



A Lexical Functional Grammar description of the Setswana complex sentence

OR Maleka

 **orcid.org/0000-0002-1746-4042**

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Supervisor: Prof RS Pretorius

Co-supervisor: Dr AS Berg

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ABSTRACT

This dissertation provides a detailed analysis of Setswana complex sentences through the Lexical-Functional Grammar (LFG) framework, contextualised by an exploration of Setswana as a Bantu language, its sentence types, and the role of mood in sentence structure. The study includes a historical overview of LFG's seminal and foundational works, emphasising the framework's application to Setswana and other Bantu languages. Existing sources on Setswana and Sepedi grammar are examined, with a focus on the treatment of complex sentences.

Key concepts of LFG, including constituent (c-) structure and functional (f-) structure as parallel syntactic representations, are discussed in depth. The c-structure outlines constituent order and grouping, while the f-structure captures functional information. This study explains the interrelation between c-structure and f-structure through f-descriptions and the mapping function ϕ , with lexical entries providing essential f-structure information for the terminal nodes in the c-structure tree. In Setswana complex sentences, which feature an independent main clause and a subordinate clause, c-structure rules and trees are developed to represent these structures and the clauses that form them.

An LFG-based analysis of Setswana complex sentences is presented regarding the representation of the f-structures of these sentences. The study explores how word categories and their distinctive features interact within Setswana's syntax and examines how grammatical functions are assigned and interpreted. By detailing main and subordinate clauses with annotated attribute value matrices (AVMs), the study constructs a comprehensive f-structure for Setswana complex sentences. This work contributes a novel syntactic description of Setswana, with implications for further linguistic, theoretical, and applied research.

Key terms: Setswana, Setswana syntax, Setswana sentences, complex sentence, Lexical Functional Grammar (LFG)

TSHOBOKANYO

Patlisiso ê e neela tshekatsheko ê e feletseng ya dipolelopate tsa Setswana go ya ka molebo wa Lexical Functional Grammar (LFG). E sekaseka Setswana jaaka puo ya Setho, mefuta ya dipolelo tsa Setswana le karolo e modiriso ê e nang le seabe mo popegong ya dipolelo. Patlisiso ê e akaretsa lemorago la LFG, ditiro tsa motheo wa molebo o, go gatelela tiriso ya yona mo puong ya Setswana le mo dipuong tsa Setho. Metswedi ya popegopuo ya Setswana le Sepedi e tlhatlhobilwe go lebeletswe tiro ya dipolelopate.

Dintlhakgolo tsa LFG tse di akaretsang sebopego sa mafoko (constituent (c-) structure) le sebopego sa tiriso (functional (f-) structure) di tlhalositswe ka botlalo. Sebopego sa mafoko se tlhalosa tatelano le kgolagano ya mafoko, fa sebopego sa tiriso se tlhalosa tiriso ya mafoko a a tlhagelelang mo sebopegong sa mafoko, mo ditlhopeng tsa mafoko le mo polelong. Patlisiso ê e tlhalosa kgolagano magareng ga sebopego sa mafoko le sa tiriso go ya ka tlhaloso ya tiriso (functional (f)-description) le mmapa wa tiriso (mapping functional) ϕ . Mafoko a mokwalo (lexical entries) a neela kitso ê e botlhokwa ya sebopego sa tiriso mo makaleng a setlhare sa sebopego sa mafoko. Mo polelopateng ya Setswana, ê e akaretsang polelwanakutu le polelwanakala, melawana le ditlhare tsa sebopego sa mafoko di bopiwa go tlhagisa dipopego tse, le dipolelwana tse di di bopang.

Tshekatsheko ya polelopate ya Setswana go ya ka molebo wa LFG e tlhagisitswe go ya ka kemedi ya sebopego sa tiriso ya dipolelo tseo. Patlisiso ê e lebelela gore dikarolopuo le diponagalo tsa tsone tse di kgethegileng, di dirisana jang mo popapolelong ya Setswana le gore ditiriso tsa popegopuo di ranotswe jang. Ka go neela dintlhatlalo tsa polelwanakutu le polelwanakala go ya ka sethalo se se kopanyang diponagalo tsa boleng (Attribute Value Matrices (AVM)), patlisiso ê e bopa sebopego sa tiriso se se tseneletseng sa polelopate ya Setswana. Patlisiso ê e neela seabe se sešwa sa tlhaloso popapolelo ya Setswana, ka dipolelo tsa dipatlisiso tse di tlang, tse di tlhomameng tsa thutapuo.

Mareo a botlhokwa: Setswana, Popapolelo ya Setswana, Dipolelo tsa Setswana, Polelopate, Lexical Functional Grammar (LFG)

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LIST OF ABBREVIATIONS

Tag	Explanation
AbsPro	absolute pronoun
adjective	adjective
Adv	adverb
AgPart	agentative particle
AgrObj	object agreement morpheme
AgrSubj	subject agreement morpheme
ApplSuf	applicative suffix
AssCopV	associative copulative verb
AssPart	associative particle
AugSuf	augmentative suffix
Aux	auxiliary
CausSuf	causative suffix
CompPart	comparative particle
Conj	conjunction
D1, D2, D3	distance 1, distance 2, distance 3
DemPro	demonstrative pronoun
DesCopV	describing copulative verb
DevSuf	deverbatives suffix
DimSuf	diminutive suffix

(continue on next page)

FemSuf	feminine suffix
FutPre	future prefix
HortPart	hortative particle
IdCopV	identifying copulative verb
Ideo	ideophone
IncQPro	inclusive quantitative pronoun
InfPre	infinitive prefix
InstrPart	instrumental particle
Interj	interjection
IntPart	interrogative particle
LocPart	locative particle
LocSuf	locative suffix
NegPre	negative prefix a
NPre	noun prefix
P1	first person
P2	second person
PassSuf	passive suffix
PerfSuf	perfect suffix
PersPro	personal pronoun
pl	plural
PossPart	possessive particle
PossPro	possessive particle
PresPre	present tense prefix a
ProgPre	progressive prefix
QualPart	qualificative particle
RecSuf	reciprocal suffix
RelSuf	relative suffix
SepQPro	separative quantitative particle
Sg	singular
TempPart	temporal particle
VEnd	verbal ending
1 2 3 20	noun classes 1 to 20

Table 1-1: Morphological tags

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

A review of sources on Setswana syntax, syntactic analysis and sentence structure reveals that the syntactic structure of complex sentences in Setswana remains largely unexplored. Building on Berg's (2018) study of simple sentence syntax in Setswana, this research aims to describe the constituent structure (c-structure) and functional structure (f-structure) of complex sentences in Setswana by means of the Lexical Functional Grammar (LFG) framework.

In this chapter I will provide a contextualisation of Setswana as a Bantu language, by discussing the features of Setswana verbs, types of clauses and sentences, and the LFG framework. Additionally, I will address the problem statement, aims and significance of this study within the broader linguistic landscape.

1.2 SETSWANA AS A BANTU LANGUAGE

Setswana (ISO 639-3 tsn) is a Bantu language¹ that belongs to the Sotho language group, also known as the Sotho-Tswana group (Gowlett, 2003:609-610). This language group includes Setswana (Tswana), Sesotho sa Leboa (Northern Sotho), and Sesotho (Southern Sotho). These languages are primarily spoken in the South-Eastern Zone of Bantu languages, with the Sotho languages categorised under group S.30 in Guthrie's (1971) classification due to their shared grammatical structure and vocabulary (Poulos & Louwrens, 1994:2; Krüger, 2006:3). Setswana specifically falls under group S31, and its dialects are further divided into subgroups ranging from S31a to S31e (Gowlett, 2003:609).

The South-Eastern Zone also encompasses the Nguni language group (siSwati, isiXhosa, isiZulu, and isiNdebele), XiTsonga, and Tshivenda (Cole, 1961:88; Van Wyk, 1967:21-25, 37-38; Lombard *et al.*, 1985:5). Setswana is recognised as the national language of Botswana and is one of the twelve official languages of the Republic of South Africa. Approximately 8.3% of South Africa's population are first language Setswana speakers (Stats SA:2022). Besides Botswana and South Africa, Setswana is also spoken in certain regions of Namibia and Zimbabwe.

¹ The term "Bantu language" is used in this study as a linguistic ,classificatory term, and the South-Eastern Bantu languages is also referred to as the Suntu languages (Kosch, 2006:ix).

Bantu languages, including Setswana, are characterised by their use of noun classes, agglutinative morphology, a grammatical (concordial) agreement system, and a subject-verb-object (SVO) word order (Louwrens, 1994a:18; Watters, 2000:196).

1.2.1 Noun classes

Setswana's noun class system categorises nouns into twenty classes, which determine agreement patterns. According to Kosch (2006:89), these noun classes indicate a grammatical or class gender. Nouns are grouped into classes through their class prefixes, also known as gender number prefixes (Kosch, 2006:90). Additionally, these noun classes carry semantic significance (Cole, 1955:68-105; Krüger, 2006:57-98; Poulos & Louwrens, 1994:47).

1.2.2 Agreement

Grammatical agreement, also known as concordial agreement in Bantu languages, is primarily based on the noun class system (Lombard *et al.*, 1985:54; Rose *et al.*, 2002:4). However, it is also influenced by person and number features. In a Setswana sentence, agreement occurs between a subject noun or personal pronoun and the main verb through the inclusion of a subject agreement morpheme in the verb's morphological structure. An object agreement morpheme, referring to an omitted object, can also be included in this structure. Both subject and object agreement morphemes are prefixed to the verb root. Additionally, agreement exists between a noun and specific modifiers (Berg *et al.*, 2012:92-96).

1.2.3 Agglutinative morphology

Bantu languages exhibit an agglutinative morphology, meaning that affixes are sequenced as structural elements in a word to modify or extend its meaning (Kosch, 2006:133-139). This phenomenon of affixation is particularly prevalent in the formation of nouns and verbs. A noun's meaning can be extended through the use of diminutive, feminine, augmentative, and locative suffixes (Krüger, 2006:73-96). In verb morphology, inflection is expressed by prefixes indicating class gender, person and number, mood, tense, aspect, and polarity (Cole, 1955:242-267; Krüger, 2006:198-243). Derivation is expressed by causative, applicative, reciprocal, perfect, and passive suffixes, along with an obligatory verbal ending (Cole, 1955:192-211; Krüger, 2006:257).

Bantu languages vary in orthography; some use a conjunctive orthography where affixes are conjoined with the root, while others, like Setswana, use a disjunctive orthography where verb prefixes are generally written separately. This necessitates distinguishing between an orthographic word and a linguistic word. An orthographic word is a unit separated by spaces from

other units in the sentence, while a linguistic word denotes units that function as members of a word category and have specific meanings (Kosch, 2006:3).

1.2.4 Word order

Setswana can be classified as an SVO or SVOX language. It follows an SVO structure when the subject precedes the main verb and the object follows it (Cole, 1955:426; Krüger, 2006:11-12). It adopts an SVOX structure when an adjunct is included in the sentence, with X representing the adjunct. These SVO and SVOX word orders are characteristics of most Bantu languages (Watters, 2000:196-201).

1.3 SENTENCE TYPES IN SETSWANA

Sentences have a specific clausal structure. Below, I first present an overview of the features of tense, aspect, mood, and polarity (TAMP) that can be included in Setswana verbs. I then discuss the two clause types that can be included in Setswana sentences.

1.3.1 Mood, tense, aspect and polarity

1.3.1.1 Mood in Setswana

The concept of mood in verbs is defined by their morphological features (Louwrens, 1991:35) and is described as an inflectional category (Krüger, 2013a:56). Kosch (2006:102-105) suggests that mood is best understood as referring to the different structural forms that verbs may take to reflect a speaker's or writer's attitude toward an event. Krüger (2013b:110-111) notes that comparing the external functions of predicates reveals various functional, semantic, morphological, and tonal differences and correspondences. Thus, a significant characteristic of mood is how a predicate is used externally in relation to a larger syntactic environment, sustained by its meaning (Krüger, 2013b:111). External functions refer to the grammatical functions that elements within a sentence can have, focusing on how these elements relate to the overall sentence structure.

The different moods in a language can be determined by identifying all the possible morphological variations in verb forms, although not all verbal inflections influence the modal status of verbs (Louwrens, 1991:35). A distinction is drawn between modally indistinctive verbal inflections (which do not affect the modal status of verbs) and modally distinctive inflections (which alter the mood of a verb). To determine moods, one can follow the process explained by Louwrens (1991:36), identifying the morphological features that are modally significant in distinguishing one mood from another. For example, the present tense morpheme **a** and the negative morpheme **ga** in Setswana are distinctive features of the indicative mood because they occur exclusively in this mood.

Based on verbal inflection, the following eight moods are distinguished for Setswana (Krüger, 2013b:11-128): the indicative, consecutive, imperative, habitual, participial, subjunctive, infinitive, and relative (cf. §4.5.1 & §4.5.2). According to Krüger (2013a:128), within "the semantic and structural frameworks of processes or actions represented by the verb" polarity (also referred to as actuality), aspect, and tense are subcategories of mood.

1.3.1.2 Tense in Setswana

Tense can be described in terms of absolute and relative tense (Nurse, 2008:120). Absolute tenses are categorised into the past, present and future tenses and are marked morphologically within the structure of a verb (Berg, 2018:61-63). In an absolute tense, a situation is related to the present moment, meaning the time of an action corresponds to the coding time. Coding time indicates the moment of speech (Posthumus, 1990:22; Pretorius, 1997:162).

Relative tenses include the relative past and relative future tenses. In relative tenses, the action in the verb is defined by a selected and marked reference point, which is interpreted in relation to the time the utterance is made (coding time) (Posthumus, 1990:22; Pretorius, 1997:164). Relative tenses connect the situation to an already established time (Nurse, 2008:120). This reference point can be either before or after the coding time.

1.3.1.3 Aspect in Setswana

Aspect conveys the internal temporal structure of actions or indicates the duration of an action within a verb (Posthumus, 1993:188; Louwrens, 1994b:139; Pretorius, 1997:170). In Setswana, perfective, progressive, and persistive aspects are distinguished (Berg, 2018:65-66).

1.3.1.4 Polarity in Setswana

In various moods, tenses and aspects, verbs can also indicate one of two polarities: positive or negative.

1.3.2 Independent and dependent clauses

The various moods can be categorised into independent and dependent moods by comparing their semantic and syntactic correspondences and differences (Poulos & Louwrens, 1994:192; Krüger, 2013b:128). This classification reflects the specific clausal structure of a sentence (cf. §4.5.1, §4.5.2, §5.4.1 & §5.4.2). In Setswana, like in other Bantu languages, sentences can be structured with either one independent clause, two or more independent clauses, or an independent clause combined with at least one dependent clause.

The independent moods encompass the indicative, consecutive, imperative, and habitual moods (Poulos & Louwrens, 1994:192-200). Krüger (2013b:128) describes that these moods are not semantically or syntactically dependent on other known or given information; they can function as main or independent elements within a sentence. These independent moods are not only utilised in sentences with one independent clause but also in those with two or more independent clauses.

The dependent moods include the participial, subjunctive, infinitive, and relative moods (Poulos & Louwrens, 1994:234-244). As described by Krüger (2013b:128), these moods are semantically and syntactically dependent because they function as subordinate clauses of various semantic types, such as those indicating time, goal or result. The participial, subjunctive, and infinitive moods are incorporated into sentences with a subordinate clause, as they are semantically and syntactically dependent (Krüger, 2013b:128).

1.3.2.1 Sentence with one independent clause

A sentence containing only one independent clause is classified as a simple sentence. In Setswana, a simple sentence comprises a single verbal element (Louwrens, 1991:17). The verb in this type of sentence can be in the indicative, consecutive, imperative, or habitual mood, and it may also incorporate specific tense, aspect, and polarity features. For instance, the indicative mood "presents the process as a statement, question, or fact" and forms phrases "that are syntactically and semantically independent from others" (Krüger, 2013b:111). Consequently, this mood does not rely on another mood for its existence. In example (1-1), the indicative mood presents a statement, and as only one verb – **ba ja** (they are eating) – is included, it can be classified as an independent clause.

- (1-1) Bana ba ja bogobe.
 children they eat porridge
ba-ana ba-j-a bo-gobe
²NPre2-child AgrSubj2-eat-VEnd NPre14-porridge
 The children are eating porridge.

1.3.2.2 A sentence with two or more independent clauses

A sentence containing two or more independent clauses is categorised as a compound sentence, also known as a co-ordinate sentence. A compound sentence comprises two or more verbal elements (Louwrens, 1994a:29) and is formed through coordination, wherein the independent

² All the morphological tags, with an explanation of each tag, are included in the Appendix (Table 1-1: Morphological tags)

clauses are combined with a conjunction into a single sentence. These independent clauses maintain equal syntactic status (Watters, 2000:217). In example (1-2), the sentence includes a conjunction **ebile** (and), and both the clause **bana ba ja bogobe** (the children are eating porridge) and the clause **ba nwa metsi** (they are drinking water) are in the indicative mood.

- (1-2) Bana ba ja bogobe ebile ba nwa metsi.
 children they eat porridge and they drink water
- | | | | |
|---------------------|-------------------|-----------------|--------------|
| <i>ba-ana</i> | <i>ba-j-a</i> | <i>bo-gobe</i> | <i>ebile</i> |
| NPre2-child | AgrSubj2-eat-VEnd | NPre14-porridge | Conj |
| <i>ba-nw-a</i> | <i>ma-itse</i> | | |
| AgrSubj2-drink-VEnd | NPre6-water | | |
- The children are eating porridge and they are drinking water.

1.3.2.3 A sentence with an independent and a dependent clause

A sentence comprising an independent clause and a dependent clause is classified as a complex sentence, where the independent clause serves as the main clause and the dependent clause functions as the subordinate clause (Louwrens, 1991:30; Watters, 2000:217). Each of these clauses contains a verbal element, with the verb in the independent clause typically in the indicative, consecutive, imperative, or habitual mood, while the verb in the dependent clause is often in the subjunctive, participial, or infinitive mood. According to Louwrens (1991:30), understanding the syntax of a complex sentence necessitates considering the modal links between the various verbal components that constitute the sentence. In example (1-3), the sentence consists of an independent clause, **bana ba ja bogobe** (the children are eating porridge), and the dependent clause **gore ba kgore** (so that they get full), which indicates the subjunctive mood.

- (1-3) Bana ba ja bogobe gore ba kgore.
 children they eat porridge so that they get full
- | | | | |
|---------------|------------------------|-----------------|--|
| <i>ba-ana</i> | <i>ba-j-a</i> | <i>bo-gobe</i> | |
| NPre2-child | AgrSubj2-eat-VEnd | NPre14-porridge | |
| <i>gore</i> | <i>ba-kgor-e</i> | | |
| Conj | AgrSubj2-get full-VEnd | | |
- The children are eating porridge so that they get full.

This study focuses on examining the complex sentence, with its c-structure analysed within the LFG framework in Chapter 4, while Chapter 5 delves into the f-structure, encompassing the tense, aspect, and polarity features of each mood in a complex sentence.

1.4 LEXICAL FUNCTIONAL GRAMMAR

As described by Dalrymple *et al.* (1995:1), LFG is an approach to linguistic analysis and theory-building that has been utilised since the late 1970s. It has been applied to a wide range of languages and is continuously developed by an international scientific community. The architecture of LFG's grammar includes various parallel levels of representation: constituent structure (c-structure), morphology structure (m-structure), argument structure (a-structure), functional structure (f-structure), semantic structure (s-structure), phonological structure (p-structure), and information structure (i-structure) (Kaplan, 1995:23-24; Asudeh, 2006:363-387; Asudeh & Toivonen, 2015:400). These levels interact through functional projections, known as correspondence functions. For instance, each node in a phrase structure tree corresponds to elements in an f-structure, governed by the many-to-one ϕ (phi) function (Falk, 2001:64). The ϕ function comprises the μ , α , and λ functions: μ maps the c-structure tree to the m-structure, α maps the m-structure to the a-structure, and λ maps the a-structure to the f-structure (Asudeh & Toivonen, 2015:400-401). This architecture is illustrated in the following summarised figure (Figure 1-1) provided by Asudeh & Toivonen (2015:400):

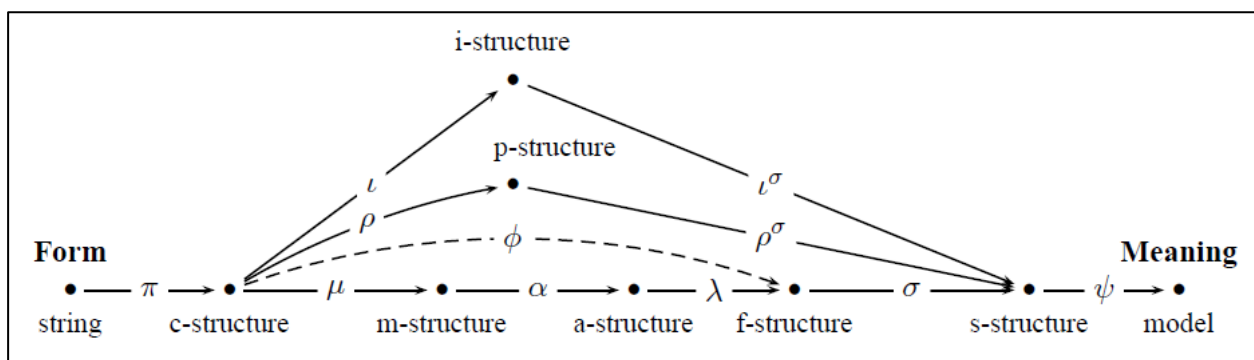


Figure1-1: Correspondence functions in LFG

LFG provides a theoretical framework for analysing the syntactic structure of sentences, in which the c-structure and f-structure serve as the two levels of syntactic representation (cf. §3.2 & §3.3). The c-structure delineates the order and grouping of constituents, while the f-structure encapsulates the functional information of these constituents (Bresnan, 2001:44-45). A context-free grammar defines the c-structure, functioning as a set of phrase structure rules that characterise all possible surface structures for a given language. These rules encode constituency (dominance) and surface order (precedence) and are specific to each language (Kaplan & Bresnan, 1995:175; Falk, 2001:33; Bresnan, 2001:113; Dalrymple, 2006:82).

In contrast, the f-structure operates at an abstract level, encompassing the functional or syntactic information of a sentence's internal structure (Dalrymple, 2001:7; Falk, 2001:11). It comprises

surface grammatical functions and features, with grammatical functions including subjects, objects, obliques, and adjuncts. Only features that play a role in functional syntactic constraints are included in the f-structure, encompassing grammatical features such as agreement, features specifying the morphological structure of a verb, and mood, tense, aspect and polarity information (Dalrymple, 2001:27).

1.5 PROBLEM STATEMENT

This study presents the c-structure and f-structure of complex sentences in Setswana. The main research problem constitutes a description of the c-structure rules and f-structure representation of complex Setswana sentences using the LFG approach. The main research question is therefore how complex Setswana sentences can be described using the LFG approach.

1.5.1 Research questions

The following questions are relevant in this study:

- What are the phrase structure rules (c-structure rules) that characterise the possible surface structures of the Setswana complex sentence in LFG?
- How can the surface grammatical functions and features (f-structure) of the Setswana complex sentence be described in LFG?

1.6 AIM

The study aims to present an LFG description of the Setswana complex sentence. The objectives of this study are to describe:

- the phrase structure rules (c-structure rules) that characterise all possible surface structures; and
- the f-structure that represents the surface grammatical functions and features.

1.7 SIGNIFICANCE OF THE STUDY

This study holds significance for several reasons. Firstly, by providing an LFG description of the Setswana complex sentence, it deepens our understanding of Setswana's syntax and structure, which is invaluable for linguists, language learners, and educators. Secondly, it elucidates phrase structure rules (c-structure rules) and f-structure, thereby shedding light on the theoretical foundations of LFG. This examination broadens our comprehension of LFG principles and their applicability to Setswana and potentially other languages. Thirdly, it offers potential guidance for

future research in linguistic analysis and theory-building, particularly regarding syntactic analysis within the LFG framework. Fourthly, it contributes to efforts to document and preserve Setswana by uncovering its syntactic nuances. Fifthly, the insights gained from the study can improve curriculum development and teaching methods, as well as benefit translators and interpreters working with complex Setswana texts or spoken discourse. Lastly, it has the potential to inform the development of computational models for sentence parsing and cross-linguistic comparison, extending the study's impact beyond theoretical linguistics into the computational syntactic analysis of Setswana.

1.8 CHAPTER OUTLINE

The dissertation is structured as follows:

Chapter 1 serves as an introduction to the study, aiming to contextualise its contribution. It begins by presenting geographical information and the distinctive typological characteristics of the Setswana language. The chapter also explains various sentence types in Setswana and presents the problem statement, aims, and significance of the study.

Chapter 2 provides a literature review covering topics such as the historical perspective on the LFG approach and its application in describing Setswana and other Bantu languages. Additionally, it examines existing research on Setswana grammar, focusing particularly on the syntactic structure of complex sentences.

Chapter 3 provides an overview of the LFG framework, including explanations of the c-structure, f-structure, and the correspondence between these structures.

Chapter 4 offers a detailed exposition of the c-structure of complex sentences in Setswana, focusing on their immediate constituents.

Chapter 5 describes the f-structure of complex sentences, discussing the grammatical functions and features included.

Chapter 6 concludes the study by providing a brief overview of each chapter's content, critically assessing the study's contribution, and indicating future directions for research concerning Setswana syntax.

1.9 METHODOLOGY

In this study I follow a hermeneutic approach. I do a survey of sources on topics such as syntax, syntactic analysis and the syntactic structure of Setswana sentences as well as the LFG

approach. Literature focussing on the description of Setswana syntax is used to derive grammatical rules for the formation of the Setswana complex sentence. These rules are used to present a description of c- and f-structures in the LFG approach.

1.10 CONCLUSION

This chapter has provided context for the study by emphasising the importance of Setswana as a Bantu language, discussing its sentence types, exploring the role of mood in sentence structure, and examining the application of LFG in syntactic analysis. The following chapters will conduct a literature review on relevant topic and engage in a detailed analysis, employing the theoretical framework of LFG to provide a comprehensive description of Setswana complex sentences.

CHAPTER 2 LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, I will provide context for this study by presenting a literature review on relevant topics. The review will cover a historical perspective on the LFG approach as well as the use of this approach in the description of Setswana and other Bantu languages. Additionally, I will examine existing research on Setswana grammar, with a particular focus on the syntactic structure of Setswana complex sentences.

2.2 A HISTORICAL PERSPECTIVE OF LEXICAL FUNCTIONAL GRAMMAR

From a historical perspective, numerous references provide a concise overview of the seminal, classical and standard works in LFG.

The LFG framework was developed in the late 1970s, with its formal architecture described by Kaplan and Bresnan (1982:173-281). This paper by Kaplan and Bresnan (1982:173-281) is part of a seminal collection in which the theory of LFG was outlined (Bresnan, 1982). In their work, Kaplan and Bresnan (1982) introduce key concepts of the formal theory of LFG, emphasising the c- and f-structure as two levels in syntactic description. They discuss functional descriptions, conditions of well-formedness, the correspondence between c- and f-structure, and long distance dependencies (Kaplan & Bresnan, 1995:7). Additionally, they describe the generative ability of LFG, demonstrating its suitability for providing accurate descriptions of language.

Dalrymple *et al.* (1995) provide an overview of the historical development of LFG theory from 1982 to 1994 in a classical collection of papers. A notable contribution in this publication is that of Kaplan (1995:7-27), where he introduces the formal architecture of LFG. The 1982 paper by Kaplan and Bresnan is also included (Kaplan & Bresnan, 1995:29-130).

Dalrymple's (2001) overview presents a comprehensive and accessible exposition of LFG as a modern linguistic theory. It includes sections on modification, functional and anaphoric control, coordination, and long-distance dependencies, all illustrated with ample examples, making it a classical reference in the field.

Another classical reference is Bresnan's book (2001), where she focuses on various syntactic phenomena in languages with diverse typologies. She demonstrates that these phenomena can be effectively explained using LFG. This work was updated in a second edition (Bresnan *et al.*, 2016), which included additional information on theoretical developments related to LFG syntax.

The LFG theory is also covered in standard textbooks such as those of Butt *et al.* (1999), Falk (2001), Kroeger (2004) and Börjars *et al.* (2019).

Butt *et al.* (1999) use LFG to discuss a range of constructions essential for writing and designing computational grammars. They provide sample analyses, compare cross-linguistic constructions in German, French and English, and explore new theoretical developments in LFG.

Falk (2001) introduces the basic structural elements of LFG – i.e. c-structure, f-structure and a-structure – in the first part of his book. The second part addresses linguistic phenomena such as control, long distance dependencies, and anaphora and their treatment in LFG.

Kroeger (2004:1) argues that the modular design of the arrangement of LFG, with its accurate representation of word order and constituency in c-structure, typologically accurate approach to universals, and detailed considerations of grammatical nuances, makes LFG a valuable framework for grammatical description and translation. He covers topics such as tests for constituency, passivisation, relation-changing processes, reflexive pronouns, control relations, topic and focus, relative clauses, Wh-questions, causative constructions, serial verbs, case phenomena and ergativity from an LFG perspective. Kroeger (2004) also addresses unique features of individual European and non-European languages.

Börjars *et al.* (2019) aim to present a comprehensive introduction to LFG as a formal system for language analysis. They use examples from English and other languages (Latin, Dutch, Wambaya, Swedish, Mbuun, Italian, Murrinhpatha, French, Warlpiri, Hungarian, Finnish, German and Urdu) to explain LFG concepts, covering dimensions of information, the mapping between c- and f-structure, the linking between morphology and f-structure, and complementation and prediction. They provide detailed explanations of long-distance dependencies, anaphoric binding, a-structure, and Lexical Mapping Theory (LMT). Additionally, they offer brief overviews of topics such as semantics, computational work, and linguistic change and include references and suggestions for further reading at the end of each chapter.

Dalrymple (2023) is a comprehensive collaboration featuring contributions from numerous experts in LFG. This extensive handbook serves as a valuable resource for both LFG practitioners and those interested in learning about various aspects of the theory. The work includes an overview and introduction to LFG, covering core concepts and grammatical functions. It provides thorough explanations of phenomena such as anaphora, agreement, case, complex predicates, coordination, clause structure and configurationality, unbounded dependencies, negation, noun phrases in LFG, pronoun incorporation, and raising and control. The handbook also discusses grammatical modules and interfaces, focusing on lexical semantics, argument structure and

mapping theory, prosody, information structure, and morphology in LFG. Additionally, the book explores linguistic disciplines, formal and computational issues, and applications; and it also describes LFG in the context of eleven language families. Furthermore, LFG is compared with seven other linguistic theories, offering a broad perspective on its place within the field of linguistics.

The International Lexical-Functional Grammar Association (ILFGA) provides resources such as introductory books and teaching materials on their official website. They also offer a comprehensive bibliography of published and unpublished LFG sources, as well as proceedings from LFG conferences dating back from 1996. These resources can be accessed at ILFGA's website and the LFG conference proceedings.

2.3 THE USE OF LFG IN THE DESCRIPTION OF BANTU LANGUAGES

The LFG approach is employed in the description and analysis of several Bantu languages, including Chichewa, Zimbabwean Ndebele, Kikongo, Swahili, Sepedi and Setswana.

Various authors have used LFG to analyse Chichewa structures. Alsina and Mchombo (1988), Alsina and Mchombo (1990b) and Lam (2007) focus on the Chichewa applicative construction, while Alsina and Mchombo (1990a, 1993) examine object asymmetries. Bresnan (1987), Bresnan and Kanerva (1989) and Schachter (1992) describe locative inversion. Themes such as topic, pronoun, and agreement are covered in Bresnan (1997) and Bresnan and Mchombo (1985, 1986, 1987). The works of Bresnan and Mchombo (1995:276-284), Bresnan (2001:148-160), and Mchombo (2001:229-230; 2004:19-22) clarify pro-drop and the use of subject and object agreement morphemes as pronominal or incorporated pronouns in Chichewa. Mchombo (2007) uses Lexical Mapping Theory (LMT) (Dalrymple, 2001; Bresnan, 2001) to describe the general features of a-structure and the influence of Chichewa verbal suffixes a-structure.

Khumalo (2007:183-213; 2014) uses LFG and LMT to describe passive and reciprocal constructions in Zimbabwean Ndebele, demonstrating that the reciprocal is an argument changing verbal extension that can subcategorise for a direct object and co-occur with the passive.

Fernando (2008) analyses Kikongo applicative, causative, reciprocal, reflexive, passive, and stative suffixes using LMT. He shows that these suffixes can introduce double objects into syntactic structures and classifies them either as valency increasing or valency decreasing. He also describes the sequencing of Kikongo verbal suffixes and their influence on a-structure.

Olejarnik (2009) applies the LFG framework to analyse complex predicates Swahili, focusing on light verb plus noun constructions. Lipps (2011) uses LFG to analyse Swahili relative clauses, categorising relative constructions and their syntactic structures, based on his development of a computational grammar for Swahili using XLE, the associated grammar development platform for LFG.

Two Sotho-Tswana group languages in the South-Eastern zone (Guthrie, 1967; Gowlett, 2003) where the LFG approach is applied, are Sepedi and Setswana. For Sepedi, Faaß (2010) provides a morphosyntactic description the verbal phrase using LFG, representing morphemes in the morphological structure of the verb as elements of syntactic c-structure. For Setswana, Morapedi (2009) uses LMT to analyse the applicative construction, exploring the overlap between morphology and syntax. She explains how the applicative suffix **-el-** in Setswana changes the a-structure of a verb from a two place verb to a three place verb by introducing a new argument.

Berg *et al.* (2012, 2013) describe selected typological features of Setswana using LFG, focussing on subject-verb agreement, noun phrase agreement, double object syntactic structures, and the use of double object agreement morphemes. They also model Setswana objects in XLE. Berg (2018) conducts a computational analysis of the Setswana simple sentence using LFG as a framework and XLE as the grammar development platform. She provides a detailed description of Setswana grammar, including word categories, phrases, and the structure of the simple sentence with an emphasis on nominal classification, concordial agreement, and the complex morphology of verbs. She applies LMT to analyse the structure of the main verb for determining subcategorisation frames of verbs roots regarding a subject, an indirect object a direct object or an oblique. The subcategorisation frames are included in XLE computational grammar lexicon. The study also concentrates on identifying and analysing the immediate constituents of Setswana simple sentences, emphasising their phrasal structure and grammatical functions. Berg (2018) employs the XLE user interface to implement linguistic rules that model Setswana grammar, forming the foundation of the XLE parser for Setswana. She also creates a treebank annotated with deep syntactic information using the XLE interface.

Berg and Pretorius (2019) analyse tense and aspect features of Setswana auxiliary verbs within the f-structure of LFG, summarising the morphological structure of auxiliary verbs and treating tense and aspect attributes within the auxiliary verb phrase. Berg *et al.* (2020) use LFG a-structure to determine the subcategorisation frames of Setswana verbs, investigating how verbal extensions (causative, applicative, reciprocal, and passive) alter the argument structure of a basic root using Lexical Mapping Theory (LMT).

2.4 THE GRAMMATICAL STRUCTURE OF SETSWANA AND RELATED SOTHO LANGUAGES

In this section, I present an overview of sources on the grammar of Setswana and the related Sotho language, Sepedi. I will also indicate whether these sources include descriptions of complex sentences. The primary sources for Setswana grammar are Cole (1955) and Krüger (2006, 2013a, 2013b), while seminal works for Sepedi include Lombard *et al.* (1985), Louwrens (1991) and Louwrens *et al.* (1995).

Cole (1955) categorises Setswana words into thirteen word categories and describes their morphological structure and integration into various syntactic structures. These word categories include nouns, pronouns, adjectives, enumeratives, quantitatives, possessives, relative, verbs, copulatives, adverbs, ideophones, conjunctives, and interjections (Cole, 1955:59). In his explanation of the morphological and syntactic structures, he uses numerous examples. His treatment of syntax, found in the chapter *Notes on syntax*, covers substantive, qualificative, predicative, and descriptive structures but does not explicitly address types of sentences (Cole, 1955:452-460). He explains the characteristics of the imperative and indicative as primary moods and that the form of the verb or the copulative in a sentence or clause is often determined by the conjunctive introducing it. He distinguishes between non-influencing conjunctives, which are usually followed by principal tense forms of the primary moods; conjunctives followed by what he refers to as the participial “tense” forms; and those followed by subjunctive “tense” forms.

The Department of African languages and Literature at the University of Botswana (2000) published a book providing an overview of Setswana grammar, focusing on sentence structure from a Generative Grammar perspective. They assert that a basic Setswana sentence is composed of a subject and a predicate and that all Setswana sentences can be analysed as $S \rightarrow NP VP$ (Department of African Languages and Literature, University of Botswana, 2000:3-9). They present a brief overview of the structure of the NP and describe the VP as the most complex constituent consisting of a verb group and a complement in a Setswana sentence (Department of African Languages and Literature, University of Botswana, 2000:10-11). Although phrase structure rules for simple sentences are included, the syntactic structure of complex sentences are not described.

Krüger (2013a, 2013b) provides a syntactic analysis of the Setswana word groups. Krüger (2013a) covers nominal, pronominal, and particle groups; while Krüger (2013b) discusses conjunction groups, auxiliary verbs, and copulative verbs, i.e. identifying, describing and associative copulative verbs. He examines the internal structure (c-structure) and external

function of these groups. Krüger (2013b) also explains the moods found in main and subordinate clauses of complex sentences.

The syntax of the related language, Sesotho, is described by Du Plessis and Visser (1992a) and Machobane (2010). Du Plessis and Visser's (1992a) work is part of a four-volume textbook series on the syntax of Sesotho, isiXhosa, Tshivenda, and Xitsonga (Du Plessis & Visser, 1992b; Du Plessis *et al.*, 1992; Du Plessis *et al.*, 1995). In the 1995 volume, Du Plessis and Visser apply the Transformational Generative Grammar (TGG) approach to examine the morphological and syntactic structures of specific Sesotho phenomena, verb argument structure properties, adjunct clauses, and constructions involving deficient verbs and copulative verbs. They also identify categories that can function as modifiers within the internal structure of noun phrases.

Machobane (2010) discusses Sesotho syntax using Chomsky's Government and Binding theory. She categorises word types and provides concise phrase structures for various phrases in Sesotho (Machobane, 2010:12-37). While she distinguishes between simple, complex, and compound sentences, she does not present comprehensive syntactic structures for them. She provides phrase structure examples for simple and compound sentences and focuses on subordinate clauses in complex sentences, categorising them into noun clauses and various adverbial clauses such as locative clauses, temporal clauses, clauses of reason, clauses of condition, clauses of purpose and clauses of concession (Machobane, 2010:47-54). She uses tree diagrams to represent these structures.

Lombard *et al.* (1985) provide a detailed explanation of Sepedi grammar, including word classification and the morphological structure of nouns and pronouns and their function within word groups and sentences. Additionally, they provide the morphological structure of verbs and categorise them as transitive, intransitive, auxiliary or copulative. They discuss mood, tense, and aspect, and they furthermore explain the meaning, function, and morphological structure of conjunctions, interjections, particles, and ideophones. However, they do not explain the grammatical structure of sentences.

Louwrens (1991) investigates the structure of Sepedi complex sentences, defining them as comprising two or more clauses, each with its own verbal element. He states that the verb in the main clause of a complex sentence can either be in the indicative or imperative mood, whereas the verb in the subordinate clause occurs in any of the dependent moods, i.e. the participial, subjunctive or infinitive moods. He emphasises the modal links between verbal components and the importance of understanding mood and modality in syntactic analysis.

Louwrens *et al.* (1995) describe the morphological structure of nouns and verbs in Sesotho sa Leboa and provide an overview of adverbs, conjunctions, and interrogatives. They also include a section on syntax that details the word order in Sesotho sa Leboa. Additionally, they examine the structure of the verb, covering eight moods, absolute and relative tenses, aspect, and verb transitivity.

Kihara (2017) investigates the morphosyntactic aspects of Gĩkũyũ complex constructions using the Role and Reference Grammar (RRG) framework. The study aims to address issues in Gĩkũyũ complex sentences and to test the theoretical principles of RRG in a Bantu language. Kihara chooses the RRG approach because it approaches clause linkage differently from other linguistic theories, due to its typological origins and unique perspective. Furthermore, RRG addresses the limitations of traditional clause linkage relations, such as coordination and subordination, in a cross-linguistic context. Kihara examines the RRG theory of complex sentences to evaluate its effectiveness in analysing and describing complex sentences in Gĩkũyũ, a language not originally considered during the theory's development.

In a journal article Letsholo-Tafila (2018:81) describes Setswana complex sentences. She notes that Cole (1955) distinguishes between non-influencing conjunctions, conjunctions followed by participle tenses, and conjunctions followed by subjunctive tense forms. Using the Role and Reference Grammar framework, Letsholo-Tafila provides a detailed analysis of the structure of Setswana complex sentences.

As is evident from the resources reviewed, there are still relatively few comprehensive descriptions of sentence structure in Setswana, Sesotho, and Sepedi. Several scholars have examined complex sentences in various Bantu languages: Lusekelo (2016) focuses on Nyakusa, Van der Wal (2014) on Makhuwa, Zeller (2004) on Sesotho, and Letsholo (2009) on Ikalanga.

2.5 CONCLUSION

In this chapter, a historical overview of key LFG references is provided, presenting the main seminal, classical, and standard works in the field. The chapter also reviews the application of LFG in analysing significant linguistic features in Setswana and other related Bantu languages. Additionally, an overview of sources describing Setswana and Sepedi grammar is presented, with a focus on how complex sentences are addressed in these sources.

CHAPTER 3 LEXICAL FUNCTIONAL GRAMMAR

3.1 INTRODUCTION

In this chapter, I present an overview of the development and key concepts of LFG. The focus of the chapter is on c-structure, f-structure and the mapping between a c-structure and its corresponding f-structure.

3.2 OVERVIEW OF LEXICAL FUNCTIONAL GRAMMAR

LFG was developed in the mid-to-late 1970s by Kaplan and Bresnan to address the need for a theory that emphasises both the phrasal constituency and the abstract functional organisation of sentences (Kaplan & Bresnan, 1985:173-177; Dalrymple, 2001:2). The syntactic framework provides a computationally accurate and psychologically realistic depiction of language (Sells, 1985:135).

LFG is a non-transformational, non-derivational and constraint-based theory of grammar, comprising two distinct syntactic structures, namely a c- and f-structure which exist in parallel (Kaplan & Bresnan, 1982:175; Dalrymple, 2001:7; Falk, 2001:1-4, 9). It emerged as a response to Chomsky's Transformational Grammar theory, leading to the development of a grammar framework in theoretical linguistics (Dalrymple, 2001:1-2; Falk 2001:3-4).

LFG is a non-transformational theory because the relations between the different verbal diatheses are in the lexicon, rather than being established through syntactic transformations (Dalrymple, 2001a:3). It is non-derivational because the grammatical functions found in the f-structure are not derived from c-structure configurations, as is common in most transformational theories (Snijders, 2015:55). Instead, this information is represented separately in the f-structure. Butt & King (2015:844) explain that, because there are no derivations from one structure to another, LFG is classified as a non-derivational theory.

LFG is a constraint-based theory because each level of representation is subject to a set of constraints. Falk (2001:9) notes that, in the absence of derivations from one structure to another, the grammaticality of sentence structures is determined by the satisfaction of static constraints at each representation level. According to Butt & King (2015:842) LFG is constraint-based because the lexical units in the c-structure must unify and be compatible to form a single unit in the f-structure. Constraints, such as well-formedness conditions, are specifically applied to the f-structure.

Falk (2001:3) also describes LFG as a lexicalist theory, emphasising the critical role of the lexicon in the analysis of the phrases. Lexical forms carry essential information about the meaning of lexical items, their argument structure, and the grammatical functions associated with those arguments (Neidle, 1994:2150). Asudeh (2006:365) states that c- and f-structures are constructed from these lexical items, which determine their c-structure category and f-structure feature contributions. Snijders (2015:55) concurs, adding that most information is encoded in the lexical specification of words, unlike in transformational theories where some information is specified by phrase structure.

The main syntactic levels in LFG consist of a c-structure and an f-structure, as initially proposed by Kaplan and Bresnan (1982) and the focus is not on deep structure and surface structure as described in TGG. In TGG, the transformation rules generate surface structures from deep structure and LFG does not use transformations. Transformation involves the changing of structures such as moving constituents in a sentence. LFG relies on constraints between c- and f-structure to form grammatical sentences and therefore transformational rules is not needed.

In the following sections, a brief description of c- and f-structure and the mapping between them will be presented.

3.3 THE CONSTITUENT STRUCTURE

The c-structure represents the overt and more concrete level of the linear and hierarchical organisation of words into phrases (Falk, 2001:33; Bresnan, 2001:113). It is determined by a context-free grammar, which is a set of phrase structure rules defining all possible surface structures for a particular language. These rules encode constituency (dominance) and surface order (precedence), and vary according to the language used (Falk, 2001:33; Bresnan, 2001:113). Carnie (2010:29, 37) describes simple dominance as a node that sits above another and is connected by a branch that dominates the lower node, while precedence refers to word order. These rules pertain to the visible characteristics and operations that constitute a syntactic expression.

3.3.1 Phrase structure rules

The phrase structure rule is a mechanism used to license c-structures (Falk, 2001:46). In LFG the standard notation for a phrase structure rule $M \rightarrow p$. The left-hand side of the rule, M , represents the mother node, while the right-hand side, p , consists of a set of possible daughter nodes (Dalrymple, 2001:92). In (3-1) the mother node S , the sentence, have a noun phrase (N) and a verb phrase (VP) as its daughter nodes.

(3-1) $S \rightarrow NP VP$

This rule (3-1) allows the node designated S to dominate the two nodes, NP and VP. In Setswana, this rule applies to the c-structure of (3-2). The sentence is structured with a noun phrase (NP) **bomme** (mothers) and a verb phrase (VP) **ba bitsa bana** (they are calling the children).

(3-2) Bomme ba bitsa bana.

mothers they call children

bo-mme

ba-bits-a

ba-ana

NPre2a-mother

AgrSubj2a-call-VEnd

NPre2-child

The mothers are calling the children.

The right-hand side of the phrase structure rule is a regular expression to indicate disjunction, optionality, and arbitrary repetition of a node or sequence of nodes. It also includes notations for immediate dominance (ID), linear precedence (LP) and metacategories (Dalrymple, 2001:6).

3.3.1.1 Disjunction

LFG allows for disjunction among the daughter nodes, indicating different possibilities for the right-hand side of a phrase structure rule. This is denoted by curly brackets { } with the options separated by a vertical bar | (Dalrymple, 2001:93). The rule in (3-3) specifies that the NP can consist of either a noun alone or a noun followed by a demonstrative pronoun.

(3-3) $NP \rightarrow \{N \mid N \text{ DemPro}\}$

3.3.1.2 Optionality

Optionality in a phrase structure rule allows for the inclusion of optional categories, meaning a certain daughter node may or may not be present. This is denoted by enclosing the optional node in round brackets (parentheses) (Dalrymple, 2001:94). For example, the rule in (3-4) indicates that the NP is optional. In Setswana, a sentence may include an NP, or it may consist solely of a VP.

(3-4) $S \rightarrow (NP) VP$

3.3.1.3 Repetition

Repetitions in a phrase structure rule allows a daughter node to occur in repetition (Dalrymple, 2001:94). The notation used for repetition includes the Kleene star (*) operator or the Kleene plus (+) operator. The Kleene star (*) operator indicates zero or more occurrences of a daughter node or category, while the Kleene Plus (+) operator implies one or more occurrences of a daughter

node or category. For instance, in (3-5) the Kleene star (*) operator allows for any number (including zero) of AdvPs within the VP. In (3-6), the Kleene plus (+) operator indicates that one or more AdvPs but not zero AdvPs can be included the VP.

(3-5) $VP \rightarrow V (NP) AdvP^*$

(3-6) $VP \rightarrow V (NP) AdvP^+$

3.3.1.4 Immediate dominance

The immediate dominance (ID) rule illustrates dominance relations within a phrase structure rule. It indicates that a daughter node can dominate two other nodes without specifying the order. Immediate dominance is the notation used to indicate immediate dominance and is denoted by commas separating the daughter nodes within a rule (Dalrymple, 2001:96). For instance, in rule (3-7), the order of N and DemPro is not specified.

(3-7) $NP \rightarrow N, DemPro$

Rule (3-7) is a composition of the two rules (3-8) and (3-9):

(3-8) $NP \rightarrow N DemPro$

(3-9) $NP \rightarrow DemPro N$

3.3.1.5 Linear precedence

The linear precedence (LP) rule specifies precedence constraints within a phrase structure rule, requiring one daughter node to precede another. The notation for linear precedence is represented by the “less than” symbol < indicating the required order (Dalrymple, 2001:96). In rule (3-10), it is stated that N must always precede DemPro.

(3-10) $NP \rightarrow N < DemPro$

This type of rule, as described by Dalrymple (2001:96), is comparable to a standard ordered phrase structure rule, exemplified in (3-11).

(3-11) $NP \rightarrow N DemPro$

3.3.1.6 Metacategories

A metacategory represented by the symbol $\equiv$ denotes a set of daughter nodes, indicating that two expressions are equivalent (Dalrymple, 2001:94). In (3-12) and (3-13) the XP stands for an NP

an adverb phrase (ADVP), or a LOCPARTP with the disjunction specifying the different possibilities.

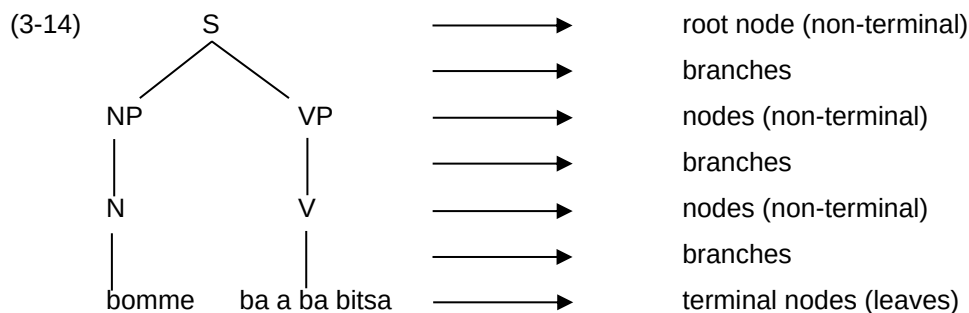
(3-12) $VP \rightarrow V \text{ } XP$

(3-13) $XP \equiv \{NP \mid ADVP \mid LOCPARTP\}$

Phrase structure rules are utilised in constructing phrase structure trees, as these trees adhere to the constraints set by the phrase structure rules, which authorise the local configuration (Dalrymple, 2001:92).

3.3.2 Phrase structure trees

LFG represents information from phrase structure rules through phrase structure trees also known as c-structure trees. These trees consist of a set of nodes with labels and functions for dominance and precedence (Asudeh, 2006:365). Nodes are connected by branches (Carnie, 2010:27), with the root node at the top, devoid of branches above it, and dominating all nodes in the c-structure tree. Following the root node are the non-terminals, also called pre-terminals, which contain information about categories (Carnie, 2010:27). At the tree's bottom are the terminal nodes, also called leaves, representing the grammar lexicon (Carnie, 2010:27). The inclusion of the set of notes is illustrated in (3-14).



3.3.2.1 The lexical integrity principle

As a lexical theory, LFG employs the principle of lexical integrity. This principle implies that no syntactic rule can refer to elements of morphological structure. The internal structure of words is referred to by morphological and not syntactic rules. Morphologically complete words are leaves of the phrase structure tree and each leaf corresponds to one and only one c-structure node. Fully inflected words will therefore occupy the terminal nodes in such a tree – morphemes cannot correspond to terminal nodes (Bresnan, 2001:92; Dalrymple, 2001:84; Falk, 2001:5, 26; Asudeh & Toivonen, 2015:377). The terminal nodes of a phrase structure tree are thus the individual words filling a single c-structure node. In (3-14) the verb **ba a ba bitsa** is a morphologically

complete word and consists of the subject agreement morpheme **ba**, the present tense morpheme **a**, the object agreement morpheme **ba** the verb root **bits-** (call) and the verbal ending **-a**. Therefore, it only occupies one terminal node in the tree.

3.4 THE FUNCTIONAL STRUCTURE

The f-structure serves as the abstract functional syntactic organisation of the sentence, representing the syntactic predicate-argument structure and functional relations (Dalrymple, 2001:7). It contains surface grammatical functions like subject and object, along with features such as person, number, tense, aspect, polarity and mood. These grammatical functions are integral components of the sentence's syntactic representation, existing in parallel to the c-structure (Falk, 2001:11).

3.4.1 Grammatical functions

Grammatical functions constitute the core concepts within the f-structure³ (cf. §5.3). (Dalrymple, 2001a:8-27; Falk, 2001:10). In LFG, the following grammatical functions are identified: subject (SUBJ), object (OBJ), secondary object ((OBJ_θ, OBJ2, OBJ-TH), oblique (OBL_θ), complement (COMP), open complement (XCOMP), adjunct (ADJ) and open adjunct (XADJ). The subscript θ attached to a specific argument denotes the semantic role associated with that argument. For instance, in OBJ_{theme}, θ represents the theme semantic role, while in the argument OBL_{loc}, θ denotes the locative semantic role.

The grammatical functions can be cross-classified according to certain properties (Bresnan, 2001:94-98, 307-309; Dalrymple, 2001:8-27). The classification is between governable and non-governable functions, core and non-core functions, semantically restricted and unrestricted functions, open and closed functions, and objective and non-objective functions. Discourse functions and a PREDLINK function are also identified.

3.4.1.1 Governable and non-governable grammatical functions

Governable grammatical functions are subcategorised for or governed by the predicate and include the SUBJ, OBJ, OBJ_θ, OBL_θ, COMP and XCOMP. Non-governable grammatical functions are referred to as modifiers and are non-argument functions as they are not subcategorised for or governed by the predicate. Modifiers are the ADJ and XADJ (Dalrymple, 2001:11-13).

³ A detailed definition of each LFG grammatical function is presented in Chapter 5. Examples of these grammatical functions in Setswana are also presented in Chapter 5. Examples of the grammatical functions in English are available in Asudeh and Toivonen (2015:380) and Dalrymple *et al.* (2016:99).

3.4.1.2 Core and non-core grammatical functions

Grammatical functions can be further divided into core and non-core functions (Dalrymple, 2001:13-15; Falk, 2001:58). Core functions, also known as terms, include SUBJ, OBJ, and OBJ_θ. Non-core functions, also referred to as non-terms, encompass OBL_θ, COMP, and XCOMP.

3.4.1.3 Semantically restricted and unrestricted grammatical functions

Semantically restricted functions can only be associated with a limited set of semantic roles, such as OBJ_θ and OBL_θ. Semantically unrestricted functions may be connected to any semantic role or even more than one semantic role, like SUBJ and OBJ. (Dalrymple, 2001:15-17).

3.4.1.4 Open and closed grammatical functions

An open function lacks an internal subject phrase, requiring the SUBJ to be specified externally. Open functions include XCOMP and XADJ. Closed functions, on the other hand, contain an internal subject phrase and include SUBJ, OBJ, OBJ_θ, OBL_θ, COMP, and ADJ (Dalrymple, 2001:24-26).

3.4.1.5 Objective and non-objective grammatical functions

The objective functions are OBJ and OBJ_θ, whereas the non-objective functions are SUBJ and OBL_θ (Dalrymple, 2001:17-24, 26-27).

3.4.1.6 Discourse functions

LFG also incorporates grammaticalised discourse functions, including topic (TOP), focus (FOC), and SUBJ. The SUBJ function is unique in that it serves as both an argument function and a grammaticalised discourse function (Bresnan, 2001:98, 308).

3.4.1.7 The PREDLINK function

The semantic relationship between the SUBJ and the phrase following the copulative verb requires a specific subcategorisation frame. Traditionally, this phrase was assigned an XCOMP function, but a development in LFG refers to it as the PREDLINK function (Butt *et al.*, 1999:70; Sulger, 2009:32). Butt *et al.* (1999:69-70) explain that predicative constructions involve a copulative verb (linking verb) that connects a subject to another argument. This function is a closed category because there is no control equation between the SUBJ and the PREDLINK.

3.4.2 Features

The f-structure represents an abstract level encompassing the functional and syntactic information of a sentence's internal structure. It comprises surface grammatical functions, as discussed above, along with features. Features in LFG pertain to morphosyntactic attributes such as person, number, tense, aspect, mood and polarity, among others. Only features relevant to functional syntactic constraints are included in the f-structure and encompass grammatical features like agreement; features specifying the morphological structure of arguments such as the verb; and tense and aspect information (Dalrymple, 2001:27).

3.4.3 Representation of the functional structure

The f-structure can be conceptualised as a function mapping attributes to values, or alternatively, as a collection of pairs where the first element represents an attribute and the second denotes its corresponding value (Dalrymple, 2001a:30). In essence, an f-structure comprises a finite collection of attribute-value pairs (Bresnan, 2001:47). Typically, these attributes and their corresponding values are depicted in an attribute-value matrix (AVM) in tabular form, as illustrated in (3-15).

$$(3-15) \begin{bmatrix} \text{ATTRIBUTE_1} & \text{VALUE_1} \\ \text{ATTRIBUTE_2} & \text{VALUE_2} \end{bmatrix}$$

The attribute denotes the label or name of a grammatical function or feature, represented by a symbol. Meanwhile, the values of attributes are depicted by symbols, semantic forms, sets or other attribute-value matrices (other f-structures) (Falk, 2001:13; Nordlinger & Bresnan, 2011:113).

3.4.3.1 Symbols

A symbol is an abstract representation that conveys a specific meaning and is usually an abbreviation. For example, the symbol “pres” in (3-16) represents the present tense value for the tense attribute.

$$(3-16) \begin{bmatrix} \text{TENSE} & \text{pres} \end{bmatrix}$$

3.4.3.2 Semantic form

The semantic form represents the semantic content of the respective word, assigning a specific value to each instance of the associated word. Dalrymple (2001:104) clarifies that this form is PRED and it takes on a distinct value for every instance of the word it is linked to. This value is

presented in single quotes. In (3-17) the semantic form of the Setswana noun **bomme** (mothers) is the noun root **-mme**.

(3-17) $\left[\begin{array}{l} \text{PRED} \\ \text{'MME'} \end{array} \right]$

Subcategorisation requirements are also conveyed through the value of the `PRED` attribute. For example, in (3-2) the verb **ba bitsa** (they call) delineates two arguments, i.e. **bomme** (mothers) and **bana** (children). This subcategorisation framework is illustrated in (3-18), where the arguments are enclosed in angle brackets (< >) and incorporated within the value of the `PRED` attribute.

(3-18) $\left[\begin{array}{l} \text{PRED} \\ \text{'BITS <SUBJ OBJ>'} \end{array} \right]$

3.4.3.3 Sets

Sets are employed for depicting structures with an infinite number of elements and can also serve to represent coordination. In coordinate structures, there is no restriction on the number of conjuncts (Dalrymple, 2001a:33-35, 153-158). Additionally, as outlined by Dalrymple (2001a:33-35), there is no limit to the number of modifiers that can appear within a phrase. In (3-19) two adverbs (**bohe** (too much, excessively) and **jaanong** (now)) are incorporated into the f-structure representation, indicating that they form a set within the `ADJUNCT` function.

(3-19) $\left[\begin{array}{l} \text{ADJUNCT} \\ \left\{ \begin{array}{l} \left[\begin{array}{l} \text{PRED} \\ \text{'BOBE'} \end{array} \right] \\ \left[\begin{array}{l} \text{PRED} \\ \text{'JAANONG'} \end{array} \right] \end{array} \right\} \end{array} \right]$

3.4.3.4 Other attribute value matrices

An attribute's value can also be an f-structure (Bresnan, 2001:47; Dalrymple, 2001:31). For instance, in (3-20), the `SUBJ` attribute's value is represented with an AVM. In this case, the f-structure comprises the attributes `PRED` and `CLASS`. The `PRED` attribute's value is the noun root **-mme** (mother), categorised as a class 1 noun.

(3-20) $\left[\begin{array}{l} \text{SUBJ} \\ \left[\begin{array}{l} \text{PRED} \\ \text{'MME'} \\ \text{CLASS} \\ 1 \end{array} \right] \end{array} \right]$

In the next section I explain the requirements concerning f-structures in LFG, which are enforced by the well-formedness conditions.

3.4.4 The conditions of well-formedness

To ensure an f-structure representation is valid, it must meet three criteria or well formedness conditions: completeness, coherence, and consistency (or uniqueness). These conditions serve to validate grammatically correct structures and reject ungrammatical ones.

3.4.4.1 Completeness

An f-structure is complete when all the governable grammatical functions that a predicate subcategorise for, are present. A sentence is thus ungrammatical if any essential or required material is missing (Dalrymple, 2001:35-36). For instance, in (3-21) the sentence is ungrammatical because only an OBJ_θ **bana** (children) is included, but the applicative verb **ba romela** (send for) must also subcategorise for an OBJ such as **dijo** (food).

*⁴(3-21) Bomme ba romela bana.

mothers they send for children

bo-mme

ba-rom-el-a

ba-ana

NPre2a-mother

AgrSubj2a-send-ApplSuf-VEnd

NPre2-child

The mothers are sending for the children.

3.4.4.2 Coherence

An f-structure is coherent when only the arguments subcategorised by the predicate are present in the f-structure. It is not permitted to include additional governable grammatical functions not listed in the argument structure of its semantic form in the f-structure (Dalrymple, 2001:37). For instance, in (3-22) the sentence is ungrammatical because the object **bana** (children) is included but the applicative verb **ba lela** (they cry) does not permit the inclusion of any object in a sentence.

*(3-22) Bomme ba lela bana.

mothers they cry for children

bo-mme

ba-ll-el-a

ba-ana

NPre2a-mother

AgrSubj2a-cry-ApplSuf-VEnd

NPre2-child

The mothers are crying for the children.

3.4.4.3 Consistency

An f-structure is consistent when an f-structure that contains incompatible constraints is disallowed. The consistency (uniqueness) condition requires that every attribute in an f-structure

⁴ The * indicates an ungrammatical structure.

must have a single value (Dalrymple, 2001:39). For instance, in (3-23) the CLASS attribute of **bomme** (mothers) is inconsistent as it shows two values. This noun is a class 2a noun and the value of the attribute cannot be 1a and 2a.

(3-23) $\left[\begin{array}{l} \text{PRED} \quad \text{'MME'} \\ \text{CLASS} \quad 1a \\ \text{CLASS} \quad 2a \end{array} \right]$

In the following section, I will provide a brief explanation of f-descriptions and then I will discuss how they are used to connect the c- and f-structure.

3.4.5 Functional descriptions

An f-description is used in encoding the relationship between a c-structure and an f-structure. The equations in an f-description can be categorised into two types: defining equations and constraining equations (Dalrymple, 2001a:100; Asudeh & Toivonen, 2009:10). Additionally, existential and negative existential constraints can be applied to an f-structure and a disjunction of multiple descriptions can be included and may be optional or negated.

3.4.5.1 Defining equation

A defining equation specifies that an f-structure attribute exists and has a particular value. These equations can also be considered defining constraints, as they establish the necessary properties of an f-structure (Dalrymple, 2006:86; Asudeh & Toivonen, 2009:10). The notation that is used to indicate a constraining equation is the equal sign (=). A defining equation is presented in (3-24) and shows that the value of the NUM (number) attribute is SG (singular).

(3-24) $(\text{SUBJ NUM}) = \text{SG}$

3.4.5.2 Constraining equation

A constraining equation is employed to enforce an additional condition within an f-structure. Although this equation does not introduce any new attributes to the f-structure, it verifies that the f-structure adheres to the rules of well-formedness (Dalrymple, 2001:115). The notation that is used to indicate a constraining equation is the subscript _c. The constraining equation in (3-25) indicates that the value of the NUMBER attribute is restricted.

(3-25) $(f \text{ SUBJ NUM}) =_c \text{SG}$

3.4.5.3 Existential and negative existential constraints

An existential constraint necessitates the presence of an attribute in an f-structure without specifying any particular value (Dalrymple, 2001:112). On the other hand, a negative existential constraint prevents an f-structure from containing a specific attribute (Dalrymple, 2001:114). The symbol $\neg$ is employed to denote a negative existential constraint. For instance, in (3-26), the f-structure includes the attribute CLASS, but its value is left unconstrained. However, in (3-27), the negative existential constraint ensures that the f-structure cannot have a CLASS attribute.

(3-26) (f CLASS)

(3-27) $\neg (f \text{ CLASS})$

3.4.5.4 Disjunction

An f-description can also be composed of a disjunction of two or more f-descriptions, where at least one of the disjuncts must be fulfilled for the f-description to be valid (Dalrymple, 2001:108). This is denoted by curly brackets { } with the options separated by a vertical bar |. For instance, in (3-28) the particle **ka** in Setswana can either be an instrumental particle, a temporal particle or a locative particle.

(3-28) $\{(f \text{ PARTTYPE}) = \text{InstrPart} \mid (f \text{ PARTTYPE}) = \text{TEMPPART} \mid (f \text{ PARTTYPE}) = \text{LOCPART}\}$

3.4.5.5 Optionality

An optional f-description may or may not be fulfilled (Dalrymple, 2001:109). The optional f-description is enclosed in parentheses. For the example in (3-29) it is shown that an explicit SUBJ is not always required in the sentence structure of Setswana. In this instance the verb then may optionally contribute an f-description that restricts the value of the PRED attribute of its SUBJ. As shown in (3-30) the subject agreement morpheme then functions as an incorporated pronoun ('PRO').

(3-29) Ba bitsa bana.
 they call children
ba-bits-a *ba-ana*
 AgrSubj2a-call-VEnd NPre2-child
 They are calling the children.

(3-30) ((SUBJ PRED) = 'PRO')

3.4.5.6 Negation

Negation indicates that an f-description must not be satisfied (Dalrymple, 2001:111). The symbol $\neq$ denotes negation, or the symbol $\neg$ is employed to denote that a negative existential constraint can also be used. In (3-31) and (3-32) it is indicated that the value indicative cannot be included for the feature MOOD.

(3-31) $(f \text{ MOOD}) \neq \text{indicative}$

(3-32) $\neg (f \text{ MOOD}) = \text{indicative}$

I have briefly examined c-structure, f-structure, and the constraints on each type of structure. However, it still needs to be explained how these two structures are connected or mapped through structural correspondences. The next section describes how the mapping between the two structures works.

3.5 THE MAPPING BETWEEN C- AND F-STRUCTURES

A key concept in LFG is the mapping, or correspondence, between various levels of representation. LFG's grammatical framework consists of multiple parallel levels, such as c-structure and f-structure. These levels are interconnected through functional projections, known as correspondence functions. Specifically, the relationship between c-structure and f-structure ensures that every node in the phrase structure tree corresponds to an element in the f-structure. Therefore, each node in the c-structure is linked to an associated f-structure, meaning there is an f-structure for each constituent (Bresnan *et al.*, 2016, 48-54; Börjars *et al.*, 2019:48-54).

The f-structure for any constituent larger than a word is constructed from the f-structures of its smaller constituent parts. The content of a constituent's f-structure is derived from the f-structure information linked to the lexical entries of each word in a sequence, as well as from c-structure rules that include functional annotations (Börjars *et al.*, 2019:45-46).

The lexicon includes two key concepts: equations and constraints. Words in the lexicon are linked to equations that specify f-structure information. An example of a basic type of equation is shown in (3-33), where *f* represents the name of an f-structure.

(3-33) $(f \text{ Feature}) = \text{value}$

For example, a word like **bomme** (mothers) would have the equations shown in (3-34) associated with it in the lexicon.

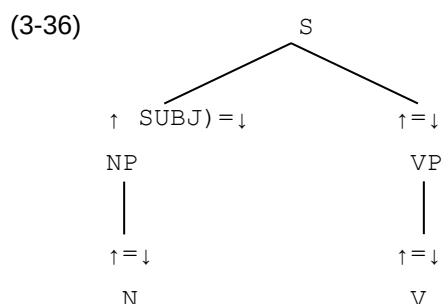
$$\begin{aligned}
 (3-34) \quad \text{bomme } N \quad & (f \text{ PRED}) = \text{'MME'} \\
 & (f \text{ CLASS}) = 2a
 \end{aligned}$$

A set of equations like this is called an f-description. These equations impose constraints on the f-structure associated with the word **bomme** (mothers).

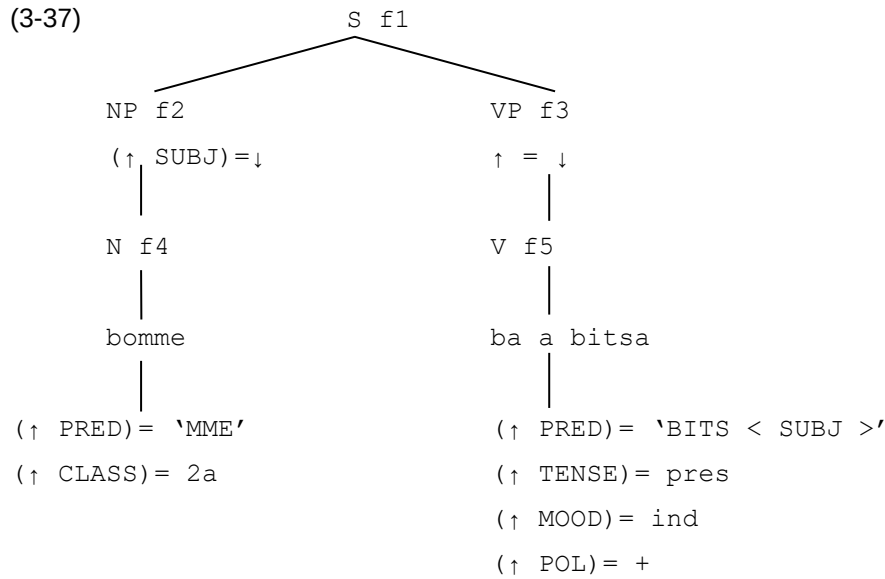
As mentioned above, the content of a constituent's f-structure can also originate from c-structure rules annotated with functional schemata of constraints. These schemata are included beneath the category node of a rule (schema) (Bresnan *et al.*, 2016:51; Börjars, 2019:46). In (3-35), the annotation $(\uparrow \text{SUBJ}) = \downarrow$ indicates that the f-structure of the mother node S has a SUBJ attribute, the value of which is the f-structure of the NP itself. The annotation $\uparrow = \downarrow$ signifies the head relation. The f-structure of the VP node is shared with the mother node S, meaning all functional information carried by this node is also direct information for the mother's f-structure.

$$\begin{aligned}
 (3-35) \quad S \rightarrow \quad & NP \quad \quad \quad VP \\
 & (\uparrow \text{SUBJ}) = \downarrow \quad \quad \uparrow = \downarrow
 \end{aligned}$$

Functional schemata can also be incorporated into a phrase structure tree, as illustrated in (36).



Every node in a c-structure is linked to a corresponding piece of f-structure through a mapping function. This relationship is governed by the many-to-one ϕ (phi) function (Falk, 2001:64). For instance, the symbol $\downarrow$ serves as a shorthand for the function ϕ applied to a specific node. The f-structure associated with a particular node can also be explicitly named. Variables such as f1, f2, etc., uniquely refer to the f-structure associated with each node in a tree (Bresnan *et al.*, 2016:49). This is illustrated in (3-37).



The f-structure variables $\uparrow$ and $\downarrow$ can now be instantiated with the specific f-structures they represent within the context of this tree. This is accomplished by replacing these variables with the names assigned to the f-structures that the arrows indicate (Bresnan *et al.*, 2016:52). The following equations (3-38) can then be established:

(3-38) $(f1 \text{ SUBJ}) = f2$
 $f1 = f3$

Following this step, all remaining equations can be stated as illustrated in (3-39).

(3-39) $f2 = f4$
 $f3 = f5$

All equations derived from the annotated tree in (3-37) have been stated. The subsequent step involves incorporating information from the lexical entries for the words (Bresnan *et al.*, 2016:53). The equations presented in (3-40) are relevant here.

(3-40) $(f2 \text{ PRED}) = \text{'MME'}$
 $(f4 \text{ NTYPE}) = \text{ord}$
 $(f4 \text{ CLASS}) = 2a$
 $(f3 \text{ PRED}) = \text{'BITS <SUBJ>'}$
 $(f5 \text{ TENSE}) = \text{pres}$
 $(f5 \text{ MOOD}) = \text{ind}$
 $(f5 \text{ POL}) = +$

(3-41)		PRED	'BITS<SUBJ>'				
		TENSE	pres				
		MOOD	ind				
	f1 f3 f5	POL	+				
		SUBJ	f2 f4	<table border="0"> <tr> <td>PRED</td> <td>'MME'</td> </tr> <tr> <td>CLASS</td> <td>2a</td> </tr> </table>	PRED	'MME'	CLASS
PRED	'MME'						
CLASS	2a						

- Use annotated phrase structure rules and lexical entries to construct the tree.
- Assign names to the f-structures associated with every constituent.
- Use these named f-structures to replace the f-structure variables in the equations.
- Solve the equations to construct the f-structure.

In this chapter the concepts of c-structure and f-structure were introduced as parallel levels of syntactic representation which mutually constrain each other. The c-structure delineates constituent order and grouping, while the f-structure captures the functional information of these constituents. Additionally, the relationship between c-structure and f-structure was briefly elucidated, with a description of the key concepts of f-description and the mapping function ϕ , which are central to LFG. Included in this description is the concept of lexical entries as they provide the f-structure information for the annotations of the terminal nodes of the c-structure tree. The information in this chapter will be used as the basis of the description in Chapters 4 and 5 regarding the c- and f- structure of complex sentences in Setswana.

CHAPTER 4 THE CONSTITUENT STRUCTURE OF COMPLEX SENTENCES IN SETSWANA

4.1 INTRODUCTION

In the framework of LFG, syntactic representation is analysed on two levels: c-structure and f-structure. This chapter is dedicated to examining the c-structure of complex sentences in Setswana. Setswana sentences are built from immediate constituents, i.e. phrases, each characterised by a distinct c-structure. I will begin by providing an overview of Setswana word categories and word groups, which are important for understanding the c-structure of Setswana phrases. Following this, I will delve into the c-structure of complex sentences in Setswana, discussing the permissible phrases and their correct ordering to form grammatical complex sentences. To elucidate these concepts, I present c-structure rules and c-structure trees that represent the c-structure of complex sentences in Setswana.

4.2 SETSWANA WORD CATEGORIES

Van Wyk (1967:230-261) developed a comprehensive word classification system for Sesotho sa Leboa, integrating phonological, morphological, syntactic, and semantic criteria, and emphasising that these criteria should be applied together rather than in isolation. He prioritised morphological and syntactic criteria, treating them as equally important, and argued that morphological criteria aligned with syntactic ones should take precedence, while semantic and phonological criteria are secondary and relevant only after establishing word classes based on the primary criteria. Building on Van Wyk's classification criteria, Krüger (2006) classified Setswana words into eight categories: nouns, pronouns, verbs, particles, conjunctions, adverbs, interjections, and ideophones, using the same comprehensive approach, which led to the identification of these eight word categories for Sesotho sa Leboa.

The eight word categories in Setswana are divided into open and closed word categories (Pretorius, 2014:49). Nouns and verbs are considered morphologically productive and fall under open word categories. Pronouns, particles, conjunctions, adverbs, interjections and ideophones are described as morphologically unproductive and are classified as closed categories (cf. §5.2).

Nouns, pronouns, verbs and particles can be further divided into subcategories (Van Wyk, 1966; Krüger, 2006, Berg, 2018:45-103). The subcategories of nouns are ordinary nouns (including deverbative nouns, diminutive nouns, feminitive nouns, augmentative nouns and infinitive nouns), locative nouns, locative class nouns and adjectives (cf. Appendix: Table 4-1)

Pronouns can be divided into personal pronouns, absolute pronouns, demonstrative pronouns, quantitative pronouns (Inclusive, exclusive, selective, separative, interrogative) and possessive pronouns (cf. Appendix: Table 4-2).

The subcategories of verbs are main verbs, auxiliary verbs and copulative (identifying, describing, associative) copulative verbs (cf. Appendix: Table 4-3).

The subcategories of the word category particle are possessive particles, qualificative particles, instrumental particle, temporal particle, locative particles, associative particle, comparative particle, agentative particle, hortative particle and interrogative particle (cf. Appendix: Table 4-4).

Adverbs, conjunctions, interjections and ideophones do not have subcategories (cf. Appendix: Table 4-5).

The eight word categories are included in the forming of word groups, where the meaning of a specific word can be modified with another word or word group, or where a word must take a compulsory word or word group, as it cannot be used on its own. The forming of word groups in Setswana is discussed in the following section.

4.3 SETSWANA WORD GROUPS

Krüger (2006:293-310) provides introductory notes on word group formation, discussing the relevant lexical and functional layers, and providing guidelines for forming Setswana word groups. Krüger (2013a, 2013b) further explores the syntactic structure of Setswana word groups, including nominal (noun) groups, pronominal (pronoun) groups, particle groups, verbal groups, groups with identifying, describing or associative copulative verbs, auxiliary verbal groups and conjunction groups, using a structural approach. This approach recognises that language possesses a structure characterised by regularities, patterns, or rules that must be systematically identified (Kosch, 1991:49). Krüger (2013a, 2013b) describes word groups in terms of word categories and their combinations, referring to this as the internal structure of word groups (Krüger, 2013a:viii). For example, in (4-1) the internal structure of the noun group **batho bao** (those people) consist of the noun **batho** (people) and the demonstrative pronoun **bao** (those).

- (4-1) batho bao
 people those
ba-tho *bao*
 NPre2-person DemPro2D2
 those people

4.3.1 Noun and pronoun groups

Nouns and pronouns can be described by another word or word group that highlights a specific characteristic or quality. Krüger (2013a:58, 93) refers to these as nominal and pronominal groups. These groups are composed of an antecedent (a head word) and one or more qualifiers (modifiers) of various types. He provides an overview of possible qualifiers for nouns (Krüger, 2013a:58-87) and the possible qualifiers for each subcategory of pronouns (Krüger, 2013a:93-101). In (4-2) the noun **dibuka** (books) and in (4-3) the demonstrative pronoun **tseo** (those) are both qualified by a possessive particle group **tsa me** (of me).

- (4-2) dibuka tsa me
 books of mine
- di-buka tsa* *me*
- NPre10-book PossPart10 PossProPlsg
my books
- (4-3) tseo tsa me
 those of mine
- tseo* *tsa* *me*
- DemPro10 PossPart10 PossProPlsg
those of mine

4.3.2 Verbal groups

Krüger (2013b:52) describes a verbal group as a word group with a verbal element (main verb, copulative verb, auxiliary verb) as the head member and differentiates among active verbal groups (Krüger, 2013b:52), copulative verbal groups (identifying, describing, associative) (Krüger, 2013b:133-186), and auxiliary verbal groups (Krüger, 2013b:192-254).

In (4-4) the verbal group includes the main verb **ba ruta** (they teach) as the head word and this verb is followed by the noun **bana** (children) and the adverb **jaanong** (now).

- (4-4) Ba ruta bana jaanong.
 they teach children now
ba-rut-a *ba-ana* *jaa-nong*
 AgrSubj2-teach-VEnd NPre2-child Adv
 They teach the children now.

A copulative verbal group consists of the copulative verb as an introductory member and this head word must be followed by a compulsory word or word group that functions as the complement. An identifying copulative verbal group includes an identifying copulative verb as

head, a describing copulative verbal group includes a describing copulative verb as head, and an associative copulative verbal group includes an associative copulative verb as head. Each one of these copulative verbs take specific complement types (Krüger, 2013b:133-185). In (4-5) the identifying copulative verbal group includes the identifying copulative verb **ke** (it is) as head and this verb is followed by the noun **bana** (children).

- (4-5) Ke bana.
 it is children
ke *ba-ana*
 IdCopV NPre2-child
 It is the children.

In (4-6) the describing copulative verbal group includes the describing copulative verb **ba** (they are) as head and this verb is followed by the adjective **botlhale** (clever).

- (4-6) Ba botlhale.
 they are clever
ba *bo-tlhale*
 DesCopV NPre14-adjective
 They are clever.

In (4-7) the associative copulative verbal group includes the associative copulative verb **ba na** (they have) as head and this verb is followed by the associative particle group **le dibuka** (with books).

- (4-7) Ba na le dibuka.
 they are with books
ba-na *le* *di-buka*
 AgrSubj2-AssCopV AssPart NPre10-book
 They have books.

Auxiliary verbs can also be part of a verbal group, functioning as the introductory member. This head word may be followed by a main verb or a verbal group with a main verb or a copulative verbal group or another auxiliary verbal group (Krüger, 2013b:191-254).

In (4-8) the auxiliary verbal group includes the auxiliary verb **ba ne** (indefinite past tense) and this head is followed by the verbal group **ba ruta bana** (they teach the children).

- (4-8) Ba ne ba ruta bana.
 they were they teach children
ba-ne ba-rut-a ba-ana
 AgrSubj2-Aux AgrSubj2-teach-VEnd NPre2-child
 They were teaching the children.

Krüger (2013b:104) notes that a verbal group can supply the lexical content; in other words, the exact same words of an independent sentence if it appears in an independent mood. Therefore examples (4-4 to 4-8) can be considered as verbal groups as well as independent sentences. The independent sentences are in the independent moods, i.e. the indicative, the consecutive, the imperative, and the habitual. These moods are described in section 4.5.1.

4.3.3 Particle groups

Particle groups in Setswana (Krüger, 2013a:107-230) are formed with a particle that functions as the introductory member, followed by a required complement. He distinguishes between various particle groups and labels them according to the specific particle used as head of the phrase. For instance, in (4-9), the possessive particle group includes the possessive particle **tsa** (of) noun class 10 and the possessive pronoun **me** (mine).

- (4-9) tsa me
 of me
tsa me
 PossPart10 PossProP1sg
 (of) mine

In (4-10) the instrumental particle group consists of the instrumental particle **ka** (with) and the noun **maoto** (legs).

- (4-10) ka maoto
 with legs
ka ma-oto
 InstrPart NPre6-leg
 with the legs

4.3.4 Conjunction groups

Krüger (2013b) distinguishes a conjunction group and describes it as consisting of a conjunction as the introductory member, with a verb, a verbal group, a copulative group, or an auxiliary verbal group serving as the complement, which occurs in the tense form determined by the context. He provides an exposition of conjunctions that act as introductory members and the possible verbal

(4-11) fa o batla sengwe
if you want something
fa *o-batl-a* *se-ngwe*
Conj AgrSubjP2sg-want-VEnd NPre7-adjective
if you want something

4.4 SETSWANA PHRASES

4.4.1 Noun phrase

39

(4-12) batho
 people
ba-tho
 NPre2-person
 people

(4-13) batho bao
 people those
ba-tho *bao*
 NPre2-person DemPro2D2
 those people

It is evident that the noun phrase can be structured with a word (4-12) or a word group (4-13).

4.4.2 Locative noun phrase

A locative noun phrase (LOCNP) can consist of a word or a word group (Berg, 2018:105-107). In (4-14) the locative noun **sekolong** (school - locality) (4-14) and in (4-15) the locative noun group **sekolong se** (this school) are both LOCNPs.

(4-14) sekolong
 school "location"
se-kolo-ing
 NPre7-school-LocSuf
 school "location"

(4-15) sekolong se
 school "location" this
se-kolo-ing *se*
 NPre7-school-LocSuf DemPro7
 this school "location"

4.4.3 Locative class noun phrase

The nouns in class noun classes 16-20 (**fa**, **go-**, **mo-**, **ga-**, **(-)**) indicate a locative value and are called the locative class nouns. These nouns are not marked for singularity and plurality (Krüger, 2006:93-98). A locative class noun phrase (LOCCNP) can be constructed with a word or a word group (Berg, 2018:108) as is evident in (4-16) and (4-17).

(4-16) *godimo*
on top
go-dimo
NPre17-on top
on top, above

(4-17) *godimo ga tafale*
on top of table
go-dimo *ga* *(ne-)-tafale*
NPre17-on top PossPart17 NPre9-table
on top of the table

4.4.4 Pronoun phrases

The pronoun phrase (PROP) can be a word or a word group. Berg (2018:108-110) summarises the c-structure of all possible pronoun phrases in Setswana. She shows that the head of a pronoun phrase can be structured with only a personal, absolute, demonstrative, inclusive quantitative, exclusive quantitative pronoun, selective quantitative, separative quantitative or interrogative quantitative pronoun and presents the possible modifier or modifiers of each one of these pronouns. For example, a separative pronoun as a single word can be a pronoun phrase, or the separative pronoun can be modified with a possessive particle phrase (Berg, 2018:110). In (4-18) the syntactic structure of the pronoun phrase matches the syntactic structure of a word group. In this example the separative quantitative pronoun **disele** (other ones) is modified with a possessive particle phrase **tsa me** (of mine).

(4-18) *disele tsa me*
other ones of me
di-sele *tsa* *me*
SepQPro10 PossPart10 PersProPlsg
my other ones

4.4.5 Verb phrases

Different types of verb phrases can be distinguished and are labelled according to the inclusion of the head word, which could be the main, auxiliary, identifying copulative, describing copulative or associative copulative verbs (Berg, 2018:117).

Berg (2018:117-118) analyses the c-structure of the VPmain, which can vary from simple to intricate. The simple structure is the minimal structure, and the intricate structure includes the main verb followed by other phrases. Both the simple and intricate structures are also considered sentences. The VPmain can thus consist of a word or a word group. At its most basic, a VPmain

consists of just the main verb, which represents the core action or state of the sentence. The VPmain thus has a minimal structure (4-19).

- (4-19) Ba a ruta.
 they teach
ba-a-rut-a
 AgrSubj2-PresPre-teach-VEnd
 They are teaching.

In more intricate structures, the VPmain can include additional phrases that add more detail and context regarding who or what undergoes the process or action that is indicated in the verb or when, where, with what, how or with whom this action is executed. In (4-20) the main verb **ba ruta** (they teach) is followed by an NP **bana** (children) and an ADVP **jaanong** (now).

- (4-20) Ba ruta bana jaanong.
 they teach children now
ba-rut-a *ba-ana* *jaanong*
 AgrSubj2-teach-VEnd NPre2-child Adv
 They teach the children now.

The additional phrases that can follow the main verb include a single NP, PROP, POSSPARTP, or QUALPARTP. Additionally, the verb may be followed by a LOCCLNP or LOCPARTP, which gives information about the action's location. An ASSPARTP can also be present, linking the action to an additional context or participant. The VPmain might include two NPs, or it could feature an NP followed by a locality phrase (LOCCLNP or LOCPARTP). Alternatively, it may consist of an NP and an ASSPARTP, or it might include two NPs along with a phrase indicating locality. This range of possible structures allows the VPmain to represent various syntactic relationships and provide detailed information about the actions or states described in the sentence.⁵

The copulative verb phrases (VPidcop, VPdescop, VPasscop) as well as the auxiliary verb phrase (VPaux) can only be constructed with word groups, as the head word must be followed by an obligatory complement. The VPidcop in (4-21) consists of an identifying copulative verb as head and is followed by the NP **bana** (children). Other obligatory complements are the ProP such as **botlhe** (all of them), PossPartP such as **ya me** (of mine) or QualPartP such as **e tona** (the big one). These obligatory complements are always non-verbal and non-locative (Berg, 2018:118).

⁵ A description of the grammatical functions of these phrases are included in Chapter 5.

(4-21) Ke bana.

it is children

ke *ba-ana*

IdCopV NPre2-child

It is the children.

The VPdescop consists of a describing copulative verb as head followed by a non-verbal complement, such as adjectives (4-22), a LocPartP such as **kwa sekolong** (in school), a LocCINP such **teng** (it is here), pronouns in classes 16 to 20 (absolute, demonstrative and quantitative pronouns) such as **gone** (there), **moo** (there) and **gotlhe** (everywhere), adverbs of place (place names) such as **Mahikeng**, the interrogative **kae?** (where?), **jang?** (how?), and **go mang?** (to whom?) as well as a PossPartP indicating noun classes 16 to 20 such as **ga malome** (at uncle's place) (Berg, 2018:118-119).

(4-22) Ba botlhale.

they are clever

ba *bo-tlhale*

DesCopV NPre14-adjective

They are clever.

The VPasscop consists of an associative copulative verb and the obligatory complement of the associative copulative verb in the positive and the negative are not the same. In the positive this verb is always followed by an ASSPARTP (4-23) while in the negative it is followed by an NP (4-24), ProP such as **tsone** (them), PossPartP such as **tsa me** (of mine) or QualPartP such as **tse dintsi** (which are many) (Berg, 2018:119).

(4-23) Ba na le dibuka.

they are with books

ba-na *le* *di-buka*

AgrSubj2-AssCopV AssPart NPre10-book

They have books.

(4-24) Ga ba na dibuka.

not they have books

ga-ba-na *di-buka*

NegPre-AgrSubj2-AssCopV NPre10-book

They do not have books.

As explained by Berg (2018:119-120) the minimal structure of a VPaux consists of an auxiliary verb as head, followed by a verbal complement in the form of a VPmain, VPidcop, VPdescop,

VPasscop or another VPaux. In (4-25) the VPaux includes the auxiliary verb **ba ne** (indefinite past tense) and this head is followed by the main verb **ba ruta** (they teach).

- (4-25) Ba ne ba ruta.
 they were they teach
ba-ne *ba-rut-a*
 AgrSubj2-Aux AgrSubj2-teach-VEnd
 They were teaching.

4.4.6 Particle phrases

A particle phrase takes a specific particle as head word and is named according to that particle. Each particle requires a specific complement or complements. A PossPartP, QualPartP, InstrPartP, LocPartP, TEMPPARTP, AGPARTP, AssPartP and CompPartP can be distinguished. These phrases can only be word groups, as the head must always be followed by an obligatory complement. Berg (2018:110-116) gives a thorough exposition of the complements of each particle. For example, in (4-26), the possessive particle phrase (POSSPARTP) includes the possessive particle **tša** (of) for noun class 10 and the possessive pronoun **me** (mine).

- (4-26) tša me
 of me
tša *me*
 PossPart10 PossProPlsg
 (of) mine

In (4-27) the instrumental particle group phrase (INSTRPARTP) consists of the instrumental particle **ka** (with) and the noun **maoto** (legs).

- (4-27) ka maoto
 with legs
ka *ma-oto*
 InstrPart NPre6-leg
 with the legs

4.4.7 Adverb phrase

An adverb phrase (ADVP) in Setswana consists of only an adverb (Berg, 2018:116). Examples of Setswana adverbs are **thata** (hard), **sentle** (nicely), **jaanong** (now), and **gantsi** (many times) (Krüger, 2006:161-162).

4.4.8 Interjection phrase

An interjection phrase (INTERJP) in Setswana is structured with only an interjection (Berg, 2018:116). **Tswêêtswêê!** (please!), **eê!** (yes!), **agêê!** (hallo!) and **ehê!** (really!) are examples of Setswana interjections (Cole, 1955:394-399; Krüger, 2006:165-166). In (4-28) the INTERJP is the interjection **ijo!** (Wow!).

(4-28) Ijo! O tsamaile!

wow! he left!

ijo *o-tsamy-il-e*

Interj AgrSubj1-walk-PerfSuf-VEnd

Wow! He left!

4.4.9 Ideophone phrase

An ideophone phrase (IDEOF) consists of only an ideophone (Berg, 2018:116). Cole (1955:370-389) gives an exposition of Setswana ideophones. In (4-29) the IDEOF **thô** indicates the sound of large drops falling.

(4-29) Pula e tla e re thô thô thô.⁶

rain it came it say "sound of large drops falling"

(ne-)-pula *e-tl-a* *e-r-e* *thô thô thô*

NPre9-rain AgrSubj9-came-VEnd AgrSubj9-say-VEnd Ideo

The rain came falling in large drops.

4.5 SETSWANA COMPLEX SENTENCES

A complex sentence consists of at least two clauses. A clause refers to a unit of grammatical organisation smaller than a sentence but larger than a phrase (Louwrens, 1994:23). Clauses are divided into main clauses and subordinate clauses. A main clause is independent, able to function on its own, while a subordinate clause is dependent, as it relies on the main clause to complete its meaning (Louwrens, 1994:23).

There is limited research on the syntactic structure of complex sentences in Setswana. The Department of African Languages and Literature at the University of Botswana, (2000:27,43) notes that certain conjunctions act as linking elements when multiple sentences are combined to form complex sentences. They highlight the inclusion of both main and subordinate clauses in a complex sentence, explaining that the subordinate clause is embedded within the main clause,

⁶ The orthography of the future tense morpheme is **tla** or **tlaa** while the orthography of the verb **tla** (come) includes one a. Take note of the ideophone **tsoro** indicating the heavy downpour.

forming a complex sentence (The Department of African Languages and Literature, University of Botswana, 2000:27, 46). They outline four rules for embedding or inserting one sentence into another: (1) One sentence is designated as the main clause, with the other sentences embedded into it. (2) The embedding occurs using conjunctions such as **fa** (if) or **gore** (that). (3) If the same NP appears in both clauses, it is typically omitted from the second clause, leaving the subject agreement morpheme to refer to this subject. (4) Generally, the main clause precedes the subordinate clause. They also refer to the conjunction that links the main and subordinate clauses as a complementiser.

Letsholo-Tafila (2013) briefly discusses the forms and meanings of Setswana complementisers, mentioning **gore** (that) and **fa** (if) as complementisers in complex sentences. However, her analysis does not cover the syntactic structure of Setswana sentences that include subordinate clauses. Letsholo-Tafila (2018:87) points out that "Setswana has various conjunctions used to express different types of subordination relationships." She provides a brief overview of the subjunctive (Letsholo-Tafila, 2018:88), infinitive (Letsholo-Tafila, 2018:89), and participial (Letsholo-Tafila, 2018:91) clauses as types of subordinate clauses.

Krüger (2013b:108) outlines the features of various moods in Setswana, offering a brief overview of the general meaning, external function, and formation of the subjunctive mood (Krüger, 2013b:121-122), participial mood (Krüger, 2013b:123-124), and infinitive mood (Krüger, 2013b:126-127).

In the discussion of the c-structure of complex sentences, I follow the division between main and subordinate clauses.

4.5.1 The main clause

The verb in the main clause can appear in different moods, including indicative, imperative, habitual, and consecutive (Krüger, 2013b:111-126). This verb may be preceded by subject phrases or followed by phrases acting as objects or descriptives⁷.

The indicative mood is used to express assertions, such as factual statements, and is closely associated with epistemic modality, which reflects the speaker's level of certainty, belief, or knowledge about the truth of a statement, indicating their confidence or uncertainty (Louwrens *et al.*, 1995:46). Krüger (2013b:111) notes that in Setswana, the indicative mood is used to present actions or processes as statements, questions, or basic facts; and the structure of a sentence in

⁷ In Lexical Functional Grammar (LFG), descriptives usually refer to obliques or adjuncts.

the indicative mood is both syntactically and semantically independent, meaning it does not depend on other clauses for its meaning or interpretation (4-30).

(4-30) Bana ba ja bogobe.

children they eat porridge

ba-ana *ba-j-a* *bo-gobe*

NPre2-child AgrSubj2-eat-VEnd NPre14-porridge

The children are eating porridge.

The imperative mood conveys directives or commands and is closely associated with deontic modality (Louwrens *et al.*, 1995:47). As Krüger (2013b:112) explains, the imperative mood indicates that the action is a command, strong request, order, warning, or instruction, and is always addressed to the second person (4-31)

(4-31) Nwa metsi!

drink water

nwa-a *ma-itse*

drink-VEnd NPre6-water

Drink the water!

The habitual mood signifies that actions happen or happened regularly, reflecting present or past customs and habits (Louwrens *et al.*, 1995:49). Krüger (2013b:119) notes that the habitual mood conveys a sequence of actions repeated as part of a routine or habit. In (4-32) the verb **ba je** is in the habitual mood.

(4-32) Bana ga ba ise ba je.

children they have not they eat

ba-ana *ga-ba-ise*

NPre2-child NegPre-AgrSubj2-Aux

The children have not eaten.

The consecutive mood is used to express a sequence of actions that occur in chronological order (Louwrens *et al.*, 1995:48). As Krüger (2013b:117) explains, the consecutive mood indicates that one action follows another in time, but this temporal succession does not imply a causal relationship because the preceding action does not necessarily cause the one that follows. While actions in the consecutive mood are chronologically dependent on earlier actions, they are not syntactically dependent on them (4-33).

(4-33) Mosimane a nna fatshe, a ja, a tlotla le ditsala tsa gagwe.
 boy he then sits down, he then eats, he then chats with friends of him
mo-simane a-nn-a fa-tshe a-j-a
 NPre1-boy AgrSubj1-sit-VEnd NPre16-down AgrSubj1-eat-VEnd
a-tlot-a le di-tsala tsa
 AgrSubj1-chat-VEnd AssPart NPre10-friend PossPart10
gagwe
 PosPro1
 The boy sits down and eats and chats with his friends.

The c-structure of the main clause mirrors that of a simple sentence, as described by Berg (2018:126-152). In Setswana, the c-structure of a simple sentence is characterised by its immediate constituents and the correct ordering of phrases that form grammatically correct sentences (cf. §5.4.1).

The c-structure of the main clause is represented as $S \rightarrow NP VP$ (Department of African Languages and Literature, University of Botswana, 2000:3), where NP (the noun phrase) is the first constituent and VP (the verb phrase) is the second. In Setswana sentences, the NP, as the initial constituent, represents any phrase that functions as the subject (Department of African Languages and Literature, University of Botswana, 2000:5). The NP may be substituted by a PROP, POSSPARTP, or QUALPARTP.

Given the various subcategories of verbs (main, identifying copulative, describing copulative, associative copulative, auxiliary), the VP, as the second constituent, includes one of the following phrases: VPmain, VPidcop, VPdescop, VPasscop, or VPaux. The c-structures of these phrases are included in section 4.4.5.

Considering the various subcategories of verbs (main, identifying copulative, describing copulative, associative copulative, auxiliary), the VP, as the second constituent, consists of one of the following: VPmain, VPidcop, VPdescop, VPasscop, or VPaux. The c-structures of these verb phrases are detailed in section 4.4.5.

Additionally, VPmain, VPidcop, VPdescop, VPasscop, and VPaux may include phrases that express time, locality, manner, instrument, and association, along with INTERJP or IDEOP (Berg, 2018:139-143). These phrases function as modifiers, providing additional, non-essential information to the verb phrase rather than fulfilling core argument roles.

Next, I will outline the c-structure of complex sentences where the subordinate clause features the infinitive, subjunctive, or participial moods.

4.5.2 The subordinate clause

In Setswana, subordinate clauses are classified based on their function and meaning within the sentence (Krüger, 2013b:121, 123, 126). These clauses may contain verbs in the infinitive, subjunctive, or participial moods, leading to the categories of infinitive clauses, subjunctive clauses, and participial clauses (cf. §5.4.2). In LFG, some verbs require a finite clausal argument, while others demand an infinite clausal argument (Butt *et al.*, 1999:35, 38, 51-55). Subordinate clauses are embedded, meaning they cannot function as independent sentences and depend on the main clause for complete meaning (Butt *et al.*, 1999:29-30). In LFG, finite clausal arguments are represented as clausal phrases (CPs) at the c-structure level, while infinite clausal arguments are typically represented as verb phrases (VPs).

In (4-34), the main clause is **ba ya** (they go) and the subordinate clause is **go thusa bana** (to help the children). The subordinate clause includes an infinitive verb **go thusa** (to help), making it an infinite clausal argument. This clause is identified as an infinitive clause structured with a VP, which is labelled as VPinf.

- (4-34) Ba ya go thusa bana.
 they go to help children
ba-y-a *go-thus-a* *ba-ana*
 AgrSubj2-go-VEnd InfPre-help-VEnd NPre2-child
 They go to help the children.

In (4-35), the main clause is **Ke tshola dijo** (I dish up the food) and the subordinate clause is **gore batho ba je** (so that the people can eat). This subordinate clause includes the subjunctive verb, **ba je** (they can eat), classifying it as a finite clausal phrase. This is referred to as a subjunctive clause and is labelled as CPsubj.

- (4-35) Ke tshola dijo gore batho ba je.
 I dish up food so that people eat
ke-tshol-a *di-j-o* *gore* *ba-tho*
 AgrSubjP1sg-serve-VEnd NPre8-eat-DevSuf Conj NPre2-person
ba-j-e
 Agrsubj2-eat-VEnd
 I dish up the food so that the people can eat.

In (4-36), the main clause is **Ke tla go itsise** (I will notify you), and the subordinate clause is **fa bana ba gorogile** (if the children have arrived). This subordinate clause is in the participial mood, classifying it as a finite clausal argument. It is referred to as a participial clause and is labelled CPpart.

(4-36) Ke tla go itsise fa bana ba gorogile.

I will you notify if children they arrived

ke-tla-go-its-is-e *fa* *ba-ana*

AgrSubjPlsg-FutPre-AgrObjP2g-notify-VEnd Conj NPre2-child

ba-gorog-ile-e

AgrSubj2-arrive-PerfSuf-VEnd

I will notify you if the children have arrived.

The recursive nature of finite and infinite clauses in Setswana is illustrated in (4-37). The main clause is *Ke a dumela* (I believe), the first subordinate clause is *gore bana ba tla tla* (that the children will come), and within it, there is another subordinate clause, **le fa ba lapile** (even if they are tired).

(4-37) Ke dumela gore bana ba tla tla le fa ba lapile.

I believe that children they will come even if they are tired

ke-dumel-a *gore* *ba-ana*

AgrSubjPlsg-believe-VEnd Conj NPre2-Child

ba-tla-tl-a *le-fa* *ba-lap-il-e*

AgrSubj2-FutPre-come-VEnd Conj AgrSubj2-tire-PerfSuf-VEnd

I believe that the children will come even if they are tired.

In the next section, I present an overview of the c-structure of subordinate clauses. Additionally, I will also introduce possible phrase structure rules and demonstrate these rules using c-structure trees.

4.5.2.1 Subordinate clause: Infinitive

According to Krüger (2013b:126) a verb in the infinitive mood can function as “a descriptive (subordinate member) of purpose”. In (4-38) the subordinate clause is **go thusa bana ba** (to help these children).

(4-38) Monna o kopa mosadi go thusa bana ba.

man he ask woman to help children these.

mo-nna *o-kop-a* *mo-sadi* *go-thus-a*

NPre1-man AgrSubj1-ask-VEnd NPre1-woman InfPre-help-VEnd

ba-ana *ba*

NPre2-child Dem1D1

The man asks the woman to help the children.

In LFG, the infinitive is treated as an embedded complement that does not include an overt subject and remains untensed (Butt *et al.*, 1999:31). This applies to Setswana as well, where the infinitive

verb is not preceded by any phrase functioning as an overt subject and cannot be tensed (cf. §5.4.2.1).

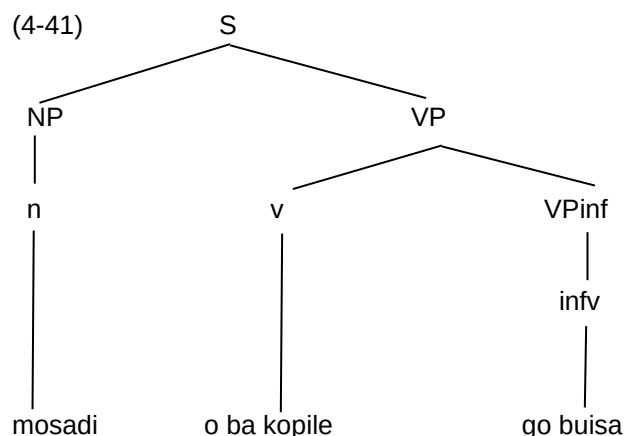
Next, I will present the c-structure of complex sentences containing a VPinf, detailing the immediate constituents and their order. The minimal c-structure of the VPinf consists solely of an infinitive verb. In (4-39) the VPinf is composed of the infinitive verb **go buisa** (to read).

- (4-39) Mosadi o ba kopile **go buisa**.
 woman she them asked to read
mo-sadi o-ba-kop-il-e
 NPre1-woman AgrSubj1-AgrObj2-ask-PerfSuf-VEnd
go-bu-is-a
 InfPre-speak-CausSuf-VEnd
 The woman asked them to read.

The following c-structure rule (4-40) illustrates the c-structure of the sentence in (4-39) above:

- (4-40) $S \rightarrow NP VP$
 $NP \rightarrow n$
 $VP \rightarrow v VPinf$
 $VPinf \rightarrow infv$

This rule (4-40) demonstrates that the minimal c-structure of a VPinf consists solely of the infinitive verb. The following c-structure tree (4-41) illustrates the syntactic structure of the sentence in (4-39).



However, the VPinf can also include the infinitive verb followed by additional phrases. In (4-41), the c-structure of the VPinf in (4-42) comprises the infinitive verb **go buisa** (to read), followed by the NP **dibuka** (books) and the TEMPPARTP **ka moso** (tomorrow).

(4-42) Mosadi o ba kopile **go buisa dibuka ka moso**.

woman she them asked to read books tomorrow

mo-sadi o-ba-kop-il-e

NPre1-woman AgrSubj1-AgrObj2-ask-PerfSuf-VEnd

go-bu-is-a

dibuka

ka

moso

InfPre-speak-CausSuf-VEnd

NPre10-book TempPart

NPre3-tomorrow

The woman asked them to read the books tomorrow.

The following c-structure rule (4-43) illustrates the c-structure of the sentence in (4-42) above:

(4-43) $S \rightarrow NP VP$

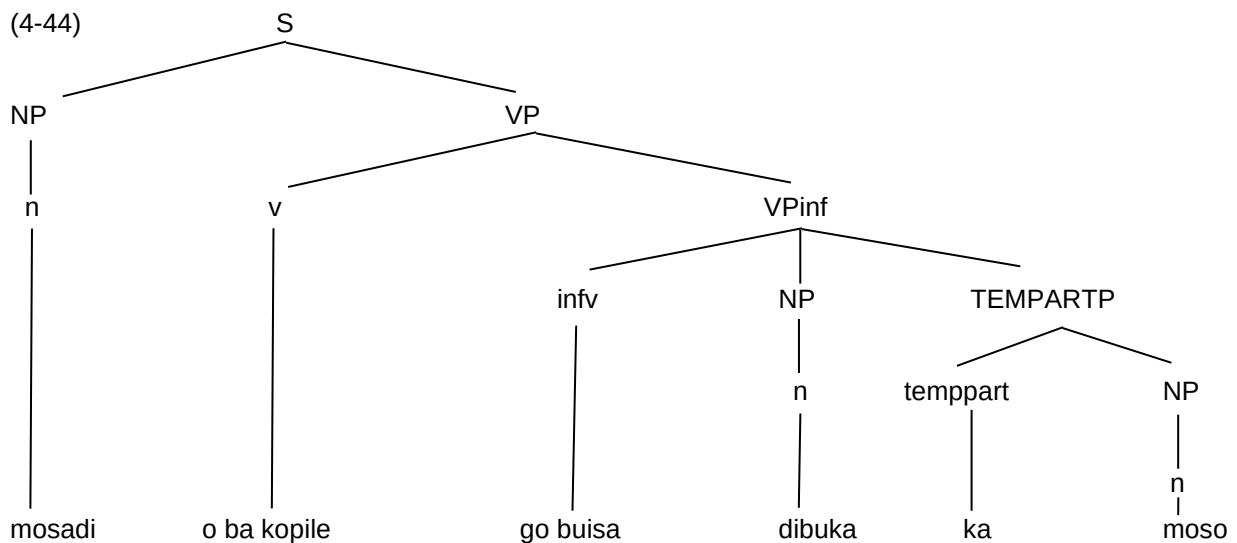
$NP \rightarrow n$

$VP \rightarrow v VPinf$

$VPinf \rightarrow infv NP TEMPARTP$

$TEMPARTP \rightarrow temppart NP$

This rule (4-43) demonstrates that the c-structure of a VPinf consists of the infinitive verb followed by a NP and a TEMPPARTP. The c-structure tree in (4-44) illustrates the syntactic structure of the sentence in (4-42).



The syntactic structure of the VPinf is influenced by the meaning of the infinitive verb and the presence of extensions (causative, applicative, reciprocal, passive) that are suffixed to a verb root. These extensions modify the meaning of the verb root and may require the inclusion of

specific phrases due to their impact on verb valency. While this is not explored in depth, I illustrate the effect of these extensions with examples ((4-43) to (4-45)).⁸

The meaning of an infinitive verb may necessitate the inclusion of an NP in the VPinf. For instance, in (4-45), the NP **ditlhapi** (fish) must follow the infinitive verb.

(4-45) Monna o ba ruta go tshwara ditlhapi.

man he them teaches to catch fish

mo-nna *o-ba-rut-a* *go-tshwar-a* *ditlhapi*

NPre1-man AgrSubj1-AgrObj2-teach-VEnd InfPre-catch-VEnd NPre10-fish

The man is teaching them to catch fish.

In (4-46) it is demonstrated that an infinitive verb with an applicative suffix must be followed by two NPs, namely. **bana** (children) and **diaparo** (clothes).

(4-46) Mosadi o ya go rekela bana diaparo.

woman she go to buy children clothes

mo-sadi *o-y-a-* *go-rek-el-a*

NPre1-woman AgrSubj1-goes-VEnd InfPre-buy-ApplSuf-VEnd

ba-ana *dibuka*

NPre2-children NPre10-book

The woman goes to buy the children clothes.

Note that an NP can be replaced by a PROP, a POSSPARTP or a QUALPARTP.

At times, the infinitive verb must be followed by a locative phrase such as the LOCNP, LOCCNP, or LOCPARTP. In (4-47), the LOCPARTP **kwa toropong** (to town) follows the infinitive verb with an applicative suffix. The meaning of this infinitive verb necessitates the inclusion of a locative phrase in the VPinf.

(4-47) Mosetsana o batla go tsamaela kwa toropong.

girl she wants to walk to town

mo-setsana *o-batl-a* *go-tsamay-el-a*

NPre1-girl AgrSubj1-wants-VEnd InfPre-walk-ApplSuf-VEnd

kwa *(ne-)-toropo-ing*

LocPart NPre9-town-LocSuf

The girl wants to walk to town. /The girl wants to go to town.

⁸ Berg (2018:67-92) can be consulted for an overview of the effect of the mentioned extensions on argument structure in Setswana simple sentences.

preceded by an NP, PROP, POSSPARTP, or QUALPARTP, and specific phrases can follow the verb, fulfilling various functions. These additional phrases follow this verb because it can be suffixed with verbal extensions, which influence the number and type of phrases. The verb in the subjunctive mood lacks tense forms (Krüger, 2013b:123) as tense is conveyed by the verb in the main clause.

The minimal c-structure of the CPsubj includes the compulsory conjunction **gore** (that, so that) and a verb in the subjunctive mood (Krüger, 2013b:122). In (4-50) the subordinate clause is **gore o sale** (that you stay behind).

(4-50) Re ba kopile **gore ba tle ka moso**.

we they asked that they come by tomorrow

<i>re-ba-kop-il-e</i>	<i>gore</i>	<i>ba-tl-e</i>
AgrSubj2Plpl-AgrObj2-ask-VEnd	Conj	AgrSubj2-come-VEnd
<i>ka</i>	<i>mo-so</i>	
TempPart	NPre3-tomorrow	

We asked them that they come tomorrow.

The following c-structure rule (4-51) illustrates the c-structure of the sentence in (4-50) above:

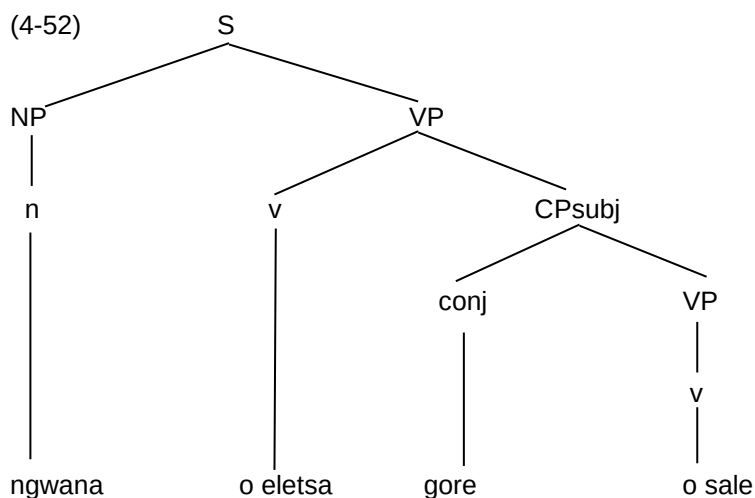
(4-51) $S \rightarrow NP VP$

$NP \rightarrow n$

$VP \rightarrow \{v \text{ CPsubj} \mid v\}$

$CPsubj \rightarrow conj VP$

This rule demonstrates that the c-structure of the VP can include a verb followed by a CPsubj and that within the CPsubj, the structure consists solely of a verb. The c-structure tree in (4-52) represents the syntactic structure of the sentence in (4-50).



The CSubj can include a phrase preceding and phrases following the verb in the subjunctive mood. The c-structure of the CSubj in (4-53) is headed by the conjunction **gore** (so that), followed by an NP **bana** (children), the verb **ba tsene** (they enter) and the LOCPARTP **mo teng** (inside). This example illustrates that the NP before the verb in the main clause (**monna** (man)) and the NP before the verb in the subordinate clause (**bana** children)) can differ, as the NPs belong to different noun classes.

(4-53) Monna o bula lebati gore bana ba tsene mo phaposing.

man he open door so that children they enter in room

<i>mo-nna</i>	<i>o-bul-a</i>	<i>le-bati</i>	<i>gore</i>	<i>ba-ana</i>
NPre1-man	AgrSubj1-open-VEnd	NPre5-door	Conj	NPre2-child
<i>ba-tsen-e</i>	<i>mo</i>	<i>(-)-phaposi-ing</i>		
AgrSubj2-enter-VEnd	LocPart	NPre9-room-LocSuf		

The man opens the door so that the children can enter the room.

The following c-structure rule (4-54) represents the c-structure of the sentence (4-53) above:

(4-54) $S \rightarrow NP VP$

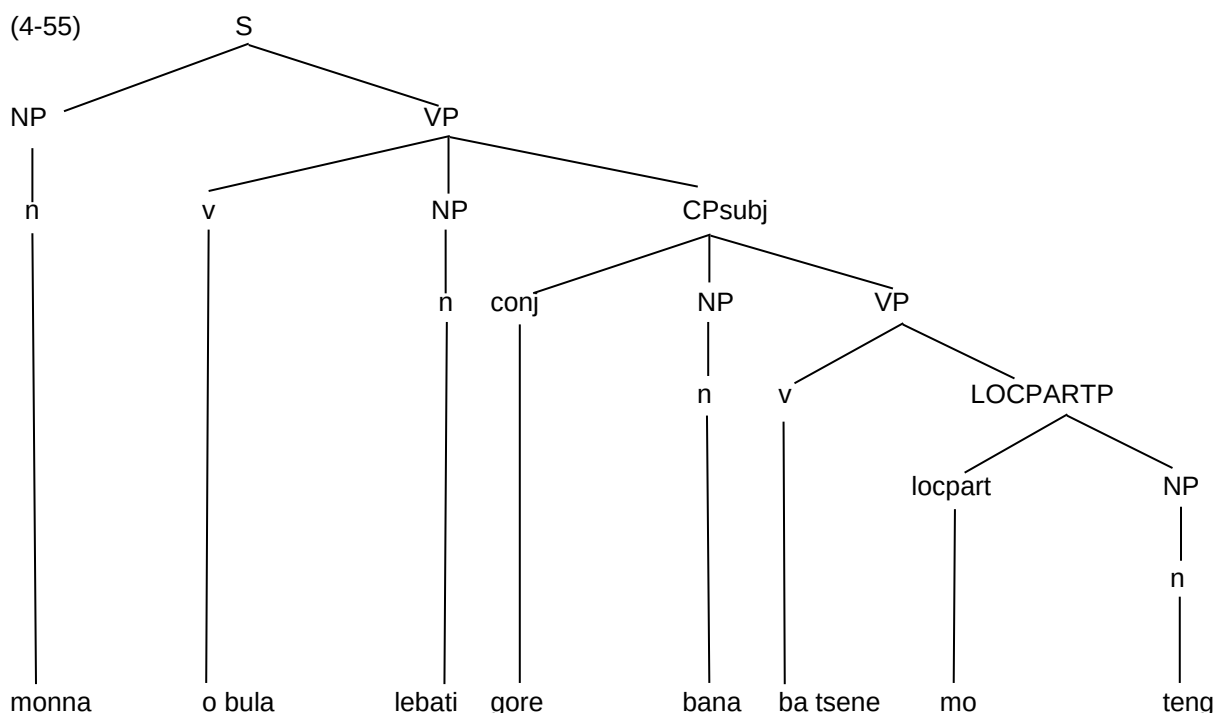
$NP \rightarrow n$

$VP \rightarrow \{v NP CSubj \mid v LOCPARTP\}$

$CSubj \rightarrow conj NP VP$

$LOCPARTP \rightarrow locpart NP$

The following c-structure tree (4-55) illustrates the syntactic structure of the sentence in (4-53).



The syntactic structure of the CSubj may or may not include a phrase preceding the verb, making this phrase optional. The meaning of the subjunctive verb or the suffixing of extensions to the verb root change the meaning of the extended verb root, which may then require that this verb must be followed by specific arguments (phrases) because the verb's valency changes. This is illustrated in examples (4-52) and (4-53). To follow, some examples illustrating the argument structure of a verb in the subjunctive are included.

The meaning of an infinitive verb may require the inclusion of an NP following the verb in the CSubj. For instance, in (4-56) an NP such as **ditlhapi** (fish) must follow the verb.

(4-56) Monna o ba ruta gore ba tshware ditlhapi.

man he them teaches so that they to catch fish

<i>mo-nna</i>	<i>o-ba-rut-a</i>	<i>gore</i>	<i>ba-tshwar-e</i>
NPre1-man	AgrSubj1-AgrObj2-teach-VEnd	Conj	AgrSubj2-catch-VEnd
<i>ditlhapi</i>			
NPre10-fish			

The man is teaching them so that they can catch fish.

In (4-57) the verb in the subjunctive mood includes an applicative suffix, necessitating the inclusion of two NPs: **bana** (children) and **diaparo** (clothes).

(4-57) Mosadi o ya kwa toropong **gore a rekele bana diaparo**.

woman she go to town so that she buy for children clothes

<i>mo-sadio-y-a-</i>	<i>kwa</i>	<i>(ne-)-toropi-ing'</i>
NPre1-woman	AgrSubj1-goes-VEnd	LocPart
<i>go-rek-el-a</i>	<i>ba-ana</i>	<i>dibuka</i>
InfPre-buy-ApplSuf-VEnd	NPre2-children	NPre10-book

The woman goes to town so that she can buy the children clothes.

Similar to the VPinf, the CSubj can include one or more optional phrases indicating location, time, manner, instrument, and association. These optional phrases include the LOCNP, LOCCNP, LOCPARTP, TEMPPARTP, ADVP, INSTRPARTP and ASSPARTP.

In the section above, I showed that the CSubj functions as a clausal phrase, with this embedded clause maintaining a subordinate relationship to the main clause.

4.5.2.3 Subordinate clause: Participial

According to Louwrens (1994:132), the participial expresses two meanings: that of condition and that of an action occurring simultaneously with another action. Krüger (2013b:123) explains that

a “participial predicate functions as a secondary descriptive of time or circumstance, because the action occurs at the same time as the action of the main verb”. In this context, both the action in the main clause and the action in the subordinate clause share the same tense, indicating simultaneous actions.

In examples (4-58), (4-61), (4-64) and (4-67), the subordinate clause is designated as an embedded clause (CPpart). Butt *et al.* (1999:36-38) discuss how the participial “can be used as clausal adverbials with and without subordinating conjunctions”. In Setswana, the subordinate clause (CPpart) may either immediately follow the main clause or be connected or linked with a conjunction (cf. §5.4.2.3). In (4-58), the two clauses indicate simultaneous actions, and thus no conjunction is used.

(4-58) Bana ba mmone **a utswa**.

children they him see he steal

ba-ana

ba-mo-bon-e

a-utsw-a

NPre2-child AgrSubj2-AgrObj1-see-VEnd

AgrSubj1-steal-VEnd

The children saw him (while he was) stealing.

The following c-structure rule (4-59) illustrates the c-structure of the sentence in (4-58) above.

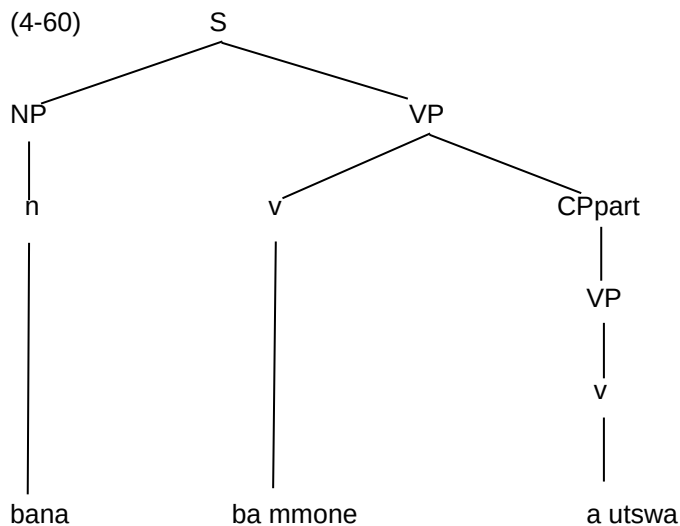
(4-59) $S \rightarrow NP VP$

$NP \rightarrow n$

$VP \rightarrow \{v \text{ CPpart} \mid v\}$

$CPpart \rightarrow VP$

This rule demonstrates that the c-structure of the VP can include a verb followed by a CPpart, and that the CPpart can also have a minimal structure consisting solely of a verb. The c-structure tree in (4-60) illustrates the syntactic structure of the sentence in (4-58).



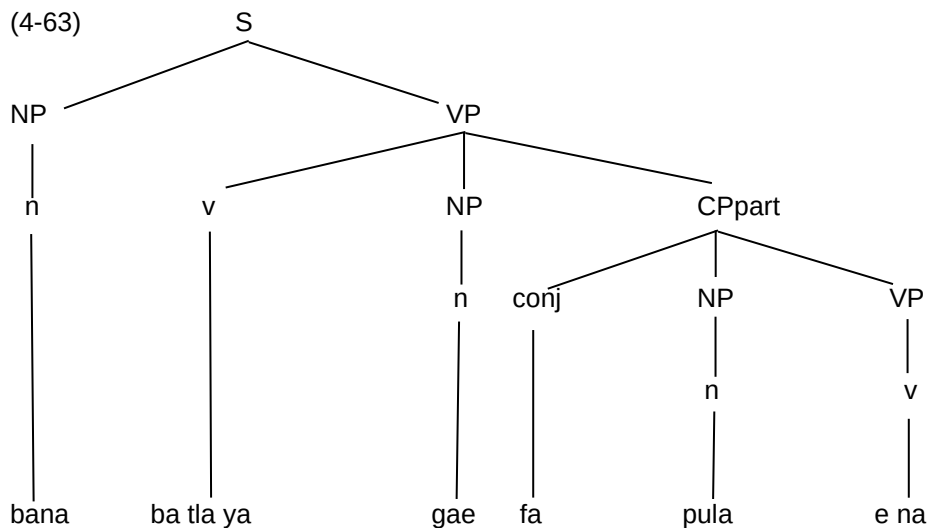
If the CPpart includes a conjunction as its head, the meaning of the conjunction will specify the function of the subordinate clause. For instance, the conjunction **fa** introduces clauses indicating time (e.g. as, while, when) or condition (e.g. if, as) (Krüger, 2013b:124), as illustrated in (4-61).

(4-61) Bana ba tla ya gae **fa** pula e na.
 children they will go home if rain it fall
ba-ana ba-tla-y-a (le-) gae fa (ne-)-pula
 NPre2-child AgrSubj2-FutPre-go-VEnd NPre5-home Conj NPre9-rain
e-n-a
 AgrSubj9-fall-VEnd
 The children will go home if it rains.

The following c-structure rule (4-62) illustrates the c-structure of the sentence in (4-61) above:

(4-62) $S \rightarrow NP VP$
 $NP \rightarrow n$
 $VP \rightarrow \{v NP CPpart \mid v\}$
 $CPpart \rightarrow conj NP VP$

The c-structure tree in (4-63) depicts the syntactic structure of the sentence in (4-61).



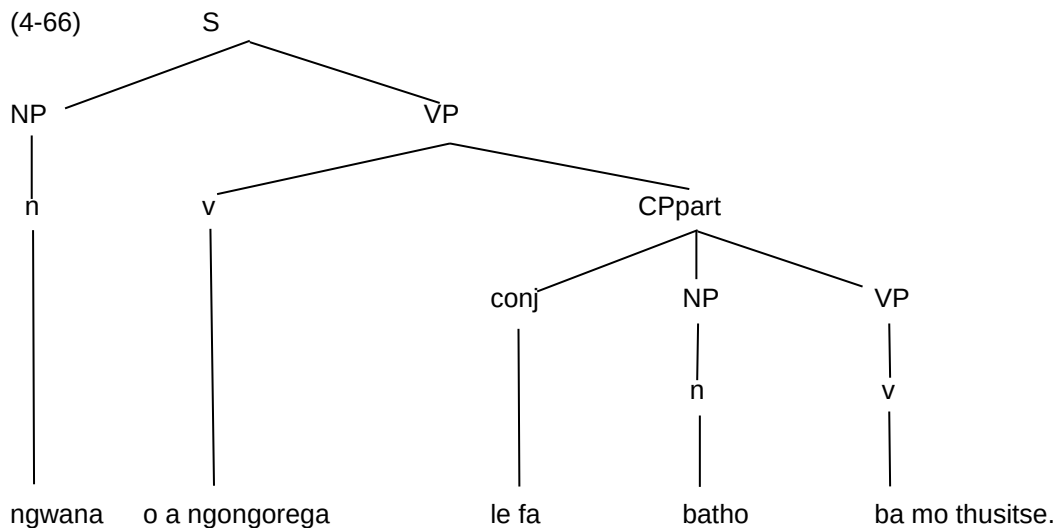
The conjunction **le fa** (even if, although, while) introduces subordinate clauses of concession or compliance, as shown in (4-64).

- (4-64) Ngwana o a ngongorega **le fa batho ba mo thusitse**.
 child he complains although people they him helped
mo-ana o-a-ngongorega-a le-fa ba-tho
 NPre1-child AgrSubj1-PresPre-complain-VEnd Conj NPre2-person
ba-mo-thus-il-e
 AgrSubj2-AgrObj1-help-PerfSuf-VEnd
 The child complains even though the people have helped him.

The following c-structure rule (4-65) illustrates the c-structure of the sentence in (4-64) above.

- (4-65) $S \rightarrow NP VP$
 $NP \rightarrow n$
 $VP \rightarrow \{v CPpart \mid v\}$
 $CPpart \rightarrow conj NP VP$

The c-structure tree (4-66) illustrates the syntactic structure of the sentence in (4-64).



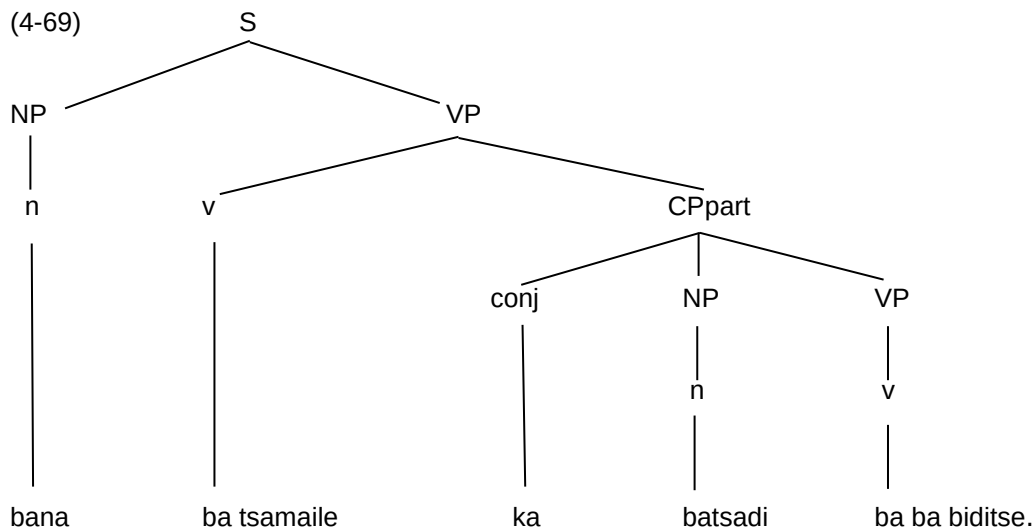
The conjunction **ka** (since, considering, in view of the fact, on account of) introduces subordinate clauses of reason, as shown in (4-67).

- (4-67) Bana ba tsamaile **ka** batsadi ba ba biditse.
 children they walked since parents they them called
ba-ana *ba-tsamay-il-e* *ka* *ba-tsal-i*
 NPre2-child AgrSubj2-walk-PerfSuf-VEnd Conj NPre2-give birth-DevSuf
ba-ba-bits-il-e
 AgrSubj2-AgrObj2-call-PerfSuf-VEnd
 The children left since the parents called them.

The following c-structure rule (4-68) illustrates the c-structure of the sentence in (4-67) above.

- (4-68) $S \rightarrow NP \ VP$
 $NP \rightarrow n$
 $VP \rightarrow \{v \ CPpart \mid v\}$
 $CPpart \rightarrow conj \ NP \ VP$

The c-structure tree in (4-69) illustrates the syntactic structure of the sentence in (4-67).



4.5.2.4 Mobile subordinate clauses

The subordinate clause can precede the main clause when it is, in the words of Krüger, (2013b:124) “conditionally mobile”. This applies to subordinate clauses in the infinitive, subjunctive and participial moods.

The following two sentences ((4-70) and (4-71)) illustrates the two possible orders of a subordinate clause in the infinitive mood.

(4-70) Re tlhoka metsi a a belang **go dira kofi**.

we need water that it boil do make coffee

re-tlhok-a *ma-itse* *a*

AgrSubjPlpl-need-VEnd NPre6-water QualPart6

a-bel-a-ng

go-dir-a

(ne-)-kofi

AgrSubj6-boil-VEnd-RelSuf

InfPre-make-VEnd

NPre9-coffee

We need boiling water to make the coffee.

(4-71) **Go dira kofi** re tlhoka metsi a a belang

to make coffee we need water that it boil

go-dir-a

(ne-)-kofi

re-tlhok-a

ma-itse

InfPre-make-VEnd NPre9-coffee

AgrSubjPlpl-need-VEnd

NPre6-water

a

a-bel-a-ng

QualPart6

AgrSubj6-boil-VEnd-RelSuf

To make the coffee we need boiling water.

The following two sentences ((4-72) and (4-73)) demonstrate the two possible orders of a subordinate clause in the subjunctive mood.

(4-72) **Re tla ba bitsa gore ba re thuse.**

we will them call so that they us help

re-tla-ba-bits-a

gore

AgrSubjP1pl-FutPre-AgrObj2-call-VEnd

Conj

ba-re-thus-e

AgrSubj2-AgrObjP1pl-help-VEnd

We will call them so that they can help us.

(4-73) **Gore ba re thuse re tla ba bitsa.**

so that they us help we will them call

gore ba-re-thus-e

Conj AgrSubj2-AgrObjP1pl-help-VEnd

re-tla-ba-bits-a

AgrSubjP1pl-FutPre-AgrObj2-call-VEnd

So that they can help us we will call them.

The following two sentences ((4-74) and (4-75)) illustrate the two possible orders of a subordinate clause in the participial mood.

(4-74) **Bana ba tla ya gae fa pula e na.**

children they will go home if rain it fall

ba-ana

ba-tla-y-a

(le-) gae

fa

(ne-)pula

NPre2-child

AgrSubj2-FutPre-go-VEnd

NPre5-home

Conj

NPre9-rain

e-n-a

AgrSubj9-fall-VEnd

The children will go home if it rains.

(4-75) **Fa pula e na bana ba tla ya gae**

children they will go home if rain it fall

fa

(ne-)pula

e-n-a

ba-ana

Conj

NPre9-rain

AgrSubj9-fall-VEnd

NPre2-child

ba-tla-y-a

(le-)gae

AgrSubj2-FutPre-go-VEnd NPre5-home

If it rains the children will go home.

A detailed description of the c- and f-structures for sentences beginning with a subordinate clause is not covered in this study and is considered for future research.

4.6 CONCLUSION

In this chapter I show the treatment of subordination relation to the main clause in LFG c-structure. A Setswana complex sentence includes an independent main clause and a dependent subordinate clause, which depends on the main clause for its full meaning. Insights into the various moods of Setswana further clarify clause formation and subordination. All the possible phrases that form part of the subordinate clause in the Setswana complex sentence are included. The required c-structure rules and trees for these clauses have been illustrated. Although the introductory foundations of complex sentences in Setswana are established, additional research is necessary to fully clarify their syntactic structures and the interplay between subordinate clauses, thereby deepening the understanding of clause relationships in Setswana.

CHAPTER 5 THE FUNCTIONAL STRUCTURE OF THE SETSWANA COMPLEX SENTENCE

5.1 INTRODUCTION

In this chapter, I examine the f-structure of the Setswana complex sentence. I begin with an overview of the features of each Setswana word category in Setswana, followed by an explanation of the various grammatical functions. I then describe the f-structure of the main and subordinate clause in complex sentences, providing AVM structures to illustrate the complete f-structure of these sentences.

5.2 THE FEATURES OF SETSWANA WORD CATEGORIES

Berg (2018:45-103) provides an in-depth analysis of the Setswana word categories and their features. Here, I offer a concise summary of the features of these word categories. Each word category in Setswana includes a semantic form, represented by the feature PRED (cf. §3.4.3.2). For nouns and verbs, the root serves as the PRED value, while for pronouns, particles, adverbs, conjunctions, interjections and ideophones, the stem is the assigned PRED value.

5.2.1 The noun

Key features of Setswana nouns include noun class (CLASS) and noun type (NTYPE) (Berg, 2018:51-52). The noun's class prefix provides the CLASS information, which may take a single value representing one of the twenty noun classes: {1, 1a, 2, 2a, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20}.

The NTYPE feature has four possible values: {ord, adjective, locn, loccln}. Both inflected nouns (diminutive, deverbative, augmentative, and feminine nouns) and non-inflected nouns (in classes 1-15) are classified under the value 'ord' for ordinary nouns. NTYPE also differentiates between locative nouns (noun classes 1-15), locative class nouns (noun classes 16-20), and adjectives.

As discussed in Chapter 3 (cf. §3.3.3), f-structures are represented using an AVM. In example (5-1) the f-structure of the noun **sediba** (well) is illustrated, showing the features PRED, NTYPE and CLASS within the AVM.

(5-1)	sediba	<table><tr><td>PRED</td><td>'DIBA'</td></tr><tr><td>NTYPE</td><td>ord</td></tr><tr><td>CLASS</td><td>7</td></tr></table>	PRED	'DIBA'	NTYPE	ord	CLASS	7
PRED	'DIBA'							
NTYPE	ord							
CLASS	7							

In example (5-2) the f-structure of the locative noun **sekolong** (school – locality) is presented:

(5-2)	sekolong	<table><tr><td>PRED</td><td>'KOLO'</td></tr><tr><td>NTYPE</td><td>locn</td></tr><tr><td>CLASS</td><td>7</td></tr></table>	PRED	'KOLO'	NTYPE	locn	CLASS	7
PRED	'KOLO'							
NTYPE	locn							
CLASS	7							

In example (5-3) the f-structure of the locative class noun **morago** (after) is presented:

(5-3)	morago	<table><tr><td>PRED</td><td>'RAGO'</td></tr><tr><td>NTYPE</td><td>loccln</td></tr><tr><td>CLASS</td><td>18</td></tr></table>	PRED	'RAGO'	NTYPE	loccln	CLASS	18
PRED	'RAGO'							
NTYPE	loccln							
CLASS	18							

In example (5-4) the f-structure of the adjective **bantle** (beautiful) is presented:

(5-4)	bantle	<table><tr><td>PRED</td><td>'NTLE'</td></tr><tr><td>NTYPE</td><td>adjective</td></tr><tr><td>CLASS</td><td>2</td></tr></table>	PRED	'NTLE'	NTYPE	adjective	CLASS	2
PRED	'NTLE'							
NTYPE	adjective							
CLASS	2							

5.2.2 The pronoun

Pronouns are categorised into personal pronouns and those that include class information. Personal pronouns feature an indicator for person (PERS), with values of 1st, 2nd or 3^d. A distinction is also made between singular (sg) and plural (pl), which are the possible values for the number (NUM) feature. Each personal pronoun has a corresponding possessive pronoun. The PRONTYPE for personal pronouns includes the values {perspro, posspro}.

For noun classes, the PRONTYPE feature can take one of the following features: {AbsPro, DemPro, PossPro, IncQPro, ExcQPro, SelQPro, SepQPro, IntQPro}. Additionally, pronouns have a CLASS feature, where the value corresponds to one of the noun class numbers from 1 to 20.

In example (5-5) the f-structure of the personal pronoun **nna** (I) is presented:

(5-5)	nna	<table><tr><td>PRED</td><td>'NNA'</td></tr><tr><td>PRONTYPE</td><td>perspro</td></tr><tr><td>PERS</td><td>P1</td></tr><tr><td>NUM</td><td>sg</td></tr></table>	PRED	'NNA'	PRONTYPE	perspro	PERS	P1	NUM	sg
PRED	'NNA'									
PRONTYPE	perspro									
PERS	P1									
NUM	sg									

In example (5-6) the f-structure of the inclusive quantitative pronoun **botlhe** (all) is presented:

(5-6)	botlhe	PRED	'BOTLHE'
		PRONTYPE	incqpro
		CLASS	2

5.2.3 The verb

Setswana verbs are categorised into different subcategories (including main, copulative, and auxiliary verbs) as well as the universal categories of tense, aspect, mood and polarity, commonly abbreviated as TAMP (cf. §1.3.1). Three types of copulative verbs are identified: identifying, describing, and associative copulative verbs. Key features of verbs include the type of verb (VTYPE) as well as tense, aspect, mood, and polarity (TAMP).

In terms of tense (TENSE), distinctions are made among present, past, future, relative past, and relative future tenses, with one of these being the value of a specific verb's TENSE feature. The values for the ASPECT feature may include perfective, progressive, or persistent.

Setswana distinguishes eight verbal moods: indicative, consecutive, imperative, habitual, participial, subjunctive, infinitive, and relative. These moods are crucial for describing the f-structure of complex sentences. The indicative, consecutive, imperative, and habitual moods are independent moods, meaning they are not semantically dependent on other known or given information. In contrast the participial, subjunctive, infinitive, and relative moods are semantically and syntactically dependent on other known or given information. The relative mood is specifically used in modifiers. The MOOD feature takes one of the aforementioned mood values, while the polarity (POL) feature can either be positive (pos) or negative (neg). Verbs may also include a CLASS feature, and in the case of personal pronouns, features for PERS and NUM.

The main verb must have a PRED feature, with its value being the verb's root. In example (5-7), the main verb **ba a tshameka** (they are playing) has the following f-structure:

(5-7)	ba a tshameka	PRED	'TSHAMEK'
		VTYPE	main
		CLASS	2
		TENSE	pres
		MOOD	ind
		POL	pos

In the sentence **Mpho ke mogokgo wa sekolo** (Mpho is the principal of the school), the identifying copulative verb is **ke** (is), which has the following f-structure (5-8):

(5-8)	ke	<table><tr><td>PRED</td><td>'KE'</td></tr><tr><td>VTYP</td><td>idcopv</td></tr><tr><td>TENSE</td><td>pres</td></tr><tr><td>MOOD</td><td>ind</td></tr><tr><td>POL</td><td>pos</td></tr></table>	PRED	'KE'	VTYP	idcopv	TENSE	pres	MOOD	ind	POL	pos
PRED	'KE'											
VTYP	idcopv											
TENSE	pres											
MOOD	ind											
POL	pos											

In the sentence **Lekau le botlhale** (The young man is wise), the describing copulative verb is **le** (is), which has the following f-structure (5-9):

(5-9)	le	<table><tr><td>PRED</td><td>'LE'</td></tr><tr><td>VTYP</td><td>descopv</td></tr><tr><td>CLASS</td><td>5</td></tr><tr><td>TENSE</td><td>pres</td></tr><tr><td>MOOD</td><td>ind</td></tr><tr><td>POL</td><td>pos</td></tr></table>	PRED	'LE'	VTYP	descopv	CLASS	5	TENSE	pres	MOOD	ind	POL	pos
PRED	'LE'													
VTYP	descopv													
CLASS	5													
TENSE	pres													
MOOD	ind													
POL	pos													

In the sentence **Rakgadi o na le bana ba babedi** (My aunt has two children), the associative copulative verb is **o na** (she has), which has the following f-structure (5-10):

(5-10) o na	PRED	'NA'
	VTYP	asscopv
	CLASS	1
	TENSE	pres
	MOOD	ind
	POL	pos

An auxiliary verb enhances the meaning of the main verb, one of the copulative verb phrases, or another auxiliary verb phrase by providing additional semantic information about the progression or completion of its complement (Louwrens, 1994a:17; Pretorius, 1997:98). As a result, the auxiliary verb does not possess its own f-structure but can contribute TAMP information to the f-structure of its complement. In the sentence **Bana ba ne ba tshameka** (The children were playing), the auxiliary verb **ba ne** (they were) adds tense information to the main verb **ba tshameka** (they play), as illustrated in the f-structure in (5-11). The auxiliary verb **ne** indicates the relative past tense, suggesting that the action of the main verb was incomplete and ongoing at a specific moment in the past (Krüger, 2013b:396).

(5-11) ba tshameka	<table> <tr> <td>PRED</td><td>'TSHAMEK'</td></tr> <tr> <td>VTTYPE</td><td>main</td></tr> <tr> <td>CLASS</td><td>2</td></tr> <tr> <td>TENSE</td><td>relpast</td></tr> <tr> <td>MOOD</td><td>ind</td></tr> <tr> <td>POL</td><td>pos</td></tr> </table>	PRED	'TSHAMEK'	VTTYPE	main	CLASS	2	TENSE	relpast	MOOD	ind	POL	pos
PRED	'TSHAMEK'												
VTTYPE	main												
CLASS	2												
TENSE	relpast												
MOOD	ind												
POL	pos												

5.2.4 The particles

In Setswana, ten types of particles are identified, and the PARTTYPE feature applies here. Possessive and qualificative particles include a CLASS feature, whereas instrumental, temporal, locative, associative, comparative, agentative, hortative and interrogative particles do not carry a CLASS feature.

The f-structure of the possessive particle in bana **ba monna** (the man's children) is **ba** (of), and the f-structure is presented as follows (5-12):

(5-12) ka	<table> <tr> <td>PRED</td><td>'BA'</td></tr> <tr> <td>PARTTYPE</td><td>posspart</td></tr> <tr> <td>CLASS</td><td>2</td></tr> </table>	PRED	'BA'	PARTTYPE	posspart	CLASS	2
PRED	'BA'						
PARTTYPE	posspart						
CLASS	2						

5.2.5 Conjunctions, adverbs, interjections and ideophones

In Setswana, conjunctions, adverbs, interjections, and ideophones are not divided into subcategories. The only feature representing these word categories in the f-structure is the PRED feature (Berg, 2018:101-103). For instance, in (5-13), the f-structure of the conjunction **gore** (that, so that) is presented as follows:

(5-13) gore	<table> <tr> <td>PRED</td><td>'GORE'</td></tr> </table>	PRED	'GORE'
PRED	'GORE'		

In the following section I describe the grammatical functions that were identified in Chapter 3, and illustrate these grammatical functions with applicable Setswana examples.

5.3 GRAMMATICAL FUNCTIONS IN SETSWANA

In LFG, f-structure encompasses not only features but also grammatical functions (GFs), which are fundamental in organising f-structures (Dalrymple, 2001a:8-27; Falk, 2001:10; Belyaev, 2023:97). The grammatical functions that were identified (cf. §3.3.1) include subject (SUBJ), object (OBJ), secondary object ((OBJ_θ/OBJ2/OBJ-TH), oblique (OBL_θ), complement (COMP), open complement (XCOMP), adjunct (ADJ), open adjunct (XADJ), topic (TOP), focus (FOC), and PREDLINK.

5.3.1 The subject

The SUBJ is a phrase representing the person or entity responsible for performing the action expressed by the verb (Louwrens, 1994:174). This phrase is either directly or indirectly involved in carrying out the action or process implied by the verb (Kruger, 2013a:32). Dalrymple (2001:17) notes that the SUBJ typically serves as the argument agreeing with the verb in languages with subject-verb agreement morphology, such as Setswana, which has a rich subject-verb agreement morphology.

In Setswana, an NP, PROP, POSSPART, or QUALPART can function as the SUBJ in a sentence (Berg, 2018:127). In example (5-14), the SUBJ is an NP represented by the noun **rre** (father). Agreement between this noun and the verb **o aga** (he builds) is marked by the subject agreement morpheme **o**.

(5-14) Rre o aga ntlo.

father he build house

(-)-rre

o-ag-a

(-)-ntlo

NPre1a-father

AgrSubj1-build-VEnd

NPre9-house

Father is building a house.

5.3.2 The object

The OBJ is a phrase that is directly affected by the action which is expressed by the verb (Louwrens, 1994:129-130). The OBJ is also referred to as the patient or the result of the process. The transitive verb is followed by an OBJ (Krüger, 2013a:35). As explained by Berg (2018:128), the valency for an OBJ results from the transitivity and meaning of the verb. Its meaning is derived from a basic or extended verb root. The extended verb root is formed by suffixing one or more extensions, such as the causative, applicative, causative and reciprocal or applicative and reciprocal. In the case of the short form of the present tense in the indicative mood, an OBJ is also required.

In Setswana an NP, PROP, POSSPART or QUALPART is a phrase that can function as the OBJ in a sentence (Berg, 2018:127). In (5-14) above, the OBJ is an NP that consists of the noun **ntlo** (house).

The OBJ grammatical function in LFG typically refers to a phrase directly governed by a verb. However, an OBJ function is also assigned to phrases headed by a preposition or a conjunction (Bresnan *et al.*, 2016:97-99). I apply this convention to Setswana as well. When an argument in Setswana is introduced by a particle, the phrase following that particle is assigned the OBJ function. Additionally, OBJ is assigned to the part of the subordinate clause not containing a

conjunction, with the conjunction serving as the head of this clause. The OBJ in this instance reflects its dependency on a specific conjunction.

5.3.3 The secondary object

The OBJ_θ is commonly known as the indirect object, as it is indirectly affected by the action conveyed by the verb (Louwrens, 1994:130). It is also referred to as the benefactor, since the verb's action is performed on its behalf (Krüger, 2013a:35). According to Berg (2018:130), the valency for both the OBJ_θ and the OBJ stems from the verb's meaning, which can be derived from either the basic verb root or an extended verb root that incorporates one or more extensions, such as the causative or applicative.

In Setswana, phrases such as NP, PROP, POSSPART or QUALPART can function as the OBJ_θ in a sentence (Berg, 2018:130). In terms of positioning, the OBJ_θ appears before the OBJ (Krüger, 2013a:35). For example, in (5-15), the OBJ_θ is represented by the NP consisting of the noun **mme** (mother).

(5-15) Rre o agela mme ntlo.

father he build for mother house

(-)-rre

o-ag-el-a

(-)-mme

NPre1a-father

AgrSubj1-build-ApplSuf-VEnd

NPre1a-mother

(-)-ntlo

NPre9-house

Father is building a house for mother. /Father is building mother a house.

5.3.4 The oblique

Falk (2001:206) notes that an OBL_θ is an argument with a role that is explicitly marked, either by a preposition or a semantic case. In LFG, this is typically regarded as a category of grammatical functions. The subscript θ attached to the OBL argument signifies the semantic role associated with it. Setswana differentiates between OBL_{loc} and an OBL_{as}. Both OBL_{loc} and an OBL_{as} can function as ADJs in a sentence; however, when they are included as OBL_θ, they are required by the predicate (Butt *et al.*, 1999:51). In contrast, ADJs provide optional information.

The OBL_{loc} in Setswana can take the form of either a LOCNP or a LOCPARTP. The inclusion of these phrases results from the meaning of the verb and this meaning is derived from the basic verb root or an extended verb root, which is formed by adding the applicative extension (Berg, 2018:129). For example, in (5-16), the verb **ba tabogela** (they run to) requires the inclusion of an OBL_{loc}, specifically the LOPPARTP **kwa sekolong** (at school).

(5-16) Bana ba tabogela kwa sekolong.

children they run to at school

ba-ana *ba-tabog-el-a* *kwa*

NPre2-child AgrSubj2-run-ApplSuf-VEnd LocPart

se-kolo-ing

NPre7-school-LocSuf

The children are running to school.

In Setswana the OBL_{ass} is represented as an ASSPARTP. This phrase is necessary when an extended verb root is formed by suffixing the reciprocal extension (Berg, 2018:129-130). For instance, in (5-17) the OBL_{ass} is expressed by **le mme** (with mother).

(5-17) Bana ba dumalana le mme.

children they agree with mother

ba-ana *ba-dumel-an-a* *le*

NPre2-child AgrSubj2-agree-RecSuf-VEnd AssPart

(-)-mme

NPre1a-mother

The children agree with mother.

Berg (2018:67-92) also notes that, in certain cases, an OBJ must be followed by an OBL_θ, or an OBJ_θ followed by an OBJ must also be followed by an OBL_θ. This requirement is influenced by the verb's meaning and the suffixing of one extension or a sequence of extensions.

5.3.5 The complement and open complement

The COMP function is a closed clausal function that contains an internal SUBJ phrase. It functions as a sentential complement and it is not functionally controlled (Butt *et al.*, 1999:51; Dalrymple, 2001:24). According to Butt *et al.* (1999:221), the COMP is a subordinate clause that provides its own SUBJ, and it is typically finite. Neidel (2003:11-12) asserts that a COMP is semantically complete, containing all the elements necessary for the logical interpretation of the predicate. Although the COMP is a dependent clause and not an OBJ, it functions similarly to an object of the verb (Bresnan *et al.*, 2016:97-99). This is discussed in detail concerning Setswana in section 5.4.2.2. For illustration, I provide an English example from Bresnan *et al.* (2026:99): In the sentence *Peggy told Matt that she had won the prize* the dependent clause, *that she had won the prize*, functions as the COMP in the sentence.

The XCOMP function, on the other hand, is an open clausal function that lacks an internal SUBJ phrase. The SUBJ of this subordinate clause is specified externally, meaning it is included in the main clause that is external to the XCOMP. This SUBJ is an argument of the matrix verb (the verb

in the main clause) and is referred to as functional control. The XCOMP is also described as a predicative complement that functions as a sentential complement (Butt *et al.*, 1999:30-31, 51; Dalrymple, 2001:24). This subordinate clause is nonfinite (infinitive) (Butt *et al.*, 1999:30-31). Neidel (2003:12) explains that an XCOMP predicates something of either the SUBJ or the OBJ of the main predicate with which it occurs, and this relationship is expressed through a control equation. This equation sets the OBJ of the main predicate equal to the SUBJ of the XCOMP. The XCOMP function is also discussed in detail concerning Setswana in section 5.4.2.1. For illustration, I present an English example from Bresnan *et al.* (2016:99). In the sentence *I told Patrick to quit*, the dependent clause is *to quit*, and it functions as the XCOMP in the sentence.

5.3.6 The adjunct and open adjunct

An ADJ is a modifying phrase that provides additional, though not essential, information (Berg, 2018:139). Dalrymple (2001:11) describes an ADJ a modifier, as it modifies the phrase with which it appears but is not governed by the predicate. In Setswana, the verb phrase can be modified with phrases referring to time, locality, manner, instrument and association, an INTERJP or an IDEOP (Berg, 2018:139). An ADJ function binds to a PRED rather than to one of its arguments (Asudeh & Toivonen, 2015:5; Bresnan *et al.*, 2016:99; Börjars *et al.*, 2019:19). One or more than one ADJ can be included in the VP (Dalrymple, 2001:12). In (5-18), only one ADJ is included: the ADVP consisting of the adverb **jaanong** (now). This phrase modifies the VP **o aga ntlo** (he is building a house).

(5-18) Rre o aga ntlo jaanong.

father he build house now

(-)-rre

o-ag-a

(-)-ntlo

jaanong

NPre1a-father

AgrSubj1-build-VEnd

NPre9-house Adv

Father is building a house now.

An XADJ does not include an internal SUBJ, as the SUBJ is specified externally to the XADJ (Dalrymple, 2001:24-25; Börjars *et al.*, 2019:19). The XADJ is an open function and also acts as a modifier. Dalrymple (2001:251) illustrates this function with the sentence *Stretching his arms, David yawned*, where the XADJ is *stretching his arms*. The SUBJ is the NP *David* in the main clause *David yawned*. Although the SUBJ of the XADJ is not explicitly mentioned, it is understood to be the same as the SUBJ of the main clause, namely *David*. In (5-19), there is only one SUBJ: the NP consisting of the noun **rre** (father). This phrase functions as the SUBJ in the main clause **Rre o aga ntlo jaanong** (Father is building a house now), and **rre** (father) is also the SUBJ of the XADJ **Ka go dira thata** (Working hard).

(5-19) Ka go dira thata, rre o aga ntlo jaanong.

by to work hard, father he build house now

ka go-dir-a thata (-)-rre o-ag-a

Conj InfPre-work-VEnd Adv NPre1a-father AgrSubj1-build-VEnd

(-)-ntlo jaanong

NPre9-house Adv

By working hard, father is now building a house.

5.3.7 Topic and focus

In LFG, the information (i-) structure serves as a framework for representing the discourse roles of elements within a sentence (Belyaev, 2023:144). Two grammaticalised discourse functions classified in LFG are TOP and FOC. Falk (2001:201) states that these functions express the relations between participants in a sentence and the larger discourse context. Bresnan *et al.* (2016:99) explain that both functions must be identified with or anaphorically linked to another grammatical function.

The TOP function is a type of discourse function that indicates the entity that the sentence primarily concerns, often representing given or background information. It constitutes the central theme of discussion and serves as the foregrounded or focused-upon information and is referred to as the central theme of the discussion (Louwrens, 1994:200). According to Börjars *et al.* (2019:20), the TOP is associated with old information, informally described as “that which we are talking about”. Zerbian (2006:6) also points out that it refers to the proposition or comment made about something, emphasising that the TOP cannot be unspecific and indefinite, as a sentence cannot be about an indefinite entity.

The TOP may appear syntactically at the beginning of the sentence, such as in left-dislocated constructions or topicalised elements (Falk, 2001:59, 64; Dalrymple, 2001:390). It is a fronted phrase that can also fulfil the grammatical function of OBJ (Dalrymple, 2001:391). Zerbian (2006:6) indicates that the TOP precedes the statement about the topic. Thus, the TOP can be marked by specific word order changes, linking it to an argument in the sentence to reflect that this element is what the sentence is about or to provide background context, which guides how the information is processed.

In (5-20), the OBJ is **dimonamone** (sweets). In (5-21), this OBJ is topicalised because the noun has been moved from its post-verbal position to the beginning of the sentence. As Louwrens (1994:201) explains, the noun preceding the verb in Sesotho **sa Leboa** must agree with that verb in the sentence. In this instance, where a topicalised noun is included, the agreement will be marked with the object agreement morpheme. This is also applicable to Setswana, as shown in

(5-21), where the object agreement morpheme **di** (it) refers to **dimonamone** (sweets), which functions as the TOP in this sentence representing old information.

(5-20) Bana ba rata dimonamone.

children they like sweets

ba-ana

ba-rat-a

di-monamone

NPre2a-child

AgrSubj2-like-VEnd

NPre10-sweet

The children like sweets.

(5-21) Dimonamone, bana ba a di rata.

sweets children they it like

di-monamone

ba-ana

ba-a-di-rat-a

NPre10-sweet

NPre2a-child

AgrSubj2-PresPre-AgrObj10-like-VEnd

Sweets, the children like it.

The FOC function highlights an element in the sentence, which represents new, prominent, emphasised, or contrastive information that draws attention (Börjars *et al.*, 2019:20). Zerbian (2006:6) refers to it as a new, accented constituent included in a sentence.

FOC is represented as an attribute that corresponds to a discourse function and may co-occur with an argument or ADJ. It indicates that a particular argument or element within the sentence is emphasised or highlighted for contrastive or informative purposes. This can be achieved by clefting, where a sentence is divided into two clauses to emphasise a specific element, or by fronting, where a specific element is shifted to the beginning of the sentence. Additionally, specific words, such as particles, may be used to indicate the FOC of an element (Louwrens, 1994:68; Bresnan *et al.*, 2016:98).

In (5-22) the ADJ **jaanong** (now) indicates the time the action occurs. This time is fronted and thus emphasised in (5-23), and it therefore becomes the FOC of the action, with the focused information appearing at the beginning of the sentence. Louwrens (1994:68) refers to this focused information as the central topic of discussion.

(5-22) Bana ba ya kwa sekolong jaanong.

children they go to school now

ba-ana

ba-y-a

kwa

se-kolo-ing

NPre2a-child

AgrSubj2-go-VEnd

LocPart

NPre7-school-LocSuf

jaanong

Adv

The children are going to school now.

(5-23) Jaanong, bana ba ya kwa sekolong.

Now, children they go to school

<i>jaanong</i>	<i>ba-ana</i>	<i>ba-y-a</i>	<i>kwa</i>
Adv	NPre2a-child	AgrSubj2-go-VEnd	LocPart

se-kolo-ing

NPre7-school-LocSuf

Now, the children are going to school.

The i-structure captures how information is organised based on prominence and familiarity, with TOP marking the familiar or background information and FOC highlighting the new or emphasised content.

5.3.8 PREDLINK

In LFG, the PREDLINK function is used to handle copulative constructions. According to Butt *et al.* (1999:69), predicative constructions with a copulative verb (linking verb) involve a SUBJ and an additional PREDLINK is a closed category, meaning "there is no control equation between the SUBJ and the PREDLINK and hence no need for NPs, APs, and PPs to have subject arguments" (Butt *et al.* 1999:70). Berg (2018:137-139) also utilised PREDLINK in analysing copulative constructions in Setswana, where the complement of the copulative verb does not subcategorise for a SUBJ. For example, in (5-24), the adjective **botlhale** (clever) is predicated of the SUBJ **bana** (children) and this adjective has a PREDLINK function.

(5-24) Bana ba botlhale.

children are clever

<i>ba-ana</i>	<i>ba</i>	<i>bo-tlhale</i>
NPre2-child	DesCopV2	NPre14-clever-DevSuf

The children are clever.

5.4 FUNCTIONS AND FEATURES IN SETSWANA COMPLEX SENTENCES

As explained in Chapter 4 the Setswana complex sentence consists of at least two clauses, both of which have an internal functional structure.

5.4.1 The main clause

The main clause can appear in the indicative, habitual, consecutive and imperative moods (cf. §4.5.1).

5.4.1.1 Indicative, habitual and consecutive moods

The verb (main or copulative) in the main clause includes VTYPE and TAMP features (cf. §5.2.3). The auxiliary verb enriches the meaning of the main or copulative verb by adding semantic information regarding the progression or completion of the complement, thus adding information regarding tense and/or aspect (Krüger, 2006:259). If the verb is in the indicative, habitual or consecutive mood, it may be preceded by a phrase that acts as SUBJ and followed by one or more phrases that function as an OBJ_θ, OBJ or OBL_θ. Additionally, one or more than one phrase that functions as ADJ can be included at the end of the main clause. For example, in (5-25) the main clause is **Monna o bula lebatl** (The man opens the door), with **monna** (man) being the SUBJ, **lebatl** (door) the OBJ, and **jaanong** (now) the ADJ.

(5-25) **Monna o bula lebatl jaanong** gore bana ba tsene.

man he open door now so that children they enter

<i>mo-nna</i>	<i>o-bul-a</i>	<i>le-batl</i>	<i>jaanong</i>	<i>gore</i>
NPre1-man	AgrSubj1-open-VEnd	NPre5-door	Adv	Conj
<i>ba-ana</i>	<i>ba-tsen-e</i>			
NPre2-child	AgrSubj2-enter-VEnd			

The man opens the door now so that the children can enter.

The f-structure of this main clause is presented in (5-26).

(5-26)

PRED	'BUL'	<SUBJ, OBJ>
VTYPE	main	
TENSE	pres	
MOOD	ind	
POL	pos	
CLASS	1	
SUBJ	[PRED 'NNA'	]
	NTYPE ord	
	CLASS 1	
OBJ	[PRED 'BATI'	]
	NTYPE ord	
	CLASS 5	
ADJ	[PRED 'JAANONG'	]

The inclusion of an OBJ_θ, OBJ or OBL_θ depends on the valency for arguments that results from the transitivity of the verb root and/or of the suffixing of one or more than one extension to the verb root (Berg, 2018:67).

An overt SUBJ, OBJ_θ or OBJ is sometimes not included in clause or sentence. The subject and object agreement morphemes will then function as incorporated pronouns. The reconstruction of the SUBJ and OBJ in this instance is explained in section 5.4.1.2.

5.4.1.2 The main clause: Imperative

If the verb is in the imperative mood, it is never preceded by a SUBJ. The imperative mood indicates that the action is a command, strong request, order, warning, or instruction (Krüger, 2013b:112), and it is always addressed to the second person, singular or plural (cf. §4.5.1). The imperative does not include an overt SUBJ but sometimes the subject agreement morpheme **o** of the second singular or the subject agreement morpheme **lo** of the second person, plural is included in the morphological structure of the imperative verb. The imperative verb can also include an object agreement morpheme. The subject and object agreement morphemes will then function as incorporated pronouns. The reconstruction of the SUBJ and OBJ in this instance is explained in section 5.4.1.3.

The imperative verb can be followed by one or more phrases that function as an OBJ_θ, OBJ or OBL_θ. Additionally, one or more than one phrase that functions as ADJ can be included at the

end of the main clause. For example, in (5-27), in the main clause **Bula lebati** (Open the door) **lebati** (door) is the OBJ and **jaanong** (now) is the ADJ.

(5-27) **Bula lebati jaanong** gore bana ba tsene.

open door now so that children they enter

bul-a le-bati jaanonggore ba-ana

open-VEnd NPre5-door Adv Conj NPre2-child

ba-tsen-e

AgrSubj2-enter-VEnd

Open the door now so that the children can enter.

As with the main verb in the indicative, habitual and consecutive, an OBJ_θ, OBJ or OBL_θ can follow a verb in the imperative. The inclusion of these arguments also depends on the valency for arguments that results from the transitivity of the imperative verb root and/or of the suffixing of one or more than one extension to the verb root. The valency for an OBJ_θ, OBJ or OBL_θ thus results from the transitivity and the meaning of the imperative verb.

5.4.1.3 Pronominalisation

Usually, a subject agreement morpheme in Setswana behaves as an agreement marker. For instance, a main verb exhibits agreement with a preceding SUBJ by means of the subject agreement morpheme. This morpheme indicates the class or person and number feature. However, is not obligatory for an overt SUBJ to be included in a clause or a sentence. If the SUBJ is omitted, the subject agreement morpheme provides a pronominal interpretation of this omitted SUBJ (Berg, 2018:144-149). The subject agreement morpheme thus will enable the reconstruction of the omitted SUBJ (cf. §3.3.5.5). As explained by Krüger (2006:32, 53), the subject agreement morpheme has an anaphoric reference to the omitted SUBJ. The verb thus will also subcategorise for a SUBJ, and this explains why Setswana is referred to as a so-called pro-drop language. It is evident that LFG addresses this because the special PRED value 'PRO' is assigned to the SUBJ in the f-structure (Butt *et al.*, 1999:13; Asudeh & Toivonen, 2009:13). Börjars *et al.* (2019:71) explain that in this case the verb provides the PRED value for the SUBJ and the f-structure of the SUBJ satisfies the completeness condition, since the governable grammatical function SUBJ is referred to by the subject agreement morpheme.

In (5-25) the NP **monna** (man) is included as a SUBJ in the main clause **Monna o bula lebati jaanong** (The man opens the door now) but in (5-28) this SUBJ is omitted in the main clause **O bula lebati jaanong** (He opens the door now).

(5-28) O bula lebati jaanong gore bana ba tsene.

he open door now so that children they enter

o-bul-a

le-bati

jaanong

gore

ba-ana

AgrSubj1-open-VEnd

NPre5-door

Adv

Conj

NPre2-child

ba-tsen-e

AgrSubj2-enter-VEnd

He opens the door now so that the children can enter.

The f-structure of the main clause in (5-25) is presented in (5-28) and the f-structure of the main clause without the SUBJ NP is presented in (5-29).

(5-29)

PRED	'BUL'	<SUBJ, OBJ>
VTTYPE	main	
TENSE	pres	
MOOD	ind	
POL	pos	
SUBJ	[PRED 'PRO' CLASS 1]	
OBJ	[PRED 'BATI' NTYPE ord CLASS 5]	
ADJ	[PRED 'JAANONG']	

The 'PRO' value is also assigned when an object agreement morpheme is included in the verb's morphological structure. An object agreement morpheme shows correspondence to an omitted OBJ or double objects (OBJ_θ and OBJ) and the verb does not show agreement with an overt OBJ, as the object agreement morpheme and the OBJ_θ and/or OBJ do not typically co-occur in a clause or a sentence (Cole, 1955:229; Berg *et al.*, 2013:119-125; Berg, 2018:149-151).

In (5-25) the NP **lebati** (door) is included as an OBJ in the main clause but in (5-30) this OBJ is omitted in the main clause **Monna o le bula jaanongi** (The man opens it now) because the corresponding object agreement morpheme **le** is included in the morphological structure of the verb **o a le bula** (he opens it).

(5-30) Monna o le bula jaanong gore bana ba tsene.

man he it open now so that children they enter

<i>mo-nna</i>	<i>o-le-bul-a</i>	<i>jaanong</i>	<i>gore</i>
NPre1-man	AgrSubj1-AgrObj5-open-VEnd	Adv	Conj
<i>ba-ana</i>	<i>ba-tsen-e</i>		
NPre2-child	AgrSubj2-enter-VEnd		

The man opens it now so that the children can enter.

The f-structure of the main clause in (5-30) is presented in (5-31).

(5-31)

PRED 'BUL' <SUBJ, OBJ> VTYPE main TENSE pres MOOD ind POL pos CLASS 1 SUBJ [PRED 'NNA' NTYPE ord CLASS 1 OBJ [PRED 'PRO' CLASS 5 ADJ [PRED 'JAANONG'

The internal functional structure of the main clause described above will be incorporated into the complex sentences below as I analyse the internal functional structure of the subordinate clauses. The function of the subordinate clause in the complex sentence is also addressed.

5.4.2 The subordinate clause

The c-structure of the subordinate clause in Setswana complex sentences is described in Chapter 4 (cf. §4.5.2). The subordinate clause includes a verb in the infinitive, subjunctive, or participial mood. The clause including an infinitive verb is classified as a VPinf while the clauses that include a verb in the subjunctive and participial are classified as CPsubj and CPpart clausal phrases. Cole (1955:452-458) refers to the functions of these clauses as descriptive clauses. Kruger (2013b:121-126) observes that these subordinate clauses can function as descriptives of purpose (VPinf & CPsubj) or goal, result, condition, time and circumstance (CPpart) and distinguishes between secondary and tertiary descriptives. The function of these descriptives in the context of the LFG framework is described in the following section.

5.4.2.1 The infinitive subordinate clause

The VPinf includes an infinitive verb (it cannot be tensed) and based on the transitivity and the meaning of the infinitive verb, it can be followed by an OBJ_θ, OBJ or OBL_θ (cf. §4.5.2.1). As explained in sections 5.3.2 to 5.3.4 the valency for these arguments is possible when one or more than one extension (causative applicative, reciprocal, passive) is suffixed to a root or extended root. Additionally, one or more than one phrase that functions as ADJ can be included at the end of the subordinate clause.

However, the VPinf does not include an overt SUBJ. Börjars *et al.* (2019:101) describe a subjectless subordinate clause as a control complement, where the interpretation of the missing SUBJ is controlled by an element in the main clause. This clause functions as the embedded complement without (Butt *et al.*, 1999:31). Börjars *et al.* (2019:102) emphasise that the PRED feature of a verb typically requires a SUBJ and/or an OBJ; and in the case of a VPinf the f-structure of this subordinate clause might be expected to violate the completeness condition. They explain that although a SUBJ is not included in the VPinf, the sentence is still grammatical as it is possible to find a referent for the SUBJ. The VPinf is an infinitive complement of the main clause, and the VPinf is in this instance interpreted as being predicated by the SUBJ of the main clause in the sentence.

The VPinf also has a function in relation to the main clause and this clausal complement is OPEN “in the sense that the SUBJ function is left open, to be ‘filled in’ by something outside the non-finite clause itself” (Börjars *et al.*, 2019:102). This open complement functions as an XCOMP. The main verb takes the SUBJ and an XCOMP; and the SUBJ of the main verb is then understood as also the SUBJ of the XCOMP. The functional control equation states that the f-structure of the SUBJ in the main clause is the same as the f-structure of the SUBJ and the XCOMP (Bresnan, 1982:376; Dalrymple, 2001:314-318; Falk, 2001:204; Börjars *et al.*, 2019:102-103). In this instance “structure sharing” is evident (Börjars *et al.*, 2019:103) and it is indicated in the f-structure with a curved line between the shared SUBJ.

In (5-32) the main clause is **Batho ba ya** (The people go) and the subordinate clause (VPinf) is **go thusa bana** (to help the children).

(5-32) Batho ba ya **go thusa bana**.

people they go to help children

ba-tho

ba-y-a

go-thus-a

ba-ana

NPre2-person

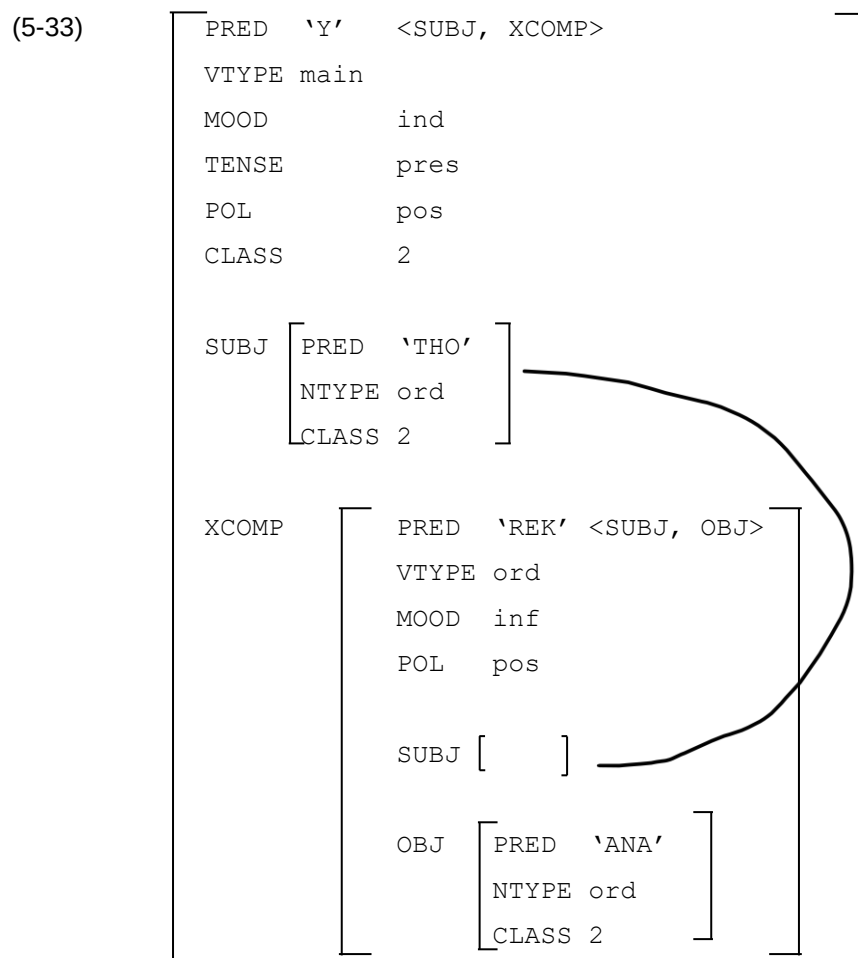
AgrSubj2-go-VEnd

InfPre-help-VEnd

NPre2-child

The people go to help the children.

The f-structure of the sentence in (5-32) is presented in (5-33). The subcategorisation frame of the verb **ba ya** (they go) includes a SUBJ and XCOMP. The f-structure of the XCOMP shows that the infinitive verb **go thusa** (to help) subcategorises for a SUBJ and an OBJ. However, the f-structure of this SUBJ is empty ([]) because the SUBJ of the XCOMP is shared with the SUBJ of the main clause and this structure sharing is indicated with a “curved” line. In Setswana the SUBJ can be overt, or in the case of pronominalisation the SUBJ will have a value of ‘PRO’ (cf. §5.4.1.1.3). As explained by Börjars *et al.* (2019:103), the coherence and completeness conditions are satisfied when every governable grammatical function in the f-structure is required by the PRED of the f-structure in which it appears, and every grammatical function required by the PRED of a predicate is present in the f-structure and has a PRED value. This is also the case for the f-structure representation in (5-33).



5.4.2.2 The subjunctive subordinate clause

It was explained in Chapter 4 (cf. §4.5.2.2) that the internal structure of the CPsubj can consist of a minimal structure, where the conjunction **gore** (that, so that) as the head of this clausal phrase is followed by only a verb in the subjunctive mood (this verb lacks any tense). This verb may,

however, be preceded by phrases that function as the SUBJ in the sentence. If the SUBJ in the main clause is also relevant as SUBJ in the CSubj, the SUBJ is not repeated in this embedded clause). In this instance, the subject agreement morpheme in the verb will refer to the omitted SUBJ in this clause. In (5-34) the SUBJ in the main clause is **basadi** (women). This NP is not repeated in the subordinate clause **gore ba reke dijo** (so that they can buy food), because the subject agreement morpheme *they* has an anaphoric reference to the omitted SUBJ.

(5-34) Basadi ba ya kwa toropong **gore ba reke dijo**.

women they go to town so that they buy food

<i>ba-sadi</i>	<i>ba-y-a</i>	<i>kwa</i>	<i>(ne)-toropo-(ing)</i>	<i>gore</i>
NPre2-woman	AgrSubj2-go-VEnd	LocPart	NPre9-town-LocSuf	Conj
<i>ba-rek-e</i>	<i>di-j-o</i>			
AgrSubj2-buy-VEnd	NPre8-eat-DevSuf			

The women go to town so that they can buy food.

However, the SUBJ in the main clause can differ from SUBJ in the CSubj (cf. §5.4.1.1). In (5-35) the SUBJ in the main clause is **monna** (man) and in the CSubj it is **bana** (children).

(5-35) Monna o bula lebati **gore bana ba tsene mo phaposing**.

man he open door so that children they enter in room

<i>mo-nna</i>	<i>o-bul-a</i>	<i>le-bati</i>	<i>gore</i>	<i>ba-ana</i>
NPre1-man	AgrSubj1-open-VEnd	NPre5-door	Conj	NPre2-child
<i>ba-tsen-e</i>	<i>mo</i>	<i>(-)-phaposi-ing</i>		
AgrSubj2-enter-VEnd	LocPart	NPre9-room-LocSuf		

The man opens the door so that the children can enter the room.

In Setswana, it is also permissible to not include an overt SUBJ in both clauses. In (5-36) the main clause is **Re ba kopile** (We asked them) and the CSubj is **gore ba tle ka moso** (that they come tomorrow). The subject agreement morpheme **re** in **re ba kopile** refers to the personal pronoun **rona** (we) and the subject agreement morpheme **ba** in **ba tle** to a noun in noun class 2 or the personal pronoun **bone** (they). This subject agreement morpheme **ba** is the object agreement morpheme in the verb **Re ba kopile** (We asked them) in the main clause.

(5-36) Re ba kopile **gore ba tle ka moso**.

we they asked that they come by tomorrow

<i>re-ba-kop-il-e</i>	<i>gore</i>	<i>ba-tl-e</i>
AgrSubj2Plpl-AgrObj2-ask-VEnd	Conj	AgrSubj2-come-VEnd
<i>ka</i>	<i>mo-so</i>	
TempPart	NPre3-tomorrow	

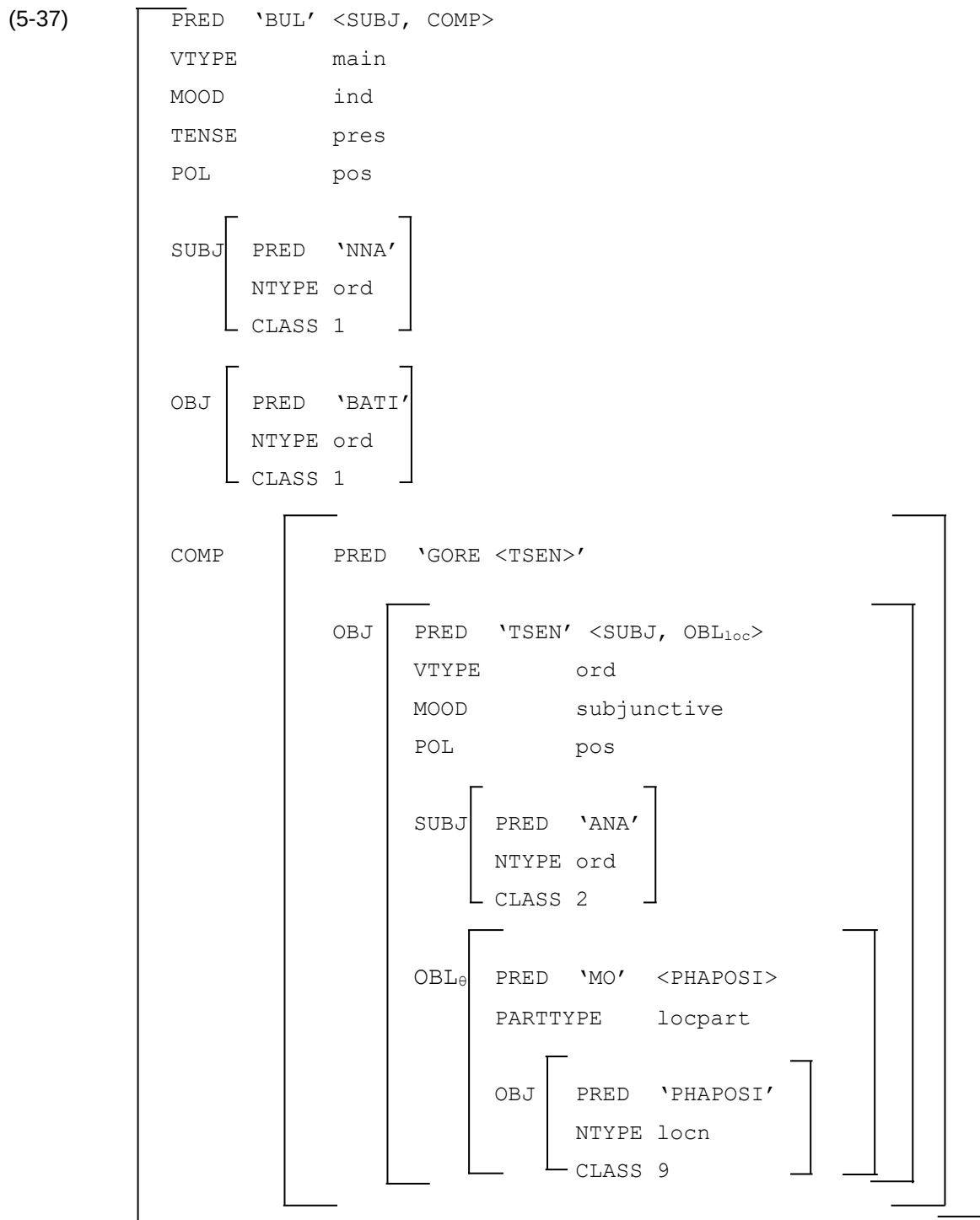
We asked them that they come tomorrow. /We asked them to come tomorrow.

Based on the transitivity and the meaning of the verb in the CPsubj, it can be followed by phrases functioning as an OBJ_θ, OBJ or OBL_θ. The suffixing of one or more than one extension (causative applicative, reciprocal, passive) to a root or extended root can contribute to the inclusion of specific phrase following this verb. Additionally, one or more than one phrase that functions as ADJ can be included at the end of the CPsubj.

In LFG, the finite that-clause is associated with the COMP grammatical function (Butt & King, 2015:844). This COMP function is also applicable to the Setswana CPsubj (also referred to as the gore-clause). The following features included in the description of the COMP function are also applicable to the Setswana CPsubj:

- It is a finite phrase (Butt *et al.*, 1999:221);
- it is an embedded clause (Butt *et al.*, 1999:29-30);
- it is a clausal phrase that maintains a subordinate relationship to the main clause (Butt *et al.*, 1999:221);
- it has a closed clausal function (Butt *et al.*, 1999:51; Dalrymple, 2001:24);
- it functions as a sentential complement (Dalrymple, 2001:24);
- it is not functionally controlled because it contains an internal SUBJ (Butt *et al.*, 1999:51); and
- it contains all the elements necessary for the logical interpretation of the predicate (Neidel, 2003:11-12).

To summarise, I present an f-structure analysis (5-37) of the sentence in example (5-35). The main clause is **Monna o bula lebatl** (The man opens the door) and the subordinate clause (CPsubj) is **gore bana ba tsene mo phaposing** (so that the children can enter the room).



The conjunction **gore** (so that) in (5-37) is the head of the sentential clause CP_{subj}.

5.4.2.3 The participial subordinate clause

Butt *et al.* (1999:36-38) argue that the participial can be used as clausal adjuncts that have or do not have the subordinating conjunctions. As explained in Chapter 4, a main clause and a CP_{part} in Setswana can indicate simultaneous actions and, in this instance, the CP_{part} immediately

follows the main clause. However, the CPpart can also be linked to the main clause with a specific conjunction.

The internal structure of the CPpart may have a minimal structure consisting of only the verb in the participial mood, and it may also include a conjunction followed by only a verb in the participial mood. As is the case for the CPsubj, the CPpart can include a SUBJ, an OBJ_θ, OBJ or OBL_θ, and one or more than one ADJ can be included (cf. §4.5.2.3). The position of the SUBJ is in front of the verb while the OBJ_θ, OBJ or OBL_θ follows the verb. The ADJ is included at the end of a sentence. This illustrates Neidel's (2003:11-12) argument that a subordinate clause must contain all the elements necessary for the logical interpretation of the predicate to be considered a grammatical structure.

The following information is evident regarding the SUBJ in the main and subordinate clauses. Butt *et al.* (1999:36) explain that the SUBJ of the participial clause may not necessarily be related to the subject in the main clause. This is also applicable in Setswana, as the same SUBJ is not included in both clauses because it is not repeated in the subordinate clause; and in this instance the subject agreement morpheme in the verb will refer to the omitted SUBJ in this clause (5-38). Both the main clause and the CPpart may include a SUBJ which is not the same, as in (5-39). It is also possible to omit the SUBJ in both the main clause and the CPpart, as the pronominal value of the subject agreement morpheme renders the PRED value of the SUBJ as 'PRO' (5-40).

In (5-36) the subject agreement morpheme **ba** in the verb **ba lapile** (they are tired) in the subordinate clause refers to **bana** (children) that is already include as SUBJ in the main clause **Bana ba tla ya gae** (The children will go home). This subject agreement morpheme will have a "PRED" value in the PRED feature of the SUBJ in the subordinate clause.

(5-38) Bana ba tla ya gae **fa ba lapile**.

children they will go home when they are tired

ba-ana ba-tla-y-a (le-) gae fa

NPre2-child AgrSubj2-FutPre-go-VEnd NPre5-home Conj

ba-lap-il-e

AgrSubj2-tire-PerfSuf-VEnd

The children will go home when they are tired.

(5-39) Bana ba tla ya gae **fa pula e na**.
 children they will go home if rain it fall
ba-ana ba-tla-y-a (le-) gae
 NPre2-child AgrSubj2-FutPre-go-VEnd NPre5-home
fa (ne-)-pula e-n-a
 Conj NPre9-rain AgrSubj9-fall-VEnd
 The children will go home if it rains.

(5-40) Ba mmone **a utswa**.
 they him see he steal
ba-mo-bon-e a-utsw-a
 AgrSubj2-AgrObj1-see-VEnd AgrsSubj1-steal-VEnd
 They saw him (while he was) stealing.

The CPpart is marked as a finite embedded clause, where the grammatical function of the COMP is applicable to the CPpart in LFG. The CPpart has a subordinate relation to the main clause and can also be reflected as a sentential complement. This sentential complement can or cannot be headed by a participial conjunction.

To summarise, I present an f-structure analysis of the sentences in (5-41) and (5-43) which present a CPpart as subordinate clause.

In (5-41) the main clause is **Mosimane o bone basetsana** (The boy saw the girls) and the subordinate clause (CPpart) is **fa ba phepafatsa ntlo** (when they were cleaning the house).

(5-41) Mosimane o bone basetsana fa ba phepafatsa ntlo.
mo-simane o-bon-e ba-setsana fa
 NPre1-boy AgrSubj1-see-VEnd NPre2-girl Conj
ba-phepafats-a (ne-)-ntlo
 AgrSubj2-clean-VEnd NPre9-house
 The boy saw the girls when they were cleaning the house.

The f-structure of this sentence (5-41) is as follows (5-42):

(5-42)

```
PRED  'BON'          <SUBJ, COMP>
VTYPE main
MOOD  ind
TENSE past
POL   pos

SUBJ  [ PRED  'SIMANE'
        NTYPE ord
        CLASS 1
      ]

OBJ   [ PRED  'SETSANA'
        NTYPE ord
        CLASS 2
      ]

COMP  [ PRED  'FA <PHEPAFATS>'
        OBJ   [ PRED  'PHEPAFATS' <SUBJ, OBJ>
                  VTYPE VMAIN
                  MOOD  participial
                  POL   pos
                  SUBJ  [ PRED  'PRO'
                          CLASS 2
                        ]
                  OBJ   [ PRED  'NTLO'
                          NTYPE ord
                          CLASS 9
                        ]
                ]
      ]
```

In (5-43) the CPpart **ba phepafatsa ntlo** (they are cleaning the house) indicates a concurrent action with the action in the main clause and this subordinate clause does not include a conjunction (5-44).

(5-43) Mosimane o bone basetsana **ba phepafatsa ntlo**.

boy he saw the girls they clean the house

mo-simane *o-bon-e* *ba-setsana* *ba-phepafats-a*

NPre1-boy AgrSubj1-see-Vend NPre2-girl AgrSubj2-clean-VEnd

(ne-)-ntlo

NPre9-house

The boy saw the girls cleaning the house

The f-structure of this sentence (5-43) is identical to the f-structure as presented in (5-42). The f-structure in (5-42) is thus applicable to a sentence whether it includes a conjunction (5-41) or not (5-43).

5.4.3 Conclusion

In this chapter, I continued the novel exercise of presenting an LFG analysis of complex Setswana sentences by providing a first representation of the f-structures of these sentences. By first exploring the distinctive features of each word category in Setswana, I established a foundation for understanding how these categories interact within the language's syntactic framework. The subsequent analysis of grammatical functions highlighted how functions are assigned and interpreted in Setswana sentences. Through detailed descriptions of both main and subordinate clauses, along with illustrative AVM structures, I constructed a nuanced representation of the complete f-structure in Setswana complex sentences. This analysis contributes to a deeper understanding of Setswana syntax and its functional organisation, offering valuable insights into the intricate structuring of complex sentences in the language.

CHAPTER 6 CONCLUSION

6.1 INTRODUCTION

In this chapter, I reflect on the research presented in this study, providing a brief overview of each chapter's content to show that the research problem has been adequately addressed. Additionally, I also evaluate the study's contribution and suggest future research on Setswana syntax.

6.2 ACHIEVING THE PRIMARY RESEARCH AIM

This study presents a thorough analysis of the c-structure and f-structure of complex sentences in Setswana within the LFG framework. The main research objectives – to describe the c-structure rules and the f-structure of complex sentences – have been met by addressing the research questions. I identified and explained the c-structure rules governing the surface structures of Setswana complex sentences, illustrating them with relevant c-structure trees. Additionally, I provided the f-structure representation of these sentences, showing how grammatical functions and features are realised within the LFG framework.

In Chapter 1, I established the foundation of this research by emphasising the significance of Setswana as a Bantu language and by discussing the different types of sentences it encompasses. I examined the various moods present in these sentences, given their influence on sentence structure, and I demonstrated how LFG can serve as an effective theoretical framework for syntax analysis. This chapter served as the basis for the discussions in Chapters 2 to 5.

Chapter 2 offered an overview of the LFG framework by addressing seminal, classical and standard contributions to the field. I explored the application of the LFG framework in other Bantu languages, including complex sentence structures, contextualising it for the present study. Additionally, I reviewed how LFG has been applied to Sotho languages like Sesotho sa Leboa and Setswana, establishing a strong theoretical and comparative background for the Setswana analysis in subsequent chapters.

In Chapter 3, I examined LFG in depth, elaborating on the two parallel syntactic levels of c-structure and f-structure. For the c-structure, I discussed the phrase structure rules that are necessary for constituent order and grouping; while for the f-structure, I highlighted the functional information associated with these constituents. The interaction between the two levels through f-descriptions and the mapping function ϕ , central to the LFG framework, was explained; and the

manner in which lexical entries provide f-structure information for terminal nodes in the c-structure tree, was discussed.

Chapter 4 focused on the c-structure of the Setswana complex sentences, particularly the treatment of subordinate clauses in relation to the main clause within the LFG framework. Setswana complex sentences generally consist of a main clause and a subordinate clause, with the subordinate clause being dependent on the main clause for full meaning. I explored the role of mood in both clauses, clarifying how clauses form and relate to one another. Furthermore, I identified possible phrases in the subordinate clause and constructed the relevant c-structure rules and trees for these constructions. While this chapter provides a foundational understanding of Setswana complex sentences, further research is necessary to fully elucidate the syntactic relationships between subordinate and main clauses, in order to contribute to a deeper understanding of clause dynamics in Setswana.

Chapter 5 examined the f-structure of Setswana complex sentences, offering a detailed explanation of the grammatical functions and features involved, with ample examples. I demonstrated the internal f-structures of both main and subordinate clauses, discussed the role of the subordinate clause within LFG, and illustrated this with AVM structures that capture the full f-structure. This chapter highlights the intricate structure of Setswana complex sentences and enriches our understanding of the interaction of grammatical functions within these constructions. The findings underscore the importance of f-structure in analysing Setswana's syntactic complexities.

6.3 CONTRIBUTION AND RECOMMENDATIONS FOR FUTURE RESEARCH

The analysis of Setswana complex sentences substantially advances our understanding of its syntactic structure. These findings not only deepen our knowledge of Setswana grammar but also contribute to the wider research on Bantu syntax. By applying the LFG framework to analyse the c- and f-structures of complex sentences, this study underscores the efficacy of formal linguistic theory in revealing intricate syntactic patterns and highlights the broader applicability of LFG to other Bantu languages as well.

This LFG-based analysis establishes a foundation for future linguistic and computational work on Setswana. Future research might include developing a computational syntactic analysis of Setswana complex sentences, contributing to a broad-coverage parser for the language. This could involve implementing the LFG grammar from this study within the XLE grammar development platform, as demonstrated by Berg (2018) in her application of c- and f-structures

for Setswana simple sentences. Such advances would expand the existing LFG treebank for Setswana, adding detailed syntactic annotations.

While Setswana has distinct structures for simple, complex and compound sentences, the LFG framework has not yet been applied to describe compound sentences, especially in terms of coordination. This represents a promising direction for future research.

In conclusion, this study makes a valuable contribution to the syntactic description of Setswana through the application of a modern linguistic framework. The analysis of Setswana complex sentences opens avenues for further research, particularly in comparative syntax and the extension of LFG to under-documented languages. It also highlights key areas for ongoing research, which could deepen our understanding of Bantu languages and enhance linguistic theory.

APPENDIX

Subcategories	Notes	Setswana example
(a) Ordinary nouns	-Basic or common nouns in noun classes 1 to 14 -Morphological structure: class prefix plus root (Krüger, 2006:61-77)	sediba (a well)
(b) Deverbative noun	-Derived from an infinitive verb -Formed by replacing the infinitive prefix go- with a noun class prefix and substituting the verb's ending -a with a deverbative suffix (Cole, 1955:113)	mohumi (a rich person)
(d) Diminutive noun	-Formed by adding a diminutive suffix to ordinary or infinitive nouns (Krüger, 2006:74-87)	motsana (a small village)
(e) Feminine noun	-Ordinary noun that includes the feminine suffix (Krüger, 2006:73-74).	kgosigadi (queen)

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(f) Augmentative nouns	-Ordinary nouns that includes the suffix -gadi that indicates augmentative significance (Cole, 1955:110–111)	taugadi (very big lion)
(h) Infinitive noun	-Nouns in noun class 15 -Do not denote singular or plural - Morphological structure: class prefix go , a verb root and ending -a (Krüger 2006:92-93)	go dira (to work)
(c) Locative noun	-Formed by adding a locative suffix to ordinary or infinitive nouns (Krüger, 2006:87-91)	sekolong (school -locality)
(i) Locative class nouns	-Nouns in noun classes 16 (fa-), 17 (go-), 18 (mo-), 19 (ga-) and 20 ((-). -Do not denote singular or plural Morphological structure: class prefix and root -Usually do not have valence for any suffixes (Krüger, 2006:92-98)	morago (back)
(g) Adjective	-Can be classified as a describing noun -Divided in ordinary adjectives or changeable adjectives (Krüger, 2013a:127-136)	tsididi (cold) montle (beautiful) bantle (beautiful)

Table 4-1: The noun and its subcategories

Subcategory	Notes	Setswana example
(a) Personal pronouns	-Are person and number bound -Have corresponding possessive pronouns -Divide into first, second and third person -Third person pronouns are identical to absolute pronouns of noun classes 1, 1a, 2 and 2a (Cole, 1955:128-129)	1 st pers: nna (I), rona (we) 2 nd pers: wena (you - singular), lona (you- plural) 3 rd pers: ene (he, she), bone (they)
(b) Absolute pronouns	-Are class bound -Emphasise or modify a noun or replace a noun that is previously mentioned (Krüger, 2006:131)	ditlhako tsona (the shoes)
(c) Demonstrative pronouns	-Are class bound -Indicate three possible distances -Indicate the distance of an object from the speaker to the addressee -Distance 1: distal position (this, these) -Distance 2: proximal position (that, those) -Distance 3: post-distal position (over there) (Cole, 1955:130-134; Krüger, 2006:131-135)	Distance 1a: pene e (this child) Distance 1b: pene ena (this pen) Distance 2: pene eo (that pen) Distance 3: pene ele (that pen ("over there"))
(d) Inclusive quantitative pronouns	-Are class bound and root is -ôtlhê -Express a meaning of <i>the whole</i> or <i>all</i> -Used to refer to an object(s) as a whole or wholes. (Cole, 1955:154-158; Krüger, 2006:137-139)	bana botlhe (all the children)
(e) Exclusive quantitative pronouns	-Are class bound and root is -pê -Express a meaning of <i>no</i> or <i>none</i>. -Denotes an object whose existence is denied Cole, 1955:154-158; Krüger: 2006:137-139).	Ga ke ye gope . (I am going nowhere.)

(continue on next page)

(f) Selective quantitative pronouns	-Are class bound and root is -ôsi. -Used to refer to specific object(s) -Express a meaning of <i>only</i> (Cole, 1955:154–158; Krüger, 2006:137-139).	bana bosi (only the children)
(g) Separative quantitative pronouns	-Are class bound and root is -sele -Express a meaning of <i>unknown</i> -Denotes an object(s) that is different from the ordinary ones (Cole, 1955:154-158; Krüger, 2006:137-139)	tsela e sele (a different road)
(h) Interrogative quantitative pronouns	-Are class bound and root is -fe? -Express a meaning of <i>which</i> relating to the noun it modifies -Inquire about an object which is unknown (Cole, 1955:154-158; Krüger, 2006:137-139).	batho bafe? (which people?)
(i) Possessive pronouns	-Are person and number or class bound -Convey a referential lexical meaning of the possessor who owns a possession -Denote the possessor and functions as a complement of the possessive particle -Can be in the 1st, 2nd and 3rd person in singular and plural forms (Krüger, 2006:139)	1 st pers: me (mine), rona (our) 2 nd pers: gago (your - singular), lona (your - plural) 3 rd pers: gagwe (his, her), bone (their)

Table 4-2: The pronoun and its subcategories

Subcategory	Notes	Setswana example
(a) Main verbs	-Core is the root -May include inflectional prefixes and derivational and inflectional suffixes -Must include a verbal ending -May include imperative or relative suffixes Krüger (2006:268)	Di a tshameka. (They are playing.)
(b) Auxiliary verbs	-Dependent on a complement i.e. a main verb, a copulative verb phrase or another auxiliary verb phrase -Enriches the meaning of complement by adding semantic information regarding the progression or completion of the complement (Krüger, 2006:259).	Di setse di tshameka. (They are already playing.)
-Identifying copulative verbs	-Complement verb identifies and indicates who and what the subject is (Krüger, 2013b:140).	Mpho ke mogokgo wa sekolo. (Mpho is the principal of the school.)
-Describing copulative verbs	-Complement describes or defines the subject with regards to some quality, feature, characteristic, or with respect to the location or situation in which the subject finds itself (Krüger, 2013b:156)	Lekau le botlhale. (The gentleman is wise.)
-Associative copulative verb	Complement is associated with the subject (Kruger, 2013b:178)	Rakgadi o na le bana ba babedi. (My aunt has two children.)

Table 4-3: The verb and its subcategories

Subcategory	Notes	Setswana example
(a) Possessive particle	-Always class bound as each noun class takes its own possessive particle -Has a meaning of 'of' (Cole, 1955:160).	bana ba monna (the man's children, the children of the man)
(b) Qualificative particle	-Always class bound as each noun class takes its own qualificative particle -Has a meaning that indicates 'which is/are' or 'that is/are' (Krüger, 2006:157)	mosadi yo o bogale (the strict woman, the woman who is strict)
(c) Instrumental particle	-Has the meaning of 'with', 'by means of' or 'on' (Poulos & Louwrens, 1994:328)	ka thipa (with a knife)
(d) Temporal particle	-Has the meaning of 'by', 'in', 'at', 'during' or 'per' -Indicates that its complement is at the time which the action takes place (Kruger, 2006:149; Poulos & Louwrens, 1994:329).	ka bosigo (at night)
(e) Locative particles	-Used to bind its complement to the predicate with respect to locality -Distinguish between mo , fa , kwa , ka , go and ga (Kruger, 2006:20; Berg, 2018:97-98)	go malome (to uncle, at uncle)
(f) Associative particle	-Expresses the idea of with, together with, and implying an association between the complement and something mentioned earlier (Kruger, 2006:147)	le ditsala tsa rona (with our friends)
(g) Comparative particle	-Indicates that its complement is in a comparative relationship with the action (Kruger, 2006:149)	jaaka malome (like uncle)
(h) Agentative particle	-Indicates that the agent is responsible for the performing of the action or process of passive verbs (Berg, 2018:98)	ke mosadi (by the woman)

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(i) Hortative particle	-Indicates that it is not a strong direct command -Defined as s strong request and exhortation -Has a meaning of /et (Kruger, 2013b:115)	A re ye gae. (Let us go home.)
(j) Interrogative particle	-Used in interrogative sentences where the focus of the question is on the predicate itself (Krüger, 2013b:331, 350)	A ba jele? (Did they eat?)

Table 4-4: The particle and its subcategories

Conjunction	Notes	Setswana examples
No subcategories	-Lexical items that are used as introductory members of subordinate sentences and coordinate sentences (Kruger, 2006:153)	Ke bone basetsana fa ba phepafatsa ntlo. (I saw the girls when they clean the house.)
Adverb	Notes	Setswana example
No subcategories	-Used to modify the verb and syntactic function can be with respect to the time at which, the place where, the manner or the degree in which the action takes place etc. (Kruger, 2006:161)	O dira ka thata . (She is working hard.)
Interjection	Notes	Setswana example
No subcategories	-Have a semantic value of expressing human feelings, sensations or the drawing of attention to phenomena of which can be wide variety (Kruger, 2006:165)	Shuu! Ke lapile thata. (Wow! I am very tired.)
Ideophone	Notes	Setswana example
No subcategories	-Are descriptive of sound, colour, smell, manner, appearance, state, action or intensity (Cole, 1955:370)	A re tuu! (Be very quiet!)

Table 4-5: The conjunction, adverb, interjection and ideophone

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