

Pairwise Combinations of Swahili Applicative with other Verb Extensions

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ABSTRACT

This article addresses two questions on Swahili verb extensions: (a) What is the order of the extensions in relation to the applicative? (b) How can the order be accounted for? Data on the order of the extensions are obtained by searching the Helsinki Corpus of Swahili for applicative combinations with the causative, passive, reciprocal, reversive and stative. The results of the search for pairwise combinations with the applicative reveal the following: (a) The reversive appears before the applicative; (b) the applicative may appear before or after the causative and reciprocal; and (c) the stative must appear before the applicative. The findings are consistent with the Semantic Scope Hypothesis as they show the following: (a) A variable affix order that corresponds to different meanings and scopes, (b) the reversive and stative exhibit a narrower scope than the applicative, and (c) the passive, with its wider scope, always appears after the applicative.

Keywords: applicative, affix order, verb extensions, mirror principle, semantic scope

1. INTRODUCTION

The applicative is part of the rich verbal derivation system in the Swahili and Bantu languages and, in general, includes productive extensions, such as the causative, passive, reciprocal, reversive and stative¹. These productive extensions have attracted an enormous amount of research. This wealth of extensions and combinations raise the questions of how morphemes are ordered and what principles underlie the ordering of the affixes. The applicative can co-occur with other extensions. This study investigates the position of the applicative extension in relation to other extensions. Several accounts have been advanced in attempts to explain the order of affixes. In his seminal and vastly influential article, Baker (1985) suggests that word structure is subject to syntactic rules and principles, which he calls the Mirror Principle.

¹ Abbreviations:

APPL	Applicative	CAUS	Causative	EXT	Extensions
FT	Future tense	FV	Final vowel	INF	Infinitive
NEG	Negation marker	OM	Object marker	PASS	Passive
PF	Perfect aspect	PR	Present tense	PT	Past tense
REC	Reciprocal	REV	Reversive	RM	Relative marker
SM	Subject marker	TNS	Tense marker		

(1) The Mirror Principle

‘Morphological derivation must directly reflect syntactic derivation (and vice versa).’ (Baker, 1985: 375)

Baker and many other scholars have been able to present data that show how word structure is subject to syntactic operations, such as movement. Examples include Cocchi, 2009 on Tchiluba; Damonte, 2007 on Pular; Den Dikken, 2002 on Athpaskan; Harley, 2013 on Yaqui; as well as much work in Distributed Morphology (Harley & Noyer 2003). Affixes are added one at a time in a hierarchical fashion that reflects syntactic operations. This syntactic approach is strongly supported by the semantic account that is proposed by Rice (2000, 2011). Building on Bybee’s (1985) concept of relevance, Rice claims that the order of affixes is determined by their relative scope. If affix X has a scope over affix Y, then X is some type of modifier of Y. Affix Y will appear closer to the root than affix X; thus, the order will be YX. Bybee defines relevance as “A meaning is *relevant* to another meaning element if the semantic content of the first directly affects or modifies the semantic content of the second” (emphasis in the original) (Bybee, 1985: 13). The affix that is more relevant to the root will be closer to the root. In short, the proposal is that the affix order reflects the semantic composition.

However, Hyman (2003) discovered that the syntactic-semantic account could not explain all of the extension ordering situations in Bantu languages. Specifically, there is a tendency for the extensions to appear in a fixed order of Causative-Applicative-Reciprocal-Passive (CARP) that defies the syntactic account of the Mirror Principle. For example, in Chichewa, the Causative-Applicative order is used for both the applicativized causative and the causativized applicative. There are also phonological constraints that may be involved. This led to the conclusion that affix ordering is subject to tendencies as well as variations that result from a language-specific ranking of constraints and resolutions of conflicting tendencies (see also Manova & Aronoff, 2010; Saarinen & Hay, 2014). However, the ordering of the extensions in various Bantu languages is not entirely uniform (for example, see Matsinhe & Fernando, 2008 on Kikongo; Rugemalira, 1993 on Runyambo; Ngunga, 1997 on Ciyao; Mathangwane, 2001 on Ikalanga; Mchombo, 2004 on Chichewa). Furthermore, the suffixes exhibit headed structures, such as the reciprocalized applicative and applicativized causative. Headedness is not a feature of template structures (Spencer, 1991: 213). These facts call for further investigation on the extension ordering in different Bantu languages.

The objectives of this article are twofold. First, the study seeks to establish the positions of other extensions relative to the applicative in Swahili. The second objective is to determine the extent to which the semantic scope can account for the pairwise combinations with applicatives. With respect to Swahili verb extensions, Rice’s Semantic Scope Hypothesis makes the following specific predictions:

(2) Predictions

- i. Variable affix order between the applicative and any other applicative will reflect different scopal relations and different meanings;
- ii. Fixed affix order will reflect a scope relative to the applicative;
- iii. Affixes with different scopal relations with the applicative will appear on different sides of the applicative.

The empirical domain of the study focuses on texts of the Helsinki Corpus of Swahili (HCS). The data are used to identify attested pairwise combinations involving the applicative. Elicitations may often be constrained by the lack of equivalent forms in the language of the researcher that could form the elicitation points. The corpus allows us to search all of the logical permutations and ascertain the meanings after identifying the combinations. Furthermore, many studies on the order of Bantu derivations have tended to focus on the causative, applicative, reciprocal and passive. Admittedly, these are the most productive extensions. Inclusion of the reversive and stative in this study promises to yield fresh insight into the question. The main claim made here is that the position of the applicative suffix relative to the other extensions is largely determined by the semantic scope.

The argument is presented in the following 5 sections. In §2, a basic description of the extensions is presented to show their basic semantic and syntactic behavior. This will be followed by a discussion of the data source in §3. The results of the investigation are in §4, followed by a discussion in §5. Concluding remarks are in §6.

2. BASIC FACTS

As in other Bantu languages, the Swahili verb is highly agglutinative and is composed of up to 9 slots. The verb includes subject markers, an object marker, tense and aspect, negation and relative markers as prefixes. The suffixes consist of derivational extensions, mood and other inflectional markers. The morphological structure can be presented as follows.

(3) Swahili morphological structure

NEG – SM – NEG – TNS – RM – OM – Root – EXT – Final

The Final position can be occupied by mood or negation markers. The rich system of derivations includes several extensions, the combinations of which appear in the EXT slot. Following is a list of the extensions.

(4) Swahili verb extensions (based on Ashton 1947, Schadeberg 1973)

- a. Applicative or dative
- b. Causative

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- c. Contactive
- d. Passive
- e. Reciprocal or associative
- f. Reversive or separative or conversive
- g. Static
- h. Stative or neuter

These extensions exhibit varying degrees of productivity. The applicative, causative, passive, reciprocal and stative are regarded as very productive, while the reversion has limited productivity. The contactive and static are considered to be unproductive (Schadeberg, 1973).

The applicative becomes *-i-* or *-e-* on final consonant stems and *-il-* or *-el-* on final vowel stems. The vowel /e/ appears in the extension that is suffixed to a stem containing the mid vowels /e, o/.

(5)	<i>-fanya</i>	‘do’	<i>-fanyia</i>	‘do for, to, at’
	<i>-pika</i>	‘cook’	<i>-pikia</i>	‘cook for, in, with’
	<i>-ruka</i>	‘jump’	<i>-rukia</i>	‘jump to, for, in’
	<i>-enda</i>	‘go’	<i>-endea</i>	‘go to, for’
	<i>-soma</i>	‘read’	<i>-somea</i>	‘read to, for, with’
	<i>-kimbia</i>	‘run’	<i>-kimbililia</i>	‘run to, for, with’
	<i>-pokea</i>	‘receive’	<i>-pokelea</i>	‘receive for, with’

(Ashton, 1947: 217)

The form that takes *-i-* or *-e-* is the most frequently used form. The original forms *-il-* and *-el-* now appear in fewer words, such as the causativized form of *-tosh* ‘be enough,’ which has become *-tosh-el-ez-a* ‘to satisfy or be sufficient.’ This is caused by the historical loss of // in many environments. Thus, we notice, for example, that // reappears when the applicative is attached to a verb that ends in two vowels. For example, *-kaa* ‘sit’ becomes *-kalia* ‘sit on.’ The original form of the verb was *-kala* ‘sit.’

The applicative increases the valency of the base by one and introduces a new object known as the applied object, as seen in the following pair of examples.

- (6) a. *Ni-li-pik-a* *ch-akula*
 I-PT-cook-FV 7-food
 ‘I cooked food.’
- b. *Ni-li-m-pik-i-a* *Juma* *ch-akula*
 I-PT-1OM-cook-APPL-FV 1.Juma 7-food
 ‘I cooked Juma some food.’ (Vitale, 1981: 44)

The verb *-pika* ‘cook’ takes two arguments in (6a), *ni-* ‘I’ and *chakula* ‘food.’ When the verb is derived with an applicative in (6b), a beneficiary, *Juma*, is introduced. The applicative licenses a wide range of object roles that include the beneficiary, recipient, maleficiary, goal, instrument, reason and location (Ngonyani, 1998).

There are two causative suffixes in Swahili, (a) the short causative (*-z-*, *-y-*, *-sh-*) and (b) the long causative (*-ish-*, *-esh-*, *-ez-*, *-iz-*). The short causative suffix triggers changes in the stem-final consonants. Thus we get *takata* ‘be clean’ → *takasa* ‘clean’ and *ogopa* ‘fear’ → *ogofya* ‘terrify.’

(7)	<i>-imba</i>	‘sing’	<i>-imbisha</i>	‘make X sing’
	<i>-funga</i>	‘fasten’	<i>-fungisha</i>	‘make X fasten’
	<i>-weza</i>	‘be able’	<i>-wezesh</i>	‘enable’
	<i>-pita</i>	‘pass’	<i>-pisha</i>	‘let pass’
	<i>-kataa</i>	‘refuse’	<i>-kataza</i>	‘forbid’
	<i>-legea</i>	‘be loose’	<i>-legeza</i>	‘loosen’
	<i>-takata</i>	‘be clean’	<i>-takasa</i>	‘clean’
	<i>-ona</i>	‘see’	<i>-onya</i>	‘warn’
	<i>-ogopa</i>	‘fear’	<i>-ogofya</i>	‘terrify’
	<i>-lewa</i>	‘be drunk’	<i>-levya</i>	‘intoxicate’

(Ashton, 1947: 230-231)

A detailed description and distinction between the two is beyond the scope of this article. It is sufficient to note here that vowel harmony affects the long causative form. The causative extension introduces a causer, which becomes the new subject, and demotes the agent or experiencer of the root to the primary object position.

- (8) a. *M-tungi u-me-ja-a*
 3-water-pot 3SM-PF-be full-FV²
 ‘The water-pot is full.’
- b. *Ni-me-u-ja-z-a m-tungi*
 I-PF-3OM-be full-CAUS-FV 3-water pot
 ‘I have filled the water-pot.’ (Ashton, 1947: 232)

The verb *-jaa* ‘be full’ takes only one argument, *mtungi* ‘waterpot.’ The causative introduces an agent or causer, *ni-* ‘I.’ Notice that the original argument is marked as an object in the verb with the Class 3 object marker. Thus, the causative transforms an intransitive verb to a transitive and a transitive verb to a ditransitive. The search for combinations with the applicative entails searching for applicativized causatives and causativized applicatives.

² Numbers in the glosses refer to noun classes for the nouns and agreement markers.

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The passive is marked by the suffix *-w-* in transitive verbs. This suffix also appears as *-iw-* and *-ew-* in stems that are vowel-final.

(9)	<i>-kata</i>	‘cut’	<i>-katwa</i>	‘be cut’
	<i>-twaa</i>	‘take’	<i>-twaliwa</i>	‘be taken’
	<i>-ondoa</i>	‘take away’	<i>-ondolewa</i>	‘be taken away’
	<i>-la</i>	‘eat’	<i>-liwa</i>	‘be eaten’
	<i>-jibu</i>	‘answer’	<i>-jibiwa</i>	‘be answered’

(Ashton, 1947: 223)

This extension promotes the logical object to the subject position and demotes the agent or the logical subject to an oblique object.

- (10) a. *Juma a-li-fungu-a m-lango*
 1.Juma 1SM-PT-open-FV 3-door
 ‘Juma opened the door.’ (Vitale, 1981: 23)
- b. *M-lango u-li-fungul-iw-a (na Juma)*
 3-door 3SM-PT-open-PASS-FV by 1.Juma
 ‘The door was opened by Juma.’ (Vitale, 1981: 29)

In (10a), the agent *Juma* is the subject, while the theme *mlango* ‘door’ is the object. In the passive sentence (10b), the theme, a Class 3 item, is the subject that triggers the subject marking the verb. The agent is expressed as an oblique object. Many studies of Swahili applicatives have noted that the passive promotes the applied object only (see, for example, Bresnan & Moshi, 1990). Derivationally, this means that the applicative can only apply after another applicative, which suggests that an applicative will appear after the applicative suffix.

The stative or neuter extension is *-ik-*, and the allomorphs include *-ek-* and *-ik-*, which attaches to transitive verbs. The allomorph *-ek-* attaches to stems that have /e/ or /o/.

(11)	<i>-fanya</i>	‘do’	<i>-fanyika</i>	‘get done, doable’
	<i>-pita</i>	‘pass’	<i>-pitika</i>	‘passable’
	<i>-vunja</i>	‘break’	<i>-vunjika</i>	‘get broken, breakable’
	<i>-soma</i>	‘read’	<i>-someka</i>	‘readable’
	<i>-sema</i>	‘say’	<i>-semeka</i>	‘speakable’
	<i>-twaa</i>	‘take’	<i>-twalika</i>	‘get taken’
	<i>-shutumumu</i>	‘abuse’	<i>-shutumika</i>	‘bet abused’

(Ashton, 1947: 226-227)

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both the agent and theme, for example. An associative phrase for the object (with X) is also possible.

The reversive or conversive extension is marked by the suffix *-u-* or *-ul-*. In cases where the base has /o/, the allomorphs are *-o-* or *-ol-*.

(15)	<i>-kunjua</i>	‘fold’	<i>-kunjua</i>	‘unfold’
	<i>-tega</i>	‘put in position’	<i>-tega</i>	‘put out of position’
	<i>-fuma</i>	‘weave’	<i>-fumua</i>	‘unpick’
	<i>-choma</i>	‘pierce, stick’	<i>-chomoa</i>	‘extract’
	<i>-tata</i>	‘tangle’	<i>-tata</i>	‘unwind’

(Ashton, 1947: 239)

The allomorphs *-ul-* and *-ol-* appear when the reversive is followed by a causative or applicative, which are *-VC-* in structure. For example, *-fungua* ‘open’ → *-fungulisha* ‘cause to open’ and *-chomoa* ‘extract’ → *-chomolesha* ‘cause to extract.’

This suffix, also known as the separative, does not affect the argument structure of the verb³. It neither licenses nor suppresses a new argument.

(16)	a.	<i>Juma a-li-zib-a</i>	<i>tundu.</i>
		Juma 1SM-PT-plug-FV	5.hole
		‘Juma plugged the hole.’	
	b.	<i>Juma a-li-zib-u-a</i>	<i>tundu</i>
		Juma 1SM-PT-plug-REV-FV	5.hole
		‘Juma unplugged the hole.’	

There are two arguments for the underived in (16a) and the reversive form in (16b). The meaning, however, is radically different. The reversive expresses ‘undo X’, where X is any event that is denoted by the root ‘plug,’ which becomes ‘unplug,’ for example.

These extensions form the following logical combinations that constitute the basis of our search for co-occurrences with the applicative.

Table 1. *Logical possibilities of pairwise combinations with the applicative*

<u>Applicative first</u>	<u>Applicative last</u>
APPL – CAUS	CAUS - APPL
APPL – PASS	PASS - APPL
APPL - REC	REC - APPL
APPL – REV	REV - APPL
APPL – STAT	STAT - APPL

³ Schadeberg (2003) prefers to call this extension the separative rather than the reversive because, in many cases, the meaning does not refer to undoing something.

These possibilities guide the search in the Swahili corpus to determine the combinations that are attested and those that are not attested.

3. DATA SOURCE

The data for this study were obtained from the corpus of Swahili and the Swahili Language Manager (SALAMA), a language management system that hosts the Helsinki Corpus of Swahili (HCS). The corpus comprises over 20 million words in Standard Swahili and contains information on parts of speech, inflections, derivations and etymology that can be found using SALAMA, which includes a morphological analyzer. The corpus consists of news texts from several Swahili newspapers; the Deutsche Welle Swahili news service website; and a number of books containing prose texts, including fiction, education and science. All of texts are from the 20th or 21st century (Hurskainen, 2008).

Using Lemmie2.0, a web-based tool that works with the language corpus in the Language Bank of Finland (CSC, 2003), a search was performed for pairwise combinations involving the applicative with causative, passive, reciprocal, reversive and stative extensions. The following are the extensions with the tags in square brackets.

(17) Tags for extensions in SALAMA (Hurskainen, 2009)

Applicative	[appl]
Causative	[caus]
Passive	[pass]
Reciprocal	[rec]
Stative	[stat]

The reversive is not tagged. The pairwise combinations used the following terms for the search.

- (18)
- a. [pos='v' msd='*appl* *caus*']
 - b. [pos='v' msd='*appl* *pass*']
 - c. [pos='v' msd='*appl* *rec*']
 - d. [pos='v' msd='*appl* *stat*']
 - e. [pos='v' msd='*caus* *appl*']
 - f. [pos='v' msd='*pass* *appl*']
 - g. [pos='v' msd='*rec* *appl*']
 - h. [pos='v' msd='*stat* *appl*']

All of the searches were performed with the keyword 'part-of-speech' (pos), in which the words were specified with the morphosyntactic descriptions (msd) of the extensions. For example, **msd='*appl* *caus*'** is a morphosyntactic

description for a pairwise combination of the applicative followed by the causative.

As noted, the reversive is not tagged in the HCS. The search for the applicative pairwise combinations with the reversive was found using the endings of the word forms. Thus, we had:

- (19) a. [pos='v' wf='*ulia']
b. [pos='v' wf='*olea']
c. [pos='v' wf='*ilua']
d. [pos='v' wf='*elua']

The reversive-applicative combinations were found using the keyword word form (**wf**) that ended with *-ulia* (**ulia*) and *-olea* (**olea*). These two forms represent the allomorphs involving the reversive-applicative. The applicative-stative combination was found using *-ilua* and *-elua*. The generated lists were examined to determine the authentic reversive readings. Verbs that did not have reversive readings were discarded.

4. FINDINGS

In this section, the results of the attested pairwise combinations of extensions with applicatives are presented. Three random examples of each combination are used to show that a particular combination is not an isolated instance. Each example contains the verb form with the necessary context rather than the complete sentences in which the verbs are found. Following a description of the attested forms, we will highlight the non-attested forms.

The search began with combinations in which the applicative appeared first. Three pairs are attested. The first pair is Applicative-Causative, for which the following examples were among the attested forms.

- (20) a. *i-ta-ku-tosh-el-ez-a*
9SM-FT-you-be enough-APPL-CAUS-FV
'this will make it sufficient for you'
Document: 616483; Corpus: hcs_annuur
- b. *a-li-pit-il-iz-a* *moja kwa moja hadi chumba-ni*
1SM-PT-pass-APPL-CAUS-FV one for one until room-LOC
'she passed by and went straight to the room'
Document: 626914; Corpus: hcs_kiongozi

- c. *ushindi* *wake* *u-ta-end-el-ez-a* *sera*
14-victory 14-POSS 3-FT-go-APPL-CAUS-FV 10.policy
'his victory will make the policy continue'
Document: 618664; Corpus: hcs_dwelle

The second pair, for which there is plentiful data, is Applicative-Passive. Examples of this form include the following.

- (21) a. *Bibi Meghji* *a-li-som-e-w-a* *taarifa*
Mrs Meghji 1SM-PT-read-APPL-PASS-FV 9.report
'Mrs Meghji was read the report to.'
Document: 633116; Corpus: hcs_majira
- b. *i-ta-fany-i-w-a* *u-karabati*
9SM-FT-do-APPL-PASS-FV 14-repair
'will be repaired'
Document: 638913; Corpus: hcs_uhuru
- c. *Azimio* *hilo* *li-ta-pig-i-w-a* *kura leo*
9.resolution 9.that 9SM-FT-hit-APPL-PASS-FV 9.vote today
'The resolution will be voted on today.'
Document: 624601; Corpus: hcs_dwelle

The third pair, Applicative-Reciprocal, is exemplified in the sentences that appear in (22).

- (22) a. *m-chezo* *wa* *ku-tup-i-an-a* *ma-we*
3-game 3.of INF-throw-APPL-REC-FV 6-rock
'a game of throwing rocks at each other.'
Document: 616286; Corpus: hcs_books
- b. *M-me-fany-i-an-a* *ahadi* *ya* *ndoa.*
You-PF-do-APPL-REC-FV 9.promise 9.of 9.marriage
'you have promised each other marriage.'
Document: 616332; Corpus: hcs_books
- c. *Wa-li-pig-i-an-a* *simu*
2SM-PT-hit-APPL-REC-FV 9.phone
'They made phone calls to each other.'
Document: 638526; Corpus: hcs_uhuru

There are no data that show that the applicative can appear before the reversive or stative.

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Four pairwise combinations are attested in which the applicative comes second. The first of these is Causative-Applicative, as illustrated in the three examples below.

- (23) a. *U-na-ni-pot-ez-e-a* *muda w-angu*
you-PR-me-be.lost-CAUS-AP-FV 3.time 3-my
'You have wasted my time.'
Document: 616311; Corpus: hcs_books
- b. *u-me-m-zal-ish-i-a* *dungudungu*
you-PF-1OM-give.birth-CAUS-AP-FV 1.deformed person
'you have created a monster (in his mind)'
Document: 616294; Corpus: hcs_books
- c. *wa-limu wa-na-tu-fund-ish-i-a* *wa-toto wetu*
2SM-teacher 2SM-PR-us-learn-CAUS-APPL-FV 2-child 2-our
'teachers teach our children for us'
Document: 628464; Corpus: hcs_majira

The order Reciprocal-Applicative is also very widely used, as the following examples illustrate.

- (24) a. *TANU i-me-li-pig-an-i-a*
TANU9SM-PF-5OM-hit-REC-APPL-FV
'TANU has fought for it.'
Document: 616312; Corpus: hcs_books
- b. *wa-na-bish-an-i-a* *jambo fulani*
2SM-PR-argue-REC-APPL-FV 5.matter certain
'they are arguing with each other about the matter'
Document: 637197; Corpus: hcs_nipashe
- c. *wa-na-cho-lumb-an-i-a*
2SM-PR-7REL-question-REC-APPL-FV
'that which they are questioning each other about.'
Document: 640146; Corpus: hcs_alasiri

The only acceptable order involving the reversive and applicative is Reversive-Applicative. This order is widely attested in the corpus, and the examples below illustrate this.

- (25) a. *i-na-m-fun-ul-i-a* *siri* *ya* *ma-isha*
 9SM-PR-1OM-cover-REV-APPL-FV 9.secret 9.of 6-life
 ‘it reveals the secret of life’
 Document: 616512; Corpus: hcs_annuur
- b. *ku-m-fung-ul-i-a* *ma-shitaka* *ma-tatu*
 INF-1OM-shut-REV-APPL-FV 6-charge 6-three
 ‘to open up three charges against him’
 Document: 616322; Corpus: hcs_books
- c. *ku-m-chom-ol-e a* *jamaa* *fedha* *z-ake*
 INF-1OM-stick-REV-APPL-FV 1.person 10.money 10-3sg
 ‘to pull out someone’s money’ (pick someone’s pocket)
 Document: 639961; Corpus: hcs_alasiri

Another extension that appears only before the applicative is the stative. The Stative-Applicative combination is shown in (25).

- (26) a. *A-ta-tum-ik-i-a* *mi-ezi* *sita.*
 1SM-FT-send-STAT-APPL-FV 4-month 4.six
 ‘She/he will serve for six months’
 Document: 616398; Corpus: hcs_annuur
- b. *Pambano hilo li-ta-fany-ik-i-a* *Arusha*
 5.contest 5.that 5SM-FT-do-STAT-APPL-FV Arusha
 ‘The contest will take place in Arusha.’
 Document: 639241; Corpus: hcs_alasiri
- c. *Bw. Senyagwa ... a-li-chom-ek-e-a* *swala la*
 Mr. Senyagwa ... 1SM-PT-stick-STAT-APPL-FV 9.issue 9.of
njaa
 9.hunger
 ‘Mr Senyagwa .. stuck in the issue of hunger.’
 Document: 639184; Corpus: hcs_alasiri

These findings are summarized in Table 3, where we can observe all of the attested and unattested combinations.

Table 2. *A summary of the attested and unattested pairwise combinations*

Applicative first		Applicative last	
APPL – CAUS	Yes	CAUS - APPL	Yes
APPL – PASS	Yes	PASS - APPL	No
APPL - REC	Yes	REC - APPL	Yes
APPL – REV	No	REV - APPL	Yes
APPL – STAT	No	STAT - APPL	Yes

This table summarizes the answer to the first question in this study — namely, what are the pairwise combinations involving the applicative and other extensions? The significance of these results is discussed in the following section.

5. DISCUSSION

The results of the research support the Semantic Scope Hypotheses. They provide two major arguments in support of the scope as the organizing principle behind the order of the verb extensions in Swahili. The first argument is the variable ordering (*ab* and *ba*) with variable meanings. The second argument is the fixed positions due to fixed scopal relations.

There is a variable affix ordering for the applicative and the reciprocal, as predicted in (2i). In (22), the affixes are *-i-an-* (APPL-REC), while in (24), the order is *-an-i-* (REC-APPL). Recall that there are many different interpretations of the applicative (see, for example, Ngonyani, 1998). What is crucial here is that the variable affix ordering is associated with different interpretations and variable reciprocal binding. The two interpretations are presented in the argument structure representation for the same root *-piga* ‘hit.’

(27) a. <Ag_i Go_iPat> (22)

b. <Ag_i Go Pat_i> (24)

In *-pigiana* ‘hit each other’ (27a), the agent (Ag) binds the applied object, the goal (Go) of ‘hit.’ This means that reciprocalization can only occur after the applied object has been introduced by the applicative suffix. This is consistent with the order APPL-REC. The reverse order *-pigania* ‘hit each other for’ involves an agent that binds the direct object or patient (Pat). This suggests that reciprocalization occurs prior to applicativization in the derivation – REC-APPL. An objection can be raised because the two uses of the verb appear to be idiomatic. However, the binding logic is consistent with this characterization, in which the variable order reflects syntactic binding and semantic composition. This variable binding was part of the argument for Baker’s Mirror Principle (Baker, 1985).

Variable affix ordering is also attested between the applicative and causative. Consider, for example, the verbs in (20), in which the APPL-CAUS order is used, and (23), in which the CAUS-APPL order is used. The verb *-toshā* ‘be sufficient’ takes the applicative first to create ‘be sufficient for.’ The beneficiary in (20a) is ‘you.’ The new agent that causes it to be sufficient for (20b) is the new subject *hii* ‘this,’ a proximate demonstrative for Class 9. Thus, we have the APPL-CAUS order because, in this case, the applicative applies first. The verb *-potea* ‘be lost’ in a) has the theme *muda wangu* ‘my time.’ To derive ‘to waste time,’ the causative suffix must attach first to *-poteza* ‘lose something.’ The adversative reading of the person negatively affected by the action is derived by adding the applicative after the causative, hence *-potezea* ‘lose time for.’ In this case, the causative has a narrower scope than the applicative. This is further confirmation of the prediction (2i). One apparent constraint for the variable ordering of the causative and applicative extensions is that Swahili does not allow more than 2 objects. Therefore, a transitive verb root cannot be derived into applicative and causative because this will introduce two new arguments for a total of four objects. Notice also that, contrary to what is found in Chichewa, where there is a fixed affix order for the causative and applicative (Mchombo, 2004; Hyman, 2003), both APPL-CAUS (20) and CAUS-APPL (23) are attested in Swahili.

The second type of evidence is derived from extensions that are fixed without variable affix ordering with the applicative. Reversive, stative and passive extensions appear in fixed positions relative to the applicative. The reversion must appear before the applicative. This extension does not change the argument structure of the root, but instead modifies the verb in a fundamental way. Consider the verb *-chomolea* ‘pull out from.’ The root is *-chom-* ‘stab, stick in.’ Attaching the applicative first — APPL-REV — would mean the applicative modifies the same stabbing event. However, attaching the reversion first denotes a completely different event of pulling something out. Subsequent applicativization of *-REV-APPL-* simply adds participants to the pulling-out event. Therefore, the reversion has a narrower scope compared to the applicative. This confirms the prediction of the scope theory in (2ii).

The passive only appears after the applicative. This indicates passivization after applicativization. This is consistent with other features of passivization in applicative constructions. In Swahili double object applicatives, only the applied object can be passivized (Bresnan & Moshi, 1990; Ngonyani, 1998). The passive extension has a wider scope than the applicative.

The stative suffix appears before the applicative. Like the passive, the stative suppresses the agent and promotes the object to the subject position. Unlike the passive, which promotes the applied object to the subject position, the stative promotes the theme or direct object to the subject position. Consider the passive and stative contrast in the following set of data.

Pairwise Combinations of Swahili Applicative with other Verb Extensions

- (28) a. *Ma-jangili ya-li-m-bomol-e-a m-zee nyumba*
 6-poacher 6SM-PT-1OM-demolish-APPL-FV 1-old 9.house
 ‘Poachers demolished the house of the old man/woman’
- b. *M-zee a-li-bomol-e-w-a nyumba*
 1-old 1SM-PT-demolish-APPL-PASS-FV 9.house
 ‘The old man/woman, his house was demolished on him/her’
- c. **nyumba i-li-bomol-e-w-a m-zee*
 9.house 9SM-PT-demolish-AP-PASS-FV 1-old
 ‘The house was demolished on the old man/woman’

The two objects for the applicative *-bomolea* ‘demolish for’ are the applied object *mzee* ‘old person’ and direct object *nyumba* ‘house.’ In a typical asymmetrical object fashion, the applied object becomes the subject in (28b). The direct object *nyumba* ‘house’ cannot be the subject of the passive, as (28c) shows.

The stative extension triggers a different type of syntactic behavior. First, note that the applicative appears after the stative. Second, it is the direct object or theme that is promoted to the subject position.

- (29) a. *Nyumba i-li-m-bomo-k-e-a m-zee*
 9.house 9SM-PT-1OM-demolish-ST-APPL-FV 1-old
 ‘The house collapsed on the old man/woman’
- b. **m-zee a-li-bomo-k-e-a nyumba*
 1-old 1SM-PT-demolish-ST-APPL-FV 9.house
 ‘The old woman/man, the house collapsed on her/him.’

In (29a), the theme *nyumba* ‘house’ is the subject of the stative construction. The applied object *mzee* ‘old woman/man’ cannot be the subject of the stative, as demonstrated in (29b), which indicates that the stative affix has a narrower scope than the passive suffix when an interaction with the applicative is involved. This is predicted by (2iii).

Although the order APPL-CAUS is attested, there are some residual issues with this form. First, the examples cited here reveal that only a handful of verbs take this combination and the meanings are not compositional. For example, from *-toshā* ‘be enough’ to *-tosheleza* ‘satisfy,’ the two affixes can be seen. Each affix should introduce an additional argument. This, however, does not happen. In other words, the applicative meaning is rather opaque. Second, several other writers identify this order as not occurring in Swahili (Khamis, 2008; Vitale, 1981), while Polomé (1967: 93) reports this order as a possible combination. This form may be possibly consistent with the scope but for some reason is not favored by speakers, which may have led to a reduced use in

Swahili. Some other language may have opted for the CAUS-APPL to include all combinations of meanings involving the causative and applicative. Further studies of this phenomenon in other related languages may offer more insight.

6. CONCLUSION

This study set out to investigate the order of Swahili applicative extensions relative to the causative, reciprocal, passive, stative, and reversive extensions. The search for pairwise combinations of extensions with the applicatives revealed three distinct patterns. The first pattern shows that the applicative can appear in a variable affix order with the causative and reciprocal extensions. The second pattern shows that the applicative appears after the reversive and does not precede the reversive. The third pattern shows that the applicative appears after the stative suffix and before the passive. These findings are consistent with the Mirror Principle (Baker, 1985) and the Semantic Scope Hypothesis (Rice, 2000). These three patterns provide three arguments in support of the syntactic-semantic account. The first argument is that variable order is attributable to variable scopal relationships. The second argument relates to the reversive, which must appear between the root and the applicative. It has been argued that the reversive modifies the root in a much more fundamental way that denotes a different action from the action denoted by the root. Therefore, the reversive extension has a narrower scope than the applicative. The third argument is the result of the different positions of the stative and applicative extensions, both of which suppress the agent. The passive promotes the applied object, while the stative promotes the direct object. This corresponds to the passive scope, including the applicative verb, while the stative has a narrower scope and falls under the scope of the applicative. These findings call for more extensive research on all extensions in Swahili and across Bantu languages.

ACKNOWLEDGEMENTS

I wish to express my deep gratitude to the Center for Scientific Computing (CSC) for allowing me access to their Swahili corpus and permission to use their data.

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