LOCATIVES IN TSHIVENḐA DICTIONARIES

3.3.1 What is a locative?

A locative is defined by Poulos (1990:406) as: “Adverb which expresses the notion of place.”

Crystal (1991:206) defines a locative as “Something which refers to the form taken by a noun phrase when it typically expresses the idea of location of an entity or action”.

Again, a locative is defined by Collins (1994:176) as “A place, especially the place where something happens or is situated”.

Furthermore, Bursman (1996:288) defines a locative as “A morphological case which serves to identify location”.

From the above definitions, a locative refers to a place where things happen or are situated.

3.3.2 Morphology of Locatives in Tshivenda

As indicated in 3.2.3 above, morphology studies the internal structure of words. Locatives in Tshivenda are formed in many different ways according to Poulos (1990:406). Poulos (1990:406) states that when a prefix **ha-** is added to nouns or other bases which indicate people, the idea of, to, from, at, etc. may be conveyed. Some of place names are formed by using prefix **ha-** together with certain proper names where the prefix **ha-** is written together with the name as one word (Poulos, 1990:407).

(43) (a) Ndi khou ya [**ha mudzudzanyi**]
(I am going to the editor)

(b) Hakhakhu > Ha + Khakhu

(c) Hamakuya > Ha + Makuya

In (43) (a) above, the locative **ha mudzudzanyi** (to the editor) is formed by prefix **ha-** and the noun **mudzudzanyi** where in (43) (b) the locative **Hakhakhu** is formed by prefix **Ha-** + noun **Khakhu** written together as one word.

Poulos (1990:407) also states that locatives can be formed by using the prefix **kha-**. The prefix **kha-** commonly occurs with pronouns and demonstratives, and in such cases it generally translates the various prepositions which are associated with the notion of place (Poulos, 1990:407).

The prefix **kha-** may also be added to nouns, in which case the idea of 'on top' or 'on' is usually expressed.

- (44) Masindi o vhea bugu [**kha bogisi**]
(Masindi has put the book on the box)

The locative **kha bogisi** in (44) is formed by the prefix **kha-** added to the noun **bogisi**.

Poulos (1990:408) indicates that locatives can be formed by using the suffix **-ni**. The suffix **-ni** may be added to a noun to express the idea of to, at, from, in, on, etc.

- (45) Vha khou ya [**mulamboni**]
(They are going to the river)

The locative **mulamboni** in (45) is formed by adding the suffix **-ni** to the noun **mulambo**.

3.3.3 Syntax of Locatives in Tshivenda

According to Crystal (1980) as quoted by Musehane (1991:15) a locative noun phrase is a term which refers to the form taken by the word usually a noun or pronoun when it typically expresses the idea of location of an action. In Tshivenda, there are three divisions of locative nouns which are the following:

- (46)
- (a) old locative classes 16 [fha-], 17 [ku-], 18 [mu-]
 - (b) place names
 - (c) locative nouns with the affix -ni

According to Musehane (1991: 20) locative noun phrases are regarded as noun phrases in Tshivenda because they are treated like noun phrases. In this case, all

locative noun phrases appear as a subject, object or complement of a preposition and any nominal specifier or complement of a noun may also appear with a locative noun. This is to say a noun phrase and a locative noun phrase have common characteristics and features. For example:

- (47) (a) [**Musadzini**] hu a takadza
(At the woman's house it is interesting)
- (b) [**Thavhani**] hu a ofhisa
(In the mountain it is frightening)
- (c) O mu ruma [**kha n̄e**]
(He has sent him to me)

In the above examples, [**musadzini**] in (47a) which is a locative appears as a subject and [**kha n̄e**] in (47c) which is also a locative as an object.

3.3.4 Semantics of Locatives in Tshivenda

As indicated in 3.2.5 above, semantics deals with the study of meaning in a language, therefore this section will deal with the semantics of locatives.

When a suffix **-ni** is added to a noun, it will only have one meaning of location. For example:

- (48) (a) O ya [**thavhani**]
(He has gone to the mountain)
- (b) Ndi ɔ ɔ ɔ [**tshikoloni**]
(I will come to school)

In the above sentences, (48a) [**thavhani**] and (48b) [**tshikoloni**] which are locatives, the affix **-ni** only has the meaning of location and no other meaning.

3.3.5 Analysis of the lemmatization of locatives in Tshivenda dictionaries

3.3.5.1 Lemmatization of locatives derived by attaching locative suffix -ni

Nouns that are derived from attaching the suffix **-ni** result in locatives, according to Tshikota (2000:49). These locatives are formed by affixing the locative suffix **-ni** to a non-locative noun. For example:

(49)	Non- locative noun	Locative noun
	tshisima (fountain)	tshisimani (at the fountain)
	mushumo (work)	mushumoni (at work)
	muḡi (home)	muḡini (at home)

The point that is of concern is when one tries to enter both the non-locative noun and the locative noun in the dictionary as **haya** (home) and **hayani** (at home). There are a number of reasons why this cannot be done. First of all, it would be a duplication throughout the Tshivenda dictionary as all the non-locative nouns if affixed with the locative suffix **-ni** would carry the same meaning, - of “at, to, in, from the directions of”. For example:

- (50) (a) bodo + -ni > bodoni (at, inside a pot)
(b) thavha + -ni > thavhani (at, from the mountain)
(c) mulambo + -ni > mulamboni (at, from the river)

If a Tshivenda dictionary has 1200 non-locative nouns and these non-locative nouns can be affixed with the locative suffix **-ni** the dictionary would then contain 1200 additional entries. These entries are taking spaces which could need more emphasis. The best way of lemmatizing locative nouns derived from locative suffix **-ni** is that the lexicographer must enter the locative suffix **-ni** as a lemma with a high information density. For example:

- (51) **-ni** locative that can be suffixed to all non-locative nouns: (muḡini, hayani, tshikoloni, kerekeni, vhengeleni, etc.)

Let us look at the following examples in Tshivenda dictionaries:

- (52) (a) **haya**¹ *dzin* home, dwelling place
(b) **hayani** *libufhe* at home
(c) **khofhe** *dzin* sleep
(d) **khofheni** *libufhe* on the face (Tshikota, 2006)

In the above example (52), Tshikota (2006) treated the locative nouns (52b) **hayani** and (52d) **khofheni** at their own alphabetical place in the dictionary. Although these types of lexical items will be limited and will depend on frequency. These locatives were not treated as examples anywhere in the dictionary under the locative suffix-**ni**.

- (53) (a) **haya (ma-)** (nw/n) tuiste, woonplek / home, dwelling place
(b) **hayani** (byw/adv) huis toe, tuis / at home
(c) **khofhe** (dzi-) slaap / sleep
(d) **khofheni** in die gesig, gesig / face, in/on the face
(e) **gammba** (dzi-) cf Afr. kamp / camp
(f) **gammbani** op Sibasa; lett in die kamp / at Sibasa; lit in the camp
(Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) treated the locative nouns (53b) **hayani**, (53d) **khofheni** and (53f) **gammbani** as lemma. The lemmas were not treated under locative suffix-**ni**.

- (54) (a) **-ni** locat. noun suff. muḏini in, to, towards, at, from the homestead (muḏi). Cl. 17 but not always: **thumbuni** ha fuyu or thumbuni ya fuyu inside a fig, the inside a fig, the inside of a fig
(b) **haya** 17 (pl. mah) home, in general; locat. **hayani** home, specific. Ho vha hu hone haya that was a home. Mudzongo wa haya homemade biltong (not necessarily made in our home). Ndi hayani it is home (not just a home, but our or somebody else' home.) U hayani he is at home. Zwiḽiwa zwa hayani food for consumption at home (not in the bush, on the road). -vhuelela.. return home

- (c) **khofhe** 10 (Kar. hope) sleep. **Khofheni** 15 loc. “in sleep” (e.g. dreams seen in sleep or when asleep) also “face, visage, features”.
 Khofhe dzo mu fara he has fallen asleep. -lima khofheni ha zwimange make only a small garden
- (d) **khofheni** 15 (loc. of khofhe) face, visage (Van Warmelo, 1989)

Van Warmelo (1989) used different principles to enter locative nouns. Locative nouns **muḍini** and **thumbuni** in (54a) above have been entered as examples under the sub-lemmata **-ni**. Van Warmelo used this method to save space. But this type of treatment of the locative nouns is not helpful for dictionary users. How will the user of dictionary know that the locative nouns **muḍini** and **thumbuni** have been treated under the locative suffix **-ni**. It will be by guesswork. Meanings are not get by guesswork in dictionaries, they are categorically stated.

Van Warmelo (1989) has entered the locative nouns (54b) **hayani** and (54c) **khofheni** under the main lemma **haya** and **khofhe**, still with the idea to save space and reduce redundancy.

In (54d) the locative noun **khofheni** has also been entered in its own place in the dictionary. This treatment of the locative noun **khofheni** in (54c) and (55d) above takes more dictionary space than a single treatment of the lemma.

The treatment of locatives derived from attaching suffix **-ni** by Van Warmelo (1989) differs from that of Wentzel and Muloiwa (1982) and Tshikota (2006). Van Warmelo (1989) uses horizontal ordering of lexical items in which there is no strict alphabetical arrangement of lemmas. The lemma (54b) **hayani** (at, from home) which is a locative is treated as an article structure of lemma **haya** (home) which is a noun. This treatment confuses users as lemmas are treated according to morph-semantic field which dictionary users cannot handle. But in some cases, Van Warmelo (1989) did what is better as far as the treatment of locatives derived from attaching suffix **-ni** is concerned. The author enters the locative suffix **-ni** as a sub-lemmata with high information density as exemplified in (54a) above although it is not user-friendly. But in some other cases, Van Warmelo has also treated both the non-locative nouns and the noun locatives as lexical items as is exemplified in (54c) **khofhe** and (54d)

khofheni and these also duplicate one meaning; this is similar to that of Wentzel and Muloiwa (1982) and Tshikota (2006).

3.3.5.2 Lemmatization of locatives derived by attaching the prefix **ha-**

Poulos (1990: 406) states that when the prefix **ha-** is added to nouns or other categories which indicate people, then the two possible meanings may be expressed, namely: the idea of to, from, at the person himself or to, from, at the place of the person. In this case, the prefix **ha-** is written together with a proper name as one word and should be lemmatized by the first letter of the locative prefix **ha-** as exemplified below:

- (55) (a) **Hasikhukhuni** (lokat / locat) Sekoekoeniland / Sekhukhuniland
(b) **Hatshivhasa** Sibasa (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) have treated the locatives that result from attaching prefix **ha-** to nouns. In examples (55) above, the locatives (55a) **Hasikhukhuni** and (55b) **Hatshivhasa** resulting from attaching prefix **ha-** to proper names written together as one word were lemmatized in their alphabetical places of arrangement in the dictionary and they have been treated as lexical items.

- (56) **ha** (poss. of the old, now obsolete, locat. noun class 17) at, at the place of ... (a person) e.g. a ya ha malume awe he went to his uncle's place; a fhaṭa ha malume he settled at his uncle's place. Place names thus: Ha-Tshivhasa Chief Tshivhase's country. With poss. forms it is written conjunctively, e.g. hashu at our home, havho at their home, in their country (Van Warmelo, 1989:78)

The treatment of locatives derived from attaching prefix **ha-** by Van Warmelo (1989) differs from that of Wentzel and Muloiwa (1982). Van Warmelo (1989) in (56) entered the locative prefix **ha-** as sub-lemmata and gave example sentences in the micro structure as **a ya ha malume** (he went to his uncle's place) and **a fhaṭa ha malume**

(he settled at his uncle's place). And with these sentences dictionary users will understand better how the locative prefix **ha-** is used in a language. Apart from that, Van Warmelo (1989) did not treat locatives which result from attaching prefix **ha-** to proper names written together as one word.

3.3.5.3 Lemmatization of locatives derived by attaching the prefix **kha-**

Poulos (1990:408) indicates that the prefix **kha-** may be added to nouns in which the ideas of 'on top of' or 'on' are usually expressed as in some examples below:

- (57) (a) kha n̄e (to or on me)
(b) kha bugu (on the book)
(c) kha n̄du (on the hut)

The locative prefix **kha-** in (57) above was not treated as part of the multi-lexical items in Tshivenda dictionaries but as individual words without reference to a place. But Van Warmelo (1989) entered the locative prefix **kha-** as a lexical item as indicated below:

- (58) **kha** 1 on, in, to, at. Has meaning of locat. where the loc. suffix cannot be used, e.g. with pron. forms: mavheleni ndi khao "maize flourishes there" 2. Kha + u forms pres.. progr. khou, e.g. u khou ḁa he is coming. 3 kha ḁi "still" but see ḁi. A hu na tshine ra nga .. ḁi ita there is nothing more/further we can do (Van Warmelo, 1989:97)

3.3.5.4 Lemmatization of locatives without visible locative prefix

In Tshivenda, numerous words which belong to other categories may take a function of locative without the addition of any prefixes or suffixes. Here, a lexical item is taken as it is and used as a locative. For example, a number of noun locatives do not take any prefixes or suffixes as exemplified below and they were lemmatized in their own alphabetical places of arrangement in the dictionary:

- (59) (a) **devhula** 5 (short for ~ -mufumbu) the North
 (b) **Galanga** 5 country of the Vhakalanga, Rhodesia; North
 (c) **vhubvaḍuvha** 14 the East, place where the sun rises and which varies considerably with the seasons. ..ha vhubuḍa-shango the north-east, the area along the north-eastern boundary of Venḍa
 (d) **vhukovhela** 14 (cf. kovhela) the West, the direction of sunset (Van Warmelo, 1989)

Van Warmelo (1989) has treated noun locatives that do not take any prefixes and suffixes. The noun locatives **devhula** (North) (59a) and **Galanga** (North) (59b) were lemmatized in their own alphabetical places of arrangement in the dictionary. In **vhukovhela** (west) (59d) Van Warmelo (1989) also provided a cross-reference to the verb **kovhela** (set) that the locative is derived from.

- (60) (a) **devhula** *dzin* north
 (b) **galanga** *libufhe* north
 (c) **vhubvaḍuvha** *dzin* east
 (d) **vhukovhela** *dzin* west (Tshikota, 2006)
- (61) (a) **devhula** *dzin* inwe ya khuḍa nḅa dza shango
 (b) **galanga** *libufhe* devhula ha shango la Venḍa
 (c) **vhubvaḍuvha** *dzin* sia line ḍuvha la vhone la tshi bva ngaḷo
 (d) **vhukovhela** *dzin* sia line ḍuvha la vhone la tshi kovhelela hone (Tshikota, 2010)

The treatment of noun locatives without visible locative prefix by Tshikota (2006, 2010) is similar to that of Van Warmelo (1989). They all lemmatized noun locatives **devhula** (north), **galanga** (north), **vhubvaḍuvha** (east) and **vhukovhela** (west) in their own alphabetical places of arrangement in the dictionary.

- (62) (a) **devhula** (byw/adv) noorde/north
 (b) **Vhubvaḍuvha** (byw/adv) Ooste / North
 (c) **Vhukovhela** Weste / West (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) have treated noun locatives without visible locative prefix in a way that is similar to that of Tshikota (2006) and Tshikota (2010). Wentzel and Muloiwa (1982) have lemmatized noun locatives (60) **devhula**, **vhubvaḍuvha** and **vhukovhela** in their own alphabetical places of arrangement in their dictionary. But with **vhukovhela** (62c) Wentzel and Muloiwa (1982) did not provide the part of speech after the entry of a noun locative. This approach will confuse dictionary users as they will not know whether that lemma is a noun or a noun locative. Wentzel and Muloiwa (1982) should have indicated the part of speech as in **devhula** (62a) and **vhubvaḍuvha** (62b).

3.3.5.5 Lemmatization of locatives from old locative noun classes [16 fha-], [17 ku-] and [18 mu-]

There is no problem when entering locatives from old locative noun classes **fha-**, **ku-** and **mu-** since they have got classes. The locatives derived from these classes must be entered in their own place in the dictionary. For example:

- (63) (a) **fhasi** op grond; onder; vloer / below; underneath; floor
 (b) **kule** (byw / adv) ver / far
 (c) **murahu / murau** (byw / adv) agter; agteruit, agterwaarts / behind; aback, backwards (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) have treated locatives from old locative noun classes **fha-** [16], **ku-** [17] and **mu-** [18]. The locatives **fhasi**, **kule** and **murahu** were entered in their own place in the dictionary since they have got classes. But in **murahu/marau** (63c), Wentzel and Muloiwa (1982) have grouped together variant lemmata. They should have given full treatment to the variant that is frequently used and indicate the other one with a cross reference as exemplified below in (64):

- (64) (a) **murahu** (byw/adv) agter; agteruit, agterwaarts / behind; aback, backwards
 (b) **marau see** murahu

- (65) (a) **fhasi** *libufhe* below, down

- (b) **kule** *libufhe* far
- (c) **murahu** *libufhe* back, behind (Tshikota, 2006)

- (66)
- (a) **fhasi** *libufhe* fhethu hu re tsini na mavu
 - (b) **kule** *libufhe* fhethu hune u tshi ya hone wa tshimbila wa neta
 - (c) **murahu** *libufhe* fhethu hu si phanda kana matungo (Tshikota, 2010)

The treatment of locatives from old locative classes by Tshikota (2006) and Tshikota (2010) is the same. They all entered locatives **fhasi**, **kule** and **murahu** in their own places of alphabetical arrangement in the dictionary. They all provided part of speech after the entry of the lemma. This approach of treating locatives from old locative classes by Tshikota (2006) and Tshikota (2010) is user-friendly as dictionary users will retrieve the meaning with ease.

- (67)
- (a) **fhasi** (loc. ; adv. ; B. -ki “ground”, So. fa-se, Z/X pha-ntsi, Tso. ha-nsi) on the ground, earthwards, downwards; below, under, underneath, down. But v. *ɔasi* .. (or *ɔasi*) ha thavha below / at the foot of the hill. Dzula .. (not *ɔasi*) sit down. Vho-fhasi-a-si-kule short statured folk
 - (b) **kule** (loc. ; adv.) far. .. na fhanu far from here. Sendela .. hanga get away far from me
 - (c) **murahu** (loc. ; adv.) behind, after; nga tsha .. backwards; zwa .. placenta (human); .sala .. (or nga ..) pursue (Van Warmelo, 1989)

Van Warmelo (1989) approach of treating locatives from old locative classes is similar to that of Wentzel and Muloiwa (1982), Tshikota (2006) and Tshikota (2010). The locatives **fhasi**, **kule** and **murahu** in (67) were entered in their own places of arrangement in the dictionary. What is interesting with Van Warmelo’s (1989) treatment is that the author also provided example sentences in the micro structure as in (67a) **fhasi ha thavha** (at the foot of the hill), (67b) **sendela kule hanga** (get away far from me) and (66) (c) **nga tsha murahu** (backwards).

CONCLUSION

In conclusion, one can say that the greatest challenge to compiling better dictionary for lemmatizing nouns and locatives is to develop sound strategies for planning the structure of a dictionary. Locatives are by themselves nouns; hence they are called place names. In lemmatizing nouns and locatives, their macro- and the micro-structure should be taken into consideration.

When compiling a dictionary, lexical categories such as nouns and locatives should have to be lemmatized on linguistic grounds. As far as the lemmatization of nouns is concerned, it can be said that nouns should be lemmatized through noun class prefixes when such prefixes are there and if are absent they should be lemmatized according to the initial sounds.

Apart from that, when lemmatizing locatives one should have to take into consideration the old locative classes [16 **fha-**], [17 **ku-**] and [18 **mu-**], locative suffix **-ni** and place name locatives where we find that old locative nouns and place name locatives are not difficult to treat in Tshivenda dictionaries. The point of concern is when one tries to lemmatize all locative nouns derived from affixing the locative suffix **-ni** and prefix **ha-** in a single dictionary. But the best way of lemmatizing locative nouns derived from affixing locative suffix **-ni** is to enter suffix **-ni** as a lemma with a high information density and as well enter those locative lemma with a high frequency usage.

It can also be said that the Tshivenda dictionary compilers should lemmatize nouns and locatives in a way that is user-friendly, i.e. arranging lexical items in a strict alphabetical arrangement and not treating them according to morph-semantic field which dictionary users cannot handle.

CHAPTER 4

THE LEMMATIZATION OF VERBS AND ADJECTIVES

4.1 INTRODUCTION

The aim of this chapter is to present various ways used in the lemmatization of verbs and adjectives in Tshivenda dictionaries. It will focus on the macro- and micro-structural components of these lexical items. The chapter will highlight aspects such as the morphology, syntax and semantics of verbs and adjectives in Tshivenda as one of the African languages.

4.2 THE LEMMATIZATION OF VERBS IN TSHIVENḐA DICTIONARIES

4.2.1 What is a verb?

A verb is defined by Collins (1994: 335) as a word which you use with a subject to say what someone or something does or what happens to them. This is also indicated by Crystal (1991: 371) when saying that a verb is a term used in the grammatical classification of words to refer to a class traditionally defined as doing or action words.

Hartmann and James (1998: 153) define a verb as a part of speech which serves to express an action or state. Bursmann (1996: 512) states that a verb is a type of word with a complex system of forms and functions and it indicates a phenomenon which takes place during time, activities, processes and states. From these explanations, a verb is a part of speech which conveys action or state expressed by a noun. Therefore, a verb expresses existence, action or occurrence of something.

4.2.2 Morphology of verbs in Tshivenda

As indicated in 3.2.3 above, morphology studies the internal structure of words. In this discussion, the internal structure of verbs will be highlighted.

In Tshivenda, a verb consists of a number of morphemes that are in a sense put together. Morphemes that constitute a verb are like the prefixes, roots and suffixes. The verb root together with the suffix forms a verb stem. This verb root carries the basic meaning of a word and has a lexical meaning. These morphemes are illustrated as follows:

- (1)
- (a) U shuma (to work)
 - (b) U bika (to cook)
 - (c) U sea (to lough)
 - (d) U lila (to cry)
 - (e) U tamba (to play)
 - (f) U țamba (to wash)
 - (g) U tshimbila (to walk)

In the example (1a) above, the verb **u shuma** (to work) consists of the following:

- U- > prefix
- shum- > verb root
- a > suffix

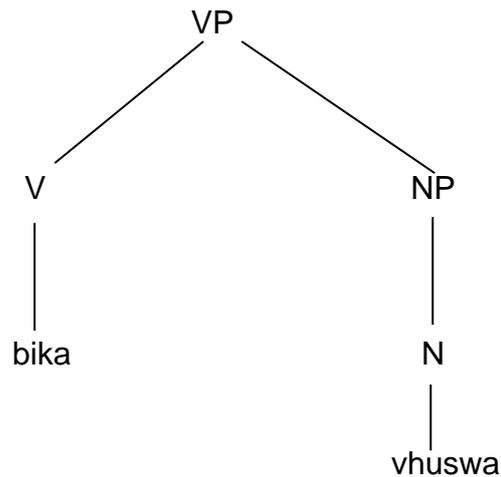
The verb root **-shum-** plus the suffix **-a** form a verb stem **-shuma** (work). Therefore a verb in Tshivenda consists of a prefix, verb root and a suffix.

4.2.3 Syntax of verbs in Tshivenda

Syntax as indicated in 3.2.4 is concerned with ways in which words combine to make sentences.

Bursman (1996: 513) defines the Verb Phrase (VP) as a syntactic category of generative transformational grammar which functions as the immediate constituent of the sentence and which must contain a verb. For example:

(2) **bika vhuswa**
(cook porridge)



The VP (Verb Phrase) **bika vhuswa** (cook porridge) has as its head the V (verb) **bika** and contains within it an NP (Noun Phrase) **vhuswa**.

The syntactic category of verbs in Tshivenda can be partially represented with argument structure specification as stated by Du Plessis (1999:281). This argument may be forced to appear with certain features as exemplified below:

(3) **-lal-** > sleep
ARGSTR = [ARG] = animate, individual

The verb **-lal-** (sleep) above assigns one argument only and this argument has two features because only animate beings are able to sleep.

Du Plessis (1999:282) also states that the argument structure of verbs look at the specifiers and complements of a verb to establish what may appear together with it. The verb like **-gotsha** (roast) will need a person to do the roasting and some food to be roasted and it is represented as follows:

(4) -gotsha > roast

ARG1 = animate, individual

ARG2 = food

4.2.4 Semantics of verbs in Tshivenda

This section deals with the semantic aspect of verbs in Tshivenda. In Tshivenda there are three main semantic types of verb roots that can express the meaning of verb in context - the inchoative roots, stative roots and actional roots (Poulos, 1990:198).

4.2.4.1 Inchoative roots

Inchoative roots are roots which indicate some or other entrance into a state. For example, the verb root **-net-** means become or get tired. In other words, the verb root **-net-** on its own indicates a process of becoming or getting tired. This also indicates that it is a process resulting in a state.

4.2.4.2 Stative roots

According to Poulos (1990: 203) stative roots express some or other state, mentally or physically. For example, the verb root **-peng-** refers to the state of being mad and not of becoming mad. Therefore in a dictionary the correct translation equivalent of this verb root is 'be mad'.

4.2.4.3 Actional roots

Actional verb roots are indicative of plain actions and there are no processes or states involved in their meaning. For example, the verb root **-amb-** has the meaning of 'speak'; it refers to the action of speaking and nothing else. That means there is no transformation into a state or state of speaking implied.

4.2.5 Analysis of the lemmatization of verbs in Tshivenda dictionaries

Verbs are not normally lemmatized in their full forms just like what happens to nouns. In most African language dictionaries verbs are lemmatized by their stems. In this case, lemmas are based on stems of written words without their prefixes. The other principle is to hyphenate the verb stem in the dictionary.

4.2.5.1 Lemmatization of verb forms by the first letter of the stem

First letter of the verbal stem can be used to lemmatize verbs in word dictionaries. Stems resemble words more closely than affixes. Therefore, these stems are the ones that need to be lemmatized as a verb itself consists of the infinitive prefix [U-] of class 15 plus a verb stem. But some of the Tshivenda dictionaries have lemmatized a verb. For example, Van Warmelo (1989) regards **-u zwa** [speak (royal)] as a lexical item whereas those words are the components of an infinitive from class 15 **[U-]** and **u zwa** is a language of the royal family which means 'to speak'.

Let's look at how the Tshivenda dictionaries have lemmatized verbs by the first letter of the stem:

- (5) (a) **-amba** speak, talk, say, speak of, mean
- (b) **-buba** rise early in the morning
- (c) **-duga** (So. -tuka) blaze, burn with a flame, flare up; ..vhuhali become angry, show anger, carry on when enraged
- (d) **-gotsha** roast e.g. tshikoli by placing on embers. cf. -otsha & see -oka
- (e) **-otsha** roast meat at an open fire. cf. -gotsha & see -oka
- (f) **-tamba** (Kar. Idem) play, amuse oneself. A ri tambwi nga riṅe we are not to be trifled with (Van Warmelo, 1989)

In the above examples, Van Warmelo (1989) lemmatized the verb forms (5a) **-amba** (speak), (5b) **-buba** (rise early in the morning), (5c) **-duga** (blaze), (5d) **-gotsha**

(roast) and (5f) **-tamba** (play) by the first letter of the stems, that is letter **a, b, d, g** and **t**. And what is of concern is that Van Warmelo (1989) has used the approach of hyphenating both verb stems and adjectival stems. Therefore dictionary users will in some cases be unable to retrieve the correct meanings of those lexical items as they will not know the difference between these two word classes. What should have been done was to hyphenate only the adjectival stems rather than verb stems as these resemble words in a language.

Van Warmelo (1989) in **-gotsha** (5d) also gave a cross-reference to a variant **-otsha**. The problem is that Van Warmelo (1989) gave full treatment to both lemmas, that is **-gotsha** and **-otsha**. And this approach took space of other items in the dictionary.

- (6) (a) **-amba** praat, gesels, bespreek; bedoel / speak, talk, discuss; mean
- (b) **-buba** baie vroeg opstaan / rise very early in the morning
- (c) **-duga** vlam, opvlam, in vlamme opgaan, met vlam brand / flare up, burn up with a flame, blaze
- (d) **-gotsha/-otsha** braai / roast (over fire)
- (e) **-tamba** speel, rol speel / play, act (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) also lemmatized verb forms by the first letter of the stem similar to that of Van Warmelo (1989). They all hyphenated both verb stems and adjectival stems. The verb stems **-amba, -buba, -duga, -gotsha** and **-amba** were lemmatized by the first letter of the stem which are **a, b, d, g** and **t**.

- (7) (a) **amba** /ii speak, say.....
 - (b) **buba** /ii rise early in the morning
 - (c) **duga** /ii blaze, flame up, burn up
 - (d) **gotsha** /ii roast
 - (e) **tamba** /ii act, play (Tshikota, 2006)
- (8) (a) **amba** /ii 1 u bvisa maipfi nga mulomo..... 2 u nea mulaedza.....
 - (b) **buba** /ii u vuwa hu tshe nga matshelonitsheloni, u fhinduwa

- (c) **duga** /ii u takuwa ha mulilo we wa vha u siho kana wo dzima
 - (d) **gotsha** /ii u bika nga u tou ṭhatḥa kha mulilo
 - (e) **tamba** /ii u ḡimvumvusa ho ṭanganaho na nyonyoloso kha muvhili
- (Tshikota, 2010)

Tshikota (2006, 2010) also lemmatized verb forms by the first letter of the stem in (7) and (8) above which is **a**, **b**, **d**, **g**, and **t**. He used the approach that is similar to that of Van Warmelo (1989) and Wentzel and Muloiwa (1982). But what is interesting is that Tshikota (2006, 2010) did not hyphenate the verb stems as in (7) and (8) **amba**, **buba**, **duga**, **gotsha**, and **tamba**. The approach used by Tshikota (2006, 2010) is better than that of Van Warmelo (1989) and Wentzel and Muloiwa (1982).

4.2.5.2 Lemmatization of reflexive verbs

Reflexives according to Poulos (1990:233) indicate that the action expressed by the verb is carried out on, or directed towards the subject of the verb. Reflexives in Tshivenda are formed by the reflexive prefix **ḡi-** and the verb stem, for example: **ḡifunza** (teach oneself) is formed by the reflexive **ḡi-** and the verb stem **-funza**. The lemmatization of reflexives in Tshivenda posed a problem as there are too many to accommodate in one dictionary. As they are too many to enter in a single dictionary, a mechanism must be developed to reduce the number of reflexives which must be entered in the dictionary. Here under, a possibility with regard to the lemmatization of reflexives in a Tshivenda dictionary is given:

If for discussion purposes, a Tshivenda dictionary has 5000 verbs and these verbs could be affixed with the reflexive prefix **ḡi-** the dictionary would contain 5000 additional entries. And these entries are taking space which could have been reserved for other information or emphasis. The best way is that of entering the reflexive prefix **ḡi-** as a lemma with high information density or lemmatizes reflexives that are frequently used. For example, Van Warmelo (1989) has entered **ḡi-** as a lemma and gives examples as **u a ḡivhona** (he sees himself) in the micro structure as follows:

(9) **ḡi-** general reflexive pron. vb pref. “oneself” for all noun classes;
 immediately precedes verb-stems, e.g. u a ḡivhona he sees himself. Reflexive forms are only mentioned for special meanings and should be sought under the verb-stem, e.g. -ḡi-pfa under -pfa. (Van Warmelo, 1989:21)

Tshikota (2006, 2010) and Wentzel and Muloiwa (1982) have not treated the reflexive prefix **ḡi-**, but treated some of the reflexives as follows:

- (10) (a) **-ḡifunza** leer (jouself leer) learn (teach oneself)
 (b) **-ḡilandula** ontken / abnegate
 (c) **-ḡitukufhadza** jouself verootmoedig / verneder;
 nederig/beskeiewees / humble oneself; be modest / humble
 (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) have not treated the reflexive prefix **ḡi-** but treated reflexives, like (10) **-ḡifunza**, **-ḡilandula**, **-ḡitukufhadza**, etc. as lemmas. The lemmas were not treated under the reflexive prefix **ḡi-**.

- (11) (b) **ḡifasha** /ii catch oneself
 (b) **ḡiita** /ii make oneself
 (c) **ḡibeba** /ii carry oneself (Tshikota, 2006)

Tshikota (2006) like Wentzel and Muloiwa (1982) has not treated the reflexive prefix **ḡi-** but treated reflexives such as in (11) which are like **ḡifasha**, **ḡiita** and **ḡibeba**. The lemmas were not treated under the reflexive prefix **ḡi-**. What is interesting with Tshikota (2006)’s approach is that the author did not hyphenate the reflexives.

- (12) (c) **ḡifasha** /ii u amba mafhungo u tshi khou hana uri ndi iwe u na
 mulandu wa fhedza wo ḡidzhenisa mulanduni
 (b) **ḡiita** /ii u ita tshithu kha iwe muḡe nga woḡhe
 (c) **ḡirwa** /ii u rwa kha iwe muḡe nga woḡhe (Tshikota, 2010)

Treatment of reflexives by Tshikota (2010) is similar to that of Wentzel and Muloiwa (1982) and Tshikota (2006). Tshikota (2010) treated reflexives not under the reflexive prefix **di-** as in (12) **difasha**, **diita** and **dirwa**.

4.2.5.3 Lemmatization of verbal derivations: derivational affixes

Verbal derivations are verb stems derived from attaching affixes. In Tshivenda the verbal functional derivations are expressed by the argument structure in syntax and the causative affix [-is-], the passive affix [-w-], the applicative affix [-el-] and the reciprocal affix [-an-]. Let's first look at the following derivational affixes:

4.2.5.3.1 Causative affix [-is-]

According to Poulos (1990), the causative affix indicates that the subject of the verb causes one to carry out the action or assists someone to carry out the action expressed by the root. For example:

- (13) (a) -shuma- + -is- > shumisa (cause to work)
(b) -ḽa- + -is- > ḽisa (cause to eat)
(c) -lima- + -is- > limisa (cause or assist to plough)

4.2.5.3.2 Passive affix [-w-]

The affix [-w-] expresses the passive form of the root. For example:

- (14) (a) -luma- + -w- > lumiwa (be bitten)
(b) -ramba- + -w- > rambiwa (be invited)
(c) -fha- + -w- > fhiwa (be given)

4.2.5.3.3 Applicative affix [-el-]

With this affix, the action of the verb is carried out on behalf of someone. For example:

- (15) (a) -renga- + -el- > rengela (buy for)
 (b) -amba- + -el- > ambela (speak for)
 (c) -fhaṭa- + -el- > fhaṭela (build for)

4.2.5.3.4 Reciprocal [-an-]

The reciprocal affix [-an-] expresses an action which is carried out mutually by the participants involved. For example:

- (16) (a) -vhona- + -an- > vhonana (see one another)
 (b) -vhenga- + -an- > vhengana (hate one another)
 (c) -funa- + -an- > funana (love each other)

As far as the verbal functional derivations are concerned, the point here is whether we must enter the verb stem with derivational affixes or not. But there are two places where the verbal functional derivations can be entered in a Tshivenda dictionary. Firstly, they can be entered in the macro structure as lemmas. Secondly, they can be entered in the micro structure as derivatives. For example:

- (17) (a) shuma (caus. shumisa; appl. shumela; pass. shumiwa; rec . shumana)
 work, serve, labour
 (b) shumana – work each other
 (c) shumela – work for
 (d) shumisa – cause to work
 (e) shumiwa – be worked

The above entries in (17) show how the verbal derivations could be entered in a Tshivenda dictionary.

Let us see how the Tshivenda dictionaries have treated verbal functional derivations:

- (18) (a) -bebwa gebore word / be born

- (b) **-dinwa** aanstoot neem; gepla word / take offences, be troubled
- (c) **-funana** mekaar liefhe / love each other
- (d) **-shumisana** mekaar help werk / help each other in work
- (e) **-lindela** wag vir / await, wait for
- (f) **-lugisela** regmaak vir / prepare for
- (g) **-nakisa** opknap, aan kant maak; versier, dekoreer / tidy; decorate, make beautiful
- (h) **-rengisa** verkoop, smous, handeldryf / sell, hawk, trade (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) treated verbal functional derivations in (18) **-bebwa**, **-dinwa**, **-funana**, **-shumisana**, **-lindela**, **-lugisela**, **-nakisa** and **rengisa** as lemmas. They were not entered in the micro-structure as derivatives. The main problem is that Wentzel and Muloiwa (1982) hyphenated the verbal derivations even though they resemble words in the language.

- (19)
 - (a) **ambiswa** *ɿii* be courted, to be proposed
 - (b) **anɿiwa** *ɿii* be liked by something
 - (c) **badelana** *ɿii* pay each other
 - (d) **dinana** *ɿii* quarrel with, trouble each other
 - (e) **ɿisela** *ɿii* bring for, keep company at night
 - (f) **gonyela** *ɿii* ascend to; climb for
 - (g) **bebisa** *ɿii* help give birth (midwifery); help to carry on the back
 - (h) **batisa** *ɿii* help to catch locusts or anthill termites (Tshikota, 2006)

- (20)
 - (a) **ambiswa** *ɿiitwa* **1** u humbelwa u pfi u funane na muñwe muthu **2** u kombetshedzwa uri u bwise maipfi kana vhupfiwa hau u sa funi
 - (b) **aniswa** *ɿiitwa* u ambiswa muano nga madzhisiṯaraṯa
 - (c) **daudzana** *ɿiitana* u lumelisana na muñwe muthu na dovha na vhudzana mafhungo
 - (d) **dzimana** *ɿiitana* u sa ɿekana zwithu
 - (e) **farela** *ɿiitela* **1** u nemebedza tshithu tsha muñwe nga tshanda **2** u hangwela vho u khakhelaho *u ~ lufhanga* u hangwela muthu
 - (f) **pembelela** *ɿiitela* u tshinela vhañwe vhatu vhone vha tshi khou

vhona uri iwe u tshinisa hani

(g) **farisa** *liitisa* **1** u ṭḥaḁula muḁwe kha zwi no khou mu lemela **2** u vulela mulandu mapholisani muthu we a nkhakhela

(h) **gonyisa** *liitisa* **1** u thusa a no khou kundelwa u namela muri kana zwiṭepisi **2** u engedza mutengo wa zwithu (Tshikota, 2010)

Treatment of verbal functional derivations in (19) and (20) is similar to that of Wentzel and Muloiwa (1982). They have treated, for example, **bebwa**, **ambiswa**, **funana**, **dinana**, **dzimana**, etc. as lemmas and not as the article structure of verbal forms. The slight difference is that Tshikota (2006, 2010) did not hyphenate the derivations. The approach used by Tshikota (2006, 2010) is user-friendly as users will not confuse verbal functional derivation with the adjectival stems.

- (21)
- (a) **-bikela** (applic. of -bika) 1 cook for, etc. 2 teach and doctor a pupil doctor, as a practising n̄anga does one who pays him a fee for instruction or who learns under him
 - (b) **-bvela** applic. of -bva, go out for, to, etc. Thoro iyi ndi ya u bvelwa nayo Vhulozwi this seed was brought out for him from Vh.. ~ n̄ḁa go out. ~ (nga) n̄ḁa go out to relieve oneself. Vha - (hu a bvelwa) hone that is where ... Bvela kule hashu go far away from us
 - (c) **-divhana** know one another; .. na know carnally
 - (d) **-gavhana** throw to and catch from one another
 - (e) **-dzhenisa** cause to enter, take in, bring into, introduce, insert. --n̄ḁuni render a wife pregnant
 - (f) **-dzumbamisa** help or cause another to conceal himself (Van Warmelo, 1989)

Van Warmelo (1989) has treated verbal functional derivations in some cases different from that of Wentzel and Muloiwa (1982), Tshikota (2006, 2010). When treating verbs affixed to applicative affix, Van Warmelo (1989) also gave reference of verb from which a derivative is derived from as in (21a) **-bikela** and (21b) **-bvela** where the author entered the references after the lemma. The author also indicated

how these verbal derivations are used in a sentence as in (21b) ~ **nd̩a** (go out) and **bvela kule hashu** (go far away from us).

Van Warmelo (1989) also gave some idiomatic expression in some verbal derivations as in lemma **dzhenisa** (21e) where an idiomatic expression **u dzhenisa nd̩uni** (render a wife pregnant) has been treated.

4.2.6 Lemmatization of the infinitives with the verb stem

The infinitive in Tshivenda is the form of the verb with **U** before it.

For example:

- (22) (a) u gidima > to run
(b) u lima > to plough
(c) u tshimbila > to walk
(d) u sea > to laugh

In Tshivenda dictionaries there is no need to lemmatize infinitives. Entering infinitive verbs poses problems. If we lemmatize verb stem with infinitive prefix we would not know as to whether the alphabetical arrangement must be made by the first letter of the verb form or by the first letter of the verb stem. In addition, if we enter verb forms under the alphabet **U** that means the verb stem would no longer appear alphabetically in their own place in the dictionary. This means that the verb stem is now being entered with inflection of class prefix **U-** [15]. And if we enter **U** as part of the article structure we still create an unnecessary information density. It is believed that verb stems must not be entered with infinitives.

In the Tshivenda dictionaries of Wentzel and Muloiwa (1982), Tshikota (2006, 2010) infinitives with the verb stem were not treated, but Van Warmelo (1989) has done this, as exemplified below:

- (23) **-u zwa** (musanda lang., of chief only) wash own person or garment. A caus. of * -uvha < -kuvha wash (Van Warmelo, 1989:447)

The above treatment by Van Warmelo (1989) confuses dictionary users. **U zwa** is an infinitive from class [15] and it is the first of its kind in Tshivenda dictionaries. **U zwa** in the language of the royal family means 'to speak'. The treatment should have been as follows:

(24) zwa – speak (royal)

4.3 THE LEMMATIZATION OF ADJECTIVES IN TSHIVENḐA DICTIONARIES

4.3.1 What is an adjective?

An adjective is defined by Crystal (1991:8) as a term used in the grammatical classification of words to refer to the main set of items which specify the attributes of nouns. Similar explanation is offered by Bursman (1996:7) when saying that an adjective is a grammatical category (part of speech) that is used attributively with nouns.

Hartmann and James (1998:3) also define an adjective as a part of speech which serves primarily to specify an attribute or quality of a noun or a noun phrase. Adjective is also defined by [About.com. Grammar and Composition](#), accessed 01-10-2012 as the part of speech (or word class) that modifies a noun or a pronoun. It can be said that adjectives are group of words that are used to modify, supplement or restrict the meaning of nouns.

4.3.2 Morphology of adjectives in Tshivenda

The adjective like any other qualificatives consists of a concord and a stem according to Poulos (1990:125). The concord agrees in class with the noun to which it refers. But in most cases it is identical to the noun prefix. Below are examples of adjectival concords:

- (25)** Class 1 (1a) mu-
 Class 2 (2b) vha-
 Class 3 mu-
 Class 4 mi-
 Class 5 ǀi-
 Class 6 ma-
 Class 7 tshi-
 Class 8 zwi-
 Class 9 n-
 Class 10 dzi-
 Class 11 lu-
 Class 14 vhu-
 Class 16/17/18 hu-
 Class 20 ku-
 Class 21 ǀi-

As indicated above, adjectives consist of concords and stems. In Tshivenda, there are a limited number of adjectival stems of which the most important are listed below with apt examples:

- (26)** -hulu > muhulu (big)
 -raru > vhararu (three)
 -sekene > musekene (thin, slender, lean)
 -swu > mutswu (black)
 -vhi > muvhi (bad)
 -vhili > mavhili (two)
 -ṭuku > muṭuku (small)
 -nzhi > munzhi (many)
 -sili > musili (foreign)
 -lapfu > mulapfu (tall)
 -denya > mudenya (fat)
 -thihi > muthihi (one)
 -rema > murema (black)

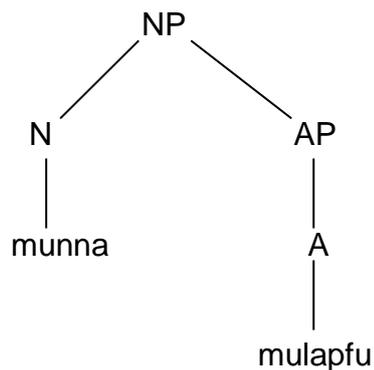
In the above examples in (26), the adjectives are formed by the adjectival concords and adjectival stems. For example, the adjective **muhulu** (big) is formed by the adjectival concord **mu-** plus **-hulu** which is an adjectival stem.

4.3.3 Syntax of Adjectives in Tshivenda

This section deals with the syntax of adjectives in Tshivenda. In Tshivenda, an adjective phrase has an adjective as its head and in a sentence it follows a nominal form.

For example:

- (27) Munna mulapfu
(Tall man)



In example (27) above, **mulapfu** (tall) is an adjective that follows a nominal form **munna** (man)

4.3.4 Semantics of Adjectives in Tshivenda

Adjectives by their very nature are generally taken to denote states according to Du Plessis (1999:258). Dixon (1982) as quoted by Du Plessis (1999: 258) distinguishes adjectives according to the general semantic field associated with the term. In African languages there are various categories that may have the meaning of adjectives but they differ in form.

In Tshivenda adjectives are expressed in three ways, namely:

descriptive adjectives, e.g. -hulu > munna [muhulu] (big man)

quantitative adjectives, e.g. -nzhi > vhusunzi [vhunzhi] (many ants)

colour adjectives, e.g. -tswu > vhurukhu [vhutswu] (black trouser)

4.3.5 Analysis of the lemmatization of adjectives in Tshivenda dictionaries

Adjectives are lexical items which can be entered in their own place in a dictionary. But not all adjective forms can be entered in a particular dictionary as they are too many to accommodate in one dictionary. Lemmatization of adjectives posed a great problem in Tshivenda; these adjectives are too many to enter them all in a dictionary so mechanisms must be developed to reduce the number for entry. Hereunder, are possibilities for the lemmatization of adjectives:

In Tshivenda, there are not less than 13 adjectival stems and these will form the focus of our discussions:

- (28)
- hulu > (big)
 - raru > (three)
 - sekene > (thin, slender, lean)
 - swu > (black)
 - vhi > (bad)
 - vhili > (two)
 - tuku > (small)
 - nzhi > (many)
 - sili > (foreign)
 - lapfu > (tall)
 - denya > (fat)
 - thihi > (one)
 - rema > (black)

That would mean one adjective stem could have more than 8 forms. Without duplication 13 adjective stems would not have less than 140 adjective forms which could be entered in Tshivenda dictionaries. In principle 13 adjective stems represent 13 different meanings. Of the 140 adjectival entries, 127 entries will be just duplications of one of the 13 meanings contained in 13 adjective stems. To avoid this space-consuming effort two options can be adhered to, which are the following:

4.3.5.1 Lemmatizing only adjective stems

In this case, the 13 or more adjective stems must each be lemmatized with some few examples, for example:

- (29) (a) -hulu adjective stem; *muhulu*, *lihulu*, *huhulu*, *tshihulu*, *zwhulu*
 (b) -lapfu adjective stem; *mulapfu*, *tshilapfu*, *vhulapfu*, *kulapfu*

These adjectival stems were discussed in 4.3.2 above. Let us look at how Tshivenda dictionaries have treated adjectival stems:

- (30) (a) **-hulu** (adj) groot / big, large e.g. **muthu muhulu** n groot person / a big person; **vhathu vlahulu** groot mense / big people; **liṭo lihulu** n groot oog / a big eye; **tshinoni tshihulu** n groot voel / a large bird; **mmbwa khulu** groot hond (e) / big dog (s); **vhusunzi vhuhulu** groot miere / large ants
 (b) **-lapfu** (adj) lank, hoog / long, tall, high e.g. **muthu mulapfu** n lang person / a tall person; **vhathu vhulapfu** lang mense / tall people; **miri milapfu** lang/hoe bome / tall trees; **danda lilapfu** lang paal / long pole; **matanda malapfu** lang pale / long poles; **tshidimela tshilapfu** lang trein / long train; **nṅdu ndapfu** hoe huis (e) high house (s); **lufhanga lulapfu** lang mes / long knife; **vhusiku vhulapfu** lang nag / long night (Wentzel and Muloiwa, 1982)

In the above examples in (30), Wentzel and Muloiwa have treated the adjective stems with some few examples as in (30a) **-hulu** which are, **muthu muhulu** (a big

person), **vhathu vhahulu** (big people), **liṭo lihulu** (a big eye), **tshinoni tshihulu** (a large bird), **mmbwa khulu** (a big dog) and **vhusunzi vhuhulu** (large ants) were provided. Wentzel and Muloiwa (1982) used in my opinion, a better approach in treating adjective stems.

- (31) (a) **-hulu** *tsind la liṭalu* big
 (b) **-lapfu** *tsind la liṭalu* long, tall, high (Tshikota, 2006)
- (32) (a) **-lapfu** *tsind la liṭalu* ipfi line la khou sumba uri tshithu tshi fhira
 tshinwe nga u ya nṭha kana matungo
 (b) **-denya** *tsind la liṭalu* u sumbedza uri tshithu tsho hula u fhira
 tshinwe (Tshikota, 2010)

The treatment of adjective stems by Tshikota (2006, 2010) differs from that of Wentzel and Muloiwa (1982). Tshikota (2006, 2010) treat adjective stems as lemmas without giving examples of these adjective stems as in (31a) **-hulu**, (31b) **-lapfu** and (32b) **-denya**.

- (33) (a) **-hulu** (adj. ; cl. 9, 10 khulu, cl. 5 fulu, liṭhulu) big, large (in the sense of being tangibly, visibly large; cf. -hulwane) tshanda tshihulu right hand
 (b) **-lapfu** (adj. in class 9, 10 ndapfu) long, tall, high (Van Warmelo, 1989)

Van Warmelo (1989) has treated adjective stems differently from that of Tshikota (2006, 2010) and Wentzel and Muloiwa (1982). Van Warmelo (1989) in (33a) **-hulu** and (33b) **-lapfu** indicated the adjectives of classes 9 [N] and 10 [dziN] where there are certain sound changes that take place in the initial consonants, that is, **-hulu** to **khulu** [h to kh] and **-lapfu** to **ndapfu** [l to nd].

Moreover, the adjective stem **-hulu** when affixed to certain adjectival concords can be used in the development of Tshivenda language in some proverbs and idioms. Therefore, the above dictionaries should have added context concerning proverbs

and idioms in their micro structure. To mention a few, the following are examples of proverbs and idioms that have used the adjectival stem **-hulu**:

(34) Proverbs

- (a) Maand̩a [**mahulu**] ha ɬelwi
(You do not eat for the big power)

- (b) [**Vhuhulu**] ha muthu ndi mbilu
(Greatness of a person is the heart)

- (c) [**Vhuhulu**] ndi makole vha a sundana
(Great men are like clouds, they keep one another at a distance)

- (d) Naho muhwalo u [**muhulu**] a u lemeli muṅe wawo
(Even when the load is big, it can't be too heavy for the owner)

- (e) [**Vhuhulu**] ha ṅdou vhu pfulwa nga misevhe
(The bigness of an elephant could be shoot with an arrow)

- (f) Ndi khanga [**khulu**] thi na mavhala, mavhala a na khangana
(A big guinea-fowl got no colours, the small one got colours)

- (g) Ndi khunḁa ya [**muhulu**], i fasha i songo rewa
(It is the pitfall of the big; it catches when it has not put the snare)

- (h) ɬila [**ɬihulu**] ɬo tumuwa
(The big bowel has been cut)

- (i) Muhoha [**muhulu**] a u na ṅama
(A broad animal track is a sign that such an animal fell prey to a large beast of prey which may not have left much over)

- (j) ṅḁila [**khulu**] a i na lupfumo, lupfumo lu na ṅḁila ɬhukhu

(The broad road does not have riches; riches is with the narrow path)

(k) [**Vhuhulu**] ha ndou vhu pfulwa nga misevhe

(The bigness of an elephant could be shot with an arrow)

(l) Ni songo ofha mahwai, nndwa ndi [**khulu**]

(Don't fear the scratches, the war is great)

(m) Wa peula la [**muhulu**], mavhonela u do a vhona

(If you draw aside the loin cloth of a great man, you will see what should not be seen)

(n) U tshi suma [**muhulu**] lufu, u suma a tshi lu divha

(When you report a death to a great person, you do so to one who already has the news)

(o) Tshiṭoma tshi a tshidza, [**tshihulu**] a tshi tshidzi

(A small thing may save life, not a big one)

(p) [**Vhuhulu**] ha muthu ndi mbilu

(Greatness of a person is the heart)

(q) Mulanda [**muhulu**] ha li tsha khosi

(A chief commoner never eats what belongs to a chief)

(r) Mbilu [**khulu**] ya musingili, a tshi laṭelwa dzembe a doba

(Great is the patience of the man in search of food, if a hoe is thrown to him he picks it up)

(35) Idioms

(a) U bika nga [**khulu**]

(To cook with a big pot)

- (b) U ya [tshihulu]
(To go the big way)

4.3.5.2 Lemmatizing only adjectives of class prefixes [N- 9] and [dzi-N 10]

Adjectives of class prefixes [N- 9] and [dzi-N 10] should be lemmatized as the nasal **N** of the adjectival concords of these two classes cause certain sound changes to take place in the initial consonants of certain adjectival stems. In addition, they must be lemmatized with cross-reference to the 13 or more adjective stems as they are few and have got spelling changes. For example:

(36)	khulu	see	-hulu
	mbili	see	-vhili
	mmbi	see	-vhi
	ndapfu	see	-lapfu
	ndenya	see	-denya
	nnzhi	see	-nzhi
	nthihi	see	-thihi
	ntswu	see	-swu
	tharu	see	-raru
	thema	see	-rema
	ṭhukhu	see	-ṭuku
	tsekene	see	-sekene

Let us see how the Tshivenda dictionaries have lemmatized adjectives of class prefixes [N- 9] and [dzi-N 10]:

- (37)**
- (a) **khulu** (adj n- / dzin-) cf -hulu
 - (b) **mbili** (adj n- / dzin-) cf -vhili
 - (c) **ndapfu** (adj n- / dzin-) cf -lapfu
 - (d) **tsekene** (adj n / dzin-) cf -sekene (Wentzel and Muloiwa, 1982)

Wentzel and Muloiwa (1982) treated adjectives from class prefixes [N- 9] and [dziN-10]. They have treated in (37) (a) **khulu**, (b) **mbili**, (c) **ndapfu**, and (d) **tsekene** with a cross reference to the adjectival stems. And after the lemma they provided noun classes N and dziN that will help dictionary users to understand that these adjectives are used with nominal forms of these classes only. They used the approach that is friendly to users.

- (38) (a) **khulu** 9 1 adj. cl. 9, 10 from -hulu. 2 largest ngoma drum (foll. by dumbula & mutungwa) in tshikona dance & spirit possession drumming. 3 (cl. 10) = phedza, cattle of musanda
 (b) **mbili** 1 adj. cl. 10 of -vhili “two” 2 (coined numeral)
 (c) **ndapfu** (adj. cl. 9, 10 to -lapfu) long, high
 (d) **tsekene** adj. cl. 9, 10 to -sekene (Van Warmelo, 1989)

Van Warmelo (1989) treated adjectives of classes 9 [N] and 10 (dziN) in an approach that is similar to that of Wentzel and Muloiwa (1982). Van Warmelo (1989) has treated adjectives (38a) **khulu** and (38d) **tsekene** with a cross-reference to the adjectival stems. After the entry of each adjective, Van Warmelo (1982) provided classes 9 [N] and 10 [dziN] to indicate that these adjectives are used with nominal forms of classes 9 [N] and 10 [dziN]. But in some cases, Van Warmelo (1989) provided a full treatment of adjectives of class prefixes 9 and 10 that need to be cross-referenced to adjective stems as in (38c) **ndapfu** that was given a full treatment. Van Warmelo (1989) should have done what he did in (38a) **khulu** and (38d) **tsekene**.

- (39) (a) **khulu** *litalu* big
 (b) **ndenya** *litalu* thick
 (c) **tharu** *litalu* three (Tshikota, 2006)
- (40) (a) **khulu** *litalu* tshithu tshihulwane kha zwiñwe
 (b) **ndenya** *litalu* tshithu tshihulwane kha tshisekene lune arali i thanda muthu a nga kondelwa u i vunḡa
 (c) **tharu** *litalu* u vhala mbalo ine ya vha vhukati ha mbili na iṅa (Tshikota, 2010)

Treatment of adjectives from class prefixes [N 9] and [dziN 10] by Tshikota (2006, 2010) differs from that of Wentzel and Muloiwa (1982) and Van Warmelo (1989). Tshikota (2006, 2010) treated both adjective stems and adjectives of classes 9 and 10. The problem is that these authors gave full treatment to adjectival stems and adjectives **khulu**, **ndenya** and **tharu** of classes 9 and 10 and also did not provide classes 9 and 10 after the entry of an adjective and this approach duplicates meaning and consumes space in a dictionary. Dictionary users who are not native speakers of Tshivenda language will use these adjectives with nominal forms of other classes rather than use them with nominal forms of classes 9 [N] and 10 [dziN]. Tshikota (2006, 2010) should have used the approach by Wentzel and Muloiwa (1982) in (37a to d).

CONCLUSION

It can be concluded that when one wants to compile a user-friendly dictionary for lemmatizing verbs and adjectives one should develop sound strategies for planning the structure of a dictionary. In lemmatizing verbs and adjectives, their macro- and micro-structure should be taken into consideration. When one is compiling a dictionary, verbs and some adjectives have to be lemmatized on linguistic grounds.

As far as the lemmatization of verbs is concerned, it can be said that one should lemmatize verbal stems as a verb consists of the infinitive prefix [U-] of class 15 plus a verb stem. Apart from that, one should also avoid the approach of hyphenating verbal stems as they resemble words in a language. One should hyphenate the adjective stems as by themselves they indicate that something should be affixed before the stem. With verbal functional derivations, one should lemmatize derivations that are frequently used as they are too many to enter in a single dictionary. This also applies to the reflexives.

The lemmatization of adjectives poses a great problem in Tshivenda as they are too many to accommodate in one dictionary. Therefore, to overcome this problem, one

should lemmatize only adjective stems and adjectives of class prefixes [N-9] and [dziN- 10].

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The aim of this chapter is to present the summary of chapters, findings, recommendations and conclusion based on the foregoing analysis.

5.2 SUMMARY OF CHAPTERS

Chapter 1 deals with the introduction of the study. It gives the research question, aim, objectives, significance, methodology and how data were collected.

Chapter 2 treats views of various scholars on the lemmatization of lexical items. It concentrates on the works of few prominent scholars in this field such as Du Plessis (1996), Gouws and Prinsloo (1997) and Van Wyk (1995).

Chapter 3 handles the analysis of lemmatization of lexical items such as nouns and locatives in Tshivenda dictionaries. It examines the approaches used in the lemmatization of these lexical items in Tshivenda dictionaries. Pages were randomly selected in Tshivenda dictionaries and analysis was given on how each of them has treated nouns and locatives. The chapter also explores the morphology, syntax and semantics of nouns and locatives.

Chapter 4 examines various ways used in the lemmatization of verbs and adjectives in Tshivenda dictionaries. It also highlights the morphology, syntax and semantics of verbs and adjectives.

Chapter 5 is the conclusion of the study where findings and recommendations are presented.

5.3 FINDINGS AND RECOMMENDATIONS

In conclusion one can say the main aim of this investigation was to analyse the lemmatization of Tshivenda lexical items such as nouns, locatives, verbs and adjectives in selected Tshivenda dictionaries. The study highlighted the morphological, syntactical and semantically representation of nouns, locatives, adjectives and verbs.

It was found that dictionaries belonging to Tshivenda language have treated nouns and locatives according to word tradition while treating verbs and adjectives according to stem.

As far as lemmatization of nouns is concerned, Tshivenda dictionaries, that is Wentzel and Muloiwa (1982), Van Warmelo (1989), Tshikota (2006, 2010) have lemmatized them through noun class prefixes when such prefixes are there and with initial sounds if these prefixes are absent. With variant and synonym nouns it was found that some of the Tshivenda dictionaries did not give them the limited lexicographic treatment. They gave full treatment to all lemmata instead of giving full treatment to those of higher usage frequency and the other lemmata by a cross-reference. With plural nouns some of the Tshivenda dictionaries have given full plural in brackets after the entry of nouns and were entered separately as lexical items. This treatment of plural forms increases noun redundancy as they provided the entry of plural nouns with a cross-reference to the singular nouns. They should have given plural prefixes after the entry of a noun and full plural forms to those that have sound changes.

With the lemmatization of locatives it was found that the Tshivenda dictionaries have lemmatized locatives derived from affixing locative suffix **-ni**. The problem is that some of the Tshivenda dictionaries have entered those locatives as examples under the sublemmata **-ni**. This type of treatment is not user-friendly as they will not know that those lemmata were treated under those sub-lemmata. Other dictionaries have treated those locatives under the non-locative nouns. This is also inconsiderate for dictionary users as these nouns were treated according to morph-semantic field which users could have difficulties with. What should have been done was to enter

only locative lemmas with a higher frequency usage as locatives are too many to be included in a single dictionary, especially those that result from attaching suffix **-ni** to nouns.

As far as the lemmatization of verbs is concerned, it was found that the Tshivenda dictionaries have lemmatized verbs according to stems. Some of the dictionaries used the approach of hyphenating verb stems. And there is no need for hyphenating verb stems as they resemble words in a language. With verbal functional derivations it was found that the Tshivenda dictionaries have treated them using different approaches. Firstly, they were entered in the macro-structure as lemmas with a hyphen and secondly without a hyphen. As they are too many to be entered in a single dictionary, only verbal functional derivations should be lemmatized without a hyphen as they resemble words in a language. This also applies to the reflexives. With the infinitives, there is no need to lemmatize them in Tshivenda as entering verbs with infinitives poses problems. We would not know whether the alphabetical arrangement must be made with the first letter of the verb stem or enter verb forms under alphabet **U**. If we enter verb forms under alphabet **U**, they will no longer appear alphabetically in their own place in the dictionary. But some of the Tshivenda dictionaries have treated infinitives with the verb stem and this brings about unnecessary information density. It is recommended that the verb stem must not be entered with infinitives.

It has been found that the lemmatization of adjectives poses a great problem in Tshivenda as they are too many to be accommodated in one dictionary. Therefore, to overcome this problem, one should lemmatize only adjective stems and adjectives of class prefixes [N-9] and [dziN- 10] as there are certain sound changes that take place in the initial consonants. It was also found that the Tshivenda dictionaries have lemmatized some adjectives by the stems as they have lemmatized the adjective stems. Writers have also used the approach of hyphenating adjective stems. This approach of hyphenating adjective stems is proper as adjective stems by themselves indicate that something should be affixed before the stem.

It was found that Tshivenda dictionaries have used different approaches in treating adjectives. Some have treated the adjective stems with some examples and others

without giving examples. When the adjectives from class prefixes [N- 9] and [dziN- 10) were treated, some of the Tshivenda dictionaries have used the approach of cross-referencing them to the adjectival stems and again providing noun class prefixes **N-** and **dziN-** in brackets after the lemma. But some dictionaries have used the approach of giving full treatment to both adjective stems and adjectives from noun class prefixes **N-** and **dziN-**. And this approach duplicates meaning and consumes space in the dictionaries. What should have been done was to give full treatment to adjective stems with a cross-reference to adjectives of class prefixes **N-** and **dziN-**.

Lastly, it can be said that the Tshivenda dictionary compilers should treat nouns, locatives, verbs and locatives in a way to make them user-friendly.

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