THE MORPHO-SEMANTICS OF COMPOUND WORDS IN SEPEDI

by

MABOA RACHEL MMAPITSO

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DECLARATION

I, RACHEL MMAPITSO MABOA, declare that the mini-dissertation entitled: "**THE MORPHO-SEMANTICS OF COMPOUND WORDS IN SEPEDI**" hereby submitted to the University of Limpopo, for the degree of Master of Arts (Translation studies and Linguistics) has not previously been submitted by me for a degree at this or any other university; that is my work in design and in execution, and that all material contained herein has been duly acknowledged.

………………… …………………..
Signature Date
(Maboa, R.M.)

DEDICATION

This work is dedicated to my parents, James Leshoka Maboa and Dina Mmabagwe Maboa.

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LIST OF TABLES

LIST OF ABBREVIATIONS AND SYMBOLS

[]: morphological parsing

+: addition

≠: not equal to

→: equal to

a: first morpheme

Adj: adjective

AGR: agreement

b: second morpheme

CL: class

CL14: noun class 14

CL7: noun class 7

CL9: noun class 9

DeverbSuf: deverbative suffix

DimSuf: diminutive suffix

GL: gloss

LocSuf: locative suffix

Nom.Root: nominal root

N. CL: noun class

N.pref: nominal prefix

N: noun

Ø: null morpheme

PRES.CONT: present continuous

PRES: present tense

R: first constituent

SING: singular

T: second constituent

V: verb

x: first lexical category

y: second lexical category

ABSTRACT

The prime goal of this study is to explore, form and analyse the semantic content of compound words in Sepedi. The study used the qualitative method. Data were collected using participant observations from various written sources and it was analysed through Content Analysis. The Theory of Construction Morphology was tested on endocentric, exocentric, and copulative compound words to locate the headedness of Sepedi compound words. The study revealed that the head of compound words can be located on the nominal prefix, left-hand side, right-hand side, on both nominal prefixes and it can be determined outside of the compound word for metaphoric exocentric nominal compounds. Furthermore, because of the role noun class prefixes play on determining the head of compound words, the study found that Sepedi compound words are nominals. The formation of Sepedi compound words involves the combination of different word aspects such as objects concords, deverbatives, verbal roots, stems, suffixal endings, and lexical categories such as nouns, Adjectives, and verbs. The resultant compound word of these combinations always results in a compound noun. It was recommended that future researchers should investigate the semantic content of exocentric compound words in African languages, especially the Sepedi language. The study further highlighted that there is still a need for a study that looks at the influences of nominal prefixes on the headedness of compound words in Sepedi. Furthermore, the study recommended that to alleviate the gap of shortage of literature in Sepedi, future studies should focus on word formation processes in Sepedi.

Keywords: semantic content, compound words, lexical categories, endocentric, exocentric, copulative, headless, headedness, prefixes, nominals, and morphemes.

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CHAPTER 1: BACKGROUND AND MOTIVATION

1.1. Introduction

This study explores the various elements which appear in compound words and semantic meaning in Sepedi language. Through a detailed exploration and analysis this study seeks to understand the formation and semantic meaning of compound words in Sepedi from a construction morphology perspective. Therefore, based on the nature of this study, compound words will be formed and collected from a variety of written sources. Moreover, the study will further focus on the architecture and semantic meaning of newly coined compound words which were introduced to linguistics due to the outbreak of COVID-19.

In due course, this study will contribute to the linguistic literature and the development of Sepedi language. The arguments of this study are presented based on the theory of Construction Morphology (CM) developed by Booij (2010a). Different compound words will be provided to determine the applicability of Construction Morphology theory in determining the formation and meaning of compound words.

1.2. Background to the study

The present chapter provides the background to the study by firstly discussing a historical background of Sepedi language. Secondly, it focusses on the definition of compound word. Then, it further discusses morphemes in Sepedi language, as well as types of compound words. Thereafter, if provides the statement of the research problem with the aims, research questions, limitations, and the significance of the study. Lastly, ethical consideration and chapter summary are provided.

1.2.1 Historical background of Sepedi language

Sepedi language is one of the eleven official languages of South Africa. It is also known as Northern Sotho or Sesotho sa Leboa. Kosch (1993: 2) traces the history of Northern Sotho as a written language back to the founding of the first Berlin Mission Station in the Transvaal by the following scholar: Alexander Merensky and Heinrich Crützner, in 1859.

Apart from Sepedi dialect, other varieties of Northern Sotho include seTlokwa, sePulana, seBirwa, or KheLobedu. The dialect which missionaries first recorded the Bible became the standard language. Hence, Kosch's (1993, states that Sepedi becomes the standardised form of Northern Sotho.

Sepedi like other languages, consists of various word categories such as verbs, nouns, idiophones, adverbs, adjectives, and aspect. All these categories are required to be able to express different semantic content in Sepedi language. These categories are utilised throughout word formation processes to develop vocabulary or terminology. Word formation processes used to form words are blending, clipping, compounding, derivation, or acronyms. For the purpose of this study, however, emphasis is made on compounding as a linguistic tool used to form compound words in a language.

1.2.2 Definition of the concept compound word

It is important to understand the concept 'word' before defining the term compound word. In morphology, a word is defined as a single unit of language with a meaning which is spoken or written (Hornby, 2010). This implies that since a word is spoken and written, it can be used for communicative purposes to form sentences that can have one or more meaning. A word is a sign which begins with a root and to this root, one can add a prefix and a suffix to form a word (Alhasibunur, 2018). Moreover, a word can appear in isolation, and it can attach to different affixes. According to Noumianty (2016), a word is a familiar linguistic unit that is the smallest free form found in a language and is associated with lexical categories such as noun, adjective, verb or, adverb. Based on the given definitions, a word is an element in a language that has a meaning and can also be modified to have different roles.

Selkirk (1982:13) defines a compound as a type of word structure made up of at least two constituents, each belonging to one of the lexical categories. The compound itself may belong to the category of nouns, verbs, or adjectives. McManis (1987:129) supports this idea by stating that a compound is a word formed by the combination of two independent words. This suggests that a compound word is one word that has one united meaning from two different words. Katamba (1993:54) says a compound word contains at least two bases which are both words, and at any rate, root

morphemes. In addition, compounding brings two or more entities together into a single unit that has one meaning.

1.2.3 Classification of morphemes

Morphemes are classified according to the way in which they combine with other morphemes to form words. Thus, it is important to define the term 'morpheme'. According to Stageberg (1999), a morpheme is a short segment of language that meets three criteria: it may be a part of a word that has meaning; it cannot be divided into smaller meaningful parts without violation of its meaning; and it recurs in differing verbal environments with a relatively stable meaning. A morpheme is essentially a word or a meaningful piece of a word that cannot be divided into smaller meaningful parts. Examples of English morphemes include school, book, read or *re-*, *-ing* of 'rereading' (Aronoff and Fudeman, 2011). The point is that a morpheme can stand on its own and have a meaning or it can be attached to a lexical item.

A free morpheme is one that can stand alone such as 'nation', 'book' or 'car' (Rustamaji, 2015). A free morpheme can serve as a word that does not always require other morphemes to express the meaning because it is a unit of language which is meaningful. Aryati (2014) a free morpheme is one which may stand alone in a language, without requiring the presence of additional morphemes to be freely pronounceable as a word.

Mphasha (2006) states that bound morphemes are affixes, either prefixes or suffixes and always appear with a root or stem and never on their own. For example, the prefix *se-* of noun class 7 in *sebata* (carnivore) and the suffix *-ng* in *sekolong* (at school). The suffix *-ng* is also called locative suffix. The prefix *se-* cannot be broken down into smaller linguistic units. Fromkin, Hyams and Rodman (2014) outline that bound morphemes have affixes that can be attached at the beginning or the end of the word. It is thus a dependent part of a word and is always attached to at least one free morpheme because it relies on other units to complete the meaning of a word.

An affix that occurs before a word is referred to as a prefix and the one that occurs after a free morpheme is called a suffix (Fromkin et al., 2014). Based on these definitions, bound morphemes are meaning-bearing units of a language, such as prefixes and suffixes, that are attached to unbound morphemes.

According to Lombard (1985), morphemes in Sepedi language can be recognised or identified by comparing words with each other. By comparing words, it is easy to draw comparisons in two ways in order to identify morphemes. Consider the following:

(1)

    (a) *ke a aga*

    GL: I-CL.1 SING. AGR.PRES build

    I am building

    (b) *ke a e aga*

    GL: I-CL. 1-SING. AGR. It-CL.9-SING build PRES.CONT

    I am building it

The examples in (1) above only differs in one respect as regards form, namely the *-e-* which occurs in (1b). The meaning of example (1a) and (1b) is similar, except for the addition of 'it'. If two words are similar, except for a structural feature in one that does not occur in the other one, then that part which brings about the difference is a morpheme. In addition, Poulos and Louwrens (1994) attest that the morpheme *a* in *ke a aga* refers to the present tense vowel as a tense prefix. This is because the tense prefix *a* indicates that the action is being carried out at the present moment.

Morphemes in Sepedi language can also be extracted from nominal prefixes from two different words in different noun classes.

(2)

    (a) *motho* (human being)

    (b) *batho* (human beings)

Each of the examples in (2) has a structural feature which is absent in the other, hence *mo-* in *motho* and *ba-* in *batho*. Thus, *-tho* is the root in both words. Furthermore, *mo-* indicates singularity and *ba-* indicates plurality. This means that, *motho* and *batho* have different semantic aspects which the one has but not the other. If two words therefore each have a structural feature and a semantic aspect which the other one

does not have. It means there are two different morphemes. in example (2) above *mo-* and *ba-* are thus bound morphemes.

The definitions of a free morpheme and bound morpheme by Rustamaji (2015), Aryati (2014), Mphasha (2006), and Fromkin et al. (2014) above assert that a free morpheme can occur in isolation since it carries meaning. Whereas bound morphemes do not carry any semantic content and are incapable of occurring in isolation therefore because of their nature which requires that they are attached to other morphemes to create meaning. For instance:

Table 1: Bound and free morphemes in Sepedi

(3) Word	bound morpheme	free morpheme	gloss
(a) *ija*	*i-*	*ja* (eat)	eat
(b) *moela*	*mo-*	*ela* (flow)	stream
(c) *moeta*	*mo-*	*eta* (visit)	clay pot

Example (3a) above indicates *i-* as the prefix of the word and *-ja* as the stem of the word. The prefix *-i* is a bound morpheme because it carries no meaning. However, the stem *-ja* on the other hand is a free morpheme because it carries meaning. In example (3b) and (3c), the bound morpheme *mo-* cannot appear in isolation because it carries no semantic content. Although, *ela* and *eta* can appear as words or free morphemes because they carry semantic content. The free morphemes above are different lexical categories. *Ija* is a verb. *Moela* and *moeta* are nouns. The following subsection alludes that it is possible to form compound words from different lexical categories.

Accordingly, Poulos and Louwrens (1994: 115) describe the morphemes or constituent parts of verbs, and they stress that the verb root is an obligatory part of any verb and that the other morphemes are optional under certain circumstances. They further mention that the following morphemes may be included in the verb: object concord, verbal root, the reflexive prefix, or the verbal ending for words that falls on noun class. Additionally, continuous combination of the constituents' parts of the verb or noun can result in the formation of a compound word. These morphemes are used to create complex words using existing morphemes. Consider the following:

(4)

      Lebone + *-kgolo* → *lebonekgolo*

      Light + big → big light

The compound word *lebonekgolo* (big light) in example (4) consists of two different roots, *-bon-* and *-golo*. Roots are the central morphemes of words that carry the main lexical meaning of the word. Roots consist of only one morpheme and cannot be divided into smaller meaningful units (Howard, 2003). The compound noun *lebonekgolo* (big light) is derived from the deverbative *lebone*. *Lebone* consist of bound morpheme *le-* of noun class 5 and the root *-bon-* with a verbal ending *-a* for the verbal stem *-bona* (see). In Sepedi, for example, adjectives consist of a class prefix and an adjectival root. That is, *kgolo* consist of the class prefix *n-* and the adjectival root *-golo-*. Thus, *-golo* is not a word on its own, but a bound morpheme. The righthand constituent consist of a descriptive adjectival stem *-kgolo* describing the size of the light *Kgolo* is headed by nominal prefix *n-* of noun class 9 and the root *-golo*. The purpose of the descriptive adjective *-kgolo* in the compound noun *lebonekgolo* is to modify the meaning of the noun *lebone*.

Consequently, the deep structure of the compound noun *lebonekgolo* indicate that the compound noun consists of group of words *lebone le legolo* (the big light). To form a grammatical compound word, the second morpheme *le-* should be omitted and the remaining part will be: **lebonegolo*. However, the resultant group of words are ungrammatical and unacceptable. For this compound noun to be grammatical, the process of plosivation should take place for the sake of proper pronunciation. This means that the first sound of the adjective *legolo* is affected. Plosivation occurs on adjective roots which begin with the sound *-g*. The grammatical noun is *lebonekgolo*, the nominal prefix *le-* of the adjective is dropped or omitted, to make a space for the outcome of the plosivation process *-kg-*. Perkels (2008) asserts that compound words that have obligatory semantic heads are referred to as endocentric compounds. The compound word *lebonekgolo* is a type of a light with a head projected on the left-hand element.

Table 2: Components of the compound word *seretotumišo* (praise poem)

N.CL	Object concord	Verbal root	Causative	Verbal ending	Deverbative
7	*Se-*	*-ret-*	-	*-a*	*sereto*
9	*N-*	*-tum-*	*-iš-*	*-a*	*tumišo*

Based on the morphology of compound word *seretotumišo* in table 2, it is true that a common compound word such as *seretotumišo* in Sepedi is constructed with different linguistic elements, such as noun class, object concord, verbal root, verbal ending, extension, or causative. Bound morphemes such as object concords are prominent in the formation of compound words and a verbal root of the first deverbative and the second deverbative influences the semantic content of the compound word. The verbal root *-ret-* indicates that the deverbative *sereto* (poem) is derived from the verbal stem *-reta* (praise) and the objective concord *se-* determines the lexical category of the whole compound word *seretotumišo* to be nominal compound. This is also the case on the deverbative *tumišo* (praise) whereby the deverbative *tumišo* is derived from the verbal stem *-tuma* with the verbal ending *-a*. Since the lexical category of the compound word in Sepedi language is determined by the object concord of the first deverbative, the second deverbative does not determine the noun class of the compound word but it serves as part of the morphological construction of the compound noun.

1.2.4 Types of compound words

Ningsih and Rosa (2013: 16) state that linguists distinguish at least three types of compound words based on the different semantic relations between the head and modifier(s), they are endocentric compound words, exocentric compound words, and copulative compound words. Although, each type of compound word is made up of both free and bound morphemes. The semantic contents of endocentric and copulative compound words are initially found on the dominant morpheme, also called the head.

According to Masini (2015), the head of a compound word is a word located at the righthand of the compound word. The morpheme on the righthand consists of the

lexical category of the compound and the semantic category of the compound word. In the same way, Fromkin et al. (2014) postulates that a 'head' of a compound is the rightmost word such as 'house' in 'doghouse', which specifies the general meaning of the compound word. Accordingly, a head determines the semantic content of the compound word because it is prominent key word. It simply represents the lexical category of the compound word (Ilonga, 2016). Therefore, heads are crucial to the morphology of compound words since it provides where each compound word belongs.

1.2.4.1 Endocentric compound words

An endocentric compound is a type of a compound whose meaning is a hyponym; it consists of a head (Haspelmath and Sims, 2010). Therefore, the head of an endocentric compound expresses the semantic content of the whole compound word. Endocentric compounds are those compound words that have the head inside the compound (Trias, 2010). They are common since they usually use a noun-noun structure in which the right element is the head, and the referent is identified inside the compound itself. This means that the central meaning of endocentric compound word can be determined from the second morpheme in English language. Below is the example of an endocentric compound word with the head on the right-hand side:

(5)
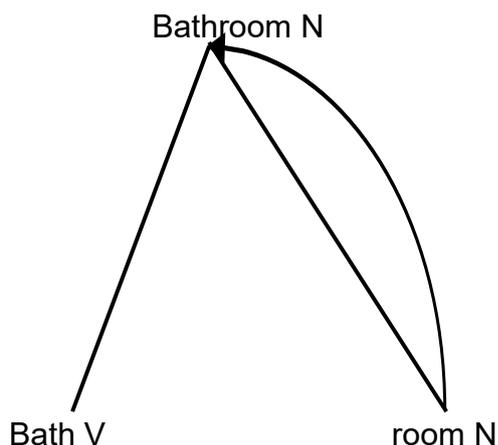
Structure in (5) reveals that the compound word above is an example of an endocentric compound word because the head is located on the free morpheme room, on the right-hand side. This implies that the lexical category of the compound word 'bathroom' is a noun. Consequently, the entire compound word, 'bathroom', refers to a type of a

room with a bathtub. In morphology, the compound word in (5) can also be represented schematically as follows:

(6)

Form: $[[a]_x [b]_Y] Y$

$[[Bath]_x [room]_Y]Y$

$[[Bath]_v [room]_N] \rightarrow [bathroom] N$

The variable '*a*' above is replaced with the free morpheme 'bath' and '*b*' with the free morpheme 'room'. Both free morphemes are combined to form one compound noun 'bathroom'. The subscript '*x*' represents the lexical category of the first free morpheme and the superscript '*y*' stands for the lexical category of the second free morpheme. The variable 'Y' is replaced by the lexical category 'N' for noun because the head of the compound is a noun.

1.4.2.2 Exocentric compound words

Exocentric compounds are the second type which involves headless compounds. Benczes (2006) mentions that the term 'exocentric' is used in morphological literature to mean either a compound that is headless or a compound whose head 'falls outside' of the construction. The head of an exocentric compound word does not reside inside the morphemes that make up the compound word. The semantic content of an exocentric compound words cannot be transparently guessed from its morphemes (Ningsih and Rosa, 2013). As a result, exocentric compound words are not able to express a 'head' from either the left morpheme or the right morpheme of the compound. Therefore, these compound words are referred to as headless because they do not contain an element that functions as the semantic head. The following are examples of exocentric compound. For example, 'loudmouth', it is not a type of mouth but a person who tends to talk too much.

The compound word 'loudmouth' is derived from the Adjective 'loud' and the noun 'mouth'. The second morpheme of the compound word 'loudmouth' is not the head of the compounds created. Another reason 'loudmouth' is referred to as exocentric compound is that there is no coordination between the two free morphemes where [XY] is not a kind of X or Y.

1.4.2.3 Copulative compound words

In addition, Booij (2012) refers to the third type of compound words as copulative compound words. Copulative compound words imply that both morphemes contribute to the semantic content of the compound word. Jimmi and Sidauruk (2020) state that copulative compound words are types of compound words that work as a dual expression. The semantic head and the relation between constituents are a relation of coordination. These types of compounds are essential in the grouping of different compound words found in a language. An example of copulative compound word is 'bittersweet'. This example consists of two free adjectival morphemes, 'bitter' and 'sweet'. A bittersweet moment is both sad and delightful at the same time. Hence, both morphemes of the compound word are considered as heads because they contribute to the semantic content of the compound equally.

Rumiyati (2015) avers that from a syntactic point of view, copulative compounds are headed. But from a semantic point of view, the coupled elements have equal status, with neither element being regarded as the head that dominates the entire word. In copulative compound words, both the words are considered as head. In other words, they both contribute to the overall meaning of the compound word. Thus, in copulative compound words, two different or the same lexical categories both form the meaning of the resultant compound.

1.3. Statement of the research problem

Mphasha (2006) study observes that nominal compounds in Northern Sotho seems to be nominal in nature. The head or the dominant morpheme determines the lexical category of the compound word. However, there are several issues that have been identified which are worthy of scholarly interest in this study. The first issue is that Mphasha's study focusses mainly on endocentric nominal compound words leaving exocentric and copulative compound words with less information or unaccounted for. When this happens some aspects of Sepedi language morpho-semantics compound words are overlooked.

The second issue is that Mphasha used nominal compounds that were already available in the vocabulary of Sepedi language without any attempt to formulate new compound words as a way of developing Sepedi language because language is dynamic, it develops daily. However, Mphasha's study made a huge contribution in the linguistic

field and Sepedi language in general. Another issue occurs in Pretorius, Viljoen, Pretorius and Berg (2008) study which focusses on noun and noun computational morphological analysis of Setswana compound words. Like Mphasha's study, Pretorious et al. (2008) leaves out copulative compound words.

The current study takes a different direction by exploring endocentric, exocentric, and copulative compound words in Sepedi language. This study explores endocentric compounds by formulating new compound words in relation to terminologies that entered linguistic field due to the outbreak of COVID-19 pandemic. The study also introduces metaphoric exocentric compound words in an aim to explore the semantic content and literature of these types of compound words. Copulative compound words are one type that has been overlooked in the scholarly works of Sepedi language. This study provides a thorough morphological construction discussion on the semantic content and formation of copulative compound words. In addition, throughout the analysis of data terminologies related to COVID-19 pandemic will be formed in Sepedi language. This is because, so far there are few to none COVID-19 pandemic terminologies that are available in Sepedi monolingual dictionaries or language reservoirs such as electronic Sesotho sa Leboa monolingual dictionary. Different linguistic units have entered English language throughout this pandemic leaving languages like Sepedi with many linguistic gaps and non-equivalent terms.

Sepedi as a language has ways of forming and accumulating vocabulary. Compounding is a significant phenomenon in the domain of linguistics, and it is employed in Sepedi language. Although compounding is regularly employed in Sepedi language, there is a scarcity of scholarly outputs on this phenomenon. Moreover, recent studies on morphology and semantics do not focus intensively on the construction of exocentric and copulative or forming new compound words in Sepedi. However, following from this is the realisation that Sepedi develops and enriches its vocabulary through a variety of strategies and among those strategies, is compounding.

1.4. Purpose of the study

1.4.1 Aim

The aim of this study is to form and analyse the semantic content of compound words in Sepedi language.

1.4.2 Objectives

The objectives of this study are:

- To form compound words in Sepedi.
- To determine the headedness of compound words in the Sepedi language.
- To determine the semantic content of headless compound words.
- To identify the constructions used to form Sepedi compound words.

1.5. Research questions

- How are compound words formed in the Sepedi language?
- Which compound words consist of heads?
- What is the semantic content of headless compound words?
- Which constructions are used to form compound words in Sepedi?

1.6. Limitations of the study

This study has numerous limitations. The first limitation is due to the lack of adequate prior research on the topic related to word formation or semantics in Sepedi. Prior research studies that are relevant to this study are limited. Citing and referencing previous studies constitute the basis of the literature review. The past studies provide the theoretical foundations for the research problem investigated. Thus, this limitation presents the need for further studies in morphology and semantics of compound words in Sepedi.

Another limitation of the current study is the internal conflict arising from cultural bias. The researcher's first language is Sepedi, and the crux of this study focuses on the morpho-semantic of compound words in Sepedi. The researcher has biased views due to the cultural background of the language. This constraint contributed to the fact that data and findings that only supports the researcher's suggestions about the formation of compound words in Sepedi are correct. To avoid this limitation, the researcher had to examine whether the way the problem was stated and the data gathering process were carried out appropriately.

1.7. Significance of the study

This present study is an important contribution to the understanding of Sepedi morphology and semantics, particularly in the area of compounds. The results of this study will be beneficial to linguistic researchers, language planners and students. The findings of this study will also enhance knowledge on the morpho-semantics of COVID-19 terminologies of compound words in Sepedi language. This study anticipates establishing an understanding of the formation of different compound words in Sepedi. Furthermore, this study will be of great importance to future researchers because they will be able to utilise the findings of this study in the research world.

1.8. Ethical considerations

Fouka and Mantzorou (2011) assert that ethical considerations in research include: informed consent, risks, confidentiality or voluntarily participating. Knowledgeable consent means that the individual participating in the assessment is completely informed about the assessment being conducted. Regarding risks, there must be a declaration that the study will not in any way harm the participants. Confidentiality confirms that recognising facts are left out from any reports or published official papers or documents. Voluntary contribution means that participants are permitted to pull out their participation at any time without negatively impacting on their contribution in upcoming services or the present programme and associations with any of the researchers or research groups involved. Ethical measures are significant in qualitative research since they include ethical conduct towards the information, participants as well as a truthful reporting of the outcomes. The current study did not include the above-mentioned ethical codes since the study did not involve participants. Notwithstanding, the researcher applied and being granted ethical clearance from the Turfloop Research Ethics Committee at the University of Limpopo.

1.9. Conclusion

The foregoing chapter discussed historical background of Sepedi language, the concept word and compound word, morphemes and the types of compound words. The following chapter focussed on the literature review of formation and semantic content of compound words in different languages. It also presented the theoretical

framework that underpins this study. Additionally, statement of the research problem, purpose, limitations, significance and ethical consideration were also discussed.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to explore and analyse the viewpoints of other scholars on aspects of word formation and semantic content of compound words using compounding as a linguistic device to form words in Nguni, Sotho, Germanic, or Bantu languages. The literature review serves as the foundation on which the study is built for discussing results and interpretations. This chapter identified what is known about the morpho-semantics of compound words from previous research. In addition, this chapter concluded with the presentation of theoretical framework that underpins this study.

2.1.1 Compounding in Nguni languages

Ndlovu's (2013) study discusses the formation of compound words in isiNdebele. The study found that the compounding process in isiNdebele combines existing words to form a compound as an independent word. The resulting expression of compounding functions as a unit. According to Ndlovu (2013), the number of units used to create a new word is more than one. Therefore, the resultant compound assumes the grammatical content of the primary stem and the secondary stem assumes the modifying role, as in (7) below:

(7)   *Umumbu + wesikhiwa → umumb'wesikhiwa.*
        Maize + European → European maize.

Ndlovu (2013) explains that the first stem consists of the prefix *-u* and it is the primary stem because it carries the meaning of the concept. The secondary stems explain the type. This occurs because in isiNdebele, the secondary stem of a compound is derived from the sources such as names of places, civilisations, time, and cultures from which a concept comes.

Additionally, Hadebe's (2002) study discovered that the lemmatisation of compound nouns in isiNdebele has several problems. Hadebe (2002) argues that the common problem is the length of the newly formed compounds because there are compound nouns which are formed from loanwords. These compound nouns are from various parts of speech and affixes. This occurs because isiNdebele adopts loanwords as

simple nouns into the language, and they become part of isiNdebele compounds. Such as:

(8)

    (a)   *Ifoni + namba → ifoninamba*

            Phone + number → phone number

    (b)   *Ibhasi + sitophu → Ibhasisitophu*

            Bus + stop → bus stop

Hadebe (2002) asserts that compounds in example (8) above are made up of prefix the *i-*. He further clarifies that the compound word in (8a) is a combination of *ifoni* 'phone' and *inamba* 'number'. Similarly, the compound word in (8b) consists of two stems, *ibhasi* 'bus' and *isitophu* 'stop', respectively.

Ndlovu (2013) and Hadebe (2002) found that the process of compounding is part of word formation in isiNdebele. Ndlovu and Hadebe report that during the process of compounding, a type of affix is utilised to make the compound grammatical. It is also found that isiNdebele makes use of loanwords from a language such as English to form compound words.

A study by Martins (2011) identifies V + N and N + N as two frequent word formation strategies used in the formation of isiXhosa compounds. Martins (2011) pinpoints that in isiXhosa, when a compound consists of a verb as the first unit, the compound is written as one word. However, when it consists of N + N structure or two names of a place, the stems used to form it are separated by a hyphen. Such as:

(9)

    (a)   *Jonga + ikhaya → jonga ikhaya*

            Look + home → look after home

    (b)   *uMzantsi + Afrika + uMzantsi-Afrika*

            South + Africa → South Africa

Martins (2011) opines those compounds in (9) are spelt as one word even though they are formed from different parts of speech. The example in (9a) is formed from a verb *jonga* (see) and a noun *ikhaya* (home) whereas example (9b) consists of the structure N + N. He further asserts that hyphenation in example (9b) makes it simple for the user to understand and be able to distinguish how the compounds differ. Thus, long compounds are avoided because they are often used incorrectly.

Martins (2011) concludes that adequate knowledge of isiXhosa orthography is vital. It must be mentioned that linguistic practitioners of isiXhosa decide to present compound words either with a hyphen, or as one word. This results in inconsistency in the presentation of compound words as lemmas in the dictionary.

Pretorius and Bosch (2009) examine the position of a prefix in isiZulu nominal compounds. They find that the formation of compound words in isiZulu is influenced by the nominal prefix attached to the first stem selected to form a compound word. Their study highlights that the structure of compound words in isiZulu is categorised by prefixal morphemes because compound nouns are classified with nominal prefixes. This is evident in example (10) below:

(10)

       (a) *umuntu* → person

       (b) *isitha* → rival

Pretorius and Bosch (2009) comment that the nouns in (10a) and (10b) form compound words *umuntu osekhulile* (grown-up) and *isitha sethu* (our rival). The first constituent in (10a) consists of a noun prefix *umu-* followed by the noun stem *-ntu*. Therefore, *umuntu* is classified as a noun because it is a nominal prefix for a class 1 noun. Thus, the noun *isitha* 'rival' in *isitha sethu* consists of a noun prefix *isi-* and the noun stem *-tha*. The first stem of (10b) is classified as a class 7 noun in the isiZulu noun class system. Additionally, noun prefixes indicate number, with the noun class designating singular and the corresponding class designating plural. The plural forms of example (8a) is a class 2 noun *abantu* 'persons' and for (10b) is the class 8 noun *izitha* 'rivals'.

A study by Pala, Fellbaum and Bosch (2010) discovered that isiZulu compounds consist of a leftmost governing head and a rightmost dependent element. Thus, compound words in isiZulu contain at least two stems or roots. According to Pala et al. (2010), the process of compounding in isiZulu is not merely a merging of independent words because words contributing to a compound undergo morphological changes. This means that parts of these words are elided, replaced, or adapted, since the lexical components appear as bound stems and roots in a compound word. Additionally, Pala et al. (2010) hold the view that isiZulu has a rich system of prefixation, which is affected by compounding. For example:

(11)

      (a)   *-lala + indle → umlalandle*

              sleep + wilderness → wild animal

Pala et al. (2010) point out that the nominal prefix in the compound word, *umlalandle*, belongs to class 3 *umu-* of the isiZulu noun class system, the prefix has been added on the first part of the compound. The prefix of a noun is the head which influences the grammatical content of the compound. Pala et al. (2010) further state that the main patterns of isiZulu compounding are formed with pairs which usually consist of a leftmost governing head.

Another study by Doke (1995) examines the fusion of compound words in isiZulu. Doke (1995) thinks that compounding in isiZulu is a merging of two or more words, brought about by compulsory vowel elision. During compound formation, the dominant element in the compound assumes prominence over that which is a modifier. Doke (1995) presents the following example:

(12)

      (a)   *Umnini + umu'zi → Umninimu'zi*

              Owner + kraal → kraal-head

Doke (1995) notes that the second vowel of the second stem, *umu'zi*, is deleted because if it was included on the compound, it was going cause an ungrammatical and meaningless compound word. Findings by Pretorius and Bosch (2009), Pala et al.

(2010) and Doke (1995) show that nominal prefix attachment and prefixal morphemes have a meaningful role in the process of compounding in isiZulu. It was also found that to make a grammatical compound word, a vowel on the second stem should be deleted.

2.1.2 Compounding in Sotho languages

Pretorious et al. (2008) and Mphasha (2006) discuss nominal compounds in Setswana and Northern Sotho, respectively. They found that compounds originate from a combination of two or more constituents, bound together semantically and structurally to form a cohesive unit. On the other hand, Pretorious et al. (2008) and Mphasha (2006) assert that Setswana and Northern Sotho compounds are left centred since the semantic information is inherited by the leftmost element of the nominal compound.

They further maintain that the N + N morphological structure is widely attested in the morphology of both languages. The compounds are formed by nominal classes, a root, and an ending. In a N + N compound, the noun class prefix of the first root adopts the features of the head.

(13)

      (a) *Motho + sebata → motho-sebata*

      Person + carnivore → person who looks like a carnivore

They hold that the compound in (13a) consists of two nouns: *motho* 'person' and *sebata* 'carnivore'. The noun *motho* has the prefix *mo-* and the root *-tho*, while the noun *sebata* has the prefix *se-*, the root *-bat-* and a suffixal morpheme *-a.* The compound noun, *motho-sebata*, is shown to have two noun class affixes. The first prefix is *mo-* of class 1 and the second one is *se-* of class 7. This means that the prefix of the second noun, *se-* will then play no role in the headedness of the compound noun. The morphological structure of nominal compounds in both languages, reveals that the noun class prefix influences the grammatical content for the newly formed word.

2.1.3 Compounding in Germanic languages

Libben, Bonieck, Martha, Mittermann, Knocky-Kroll and Dressler (2009) notice the relationship between constituents and interfixation of German compounds. Libben et al. (2009) found that Germanic compounds tend to show phonetic material found at the middle of stems used to form of a compound. Libben et al. (2009) refer to these phonetic materials as interfixation, with different interfix forms. Furthermore, the study reports that German compounds allow interfixes to be attached to the middle of both constituents. Moreover, to highlight the role of interfixes between two constituents, a double-hyphen notion *-x-* is used. The examples are presented in Table 3:

Table 3: Interfixation patterns in German

Constituent 1	Interfix	Constituent 2	Compound word	Gloss
Puppe	*-(e)n-*	*Theatre*	*Puppentheater*	Puppet theatre
Kind	*-er-*	Garten	Kindergarten	Kindergarten
Weg	*-e-*	*Netz*	Wegenetz	Path network
Land	*-(e)s-*	*Kunde*	*Landeskunde*	Geography

Libben et al. (2009) explicate that there is a variation in how a German compound is interfixed using *-e-*, *-(e)n-*, *-er-*, and *-s-*. Considering Table 3, it can be stated that the choice of the correct interfix is governed by the initial compound constituent. Libben et al. (2009) are of the view that nominal compounds have the head as the rightmost constituent. Then, the modifier is derived from various parts of speech.

Delazer et al. (1994) take the discussion on the formation of compound words in German further and indicates that German compounds have a binary structure consisting of two components which are words. The first component is the modifier whereas the second component is the head of the compound. According to Delazer et al. (1994), the head of a German compound determines the grammatical function

and semantic category. The linking morphemes are similar in their inflectional endings, such as in plural forms.

Delazer's (1994) study reveals that the inflection, pronouns, and adjectives in Germanic compounds always refer to the right-hand element. Based on the findings of this study, the logical relation between the first and the second component is not clear. However, it is expressed that both components appear as independent words.

Moreover, based on the findings by Stymne, Cancedda and Ahrenberg (2013), compounds in German are mainly closed because they are written as single words without spaces. Similarly, Stymne et al. (2013) emphasise that the last part of the compound is the compound head which conveys the main meaning. The last part also determines the part of speech of the compound. For example:

(14)

    (a)   *Regierung + Konferenz → regierungskonferenz*

            Government + conference → intergovernmental conference

The examples in (14) indicate that compounds in German have a special form, such as the addition of an -*s*- to the base form of *regierung* 'government'. The study reports that the linking element is referred to as compounding forms. Stymne et al. (2013) hold the view that compounding forms show the type of forms used in the process of compounding. Compound words are flexible in that they adopt different linking elements depending on the content of the head. Consider the following examples of several possible forms of the stem *kind* 'child' below:

(15)

    (a) *Kind + phase*

    Kindphase → child-caring period

    (b) +s

    Kind + lage → Kind + s + lage

    Kindslage → fetal position

(c) +*es*

Kind + unterhalt → kind + es + unterhalt

Kindesunterhalt → child support

(d) +*er*

kind + film *→ kind + er +* film

Kinderfilm → children's film

Stymne et al. (2013) hold the view that a stem in German can select more than one possible compounding forms as in (15) above. The examples in (15) indicate that the rightmost stem is the head since it carries the basic meaning. The process of compounding in German involves the insertion of linking elements between components. The rightmost word generates the meaning of the compound and the lexical category.

Booij (2009) discussed the construction schema of compound words. Booij found that Dutch compounds use schemas which specify how new complex words are created. The schema for the construction of compounds is presented below:

[[a]X [b]Y_i] Y 'Y_i with relation R to X'

Booij (2009) identified the schema above as a formal construction to form endocentric compounds in Dutch. The schema is dominated by the variable '*Y*' because it is the syntactic category of the compound. For instance, Booij (2009) submits that, if 'Y_i' has the value N, the compound will be N. He further explains that the meaning is connected to the right constituent. In Dutch, for example, there are right-headed nominal, adjectival, and verbal compounds, hence one might assume the following morphological rule for Dutch compounding:

X + Y → [XY]Y

According to Booij (2009), in this rule, *X* and *Y* stand for the syntactic categories N, A, and V. Therefore, Booij uses the right constituent to determine the syntactic category of the compound word. In other words, the position of the head in endocentric

compounds in Dutch is expressed by the Right-hand Head Rule which can be expressed in the following examples:

(16)

(a) [a]$_X$ + [b]$_Y$ → [XY]$_Y$

[*eet*]$_V$ + [*kamer*]$_N$ → [*eetkamer*]$_N$

[eat]$_V$ + [room]$_N$ → [dining room] $_N$

(b) [a]$_X$ + [b]$_Y$ → [XY]$_Y$

[*opoe*]$_N$ + [*fiets*]$_N$ → [*opoefiets*]$_N$

[grandmother]$_N$ + [bike]$_N$ → grandma bike (retro bike)

In light of Booij's (2009) study, it can be said that the examples in (16) indicate that *eetkamer* is a *kamer* not *eet*. The compound *opoefiets* is a *fiets* (bike), not an *opoe*. It is further indicated that, the second member of both compounds is a noun, hence the resultant compound word is also a noun. Booij concludes that, the rightmost member is regarded as the head because it governs the meaning of the whole compound.

Booij's (2010a) study discusses the construction of Dutch compounds. The study highlights that the structure of Dutch compound words has the [X Y] Y schema with the right constituent as the head. Booij (2010a) further points out that a nominal compound appears to be the productive type. In nominal compounds, the value of X, (left constituent) can be noun, adjective, or verb. In his study, Booij also presents a survey of the possible types of Dutch compounds as follows:

(17)

(a) [[a] $_X$ [b] $_Y$] Y

[[*groot*]$_{Adj}$ [*vader*]$_N$] → [*grootvader*]$_N$

[[*groot*]$_{Adj}$ [*vader*]$_N$] → [grandfather]$_N$

(b) [[a] $_X$ [b] $_Y$] Y

[[*kook*]_V [*pot*]_N] → [*kookpot*] _N

[[cook]_V [pot]_N] → [cooking pot] _N

Booij (1991) opines that the right constituent has the head status for semantic interpretation, such as, XY is a Y with some relation to X. The non-head position of compounds modifies the head. The productivity of nominal compounding in Dutch is increased by the fact that when compounds are presented schematically, it is simple to spot the lexical category involved.

Plag's (2002) study focusses on compound processing in the English language. The study found that compounds are the result of a simple merging of two elements. The results of this merge are compounds labelled with a lexical category. Thus, the formation of compound words with noun and noun result in the most productive class of compound words.

Plag (2002) found that compounds are analysed as words with a schematic structure, in which roots are possible elements. Plag (2002) further reports that English compounds are right headed. The findings hypothesise that, if the head of a right-headed compound is a verb, the compound will be a verb. Thus, the semantic head in right-headed compounds is the constituent that shares the conceptual information. In the English language, the first element of a compound word modifies the second element.

Correspondingly, Fromkin et al. (2014) point out that the processes of word formation emphasise that compounds are formed through word compounding. The compounds give one meaning because they are taken as single word. Fromkin et al. (2014) identify English compounds as flexible in the kinds of combinations they permit, as shown in Table 4 below:

Table 4: Compound words in English

Lexical categories	Adjective	Noun	Verb
Adjective	Bittersweet	Poorhouse	Whitewash
Noun	Headstrong	Homework	Haircut

Verb	Feel-good	Pickpocket	Sleepwalk

Adopted from Fromkin et al. (2014)

Fromkin et al. (2014) explain that the formation of compound words in Table 4 shows the way a compound is formed with different lexical categories. Hence, any different arrangement on the words that make up a compound could result in the compound being ungrammatical. Table 4 above consists of three types of compound words, the first group is endocentric compound words (poorhouse, homework, or haircut). Endocentric compound words consist of a head on the right-hand side or on the second morpheme. The second type of compound words is exocentric compound word (pickpocket). 'pickpocket' is a type of exocentric compound word because it is not a type of pocket, but it refers to a person who steals from other people. Therefore, exocentric compound words are referred to as headless compound. The third type of compound words is called copulative compound words; this type of compounds has two heads because both constituents contribute to the meaning of the compound word. such as, 'sleepwalk', it means the act of walking while sleeping.

Considering the outcomes of studies by Plag (2002) and Fromkin et al. (2014), it found that the process of compounding in English occurs when two independent meaningful roots are directly combined. Lexical categories are used to from different compounds.

(18)

    (a) Adj + Adj → Adj

    Bitter + sweet → bittersweet

The example in (18a) can be represented in this schematic way; [[bitter] Adj [sweet] Adj] → [bittersweet] Adj to indicate that the compound in (18a) means that the product is both sweet and bitter simultaneously. The left morpheme and the righthand morpheme of the copulative compound word both derive the lexical category and the meaning of the whole compound.

The foregoing subsection discussed the three types of compound words on the basis of headedness. The concept of 'headedness' is crucial in the study of compounding because most compounds are described as either left-headed, right-headed, or

double-headed. The head of a compound word is the constituent that determines the category and the broad meaning of the entire compound word. The following subsection focusses on the semantic content of compound words.

2.1.4 Compounding in Bantu languages

Kula's (2012) study holds the view that noun classes in Bemba have a role in the formation of compounds. Kula further states that in Bemba, the noun is the centre of the compound. The verb and the adjective take semantic information from the noun.

Table 5: Bemba noun class 1 and 2

Class No.	Noun class	Examples	General guidelines
1	*Umu-*	*Umuntu* *Kafundisha* *Kolwe*	This is the class for nouns in a singular form starting with the prefix *umu-*. For example, names of persons, professional titles, and some animals.
2	*Aba-*	*Abantu* *Bakafundisha* *Bakolwe*	This is the class of nouns in plural form starting with the prefix *aba-*. For example, names of persons, professional titles, and some animals.

Kula (2012) found that there are two kinds of nominal compounding structures in Bemba. On the one hand, there are compounds involving two root nominals that are directly fused without a linking element and on the other hand, there are compounds involving two nominals linked with a linking element. Compounds without the linking element are regarded as true compounds. True compounds involve two nominal roots and those involving a nominal derived from a verb and a nominal root. Compounds involving nominal roots are endocentric in the sense that the left member acts as the head of the compound that controls the noun class of the compound. For example:

(19)

(a) *Na-kùlú* (1a) + *a-bá-ntù* (2) → *Nàkùlú-bántù* (1a)

Elderly woman + people → distinguished elderly woman

(b) *Ùkú-sùngà* + *aba-ntu* (2) → *Mùsùngá-bántù* (1a)

To keep + people → hospitable person

(c) *akantele-mafweesa* → small insect that lives under rocks'

According to Kula (2012), the compound in (19a) belongs to noun class (1a). Example (19a) and (19b) are assigned class (1a) compounds, they denote humans because of the head on the left stem. The non-head plays the role of patient in the verbal base of the deverbal noun in example (19b). Also, the example in (19c) indicates the presence of an associative linker (*a-*) as the prefix. There is a relationship between the first noun and the associative marker since they both initiate agreement in the compound.

In addition, Kula (2012) found that nominal compounds in Bemba that are without a linking element are regarded as true compounds. These compounds are endocentric in the sense that the left member is the head of the compound. Then, the complement of the head is a bare nominal. The number in brackets after each form indicates the noun class.

Thus, class (1a) in Bemba is a sub-class of the singular human class 1 and mainly contains kinship terms. The compound assumes the noun class of the head that also controls the meaning of the compound. Combined nominal roots show properties of compounds with respect to the head controlling semantic information. Bemba shows that nominal compounds are left-headed.

Basciano, Kula and Melloni (2011) found that compounding in Bemba is a combination of freestanding forms. Basciano et al. (2011) noted that the schema for Bemba root compounding conjoins two nominal stems. However, Basciano et al. (2011) also found that the Bemba language has complex nouns formed by the concatenation of two nominal stems.

According to Basciano et al. (2011), the left member determines the agreement pattern of the whole compound showing that the grammatical properties of the

compound depend on those of the leftmost element. The leftmost element ensures that the compound has a semantic information. Consider the following examples:

(20)

    (a) *ímpùndù-búsùshí* → fart fruit IS A kind of *ímpùndù* fruit

    (b) *Uomo pesca* → man peach IS A *uomo* man.

Basciano et al. (2011) use IS A Condition to express a head inside a compound word. In Bemba, this condition is an instrument for identifying the head. From the examples in (20a) and (20b), Basciano et al. (2011) affirm that *ímpùndù-búsùshí* is not a kind of fart but is a fruit and that, *uomo pesca* is not a peach but a man. So, the leftmost member governs the meaning of the whole compound.

Lusekelo's (2014) study deals with the formation of new terms in Kiswahili. It is reported that compounding is a device for creating terminology. The two parts used during compound tend to be of a V + N and N + N structure.

Firstly, Lusekelo (2014) found that Kiswahili contains two kinds of semantic interpretation of compounds. The meaning derived from combined words (endocentric compounds) and a meaning which is not related to the combined words (exocentric compound words). Secondly, the first word among the words that form a compound is the semantic head of the compound noun. This hypothesis considers that compounds in Kiswahili are left headed.

(21)

    (a) V + N → N

    Fanya + kazi → mfanyakazi

    Work + job → worker

    (b) N + N → N

    Vuja + jashol → mvujajasho

    leak + sweat → day worker

Based on the examples in (21), Lusekelo (2014) states that the use of nominal prefixes is required for the compounds which denote humans. In this regard, Lusekelo (2014) points out that nouns referring to different functions and social statuses are formed with an animate class prefix *mu-/wa-*. The compound *mfanyakazi* 'worker' in (20a) is essentially generated this way. The semantic classification of the nouns in this category is +human and an endocentric compound. Example (20b) is regarded as an exocentric compound because the meaning of the compound *mvujajasho* is not related to the combined words individually. Apart from the combination of the two lexical entries in (20), the formation of compound words involves the insertion of the nominal prefix *m-* (class 1). The example in (21a) shows that Kiswahili consists of left-headed compounds because the semantic content of left-most noun spreads across the entire compound. The rightmost word offers an extra information about the leftmost word.

Basciano et al. (2011) and Lusekelo (2014) conclude that the semantic content of exocentric compounds is not derived from the combined roots, because the meaning is outside the combined words. Hence, exocentric compounds are headless. As a result, only endocentric and copulative compounds have semantic heads.

2.2 Theoretical framework

This study is positioned within theory of Construction Morphology developed by Booij (2010a). Within this theory, are constructions associated with form (morphological, morphosyntactical, phonological, categorical features) and meaning (semantics, pragmatic, and discourse properties). Fábregas and Masini (2015) aver that Construction Morphology is a word-based model, wherein words and morphological processes are represented by means of constructions of different complexity and specificity organised into a hierarchical lexicon. This means that words are not formed by word formation processes only, but also by schemas based on existing complex words. For instance, the construction below, from which actual prefixed words are formed:

a. $[un-[x]_{Aai}]_{Aai} \leftrightarrow [NOT\ SEM_i]_j$

b. Unfair, unreal, unstable

This is a semi-abstract morphological schema, whose FORM part contains: the lexically specified prefix un-, a bound morpheme with no index and no category; an open slot marked with the category Adjective, the set of formal features a, and the index 'i'. Then, 'x' is a variable for phonological shape. Output properties includes category Adj, and index 'j'. The MEANING counterpart of the schema to which FORM is associated (↔) contains a semantic operator (NOT) and a denotation (SEM), which is co-indexed with the A in the input ('i'); the output meaning is also co-indexed with the output form ('j'). In this notation, the head is not overtly marked. However, the rightmost constituent is what traditionally called the head by looking at the features and indexes within the construction: the category A and the feature blundle α are associated to both the input adjective and the output form, SEM is co-indexed with the input adjective ('i') and the output meaning is coindexed with the output form ('j').

Booij (2010a) asserts that the notion of construction is a paring of form and meaning of morphological patterns that are represented as constructional patterns conveying sets of existing complex words. These are word forms that provide guidelines for coining new (forms of) words, determining their word class by considering the heads of complex words.

Furthermore, Booij (2017: 17) asserts that the generalisation that XN compounds in English are rightheaded is captured by the fact that the right constituent shares its features with the output and that semantic structure also reflects this fact.

a. $[[a]_{X\alpha k} [b]_{N\beta i}]_{N\beta j} \leftrightarrow [SEM_i$ with relation R to $SEM_k]_j$

b. bookshelf (NN), drawbridge (VN), blackboard (AN)

The presence of the construction like (a) does not imply that all XN compounds are right-headed in English; it only means that there is an abstract construction that can productively form new XN right-headed compounds within a given semantics. Instances that do not comply with this generalisation can be handled by either positing another schema or by using default schema.

2.3. Conclusion

This chapter has presented the literature review of what is known in the formation of compound words through the process of compounding. The chapter revealed that the

word formation process relies on morphemes to create new words. Lexical categories act as agents which are manipulated throughout the process of compounding. In addition, form and meaning are related in compounding because heads generate meaning for the entire compound word. It was also discovered that exocentric compounds have a meaning that is not derived from the morphemes merged. Prefixes proved to have an influence in exploring the semantic information of an endocentric compounds and the semantic content of copulative compound words exists in coordination. Then, Construction Morphology Theory was discussed as a framework that underpins this study. The next chapter focusses on the research methodology of this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a description of the nature of the data to be discussed in this study. It focusses on how data are gathered and analysed. The nature of this study requires written data sources since they are reliable and natural. Therefore, data are collected from written sources because of the availability of textual materials. This study uses qualitative research approach because it allows for in-depth description of textual exploration regarding the morph-semantics of compound word.

The researcher as the participant observer collected data from written sources on various theses from previous studies, desktop, and books. The various sources include Mphasha's (2006), Mojapelo (2007), Pretorious et al. (2008), Mojapelo (2009), Ilonga (2016) and Mojapelo (2018) theses. The researcher collected data from books written by Lombard (1985), Poulos and Louwrens (1994). These linguistic materials were chosen because they represent the subject of Sepedi language and the compound words from various perspectives. These sources have relevant information, and they will serve as a great foundation for this present study. data in this study is analysed within the framework of Construction Morphology

The research approach that underpins this study is presented below. Secondly, it discusses the research design. Thirdly, it looks at the population and sampling. In the fourth place, the chapter discusses the data collection method. Then, the chapter discusses the data analysis of the study. Furthermore, quality criteria are discussed. Attention is also paid to the ethical considerations of the study. Lastly, the conclusion of the study recaps the main issues of the chapter.

3.2 Research approach

Creswell (2014) mentions that there are three research approaches used to increase the validity of the research. The research approaches are the quantitative approach, qualitative approach, and mixed method approach. In other words, a case can be made that these research approaches give direction to the way research should be conducted. The current study selected the qualitative research approach because it allowed the

researcher to study compound words in a natural setting using textual data. Eyisi (2016) regards the qualitative research approach as the meaning of concepts and the description of things.

Also, Haradhan (2018) opines that the core assumption of the qualitative research approach is that it forms part of the research to provide a more complete understanding of a research problem. This is mainly because the qualitative research approach produces in-depth and illustrative information about the problem under analysis. Moreover, Goundar (2019) explains that because of the close involvement of the researcher in the qualitative research approach, the researcher gains an insider's view of the field. The researcher chose this approach because it produced a detailed description and interpretation of the data.

3.3 Research design

Research design is defined by Zikmund (1988) as the structure of research that holds all the elements in a research project together. In short, it is a plan of the proposed research study. In the same vein, Manheim (1977) postulates that a research design is an arrangement for the collection and analysis of data to combine the research purpose with the procedure. This means that a research design is a plan which specifies methods for collecting and analysing the needed information. Burns and Grove (2001) hold the view that designing a study aids the researcher to manoeuvre and implement the study in a way that will advantage the researcher to gain hypothesised results, thus increasing the probabilities of attaining information that can be associated with the real situation. This is mainly because a research design necessitates a plan and structure of the research in order to make the most of the findings.

Additionally, Akhtar (2016) explains that a research design consists of different types: narrative, case study, grounded theory, descriptive, and phenomenology. The researcher chooses a descriptive research design for this study. This research design enables the researcher to observe and describe the morpho-semantics of compound words. This implies that descriptive research design permits the researcher to analyse data to provide adequate findings and conclusions from the research which will allow for the advancement of recommendations or implications based on the study.

3.4 Population and sampling

Population refers to people or items from whom or which a sample is drawn (Pilot and Beck, 2004: 50). In this study, population includes morphological processes such as clipping, acronyms, affixation, blending, reduplication, and compounding. Trachoma (2006) opines that sampling is the process of selecting units from a population of interest so that by studying the sample one may simplify the results back to the population from which they were chosen. Moreover, it is possible to use sampling to select a sample that will represent the whole population and it is also necessary to use sampling to save time, energy, money, and resources to study the whole population. According to Uys and Basson (1991:87), a sample is a subset of a population designated to participate in the study. Thus, the researcher uses a sample to resemble the population. Similarly, Mugo (2002) thinks that a sample is a small collection of units from a population used to determine truths about that population. The sample of this study is types of compound words.

Also, Etikan and Bala (2017) state that there are types of sampling methods classified as either probability or non-probability. The researcher chose non-probability sampling for this study because it allowed for the selection of items to be part of the sample. Etikan and Bala (2017) further point out that non-probability sampling consists of diverse methods, which are, quota sampling, accidental sampling, purposive sampling, expert sampling, or snowball sampling. The researcher adopted the purposive (non-probability) sampling method. This method allowed the researcher to select compound words purposively.

3.5 Data collection

According to Leedy and Ormrod (2001), qualitative data collection is a method which plays an important role in providing information to understand the processes behind observed results. The qualitative data collection method may be explained as the means of allowing the researcher to have insights of the research and explore data. Leedy and Ormrod (2001) further mention that data collection methods include focus group, in-depth interviews, participant observation methods and document review. For this study, participant observation was selected as a method of data collection because it involves personal and direct contact of the participant, the observer and the

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data. The researcher as the participant observer collected data from written sources on various theses from previous studies, desktop, and books.

3.6 Data analysis

According to Flick (2014), data analysis is the classification and interpretation of linguistic or visual material to make statements about implicit and explicit dimensions and structures of subjective or social meanings. This is mainly because data analysis gives the researcher the ability to structure the qualitative data collected in a way that satisfies the accomplishment of research objectives. Similarly, Schensul, Schensul, and LeCompte (1999) state that the aim of data analysis is often to arrive at generalisable statements by comparing various materials, various texts, or several cases. In this way, data analysis reduces large amounts of collected data in order to make sense of them. Liamputtong (2009) recognises five types of data analysis, namely; content analysis, thematic analysis, narrative analysis, discourse analysis and semiotic analysis. This study adopted content analysis to analyse gathered data through participant observation. Content analysis is used in this study to examine textual data, to check the frequent relations and formation between words.

3.7 Quality criteria

According to Mojapelo (2018:11), the quality of the study's findings is evaluated based on credibility, transferability, dependability, and conformability. To enhance confidence in the quality of this study, the researcher explained how each criterion was applied. These criteria were important for this study because the researcher observed and reflected on the morpho-semantics of compound words. The criteria enabled the study to produce valuable and trustworthy outcomes with no bias.

3.7.1 Credibility

Credibility refers to the confidence in how well the data address the intended focus and deal with the focus of the research (Pilot and Beck, 2012). Credibility is one of the most important factors in establishing trustworthiness and is about determining how congruent the findings are with reality. It institutes whether the research outcomes denote believable evidence drawn from the contributors' original data and is an exact clarification of the contributors' original interpretations (Graneheim and Lundman, 2004).

In ensuring credibility, the researcher depends on the certainty established from the study's results. In this study, the researcher refrained from being subjective to create valuable findings. Data collected through participant observation were interpreted carefully to ascertain the credibility of the study. Therefore, the credibility of the study ensures that the findings of the study represent credible information drawn from the original data and is a correct interpretation of the original views of the researcher as a participant observer.

3.7.2 Transferability

Transferability refers to a criterion which requires the researcher to provide enough data and context to enable the audience to judge whether the findings can be applied to other situations and contexts (Cameron, 2011). Transferability refers to the degree to which the results of qualitative research can be transferred to other contexts or settings with other respondents. Put another way, transferability denotes the degree to which the aftermaths of qualitative research can be transferred to other frameworks with other respondents (Bitsch, 2005; Tobin and Begley, 2004). It is the informative equivalent of generalisability.

According to Korstjens and Moser (2017), transferability concerns the aspect of applicability, where the responsibility of a researcher is to provide a 'thick description' of the research process, to enable the reader to assess whether the findings are transferable. This implies that the reader, not the researcher, makes the transferability judgment because the researcher does not know his or her specific settings. In this study, the researcher ensured that the information and results of the research were useful to other related disciplines. Furthermore, the researcher provided enough data and context to enable the audience to judge whether the findings could be applied to other situations and contexts or not.

3.7.3 Dependability

Bitsch (2005) avers that dependability refers to the permanence of findings over time, which includes evaluation of the results, interpretation, and approvals of the study to make sure that they are all reinforced by the data acknowledged. Dependability is when the researcher has enough details and documentation of the methods employed so that the study can be replicated. To achieve the dependability of this study, the researcher

ensured that the research process was logical, traceable, and documented. One way that a research study may demonstrate dependability is for its process to be audited (Koch, 1994). When readers examine the research process, they can judge the dependability of the research.

3.7.4 Confirmability

Confirmability refers to the degree to which the outcomes of analysis could be confirmed or supported by other researchers (Baxter and Eyles, 1997). Features that are concluded may not be hidden out of sight. Confirmability refers to ensuring that the study's findings are the result of the experiences of the informants rather than the preferences of the researcher (Cameron, 2011). It is achieved through an audit trail of the raw data, memos, notes, data reduction and analysis. The researcher ensured the confirmability of the study by providing data and interpretations of the findings which are not constructions of the researcher's imagination but derived from data.

3.8 Ethical considerations

According to Fouka and Mantzorou (2011), ethical considerations include informed consent, risks, confidentiality, or voluntarily participating and knowledgeable consent means that the individual participating in the assessment is completely informed about the assessment being conducted. Moreover, Kubayi (2013) postulates that ethics aim to prevent the participants in the research from being harmed by both the researcher and the research process. The researcher ensured that ethics remained a top priority throughout the study. The study did not involve human participants. Nevertheless, the researcher applied for an ethical clearance to conduct the study from the Turfloop Research Ethics Committee.

3.9 Conclusion

This chapter discussed the researcher methodology of the study. The qualitative research approach and descriptive research design were selected because of their appropriateness to the study. The population and sampling of the study were also outlined. This was followed by a discussion of participant observation as the data collection method of the study. Then, content analysis was presented as a method of data analysis. Finally, quality criteria and ethical considerations were also discussed.

The following chapter will discuss and interpret data collected through participant observations by means of content analysis.

CHAPTER 4: DATA PRESENTATION AND INTERPRETATIONS

4.1 Introduction

The previous chapter discussed the research methodology adopted for this study. The aim of this chapter is to form endocentric compound words, determine headedness through noun classes and analyse the semantic contents of endocentric, exocentric, and copulative compound words in Sepedi language following theory of Construction Morphology proposed by Booij (2010a). The analysis of data in this chapter relies on the Sepedi linguistic contribution by Mphasha (2006), Pretorious et al (2008). Lombard (1985), Poulos and Louwrens (1994).

4.2 Word formation in Sepedi

Word formation is a process that contributes to language growth because its aim is to create new words in a language (Nasser, 2008:71). Thus, the productivity of a word formation process relies on the ability to construct new words using the same rules. In addition, word formation is a morphological process in which words are created. It is a branch of the science of language which studies the patterns on which a language forms a new lexical unit (Moehkardi, 2016:325). Nasser and Moehkardi's definitions point out that this process deals with both the existing words as well as the new words. Wagner and Kraft (2010) agree that the term word formation as a morphological process includes forming words through blending, coinage, acronyms, clipping, compounding or affixation. In the end, all these types of word formation process express concepts that are semantically unified.

However, since the prime goal of this section is to form new compound words, compounding as a word formation process is selected to form compound words in the Sepedi language. The final product of compounding is realised by means of combining nominal prefixes, verbal roots, stems, suffixal ending, nouns, and verbs. Compound words in Sepedi language can be formed with a deverbative combining nominal prefixes or morphemes, and verbal roots. An instance of this is illustrated below:

Table 6: Components of the compound word *selekolamohemo* (breathalyser)

Noun class   object concord   verbal root   verbal ending   deverbative

7	se-	-lekol-	-a	selakola
3	mo-	-hem-	-a	mohemo

The compound word *selekolamohemo* (breathalyser) in table 6 above is derived from a verbal stem *-lekola* (examine) with *-a* as a verbal ending, it is attached to a bound morpheme *se-* of noun class 7 to form *selekola* (used to examine). The deverbative *mohemo* (breath) on the righthand side consist of a nominal prefix *mo-* of noun class 3, verbal root *-hem-* and a verbal ending *-a*. The lexical category of the morphological construction *selekolamohemo* is a nominal compound because the bound morpheme *se-* is a nominal prefix. It influences left headedness, and it also carries number. *Selekolamohemo* is in singularity. The nominal prefix of the deverbative *mohemo* (breath) cannot be considered as the head of the because it does not determine the lexical category or headedness of the whole compound noun.

Headedness in compound words is determined by the theory of Construction Morphology which states that the head of a compound word is projected on the right-hand morpheme of the compound (Booij, 2010a). Similarly, William's (1981; 247-248) Right-hand Head Rule supports the theory of Construction Morphology by stating that in morphology, the head of a morphological complex word is the righthand member of that word. This rule claims that, the head of a compound word is the second member in a compound word. The ability to form new compound words by combining different words aspects is a feature that Sepedi language shares with other languages of the world.

Accordingly, Booij (2010a) further proposes the following schema to indicate that compound words are usually classified as the word class of the head: $[X\ Y]_{Y},\ Y$ = Noun (N), Verb (V), or Adjective (Adj). Sepedi compound words will use the $[[a]_R\ [b]_T]$ R or $[[a]_R\ [b]_T]$ T schematic pattern to analyse the heads, semantic content, and properties of compound words in the Sepedi language. Semantically, there are three types of compound words in Sepedi language. These are: endocentric (headed) compounds, exocentric (headless) compounds, and copulative compounds (double-headed). They are subdivided into three types based on the position of the semantic head of a compound word. The following section looks at endocentric compound words in the Sepedi language.

4.3 Formation of endocentric compound words in Sepedi

The term endocentric consists of the prefix 'endo' which means inside and the suffix 'centric' which comes from the word centre (Perkles, 2008). Additionally, the formation of endocentric compound words includes two or more independent morphemes with one morpheme serving as the head. Aronoff and Fudeman (2011) write that an endocentric compound is one that has a head where the head expresses the core meaning of the compound, and it belongs to the same lexical category as the compound. This implies that, endocentric compound words are identified by a head-modifier relationship because the meaning of the compound can be determined inside the two constituents.

Similarly, Rumiyati (2015) mentions that an endocentric compound means headed compound words with a predictable semantic relationship between the morphemes. The term endocentric implies that the dominant word may appear on the left-hand side or the right-hand side. An endocentric compound consists of a head, that is, the categorical part that contains the basic meaning of the whole compound, and modifiers (Khan, 2013:114). This refers to a combination of morphemes that can create a new word with a new meaning. Moreover, endocentric compound words are further classified according to the position of the head in the compound: right-headed and left-headed because its construction is not fixed.

Combrinck (1990:63-65) argues that within the endocentric compound words group, a further distinction can be made between the right centred and the left centred. Afrikaans examples such as *voordeur* (front door) and *drukspyker* (thumb nail) suggest that Afrikaans compound words are usually right centred. The head of an endocentric compound is usually termed as the rightmost morpheme which is placed in the right-hand. Similarly, Pretorious et al. (2008) opine that in Northern Sotho, compounds are usually left centred since compound stems in Northern Sotho can also be formed because of the combination of different morphemes.

On the other hand, Rahadiyanti (2017) notes that endocentric compound words can be identified by the meaning that is denoted by the head. For example, 'steamboat' is a kind of boat. 'Steamboat' has a meaning of a boat powered by steam. The second

example is airplane. Airplane is a kind of plane which travels through the air. Based on the above examples, the meaning of an endocentric compound word can be identified from the rightmost morpheme referred to as the head. The following example in the Sepedi language bears this testimony:

(22).

$[[a]_R [b]_T]$ T

$[[khorona]_R [baerase]_T] \rightarrow T$

$[[khorona]_V + [baerase]_N] \rightarrow [khoronabaerase]N$

The compound word *khoronabaerase* (coronavirus) in example (22) above it is a type of virus, formed by combining the free morpheme *khorona* (corona) with noun class 9 *-n* and the second free morpheme *baerase* (virus). It is an endocentric compound word because it is a right headed compound. The two morphemes used to form the compound word in (22) cannot be broken down into smaller segments and have a meaning. *Khoronabaerase* is a new compound word formed from the English compound word 'Coronavirus'. During the formation of this compound word, the speech sound 'c' for 'corona' and the speech sound 'v' for 'virus' were converted because they are non-existent in Sepedi language. Hence, 'c' is converted to *kh* and 'v' is converted to *b* to make the compound word natural and acceptable in Sepedi vocabulary.

Moreover, Butar (2021) confirms that a compound word such as the one in example (22) is an endocentric compound since it is a type of virus that may cause illness in animals or humans. The head *baerase* carries the semantic of the compound and the word *khorona* on the left-hand side modifies the meaning of the whole compound word. Thus, it is a compound noun that is in line with the lexical category of the head noun *baerase*. Another example is as follows:

Table 7: Components of the compound word *sehlapamatsogo* (hand sanitiser)

N. CL	object concord	verbal root	nominal root	verbal ending	suffix
7	*se-*	*-hlap-*	-	*-a*	-

| 5 | *ma-* | - | *-tsog-* | - | *-o* |

The compound word *sehlapamatsogo* became popular during the outbreak of COVID-19 pandemic. Since then, the compound word 'hand sanitiser' is used on regular basis. Based on table 6 above, the nominal compound *sehlapamatsogo* is derived from a combination of a nominal prefix of class 7 *se-*, the verbal stem *-hlapa* (wash) and the noun *matsogo* (hands) with a bound morpheme *ma-*, the root *-tsog-* and the suffix *-o*. Table 6 reveals that the compound word *sehlapamatsogo* is an endocentric compound because the head is projected on the nominal prefix *se-*. Therefore, the nominal prefix *se-* influences the compound word to be compound noun. A nominal prefix is responsible for the change of the lexical category of the whole compound construction. Therefore, it also determines the position the headedness of the compound structure.

In relation to table 6, Fabb (2001) opines that endocentric compounds have a kind of semantic relationship between the constituents. However, since the head of the compound word, *sehlapamatsogo*, is projected on the leftmost morpheme because *sehlapamatsogo* is a disinfected liquid used to wash hands. Thus, *matsogo* (hands), takes the modification role in the interpretation of the compound noun. Consider the following example:

(23).

[[a]R [b]T] R

[[*kiletšo*]R [*mosepelo*]T] → R

[[*kiletšo*]N + [*mosepelo*]N] → [*kiletšomosepelo*]N

The compound word *kiletšomosepelo* (lockdown) is a compound word that was coined when 'lockdown' was introduced in the world due to COVID-19 pandemic. During lockdown, people were prohibited to go anywhere they want, and they were directed to stay at home for a particular period of time. The nominal compound in example (23) is a left-headed compound that consists of deverbative noun *kiletšo* (prohibition) with the verbal root *-ile-* and it belongs to noun class 9 *-n*. The deverbative noun *kiletšo* originates from the verbal stem *-ila* (avoid). The second deverbative noun is *mosepelo* (way of walking) with the bound morpheme *mo-*, verbal root *-sepel-* and the suffix *-o*.

The deverbative *mosepelo* originates from the verbal stem -*sepela* (walk). It is classified as an endocentric compound because, it is a type of prohibition and not a way of walking. The lexical meaning of *kiletšomosepelo* (lockdown) is an emergency situation in which people are not allowed to leave their homes or travel freely, because of a dangerous disease. The first morpheme that consists of noun class 9 inherits the semantic properties of the compound word which includes the meaning, and lexical category.

In Sepedi or Northern Sotho, the left-most morpheme of the nominal compound is the head (Ilonga, 2016). In fact, the nominal prefix on the leftmost morpheme impacts the whole meaning of the compound word in such a way that the nominal compound inherits properties of the nominal prefix. This, among others includes, the lexical category, noun class and the semantic relation. The following example is also left-headed:

(24).

[[a]R [b]T] R

[*setlwaedi*]R [*mpsha*]T] → R

[[*setlwaedi*]N + [*mpsha*]Adj] → [*setlwaedimpsha*]N

Setlwaedimpsha (new normal) is a term that was introduced in 2019 due to the pandemic, it means a new way of living. The formation of the compound word *setlwaedimpsha* (new normal) in (24) consists of a deverbative noun *setlwaedi* (custom) with a nominal prefix of noun class 7 *se*-, *setlwaedi* is a deverbative noun derived from the verbal stem -*tlwaela* (get used to) derived from the root -*tlw*-, the extension -*a*-, Applied extension -*el*-, and a verbal ending -*a*. The adjective *mpsha* (new) modifies the meaning of *setlwaedi*. It is an endocentric compound because its meaning can be predicted from the verbal stem *tlwaela* of the deverbative *setlwaedi*. In relation to example (24) above, Mphasha (2006) asserts that the prefix attached to the first constituent of the compound word is the one that occupies the head position. Hence, the nominal prefix *se*- is regarded as the head of the compound. The meaning of *setlwaedimpsha* indicates that the morpheme on the left-hand side controls the

lexical category of the newly formed compound noun. Another example can be expressed as follows:

(25).

[[a]$_R$ [b]$_T$] R

[*boitekolo*]$_R$ [*dika*]$_T$] →R

[[*boitekolo*]$_N$ + [*dika*]$_N$] → [*boitekolodika*]N

Boitekolodika (self-screening) is a question-answer method used by individuals to screen COVID-19 symptoms and other health related issues. The nominal compound *boitekolodika* (self-screening) in example (25) consists of a deverbative noun *boitekolo* (experiment), it consists of bound morpheme *bo-* of noun class 14, the reflexive morpheme *-i-* and the verbal stem *-lekola* (examine). The reflexive of Sepedi language is formed by prefixing the bound morpheme *-i-* to the verb. The other constituent that formed the compound word *boitekolodika* is the noun *dika* (signs). The compound word *boitekolodika* is an endocentric compound since the head *bo-* is located on the leftmost morpheme. Katamba and Stonham (2006:315-331) state that in the case of endocentric compounds, the head of the compound can appear at any position of a word. However, this arrangement depends on the language because in the Sepedi language, headed compound words indicate that the left morpheme or the nominal prefix is a superset of the whole compound noun. The deverbative *boitekolo* is the prominent member of the compound word because *boitekolodika* is a process of testing or examining oneself of a disease. Another example is:

(26).

[[a]$_R$ [b]$_T$] R

[*moriri*]$_R$ [*maitirelo*]$_T$] → R

[[*moririi*]$_N$ + [*maitirelo*]$_N$] → [*moririmaitirelo*]N

The nominal compound *moririmaitirelo* (weave) in example (26) is derived from the noun *moriri* (hair) with noun class 3 *mo-* and a deverbative noun *maitirelo* (artificial). *Maitirelo* is a deverbative derived from the verbal stem *-dira* (do) with a reflexive *-i-*

and the verbal ending -*a*. It is an endocentric compound because *moririmaitirelo* is a kind of hair that is artificial or man-made. It consists of the natural noun class prefix *mo-* of noun class 3. This proves that *moririmaitirelo* is left centred.

Kula (2012: 432) states that in endocentric compounds such as in example (26), the left-hand member is the head. Thus, the second member *maitirelo* is the complement that fulfils the semantic role. The nominal prefix bound morpheme inherits the semantic properties of the compound word which includes the meaning, number, and lexical category. The following example can be classified as a left-headed endocentric compound noun as well:

(27).

$$[[a]_R + [b]_T] \; R$$

$$[[tsenyo]_R \; [moya]_T] \rightarrow R$$

$$[[tsenyo]_N + [moya]_N] \rightarrow [tsenyomoya]N$$

It is observed that *tsenyomoya* (ventilation) consists of the verbal stem -*tsenya* (stick into), with a null morpheme of noun class 9 *n-*, the verbal root -*tseny-* and the verbal ending *a-*. The second part of the compound consist of the noun *moya* (air). This compound word consists of an irregular nominal prefix of class 9 (*n-*). Though, it has only *di-* in class 10 because the plural form of *tsenyomoya* is *ditsenyamoya* (ventilations). The head on the left-hand side controls the lexical category of the newly formed compound. Lusekelo (2019) asserts that left-headed endocentric compound words inherit the semantic content of the morpheme located on the lefthand side of the compound word. Thus, *tsenyomoya* is the process of sticking air into (*tsenya*) a human being not the other way round.

(28).

$$[[a]_R + [b]_T] \rightarrow R$$

$$[[molaetša]_R \; [lebanya]_T] \rightarrow R$$

$$[[molaetša]_N + [lebanya]_V] \rightarrow [molaetšalebanya]N$$

The compound word *molaetšalebanya* (direct message or DM) in example (28) is a nominal compound used in the social media language. It is a type of message specifically directed to an individual. It consists of the deverbative *molaetša* (message) with noun class 3 *mo-*, with the verbal stem *-laela* (direct) and the verbal ending *-a*. The verbal stem *-lebanya* (direct to) consist of the nominal prefix *le-*, verbal root *-bany-* and the verbal ending *-a*. This type of compound has the semantic head inside the compound, which is the reason why it is called endocentric. Noumianty (2016) opines that in an endocentric compound, the referent of the compound is always the same as the referent of its head. This compound is an endocentric in the sense that the left member acts as the head of the compound.

(29).

$$[[a]_R + [b]_T] \rightarrow R$$

$$[[\textit{tšhomelo}]_R \; [\textit{gae}]_T] \rightarrow R$$

$$[[\textit{tšhomelo}]_N + [\textit{gae}]_N] \rightarrow [\textit{tšhomelogae}]N$$

In (29), for example, it is observed that the compound word, *tšhomelogae* (work from home), is derived from the deverbative which is derived from the verbal stem *-šoma* (work), with a verbal root *-šom-* and an affix *-a*. The second constituent is a free morpheme *gae* (home). This nominal compound entered become popular as a results of COVID-19 pandemic because employers and employees were forced to leave their offices and start working from home. The construction of this compound noun indicates that the lexical category of the whole compound is on the noun class 9 *n-*. It is an endocentric compound because when the input and output constituents are combined, they form a new compound with a new meaning predicted from the constituents used.

Astiandani (2020) states that an endocentric compound can be identified by a transparent meaning since its constituents are predictable. Finally, it is possible to analyse an endocentric compound according to the formula RT is equal to R because the head of the compound word in (29) is presented on the left-hand side. The meaning description of the compound noun below is located on the left-hand side also:

(30).

$$[[a]_R + [b]_T]\ R$$

$$[sekgoba]_R\ [phano]_T] \rightarrow R$$

$$[[sekgoba]_N + [phano]_N] \rightarrow [sekgobaphano]N$$

In example (30), the compound word *sekgobaphano* (social distancing) was introduced into linguistics as a directive notifying people that they should be at least 1.5 -2 metres apart from each other to curb the spread of COVID-19. The compound noun *sekgobaphano* is derived from the noun *sekgoba* (space) with a bound morpheme *se-* of noun class 7. The second constituent *phano* (give each other). Looking at the deverbative *phano*, which is derived from the nominal prefix *n-* plus the verbal root *-fan-* and the verbal ending *-a*, a voiceless dental fricative *-f-* changes to a bilabial plosive *-ph-* and the prefix falls away then the verbal ending changes to *-o*. Fabb (1998) and Lusekelo (2019) posit that endocentric compounds consists of a head constituent which represents the core meaning of the compound. The inherent semantic content of the left most noun spreads across the entire resultant nominal compound.

(31).

$$[[a]_R + [b]_T]\ R$$

$$[tlhabelo]_R\ [moento]_T]\ R$$

$$[[tlhabelo]_N + [moento]_N] \rightarrow [tlhabelomoento]N$$

The compound word *tlhabelomoento* (vaccination) in (31) above consists of noun class 9 *n-* as null bound morpheme and it is formed with a deverbative noun *tlhabelo* (injecting) originating from verbal stem *-hlaba* (inject) with a verbal ending *-a* or the suffixal ending and the second constituent is *moento* (vaccine) derived from *enta* (vaccinate). It is a type of endocentric compound word because *tlhabelomoento* refers to the process of injecting a vaccine. The dominant constituent is *tlhabelo*. The right most word offers extra information about the left constituent. Apart from combining nominal prefixes, roots, and suffixes to form nominal compound words, there are compound words in the Sepedi language that consist of omitted noun prefixes.

(32).

[N.P_{ref} + root + DeverbN]

[[Ø] + [-*felo*] + [*tswalelelo*]] → [Ø*felotswalelelo*]

The compound word, *felotswalelelo* (quarantine site), in example (32) is originally made up of the noun *lefelo* (site) with bound morpheme *le-* of noun class 5 as the first part and the deverbative noun *tswalelo*. The deverbative noun is derived from the verbal stem *-tswalela* (close) with the root *tswal-*, verbal extension *-el-* and verbal ending *-a*. Mphasha (2006: 104) opines that the prefix of class 5 *le-* may be omitted when it appears with a nominal modifier such as *tswalelelo* (encaged). This implies that the deverbative on the second part of the compound word should also be a noun. Hence, the noun *tswalelelo* (encaged) is combined with the root *-felo* without the prefix *le-*. The prefix of the compound word *-felotswalelelo* is omitted for the sake of better pronunciation.

The null morpheme indicates that the nominal prefix is null [Ø] or omitted because it is not morphologically realised, or the nominal prefix is invisible. Cole (1955) contends that in the formation of compounds consisting of noun plus noun, other than those having reduplicated roots, the prefix is omitted. In this case, the process of noun prefix omission occurs during the formation of compound words that fall under noun class 5 *le-* in the Sepedi language.

Gichuru (2010) and Kula (2012) suggest that the nominal prefix is assumed to be the head of the compound. However, since language is dynamic and new compound words are formed every day. Data reveal that the word 'quarantine site' in Sepedi language belongs to nominal class 5. Therefore, it will demonstrate the omitted nominal prefix on the first morpheme of the compound. This implies that the omitted nominal prefix bears and determines the agreement in the first morpheme of the compound noun.

The assumption that compounds are only formed with two constituents is restrictive because in the Sepedi language, compound words that are formed by more than two morphemes are present. Similarly, Táíwò (2009) argues that this assumption needs a detailed validation because this is not a case in some compound words. In other words, a single word unit considered as a compound word can be formed with three morphemes together to generate a compound word. Types of compound words

distinguish compound words according to their headedness. The following examples indicate the formation of compound words with more than two morphemes:

(33).

NprefCL7 + [*šir-*] + DeverbSuf + NprefCL9 + [*nko*] + Nom.Root

Se-tšhir-a-nko-lomo → *setšhirankolomo* (mask)

The construction of the compound word in example (33) above is established by combining the noun *setšhira* (used to obscure one's view) with noun class 7 *se-*, the noun *nko* (nose) and the noun stem *-lomo* for *molomo* (mouth). Fabb (1998: 72) writes that a three-worded compound word should be interpreted by breaking it down into sub-constituents. The head of this three-worded compound word is *setšhira*. This is true, for instance, *setšhirankolomo.* For better understanding, it can be interpreted as a mask.

However, one can recall that in earlier stages of the COVID-19 pandemic, people were advised to cover their mouths with a mask and in the Sepedi language, a mask was referred to as *setšhiramolomo*. As the virus spread rapidly, society was advised to cover the mouth and the nose as well. This is how the compound word *setšhirankolomo* came about. There is an elision of the nominal prefix *mo-* on *-lomo* for an improved pronunciation. However, it is possible to locate a head in a three-worded compound word because this type of compound consists of two modifiers. The head is on the first nominal prefix *se-*, hence the whole compound word is a noun.

Madondo (2001) concurs with Táiwo (2009) that compounds that are formed out of more than two words are possible, and that they are constructed through the combination of three morphemes, with the inclusion of a nominal prefix. This type of compounds can be formed in the Sepedi language through a combination of more than two constituents.

(34). NprefCL9 + [N] + [N] + LocSuf

Kopano- + *-inthanete-* + *-ng* → [*kopanointhaneteng*]

Kopanointhaneteng (virtual meeting) in example (34) is formed with *kopano* (meeting) consist of a null morpheme of noun class 9 and the locative noun *inthaneteng* (on the internet). The compound word *kopanointhaneteng* is attached with an irregular nominal prefix of class 9 -*n* and locative suffix -*ng*. Therefore, the compound noun *kopanointhaneteng* is an endocentric compound that refers to a type of meeting that occurs virtually or online. Furthermore, Pretorius et al. (2008: 5) point out that within the endocentric group, the position of the semantically prominent word is the head morpheme. The example such as *kopanointhaneteng* suggests that the majority of compounds in Sepedi are left centred. In other words, the left most morpheme in a compound is the head.

(35).

NprefCL14 + [*dul*-] + DeverbSuf + [*thokw*-] + DimSuf

Bo-dul-a-thokw-ana → *bodulathokwana* (self-isolate)

In the case of example (35), *bodulathokwana* is an endocentric compound which is constructed from deverbative noun *bodula* (dwelling place), with the verbal stem -*dula* (sit). The verbal stem -*dula* is derived from a verbal root -*dul*- and a verbal ending -*a*. The second part of the compound noun *bodulathokwana* is *thokwana*. *Thokwana* consists of a root -*thokw*- and a diminutive -*ana*. This compound noun refers to an individual who has been advised to stay within the house after showing symptoms of COVID-19. Fabb (1998) states that a three-member compound need not contain three words. That is, a morpheme may appear between two words in a compound or at the end of the compound.

(36).

NprefCL9 + [-*tiš*-] + NomSuf + [*khonferense*] + [*inthanete*] + LocSuf

Tšhi-tiš-o-khonferense-inthanete-ng   →   *tšhitišokhonferenseinthaneteng* (zoombombing)

In example (36) above, the compound word is a new word to Sepedi vocabulary. It is formed with more than three morphemes. The morphemes include the bound morpheme of noun class 9 *n*-, -*iš*- as the causative extension, norminal suffix -*o*, free

morpheme *khonferense* (conference), free morpheme *inthanete* (internet) and the locative suffix *-ng*. The first part consists of the deverbative noun *tšhitišo* (distract), it is derived from the verbal stem *šitiša* (disturb) with the verbal ending *-a*. *Tšhitišokhonferenseinthaneteng* is a type of an unwanted disruption caused by an individual while people are conversing on Zoom, a video conferencing platform. The deverbative noun *tšhitišo* is the dominant word or the head because it carries the noun class of the compound.

Gichuru (2010) explains that the formation of a compound word with more than three morphemes begins with the existing compound to which another morpheme is added to create yet another compound word. In the same way, the existing compound word in Sepedi can be flexible enough to be attached to other foreign morphemes. This kind of combination creates a new compound with a different structure from the original three-word compound.

This section has looked word aspects such as object concords, deverbatives, verbal roots, suffixal endings that are used to form endocentric nominal compounds in Sepedi language. Data reveal that the theory of Construction Morphology can be applicable in determining the meaning and headedness of endocentric constructions. This type of compounds has clear heads on one morpheme of the compound located either on the leftmost morpheme or the rightmost morpheme. Furthermore, this indicates that the Right-hand Head rule can also be implicated on Sepedi right headed nominal compounds such as *khoronabaerase*. The following section discusses the formation, headedness, and the semantic content exocentric compound words in Sepedi language.

4.4 Formation of exocentric compound words in Sepedi

The second type of compound words comprises those that do not have a semantic head inside the morphological unit. They are referred to as exocentric compound words. The formation of exocentric compound words includes a combination of two morphemes which belong to different or same lexical categories. The combination of lexical categories includes V + N or N + N constructions. Perkels (2008) mentions that the word 'exocentric' comes from the prefix 'exo' denoting outside and the suffix 'centric' which comes from the word 'centre'. Although exocentric compound words

are formed with different word aspects such as nominal prefix, deverbatives and verbal ending their semantic content is figurative.

Exocentric compounds are a kind of compound words that have an unexpressed semantic head, and their meaning cannot be transparently guessed from its constituent parts (Pratiwi et al., 2018). In this case, exocentric compound words are sometimes referred to as headless combinations in which neither the constituents convey the basic meaning of the whole construction. Astiandani (2020:1) defines an exocentric compound word as a type of compound word that does not have a head-modifier semantic relationship. This implies that it is not easy to extract a head or a modifier in an exocentric compound word because the outcome of the two combined morphemes is not semantically equivalent to either of its parts.

Vierke (2012) refers to exocentric compounds as metaphoric. Vierke (2012) continues to state that one of the reasons why it is not easy to locate a head in exocentric compound words is because the formation of exocentric compounds is technically a result of metaphoric interpretation of the combined words. In many instances, the metaphors are used figuratively to achieve a certain purpose (Kraska-Szlenk, 2018). The metaphorical interpretation of exocentric compounds does consider the social practise of the Sepedi speaking people who make use of figurative use of names.

Similarly, Plag (2003) opines that exocentric compound words frequently denote types of people and often consist of metaphoric meanings. In other words, since this type of compound words does not have a clear head inside them, from a semantic point of view, these compound words are like idioms. Additionally, Lusekelo (2019) writes those metaphoric expressions are common in the Kiswahili speaking community, which are expressions of politeness constructed cognitively. Also, the compound word $[[a]_R \ [b]_T]$ does reflect the meaning of R or T. This is also a case in Sepedi. Consider the following example:

(37).

$$[[a]_R \ [b]_T] \neq R \ nor \ T$$

$$[[hlatswa]_R \ [dirope]_T] \neq R \ nor \ T$$

$$[[hlatswa]_V + [dirope]_N] \rightarrow [hlatswadirope]N$$

The formation of the compound word *hlatswadirope* (ancillary wife) consists of a verbal stem *-hlatswa* (wash) with a verbal ending *-a* and *dirope* (thighs) with a bound morpheme *di-* of noun class 8. The compound word *hlatswadirope* is an example of a metaphoric exocentric compound word because its meaning is obtained figuratively. Hence, *hlatswadirope* is a woman who is married to bear an heir in instances where the wife cannot bear children. The meaning of this compound noun is not derived from the input morphemes. Benczes (2006), Kageyama (2010) and Appah (2017) note that example (37) is a typical case of metaphoric exocentric compound in that the meaning of the resultant compound is not derived from the morphemes which form the compound. For instance, the meaning of the compound word *hlatswadirope* consists of a figurative meaning which is considered in the cultural practice of the Bapedi people. The main source of metaphoric compound words in Sepedi language is verbal stem plus noun. For example:

(38).

$$[[a]_R \ [b]_T] \neq R \text{ nor } T$$

$$[[tima]_R \ [mollo]_T] \neq R \text{ nor } T$$

$$[[tima]_V + [mollo]_N] \rightarrow [timamollo]_N$$

Based on the example in (38), the compound word *timamollo* (the great wife or the candle wife) is regarded as a metaphoric exocentric compound word. This means that the semantic meaning of the compound word in (38) can only be understood by those who have profound knowledge of Sepedi metaphors or idioms. The compound word, *timamollo*, is formed by combining the verbal stem *-tima* (distinguish) with the verbal root *-tim-* and the verbal ending *-a*. The second constituent is the noun *mollo* (fire) with a nominal class 3. However, it does not mean firefighting or 'extinguish fire', but a wife who is married on behalf of the deceased to bear an heir. *Timamollo* is a headless compound word because it refers to something that is not named by either of the bound or free morphemes of the compound. In support of the discussion above, Katikiro (2017) avers that the sources of the semantic meaning or head of the exocentric compound cannot be traced. This is because of the figurative interpretation of this type of compound nouns. Another metaphoric exocentric compound word is as follows:

(39).

$$[[a]_R \ [b]_T] \neq R \text{ nor } T$$

$$[[Moswara]_R \ [marapo]_T] \neq R \text{ nor } T$$

$$[[Moswara]_N + [marapo]_N] \rightarrow [moswaramarapo]N$$

The metaphoric exocentric compound noun *moswaramarapo* (programme director) in (39) is derived from the verbal stem -*swara* (touch) with a nominal prefix of noun class 1 *mo-* for a human being, the verbal root -*swar-* and a verbal ending -*a*. The second part of the compound noun is *marapo* (bones) with a bound morpheme of nominal class 6. When the input constituents are combined, they create the compound word *moswaramarapo*, which is a new word with a new meaning, completely different from its constituents. This compound word does not refer to a person who literally touches bones but a programme director. According to Haspelmath and Sims (2010), a metaphoric exocentric compound word such as in example (39) above, does not contain a headword and a modifier. The compound word does not denote the kind of entity as that of the second morpheme. Consider the following example:

(40).

$$[[a]_R \ [b]_T] \neq RT$$

$$[[dit\check{s}ie]_R \ [badimo]_T] \neq RT$$

$$[[dit\check{s}ie]_V + [badimo]_N] \rightarrow [dit\check{s}iebadimo]N$$

The compound word *ditšiebadimo* (nonsense) consists of the morphological form N + N → N, it is an exocentric compound because it does not have a head. *Ditšie* (locusts) consist of a bound morpheme of class 10 *di-*, and a free morpheme *tšie* (locust) and *badimo* (gods) consist of a bound morpheme of noun class 2 *ba-*. The nominal prefix *ba-* cannot be referred to as the head because *ditšiebadimo* simply means 'nonsense'. It is neither a type of gods nor locusts. An exocentric compound such as example (40), is one which is not a hyponym of one of its morphemes, and thus appears to lack a head (Bauer, 2015). Instead, one can note that the metaphoric exocentric compound denotes something which is not a subclass of either of the morphemes in the compound.

(41).

    [[a]$_R$ [b]$_T$] ≠ RT

    [[*Tlola*]$_R$ [*melora*]$_T$] ≠ RT

    [[*Tlola*]$_V$ + [*melora*]$_N$] → [*tlolamelora*]N

The metaphoric exocentric compound noun *tlolamelora* (small breast of young girls) in example (41) is derived from the verbal stem *-tlola* (smear) with a null bound morpheme of nominal class 9 *-n* and the noun *melora* (ashes) with a bound morpheme of noun class 4. It is termed to be a metaphoric exocentric compound word because the meaning of this compound noun cannot be located within the constituents *-tlola* and *melora*. Appah (2017) affirms that metaphoric compound words are to be interpreted metaphorically because the whole compound word has a metaphorical interpretation. Metaphorical exocentric compound words have idiomatic meaning because they do not have visible head or the dominant word.

(42).

    [[a]$_R$ [b]$_T$] ≠ RT

    [[*mpa*]$_R$ [*kubu*]$_T$] ≠ RT

    [[*mpa*]$_N$ + [*kubu*]$_N$] → [*mpakubu*]N

The example *mpakubu* (sjambok) in (42) is also a construction of a metaphoric exocentric compound because it is not a type of *mpa* (stomach) with a null bound morpheme of noun class 9 *-n*. The second noun is *kubu* (hippopotamus) with a null bound morpheme of noun class 9 *-n*. When the input constituents are combined, they create the compound word *mpakubu* (sjambok) a new word with a new semantic meaning, completely different from its constituents. The compound word does not denote the kind of entity as that of the second word. Kageyama (2010) states that metaphoric exocentric compound words are figurative creations driven by metaphor. metaphoric exocentric compound words have their semantic head outside the literal meaning of the compound word.

The theory of Construction Morphology highlight that the head of the compound word should appear on the rightmost morpheme. For instance, it is impossible to apply this theory to Sepedi exocentric compound words to locate the head of the compound noun and its semantic content because it consists of a figurative meaning. Hence, the theory of Construction Morphology cannot be applied to Sepedi metaphoric exocentric compound words to test the dominant morpheme because the semantic property of these compounds is not expressed from the morphemes used during the formation. The following section elaborates further on the third type of compounds called copulative compounds.

4.5 Formation of copulative compound words in Sepedi

The third type of compound words is copulative compound words. The formation of copulative compound words includes two free morphemes that are both considered as heads. According to Delahunty and Garvey (2010), copulative compounds are compound words which have two semantic heads where each head contributes equally to the meaning of the whole compound word. In other words, copulative compounds in the Sepedi language have two heads because there is no morpheme which is more important than the other.

This type of compound words has morphemes which represent a coordinative relationship (Pratiwi et al., 2018). In this sense, both free morphemes are the head, because none is modifying the other; but they have a meaning when they are coordinated. In Sepedi, there are not so many copulative compound words since their formation is limited. Olsen (2001: 279-297) asserts that the basic copulative pattern carries the meaning 'an X that is simultaneously A and B'. That is, copulative compound words encompass a coordinative relationship between all the morphemes such that both concepts are attributed simultaneously to one individual. Consider the following:

(43).

$[[a]_R [b]_T]$ RT

$[[Ngaka]_R [moreti]_T] \rightarrow$ RT

$[[Ngaka]_N + [moreti]_N] \rightarrow [ngakamoreti]_N$

In (43), the copulative compound word *ngakamoreti* (poet-doctor) is made up of the noun *ngaka* (doctor) with a nominal prefix of noun class 9 *n-* and the second noun *moreti* (poet) is a deverbative noun derived from the verbal stem *-reta* (recite). The verbal stem *-reta* consist of the verbal root *-ret-* and the verbal ending *-a*. As a result, *ngakamoreti* refers to someone who is both a doctor and a poet. The input constituents contribute to the whole meaning because they have equal status. Copulative compounds in Sepedi are written as one word without space with neither nominal prefix morpheme being regarded as the head that dominates the entire word, even though copulative compound words show the characteristics of headedness. Plaq (2002) argues that in copulative compounds, no member of the compound is semantically prominent, both members equally contribute to the meaning of the compound. Semantically, the morphemes involved have equal roles with neither morpheme being regarded as the head that dominates the entire compound word. Another new copulative compound word in Sepedi language is indicated below:

(44).

$[[a]_R [b]_T]$ RT

$[[Sebara]_R [makoti]_T] \rightarrow$ RT

$[[sebara]_N + [makoti]_N] \rightarrow [sebaramakoti]$N

The compound word *sebaramakoti* (brother-in-law) in example (44) is a copulative compound noun formed by adding the noun *sebara* (brother-in-law) with a nominal prefix 7 *se-* and *makoti* (bride) with a bound morpheme of nominal class 1a ø-. The combined meaning of the compound noun in (44) refers to a man who is both a brother-in-law and a bride. *Sebaramakoti* is a man who stays at his female partner's family house without paying *lobola.* Instead of paying *lobola* to the family, he joins the family, and, in most cases, he is not even determined to pay or marry the female partner. Trias (2010) writes that the copulative compound word in (44) consists of those individual morphemes which are equally predict the entity to which the compound refers. A recent coinage of Sepedi copulative compound word is:

(45).

[[a]R [b]T] RT

[[*molaodi*]R [*hlagiša*]T] → RT

[[*Molaodi*]N + [*hlagiša*]V] → [*molaodihlagiša*]N

The compound word in example (45) above is a copulative compound. It is formed by combining the deverbative noun *molaodi* (director). The deverbative noun *molaodi* consist of a nominal prefix *mo-* of noun class 1, the verbal root *-laol-* from the verbal stem *laola* (control) and the *-a* as a verbal ending. The second part of the compound word is *hlagiša* (produce) with a nominal prefix 9 *n-*, the verbal root *-hlag-*, verbal extension *-iš-* and verbal ending *-a*. When these bound morphemes are combined, they form the copulative compound word, *molaodihlagiša* (producer-director). Originally, the copulative compound word m*olaodihlagiša* was written as *molaodimohlagiši*. For the sake of better pronunciation and readability, the second noun class 1 *mo-* is omitted. In the olden days before technology took over the world, it was difficult to both produce and direct a show on a radio or television simultaneously. However, these days it is possible that these two jobs can be done by one person referred to as 'producer-director'. *Molaodihlagiša* is a person who is a media personality who creates and produces content whilst directing the action. Khan (2013) mentions that in copulative compound words, the combination (R+T) denotes the sum of what R and T denote. This can be seen in example (46) below:

(46).

[[a]R [b]T] RT

[[*Mohlohletši*]R [*mahlale*]T] → RT

[[*Mohlohletši*]N + [*mahlale*]N] → [*Mohlohletšimahlale*]N

From the example (46), the copulative compound noun *mohlohletšimahlale* (Scientist-explorer) is formed with more than two constituents. Thus, *mohlohletši* is derived from *mohlohletša* (explorer) that are a bound morpheme *mo-* of noun class 1, the verbal root *-hlohl-*, applied extension *-etš-* and a verbal ending *-a*. The noun *mahlale* (science) is derived from *bohlale* (wisdom) which consist of noun class 14 *bo-*. Thus, *mohlohletšimahlale* is a scientist who is also an explorer. This proves that

mohlohletšimahlale is a copulative compound word because the all the input constituents contribute equally to the semantic context of the nominal compound. Rumiyati (2015) affirms that when a copulative compound word is formed, the morphemes that are involved should have equal status and the meaning should not be idiomatic. From a semantic point of view, the morphemes of the copulative compound word, *mohlohletšimahlale*, both play an equal role when it comes to determining the lexical category and semantic relation of the compound word.

Copulative compound words support the idea that compound words are headed. On the contrary, it is not possible to use the theory of Construction Morphology to determine headedness in Sepedi copulative compound words. Copulative compound words in Sepedi language seem to fit the context but they do not acknowledge the theory of Construction Morphology because the second constituent has no control over the first constituent. Instead, they both act as heads that contribute to the final meaning and the grammatical context of the compound noun.

4.6 Constructions of Sepedi compound words

It can be asserted that from the above data and interpretations, there are different lexical categories involved in the formation of compound words in Sepedi language. In fact, compound words in Sepedi are formed by combination of N + N → N, V + N → N and N + Adj → N. Noun + noun combination turns out to be the pattern which appears the most in this analysis. Correspondingly, Katamba (1993:305) asserts that this pattern is the largest sub-grouping of compound formation, and a great number of compound nouns are included in this pattern. It can be concluded that, during the process of compound formation, the construction N + N → N is easily found.

Constructions used to form compound words in Sepedi language are another way of proving that most Sepedi compound words are left-headed. For example, according to theory of Construction Morphology, the construction N + Adj → N, should have the adjective as the head although this is not the case in the Sepedi language because the head of the construction N + Adj → N is a noun, and not N + Adj → Adj.

Mphasha (2006) asserts that compound words in Sepedi seem to be only nominal in nature. The construction V + N → N and N + Adj → N denotes compound nouns

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because of the influence of the nominal prefix on the first morpheme. Accordingly, the dominant morpheme serves as the head which determines the part of speech of the compound. The data indicate that compound words in the Sepedi language are both right headed and left headed depending on the location of the dominant morpheme.

4.7 Conclusion

The chapter discussed how two types of morphemes are used in the Sepedi language to form words. It further presented three types of compound words on the basis of headedness. Compounding as a morphological process to form compound words in Sepedi language was also discussed. Majority of data emerged from the novel COVID-19 pandemic, which means that most of the endocentric compound words in this chapter are not yet available in Sepedi vocabulary or dictionaries. Therefore, the key survival for all these new compounds is usage. If a newly formed compound word is not regularly used, it will fade away or die. The theory of Construction Morphology was utilised to determine headedness in endocentric compound words because these types of compound words are headed unlike exocentric compounds which are headless or double-headed compounds. The following chapter present summary of the study, findings, and recommendations of the study.

CHAPTER 5: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, data were presented and analysed in detail. This chapter provides an overview of the summary of the study together with the findings encountered in conducting this study. Possible recommendations for future research are also provided.

5.2 Restatement of the aim and objectives of the study

5.2.1 Aim of the study

The aim of this study is to form and analyse the semantic content of compound words in Sepedi language.

5.2.2 Objectives of the study

The objectives of the study were as follows:

- To form compound words in Sepedi.

This objective was achieved in section 4.4 and section 4.6 which dealt with the formation of new endocentric compound words and copulative compound words.

- To determine headedness of compound words in the Sepedi language.

This objective was achieved in section 4.4 and 4.6 which focussed on the location of the head in endocentric compound words and copulative compound words in Sepedi.

- To determine the semantic content of headless compound words.

This objective was achieved in section 4.5. It was achieved by determining the semantic content of exocentric compound words. The objective focused on metaphoric exocentric compound words whose heads and meaning cannot be determined from the constituents of the exocentric compound word.

- To identify the constructions used to form Sepedi compound words.

This objective was achieved in section 4.7. It identified the lexical categories that are used to construct compound words. The lexical categories comprise of a noun, verb, or adjective.

5.3 Summary of the study

In chapter one, the study commenced by unpacking the background and the motivation of the study focusing on historical background of Sepedi language, defining the concept compound word, classifying morphemes and discussing types of compound words. A problem statement was briefly described, and the identified research problem were expounded. The purpose, aim and the objectives of the study were also highlighted.

Chapter two provided a broad review of literature on the formation and meaning of compound words. The literature review was based on Nguni, Sotho, Germanic and Bantu languages. This chapter concluded with the theoretical viewpoint of the study.

In chapter three, the research methodology that underpinned this study was presented. The study used participant observation as the method of data collection and data were analysed using the content analysis method focusing on written and electronic information. The qualitative research approach was selected as a suitable research approach. The study adopted the purposive sampling method because it allowed the researcher to collect compound words purposively as the participant observer to develop a deeper understanding of the study.

On data analysis, the gathered data was presented and analysed. Credibility, transferability, dependability, and confirmability were discussed as the key aspects of quality criteria because this study aimed to produce trustworthy and valued findings. The significance of the study was briefly discussed in light of the contribution of the study to existing literature on the subject.

In chapter four, data was analysed and interpreted. The analysis and interpretation were presented in light of the objectives of the study. The outcomes that were discussed included: the formation of compound words in Sepedi language using the Booij (2010a) theory of Construction Morphology to test headedness in endocentric,

exocentric, and copulative compound words. The constructions used to form compound words pointed out that Sepedi compound words are nominals.

5.4 Findings of the study

The findings of the study reveal that the formation of compound words in Sepedi is a vital tool that contributes to the growth of this language. It is possible to form compound words using different word aspects such as object concords, verbal roots, stems, and suffixal endings. This can be confirmed by the neologism that emerged during the COVID-19 pandemic. The findings reveal that compounding as a morphological process is used to form compound words from both existing and new words. Compound words such as 'coronavirus, lockdown, new normal, work from home (WFH), virtual meeting, vaccination, quarantine site, zoombombing, self-screening or mask' are terms mostly derived from a foreign language (English) and are increasingly familiar to the public because they appear in various mass media platforms.

In addition, the location of the head in a compound word expresses the lexical category of the compound and the root expresses the core meaning of the compound word. The head of the compound word is a prominent morpheme that does not only carry the dominant morpheme, but also determines the lexical category.

The research findings reveal that there are three types of compound words in Sepedi, which are endocentric, exocentric, and copulative. They are differentiated based on headedness. Endocentric compound words are termed 'headed' because the head and meaning of this type of compound words can be located within the constituents. The second type is exocentric compound words which are referred to as 'headless' because the head cannot be traced from the constituents and the semantic content is found to be metaphoric. The third type of compound words has two heads, and they are referred to as copulative compound words.

Data reveal that the meaning of endocentric compound words is located inside the compound word. The head is located on the lefthand nominal prefix or righthand nominal prefix. When the compound word is right headed, the left morpheme modifies the meaning of the head, and if the compound word is left headed, the right morpheme, is the modifier. Consider the illustrations below:

1a. *Khoronabaerase* N   1b. *Setlwaedimpsha* N

Khorona N   *baerase* N   *setlwadi* N   *mpsha* Adj
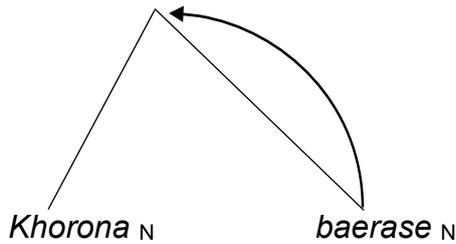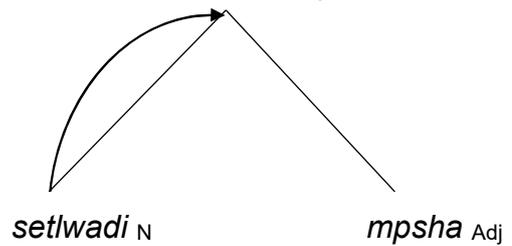
The first illustration is made up of N + N and the end-product is a noun because the head (*baerase*) is a noun. The head of a compound word in (1a) is located on the right-hand side and the first morpheme *khorona* modifies the head. The second compound word is made up of N + Adj and it is a noun because *setlwaedimpsha* is a type of *setlwaedi* not *mpsha*. The adjective on the right-hand side modifies the meaning of the head. It was also revealed that compound words that were formed with three morphemes in Sepedi fall under the category of endocentric compound words because these compound words consist of the semantic content within the constituents.

The findings of the study reveal that copulative compound words support the fact that Sepedi compound words have meaning, and they are headed. However, these compound words seem to have two heads which both influence the semantic content of the resultant compound word. The constituents of copulative compound words have a coordinative relationship.

Although exocentric compound words have meaning, findings reveal that these types of compound words are headless. The headless characteristic comes from the fact that it is difficult, if not impossible, to derive the semantic content of an exocentric compound word from its constituents. Hence, the meaning of exocentric compounds is metaphoric or idiomatic because the origin of the meaning of exocentric compound words is untraceable within the constituents forming the compound word. An example such as the compound word, *timamollo,* proves this argument because it refers neither to a type of fire nor to extinguishing, but to 'the candle wife'. The meaning of this compound word is not derived from the morphemes which form the compound word. It consists of a figurative meaning.

Moreover, findings reveal that the formation of compound words in Sepedi is not limited to object concord, verbal root and verbal ending constructions only. It is

possible to form compound words that consist of more than two morphemes. This type of compound words consists of roots, free or bound morphemes for compound words such as *tšhitišokhonferenseinthaneteng or setšhirankolomo*, *bodulathokwana*.

5.5 Recommendations

There are several gaps in the study that follow from the findings. These gaps can be explored in further research. The following recommendations for further research in the field of morphology and semantics are made:

- The study notes that there is a gap on the origin of semantic content of exocentric compound words in Sepedi. Based on this gap, it is recommended that further studies should investigate the semantic content of exocentric compound words in African languages, especially the Sepedi language. This study will benefit scholars with an understanding of the semantic content of exocentric compounds.

- There is a gap on the influence of nominal prefixes on determining the head of endocentric compound words in Sepedi. The study thus recommends that there is a need for a study that looks at the role of nominal prefixes on compound words. The study will benefit academics by providing clarity on the role of nominal prefixes in compounding.

- It is noted that the formation of compound words using two noun classes or two bound morphemes as heads in Sepedi has overshadowed the formation of compound words that consist of more than two morphemes. To close this gap, there must be a study that researches on the formation of compound words that consists of more than two morphemes. The results of this study will contribute to the growth of the Sepedi language in areas of morphology and semantics.

- Literature on the formation of copulative compound words in Sepedi is insufficient. It is recommended that to alleviate this gap, future studies should focus on forming compound words in Sepedi language. This study will be a vital contribution to the literature and vast knowledge in the formation of compound words.

- There is a challenge of accessing newly formed compound words in Sepedi. Future research needs to focus on the ways that can be utilised to enter newly formed compound words in dictionaries or the internet. This will also allow these compound words to be standardised and made official for the users. The study will also assist the target users with the correct orthography and semantic content.

- The study notes that, the location of headedness in Sepedi compound words is a unique issue. Future scholars should use different theoretical approaches to determine the nature of headedness in Sepedi compound words. The significance of this study will provide linguistic researchers with different solutions that can be used to locate the head of compound words in Sepedi.

5.6 Conclusions

The foregoing discussion pointed out that most compound words in Sepedi language are nominals, because they are headed by noun classes. These compound nouns are formed through the combination of object concords, verbal roots, suffixal ending, verbal ending, deverbatives, N + N and V + N, N + Adj morphological constructions. The major lexical categories involved throughout the formation of compound words are nouns and verbs. This is not unique to the Sepedi language only because the literature reviewed in Chapter two of this study have been reported to form compound words through a combination of these major lexical categories and nominal prefixes (object concords), for example, Nguni languages (Ndlovu, 2013; Hadebe, 2002; Doke,1995); Sotho languages (Mphasha, 2006; Pretorious et al., 2008) and Germanic languages (Libben et al., 2009; Delazer et al, 1994). The morphosemantics of compound words reveal that the left-most nominal prefix determines the lexical category and the head of the compound words in left-headed compound words. On the one hand, endocentric compounds may obtain semantic content from the right-hand or left-hand morpheme. The data reveal that the nominal prefixes influence lexical category and the headedness of the compound words. Hence, data revealed that majority of Sepedi nominal compounds are left-headed.

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