

## Verbal Alternations in Sesotho: A Case of Lexical Semantics

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**ABSTRACT** This study discusses two types of verbal alternation in *Sesotho* that have the same syntactic structure, but differ in their semantic representations and in their lexical syntax structures. The first scenario: '*Ntate o motsutse lenala la ntja*' (Father extracted dog's nail) alternating with '*Ntja e motsutse lenala la yona*' (A dog extracted its nail). The alternating sentence can be interpreted as: 'A dog had someone extract its nail'. The second scenario is: '*Mong o robile molala wa Thabo*' (Someone broke Thabo's neck) alternating with '*Thabo o robile molala wa hae*' (Thabo broke his neck). We can interpret the alternating sentence as: 'Thabo is the possessor of the neck that suffers the break. Based on a more fine-grained approach of thematic roles and based on a semantic representation of the events encoded by these verbs the results show that these two forms have different interpretations due to different lexical semantic properties.

### INTRODUCTION

Recent studies on verbal alternations have shown that 'argument alternations' are found across languages and reinforcing the conclusion that this phenomenon is systematic. This observation is shared by Levin (2014) who take a look at the case studies of the developing understanding of the semantics and pragmatics of dative alternation and the causative alternation. Alexandra Spalek (2013) explored two kinds of uses of the verb 'romper' which show distinct alternation possibilities. According to Ramchand (2014), these alternations do not simply involve individual lexical items. Each alternation 'seems to productively available for a wide class of verbs in each case' (2014: 275).

There are two kinds of verbal alternations that are considered to be very productive in *Sesotho*. These verbal alternations still need to be further investigated. It is commonly assumed that the agent is the most prominent thematic role in relation to others, as it is located in the subject position. For example, the verb 'extract' has an agent and a patient. Its argument structure and the agent is located in the subject position. This structure is common in many languages including some African languages like *Sesotho*, *Setswana*, *isiXhosa*, etc.

(1) Father extracted dog's nail.

However, if we want to give prominence to the possessor inside the complex Determiner Phrase (DP), patient of the action, many languages like English, French, Italian, Spanish, etc.,

would prefer to use auxiliary verbs and/or clitics to do this verbal alternation:

- (2) John *had* his tooth extracted. (English)
- (3) *Juan se saco el diente*. (Spanish)  
Juan himself extracted the tooth
- (4) *Jean s'est fait arracher une dent*. (French)  
Jean himself made extract one tooth
- (5) *Gianni si è fatto estrarre un dente*. (Italian)  
Gianni himself made extract one tooth  
Cançado (2010:1)

Differently, in *Sesotho*, if we want to place this possessor in the subject position, we do not use clitics or auxiliary verbs in the alternate marked form, but we simply alternate the form [DP1 V [DP2 of DP3]] with [DP3 V DP2], as shown by the examples in (6) below:

- (6) a. *Ntate o motsutse lenala la ntja*.  
father extracted the nail of a dog  
'Father extracted a dog's nail.'
- b. *Ntja e motsutse lenala*  
a dog extracted the nail  
'A dog had its nail extracted.'

There is still another kind of sentence, very similar to the example above, which, at first glance, could be analyzed as the same phenomenon as (6) above:

- (7) a. *Mong o robile molala wa Thabo*  
someone broke the neck of Thabo  
'Someone broke Thabo's neck'
- b. *Thabo o robile molala*  
Thabo broke the neck  
'Thabo broke his neck'.

The form [DP1 V [DP2 of DP3]] alternate with [DP3 V DP2] syntactically; semantically, the thematic role of DP3, in the complement of the preposition of the basic forms is the same as the thematic role of DP3, in the subject position of the alternate form. Levin (1993) called this alternation “involuntary interpretation with X’s body part”. This is also possible in English, with no morphological marking (see Chomsky 1981; Levin 1993; Wierzbicka 1988), as it occurs in *Sesotho*. In *Afrikaans*, for instance we also have these alternating sentences, but there is a reflexive ‘sy’ in the alternate form:

- (8) a. *Iemand het Thabo se nek gebreek.*  
 ‘Someone broke Thabo’s neck’.  
 b. *Thabo het sy nek gebreek.*  
 ‘Thabo broke his neck’.

Based on these examples, one should conclude that examples in (6) and (7) illustrate the same phenomenon in *Sesotho*. Some studies about *Sesotho* show these alternations as being the same phenomenon (Du Plessis and Visser 1996; Du Plessis 1999, 2010; Phindane 2001, 2011; Phindane 2011): the alternation of an agent with a possessor in the subject position. Nevertheless, the possessors, in both alternate sentences, have a specific semantic distinction between them, which allows different interpretations. The sentence in (6b) can be interpreted as (and is the most usual occurrence):

- (9) A dog had someone extract its nail.

The sentence in (7b) cannot have the same interpretation:

- (10) Thabo had someone break his neck.

Therefore, the aim of this study is to show the nature and the differences between these two alternations and the constraints involved in these alternation processes. Section 2, will show the facts in *Sesotho* and draw the differences between these alternations; the thematic roles; semantic analysis and the L syntax analysis. In section 3, the study will provide the findings and discussion of the two alternations. Section 4, will be the conclusion of the study; while section 5 will outline the recommendations of this study.

#### **The difference between ‘Motsula Lenala’ (Nail Extract) and ‘Roba Molala’ (Neck Break)**

Besides the different interpretations of the above examples in (6b) and (7b), other distinct

properties distinguish these two verbal classes. Let us examine the facts in *Sesotho*.

#### **The Presence of the Agent as an Adjunct**

The alternate sentence in (6b) accepts an agent in adjunct position and this sentence can be paraphrased as (11b):

- (11) a. *Ntja e motsutse lenala ka ntate*  
 a dog extracted the nail with father  
 ‘A dog had its nail extracted by father’  
 b. *Ntja ntate o motsutse lenala la yona*  
 ‘A dog had father extract its nail’

Differently, the example in (7b) does not admit the agent in adjunct position and cannot have the same type of interpretation as the example in (11b):

- (12) a. *\*Thabo o robile molala ka mong*  
 ‘Thabo broke the neck with someone’

#### **The Subjects of the Alternate Sentences**

The subject of the alternate sentence in (6b) does not allow a composition with an adjunct that annuls control or volition over the event:

- (13) *\*Ntja e motsutse lenala ka ntate e se ka boomo/phoso*  
 ‘A dog extracted the nail with father not deliberately/mistakenly’

On the other hand, the sentence in (7b) accepts this kind of adjunction:

- (14) *Thabo o robile molala e se ka boomo/phoso*  
 Thabo broke the neck not deliberately/mistakenly  
 ‘Thabo broke his neck mistakenly’.

The facts that lead us to conclude preliminarily, that the subject of example in (6b) has some kind of agentivity and here it can be interpreted as if an indirect agent permits another agent to act in its place. This linguistic phenomenon allows both agents to be present in the sentence.

The alternate sentence in (7b) shows that the possessor, located in the subject position, is necessarily bound with the argument located in the object position, and it can have an affected reading.

#### **Inanimate Subjects in the Alternate Sentences**

Sentences of the type in (6b) cannot have inanimate subjects, contrary to sentences of the type in (7b):

- (15) a. *Thabo o motsutse letsoho la popi*  
 Thabo extracted the hand of the doll  
 ‘Thabo had the doll’s hand extracted’  
 b. \**Popi e motsutse letsoho*  
 ‘The doll extracted the hand’  
 (16) a. *Thabo o robile letsoho la popi*  
 Thabo broke the hand of the doll  
 ‘Thabo broke the doll’s hand’  
 b. *Popi e robile letsoho la yona*  
 The doll broke its hand’

This constraint is expected if we assume that the alternate form in (6b) has some sort of agentivity in the argument in subject position; a DP denoting an inanimate entity in this position is, therefore, semantically incompatible.

**The Syntactic Distinctions of the Subjects**

The researcher then examines the syntax of these alternations. On the surface level, that is to say, in the “profiled” syntactic form as Hale and Keyser (2002) termed it, the structures of both alternations are the same. However, if we take a closer look, we can remark some differences in the behavior of these types of verbs:

- (17) a. Father extracts a dog’s nail.  
 b. \*A dog’s nail extracts.  
 (18) a. Someone broke Thabo’s neck  
 b. Thabo’s neck broke

Hale and Keyser (2002) propose that the difference between verbs that undergo causative-inchoative alternation and verbs that do not allow the alternate intransitive form lies in the components of their root elements. The root component of alternating verbs requires specifier, in the projection of their lexical syntax, while the root element of the non-alternating verbs does not project a specifier. These properties account for the possibility of inchoative/alternation. Thus, the researcher will explore further these assumptions in order to give a structural explanation for the alternations studied here, assuming that, even if in ‘profiled syntactic’ form these two verb types have the same structure, they project different syntactic configurations, at the lexical syntactic level.

**Insertion of an Argument in the Subject Position**

Finally, the example in (6b) allows the insertion of another argument, annulling the co-reference of possessor and possessed present in

the alternate final form [DP3 V DP2]. The sentence in (7b) does not allow this insertion:

- (19) a. *Ntate o motsutse lenala la ntja ya hae*  
*ka ngaka ya diphoofole e hlwahlwa*  
*ho di feta toropong.*  
 the father extracted the nail of his dog  
 with the best of all animal doctor in the city.  
 ‘The father had the best vet in the city to extract his dog’s nail’.  
 (20) a. \**Ntate o robile molala wa Thabo ka*  
*ngaka e hlwahlwa ho di feta toropong.*  
 the father broke the neck of Thabo with  
 the best doctor in the city.  
 b. \**Ntate o robile letsoho la popi ka*  
*selokisi sa dipopi se hlwahlwa toropong.*  
 ‘the father broke the hand of a doll with  
 the best fixer of dolls of the town’.

**Preliminary Descriptions**

Based on the facts, the researcher proposes that the linguistic phenomena shown in (6) and (7) are distinct and that these phenomena are types of verbal alternations. In (6), It is assumed descriptively that such an alternate sentence has an indirect agent, the possessor in DP3, which licenses the agent of the basic sentence to perform the action. If the possessor in DP3 is co-reference with DP2, the syntactic configuration is:

- (21) [DP1 V of [DP2 of DP3]] alternating with [DP3<sub>i</sub> V DP2<sub>i</sub> (with DP1)]

However, as shown in (19), the insertion of another argument in the alternate form is also possible:

- (22) [DP1 V [DP2 of DP3]] alternating with [DP4 V [DP2 of DP3] (with DP1)]

It can be observed that the configuration in (21) is only a reflexive form of the configuration in (22). Now the possible interpretation for examples in (21) and (22) can be seen in (23) and (24) respectively:

- (23) [[DP3 CAUSE] [DP1 V [DP2 of DP3]]]  
 (24) [[DP4 CAUSE] [DP1 V [DP2 of DP3]]]

Hence, it is assumed that the alternation shown in (6) has the structure in (24) as its general structure, although the reflexive alternation in (21) is much more used in *Sesotho*. Example such as (19) demands certain contexts that need to be explored further. This type of alternation is similar to what Conçado (2010) termed “agent-

possessor alternation”. The alternation presented in (7) has a possessor of an affected object that can be located in its original position, inside the complex DP, complement of the basic form of the verb; or the possessor can be located in the subject position of the alternate form of the verb:

(25) [DP1 V [DP2 of DP3] alternating with [DP3, V DP2]]

Conçado (2010) labeled this alternation form “body-possessor alternation”.

### Thematic Roles

A number of Lexical Semanticists have explored the idea that the semantic determinants of argument realization derive from decomposing semantic roles, that is, the meanings of verbs themselves are decomposed into more basic elements, as assumed, for example, by Jackendoff (1983, 1990), Levin and Rappaport (1995, 2005), Van Valin and LaPolla (1997), Van Valin (2005), Acquaviva and Panagiotidis (2012) and Levin (2013, 2014), among others. As stated by Levin and Rappaport (2005: 69), ‘Predicate Decomposition is a representation of meaning formulated in terms of primitive predicates chosen to represent components of meaning that recurs across significant sets of verbs’. Since verbs individuate and name events, we can assume that theories of predicate decomposition are also theories of events types. For example, verbs like ‘extract’ and ‘break’ would be:

- (26) a. *extract*: [x ACT] CAUSE [y BECOME <EXTRACT>]]  
 b. *break*: [x ACT] CAUSE [y BECOME <BREAK>]].

Levin and Rappaport (2005) assume that the event encoded by these verbs is “an externally caused event”. These events are conceptualized as brought about an external cause with immediate control over the event. The core verbs lexicalizing externally caused events are change-of-state verbs, such as *motsula* ‘extract’ and *roba* ‘break’. On the other hand, verbs that encode internally caused events are conceptualized as arising from inherent properties of the entity participating in this event. These properties are responsible for the event; no external force is required. Consequently, analyzing these alternations in a predicate decomposition representation will not be helpful. However, the study will show further that using these predicates as

semantic primitives and using the distinction between externally caused event and internally caused event will be useful in establishing the properties involved in the alternations studied here.

Another approach has been widely discussed and adopting in the literature: Dowty’s entailment proposal (1981, 1991); which is also shared by Turney and Mohammad (2014). Dowty understands that thematic roles are not semantic primitives but are defined in terms of entailments of a predicate, that is, a thematic role is a cluster of entailments about an argument position that are shared by some verbs. He suggests that there are two proto roles: Proto – agent and Proto-patient, each of which would contain specific list of entailments. Now Dowty’s proposal is going to be applied to analyze the verbs *motsula* ‘extract’ and *roba* ‘break’. For the argument in the subject position, both verbs entail the Proto-agent entailment: causing a change of state in another participant. For the argument in the object position, both verbs entail the Proto-patient entailments: undergoes change of state and causally affected by another participant. Consequently, the semantic representation of the verbs will be the same, so this approach also fails to distinguish between *motsula* ‘extract’ and *roba* ‘break’ verbs. But, as indicated by Dowty, labels such as Agent and Patient Proto-roles are enough for the purposes of subject and object selection.

The idea cited from the abovementioned semanticists and Dowty that thematic roles are a derived notion, composed by semantic primitive properties will be borrowed. To establish these properties, Dowty’s proposal is used, stating that an individual thematic role is a set of lexical entailments assigned to an argument by a predicate. The argument in complement position receives, as thematic role, a cluster of lexical entailments of the lexical predicate (V, P, A, or N). For instance, the thematic role of the argument in complement position of the verb *roba* ‘break’ is a list of properties entailed by the verb: to be affected, to undergo change of state, to be broken, etc.

As Dowty (1989) observes, defining thematic roles as the researcher proposed gives us an intersectional of *any set of* entailments of individual thematic roles. As a result, we can have an enormous list of entailments, and consequently, an enormous list of semantic properties. How-

ever, the researcher's proposal here is to show the relevant entailment for these verbal alternations in *Sesotho*. To do this, the researcher used the primitive predicates from the predicate decomposition approach and the list of entailment proposed by Dowty. It should be noted that the list and the type of thematic roles are not relevant in this proposal; but a thematic role is a set of properties that can be combined in many ways, with no specific label, that is assigned to one argument, maintaining the assumption of the Theta-criterion. On the other side, the semantic primitive properties that compose thematic roles have grammatical relevance and the list of these properties is limited. By assuming this compositional nature, we can eliminate what Dowty (1991: 553-555) name "role fragmentation", the subdivision of a single role into multiple roles. Here, a thematic role keeps its uniqueness, but its semantic content can be composed in many ways by some delimited properties. For example, in the sentence *Thabo run*, we can assign one sole thematic role to the DP *Thabo*, which is a set of lexical entailments from the VP [*to run*]: volitional involvement in the event, causing an event, movement, and undergoing change of state (or place) (a proto-patient property); these four properties are the thematic role assigned to the argument I the subject position of the sentence. However, we can have properties usually associated only with 'patients' assigned to 'agents'. Another example would be the sentence: *Thabo writes a letter*. The thematic role assigned to *Thabo* by the entailments of the VP [*to write a letter*] could be this set of properties: volitional involvement in the event and causing a change of state in another participant (if we assume that resultatives also suffer a change of state); these two properties are its thematic role. We can see, if we just assume a label like 'agent' to define a thematic role, in these two examples we would have two types of agents, which would be a problem of subdivision of a single role into a multiple role, as pointed out by Dowty and many others. Hence, the flexible nature of this approach can be useful to solve problems involving thematic role assignment.

### *Semantic Properties*

Many linguists assumed that the concept of CAUSE is crucial to the relation of semantic and argument realization. Based on Levin and Rap-

oport (2005), this study proposes that some causative verbs can be decomposed into primitive predicates, such as (45) below, where *x* can be an external force, like agent or an instrument or an eventuality; *y* is the entity affected; and *V* is an idiosyncratic element of meaning, a root, related directly to the verb:

(27)  $v:[x(\text{ACT})] \text{CAUSE} [y \text{BECOME} \langle V \rangle]$

This semantic representation differs from Lavin and Rappaport's by proposing a more specific representation of verbs that encode externally caused events (refer to example (26) above). It can then be proposed that some verbs of this type have the predicate ACT represented only optionally, because if *x* is the volitional agent of the action, this is not inherently marked in the verb, but only marked in the sentence, by the adjunction of a modifier:

(28) a. *Monna o bolaya dintja.*

'The man kills the dogs'

b. *Monna o bolaya dintja ka boomo.*

'The man kills the dogs deliberately'

The sentence (28a) does not entail that *monna* 'the man' acted deliberately because *monna* 'the man' volitional action is not marked inherently in the verb *bolaya* 'kill'. However, in (46b), the interpretation that *monna* 'the man' is a volitional agent comes from the adjunction. That is why the researcher proposes the optional predicate ACT in the representation. As the researcher wants to list the primitive properties that can be combined into a cluster of properties that compose thematic roles, first, the researcher adopts the notion of cause as a semantic primitive; then, associate this predicate with Dowty's entailments: causing an event or change of state in another participant. Hence, if in a sentence like [DP1<sub>vp</sub>[V DP2]], VP entails for DP1 the property – causing an event or change of state in another participant-, we can affirm that cause is one of the properties of the thematic role assigned to DP1, where the thematic role is P<sub>n</sub> (DP1). See example (29), below:

(29) *Thabo hamore/lejwe le robile pilara.*

'Thabo/hammer/ stone broke the pillar'.

The VP [*ho roba pilara*] entails the cause property for *Thabo hamore/lejwe le robile pilara*. By assuming this, the researcher does not propose that the thematic role of these arguments is CAUSE; but the study propose that CAUSE is one of the properties that can be associated, by VP entailments, to the argument in subject position. Therefore, the cause property

can be present in various types of thematic roles, usually named in the literature as ‘agent’, or ‘immediate cause’ or ‘effector or even ‘instrument’. In addition, look at these sentences:

(30) *Thabo o fenethile mmolai*  
‘Thabo assassinated the murderer’

(31) *Thabo o rekile koloi.*  
‘Thabo bought a car’.

The semantic representation of the sentences in (30) and (31) will include necessarily the predicate ACT, because the deliberate action of *Thabo* is inherently marked in the verb and will be classified as another type of verb that encodes an externally caused event; there is an external force causing the event, with immediate control over it:

(32)  $v: [[x \text{ ACT}] \text{ CAUSE } [y \text{ BECOME } \langle V \rangle ]]$

Connecting this representation with Dowty’s entailments, it can be assumed that the VP [*ho fenetha mmolai*] entails for *Thabo* the cause property; but also that the VP entails for *Thabo* the property – *volitional involvement in the event-*, which Cançado (2010) named “volition”. Volition is associated with the primitive predicate ACT and it is the second relevant property analyzed here. The argument  $x$  cause the event, but  $x$  also has volition in causing it. So, if in a sentence like [DP1<sub>vp</sub>[V DP2]], VP entails for DP1 the property- *volitional involvement in the event-*, we can affirm that volition is one of the properties of the thematic role assigned to DP1. Thus, we can affirm that the thematic role P<sub>n</sub> (DP1) is a cluster of the properties: cause and volition (among other non-grammatically relevant properties).

The third relevant property the researcher would like to list is already explicit in the semantic representation in (32): [ $y$  become  $\langle V \rangle$ ]. The predicate *become* is associated with Dowty’s entailments: it undergoes change of state and it is causally affected by another participant. Cançado (2010) named this property “affected”. For instance, in (29) above, the VP [*ho roba pilara*] entails for the argument DP2 that it undergoes change of state and is causally affected by another participant; hence, among all the properties entailed for DP2 by VP, we can affirm that the affected is one of the properties of the thematic role assigned to DP2. Besides, Levin and Rappaport’s (2005: 72) assumption was followed, which differentiates verbs that encode an externally caused change of state and verbs that encode an externally caused change of location.

The following structure was proposed for both occurrences:

(33)  $v: [[x \text{ (ACT)}] \text{ CAUSE } [y \text{ BECOME } \langle \text{STATE} \rangle ]]$

(34)  $v: [[x \text{ (ACT)}] \text{ CAUSE } [y \text{ BECOME } \langle \text{LOCATION} \rangle ]]$

Now let us, scrutinize verbs that encode an internally caused event. Cançado (2010: 10), citing Levin and Rappaport (1995), observed that verbs like “*laugh*” encode an internally caused event and has an inherently monadic predicate; its predicate represented as follows:

(35) [ $x \text{ PREDICATE}$ ]

Radford (1997)’s hypothesis about unergative verbs can be assumed contrary to the representation in (35) above. He proposes that only one real monadic predicates are the unaccusatives, verbs that have one argument that behaves syntactically like a complement. Unergative verbs, included *laugh*, have an implicit argument:

(36) He laughs (a good laugh)

(37) He sings (a beautiful song).

(38) John eats (an apple).

(39) He reads (a book).

(40) She bakes (some cakes).

The semantic of these verbs illustrate common inherent properties of the entity participating in the event. These properties are responsible for the event, with a self-controlled body acting volitionally; no external force is required. On the other hand, these verbs have also in common that their arguments in the subject position are affected by the action. The subjects of verbs denoting externally caused events can now be compared and have a complex event structure, with two subevents. It can be affirmed that the result of the second sub-event does not affect the subject of the first sub-event. For example, we can divide the sentence *John broke the pot* in two subevents. The result – *a broken pot* – does not cause any change of the state in *John*. However, in the sentence *John ate a pie*; the result – *eaten pie* – causes a change of state of John, because this process occurs within John. The event structure of these verbs will be excluded. By using Jackendoff (1990)’ primitive predicate AFFECTED, Cançado (2010:10-11) propose that verbs denoting internally caused events also denote the affectedness of their argument in subject position.

The fourth relevant property for the researcher’s analysis here derives from the semantic rep-

resentation of the state verbs, proposed by Van Valin (2005). He proposes that state verbs have two arguments; and this can be list as pure location, perception, cognition, desire, possession, among others. The thematic relations of these two arguments can be defined in terms of logical structure argument positions. Therefore verbs of possession can have a logical structure [HAVE (x, y)], where the thematic role of x is a possessor and the thematic role of y is a possessed. This proposal is extended for the relation between [DP1 of DP2]: if the preposition establishes a relation of possession between DP1 and DP2, this entails a property of possessed for the thematic role of DP1 and a property possessor for thematic role of DP2.

By adopting the thematic role analysis in terms of entailment, associated with the analysis of event types that are encoded by some verbs, a semantic analysis for verbal alternation phenomena studied here can be proposed. The advantage of connecting these approaches can be illustrated in two ways. Firstly, dealing with a predicate decomposition of the verbs can capture the generalization about the event types, grammatically relevant, and can capture the primitive predicates assumed by most linguists, as a limited inventory of relevant properties of the language. Apart from that, the event structure representation can also capture the idiosyncratic element of a verb's meaning. Therefore, individual verb meanings are represented by primitive predicates together with an idiosyncratic element of the meaning. The idea that the idiosyncratic element in this analysis makes it possible to establish a connection with Hale and Keyser's (2002) proposal, which adopts the concept of a verb root element to give a theoretical explanation for lexical syntactic structures of types of verbs.

The second point will be the advantage of using Dowty's entailment. The argument position in a predicate decomposition analysis may correspond to a thematic role, in a coarse-grained size. But for the alternations studied here, we need a finer grain-size definition of thematic roles. Hence, correlating the primitive predicates with more specific semantic properties can give us this fine-grained size approach, without losing the advantages of a predicate decomposition analysis. Furthermore, the definition of thematic role proposed also does not eliminate the "reified" sentence, nor does any grammatical pro-

cess refer to them (see Davis and Koenig (2000: 74) and Van Valin (1999: 386 387) According to the researcher, thematic roles are actually assigned to a verb's argument, allowing rules of grammar to refer to them.

### The Semantic Analysis

#### *The Semantic Representation of the Alternate Sentences*

As illustrated earlier, if we compare the two final alternate sentences, they show the same profiled syntactic structure:

- (41) a. *Ntja<sub>i</sub> e motsutse lenala<sub>i</sub> (ka Ntate).*  
'The dog extracted the nail (with the father)'  
b. *Thabo<sub>i</sub> o robile molala<sub>i</sub> (ka ho wa).*  
'Thabo broke the neck (with the fall)'.  
(42) [DP3<sub>i</sub> V DP2<sub>i</sub>]

Yet, there are semantic distinctions in the interpretation of the sentences above (not if the interpretation is that of an agentive event). The agent-possessor alternate sentence, in (41a), and the body-possessor alternate sentence in (41b) can be represented in terms of primitive predicates, respectively, as:

- (43) *motsula*: [[z, ACT] CAUSE [[x ACT]]  
[y<sub>i</sub> BECOME <MOTSULA>]]]  
(44) *roba* : [y BECOME <ROBA>]

However, the alternate sentence of the agent-possessor alternate admits the insertion of another argument, and we still have an interpretation that an indirect agent licenses another agent to do something for a third person, even though these sentences are less frequent. This could be represented as [DP4<sub>i</sub> V [DP2 of DP3<sub>i</sub>]]:

- (45) *Mme o kutile moriri wa mora ka mokuti ka boomo/\*ka phoso.*  
the mother cut the hair of the son with the barber deliberately/mistakenly

Besides, these sentences seem more acceptable if there is a familiar relationship between DP3 and DP4; if this relationship is not present, the sentences seem very odd:

- (46) \* *Ntswaki o motsutse leino la Thabo ka ngaka ya meno.*  
'Ntswaki extracted the tooth of Thabo with the dentist'  
(47) \* *Ntswaki o kutile moriri wa Thabo ka mokuti.*  
Ntswaki cut the hair of Thabo with the barber'

- (48) \* *Thabo o hlatswatsitse koloi ya Ntswaki ka moshemane ya hlatswang makoloi.*

‘Thabo washed the car of Ntswaki with the boy who washes cars’

It can be noted that the sentence in (46) to (48) have the same semantic structure, in terms of primitive predicates, like the predicate shown in (43):  $[[z_i \text{ ACT}] \text{ CAUSE} [[x \text{ ACT}]] \text{ CAUSE} [y_i \text{ BECOME} \langle \text{STATE} \rangle ]]]$ . If we maintain the familiar relationship between  $z$  and  $y$ , we can insert recursively more arguments, such as [DP2 of DP3 of DP4 of ...]:

- (49) *Mme o kutile moriri wa motswalle wa moradi wa hae ka mokuti ka boomo.*  
 ‘the mother cut the hair of the friend of her daughter with the barber deliberately’.

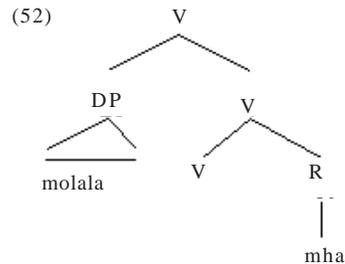
One would say that evidently, these last sentences are much less used, although they are grammatical.

### The L-Syntax Analysis

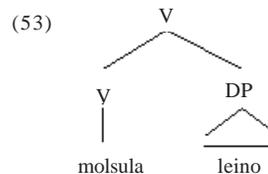
According to Hale and Keyser (2002), argument structure is the syntactic configuration projected by a lexical item. It is the system of structural relations established between heads and their arguments within the syntactic structures projected by nuclear items. This postulation delimits that the behavior of lexical items is due to structural relations. Besides, lexical items, such as verbs, have two components: (i) the categorial signature  $V$  and (ii) the root component, a core lexical item comprising the correct phonological matrix and the correct semantic structure. There are certain aspects of the meaning structure. Therefore, the study will explore the lexical semantic analysis proposed here related with the lexical syntactic analysis proposed by Hale and Keyser (2002), to show the structural differences between these alternations. Take a look at these two examples, with *roba* (break) and *motsula* (extract) verbs:

- (50) a. *Thabo o robehile molala*  
 Thabo broke the neck  
 b. *Molala o robehile*  
 The neck broke
- (51) a. *Ngaka ya meno e motsutse leino*  
 the dentist extracted a tooth  
 b. \**Leino le motsutse*  
 the tooth extracted

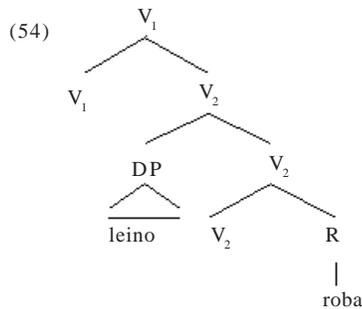
Hale and Keyser (2002) propose that the verb *roba* (break) consists of two structural elements: a root (R) and a verbal host (V). The verbal component takes a complement, realized as the root. The root contains the semantic and the phonological features. The root component of this type of verb requires a specifier, projecting an argument structure, as shown in (52):



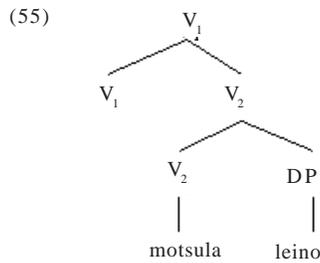
This is an essential feature of the root (R = *roba*), accounting for the canonical causative – inchoative alternation, specific of these type of verbs. On the other hand, there are some verb roots that do not require a specifier; therefore the verb cannot project a specifier. Thus, this root properties account for the ill-formedness of causative-inchoative alternation, as it is the case of verb of the type *motsula* (extract). The verbs that head these projections share a certain property, characteristic of the argument structure type they represent: they take a complement and the structure they project does not include a specifier. These verbs are assumed to be monadic, in relation to the arguments (complements and specifiers) that must appear internal to the lexical configuration associated with a lexical item. In sentential syntax, these verbs are ordinarily dyadic, so they have subject and object:



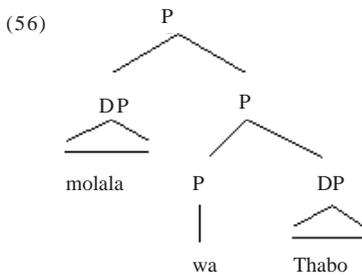
Transitivization of verbs of the type *roba* (break) is in principle automatic, by virtue of the complement relation. The transitive structure in (50a) results from the combination, via Merge, of structure in (52) and a verbal nucleus  $V$ , as in (54):



Transitivization of verbs of the type *motsula* (*extract*) is impossible because there is no internal argument, in specifier position, to be licensed by V<sub>1</sub>, assuming that to be a requirement for convergence, as shown in (55):



This follows from the nature of the root *motsula* (*extract*), which does not force the verb to project a specifier. However, our sentences are not exactly of the type in (50) and (51). They are more complex, presenting a complement, [DP of DP]. For Hale and Keyser (2002), every preposition has an essential and inherent lexical character of head and requires a complement and a specifier, having a dyadic I-syntax, that is, the structural configuration defined by a head that project two internal arguments positions, according with its elemental lexical properties:

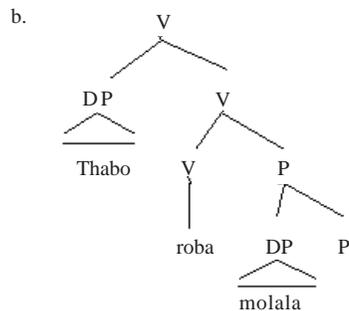
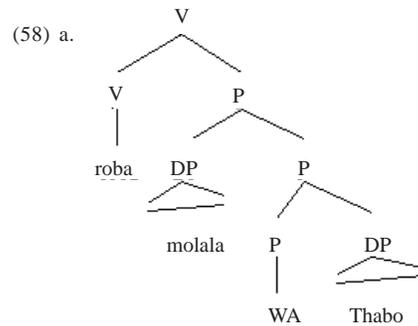


Thus, the syntactic argument structure assumed in (56), permitting the specifier and the complement positions, defines an entirely local structure corresponding to the birelational character of prepositions. As it is well assumed, prepositions are prototypically birelational, since they specify a relation between two entities, in this case, a possession relation.

As now the conditions are clear to propose the argument structures of the two alternations, let the body-possessor alternation be repeated to have a better perspective:

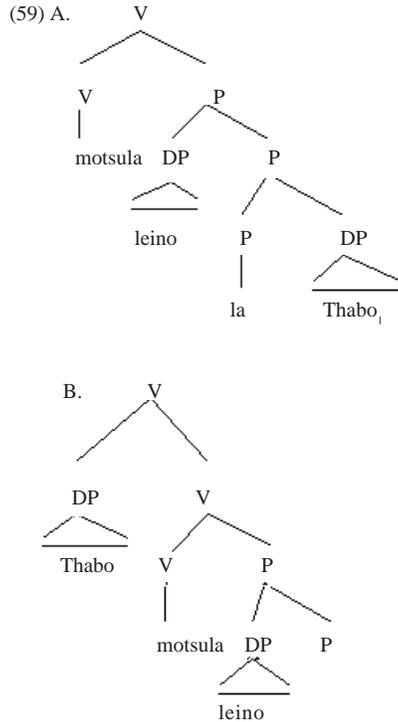
- (57) a. *Kotsi e robile molala wa Thabo*  
 the accident broke the neck of Thabo  
 b. *Thabo o robile molala*  
 ‘Thabo broke the neck’

The two alternate sentences are defined by the operation of Merge (Chomsky 1995). Following Hale and Keyser (2002), the alternate sentences in (57) result from “immediate gratification” of P, as shown in (58a); and the other alternate variant results from “delayed gratification” on that requirement, as shown in (107b):



In (58), there are the variant forms, projecting two internal arguments in the I-syntax, binding by a possession relation, presented in P.

However, the agent-possessor alternation differs from body-possessor alternation in its I-syntax, as can be observed in (59):



The DP, *Thabo*, can only be raised to an external argument, in the sentential syntax, because the root element of *motsula* (*extract*) does not project a specifier position in I-syntax. The presence of P maintains the possession relation between DPs.

This proposal is compatible with the semantic representation given for the verbs of the types *motsula* (*extract*) and *roba* (*break*), in (60) and (61), respectively, where <V> are the root elements, (a) sentences are the semantic representation of the basic sentences, and (b) sentences are the semantic representation of the alternate sentences:

- (60) a. [[x ACT] CAUSE [y BECOME <MOTSULA>]]  
 b. [[z<sub>i</sub> ACT] CAUSE [ [x ACT]] CAUSE [y<sub>i</sub> BECOME <MOTSULA>]]
- (61) a. [[x ACT] CAUSE [y BECOME <ROBA>]]  
 b. [y BECOME <ROBA>]]

To participate in the agent-possessor alternation, the representation of *motsula* (extract) must have an inherent agent as in (60). This is compatible with the adverbial feature “agent-manner”, presented in these verb root elements, which predicts that this type of verb must have an external argument to bind its agent-manner feature. Besides, the possibility of insertion of another agent, recursively, in the subject position of the agent-possessor alternate sentence may be evidence that this argument cannot be a projection of V, in its I-syntax.

The semantic representation in (61) is also compatible with the adverbial patient-manner feature, which predicts that I-syntax of the verbs of the type *roba* (break) has two internal arguments in its alternate form, because the alternation can present a causative interpretation in its basic, sentence, but can only have an affected (“patient”) interpretation in its alternate form.

## FINDINGS AND DISCUSSION

When coming to the semantic analysis, the main conditions involved in these alternation occurrences are associated with the lexical nature of the verbs. Both alternating type of the verbs shares one condition: they cannot encode movement. However, they differ in the following ways: the basic sentence of the agent-possessor alternation must have a verb that encodes an externally caused event with an inherent agent or an agentive interpretation (not affected), while the basic sentence of the body-possessor alternation must have a verb that encodes an externally caused event, not necessarily agentive. But even if we reach these conditions, there are still other constraints blocking these alternations, related to the specific nature of the possession relation denoted by the argument, the phrase [DP2 of DP3], located in the object position.

It is important to note that after comparing the properties analyzed above, we can see that the main difference between the alternations is the nature of the lexical-semantics of the verb, which is what ultimately seems to be the reason behind the possibility of existing one alternation or the other. As the semantic representations of both alternations are distinct, we could expect that these verbs also project different syntactic structures. And since in the profiled syntactic form, these differences do not show up, they must appear in another level. Thus, to

propose a structural analysis that can predict these occurrences. An intermediate level will be assumed between sentential syntax and semantic representation, the Lexical Syntactic level, proposed by Hale and Keyser (2002).

Concerning the L Syntax analysis the difference between these two verbs lies in the semantic components of their root elements. This difference might be termed “manner factor” inherent in the semantics of the root. Following Hale and Keyser, we can propose that the verbs of the type *roba* (*break*) can be termed *patient – manner* because they include, perhaps in their lexical encyclopedic entries, an adverbial semantic “feature” that identifies the physical motion, distribution, dispersal, or attitude of the entity denoted by the argument (the “patient”) occupying the specifier position in the P-projection that functions as their complement. They are verbs alternating types in their l-syntax, because the lexical semantic adverbial feature is associated with an internal argument. Thus, the alternate form [DP V DP] of the body-possessor alternation has two internal arguments, despite their profiled syntax.

Contrarily, verbs of the type *motsula* (*extract*) might be termed *agent-manner* verbs because they include an adverbial feature that describes the action of the entity denoted by their external argument, in the sentential syntax: to “extract X of Y” requires an “agent” who executes the gestures that, in accordance with the lexical encyclopedic entry, are necessary in performing the action. This prevents the l-syntax of *motsula* (*extract*) verbs to have two internal arguments: the agent-manner adverbial feature, presented in its root element, must be correctly associated with an external argument. So, the DP, Thabo, can only be an external argument in the sentential syntax.

The analysis of the collected data has shown the difference between these two linguistic phenomena. The main conditions that allow these alternations occur are due to the lexical nature of the verbs. Both alternating type of verbs shares one condition: they cannot encode movement. However, they differ, semantically, in the following ways: the basic sentence of the agent-possessor alternation must have a verb that encodes an externally caused event with an inherent agent or an agentive interpretation (not affected), while the basic sentence of the body-

possessor alternation must have a verb that encodes an externally caused event (not necessarily agentive). Furthermore, both alternating basic sentences must have an argument in object position that denotes a possession relation, but not of the type of a family relationship. The possessor relation of the body-possessor alternation must be exclusively inalienable.

These semantic distinctions are responsible for different syntactic projections at the l-syntax representation, proposed by Hale and Keyser (2002). The root element of the verb type *roba* (*break*) forces the verb to project a specifier position, while the nature of the root element of the verb type *motsula* (*extract*) does not force the verb to project a specifier. These different projections are due to what Hale and Keyser (2002) term “manner factor” inherent in the semantics of the verb roots. Verbs of the type *roba* (*break*) have, in its root element, an adverbial semantic feature – affectedness – associating the argument with the specifier position in their l-syntax. Thus, the alternate form [DP3 V DP2] of the body-possessor argument structure has two internal arguments, despite their profiled syntactic form. By contrast, verbs of type *motsula* (*extract*) include an adverbial feature that describes the action of the entity denoted by their external argument, in the sentential syntax. This prevents the l-syntax of the verb *motsula* (*extract*) to have two internal arguments: there must be an external argument in the sentential syntax to bind the agent-manner feature of the verb root element. Consequently, the alternate form [DP3 V DP2] has an external argument.

## CONCLUSION

The study has shown that there are two types of verbal alternation in Sesotho that have the same profiled form, but are different in their semantic representation and their l-syntax structures. The first alternation has as a basic sentence – *Ntate o motsutse lenala la ntja* ‘The father extracted the dog’s nail – alternating with – *Ntja e motsutse lenala la yona*. The alternate sentence can be interpreted as: *A dog had someone extract its nail*. This alternation was called “agent-possessor alternation”. The second alternation was called “body-possessor alternation” and its basic sentence is: *Mong o robile*

*molala wa Thabo* 'Someone broke Thabo's neck' alternating with 'Thabo o robile molala wa hae' 'Thabo broke his neck'. The alternating sentence can be interpreted as: *Thabo* is the possessor of the neck that suffers a process of breaking.

### RECOMMENDATIONS

This study showed that two verbs from the same class, (that is, verbs of change of state), need to be treated differently. When dealing with these two verbal alternations, it is required that a more specific analysis of the properties involved in the thematic roles is required. Another point is that the meaning of a predicate, especially a verb maybe characterized via the relations that its argument bear. As argument alternations have become better understood, it has become clear that no single account can cover all alternations. There are a variety of components to the account of any one alternation, and although there may be some shared elements in the accounts of diverse alternations, the accounts may also differ in some respects. This study will open doors for further studies, since there seems to be lack of research in African languages in this field.

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