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| **RESEARCH ARTICLE**

# Correlation between Verb Extensions and Object Marking in Kiswahili: Patterns and Implications for Argument Structure

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| **ABSTRACT**

This study investigates the intricate nexus between verb extensions and object marking in Kiswahili, with particular emphasis on morphological and syntactic patterns and their implications for argument structure. Data were collected through documentary review from Kivuli Kinaishi (Mohamed, 1990), Nagona (Kezilahabi, 1990), and Mzingile (Kezilahabi, 1991). The data were analysed using the mapping principle of Lexical Mapping Theory as proposed by Falk (2001). This principle accounts for the alternation or retention of object marking in relation to verb extensions. The findings reveal two major patterns in the interaction between verb extensions and object marking in Kiswahili. First, some single, pairwise, and triplewise verb extensions suppress object marking. Single verb extensions that suppress object marking include the stative, reciprocal, and passive. Pairwise extensions include applicative + passive, applicative + reciprocal, causative + passive, causative + reciprocal, reversive + stative, and stative + reciprocal. Triplewise extensions that suppress object marking include applicative + causative + passive, reciprocal + stative + applicative, and reciprocal + applicative + passive. Second, some single, pairwise, and triplewise verb extensions retain and, in some cases, require object marking in Kiswahili. These include the single verb extensions applicative, causative, and reversive, as well as pairwise extensions such as applicative + causative and reversive + applicative. Among triplewise extensions, only the reversive + applicative + causative pattern was found to retain object marking. These phenomena occur across single, pairwise, and triplewise extensions but differ with respect to the types of derivational suffixes involved and the nature of their combinations. The study is delimited to syntactic (productive) verb extensions. Future research may focus on lexical (non-productive) or non-voice verb extensions and their interaction with object marking in Kiswahili and other Bantu languages.

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## 1.  Introduction

### 1. Introduction

Verb extension means the insertion of suffixes between the root and final vowel with syntactic, phonological, morphological and semantic effects (Cocchi, 2009). The inserted suffixes can alter the morphological, semantic, phonological, and syntactic aspects of the verb as the central element of the sentence. For example, some derivational suffixes can increase or decrease the verb valences. The derivational suffixes change the syntactic category of the root to which they apply. The post-root suffixes result in a new verb stem (Zemba, 2022). Verb extensions are a common phenomenon in various Bantu languages. The presence of derivational suffixes is considered the main criterion to establish whether a language belongs to the Bantu family or not. As noted by Hyman (2002), verb extensions are a major morphosyntactic property of Niger Congo languages. Most of these languages, including Kiswahili, are agglutinating. This nature expresses grammatical relations and syntactic information through the concatenation of multiple morphemes onto a verb stem (Lodhi, 2002; Moore, 1996). In this structure, each morpheme such as tense, aspect, subject, object or derivational suffixes carries a distinct grammatical function. Object marking is one of the

common features in agglutinative languages (Marlo, 2015; Nicolle, 2000). The object marker (OM) is incorporated directly into the verb complex, typically between the subject prefix and the verb root or between derivational suffixes, indexing the internal argument (Marten & Kula, 2012). The choice and presence of OM depend on factors such as transitivity of the verb, animacy and definiteness of the object or presence of derivational extensions (Mursell, 2018; Nicolle, 2000;). Through OM, the verb encodes both action and its direct object, making the verb highly informative. This system allows a single verb form to function as a complete sentence, often expressing subject, object, tense, aspect, and mood simultaneously.

Prior studies (Hyman, 2002; Kimenyi, 1980; Ngonyani, 2016; Rugemalira, 1993) look at three issues based on the verb extensions in Bantu languages including Kiswahili. Firstly, the number, types and forms of verb extensions among Bantu languages (Ashton, 1947; Schadeberg, 1973; Moore, 1976; Mdee, 2016; Hyman, 2002) for Kiswahili; Lodhi (2002) for Kiswahili and Kinyamwezi; Rugemalira (1993) for Runyambo; and Zemba, (2022) for Kunda. The number of derivational suffixes differs among Bantu languages, though across the family, there is a core set of common shared derivational suffixes. Most of the Bantu languages have between 5 and 10 major derivational suffixes (Cocchi, 2008; Hyman, 2002). However, some languages such as Kinyarwanda, Kirundi, Chichewa and Tshiluba have more than 10 derivational suffixes due to language-specific reasons (Hyman, 2002). The most widespread derivational suffixes include causative, stative, reciprocal, applicative, passive, contactive and reversive. Some extensions exhibit different forms, which generally arise from the application of regular vowel and consonant harmony rules to the basic form. Thus [i] > [e], and [u] > [o], if the preceding syllable contains a middle vowel; analogously, [l] > [n] if the radical ends with a nasal sound.

Secondly, there are variations in co-occurrence and ordering of verb extensions in different Bantu languages (Cong & Ngonyani, 2022; Simon & Pembe, 2018; Pretorius (2014). Derivational suffixes often co-occur, and their order is generally fixed within a language. However, there is some variation in the number and nature of co-occurrence of derivational suffixes across the Bantu languages. Most Bantu languages permit a maximum of two to five combinations of derivational suffixes on a single verb, though some languages allow more than five combinations of derivational suffixes on a single verb in a specific context. For instance, whereas Kiswahili allows a maximum of three verb extensions (Kihore et al., 2003), Kinyarwanda permits up to four, while Zulu exhibits only two verb extensions (Keet & Khumalo, 2017; Kimenyi, 1980;). The combined derivational suffixes form a verb extension chain. In some languages, such as Kinyarwanda and Zulu, the chains display considerable morphological and semantic complexity. Morphologically, not all extensions freely co-occur, and their ordering is constrained by templatic rules. Semantically, the combination of extensions may lead to scope interactions, idiomatic interpretations, and meaning shifts that go beyond the basic contribution of individual suffixes. This complexity highlights the rich derivational capacity of Bantu verb morphology.

Lastly, the productivity of verb extensions in Bantu languages (Rugemalira (1993) for Runyambo; Shangase (2001) for Zulu; Cocch (2009) for Tshiluba; Pretorius (2014) for Sestwana; Ngonyani and Ngowa (2016) for Kiswahili. The productivity of verb extension in Bantu varies in some languages and across extension types. Some of the extensions in Kiswahili and Runyambo result in increase of valence (applicative and causative), while other extensions result in decrease of valence (stative and reciprocal). Other extensions, for instance, the reversive extension in Kiswahili, do not allow any change in valence, but they alter the semantics of the verb to which they are attached (Ngonyani & Ngowa, 2016).

The verb extension in many Bantu languages is associated with the external and internal arguments of the predicate. Sometimes, these arguments are licensed with an object marker inserted before the stem of the verb. Object marker is a pronominal morpheme within the complex verb that agrees with the noun class of the object (Marten & Kula, 2012). The agreement between the object marker and the internal and external arguments of the verb depends on the presence of covert or overt objects (Zeller, 2014). However, verb extensions in many Bantu languages alter the presence of post-verb arguments. The alternation of the post-verb arguments can affect the presence of the object marker within the verb. Hence, there is a nexus between verb extensions and object marking in languages like Kiswahili which has both features. This nexus however is not highlighted by Bantu researchers and linguists, including those who studied Kiswahili. Therefore, this paper presents a correlation between verb extensions and object marking in Kiswahili, with its implications for patterns and argument structure of the verb.

## 2. Theoretical Framework
Data analysis is guided by Lexical Mapping Theory (LMT), proposed by Falk in 2001 as part of Lexical Functional Grammar (LFG) developed in the 1970s. LMT was initially proposed by Bresnan and Kanerva (1989). It was later modified by Joan Bresnan and Annie Zaenen in the early 1990s, Bresnan in 2001, and Falk in 2001, among others. In this paper, we focus on the modification done by Falk (2001). The LMT explores correlations between semantic roles of the arguments and their syntactic functions (Bresnan, 2001; Dalrymple, 2001; Falk, 2001).

The LTM comprises four key tenets for mapping operations within constituents of a sentence: mapping between argument structure (A-structure) and functional structure (F-structure) of a sentence, thematic hierarchy, mapping principles and valence-changing operations. In terms of mapping between A-structure and F-structure, LMT provides rules for mapping between the

two in a single sentence, but A-structure should be mapped to F-structure. A-structure represents the semantic roles of a verb, such as agent, patient, experiencer, theme, source, goal and instrumental. F-structure represents grammatical functions of the verb, such as object, subject and complement. Additionally, the thematic hierarchy provides ranked roles between A-structure and F-structure. Higher-ranked roles of A-structure tend to map the higher grammatical functions (e.g. Agent should be ranked with the subject. Mapping principles involve associating arguments with lexical entities within the verb. This includes the subject mapping rule, the object mapping rule, and the oblique mapping rule. Lastly, LMT accounts for valence-changing operations resulting from verb extension, such as passivization (suppressing the external arguments and promoting another argument) and Causativization (adding a new external argument).

Despite the four key tenets, the study uses one tenet, mapping principles, to analyse the correlation between verb extension and object marking in Kiswahili. This principle shows how verb extension licenses or alters the object marker. Under this principle, some verb extensions in Kiswahili can suppress the presence of the object marker while others retain the presence of the object marker.

### 3. Methodology
The data used in this study were extracted from two Kiswahili novels (Nagona by Kezilahabi, 1990, & Mzingile by Kezilahabi, 1991) and one Kiswahili drama (Kivuli Kinaishi by Mohamed, 1990) through the documentary review method. These documents contain sentences written in narrative and dialogue forms. The pivot element of the sentence is the verb. Our target was to identify the verb with derivational suffixes with or without an object marker. The extracted verbs are analysed through a structural analysis method to determine the presence of derivational suffixes with or without object marking. The obtained data are presented through an explanation that coincides with the qualitative approach.

### 4. Findings and Discussion
In Kiswahili, verb extension and object marking interact in complex but systematic ways to express change in the number of arguments and argument structure. Verb extension overrides the necessity of object markers in Kiswahili. When a verb is extended, it can suppress the object marker or retain (or even require) the presence of an object marker in the verb. This affects the predicate structure of the verb in the basis of number of arguments and argument structure as discussed in the following sections.

### 4.1 Verb Extensions Suppressing Object Marking in Kiswahili
In Kiswahili, some single, pairwise and triplewise combinations of verb extensions suppress the presence of object marking. This phenomenon is the result of dropping the overt and covert external arguments of the predicate. These verb extensions have implications for the pattern and argument structure of the predicate.

### 4.1.1 Single Verb Extension Suppressing Object Marking in Kiswahili
Under this study, it was noted that three single verb extension suffixes suppress the object marker in Kiswahili. The suffixes include passive, stative and reciprocal. When these suffixes are stacked on the verb, the object marker is prohibited. Hereunder, there is a critical discussion of each of these suffixes.

### 4.1.1.1 Passive and Object Marking
Passive extension in Kiswahili is marked by the suffix {-w-}, which is inserted between the root and the final vowel of a transitive verb. Passive construction in Kiswahili suppresses the subject (agent) and promotes the object to the subject position. The former subject (agent) is either omitted or introduced as oblique by using a preposition. This valence-changing operation suppresses the presence of the object marker incorporated within the verb, as illustrated in (1).

(1)    a.    ya -li -yo -sem **-w** -a        (Kezilahabi, 1990, p. 47)
                  6SM-PST-RM-root-PASS-FV
                  'what was said'

        b.    m -na -lip -**w** -a             (Mohamed, 1990, p. 21)
                  1SM-PRT-root-PASS-FV
                  'You are paid'

        c.    ha -ku -sikiliz -**w** -a        (Kezilahabi, 1990, :p. 29)
                  NEG-PST-root -PASS-FV
                  'He/she was not heard/attended'

The data in (1a-c), passive suffix suppresses the object marking by decreasing the internal argument of the verb. The use of object markers with passive suffixes results in the formation of ill-formed verb structure and meaning. Therefore, the passive verb extension has implications in object marking and predicate argument structure. Within the LMT, the mapping principles

indicate that verb extension alters the object marking. For this case, the passive verb extension suppresses the object marking in Kiswahili.

### 4.1.1.2 Stative and Object Marking

Stative extension in Kiswahili is marked by four allomorphs: {-ik-, -ek-, -lek-, -lik-}. Only one allomorph is marked at once, depending on vowel harmony between the structure of the stem and stative suffixes. The subject is totally omitted in a sentence while an object is promoted to the subject position. For this case, a stative verb does not allow object marking because they do not license an object. The stative verb does not take external arguments of the verb. Therefore, stative verb extension suppresses the presence of object marking as illustrated in (2).

(2) a.   wa  -na -sonon -**ek** -a    (Mohamed, 1990, p. 92)
2SM-FUT-root-STV-FV
'They are sorrowful'

b. u-   ta  -mwag -**ik**  -a    (Mohamed, 1990, p. 38)
3SM-FUT-root   -STV-FV
'It will be poured out'

c. tu  -me -le  -**lek**  -a    (Mohamed, 1990, p. 45)
1SM-PF-root-STV-FV
'We were raised'

d.  ki   -li  -va  -**lik** -a    (Mohamed, 1990, p. 51)
7SM-PST-root-STV-FV
'It was worn'

As indicated in (2a-d), all stative allomorphs do not allow the occurrence of the object marker in the verb. Inserting an object marker in a stative verb is ungrammatical. For example, the verbs *wana-tu-sononeka, *uta-ki-mwagika, *tume-m-leleka, *kili-ku-valika* are ungrammatical in Kiswahili due to insertion of the object marker {-tu-}, {-ki-}, {-m-} and {-ku-} respectively. Within the LMT, the mapping principles indicate that verb extension alters the object marking. For this case, the stative verb extension suppresses the object marking in Kiswahili.

### 4.1.1.3 Reciprocal and Object Marking

Reciprocal extension in Kiswahili is marked by the suffix {-an-}, which is inserted before the final vowel of a transitive verb. In a reciprocal verb, the object is totally moved from its position and inserted into the subject position to form a compounded noun phrase. Usually, a reciprocal verb excludes the use of an object marker for the participant involved in the reciprocity. The reciprocal suffix inherently encodes mutual action that leads to the elimination of an object marker, as illustrated in (3).

(3) a.   wa  -ki -fukuz -**an** -a      (Kezilahabi, 1991, p. 50)
2SM-CA -root -REC-FV
'When they chase each other'

b.  wa  -ki -suk -**an**  -a     (Kezilahabi, 1990, p. 99)
2SM-CA-root-REC-FV
'They were braiding each other'

c.  tu  -li -kanyag -**an** -a     (Kezilahabi, 1990, p. 102)
1SM-PST -root   -REC-FV
'we stepped on each other'

The data in (3a-c) indicate suppression of object marking due to reciprocal extension. The insertion of the reciprocal suffix results in the suppression of both overt and covert objects. Consequently, the presence of an object marker in a reciprocal verb renders the construction ungrammatical. For instance, the forms *waki-m-fukuzana, *waki-wa-sukana,* and *tuli-m-kanyagana* are ungrammatical due to the insertion of the object markers {-m-}, {-wa-} and        {-m-}, respectively. Within Lexical Mapping Theory (LMT), the mapping principles indicate that verb extensions alter object realization. In this case, the reciprocal extension suppresses object marking in Kiswahili.

### 4.1.2 Pairwise Extension Combination Suppressing Object Marking

In Kiswahili, some derivational suffixes frequently co-occur, and their ordering is generally fixed (Cong & Ngonyani, 2022; Ngonyani, 2016). The results of this study show that Kiswahili exhibits numerous pairwise verb-extension combinations that suppress object marking. In such combinations, one extension may be valence-increasing, while the other is valence-reducing or non-valence-changing, and the two are stacked within a single verb. Under normal circumstances, valence-increasing and some non-valence-changing extensions permit object marking, whereas valence-reducing extensions suppress it. However, when these

extensions co-occur within a single verb form, object marking is suppressed. This phenomenon is attested in four structural patterns: applicative with reciprocal or applicative with passive; causative with passive or causative with reciprocal; reversive with stative; and stative with reciprocal.

In the first pattern, the applicative (a valence-increasing extension) co-occurs with the reciprocal in one instance and with the passive (a valence-reducing extension) in another. The applicative is realized by one of four allomorphs {-i-, -e-, -le-, -li-}, the passive by the suffix {-w-}, and the reciprocal by the suffix {-an-}. The co-occurrence of the applicative with either the passive or the reciprocal within a single verb form often suppresses object marking in Kiswahili, as illustrated in (4) and (5).

(4)  a.   ku-dharau -**li** -**an**  -a                        (Kezilahabi, 1990, p. 86)
          IM -root  -APPL-REC-FV
          'to disrespect each other'

     b.   tu  -na -heshim  -**i**   -**an** -a                (Kezilahabi, 1991, p. 2)
          2SM-PRT-root-APPL-REC-FV
          'we respect each other'

(5) a.    a   -li  -tazam -**i**    -**w**  -a               (Kezilahabi, 1991, p. 41)
          1SM-PST-root-APPL-PASS-FV
          'what they were told'

     b.   wa  -li  -o  -to -**le**   -**w**   -a             (Mohamed, 1990, p. 17)
          2SM-PST-RM -root -APPL-PASS-FV
          'who were released'

As shown in (4), pairwise combinations of a valence-increasing extension (the applicative) and a valence-reducing extension (the reciprocal) do not permit the insertion of an object marker within the verb. The use of an object marker in an applicative-reciprocal verb renders the verb ungrammatical. For instance, the verb forms *\*kumdharauliana* and *\*tunawaheshimiana* are ungrammatical due to the insertion of the object markers {-m-} and {-wa-}, respectively. Similarly, in the data presented in (5a–b), the pairwise combination of the applicative and the passive suppresses object marking. The addition of object markers such as {-wa-} or {-m-}, as in *\*aliwatazamiwa* or *\*waliomtolewa*, likewise results in ungrammatical verb forms.

The second pattern involves the co-occurrence of the causative (a valence-increasing extension) with the passive on the one hand, and the causative with the reciprocal (a valence-decreasing extension) on the other. As with the previous pairwise extension combinations, the patterns in this group suppress object marking. The causative extension introduces an external argument to the verb to which it is attached, whereas the passive suppresses the subject (agent) and promotes the object to the subject position, as illustrated in (6) and (7). In these pairwise extension combinations, the passive {-w-} and the reciprocal {-an-} exert a stronger effect than the causative suffixes {-ish-, -esh-, -lish-, -lesh-}, resulting in the suppression of object marking.

(6)  a.   ni   -li -shanga -**z**   -**w**  -a               (Kezilahabi, 1990, p. 11)
          1SM-PST-root  -CAUS-PASS-FV
          'I was surprised'

     b.   ki  -me -la   -**z**    -**w**   -a                (Kezilahabi, 1990, p. 11)
          7SM-PF-root-CAUS-PASS-FV
          'it has been laid down'

     c.   a    -me -pakat -**ish**   -**w** -a              (Kezilahabi, 1990, p. 4)
          1SM-PF  -root  -CAUS-PASS-FV
          'he/she has been made to cuddle'

(7) a. ku -kop  -**esh**  -**an**  -a                        (Mohamed, 1990, p. 65)
       IM-root -CAUS-REC-FV
       'to be creditworthy'

    b. wa-li-kutan-**ish**-**an**-a                          (Mohamed, 1990, p. 86)
       2SM-PST-root -CAUS-REC-FV
       'they caused each other to meet'

    c. wa-li-heshim-**ish-an**-a                             (Mohamed, 1991, p. 27)
       2SM-PST-root -CAUS-REC-FV
       'they cause each other to be respected'

As illustrated in (6a–c), verbs formed through extension stacking involving the causative and passive do not permit object marking. The insertion of an object marker renders such verbs ungrammatical. For instance, verb forms with incorporated object markers such as *nili-**m**-shangazwa*, *kime-**wa**-lazwa*, *ame-**ku**-pakatishwa*, and *ku-**m**-kopesheka* are ungrammatical. Prior to extension stacking, the causative suffix independently allows object marking (e.g. ni-li-**m**-shanga-z-a, a-me-**wa**-pakat-ish-a). However, once the causative combines with the passive or the reciprocal extension, object marking is no longer permitted. Similarly, as shown in (7a–c), verbs formed through the combination of the causative and reciprocal extensions do not allow object marking. The insertion of an object marker in forms such as *ku-m-kopeshana*, *wali-wa-kutanishana*, and *wali-tu-heshimishana* results in ungrammatical constructions.

The third pairwise extension pattern involves the co-occurrence of the reversive (non-valence-changing) and the stative (valence-decreasing) extensions. Prior to their combination, the reversive extension permits object marking, whereas the stative extension suppresses object marking. As with the previous pairwise extension combinations, this pattern also suppresses object marking. Inherently, the reversive extension licenses an internal argument, making object marking possible, while the stative extension suppresses the external argument (agent) and promotes the internal argument to the subject position. Consequently, the combination of reversive and stative extensions blocks object marking in Kiswahili, as illustrated in (8).

(8) a. li   -li -fung -**u**  -**k**  -a          (Kezilahabi, 1990, p. 3)
       5SM-PST-root-REV-STV-FV
       'it was opened.'
    b. ya   -li -zib  -**u**   -**k**   -a          (Kezilahabi, 1990, p. 27)
       6SM-PST-root-REV-STV-FV
        'they gushed out'

The data in (8a–b) show that the co-occurrence of reversive and stative extensions in the verb suppresses object marking. The insertion of an object marker in such forms results in ungrammaticality. Although the reversive extension independently permits object marking (e.g. *a-li-**li**-fung-u-a, wa-li-**ya**-zib-u-a*), its combination with the stative extension blocks object marking. Consequently, the incorporation of an object marker renders these verbs ungrammatical. For example, verb forms containing object markers such as *lili-**tu**-funguka* and *yali-**wa**-zibuka* are ill-formed.

Lastly, the pairwise extension combination involves the stative and reciprocal extensions, both of which are valence-decreasing. In stative constructions, the external argument (subject) is suppressed, and the internal argument is promoted to the subject position. In reciprocalized verbs, the internal argument is likewise suppressed and interpreted as part of a plural or compound subject. Both prior to and after their combination, these extensions do not license distinct internal or external arguments. Consequently, their co-occurrence blocks the presence of an object marker in the verb, as illustrated in (9).

(9) a. i    -ka   -on  -**ek**  -**an**  -a          (Kezilahabi, 1991, p. 17)
       9SM-NTM-root-STV-REC-FV
       'Then it appeared'

    b. a    -na  -ye -sem  -**ek**  -**an**  -a          (Kezilahabi, 1990, p. 43)
       1SM-PRT-RM-root-STV-REC-FV
       'the one who is said'

The data in (9a–b) indicate that object marking is suppressed as a result of the stative and reciprocal pairwise extension. The incorporation of an object marker in such forms yields ill-formed constructions. For instance, the insertion of the object markers {-ki-} and {-m-} in the verbs *ika-**ki**-onekana* and *anaye-**m**-semekana*, respectively, results in ungrammatical forms. Within the Lexical Mapping Theory (LMT) framework, mapping principles show that verb extensions affect the realization of object marking. In this respect, all four pairwise extension patterns discussed in Section 4.1.4 suppress object marking in Kiswahili.

### 4.1.3 Triplewise Extension Combinations Suppressing Object Marking in Kiswahili
Triplewise extension combinations involve the co-occurrence of three distinct derivational suffixes in a fixed order within a single verb form. Based on the Kiswahili morphological template (canonical order): root + causative + applicative, or reciprocal + passive + stative, followed by a final vowel, triplewise combination consists of any three of these extensions stacked in one verb. The present study observes that only valence-increasing and valence-decreasing extensions co-occur in such combinations. While valence-increasing extensions typically permit object marking, valence-decreasing extensions suppress it. When these two types co-occur, object marking is completely blocked.

This phenomenon is attested in two patterns involving the co-occurrence of two valence-increasing extensions and one valence-decreasing extension. The two valence-increasing extensions include either an applicative {-i-, -e-, -le-, -li-} combined with a causative {-ish-, -esh-, -lesh-, -lish-}, or the reverse order, causative plus applicative. The valence-decreasing extension involved

in this triplewise combination is the passive ({-w-}). In all such cases, object marking is suppressed in Kiswahili, as illustrated in (10).

(10) a. a   -ka  -fany -**i** -**sh**  -**w**   -a          (Kezilahabi, 1991, p. 71)
          1SM-NTM-root-APPL-CAUS-PASS-FV
          'he/she was made to do something'

    b. tu-li  -fung- -**i**  -**sh**  -**w**   -a          (Kezilahabi, 1990, p. 81)
          2SM-NTM-root-APPL-CAUS-PASS-FV
          'we were made to be locked up'

    c. li  -me -zungu -**sh**   -**i**  -**w**   -a          (Kezilahabi, 1990, p. 52)
          5SM-PF -root  -CAUS-APPL-PASS -FV
          'It has been enclosed by'

    d.       a -ka-andik -**sh** -**i** -**w**   -a          (Mohamed, 1990, p. 32)
          1SM-NTM -root -CAUS-APPL-PASS -FV
          'to be written for someone'

The data in (10a–b) involve a triplewise combination of applicative, causative, and passive, whereas (10c–d) involve a causative + applicative + passive combination. In the data under discussion, the two valence-increasing extensions (applicative + causative or causative + applicative) inherently allow object marking (e.g. *a-ka-**m**-fany-i-sh-a*, *tu-li-**wa**-ling-ish-i-a*). However, the valence-decreasing extension (passive) suppresses object marking. In triplewise combinations, the presence of an object marker yields ill-formed constructions**.** For instance, incorporation of an object marker in the verbs in (10a–d) results in *\*aka-**m**-fanyishwa\** and *\*lime-**pa**-zungushiwa\**, which are ungrammatical. In this respect, the passive exerts a stronger constraint on these combinations than the applicative and causative extensions

Secondly, the co-occurrence of one valence-increasing and two valence-decreasing suppress object marking. The two valence-decreasing include either reciprocal + stative or passive + stative, while the valence-increasing is the applicative. This triplewise combination blocks object marking in Kiswahili as illustrated in (11).

(11) a.    a   -ka -pat -**i**  -**k** -**an** -a          (Kezilahabi, 1990, p. 89)
          1SM-NTM-root-APPL-STV-REC-FV
          'he/she was found'

    b. pa  -me -chom -**ek**  -**e**   -**w**   -a          (Kezilahabi, 1990, p. 51)
          16SM-PF -root  -STV -APPL-PASS-FV
          'It has been plugged in.'

As illustrated in (11a), the applicative, stative, and reciprocal extensions are stacked on the verb root. In (11b), the stative, applicative, and passive extensions occur after the verb root. These extension combinations suppress object marking in Kiswahili. The insertion of an object marker in stative, applicative and reciprocal verb forms renders the verb ungrammatical. For instance, verb forms with incorporated object markers, such as *\*aka-m-patikana* and *\*pame-ku-chomekewa*, result in ill-formed constructions. Within Lexical Mapping Theory (LMT), the mapping principles indicate that verb extensions alter argument realization, including object marking. In this respect, both patterns discussed in Section 4.1.3 suppress object marking in Kiswahili.

## 4.2 Verb Extension Retaining Object Marking in Kiswahili
In this study, we identified several single, pairwise and triplewise verb extensions in Kiswahili that retain object marking. In some instances, these extensions allow or even require the presence of an object marker within the complex verb. In certain cases, the addition of these derivational suffixes converts intransitive verbs into transitive verbs. The resulting transitive verbs may require object marking depending on factors such as the specificity and animacy of the object. Extensions that permit or mandate object marking include valence-increasing extensions (applicative and causative) as well as non-valence-changing extensions (reversive), as discussed below.

## 4.2.1 Single Verb Extensions with Object Marking in Kiswahili
In this study, it was observed that three single verb extensions allow (or even require) presence of an object marker in Kiswahili. These extensions include the applicative, causative, and reversive suffixes. When these suffixes are attached to the verb root, the occurrence of an object marker is permitted or, in some cases, obligatory. Hereunder, there is a critical discussion of each of these suffixes.

#### 4.2.1.1 Applicative and Object Marking

The applicative extension in Kiswahili is marked by four allomorphs: {-i-, -e-, -le-, -li-}. Only one allomorph occurs at a time, determined by vowel harmony between the verb stem and the applicative suffix. The applicative extension introduces an additional object typically a beneficiary, instrument, or locative with transitive verbs. Moreover, when applied to intransitive verbs, it introduces a new object argument. An applied verb may therefore contain both the original and the applied object, or only the newly introduced object. Object marking may be used to index one of these objects. The data presented here illustrate applied verb forms in Kiswahili that retain object marking.

    (12) a. tu- li- **zi**- chez- **e**- a                 (Mohamed, 1990, p. 86)
              1SM-PST-OM-root-APPL-FV
              'we played with them'
        b. a-ta-**wa**-geuk-**i**-a                   (Kezilahabi, 1990, p. 16)
              1SM-FUT-OM-root-APPL-FV
              'she/he will turn to them'
        c. ni-li-**m**-soge-**le**-a                   (Kezilahabi, 1990, p. 11)
              1SM-PST-OM-root-APPL-FV
              'I approached him/her'

The data in (12a–c) demonstrate that the applicative extension, across all its allomorphs {-i-, -e-, -le-, -li-}, allows or in some cases requires the presence of an object marker. In most instances, either one of the original objects or the newly introduced applied object is indexed by an object marker. Within Lexical Mapping Theory (LMT), the mapping principles indicate that verb extensions modify argument realization, including object marking. In this respect, the applicative extension retains or requires object marking depending on the transitivity of the base verb.

#### 4.2.1.2 Causative and Object Marking

The causative extension in Kiswahili is marked by several allomorphs, including {-ish-, -esh-, -lesh-, -lish-, -ez-, -z-, -iz-}. Unlike other verb extensions, double causative allomorphs may co-occur within a single verb, depending on vowel harmony between the verb stem and the causative suffixes. For example, the verbs *poa* 'cool' and *jaa* 'be full' can be inflected with double causative allomorphs in a fixed order, yielding *po-z-esh-a* 'cause something to cool' and *ja-z-ish-a* 'cause something to fill', respectively. In this study, it was observed that the causative extension introduces an additional object, usually the cause, when applied to transitive verbs. Furthermore, when applied to intransitive verbs, it introduces a new object (the cause), which is indexed by the object marker, as illustrated in (13).

    (13) a.    ki-li-**tu**-rud-**ish**-a              (Kezilahabi, 1990, p. 38)
              7SM-PST-OM-root-CAUS-FV
              'it took us back'
        b.    ku-**vi**-endele-**z**-a              (Kezilahabi, 1990, p. 31)
              IM-OM-root-CAUS-FV
              'to develop them'
        c.    a-ka-**ni**-lazim-**ish**-a            (Mohamed, 1990, p. 111)
              1SM-NTM-OM-root-CAUS-FV
              'and then she/he forced me'

As illustrated in (13a–c), causative derivational suffixes either retain or require object marking. These suffixes introduce an additional object (the causee) with transitive verbs, or a new object (the causee) with intransitive verbs. The introduced causee may be indexed by an object marker within the verb form. Within the framework of Lexical Mapping Theory (LMT), the mapping principles indicate that verb extensions modify argument realization, including object marking. In this regard, the causative extension retains or requires object marking depending on the transitivity of the base verb.

#### 4.2.1.3 Reversive and Object Marking

The reversive extension in Kiswahili is marked by two allomorphs: {-o-, -u-}. Only one allomorph occurs at a time, determined by vowel harmony between the verb stem and the reversive suffix. The reversive extension is classified among the non-valence-changing extensions. When a reversive suffix is applied, the verb may still retain object marking, depending on factors such as the definiteness, specificity, and animacy of the object, as illustrated in (14).

    (14) a.    a-ka-**u**-fung-**u**-a              (Kezilahabi, 1990, p. 63)
              1SM-NTM-OM-root-REV-FV

'and then he/she opened it'

b.   a-li-**ki**-kunj-**u**-a                (Kezilahabi, 1990, p. 68)
    1SM-PST-OM-root-REV-FV
    'she/he unfolded it'

c.   ha-wa-ku-**ki**-teg-**u**-a            (Kezilahabi, 1990, p. 47)
    NEG-2SM-PST-OM-root-REV-FV
    'they did not disarm it'

As illustrated in (14a–c), the reversive extension in Kiswahili retains object marking with transitive verbs, which typically require an obligatory object marker. Reversive suffixes indicate the undoing or reversal of an action without altering the word order of the sentence. However, these suffixes are selective and do not attach to all Kiswahili verbs. In some cases, the application of a reversive suffix produces ungrammatical forms. For example, attaching the reversive suffix to verbs such as *jenga* 'build' → *jengua* 'unbuild', *andika* 'write' → *andikua* 'unwrite', *chora* 'draw'→ *choroa* 'undraw', and *chota* 'fetch' → *chotoa* 'unfetch' results in ill-formed verbs. A more detailed study is needed to determine the productive patterns of the reversive extension in Kiswahili verbs.

### 4.2.2 Pairwise Extension Combination with Object Marking in Kiswahili

Pairwise extension combinations in Kiswahili often co-occur, and their order is generally fixed. Some of these combinations retain object marking, depending on whether the object marker is obligatorily required, while others suppress it. Kiswahili has a few pairwise extension combinations that retain object marking. In these cases, the combination may involve either two valence-increasing extensions or a valence-increasing extension together with a non-valence-changing extension. This phenomenon is observed in two main patterns. The first pattern involves the co-occurrence of two valence-increasing extensions (causative and applicative) stacked in a single verb stem. In such verbs, the causative and applicative combination retains object marking, and the use of the object marker is obligatory, as illustrated in (15).

(15) a.   a-ka-**ni**-va-**lish-i**-a           (Kezilahabi, 1990, p. 67)
      1SM-NTM-OM-root-CAUS- APP-FV
      'and then she/he caused me to dress'

b.   a-ka-**tu**-leng-**esh-e** a          (Kezilahabi, 1991, p. 61)
    1SM-NTM-OM-root-CAUS- APP-FV
    'and then he/she smashed it'

As illustrated in (15a–b), the co-occurrence of causative and applicative extensions retains the object marker in Kiswahili. The combination of these two derivational suffixes continues to allow object marking. This pairwise combination introduces an additional object to transitive verbs or a new object to intransitive verbs. Among these objects, at least one must be indexed with an object marker.

The second pattern involves the co-occurrence of a non-valence-changing extension (applicative) with a valence-increasing extension (reversive) within a single verb. The applicative extension introduces an additional object, typically a beneficiary, instrument, or locative with transitive verbs, and a new object with intransitive verbs. In contrast, the reversive extension does not alter the internal or external arguments of the verb. In this combination, the applicative introduces an additional object to transitive verbs or a new object to intransitive verbs, while the reversive preserves the existing argument structure. In such cases, obligatory object marking is retained with the pairwise co-occurrence of applicative and reversive, as illustrated in (16).

(16) a.   a-li-**ni**-fung-**u**-**li**-a           (Mohamed, 1990, p. 112)
      1SM-PST-OM-root-REV-APP-FV
      'He/she opened it for me'

b.   ku-**m**-fumb-**u**-**li**-a           (Kezilahabi, 1990, p. 50)
     IM-OM-root-REV-APP-FV
     'to solve it for them'

c.   a-li-**m**-teg-**u**-**li**-a            (Mohamed, 1990, p. 98)
     1SM-PST-OM-root-REV-APP-FV
     'he/she solved it for him/her'

As illustrated in (16a–c), the co-occurrence of reversive and applicative extensions retains object marking in Kiswahili. When both reversive and applicative suffixes are present, the verb may still retain object marking, depending on factors such as the definiteness, specificity, and animacy of the object. Within the framework of Lexical Mapping Theory (LMT), the mapping

principles indicate that verb extensions can modify object marking. In this case, both patterns discussed in Section 4.2.2 retain object marking, depending on whether its presence is obligatory.

### 4.2.3 Triplewise Extension Combination with Object Marking

Triplewise extension combinations involve the co-occurrence of three different derivational suffixes in a fixed order. A triplewise combination occurs when any three of these suffixes are stacked within a single verb form. In this study, it was observed that one non-valence-changing extension (reversive) and two valence-increasing extensions (applicative and causative) can co-occur in a single verb. Prior to the combination of all three extensions, object marking is optional and depends on the information structure. However, once the three extensions are combined, the resulting verb form allows object marking, as exemplified in (17).

(17) a.  a-li-**ni-**fung- **u**-**lish-i-**a                     (Mohamed, 1990, p. 109)
          1SM-PST-OM-root-REV-CAUS-APP-FV
          'He/she made me undress'

      b.  a-**ka**-ki-zib-**u-lish-i-**a                     (Kezilahabi, 1991, p. 59)
          IM-OM-root-REV-CAUS-APP-FV
          'then he/she used it to unclog/open'

      c.  a-li-**wa**-fumb-**u-lish-i-**a                     (Mohamed, 1990, p. 89)
          1SM-PST-OM-root-REV-CAUS-APP-FV
          'he/she made them solve it'

As illustrated in (17a–c), the reversive, causative, and applicative extensions are stacked on the verb root. This combination allows object marking in Kiswahili; without an object marker, the verb becomes ungrammatical. Within the framework of Lexical Mapping Theory (LMT), the mapping principles indicate that verb extensions modify the realization of object arguments. In this case, the combination of the three derivational suffixes either retains or obligatorily requires object marking.

### 5. Conclusion and Recommendations

This study has demonstrated a significant and systematic correlation between verb extensions and object marking in Kiswahili. The analysis reveals that object marking is not merely a surface morphological feature but a syntactically governed process that interacts with the verb's external argument structure. These findings lend support to theoretical frameworks such as Lexical Mapping Theory (LMT), which link morphological derivation to argument realization. Moreover, the patterns observed have important implications for our understanding of agreement, valence operations, and the interface between morphology and syntax in Bantu languages. Verb extensions not only modify the valence of the verb but also influence the argument structure by licensing or suppressing object marking. In Kiswahili, both obligatory and optional object marking are permitted. However, some verb extensions retain and in certain contexts even require object marking depending on the obligatoriness of the construction, while others completely suppress it. This phenomenon is observed across single, pairwise, and triplewise extensions, though the effect varies depending on the type of derivational suffix and the specific combination of suffixes. Table 1 provides a summary of the correlation between verb extensions and object marking in Kiswahili

**Table 1: Summary of Correlation between Verb Extension and Object Marking in Kiswahili**

| S/N | Types of Verb Extensions | Object Marking | |
|---|---|---|---|
| | | **Allowed** | **Suppressed** |
| 1. | **Single verb extension** | | |
| | Reciprocal | | ✓ |
| | Stative | | ✓ |
| | Passive | | ✓ |
| | Applicative | ✓ | |
| | Causative | ✓ | |
| | Reversive | ✓ | |
| 2. | **Pairwise Extension Combination** | | |
| | Applicative + Causative | ✓ | |
| | Reversive + Applicative | ✓ | |
| | Applicative + Passive | | ✓ |
| | Applicative + Reciprocal | | ✓ |
| | Causative + Passive | | ✓ |
| | Causative + Reciprocal | | ✓ |
| | Reversive + Stative | | ✓ |
| | Stative + Reciprocal | | ✓ |
| 3. | **Triplewise Extension Combination** | | |
| | Applicative + Causative + Passive | | ✓ |
| | Reciprocal + Stative + applicative | | ✓ |
| | Reciprocal + Applicative + Passive | | ✓ |
| | Reversive + Applicative + Causative | ✓ | |

Ultimately, the correlation between verb extension and object marking reflects the rich agglutinative nature of Kiswahili and provides insight into how speakers encode grammatical relations and manage syntactic roles. However, the study was limited to syntactic verb extensions with their possible pairwise and triplewise combinations. Further studies can focus on lexical verb extension and object marking in Bantu languages, including Kiswahili. Based on this study, we found that reversive extension in Kiswahili is limited to certain verb forms. Further studies can establish the patterns of reversive extension in Kiswahili and other Bantu languages. Also, in some cases, the double causative suffixes can occur in one verb form. This behaviuor needs critical study to establish the patterns of double causative suffixes with their syntactic, morphological, and semantic implications.

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