

An LFG Analysis of Setswana Auxiliary Verb Phrases Indicating Tense

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Proceedings of the LFG'19 Conference

Australian National University

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2019

CSLI Publications

pages 233–250

<http://csli-publications.stanford.edu/LFG/2019>

Keywords: auxiliary verbs, Setswana, tense, f-structure

Pretorius, Rigardt, & Berg, Ansu. 2019. An LFG Analysis of Setswana Auxiliary Verb Phrases Indicating Tense. In Butt, Miriam, King, Tracy Holloway, & Toivonen, Ida (Eds.), *Proceedings of the LFG'19 Conference, Australian National University*, 233–250. Stanford, CA: CSLI Publications. 

Abstract

This paper focusses on the treatment of the semantic values of Setswana auxiliary verbs in cases where more than one auxiliary verb appears in the same auxiliary verb phrase (VPAux). The aim is to give an overview of the treatment of the tense/aspect features of these auxiliary verb phrases at f-structure in LFG. The minimal structure of a VPAux consists of an auxiliary verb followed by an obligatory phrase that may be a verb phrase that includes a main verb (VPMain) or a copulative verb (VPIdcop, VPDescop, VPAsscop) or the obligatory phrase may be another VPAux. We give an outline of the categories expressed in main verbs followed by a brief overview of the characteristics of Setswana auxiliary verbs. We then propose a treatment of the tense and aspect features of auxiliary verbs within the VPAux.

1. Contextualisation

Setswana, a Bantu language in the Sotho language group (group S31) (Maho, 2003:639-651), is one of the official languages of South Africa. As a result of the agglutinative nature of Bantu languages, verbs in these languages are inflected with numerous morphemes. Verbs can therefore be morphologically complex in Setswana. Lexically, Setswana verbs are classified into main (independent) verbs, copulative verbs and auxiliary verbs based on their morphological, syntactic and semantic features. The morphosyntactic features of Setswana verbs have been treated in grammars such as Cole (1955), Krüger (2006, 2013a, 2013b), Ranamane (2009) and Berg (2018) among others, while Brits *et al.* (2005) and Pretorius *et al.* (2009) amongst others address the specific computational challenges that these typological features present.

Auxiliary verbs always occur with main or copulative verbs as complements In (1)¹ the auxiliary verb **o ne** is followed by the main verb **wa ya** (you then go) and in (2) the auxiliary verb **ke ne** is followed by the main verb **ka ya** (I then go). Auxiliary verb phrases in Setswana cannot be abbreviated as in the case of English where ellipsis may appear resulting in the elision of the

¹ Abbreviations and morphological tags:

AgrObj	object agreement morpheme	P1	first person
AgrSubj	subject agreement morpheme	PassSuf	passive suffix
AgrSubjCons	consecutive subject agreement morpheme	PerfSuf	perfect suffix
ApplSuf	applicative suffix	pl	Plural
Aux	auxiliary verb	PotPre	potential morpheme
CausSuf	causative suffix	PresPre	present tense morpheme
DevSuf	deverbative suffix	ProgPre	progressive prefix
FutPre	future prefix	RecSuf	reciprocal suffix
ImpSuf	imperative suffix	ReflPre	reflexive morpheme
Interj	Interjection	RelSuf	relative suffix
IntPart	interrogative particle	sg	Singular
LocPart	locative particle	TempPart	temporal particle
NegPre	negative morpheme,	VEnd	verbal ending
Npre	noun prefix	1 2 3 ...	noun classes 1 – 20

complement of the auxiliary verb. The auxiliary verb **ke ne** in (3) is an invalid structure as it is compulsory for an auxiliary verb to be followed by a complement.

- (1) A o ne wa ya kwa toropong?
a o-ne wa-y-a kwa
 IntPart AgrSubjP2sg-Aux AgrSubjConsP2sg-go-VEnd LocPart
 (*ne-*)-toropo-ing
 NPre9-town-LocSuf
 Did you go to town?
- (2) Ee, ke ne ka ya.
ee ke-ne ka-y-a
 Interj AgrSubjP1sg-Aux AgrSubjConsP1sg-go-VEnd
 Yes, I did go.
- (3) *Eê, ke ne...
ee ke-ne
 Interj AgrSubjP1sg-Aux
 *Yes, I ...

The features of auxiliary verbs thus have to be considered with those of their complements (Setshedi, 1974; Pretorius, 1997). In the discussion of auxiliary verb phrases, the treatment of their semantic values seems to be illusive. The focus in this paper is on auxiliary verb phrases in Setswana and more specifically on the treatment of their semantic values in cases where more than one auxiliary verb appears in the same phrase. This will be done by giving a brief overview of the characteristics of Setswana auxiliary verbs followed by an outline of the categories expressed in main verbs. Auxiliary verbs with copulative complements are not discussed in this paper. The categories of tense and aspect are always present in verbs even if they are not overtly marked in the morphology (Cole, 1955:235-285; Pretorius, 1997:344-347). As tense/aspect (T/A) are the prominent connection between the grammatical categories of the verb and its use with auxiliary verbs, the focus will be on T/A. In the discussion of the auxiliary verb phrases the focus will be on instances where more than one auxiliary verb is present (juxtaposed) in order to give a literal representation of word order and constituency in c-structure. The objective is the treatment of the T/A values of these auxiliary verb phrases at f-structure in LFG. We expand on the recently developed LFG grammar for Setswana (Berg 2018). We use data from mother tongue speakers as well as grammars (Cole, 1955; Krüger, 2006; Ranamane, 2009) for analysis and discussion.

2. Setswana main verbs

2.1 Categories expressed by main verbs

Setswana main verbs typically express the grammatical features of tense, aspect, mood and polarity (TAMP). The main verb may include inflectional prefixes as well as derivational and inflectional suffixes and these affixes contribute various semantic values. In terms of morphotactics, each affix occupies a specific slot in the morphological structure of a main verb (Krüger, 2006:268):

NegPre (**ga**) + AgrSubj + NegPre (**sa, se, a**) + PresPre/ProgPre/PotPre + FutPre + AgrObj/RefIPre +
Root +
Productive suffixes + VEnd + RelSuf/ImpSuf

Specific morphological information pertaining to the prefixes (negative morpheme **ga**, subject agreement morphemes, negative morphemes **sa, se** and **a**, present tense morpheme, progressive morpheme, future tense morpheme, potential morpheme, object agreement morphemes and reflexive morpheme) inflect essential information. For example, the negative prefixes, subject agreement morphemes, present tense morpheme, progressive morpheme and future tense morpheme contribute to tense, aspect, mood and polarity (TAMP). The productive suffixes include the causative, applicative, reciprocal and the passive extensions as well as the perfect suffix. The inflectional perfect morpheme specifies either a past tense or perfective aspect. The verbal endings are inflectional morphemes and their form (**a, e, ê**) is determined by mood, tense and polarity information. A relative suffix or imperative suffix may be added after the verbal ending.

3. Setswana auxiliary verbs

The origin, meaning and function of auxiliary verbs in Setswana show that they have a metaphorical basis. Diachronically auxiliaries come from main verbs with lexical meanings. This lexical meaning, even though it is bleached, informs the meaning of the auxiliary. Many auxiliary verbs still show semantic affinity with main verbs. This affinity is morphologically and syntactically related to the sub-classes identified in the classification of the auxiliary verbs.

3.1 Classification of Setswana auxiliary verbs

As presented in Diagram 1 (Pretorius 1997:89), the verb in Setswana has three sub-categories, viz. auxiliary verbs, main (independent) verbs and copulative verbs (Pretorius, 1997:14, 76-81).

Auxiliary verbs are classified into a non-transposable category and a transposable category which semantically has a conjunctive function. In the non-transposable category, a distinction is made between auxiliary verbs that can only function as auxiliaries (proper auxiliaries) and auxiliary verbs that can

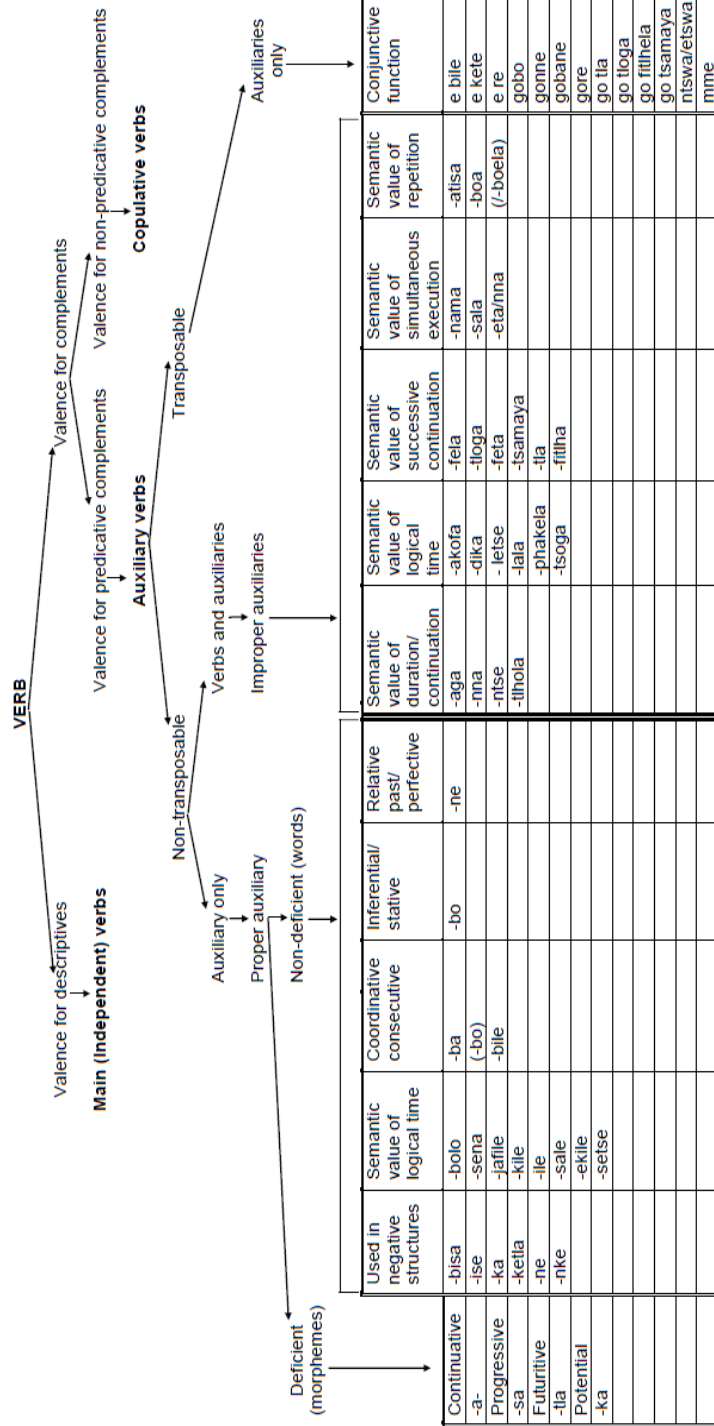


Diagram 1: Classification of Setswana auxiliary verbs (Pretorius, 1997:89)

function as verbs or auxiliaries (improper auxiliaries²). Within the categories of proper and improper auxiliaries, constituents are classified into groups on semantic grounds. The proper auxiliaries function as morphemes (deficient) or words (non-deficient). The deficient auxiliaries are morphemes and they may be included in the morphology of main and auxiliary verbs. Pretorius (2004:198) indicates that as a result of the development of auxiliaries, some auxiliaries have lost their status as words and have rank shifted to prefixed verbal morphemes. The auxiliary verbs with conjunctive function are not treated here. The morphological, syntactic and semantic characteristics of auxiliary verbs are introduced following Diagram 1.

3.2 Characteristics of auxiliary verbs

3.2.1 Morphological characteristics

The morphological structure of an auxiliary verb in a VPAux consists of a subject agreement morpheme, a root and an ending in basic form. The customary ending **-a** can in certain cases be **-ê**, **-e**, or **-ô**. Auxiliary verbs and main verbs, therefore have the same basic morphological structure. Auxiliary verbs do not take object agreement morphemes but some can take the progressive morpheme **sa**, the potential morpheme **ka**, the future tense morpheme **tla**, or the present tense morpheme **a**. In (4) the progressive morpheme **sa** is prefixed to **-ntse**.

- (4) Ke sa ntse ke ja.
ke-sa-ntse *ke-j-a*
 AgrSubjP1sg-ProgPre-Aux AgrSubjP1sg-eat-VEnd
 I am still eating.

3.2.2 Syntactic characteristics

The minimal structure of a VPAux consists of the auxiliary verb and an obligatory complement, viz. the VPMain, VPidcop, VPDescop, VPAsscop or another VPAux (Berg, 2018 119). In (5) the auxiliary verb **o ne** is followed by the VPMain **a reka**. In (6) the auxiliary verb **re setse** is followed by the VPMain **re kwala dithlathobo**. In (7) the auxiliary verb **re ne** is followed by the VPAux **re tlhola re ya kwa lewatleng ka selemo**.

- (5) O ne a reka.
o-ne *a-rek-a*
 AgrSubj1-Aux AgrSubj1-buy-VEnd
 She was buying.

² The category of improper auxiliaries in Diagram 1 is based on the syntactic features of these auxiliaries. They can act as verbs as well as auxiliaries. They do not act as modal verbs when used as auxiliaries in Setswana. When compared to the modal verbs identified by Mchombo (2004:30-32) for Chichewa the only auxiliary verb that may be used as modal for Setswana is the proper auxiliary **-bô** with coordinative consecutive value with the idea of continuing something.

- (6) Re setse re kwala ditlhatlhobo.
re-setse re-kwal-a
 AgrSubjP1pl-Aux AgrSubjP1pl-write-VEnd
di-tlhatlhob-o
 NPre10-examine-DevSuf
 We are already writing examinations.
- (7) Re ne re tlhola re ya kwa lewatleng ka selemo.
re-ne re-tlhola re-y-a
 AgrSubjP1pl-Aux AgrSubjP1pl-Aux AgrSubjP1pl-go-VEnd
kwa le-watle-ng ka se-lem-o
 LocPart NPre5-sea-LocSuf TempPart NPre7-plough-DevSuf
 We always went to the seaside in summer.

The main predicate in a Setswana sentence is always a main or copulative verb even if these verbs are the complements of auxiliary verbs. Auxiliary verbs contribute polarity (refer to (12)), tense, aspect and time³ features (cf. Diagram 1) to the f-structure of the main verb. In terms of subcategorisation frames, there are two main approaches to analyse auxiliaries in LFG. The auxiliary verb is treated as a special type of raising verb that takes a SUBJ and an XCOMP⁴ argument, or is considered a feature-carrying element (Butt *et al.*, 1999:61-63; Falk, 2003). Butt *et al.* (1996) treat auxiliaries as feature carrying elements, rather than as raising verbs. They state that “this avoids unnecessary structural complexity and provides a uniform cross linguistic analysis which eases the burden for machine translation” (Butt *et al.*, 1996:111). We treat Setswana auxiliary verbs as feature-carrying elements. The auxiliary verb does not have a subcategorisation frame and a flat f-structure analysis is followed because the complement following the auxiliary verb is considered the main predicate of the sentence (Berg, 2018:138).

In (8) the Setswana sentence includes an auxiliary verb **ba ne**. The f-structure of this auxiliary verb is presented in Figure 1. The f-structure of the complement **ba reka ditlhako** (they buy shoes) is presented in Figure 2. The f-structure of (8) is presented in Figure 3. The auxiliary verb indicates the relative past tense while the subject agreement morpheme **ba** indicates class 2 agreement.

³ Tense contributes to the substantiating of time, and therefore the verbal markedness of time and tense is often identical. The major device in the establishing of time is the interrelation between tense forms and time adverbials, which indicates that time interpretation is primarily constituted by factors outside the verb. The role of the tense-related auxiliary verbs lies in the indication of the relation between coding time and reference time. The auxiliary verb is thus only remotely related to the indication of time (Pretorius, 1997:166)

⁴ The XCOMP function is as an open clausal function that does not contain an internal subject phrase (Dalrymple, 2001:24).

- (8) Ba ne ba reka ditlhako.
ba-ne ba-rek-a di-tlhako
 AgrSubj2-Aux AgrSubj2-buy-VEnd NPre8-shoe
 They were buying shoes.

```
"ba ne"
  [TNS-ASP [TENSE relpast]]
  1[AUX +, CLASS 2]
```

Figure 1: f-structure of ba ne

```
"ba reka ditlhako"
  [PRED 'REK<[1-SUBJ;PRO], [15;t:lhako]>']
  [SUBJ [PRED 'PRO']]
  [OBJ [PRED 't:lhako']
  15[CLASS 8, NTYPE ord]]
  [TNS-ASP [MOOD indicative]]
  1[CLASS 2, VTYPE main]
```

Figure 2: f-structure of ba reka ditlhako

```
"ba ne ba reka ditlhako"
  [PRED 'REK<[1-SUBJ;PRO], [29;t:lhako]>']
  [SUBJ [PRED 'PRO']]
  [OBJ [PRED 't:lhako']
  29[CLASS 8, NTYPE ord]]
  [TNS-ASP [MOOD indicative, TENSE relpast]]
  1[AUX +, CLASS 2, VTYPE main]
```

Figure 3: f-structure of (8)

When multiple auxiliary verbs appear in the same phrase they have the following order:

negative (structures) > tense > aspect > time

3.2.3 Semantic characteristics

Auxiliary verbs collaborate with and contribute to the meaning of the main verb and the range of categories they express in their morphology. Cole (1955:235) states that auxiliary or deficient verbs “are used both to indicate simple distinctions of time or tense and to provide special implications or modifications of significance as distinct from or additional to the time factor”. In this regard Louwrens (1994:17) states that auxiliary verbs enrich the meaning of their complementary verbs adding semantic information regarding the progression or completion of an action. Based on the semantic groupings in Diagram 1 we add duration as aspect in addition to progressive, persistive and perfective which are already part of f-structure. However, the semantic values of many auxiliary verbs indicate a temporal value which has not been linked to an aspectual category but should be expressed at f-structure. We propose a solution in 4.3.4. As we focus on the tense auxiliaries we now briefly contextualise a framework for discussion.

4. Tense

4.1 Tense analysis

Reichenbachs' (1947) well known framework for the analysis of tense/aspect (T/A) employs the relationship between event time (E), speech time (S) and reference time (R) to determine and categorise T/A. The relation between R and S is taken to code tense while the relation between E and R encodes aspect (Butt & Rivzi, 2008:60). Reichenbachs' original work has been revised in several versions since reaching agreement that the relationship between E and S is indirect and mediated by R (Kamp & Reyle, 1993; Hornstein, 1990; Butt & Rivzi, 2008).

4.2 Tense and aspect in Bantu languages

Nurses' (2008) contribution to the discussion of T/A in the Bantu languages is comprehensive and includes data from more than 200 Bantu languages and varieties. He discusses tense systems evidenced in non-relative affirmatives. In the statement of his conceptual framework Nurse (2008:10-15) gives the following guidelines regarding T/A in Bantu languages:

- Tense and aspect is a system;
- Tense and aspect systems are cognitively based, not direct representations of events in the real world;
- Tense and aspect form an interlocking system;
- A discreet verbal tense aspect form has a specific and unique range of meaning;
- The system is not inflexible or unchanging;
- Every finite verb form has aspect; and
- Most Bantu languages encode tense on the left and aspect on the right.

These guidelines are all applicable to tense and aspect in Setswana.

4.3 Tense in Setswana

The treatment of tense in standard Setswana grammars is limited and has been presented from different perspectives. Earlier descriptions of tense in the Sotho languages (Sharpe, 1952; Sandilands, 1953; Cole, 1955; Doke & Mofokeng, 1957; Lombard *et al.*, 1985) distinguished between simple and compound tenses based on the components of the verb phrase. The simple tenses were also referred to as mono-verbal tenses. Compound tenses were identified when auxiliary verb phrases appear. The classification is based on purely formal grounds rather than on the semantic values and usage of these tenses. The problem with this classification was that two tenses cannot be identified in a single auxiliary verb phrase which was the result of not noticing the aspectual value contributed by the auxiliary verb.

Later studies follow Reichenbach's interpretation of tense as a deictic category (Pretorius 1997, 2003, Krüger, 2013a, 2013b). Setswana, as do most other

languages, uses two strategies to locate events in time with reference to speech time (S) (the deictic centre). The first is to vary the morphological form of the verb which is *tense marking*, and the second is to use *temporal adverbs*. Two types of tenses are generally distinguished namely absolute and relative tenses distinguishing a past, present and future tense. In the absolute tense forms “the reference point from which the temporal semantic interpretations are done, is the deictic centre (coding time)” (Posthumus, 1990:23). The grammatical tense forms of anteriority, simultaneity and posteriority, are generally referred to as past (events prior to coding time) (9), present (events coinciding with coding time) (10) and future tense (events subsequent to coding time) ((11) and (12)) respectively.

Example (9) is in the past tense: S is now, R is now, and E is some time in the past. Note that the perfective suffix here contributes past tense in the absolute tenses while it contributes perfective aspect in inchoative verbs in relative tenses. Example (10) is in the present tense: S is now, R is now and E is now. Examples (11) and (12) are in the future tense: S is now, R is now, and E is some time in the future.

(9) Mosadi o rekile ditlhako.
mo-sadi o-rek-il-e di-tlhako
 NPre1woman AgrSubj1-buy-PerfSuf-VEnd NPre8-shoe
 The woman bought shoes.

(10) Mosadi o reka ditlhako.
mo-sadi o-rek-a di-tlhako.
 NPre1woman AgrSubj1-buy-VEnd NPre8-shoe
 The woman buys / is buying shoes.

(11) Mosadi o tla reka ditlhako.
mo-sadi o-tla-rek-a di-tlhako
 NPre1-woman AgrSubj1-FutPre-buy-VEnd NPre8-shoe
 The woman will buy shoes.

We include the negative of (11) in (12) to show the negative polarity contributed by the negative morpheme **ga** in the auxiliary verb **a ketla** (Figure 4 and Figure 5).

(12) Mosadi ga a ketla a reka ditlhako.
mo-sadi ga-a-ketla a-rek-a
 NPre1-woman NegPre-AgrSubj1-Aux AgrSubj1-buy-VEnd
di-tlhako
 NPre8-shoe
 The woman will not buy shoes.

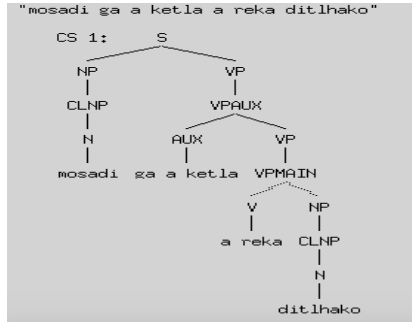


Figure 4: c-structure of (12)

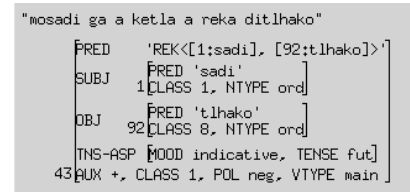


Figure 5: f-structure of (12)

In the relative tense forms the interpretation of E is made in relation to R, which is in turn established in relation to S which is constituted by the deictic centre. In Setswana, the form of the auxiliary verb in the auxiliary verb phrase expresses the relation between S and a newly established R.

4.3.3 Paradigm of Setswana tenses

The following tense paradigm (Table 1) for Setswana was developed based on Nurse (2007b; 2008):

	Perfective	Imperfective	Progressive	Persistent
Past	Re rekile. (We bought.) Re ne re rekile. (We had bought.)	Re ne re reka. (We were buying.) Re ne ra reka. (We bought. (subsequently))	Re ne re sa ntse re reka. (We were still buying.)	Re ne re ntse re reetsa. (We had been listening.)
Present		Re reka. (We buy.) Re a reka. (We are buying.)	Re sa ntse re reka. (We are still buying.)	Re ntse re reetsa. (We have been listening.)
Future	Re tlabo re rekile. (We will have bought.)	Re tla reka. (We will buy.) Re tlabo re reka. (We will be buying.)	Re tlabo re sa ntse re reka. (We will still be buying.)	Re tlabo re ntse re reetsa. (We will be listening.)

Table 1: Setswana tense paradigm

Setswana tenses are marked in the morphology of the verb. The auxiliary verbs **o ne** (13) and **o tlabo** (14), indicate the shifting of R to a point prior to or subsequent to S respectively. Their complement **a reka** contributes an imperfective value even though it is not overtly marked.

- (13) Mosadi o ne a reka ditlhako.
mo-sadi o-ne a-rek-a di-tlhako
 NPre1-woman AgrSubj1-Aux AgrSubj1-buy-VEnd NPre8-shoe
 The woman was buying shoes.

- (14) Mosadi o tlabo a reka ditlhako.
mo-sadi o-tlabo a-rek-a di-tlhako
 NPre1-woman AgrSubj1-Aux AgrSubj1-buy-VEnd NPre8-shoe
 The woman will be buying shoes.

4.3.4 Features of auxiliary verbs following tense-indicating auxiliary verbs

The auxiliary that follows **-ne** or **-tlabo** is aspectual or it may contribute a temporal value. In (15), (16) and (17) the auxiliary verb **ke tlabo** indicates the relative future tense. In (15) the auxiliary verb **ke santse** indicates persistive aspect while the main verb **ke bala**, even though it is not overtly marked, indicates imperfective aspect. In (16) the auxiliary verb **ke setse** expresses logical time with the adverbial value of *already*. In (17) the main verb **ke badile** indicates perfective aspect.

- (15) Ke tlabo ke santse ke bala.
ke-tlabo ke-santse ke-bal-a
 AgrSubjP1sg-Aux AgrSubjP1sg-Aux AgrSubjP1sg-read-VEnd
 I will still be reading.

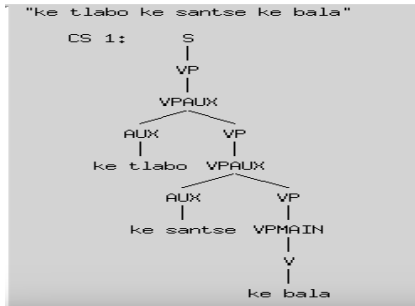


Figure 6: c-structure of (15)

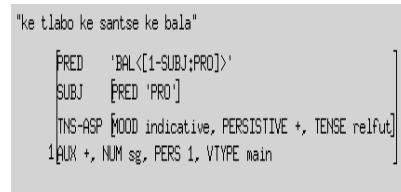


Figure 7: f-structure of (15)

- (16) Ke tlabo ke setse ke bala.
ke-tlabo ke-setse ke-bal-a
 AgrSubjP1sg-Aux AgrSubjP1sg-Aux AgrSubjP1sg-read-VEnd
 I will already be reading.

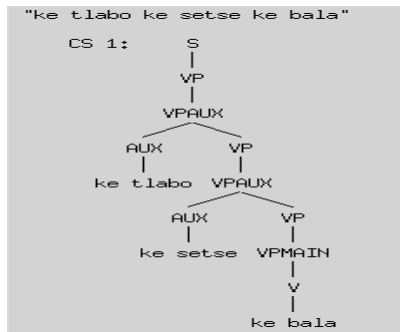


Figure 8: c-structure of (16)

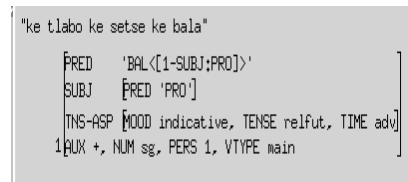


Figure 9: f-structure of (16)

- (17) Ke tlabo ke setse ke badile.
ke-tlabo ke-setse
 AgrSubjP1sg-Aux AgrSubjP1sg-Aux
ke-bal-il-e
 AgrSubjP1sg-read-PerfSuf-VEnd
 I will already have read.

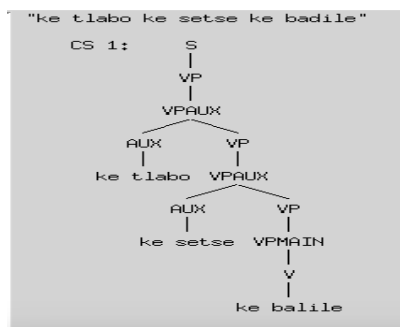


Figure 10: c-structure of (17)

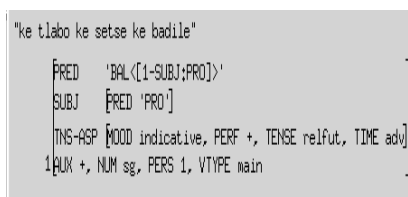


Figure 11: c-structure of (17)

In (18), (19), (20) and (21) the auxiliary verb **ba ne** indicates relative past tense. In (18) the auxiliary verb **ba santse** indicates persistent aspect. In (19) the auxiliary verb **ba setse** expresses logical time with the adverbial value of already. In (20) the main verb **ba re thusitse** indicates perfective aspect. In (21) three auxiliary verbs are employed, where **ba tlhola** expresses a durative aspect.

- (18) Banna ba ne ba santse ba re thusa.
ba-nna ba-ne ba-santse
 NPre2-man AgrSubj2-Aux AgrSubj2-Aux
ba-re-thusa
 AgrSubj2-AgrObjP1pl-help-VEnd
 The men were still helping us.

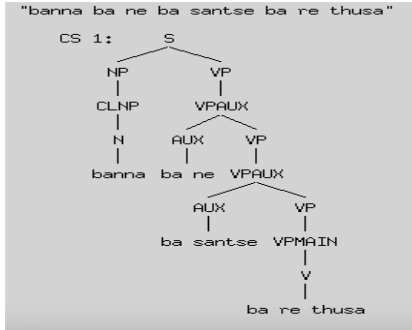


Figure 12: c-structure of (18)

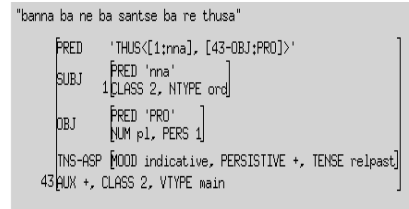


Figure 13: f-structure of (18)

- (19) Banna ba ne ba setse ba re thusa.
ba-nna ba-ne ba-setse
 NPre2-man AgrSubj2-Aux AgrSubj2-Aux
ba-re-thus-a
 AgrSubj2-AgrObjP1pl-help-VEnd
 The men were already helping us.

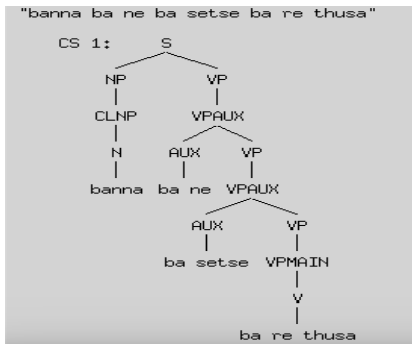


Figure 14: c-structure of (19)

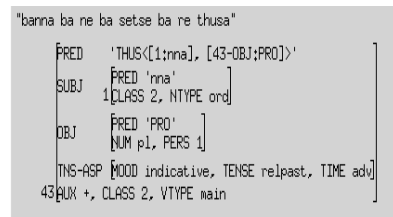


Figure 15: f-structure of (19)

- (20) Banna ba ne ba setse ba re thusitse.
ba-nna ba-ne ba-setse
 NPre2-man AgrSubj2-Aux AgrSubj2-Aux
ba-re-thus-il-e
 AgrSubj2-AgrObjP1pl-help-PerfSuf-VEnd
 The men had already helped us.

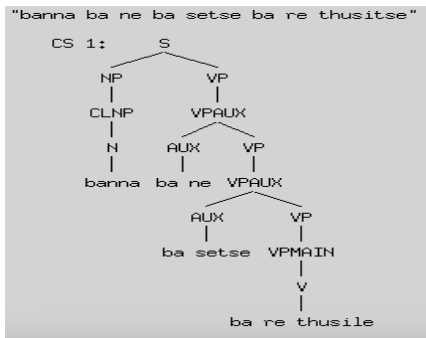


Figure 16: c-structure of (20)

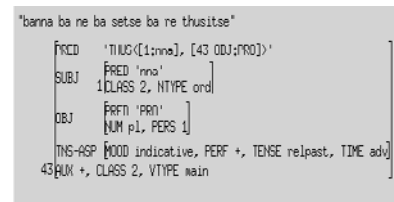


Figure 17: f-structure of (20)

- (21) Banna ba ne ba santse ba tlhola ba re thusa.
ba-nna ba-ne ba-tlhola ba-santse
 NPre2-man AgrSubj2-Aux AgrSubj2-Aux AgrSubj2-Aux
ba-re-thusa
 AgrSubj2-AgrObjP1pl-help-VEnd
 The men were still always helping us.

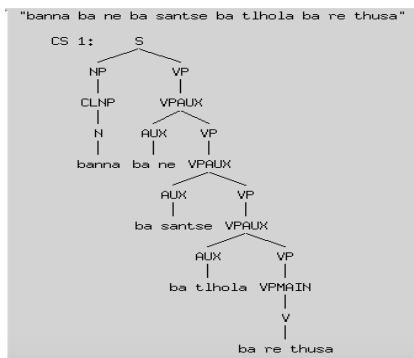


Figure 18: c-structure of (21)

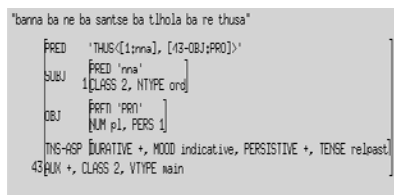


Figure 19: f-structure of (21)

Setswana auxiliaries presented as examples in this paper always add the same features regardless of other auxiliaries in the phrase, they are therefore purely agglutinative. However, as is shown in example (22) there is doubt whether this is true in all cases and more detailed work is needed to clarify the matter.

When the tense indicating auxiliary **-ne** is followed by tense indicating **-tlabo** as in (22), **-ne** indicates tense while **-tlabo** now indicates a probability and not tense anymore. A single verb cannot have multiple tenses.

- (22) Ke ne ke tlabo ke santse ke dira.
ke-ne ke-tlabo ke-santse
 AgrSubjP1sg-Aux AgrSubjP1sg-Aux AgrSubjP1sg-Aux
ke-dir-a
 AgrSubjP1sg-work-VEnd
 I would still have been working.

It is interesting to note that **-tlabo** seems to be used interchangeably with **-kabo**. In these auxiliary verbs the potential morpheme **ka** and the future tense morpheme **ta** combine with the inferential/stative auxiliary **-bo**, indicating semantic correspondence between potential and future events.

6. Summary

In expanding the Setswana LFG grammar we have added auxiliary verbs with their semantic values to the lexicon. More work is still needed though. Auxiliary verbs appear juxtaposed but then in a set order when more than one auxiliary verb appear in the same VP. Auxiliary verbs indicating tense may be followed in a semantically compositional manner by auxiliary verbs indicating aspect and time.

We extend aspectual values in the grammar to include further information about the nature of the event and add *durative* aspect for the newly added auxiliary verb **-tlhola** which has the value of duration/continuation in Diagram 1 (cf. Butt & Rizvi, 2008:60). Several other auxiliary verbs in Diagram 1, such as **-setse** have a value that is not one of the known aspects. They express the semantic value of “logical time” which we propose to link to the attribute *time* with the value of adverb (adv) at f-structure. When translated into English **-setse** has the meaning of *already*. Time is a generic attribute in Setswana f-structure and other auxiliary verbs with this adverbial value could in the interim be treated in this manner. Further work is still needed to consider telic and itive aspect (cf. Nurse, 2007a:164-165).

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