

SETSWANA LEXICAL EXPRESSIONS OF TIME

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Abstract

This paper explores the way time is lexically expressed in Setswana. Using data from a Setswana corpus, the study isolated instances of temporal reference for linguistic analysis. The paper demonstrates that Setswana uses varied devices such as temporal adverbs (e.g. *maabane* ‘yesterday’ and *phakela* ‘in the morning’) and spatial metaphors (e.g. *pele* ‘ahead, before, in front, first’ and *morago* ‘behind, after, at [the] back’) to express time. Even though Setswana has adapted metric ways of showing time such as calendar months and days, the discussion shows that temporal reference in traditional Setswana was event-based (e.g. based on movements of the sun and seasonal change). The study shows that Setswana lexical expressions of time are bound up with the ways in which Setswana speakers conceptualise time.

Keywords: Setswana, Bantu, temporal reference, time in language, temporal deixis

1. Introduction

Temporal reference, the linguistic expression of time, constitutes a large part of human discourse: we make plans for the future, talk about the past and discuss the present. In fact, one of the key characteristics that distinguishes human language from animal communication is displacement, that is, the ability to discuss events that are in the past or future, and are not in our immediate environment in terms of time and space (Hockett, 1960). Temporal reference is connected to the question of how humans conceptualise time (Jaszczolt, 2017). To indicate the importance of time to human discourse, languages employ a number of ways to express time, i.e., lexis and grammar.

Many studies of time in linguistics have focused on grammar such as tense and aspect (e.g. Dahl, 1985; Matiki, 1999; Ranamane, 2009), and to a lesser degree on lexical expressions of time. Ample research exists on Tense, Aspect and Modality (TAM) in the Bantu literature (see e.g. Batibo, 2005 on southern Bantu languages; Lusekelo, 2010 on Kinyakyusa, M31). These studies on grammar abound because time is directly encoded in verb inflections. There are comparatively fewer studies on the expression of temporal reference outside the verbal domain.

Much research on the interconnections between language and time in Africa have been studied from mainly an anthropological/cultural and/or philosophical/theological view (e.g., Mbiti, 1969; Adjaye, 1994). However, as noted by Kokole (1994), it is important to investigate linguistic evidence to ascertain how Africans conceptualise and handle time. Studies on Setswana are specifically lacking. In recent times, Matjila (2017) has approached Setswana time concepts from a literary

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analytic stance by analysing the use of time images in Setswana novels.

Due to this gap in the literature on the topic of how Setswana lexically expresses time, this paper investigates how Setswana expresses temporality outside of verbal inflection, and analyses such temporal expressions using various theories proposed in the literature. In particular, the paper investigates the lexical devices that Setswana uses to express time, with focus on lexical temporal reference (not grammatical markers of time/tense). In addition, the paper explores how observed temporal references reflect temporal attitudes of Setswana speakers, and how Batswana thereby conceptualise time. Setswana belongs to the Sotho-Tswana group of Southern Bantu languages (S30; Guthrie, 1967-1971), together with Southern Sotho (Sesotho), Northern Sotho (Sepedi) and Lozi (Silozi).

2. Theoretical framework

The study of time in language has been carried out from a number of viewpoints. Investigations by cognitive linguists have provided empirical results on how humans represent time in the mind and use metaphors in expressing time (e.g., Lai & Boroditsky, 2013). Cross-linguistically, language typology studies have analysed, for instance, grammatical means of temporal reference such as tense and aspect and compared results across languages (e.g., Casasanto, 2008). These different types of studies have led to formulations of models of how individuals represent time, how tensed and tenseless languages express time, among other issues (e.g., Lakoff & Johnson, 1999). However, despite these varied studies, more studies on time in language are still needed, especially on languages in which this topic has not been investigated.

Several theories of temporal reference have been advanced and discussed in the literature, some from a psychology perspective, others from a philosophical, computer science and linguistics perspective. From an artificial intelligence background, for instance, Allen's (1983) Temporal Interval Relations framework concerns itself with the directionality of time. Allen's approach holds that temporal relations depict and relate actions and plans. Time can refer either to points or intervals. The time point is referred to as any event at a particular point in time. In this approach, relations between time intervals were identified. For instance, *before*, *during* and *after* depict different time intervals.

Mbiti (1969) analysed the African concept of time from a theological and philosophical point of view. He argued that traditional African time is a composition of events which have occurred, those which are taking place now and those which are immediately to occur. Time is a two-dimensional phenomenon with a long past, a dynamic present and virtually no future. Mbiti's assertions are based on the fact that in his East African language, Akamba, there are no concrete words or lexical

expressions that convey the idea of a distant future. He took this as evidence that African time and temporal reference is two-dimensional: with only a past and a present.

From a linguistic standpoint, in his discussion of tensed languages, Reichenbach (1947) stated that temporal reference involves three points: Speech Time, Event Time, and Reference Time. Reichenbach's approach has been adopted for temporal reference in general and not just tense. Speech Time is the moment of speech, and Event Time is the time at which an event or state occurs or holds and is understood in relation to Speech Time. Past situations precede speech time while future situations follow it. Reference time, according to Klein (1992, p. 535), is "the time for which, on some occasion, a claim is made". It is the temporal perspective from which a situation is presented. Reference time clarifies the temporal relations between the situations expressed in language. For example, adverb phrases provide information that locate events relative to one another. For instance, the adverbial *now* may be used to anchor Event Time to Speech Time, but may also be used for the past or future depending on the context. Reference Time is crucial for such a situation.

In the discussion of findings, we make reference to Reichenbach's (1947) Speech Time, Event Time, and Reference Time points of temporal reference. In addition, we evaluate whether Mbiti's (1969) conceptualisation of African time holds for Setswana.

3. Previous studies on temporal reference

In the linguistic literature, many studies focus on phenomena related to the predicate, the interactions of tense, aspect, and modality (e.g., Chiyao, a Bantu language, Matiki, 1999; for English, e.g., Reichenbach, 1947; Comrie, 1985). Such studies generally focus on the sequencing of predicates and the placement of different events along a timeline. Other studies focus on specific temporal expressions, such as adverbs (e.g., *then*, *next year*) mainly from a language specific perspective (e.g., English, Klein, 2010; Kinyakyusa (Bantu), Lusekelo, 2010).

In his study of how language and time are related, Allwood (2002) outlined eight linguistic means of temporal expression: affixes (e.g., *talk-talked*), vowel change (*sit-sat*), reduplication (e.g. *She cried and cried and cried* indicating that the process is extended over time), simple and compound words (e.g., adverbs: *now*, *then*; nouns: *month*, *afternoon*; adjectives: *short-lived*), body movements (e.g., quick movements to show that something happened quickly), implied correspondence between events (i.e., that which is mentioned first happened first), and lastly, discourse cues (inferring from a speech situation).

Klein (2010) identified six main types of devices that are used across languages to encode time in language: tense, aspect, aktionsart (lexical aspect), temporal

adverbials, temporal particles and discourse principles. Klein's devices are similar to those identified by Allwood, save for a difference in terminology. As noted earlier in the discussion, tense, aspect and aktionsart receive much attention in the literature on temporal reference. Jaszczolt (2017) stated that the lexicon and grammar alone are not reliable means of expressing the human concept of time, as shown by the varied devices outlined by Klein (2010) and Allwood (2002) which include body movements and discourse principles. Instead, language users rely on the interactions and trade-offs between various means including grammar, the lexicon, and also pragmatic inference, and social and cultural assumptions.

Cohen & Schwer (2011) cross-linguistically analysed the use of temporal markers that include what they call 'time-reckoning terms', that is, adverbs, designating conventionalised segmentations of clock-and-calendar systems such as *day*, *month*, *weekend*, *winter*. Their analysis is divided into three: fundamental calendar units (e.g., *day*, *year*), day segments (e.g., *evening*, *noon*) and named days of the week (e.g., *Monday*, *Wednesday*). Their results indicate that temporality is not standard across languages. Factors such as the type of temporal cycle and segmentation used, the transparency or opacity of the information signalled, and distance from the deictic centre affect the properties of temporal reference.

Evans (2003) investigated the nature of time in language by questioning the non-temporal language that is used to refer to time (e.g. spatial language). He stated that by examining the way in which language lexicalises time, insights into the nature and organisation of time may be made. Evans (2003) explored why temporal reference is lexicalised in terms of space and motion. This arises from previous studies that indicate that references to time cannot be made without talking about space and motion. For instance, from early research, Plato called time an 'eternal moving image' (Archer-Hind, 1888). Conversely, Aristotle called time 'the number of motion according to prior and posterior' (Aristotle, 1941, p. 219). These references to what time is both involve motion in space. We shall come back to this notion of time as motion in the discussion of findings.

4. Methodology

4.1 Data

The data for this research comprises Setswana sentences that contain temporal references. The data were sourced from a corpus of approximately 7 million Setswana words/tokens (www.sketchengine.com). The corpus comprises a variety of text types from both spoken and written language. Some of the written data were collected from published public consumption materials such as newspapers and parliamentary documents. The spoken data mostly came from radio call-in programmes, which were later transcribed.

4.2 *Software*

Wordsmith Tools 5.0 (Scott, 2011) was used to perform the task of data extraction. The WordSmith Concordancer was used to reveal patterns of usage of identified temporal expressions. The Concordancer calls up a concordance for a particular word that has been entered. That is, WordSmith Concordancer gives results of sentences where sample temporal expressions were used. The researcher would then randomly select sentences to include in the analysis from the result sentences given.

5. Findings and discussion

The data discussed in this section reveals that there are different patterns of temporal reference in Setswana, namely: (1) temporal adverbials, (2) co-lexification, (3) spatial metaphors, and (4) temporal locatives. Each of these is discussed in turn below. The functions of these temporal expressions are also discussed, as well as how these lexical items express time, and whether time is stationary or seen as moving in Setswana.

5.1 *Temporal adverbs*

Temporal adverbials play an important role in the temporal interpretation of a sentence. Setswana has a few true/core adverbs (Cole, 1955). Some of these true/core adverbs are used to express time. These words are naturally marked for temporal deixis, i.e., they denote the orientation or position of actions and events in time. Examples include: *jaanong* ‘right now’, *gompieno* ‘now, today’, *maabane* ‘yesterday’, *kgantele* ‘earlier, later’ and *maloba* ‘a few days ago’. Some of these are exemplified in the following sentences:

1. Matsadi a *maabane* a bep-ile go se kae.
6.aches 6.SM yesterday6.SM lessened-PST have a bit
‘Yesterday’s aches have lessened a bit’
2. Re tla kopana le ene *kamoso*.
We will meet with him tomorrow
‘We will meet him/her tomorrow’

Some temporal adverbs are simple words as shown above in example (1) and (2). The position of the temporal adverb in the sentence has no bearing on meaning. In example (2), the actual time of the action must take place after the Speech Time (in the future) while in example (1) the action took place before the speech event. It is possible to have syntactically complex temporal adverbials such as *ngwaga o o fetileng* ‘last year’, *maloba a maabane* ‘two days ago’ and *kamoso phakela* ‘tomorrow morning’.

Temporal adverbs may be subdivided according to their approximation of the distance to Speech Time (Lusekelo, 2010). Some temporal adverbs indicate the

past: recent past and remote past. For example, *phakela* ‘in the morning’, *kgantele* ‘earlier, later’ and *gompieno* ‘now/just now, today’ indicate the recent past. The sense ‘now’ of *gompieno* is fleeting; by the time someone says *now*, the moment has already passed. This word therefore constitutes the recent past. *Maloba* ‘day before yesterday’, *bogologolo* ‘a long time ago’ and *ngogola* ‘last year’ express the remote past.

Some temporal adverbs can be used to refer to past, present and future events concurrently. *Kgantele* ‘earlier or later’ may be used to refer to before or after the Speech Time, rendering this adverb a lexical marker for both past and future. *Gompieno* ‘today, now or just now’ can be used to refer to the current Speech Time or the recent past. Reference Time for these temporal expressions helps in anchoring their perspective.

Klein (2010) states that temporal adverbials are by far the richest class of temporal expressions but are understudied. He points out that there is far less work done on temporal adverbials in the linguistic study of temporal expressions. However, he states that temporal adverbials are not only found in all languages but they also allow a much more differentiated expression of time than other devices such as tense and aspect. This lack of research on temporal adverbials was observed for African languages in general on adverbs (Saah, 2004) and in Bantu languages in particular (see Nurse and Phillipson, 2003).

In Setswana, for instance, it is not clear how some of the words for day sequences refer. Table 1 below shows some examples.

Table 1: Day Sequences in Setswana

<i>Maloba</i>	Not specific; 3 days before present day to about several months
<i>Maloba a maabane</i>	2 days before present day
<i>Maabane</i>	Yesterday
<i>Tsatsi jeno</i>	Today
<i>Kamoso</i>	Tomorrow
<i>Kamoso yo mongwe</i>	Day after tomorrow

The reference for *maloba*, for instance, is quite broad. It is not specified whether the range of reference is for only three days before the present day up to how many days backwards away from the present day. This range includes several months leading up to a year. Since there is a lexical item referring to last year *ngogola*, the *maloba* range excludes length amounting to a year. It therefore makes sense to postulate that the range for the temporal reference for *maloba* is three days backwards to under a year.

5.2 Co-lexification

The term co-lexification (coined by François, 2008) refers to a situation when two or more of the meanings in our lexical sources are covered in a language by the same lexical item (e.g. *moso* ‘sunrise’, ‘morning’, ‘tomorrow’, and ‘unspecified future’). Setswana, like other Bantu languages, is limited in the category of adverbs (see Lusekelo, 2010 and references therein; Cole, 1955). This results in the majority of adverbs in Setswana being derivative as they are formed from nouns and pronouns (Batibo, 1999), or co-lexified. However, some nouns and pronouns are used as temporal adverbs without undergoing any structural/formal change. For example:

3.
 - i. *Bosigo* ‘night’ (noun) -> *bosigo* ‘at night’ (adverb)
 - ii. *Motshegare* ‘midday’ (noun) -> *motshegare* ‘during the day/at midday’ (adverb)
 - iii. *Gone* ‘it’ (pronoun) -> *gone* ‘just now/now’ (adverb)
 - iv. *Moso* ‘morning’ (noun) -> *kamoso* ‘tomorrow’ (adverb)
 - v. *Laboraro* ‘Wednesday’ (noun) -> *Laboraro* ‘Wednesday’ (adverb)

Examples (3i) to (3v) above show instances where the same lexical form is used to verbalise two or more concepts. The following sentences illustrate such transformations in usage.

4. *O ne a mo atla motshegare letsatsi le penne.*
 He PST 1.SM 1.OM hug 3.daylight 5.sun 5.OM broad
 ‘He hugged her during the day in broad day light.’
5. *Bosigo fa dipone di tima, go nna leffi.*
 14.night when 10.lights 10.SM off it becomes dark
 ‘At night when the lights are switched off, it becomes dark.’

The lexical item of particular interest here is *moso* (‘sunrise’, ‘morning’, ‘tomorrow’, ‘unspecified future’). The noun *moso* is derived from the verb *-sa* ‘rise’ (‘clearing of the darkness of the night, to disperse darkness’; Cole & Moncho-Warren, 2012, p. 505).

6. *Ga a ise a utlwe mafoko a*
 NEG 1.SM have.NEG 1.SM hear.PRF 6.news 6.SM
moso ono.
 3.morning this
 ‘He has not heard news from this morning.’

7. *Ja go le go nnye gore o beele kamoso.*
 Eat OM CONJ a small so that keep tomorrow
 ‘Eat a small piece so that you keep some for tomorrow.’
8. *Ba tla goroga ka moso.*
 They will arrive PREP tomorrow
 ‘They will arrive in the morning.’
9. *O a tshameka, kamoso o tlaabo a lela.*
 She/he is play.PROG tomorrow 1.SM will 1.SM cry
 ‘She/he is playing, she will cry in the future.’

The senses for *moso* are varied, albeit related. *Moso* thereby exemplifies synchronic lexical association or co-lexification. Since morning signifies a new beginning, the next day which begins after the present day has been assigned a related sense to a new morning – a new beginning, i.e. tomorrow. The sense for morning has a synonym *phakela*, and this sense proves popular in usage (44.7 uses per million words based on corpus frequency data). Differences can be observed in usage where older speakers use *moso* and younger speakers use *phakela*.

Setswana has adverb phrases that incorporate the use of the preposition *ka-* used to introduce temporal adjuncts (e.g., *ka selemo* ‘in summer’; *ka Mosupologo* ‘on Monday’; see e.g. Mogapi, 1984). Note that *kamoso* as a single lexical item carries the meaning for ‘tomorrow’ or ‘unspecified future’, while when paired with *ka-* in a phrase, it specifically refers to ‘morning’, as shown in examples 6 - 9.

5.3 *Spatial metaphors*

Spatial metaphors are used to express relationships on a spatial or a temporal dimension (Tenbrink, 2007). Representations of space play a role in constructing representations of time in Setswana. Consider Table 2 below which shows the usage of some words which are usually used to refer to physical space used to reference time instead.

Table 2: Expressions used for spatial reference vs temporal reference

Spatial Reference	Temporal Reference
<i>Sipho a itshwarelela ka setlhatshana se se neng se le gaufi le letshitshi la noka.</i> ‘Sipho held on to a small plant near the river bank.’	<i>Nako e gaufi le go chaya.</i> ‘The time is about to elapse (near to completion).’
<i>E bapile le logong lo lo khutshwane.</i> ‘It is next to the short firewood.’	<i>Di ICT di na le botshelo jo bo khutshwane.</i> ‘Information Communication Technologies have a short lifespan.’
<i>Baya lefeelo fa morago ga setswalo.</i> ‘Put the broom behind the door.’	<i>Madi sentle ba a abelwa morago ga metshameko ya lekalana.</i> ‘They are given money after departmental games.’
<i>Sepatela se fa pele ga sekolo.</i> The hospital is in front of the school.	<i>Go siame go rarabolola mararaane a, pele ga ba kopa thuso.</i> ‘It’s better to solve these problems before they ask for help.’

As Table 2 illustrates, temporal reference in Setswana is metaphorically structured through mappings to spatial concepts. Here the transference is a metaphorical shift from the more concrete domain of physical space to the more abstract domain of time. Words that are usually used to reference physical space are used to refer to time. It has been observed across languages, that people use spatial metaphors to talk about time (e.g. Persian; Vaysi & Salehnejad, 2016; see also Fulga, 2012).

Lakoff & Johnson (1999) express the same sentiment stating that “very little of our understanding of time is purely temporal. Most of our understanding of time is a metaphorical version of our understanding of motion in space” (1999, p. 139). This is because the concept of time is more abstract than spatial referents as we can perceive space. Therefore, space concepts are used metaphorically to encode time and thereby shape speakers’ general understanding of temporality (Ornstein, 1969).

These observations about Setswana corroborate findings of earlier research. For example, in his effort to explain spatial metaphors and their ability to reference time, Clark (1973) proposed two opposing but compatible views: the ‘moving time’ and the ‘moving ego’ metaphor. In the ‘moving time’ metaphor, time is viewed as moving (e.g. *Selemo se etla* ‘summer is approaching’). This describes the perspective of the temporal event ‘summer’ as moving toward us. In the ‘moving ego’ metaphor, the speaker (or another experiencer) ‘moves’ toward an event. For example, *O atlametse botsetsi* ‘She is nearing birth’, here the experiencer is moving toward a temporal event of child birth and confinement. The temporal event is still and the experiencer is moving.

Furthermore, the future is referred to as if it lies ahead whereas the past is placed behind the speech time. This further indicates that Setswana utilises a horizontal front/back and left/right temporal axis. Further, these spatial referents are often paired with gestures when people talk about time. For instance, Setswana speakers gesture towards the space in front when talking about a future-related subject and backward for the past, or leftwards for the past and rightwards for the future.

5.4 Temporal locatives

Locatives express the location of someone or something in space, in time, or in an abstract domain. Temporal locatives, in particular, are locative forms that indicate time. In Setswana, they are formed from nouns by adding the suffix *-ng* and prefixing the resulting formation with *mo-* (Cole, 1955, p. 361). Impersonal nouns, other than class 9 nouns, take the suffix *-ng*. For example:

Letsatsi ‘sun, day’ -> *letsatsing* ‘on the day’

10. *Go ne go fed-ile mo letsats-ing leo.*
 It PST SM finish-PST on 6.day.REL that
 ‘It was finished on that day.’

Nako ‘time’ -> *nakong* ‘on/in time’

11. *Re tshel-el-a mo dinak-ong tsa diphetogo.*
 We live-APP-FV in 10.times.REL of 10.change
 ‘We live in times of change.’

Ngwaga ‘year’ -> *ngwageng* ‘this/that year’

12. *Lekgotla le ne la tsogelwa ke dikgang*
 5.council 5.SM PST 5.SM surround.PST by 10.news
mo ngwag-eng ono.
 this 9.year.REL this
 ‘The council was surrounded by scandal this year.’

Note that where the noun ends in *-a*, coalescence occurs (e.g. *ngwaga-ngwageng*; Mogapi, 1984, p. 146). As pointed out by Kimmerle (1996), there is a connection between time and place in Bantu languages: time is related to place as evidenced by Setswana temporal locatives.

5.5 Functions of temporal expressions

A closer look at Setswana temporal expressions discussed above indicates that there are different functions according to which these temporal expressions refer. These functions are discussed below.

- i. Some Setswana temporal expressions specify the *relative position* of a time span on the time axis in relation to other time spans which are supposed to be given in context (Klein, 1994). For example, *gompieno* ‘now’, *kgabagare* ‘later’, *kamoso*

- ‘tomorrow’. Deictic adverbials such as *gompieno* ‘now’ may be used to anchor a situation to the moment of speech, i.e. Speech Time.
- ii. Some Setswana temporal expressions specify the *duration* of a time span. These expressions specify the length of temporal entities, like time spans and situations obtaining at these time spans. Setswana expresses duration in terms of linear distance or physical length (e.g. *nako e telele* ‘a long time’, *sebakanyana* ‘a short period of time’) and in terms of amount or volume (e.g. *nako e ntsi* ‘a lot of time’). Other examples include *boripana* ‘brevity’, *mo letsatsing* ‘in a day’.
 - iii. Some Setswana temporal expressions indicate *frequency*, where the temporal expression shows the frequency of temporal entities, like time spans or possibly situations which obtain at these time spans. Examples include: *ga ntsi* ‘many times’, *ka metlha* ‘always’ and *malatsi otlhe* ‘everyday’.

5.6 Time intervals

In Setswana, as has been observed for other languages such as Portuguese and English (Sinha, Sinha, Sampaio & Zinken, 2011), some words name time intervals that are *event-based*. Event-based time intervals are those whose boundaries are constituted by the event itself. These events may be personal, social or natural. Many historical narratives such as personal birthdays are marked by prominent events which marked history (e.g. *O tshotswe ka ngwaga wa mabele a mantsho* ‘He/she was born in the year of black sorghum yield’) or social events such as a tribal victory at war (e.g. *ka puso ya ga Ntlatsang* ‘at the time of Ntlatsang’s rule’). These events determine the structure of time. Their reference is event-based, qualitative and not metric.

Natural events also greatly influence time: the movement and position of the sun, moon or the stars which indicate the period of a day, a month or year, the changing of seasons which are in turn related to certain practises (e.g. agricultural practises such as ploughing, harvesting, etc.). In fact, the names for day and month are *letsatsi* ‘sun’ and *kgwedi* ‘moon’, respectively. Much of lexical temporal reference in Setswana is event-based on such natural phenomena. For instance, *letsatsi* ‘sun’ is important for temporal expressions in Setswana, see Table 3 below.

Table 3: Examples of movements of the sun and how they influence temporal reference

Temporal Referent	Movement of the Sun	Time of Day
<i>makuku</i>	before the sun rises	very early in the morning
<i>moso</i>	sunrise	morning
<i>setlhoboloko</i>	when the sun is directly overhead; halfway between sunrise and sunset	specifically noon
<i>motshegare</i>	the middle of the morning and afternoon	daytime
<i>tshokologo</i>	when the sun moves westwards	early afternoon
<i>maitseboa</i>	afternoon to before sunset	late afternoon
<i>letlatlana</i>	dusk	early evening
<i>phirimane</i>	when the sun sets	evening
<i>bosigo</i>	when the sun has set	night-time

As illustrated above, many temporal expressions are based on the movement of the sun: before sun rise, when the sun rises, and when the sun sets. The movement of the sun indicates specific times that are tied to specific events and practises. The day in Setswana can therefore be divided into four principal time periods: *moso/phakela* ‘morning’, *motshegare* ‘daytime’, *maitseboa* ‘late afternoon’, and *bosigo* ‘night-time’. Each time period can further be sub-divided into smaller time divisions depending on the movement of the sun. The morning for instance has different time demarcations, e.g. *makuku* ‘before sunrise, very early in the morning’, *mahube a naka tsa kgomo* ‘reddish skies of cattle horns, dawning of the day’ and *mahube a basadi* ‘reddish skies of women, when there’s enough light for women to start domestic chores’.

Other Setswana temporal expressions, however, name time intervals that are *time-based*, e.g. *beke* ‘week, 7 consecutive days’ and *letsatsi* ‘twenty-four-hour-period, day’. Time-based time intervals are metric, i.e., they are based on measured abstract time units e.g. calendar time. These time intervals show time as a measurable activity, what Sinha et al. (2011) call *Time as Such*. Their measurement is arrived at by counting in a number system. Setswana has, for instance, calendar months such as *Mopitlo* ‘April’ and *Lwetse* ‘September’. Clock time is also utilised, e.g., *nako ya bosupa* ‘7 o’ clock’ and *motsotso pele ga bongwe* ‘a minute before 1’.

These metric conceptions of time are largely borrowed from western concepts of time. For instance, a month in traditional Setswana is measured according to the movement of the moon. A woman’s menstrual cycle, which occurs monthly, for instance, can be gauged based on the movement of the moon. Conversely, a year is traditionally measured according to seasons – beginning in summer and ending in

spring. For example, Batswana traditionally tell age in the number of summer seasons a person has lived through. These patterns show that traditional Setswana temporal expressions are non-metric but are instead event-based on natural phenomena. As stated by Babalola & Alokun (2013), African time is tied to events, as illustrated by Setswana examples discussed above.

5.7 *Time travel*

The analysis of Setswana temporal expressions shows that time is moving and not stationary. This is consistent with results from earlier research on languages such as English. Recall Lakoff & Johnson's (1999) observation that time is perceived similar to motion events. Time is conceptualized as motion. It moves in a way an object would move, as illustrated below.

13. *Nako ya thibelo e gorog-ile.*
 9.time of 9.prevention has arrived-PST
 'The time for prevention has arrived.'
14. *Mariga a ts-ile.*
 6.winter has arrived-PST
 'Winter has arrived.'

Notice how time is seen as moving to an arrival point in example (13) above. In (14), the temporal event 'winter' moves to an arrival point. These temporal references concur with earlier studies such as Clark (1973), who conceptualized the 'moving time' metaphor. The time for prevention is lexicalized as having arrived, which presupposes that time is capable of motion. However, motion is a custom of the physical, and time being abstract, is not physically able to move.

The movement of time in Setswana may be represented thus:

Figure 1: Setswana Temporal Movement

PAST	NOW	FUTURE
<i>maabane</i> 'yesterday'	<i>tsatsi jeno</i> 'today'	<i>kamoso</i> 'tomorrow'
<i>ngogola</i> 'last year'	<i>jaanong</i> 'right now'	<i>maitseboa</i> 'in the evening'

This shows that there is the present moment, which will pass and turn into the past, and there is the future, which is yet to materialise. This conceptualisation of time in Setswana differs from Mbiti's (1969) conceptualisation of African time as having no future reference – but only a long past and the present moment. Setswana temporal reference exhibits more than Mbiti's (1969) two dimensions as time is represented as moving and changing as it takes place in nature or the outside world: events for instance are not only in the past but are also in the future. Words such as *kgantele* 'earlier, later' even speak of a past and a future. Seasonal change, for instance, is

cyclical implying a forward movement. Since events such as seasons influence time reference, there is an expectation of a future. Unlike in Mbiti's Akamba language, Setswana lexically refers to the future: *isago* 'future', *kamoso* 'an unspecified future' and *bokamoso* 'future'. Mbiti's argument was based on the observation that East African languages do not have a single referent for distant future or metric time references to the future. Setswana time is understood in more than the two dimensions of long past and the present.

In addition to this movement ability, time in Setswana is cyclical. Seasons for instance are understood to be in a cyclical motion of one season after another. A new day, month, season, year, brings a new cycle. Each day the sun rises and sets, the seasons follow one another, etc. Time is conceived of as continuous in a cyclical continuum. This conception contrasts with the precision and accuracy of the linear western time which is measured by a mechanical device. As noted by Nnajifor (2016), this conception of time as ever flowing is the cause of the lax attitude to time by Africans, resulting in what is known as 'African Time', as time is perceived and conceived of as ever flowing and plenty. This view echoes sentiments of linguistic relativity where languages are believed to influence their speakers to think about the world differently.

6. Conclusions

The foregoing discussion has shown the relationship between time and the Setswana language, i.e. how Setswana lexically references time. Temporal reference is central to human discourse, therefore, Setswana employs a number of ways to refer to time: temporal adverbs, co-lexification, temporal locatives and spatial metaphors. Research on other languages such as English, Mandarin and Portuguese has shown that these devices are used cross-linguistically to refer to time (see e.g. Boroditsky, 2000; Boroditsky, Fuhrman, & McCormick, 2011).

The traditional character of time in Setswana was shown to be event-based on natural events (e.g. the movement of the sun, seasonal change) and societal moments (e.g. crowning a chief). Even though Setswana has adopted metric references of time such as months and days, Setswana still relies on event-based time reference. Many of the lexical forms used to reference time can be traced back to e.g. natural events, as shown in the discussion. These event-based and metric temporal references are sometimes used concurrently.

It was also shown in the discussion that Setswana temporal expressions provide information about time, duration and frequency of actions and/or events. Further, it has been shown that time in Setswana is not absolute but is seen as moving. In sum, Setswana lexical expressions of time indicate that Batswana perceive and conceptualise time as:

- Multi-dimensional: past, present, future, related to space
- Divisible: e.g. different times of the day, month, year
- Organic: influenced by nature e.g. sunrise, seasons, etc.
- In motion: circular passage of time, forms a continuum, cyclical
- Event-based: e.g. *ka maneelo* ‘in the morning’
- Metric: e.g. *motsotso* ‘minute’
- Abstract: time has no beginning and no end
- Concrete: temporal reference is based on and made up of events

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