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An Analysis of Verbal Extensions in Malawian Tonga: Towards Mirror Principle and Templatic Morphology

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Abstract

The question on affix ordering is among the central concerns in morphological analyses of Bantu languages, with most studies drawing insights from Mirror Principle and Templatic Morphology theoretical underpinnings. However, it remains debatable to a larger extent on whether conclusions drawn from such studies can be extended to all languages with

agglutinative morphological structures. This study was carried out to examine the structure of suffix ordering in Malawian Tonga by examining the two theories. On morpheme co-occurrence, the study reveals that causatives and applicatives, as argument-structure increasing suffixes, should always precede other extensions which are argument-structure reducing suffixes in order to be consistent with the tenets of the two theories. However, there are some observable cases where prescriptions of these theories breed ungrammatical structures in Tonga.

Keywords: Verbal Extensions, Malawian Tonga, Mirror Principle, Templatic Morphology

1. Introduction

Verbal extension is the traditional label used for those verbal suffixes that extend or change the lexical meaning of the verb. Guthrie (1967) considers the presence of verbal extension suffixes among the main criteria to establish whether a language belong to the Bantu family or not. Suffixes that are inserted between root and final vowel, and that modifies the meaning of the basic verb are known as verbal extensions because they extend the radical. For example, as Mchombo (2004) notes in Chichewa, the simplest radical *–thyol-* means 'break'. Suffixing the causative extension *–ets-* to the radical derives an extended radical *–thyolets-* ('cause to break'). When passive suffix *–edw-* is added, the word becomes *thyoletsedw-* ('cause to be broken'). In this case, it seems that the causative *-ets-* has preceded the passive *-edw-* to breed the structure and reversing the two would breed ungrammatical structure. This indicates that there is a certain pattern for morpheme order in Bantu languages and a number of studies have hailed Mirror Principle (MP) and Templatic Morphology (TM) for being quite suggestive in the order of verbal extensions. The study aims at analyzing Tonga verbal extensions through the microscopic lens of these two frameworks. It shall show cases validated by the theories and highlight the areas where the frameworks have fallen short**.**

Tonga is one of the languages spoken in northern part of Malawi, mainly in Nkhata-bay district. The language belongs to the Bantu family of languages of Africa classified by Guthrie (1947) as belonging to 'Zone N Group 10' together with neighbouring Chichewa and Tumbuka. Bryan (1959) puts Tonga in the same group with Tumbuka where Chichewa is excluded.

2. Previous Studies on Verbal Extensions

There have been several studies on Bantu verbal extensions. For example, Khumalo (2009) did a comparative analysis of passive and stative in Ndebele. He pointed out that Ndebele does not allow the first or the highest object (in this case the beneficiary) to be realized as an object marker in the passive. Khumalo (2009) discovered that it is possible to have passivization in Ndebele. When generating the passivized beneficiary applicative object, the following constructions are derived:

1. (a) Aba-fana ba-seng-el-w-a u-chago ngubaba

2-boys 2-milk-appl-pass-fv 3-milk by-1a/father

'The boys were milked milk by the father'

(b) Aba-fana ba-seng-is-w-a (ngubaba)

2-boys 2-milk-caus-pass-fv (by father)

'The boys were made to milk by the father'

From sentences (1a) and (b), passive markers have been suffixed to the applicative and causative respectively. Laura and Paster (2009) also pointed out that when the intended form is a reciprocalized applicative, all of the constraints favour the Applicative-Reciprocal ordering. In Luganda for example, *-sal-ir-agan-* 'cut for each other,' is consistent with the

Mirror Principle (MP) because reciprocal has scope over applicative {where the proper reading is [(cut for) each other], and not [(cut each other) for]}, corresponding to the A>R ordering. This ordering also satisfies CARP (Causative-Applicative-Reciprocal-Passive) template. Their rankings also predict the correct output forms for other combinations of affixes to which MP is not relevant. For example, *-nyw-es-ebw-* is the optimal output for 'be made to drink' because it satisfies CARP (since C>P) and Mirror Principle (since the intended reading is [be (made to drink)] rather than [make [be drunk]]. –*Nyw-ebw-es- becomes ungrammatical according to MP, the expected Mirror/Scope ordering would be P>C {since the intended reading is [make (be drunk)] rather than [be (made to drink)]}. Mchombo (2004) also gives another example about the order of applicative and reciprocal. The ordering restriction between these two is that the applicative precedes the reciprocal. The Mirror Principle and Templatic Morphology predict this but only in the case of benefactive applicative. Consider the following:

2. Anyani a-ku-gul-il-an-a mikanda
2-baboons 2SM-pres-buy-appl-recip-fv 4-beads

"The baboons are buying each other bead's (See: Mchombo, 2004: 119)

In example (2), the applicative encoding 'buy for' is attached first and the verb conveying 'buy each other' would be formed first. The order of the two affixes is expected or predicted by the derivational history of the construction. It should be noted, however, that lack of a comprehensive description has led to conflicting claims about what determines the order of affixes. On the other hand, Katamba (1993) and Alsina (1999) argue that the order of verbal extensions in Bantu languages follows the Mirror Principle which says that the order of affixes reflects the order in which the associated syntactic 'operations' apply just like (Baker, 1985) asserts. Moreover, Good (2007) argues that affix ordering obeys the so-called CARP template that Hyman (2003) reconstructed for Proto-Bantu. The question on whether the order of affixes follows principles of morphology or semantic scope or the order of syntactic operations (Baker, 1985) has raised heated debate among scholars. However, it has been shown that some of the verbal 'extensions' (derivational suffixes) in other Bantu languages have a fixed order that does not follow these external principles and in some cases violates them (Hyman 2003; Good 2005).

If questions concerning affix ordering are the nerve-centre in morphological theory, then languages with templatic morphology appear to provide the least interesting answer, since in these languages affix ordering must simply be stipulated in the form of arbitrary position classes. For this reason, much recent research into templatic morphology has attempted to show that affix ordering in such languages is in fact governed by underlying semantic or syntactic principles (Baker, 1985). It remains an issue of some debate whether such approaches can be extended to all languages with templatic morphological structures. Since, no comprehensive study of affix order has been done in Malawian languages; samples from Tonga language were analyzed to provide evidence for the existence of TM and MP in its morphological systems.

3. Verbal Extensions in Tonga

Before considering the order of the verbal extension morphemes in Tonga, we will first present the full set of extensions that are attested in our data. These includes; Causative, Applicative, Passive, Stative, Reciprocal and Intensive

3.1 The Causative

The causative in Tonga is realized by the morphs *–is-* and *–es-*, the choice of the morph being determined by vowel harmony. The causative morpheme is suffixed to the verb with the result that there is a new noun phrase (NP) introduced into the structure (Mchombo, 2004). For example, causativization of an intransitive verb occurs as follows:

3. Mwana wa-sek-es-a ama

Child SM-pres.perf-laugh-caus-fv mother

"The child has made her mother laugh"

The presence of the causative suffix *–es-* is accompanied by a new NP *ama* 'mother' into the structure assuming the grammatical subject.

3.2 The Applicative

Tonga applicative suffix is shown by –i(y)- and *–e:-*, the form is also determined by vowel harmony. For example:

4. (a) Tamanda wa-ngu-kúmb-ɨ(y)-a βăna chimbuzi.

Tamanda SM-past-dig-appl-fv children pit latrine

"Tamanda dug a pit latrine for children"

(b) Joni wa-ngu-wónj-é: βăna mbeβa.

John SM-past-catch-appl/fv children mice

"John caught mice for children"

Tonga also inserts a liquid /l/ between the verb roots final vowel and the vowel of the applied extension in order to avoid vowel clustering (Mkochi, 2004). This is further illustrated in examples (5a) and (b).

5. (a) Joni wa-ngu-sán-ɨl-i-a βăna ndaláma.

John SM-past-l-appl-fv children money

"John found money for children"

(b) Joni wa-ngu-góng'ó-l-e: kamíti mwăna.

John SM-past-hit-l-appl stick child

"John hit a child with a stick"

The liquid (lateral) insertion /-l-/ in Tonga, as well as in some Bantu languages, is a general phonological process.

3.3 The Passive and Neuter/Stative

In Tonga, the passive suffixes are *–ek-* and *-ik-*, but subject to vowel harmony. This is exemplified in (6a) and (b):

6. (a) Mbeβa zi-ngu-wónj-ék-a nd í Tamanda.

Mice SM-past-catch-pass-fv by Tamanda

"The mice were caught by Tamanda"

(b) βăna βa-ngu-púm-ĭk-a nd í msambizyi

Children SM-hit-pas-fv by teacher

"The children were hit by the teacher"

It was observed that, in Tonga, the suffixes for passive extension are similar to that of neuter/stative. These suffixes are either *–ik-* or *–ek-* depending on vowel harmony. But what distinguishes the two is when the NP, which is the actor, has been included or not. In stative, there is no agency responsible for such a state or condition. For example:

7. (a) Mauta ng-a-fy-ok-a

Bows SM-perf-break-fv

"The bows have been broken"

(b) Mauta nga-ku-pind-ik-a

Bows SM-ass-bend-stat-fv

"Bent bows. (*lit.* 'Bows that are bent')

(b) Mbali za-ku-sw-ek-a

Plates SM-assoc-break-pass-fv

"The plates that are broken"

3.4 Reciprocalization

In Bantu languages, the formation of verbs with reciprocal reading or conveying the idea of reciprocity is effected through the suffixation of the form *–an-* to the verb root or stem (Lodhi, 2002). For example:

8. Agalu a-lum-an-a.

Dogs SM-cut-recip-fv

"Dogs have bitten each other"

3.5 Intensive

The intensifying elements in Tonga are *–isis-* where the final radical vowel is high, and *–eses-* where the final radical vowel is non-high. Consider the following examples:

9. (a) Mwana w-a-kan-isis-a ku-ly-a chakurya

Child SM-perf-refuse-intens-fv inf-eat-fv food

"The child has strongly refused to eat food"

(b) Apolisi a-won-eses-a ukongwa kuti unkhungu umal-i mu chalu.

The police SM-see-intens-fv very that theft SM-finish-subj loc country

"The police are making sure that theft comes to an end in this country.

4. Constraints on Morpheme Co-Occurrence

The issue of constant scholarly interest in Bantu linguistics relates to the determination of constraints on morpheme order in the verb stem. Tonga verb stem suffixes allows for variable ordering, but within limits. The focus here will be to examine the extent to which the two theories namely; the Mirror Principle (MP) and the Templatic Morphology (TM) regulate ordering of Tonga verbal morphemes.

4.1 The Mirror Principle

The Mirror Principle (MP) refers to the particular approach to the architecture of language organ developed by Mark Baker (1985). This is one of the most important pillars of current linguistic theory which observes that syntactic and morphological orderings stand in a symmetrical relation. Baker (1985) further argues that the Mirror Principle is the result of the strict locality of head movement constraint. In a structure as in the movement of x to z, it can only take place in a roll-up fashion where y first attaches to x, yielding [x-y], which afterwards attached to z, yielding the morphological order x-y-z. The notion of 'syntactical' and 'morphological' specifiers and compliments are crucial for the linearization of syntactic structure and its mapping to the morphological component. When the structure is pronounced, it linearizes in the following order: specifier precedes heads, and heads precedes their compliments. If the morphological structure of a complex word is derived through head-movement of the lexical root to the heads where the morphemes are base-generated, the MP follows straightforward. "The order of morphemes in a complex word reflects the natural syntactic embedding of the heads that correspond to those morphemes" (Baker, 2002: 326).

Baker (1985) also argues that if syntax and morphology are distinct aspects of linguistic representation, then the principles operating in the domain of morphology must pay close attention to, or be heavily influenced by those operating in the domain of syntax. The inevitable conclusion was that they were different aspects of the same process. Baker (1985) further argues that "morphological derivations must directly reflect or mirror syntactic derivations and vice-versa. Verb-stem morphotactics in Bantu should therefore, be sensitive to syntactic constraints. According to MP, the meaning of the sentence should determine the

order and co-occurrence of verbal extension morphemes. A relative example is the order of applicative and the reciprocal in Tonga where the ordering restriction is that the applicative should precede the reciprocal. The Mirror Principle predicts this as shown in (10):

10. Alimi a-lim-iy-an-a munda
Farmers SM-cultivate-appl-recip-fv gardens

"The farmers are cultivating each other's gardens"

In example (10), the applicative encoding 'cultivate for' is attached first, the reciprocal encoding 'each other' is suffixed to the applicative and this is consistent with the Mirror Principle. In an event where the fishermen are chasing each other into the pit, the prediction would be that the verb conveying 'push each other' would be formed first. Then one can add applicative encoding location. The sentence should be as in (11):

11. ?*Alovi a-chimbiz-an-iy-a mu nkhandu

Fishermen SM-chase-recip-appl-fv loc pit

The construction in (11) is ungrammatical; but there is nothing wrong about the semantic interpretation. The reading should have been 'the fishermen are pushing each other into the pit'. In this case, MP has failed to capture such an observation. The above sentence to be grammatical should be as shown in (12):

12. Alovi a-chimbiz-iy-an -a mu nkhandu
Fishermen SM-chase-appl-recip-fv loc pit

"The fishermen are chasing each other into the pit"

Another example where the Mirror Principle appears to be validated is in the ordering of the causative and the applicative. Mchombo (2004) argues that the order remains strictly that of causative before applicative, and the situation is the same as in Tonga. In sentence (13a), the morpheme conveying 'causing to wash' is attached first while the morpheme conveying the idea 'for' is attached later and this is consistent with the MP.

13. (a) Alovi a-chap-is-iy-a βăna malaya

Fishermen SM-wash-caus-appl-fv children clothes

"The fishermen are causing somebody to wash clothes for the children"

(b) ?* Alovi a-chap-iy-is-a βăna malaya

Fishermen SM-wash-caus-appl-fv children clothes

Sentence (13b) above is ungrammatical because it is inconsistent with the MP. The applicative conveying the idea "for" cannot be prefixed to the causative conveying the idea "causing" if one is to yield the reading that 'the fishermen are causing somebody to wash clothes for the children'. In this respect, the causative-applicative interaction differs from that of the causative and reciprocal. The two can appear in either order, depending on semantic composition. Consider (14a) and (b):

14. (a) βăna βa-lum-an-is-a agalu

Children SM-bite-recip-caus-fv dogs

"The children are making dogs bite each other"

(b) βăna βa-lum-is-an-a agalu

Children SM-bite- caus-recip-fv dogs

"The children are making dogs make each other bite something"

Sentence (14b) appears to be ambiguous between the two interpretations of "causing each other to bite" and "causing to bite each other". This attest to a preference in morpheme ordering, namely, that the preferred order is that of causative before reciprocal. Still, unlike the case of the applicative, the Tonga causative-reciprocal and reciprocal-causative interactions could be viewed as consistent with the Mirror Principle (Alsina, 1999).

4.2 Templatic Morphology

The Templatic Morphology (TM) Principle was reconstructed by Hyman upon analyzing pro-Bantu languages. The idea behind Templatic Morphology attempts to reduce the view that the ordering of verbal extension morphemes may be determined by morphological principles, independent of either syntactic derivation or semantic composition. In studies of various Bantu languages, Hyman (1991/2003) notes that there is a general order of the affixes in the verb stem such that the causative normally precedes the applicative. This in turn precedes the reciprocal and this precedes the passive. Denoting this as CARP for "Causative-Applicative-Reciprocal-Passive", the claim is that in the absence of over-riding factors, this is generally order of the morphemes. Mchombo (2004) argues that causatives and applicatives, being argument-structure increasing suffixes, should always precede other extensions which are argument-structure reducing suffixes when verbal extensions co-occur. The most obvious difference between the causative and the applicative has to do with the semantic roles and the grammatical functions associated with the new NP. In causative constructions, the new NP is agentive and is normally the grammatical subject of the sentence. The applicative, on the other hand, introduces the non-agentive NPs. In view of this, causatives must always precede the applicative and in turn precede other extensions when they co-occur (Hyman, 2003). Tonga provides some evidence for this Templatic Morphology. Consider the examples in (15):

15. (a) Alovi a-gul-is-iy-a βăna mawatu

Fishermen SM-buy-caus-appl-fv children cannoe

"The fishermen are selling canoes for the children"

(b) ?*Alovi a-gul-iy-is-a βăna mawatu

"Fishermen SM-buy-caus-appl-fv children canoe"

Sentence (15b) is ungrammatical because it does not obey the TM Principle that causatives should precede all other extensions (Laura and Paster, 2009). Consider other examples in

(16a) and (b) that obey TM:

16. (a) βăna βa- chap-is-il-ik-a malaya kwa alovi
Children SM-wash-appl-pass-fv clothes by fishermen.

"The children are getting clothes washed for them by (at the instigation of) the fishermen).

(b) Anthikazi a-tung-is-iy-an-a maji.

Women SM-draw-caus-appl-recip-fv water

"Women are making someone to draw water for each other"

TM avoids the pitfalls of pegging morphological order to syntactic derivation. However, the TM just like MP, also fails since verbal extension morphemes are ordered contrary to what the theory predicts. Consider (17a) and (b):

17. (a) Malaya nga-a-chap-ik-i(y)-a mu beseni.

Clothes SM-perf-wash-pass-appl-fv loc basin

"The clothes are being washed (while) on the basin)"

(b) βăna βa-lum-an-is-a agalu
Children SM-bite-recip-caus-fv dogs

"The children are making dogs bite each other"

Examples (17a) and (b) have shown where TM fails. TM states that in cases of applicative-reciprocal interaction, the applicative, being argument-structure increasing suffix, must always precede passive. And in case of applicative-reciprocal interaction, Laura and Paster (2009) note that the applicative should precede the reciprocal. Contrary to this prediction, the passive has preceded the applicative, and in addition to that, the reciprocal can precede the applicative as shown in examples (17a) and (b).

5. The Interaction of Verbal Extension Morphemes in Tonga

5.1 The Interaction of Passive with Causative and Applicative

The interaction of passive with causative and applicative is subject to some constraints (Mchombo, 2004). The passive can apply to both of these extensions; however, the occurrence of the causative or applicative suffixes after the passive suffix is not common but with minor exceptions. In double-object construction, Tonga only allows the beneficiary NP to be assigned the subject function under passivization. See example (18):

18. (a) βăna βa- chap-il-ik-a malaya (ndi alovi)
Children SM-wash-appl-pass-fv clothes (by-fishermen)

"The children are being washed some clothes (by the fishermen)"

(b) *Malaya nga-chap-il-ik-a βăna (ndi alovi).

‘ Clothes SM-wash-appl-pass-fv children (by fishermen)’

The above sentence is consistent with MP where the benefactive applicative morpheme has been prefixed to passive morpheme conveying the idea ‘be washed’. The sentence is also consistent with Hyman’ CARP**.** In double-object construction where non-beneficiary NP has been assigned the subject function under passivization, without repeating the applicative marker, the sentence remains ungrammatical as in (18b). However, when the applicative is redundantly repeated (as also noted by Mchombo (2004) in Chichewa, the sentence becomes grammatical as in example (19).

19. Malaya nga-chap-il-ik-i(y)-a βăna (ndi alovi).

Clothes SM-wash-appl-pass-appl-fv children (by fishermen)

“The clothes are being washed for children (by fishermen)”

This observation of repeating the applicative in Tonga is never captured by Baker’s MP and Hyman’ TM. Also in the example 20, the sentence is grammatical where the reading is [make (be washed)]. Sentence (20) is consistent with both MP and TM

20. βăna βa- chap-is-ik-a malaya (ndi alovi)
Children SM-wash-appl-pass-fv clothes (by fishermen)

“The children are being made to wash some clothes (by the fishermen)”

Laura and Paster (2009) noted that passive can occur with applicativized causatives as well. This is when a causative is followed by the applicative extension. This observation was also noted by Hyman’s CARP and Mchombo (2004). This also happens in Tonga as example (21) illustrates.

21. βăna βa- chap-is-il-ik-a malaya kwa alovi
Children SM-wash-appl-pass-fv clothes by fishermen

“The children are getting clothes washed for them by (at the instigation of) the fishermen”.

Furthermore, Laura and Paster (2009) argue that there are some cases in which the applicative suffix may be attached to the passive. These cases are to do with locative and reason or circumstantial applicative. Example (22a) and (b) below vindicate this observation.

22. (a) Malaya nga-a-chap-ik-i(y)-a mantha.

Clothes SM-perf-wash-pass-appl-fv fear

“The clothes are being washed for reasons of fear”

(b) Malaya nga-a-chap-ik-i(y)-a mu beseni.
Clothes SM-perf-wash-pass-appl-fv loc. basin
"The clothes are being washed on the basin."

In this case, passives have been subsumed to the class of un-accusative since they precede the applicative. They occupy the locative and circumstantial roles which lie low on the thematic hierarchy (Bresnan and Moshi, 1990). The above two sentences are consistent with the MP where the passive morpheme conveying the idea 'being washed' is prefixed to applicative. However, those two sentences are deviant to CARP in Hyman's TM.

5.2 Reciprocal interaction with Passive, Causative and Applicative

The reciprocal can co-occur with the passive if the verb root is extended with the causative, passive and the causative morphemes, in either order. Mchombo (2004) notes that the reciprocal will not co-occur with the stative or with the passive unless there is intervention of transivizing affixes such as applicative and causative. Sentence (23) is consistent with the MP as its interpretation satisfies the order of verbal extension morphemes. For instance:

23. Agalu a-lum-an-is-ik-a (ndi alovi)
dogs SM-bite-recip-caus-pass-fv (by fishermen)
"The dogs are being made to bite each other (by the fishermen)"

However, the above sentence is deviant to Hyman's CARP as the reciprocal is constrained not to appear before the causative. Sentence (24) is consistent with both MP and TM:

24. Alovi a-lum-is-an-a agalu
Fishermen SM-bite-caus-recip-fv dogs
"The fishermen have made some dogs bite each other)."

In its co-occurrence with the applicative, Hyman (2003) states that the reciprocal is constrained to appear after applicative suffix irrespective of the nature of the applicative argument. This is illustrated in example (25):

25. Anthikazi a-nek-i(y)-an-a maji.
Girls SM-draw-appl-recip-fv water
"Girls draw water for each other"

In example (42), the applicative morpheme "for" is attached before the reciprocal "each other" and this correlates with the semantic compositionality. Surprisingly, despite the prediction made by MP where the reciprocal conveying "each other" is prefixed to applicative conveying location, in Tonga this breeds ungrammatical sentence, as noted in (26):

26. ?Alovi a-pum-an-i(y)-a pa mwa:
Fishermen SM-hit-recip-appl-fv on rock

"Fishermen hit each other on the rock"

But there is nothing wrong with the semantic interpretation of the example in (26). Sentence (26) is also deviant to TM because applicative must always precede the reciprocal. However, applicative-reciprocal order or the locative applicative is applied in order to meet the ordering constraint requirements. As such, the reciprocal repeats itself after the applicative. When that happens, the situation is never captured by TM and MP. For instance:

27. Alovi a-pum-an-iy-an-a pa mwa:
Fishermen SM -hit-recip-appl-recip-fv on rock

"Fishermen hit each other on the rock"

5.3 The intensive Interaction with other Extensions

Intensive can co-occur with other extensions such as reciprocal and when it does, it must precede the reciprocal. When the intensive comes after the reciprocal, the sentence becomes ungrammatical. Consider example (28).

28. (a) Anthikazi a-won-eses-an-a kuti a-ziw-i yo ndi mutali ukongwa.
Women SM-see-intens-recip-fv that SM-know-subj one who tall very

"Women have clearly seen each other so as to know the one who is tallest"

(b) *Anthikazi a-won-an-eses-a kuti a-ziw-i yo ndi mutali ukongwa
Women SM-see-recip-ntens-fv that SM-know-subj one who tall very

The sentence (28a) is consistent with the MP where the intensive "clearly" is prefixed to reciprocal "each other" to yield that reading. It should be noted, however, that the observation about the intensive is never captured by Hyman's TM. Neuter or passive can also be suffixed to intensive. Consider example (29).

29. Asungwana a-won-eses-ek-a ukongwa (ndi alovi)
Girls SM-see-intens-stat-fv very (by fishermen)

"The girls have been clearly seen (by fishermen)"

However, in Tonga, intensives cannot co-occur with argument structure increasing suffixes such as applicative and causative. Therefore, the following sentences are ungrammatical.

30. (a) *? Alovi a-won-eses-ey-a ukongwa (ndi anthikazi)
Fishermen SM-see-intens-appl-fv very (by girls)

"The fishermen have clearly seen girls for somebody else"

(b) *?Alovi a-won-eses-es-a ukongwa.

"Fishermen SM-see-intens-caus-fv very

However, the reading of (30a) has failed to yield grammatical sentence. The intensive "clearly" is supposed to be prefixed to causative morpheme. Despite the prediction, the sentence is ungrammatical, hence like TM, MP also fails to capture some observations about intensives.

5.4 Mirror Principle versus Templatic Morphology

Sentence (31) is consistent with MP. The passive encoding "being washed" is prefixed to the applicative encoding "wash for", the reading is that 'the clothes are "being washed for children" (while) on the basin.' For example:

31. Malaya nga-chap-ik-i(y)-a βăna mu beseni.
Clothes SM-wash-pass-appl-f v children loc basin

However, sentence (31) is deviant to TM. According to Hyman's CARP template, passive should come after applicative. Hence, the MP works but at the expense of TM. In an event that 'fishermen are chasing each other into the pit', the prediction would be that the reciprocal conveying "chase each other" would be formed first. Then one can add applicative encoding location. The sentence should read:

32. ?*Alovi a-chimbiz-an-iy-a mu nkhandu
Fishermen SM-chase-recip-appl-fv loc. pit

However, sentence (32) is ungrammatical. The grammatical sentence in Tonga and according to CARP should be:

33. Alovi a-chimbiz-iy-an-a mu nkhandu
Fishermen SM-chase-recip-appl-fv loc. pit

In example (33), the sentence is grammatical because the applicative has preceded the reciprocal as TM predicts. This shows that TM has worked at the expense of MP. Despite that, in example (34a), the causative meaning 'causing' is attached first, the applicative encoding 'draw for' is attached after the causative, and then the reciprocal encoding 'each other' is attached later, and this is consistent with both the MP and TM. The reading is that 'girls are causing someone to draw water for each other'.

34. (a) Anthikazi a-tung-is-iy-an-a maji.
Women SM-draw-caus-appl-recip-fv water

(b) *Asungwana a-tung-iy-is-an-a maji
Girls SM-draw-appl-caus-recip-fv water.

Sentence (34b) is ungrammatical because the order of verbal extension morphemes reverses the predication of both MP and TM. Despite the fact that MP and TM fails at some extent, they could be viewed as offering optimal accounts of morpheme sequence in the verb stem of Tonga. These theories, to a larger extent, try to explain constraints in the co-occurrence of

Tonga language verbal extension morphemes.

6. Conclusion

Tonga verbal extensions interact with each other but with some limitations. The study has discovered that the meaning of the sentence should determine the order (and co-occurrence) of verbal extension morphemes. In Tonga, causatives and applicatives being argument-structure increasing suffixes should always precede other extensions which are argument-structure reducing suffixes, and this is consistent with Mirror Principle and Templatic Morphology. However, in select cases, it has been discovered that passive and neuter extensions can precede the applicatives and this happens when the sentences are in passive form. When such is the case, Templatic Morphology fails because applicative and causatives must always precede all other verbal extensions because they are argument-structure increasing suffixes. It is further noted that Mirror's Principle predicted the structure that was ungrammatical in Tonga. Some verbal extensions such as intensives are never captured by Templatic Morphology. Therefore, it has been observed that Mirror Principle and Templatic morphology offered optimal accounts of morpheme sequence in the verb stem of Tonga, though in some cases these theories failed to capture relevant observations. We, therefore note that Baker's Mirror Principle and Hyman's Templatic Morphology can be extended to all languages with morphological structures but with some degree of limitation.

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