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An Assessment of Argument Licensing Morphology in the Sentence Structure of Lutsotso

Evaline Osore
Department of Linguistics, Maseno University, Kenya
David Ongarora
Department of Linguistics, Maseno University, Kenya
Peter M. Matu
Department of Languages and Communication Studies, Technical University of Kenya

Abstract:
This paper focuses on Lutsotso verb derivation as the major morphological process involved in argument licensing. This paper, therefore, discusses verbal derivations and movement for feature checking using Chomsky's Government and Binding (GB) theory and the Minimalist Program (MP). In addition, the paper delves into the argument changing processes in the syntax of Lutsotso. Subsequently, relevant morphological processes associated with verb valence are analyzed since they determine the argument structure of the verb.

Keywords: Argument, Licensing, Morphological Processes, Valence, Lutsotso

1. Introduction

This paper analyzes argument licensing morphology in the Lutsotso sentence. Lutsotso belongs to a language group known as Luluhyia. In a broad classification, Luluhyia belongs to the northern Bantu group. Bantu languages are classified by Guthrie (1948) into twenty zones and these zones are further subdivided into groups depending on peculiar features which are not necessarily confined to the zone in question. Guthrie categorizes Lutsotso under the HADGA group, a sub-group number 30, which falls under zone E. The HADGA group includes other Luluhyia dialects such as the Wanga, Bukusu, Nyore and Samia. According to Sutton (1970), the Abaluyia people were known as Wakavirondo. This was because they lived to the north of Kavirondo gulf and were normally regarded as a group of "tribes'' or sub – tribes. The term Luyia is used to refer to the Bantu group of peoples who live on the Kenya - Uganda border, whose southern limit is Mt Elgon and who border the Kalenjin and the Luo to the East and South, respectively. According to Odhiambo (1977), the Luluhyia are an amalgam of people with various origins. Luluhyia language is made up of seventeen dialects. Osogo (1965) categorizes these dialects into four groups as follows: Northern dialects, Central dialects, Eastern and Southern dialects. Lutsotso, the focus of this paper, belongs to the Central dialects of Luluhyia language which is spoken in Kakamega Central, Lurambi division, Kakamega County, Kenya.

Arguments are referred to as participants and the semantic roles that are normally associated with a given verb, in which participants are subject, objects or complements in a given sentence (Payne, 1997). On the other hand, Haegeman (1991) refers to arguments as participants, minimally involved in the activity expressed by a predicate. Therefore, an argument in this sense is equivalent to any NP position within a sentence.

The notion of valence in linguistics is seen to take over and extend the traditional and more restricted ideas of transitivity and voice. Traditional grammarians distinguish intransitive and transitive verbs. Chomsky (1957) achieves this by using sub-categorizations rules that show the syntactic environment in which a verb can be part of as illustrated in Table 1.

Types of Verbs	Complementation Patterns
Intransitive	V[----]verb has no complement
Transitive	V [----P]verb has one complement
Distransitive	V[--NP, NP] verb has two complements

Table 1: Sub- categorizations of verbs

Table 1 illustrates the sub-categorization rules of intransitive, transitive and ditransitive verbs. A transitive and ditransitive verb is preceded by one complement and two complements respectively, unlike an intransitive verb which does not require to be followed by any object (complement).

Valence is a term that refers to the number and type of bonds which syntactic elements may form with each other (Crystal, 1997). This term is used for the distinct nominal constituents occurring with a verb. Chomsky (1957) explains that a verb is the most fundamental element of a sentence, which presupposes the presence of participants that play different syntactic and semantic functions in a sentence.

According to Brown and Miller (1996), valence is a verb's capacity to combine particular patterns of other sentence constituents as explained in the following example:

1. John killed a bird

    The above sentence has two arguments: John (subject) and bird (object).These two arguments have bonded with the verb 'kill' to form a syntactically well-formed sentence. Haegeman (1991) explains that the subject and object are external and internal arguments respectively because the former is outside the verb, while the latter is part of the predicate.

    The structure of the arguments determines the clarity of the sentence. Grimshaw (1990) notes that the argument structured representation indicates prominence in relations among arguments. For a verb, these arguments or valence can increase or decrease depending on the type of verb. For example,

2. A goat was killed

    In the above sentence (2) there is only one argument (goat). It is no longer important who killed the goat, but that subject argument (goat) is done away with which is a good example of a valence decreasing process. Payne (1997) concurs with Chomsky (1957) that the notion of valence is closely (aligned) related with the traditional idea of transitivity. A transitive verb has more than one argument, while an intransitive verb has one argument or participant as shown in the given examples (3) and (4).

3. The child is sleeping.

4. Peter killed a lion.

    The verb (sleep) in (3) is an intransitive verb with the argument 'child'. The verb 'kill' in (4) is transitive since it indicates the killer and the item killed. Example (4) has two arguments: 'Peter' and 'lion'. Intransitive verbs are univalent because they comprise of one argument or valence such as 'sleep'. In contrast, transitive verbs such as 'kill' are divalent because they have two arguments or valence. Further, verbs with three arguments are trivalent verbs. Example (5) below illustrates a trivalent verb.

5. Jane gave the baby milk.

    The verb (gave) in (5) has three arguments: Jane, baby and the object milk. Syntactically, valence is the number of arguments present in a clause, while semantically it is the number of participants embodied by the verb (Payne, 1997). Verbs in Lutsotso have derivational morphemes that cause valence by either increasing or decreasing the number of arguments that a verb has at a given time.

2. Valency Increasing Processes

Valence increasing processes adds an argument to the verb and upgrades a peripheral participant to a core and obligatory role. Lutsotso has derivational affixes that license the verb to have an extra argument. These affixes are: applicactive, causative and the instrumental.

2.1. The Applicative

The applicative refers to the notion of doing something to benefit someone else (Mchombo, 2004). In Lutsotso, the applicative morpheme is {–i-} or {–el-}. These suffixes are added to the verb to create the derived verb in which the prepositional complement becomes a direct object of the verb as shown in 6 below:

6. Omu – khana a – tekha – nga amapwoni.
    SM – girl SAM – cook – prog potatoes
    The girl is cooking potatoes

The above sentence (6) has two arguments *omukhana* (girl) and *amapwoni* (potatoes).

7. Omu – khana a – tekh- el -a – nga omu – cheni amapwoni.
    SM – girl SAM – cook- APPL – prog SM – visitors potatoes
    The girl is cooking potatoes for the visitors.

In sentence (7) the applicative marker {-el-} has been suffixed to the verb *tekha* (cook) and has licensed an extra argument. In this case the *omucheni* `visitor' who is the beneficiary. As such, the arguments are *omukhana* (girl) *amapwoni* (potatoes) and *omucheni* (visitor).

Example (6) is a univalent sentence with the external argument *omukhana* (girl). The addition of the applicative morpheme {-el-} leads to a divalent sentence (7). The extra argument licensed is an applied object *omucheni* (visitor) because the action is done or applied on its behalf. In Lutsosto, the applicative suffix has a prepositional meaning such as `by' `to' `for' `at' `against' and `from' in English. The added argument *omucheni* (visitor) is an obligatory constituent that has been promoted to object status. The argument structure of the basic sentence (6) and the derived sentence (7) is thus presented in Table 2:

External argument	Verb	Internal argument 1	Internal argument 2	valency	Gloss
Omukhana –girl Subject Agent	Atekhanga Is cooking			univalent	The girl is cooking
Omukhana – girl Subject Agent	Atekhanga Is cooking	Amapwoni – potatoes Applied object Beneficiary		divalent	The girl is cooking potatoes
Omukhana Girl Subject/agent	Atekhelanga Is cooking for	Omucheni Visitor	Amapwoni potatoes	trivalent	The girl is cooking potatoes for the visitor

Table 2: Lutsotso applicative structures (Univalent, divalent and trivalent)

Table 2 shows that the external argument *omukhana* (girl) maintains its role as subject/agent in the univalent, divalent and trivalent sentences. The divalent sentence, *omukhana atekhanga amapwoni* (the girl is cooking potatoes) and the trivalent sentence, *omukhana ateshelanga abacheni amapwoni* (the girl is cooking potatoes for visitors) reveal that there is a rearrangement of arguments since the derived sentence takes an applied object *omucheni* (visitor) with the beneficiary role. Table 2 shows that *omucheni* (visitor) and *amapwoni* (potatoes) have changed positions with the addition of the applicative morpheme. The position that was originally occupied by *amapwoni* (potatoes) is now occupied by *omucheni* (visitor)

The applicative sentences in Lutsotso can be analyzed using the principles of Government and Binding theory (Chomsky, 1981). According to Extended Projection Principle (EPP), lexical properties of words should be projected in the syntax, while sentences must have subjects (Chomsky, 1981). The extended projection principle (EPP) is stated as (8):

8.   S→NP-AUX-VP

The extended projection principle can be used to analyze Lutsotso data as example 9, 10, 11 illustrates:
9.   Omu-siani a-la-lim-a omukunda
     SM-boy will-dig-FV farm
     The boy will dig the farm
10. Omu- siani a-la-lim-il-a mama omukunda
     SM- boy will-dig-APPL-FV mother farm
     The boy will dig the farm for mother.
11. * Lim-il-a mama omukunda.

Sentence (9) has two arguments these are *omusiani* (boy) and *omukunda* (farm). In (10) the applicative morpheme `il' has licensed the addition of an obligatory argument *mama* (mother) hence three arguments in the sentence that is: *omusiani* (boy), *omukunda* (farm) and *mama* (mother). Examples (9) and (10) are grammatical because obey the extended projection principle. In example (9) the subject is *omusiani* (boy) while in (10) the subject is *omusiani* (boy) as Table 2 shows. The ungrammaticality of (11) follows from the EPP. The sentence lacks a subject.

Table 3 below illustrates the basic sentence (9) and the derived sentence (10) and the adherence of both sentences to the extended projection principle of the theta theory. Table 3 also shows the re-arrangement of constituents in the derived sentence (9).

External argument 1.	Verb	Argument 2.	Argument 3.	valency	Gloss
Omusiani Boy subj. agent	a-la – li –ma Will dig	Omukunda The farm		divalent	The boy will dig the farm
Omusiani Boy Subj. agent	a-la – lim-il– a Will dig for	Mama Mother	Omukunda Farm	trivalent	The boy will dig the farm for mother.
Subject Agent		Applied object Beneficiary	Direct object Patient		

Table 3: The Lutsosto Applicative structure

As examples 9 and 10 show in Table 3, there is one to one correspondence between the syntactic function and semantic roles expressed by the subject/ agent/ and direct object/patient in the basic sentence (9) and derived sentence (10). An added argument *mama* (mother) is obligatory in the derived sentence (10) and does not match with any constituents in the basic sentence (9).

According to theta criterion of the Theta theory of Government and Binding (GB) (Chomsky, 1981), an NP can only be assigned one theta role. Similarly, a theta role can only be assigned once to an NP in a sentence. The NP *omusiani* (boy*)* is assigned the

agent role, which differs from the NP *mama* (mother). Similarly, *mama* (mother) can only be assigned beneficiary role which cannot be assigned to the NP *omusiani* (boy).

In the Minimalist Program (Chomsky, 1993, 1995), the derivative morpheme: the applicative, causative, and passives are considered to be feature bearing affixes. Therefore, heads and specifiers are built for them depending on lexical and morphological evidence. If the applicative morpheme 'il' for example (10) has triggered beneficiary (applied object) *mama (*mother) then the applicative head in the structure is built to check the verb *lima* (dig) for applicative feature and to have a landing site known as specifier (SPEC) for the object *omukunda* (farm) and have it checked for accusative case. The verb *lima* (dig) is picked through the process of numeration and transported to the VP.

According to Chomsky (1995) a computational system builds structures by selecting numerated elements and combines them in the relevant way. The verb moves to various heads to ensure features are in place, noun moves to specifier to ensure case is correct to avoid superfluous words.

Now for the derived sentence 10 above the applicative phrase head and specifier, the subject agreement phrase head and specifier ,the object agreement and specifier are placed to check the verb *lima*(dig) for the respective features and the noun for case. The tense head is placed to check the verb *lima* (dig) for the tense feature. We notice that roles in the Lutsotso sentence are assigned to A – positions, which may in principle be filled by arguments laid down in lexical entries. In this case theta marked NPS in (9) and (10) above are in A- positions: *Omusiani (*boy) and *omukunda* (farm).

2.2. Causative

Payne (1997) defines a causative as a linguistic expression that contains in semantic/ logic structure a predicate of cause and an argument. In the structure of causatives the meaning expressed by a verb shows that someone or something brings about a situation expressed by the verb. The causative morpheme in Lutsotso is {–i-}, which increases valence by introducing a person or thing that causes an action. For example:

12. aba – ana   ba –tsekh -   a
    SM – child SAM – laugh - FV
    The children laughed
13. Aba – cheni   ba – tsesh - i–   a   aba – ana.
    SM – visitor   SM – laugh – CAUS-FV SM – child
    The visitors made/caused the child to laugh.

The verb laugh in (12) has only one valence/argument *abaana* (children)

The causative suffix {-i-} in (13) has licensed an extra argument/ valence and the verb is no longer univalent but divalent. The two arguments in (13) are *abacheni* (visitors), which causes the action, and *abaana* (children). The causative morpheme makes a divalent verb *lia* (eat) become trivalent as shown in example (14):

14. Anyona a- la- li – a liramwa
    Anyona SM –FUT-eat –-FV banana
    Anyona will eat a banana.

The given example in (14) has two arguments: *Anyona* and *liramwa* (banana).The verb *lia* (eat) is divalent as it has two arguments. When the causative morpheme {-i-} is added to the verb *lia* (eat) it changes to *lis-i-a* (cause to eat) as (15) illustrates. The verb *lia* (eat) has become tivalent as a result of adding the causative morpheme {-i-}

15. Anyona ya –   lis- i –   a mama   liramwa
    Anyona SM – eat – CAUS – FV mama a banana
    Anyona made/caused mother eat a banana

In the above sentence (15) the causative suffix {-i-} has licensed the addition of a third argument. The verb *lisia* (cause to eat) in (15) is thus a trivalent verb with three arguments; *Anyona*, the one who caused the action, *mama* (mother) who was made to eat and *liramwa* (banana).

The argument structure for the causative is illustrated in Tables 4 and 5.

Argument 1	Verb	Argument 2	valence	Gloss
Omwana Subject Agent	Yatsekha		univalent	The child laughed
Omucheni Subject Agent	Ya – tsesh –I –a	Omwana Direct object Experiencer	divalent	The visitor caused the child to laugh

Table 4: Lutsotso causative structure: intransitive sentence

The univalent verb becomes divalent as a result of the causative morpheme 'I'

External argument 1	Verb	Argument 2	Argument 3	valence	Gloss
Anyona Subject Agent	Yalia Ate	Liramwa Banana		divalent	Anyona ate a banana
Anyona Subject Agent	Yalisia	Mama Causer Object	Liramwa Object Patient	trivalent	Anyona caused mother to eat banana

Table 5: Lutsotso causative structure ii: transitive sentences

The divalent verb *yalia* (ate) in example (14) has become trivalent as a result of the causative morpheme -i as shown in example (15). Note that the causative constructions with three core arguments have the cause who initiates the events and the causer who is affected by causation. The basic sentences (12 and14) and derived sentences (13) and (15) are indicated in Tables 4 and 5.

There is a re – arrangement of grammatical constituents in the derived sentence (15) as a new position of indirect object is created. The added obligatory argument *mama* (mother) replaces *liramwa* (banana), which changes from indirect object to direct object. *Anyona* is primary agent and an external argument, which remains the subject and agent .The added argument *mama* (mother), is an agent that is object of causation, which is inactively involved in causing the action expressed by the verb *lia* (eat).

The subject *Anyona* and object *liramwa* (banana) keep their functions in the derived sentence (15), whose isomorphism is maintained. Thus, the theta criterion of the GB theory (Chomsky, 1981) is observed in that, all the arguments in the derived sentence (15) are assigned one theta role each in line with the theta theory. The difference between the basic sentence (14) and the derived sentence (15) is that in the extra argument *mama* (mother) licensed in the derived sentence. This description is in line with Comrie's (1985) assertion that the basic verb forms a sentence that describes some situation. The derived verb's subject and subsequent sentence indicates that the referent of this new subject brings about the situation described before the sentence containing the basic verb.

2.3. The Instrumental
The instrumental directs attention to the instrument or object with which a person or an animal acts. It represents the notion of 'by means of'. The instrumental morpheme in Lutsotso is {–il-} and is inserted between the last consonant and the last vowel of the verb as example (16) illustrates:

16. Remul - il- a
    Slash-INST- FV
    Slash with

The instrumental licenses an extra argument in a sentence such that a divalent verb becomes trivalent and also triggers increase of valence increases in a sentence. For example:

17. Masero ya – remul – a   eshikuri
    Masero SM – slash -FV field
    Masero slashed the field.
18. Masero   ya - remul- il- a   lipanga   eshikuri
    Masero   PST – slash – INST –FV   slasher   field
    Masero slashed the field with a slasher.
19. Omu -khasi ya – khobol -a amapwoni
    SM- Woman PST – peel- FV   potatoes
    The woman peeled potatoes.
20. omu-khasi   ya – khabol - il – a omubano amapwoni
    SM- Woman PST – peel INST – knife potatoes.
    The woman peeled potatoes with a knife

Examples (17 and19) cited above have two arguments each. They are divalent sentences. The arguments are *Masero* and *eshikuri* (field) in (17) and *omukhasi (*woman) and *amapwoni* (potatoes) in (19). In the terminology of GB theory (Chomsky, 1981) verbs such as: *remula* (slash) in example (17) and *khobola* (peel) in (19) are two place predicates. The argument *Masero* in example (17) has the function of a subject while the argument *eshikuri* (field) has the surface function of direct object. Similarly, the argument *omukhasi* (woman) in example (19) has the surface function of a subject while the argument *amapwoni* (potatoes) has the surface function of direct object.

Sentence (18) has three arguments as a result of the instrumental suffix {-il-}. The three arguments are *Masero*, *eshikuri* (field) and the instrument *lipanga* (slasher*)*. In contrast, in example (17) there are two arguments: *Maser*o and *eshikuri* (field). Similarily, in example (19) the verb *khobola* (peel) has two arguments: *omukhasi* (woman) and *amapwoni* (potatoes) thereby a divalent sentence. However, just like in example (18), in example (20) the instrumental morpheme {-il-} has licensed the extra obligatory argument *omubano* (knife) and now the verb *khobola* (peel) is trivalent with the following arguments: *Omukhasi* (woman), *omubano* (knife) and *amapwoni (*potatoes).

The principles of GB theory (Chomsky, 1981) are evident in example 19, which show case marking of the subject/argument *omukhasi* (woman) and the object argument *amapwoni* (potatoes). The argument *omukhasi* (woman) is case marked nominative by the tensed INFL, while the argument *amapwoni* (potatoes) is case marked accusative by the verb *Khobola* (peel). In contrast,

the assumptive basis of example 20 indicates that if the sentences are grammatical then all the arguments are case marked since the argument *amapwon* (potatoes) is distant from the verb and violates the adjacency condition.

The issue of case assignment, as depicted in example 20, demonstrates the view of the Minimalist Program (Chomsky, 1993; 1995), whereby case is not assigned under government at the s-structure, since NPs are selected from the lexicon when they already have case. The checking approach of the Minimalist Program is to check the feature. Chomsky (1993; 1995) explains that verbs move to various heads for checking of respective features while the noun moves to specifier for case checking. Therefore, the instrumental head and specifier will be built to check the verb *khobola* (peel) for instrumental features and the indirect object (instrument) *omubano* (knife) to land at the SPEC.

Further, derivative morphemes such as applicative, causative, and instrumental and the passives are considered to be feature bearing affixes. Subsequently, heads and specifiers have to be generated for them depending on their lexical and morphological evidence.

The argument structure of the instrumental is illustrated in Table 6 below:

Argument 1	Verb	Argument 2	Argument 3	valence	Gloss
Omukhasi Subject Agent	Yakhobola	amapwoni		divalent	The woman peeled potatoes
Omukhasi Subject Agent	Yakhobolela	Omubano	Amapwoni	trivalent	The woman peeled potatoes with a knife
Masero Subject Agent	Yaremula	Eshikuri		divalent	Masero slahed the field
Masero Subject Agent	Yaremulila	Lipanga	eshikuri	trivalent	Masero slashed the field with a panga

Table 6: Lutsotso instrumental structure

There is re-arrangement of arguments as shown by the second verb *yaremulila* (slashed with) where the instrument *lipanga* (slasher) is included as an obligatory argument in Table 6. As Table 6 illustrates the argument *eshikuri* (field) has exchanged places with *lipanga* (slasher) while the subject *Masero* has retained its position as subject/agent.

2.4. Conclusion

In determining the verb derivations as the main morphological process involved in argument licensing with focus on Lutsotso, verbs in Lutsotso have derivational morphemes that cause valence by either increasing or decreasing the number of arguments that a verb has at a given time.

The notion of doing something to benefit someone else, which is an applicative, is demonstrated to be in use in Lutsotso in that suffixes are added to the verb to create the derived verb in which the prepositional complement becomes a direct object of the verb. However, in some cases, an extra argument license is applied because the action is done or applied on its behalf.

The principles of Government and Binding theory (Chomsky, 1981) can be applied effectively to analyse applicative sentences in Lutsotso. Therefore, the examples discussed in the paper illustrate that in some instances, a verb is assigned agent role, which is different from an NP to ensure the sentence make logical sense and maintains intended meaning.

Derivative morphemes such as: applicative, causative, and instrumental are considered to be feature bearing affixes, in that specifiers have to be generated for them depending on their lexical and morphological evidence. By doing so, instrumental specifiers are generated to check verbs for instrumental features.

Arguments or valence increases or decreases depending on the type of verb. Intransitive verbs are univalent because they comprise of one argument or valence, while transitive verbs are divalent because they have two arguments or valence.

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