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**Reconstructing morpheme order in Bantu:  
The case of causativization and applicativization**

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# Reconstructing morpheme order in Bantu: The case of causativization and applicativization\*

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## 1. Introduction

Most Bantu languages have a set of highly productive verbal suffixes which alter the valence and semantics of verb roots. The pair of Chichewa sentences seen below in (1), for example, can be used to illustrate a typical use of the Bantu causative suffix. The verb root in sentence (1a), *-gw-* “fall”, is not followed by any valence-changing suffixes and, thus, retains its basic valence and semantics. In (1b) the causative suffix *-ets-* appears after *-gw-*, giving causative semantics to the verb, as well as shifting its valence from intransitive to transitive.<sup>1,2</sup>

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1. When language names are cited in examples, they are followed by their Guthrie numbers (Guthrie 1971), customarily used designations for Bantu languages. Guthrie numbers can sometimes give a rough indication of geographic proximity of two languages to each other (and, by implication, a rough indication of relatedness). In some cases, the Guthrie numbers seen here are inexact due to the lack of a listing for a particular language/dialect in Guthrie (1971), in which case the Guthrie number of a closely related language/dialect was used. For detailed discussion of classification codes for Bantu languages, and their interpretation, see Maho (2001).

2. The data in this paper comes from a variety of published and unpublished sources. As a result, it can take on very different forms—from fully tone-marked sentences to only verb stems. Generally, the examples here follow whatever was given in the sources. In some cases alterations were made in the interests of clarity, including adding certain morpheme boundaries and interlinear glossing in examples where this was not found in the original text. The glossing abbreviations used are as follows:

(1) CHICHEWA (N.31b)

(Baker 1988: 10)

- a. *Mtsuko u-na-gw-a.*  
3.waterpot 3-PST-fall-FV  
“The waterpot fell.”
- b. *Mtsikana a-na-gw-ets-a mtsuko.*  
1.girl 3s-PST-fall-CAUS-FV 3.waterpot  
“The girl made the waterpot fall.”

In addition to having some sort of causative suffix, most Bantu languages also make use of an applicative suffix. An example of a prototypical use of an applicative in Bantu, again from Chichewa, is given in (2b). This sentence is opposed to the sentence in (2a) which contains the same verb root not marked with an applicative.

(2) CHICHEWA (N.31b)

(Alsina and Mchombo 1993: 18)

- a. *Chitsîru chi-na-gûl-á mphátso.*  
7.fool 7S-PST-buy-FV 9.gift  
“The fool bought a gift.”
- b. *Chitsîru chi-na-gûl-ír-á atsikána mphátso.*  
7.fool 7S-PST-buy-APP-FV 2.girl 9.gift  
“The fool bought a gift for the girls.”

The syntactic and semantic effects of the applicative suffix are not as straightforward as those of the causative, and they will be discussed in more detail below in section 2. In the case of the sentence in (2b), the applicative suffix allows the verb to take two unmarked objects instead of

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CAUS	(long) causative	1...12	noun class
APP	applicative	1s,2s,3s	singular person
TRANS	transitive (a.k.a. short causative)	1p,2p,3p	plural person
REC	reciprocal	SUBJ	subject
PASS	passive	OBJ	object
PERF	perfect	INS	instrumental
FV	final vowel	FOC	focus
PST	past	POSS	possessive
TNS	tense	IND	indicative
INF	infinitive	SBJ	subjunctive

one. If the applicative suffix were not present on the verb in (2b), the benefactive object would have to have been preceded by the preposition *kwa* “for” and would have appeared after *mphátso* “gift”.

A notable fact about verbal suffixes like the causative and applicative in Bantu is that more than one of them can attach to a given verb root. For example, in the sentence in (3), also from Chichewa, the verb root *-mang-* “tie” is followed by both a causative and an applicative suffix, giving the whole verb causative and applicative semantics. In addition, each suffix allows the verb to take an extra argument in a way which is consistent with cases where there is only one suffix on the verb. Thus, in (3) the verb has four unmarked arguments: a causer (“we”), a causee (“the hunters”), a theme/patient (“the goats”), and a benefactive (“the women”). Two of these (the causee and the theme/patient) are the basic arguments of the verb *-mang-*, the causative suffix introduces the causer, and the applicative suffix introduces the benefactive.<sup>3</sup>

- (3) CHICHEWA (N.31b)  
*Ti-na-mang-its-ir-a*      *atsikana alenje mbuzi.*  
1p-PST-tie-CAUS-APP-FV 2.girl 2.hunter 10.goat  
“We made the hunters tie the goats for the girls.”

At least since Baker (1988), the existence of these suffixes, and the ways in which they can combine, has been taken to be highly significant with respect to the nature of the interaction between morphology and syntax. Specifically, their behavior has been used to argue for a grammatical architecture wherein morphology and syntax are intricately related.

An important claim, commonly labeled the Mirror Principle, coming out of such work has been a restrictive theory of how valence-changing morphemes should be ordered in verbs like the one in (3). Specifically, the Mirror Principle suggests that morphemes whose semantics have narrower scope over the semantics of a root should appear closer to the root than morphemes

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3. The data in (3) comes from Sam Mchombo (personal communication).

whose semantics have wider scope.<sup>4</sup>

While the basic intuition behind the Mirror Principle was taken, for many years, to be the primary operating principle for the ordering of suffixes in the Bantu verb stem (see, for example, Alsina (1999)), new evidence, most thoroughly reported on in Hyman (2003a), has been uncovered which suggests that these suffixes are ordered templatically—that is, their linear position must be morphologically stipulated independent of their semantic scope.

The opposition between work like that of Baker (1988) and Hyman (2003a), both synchronic examinations of Bantu languages, raises the question as to how the ordering of verbal suffixes was conditioned in the Proto-Bantu verb. Perhaps, for example, the templatic effects observed by Hyman represent an innovation—specifically, a “freezing” of morpheme order—found in only some Bantu languages. Such a situation would not be intrinsically problematic for the Mirror Principle since it is well known that morphology often becomes more fixed over time, and it has not been suggested that the Mirror Principle should be excluded from the effects of normal historical change.

Alternatively, however, it could be the case that the Proto-Bantu situation was much like Hyman’s (2003a) synchronic analysis, and suffix order was templatically determined in the Bantu parent language. If this is the case, Bantu need not necessarily argue against the general existence of something like the Mirror Principle. However, it would mean that Bantu languages do not provide obvious support for it. Coming to some conclusion about the ordering of morphemes in Proto-Bantu, therefore, potentially has bearing on theoretical debates about the nature of morphology and syntax, in addition to being of intrinsic interest to Bantu historical linguistics and

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4. Baker (1985) can be credited with coining the term ‘Mirror Principle’. His formulation is different from the informal definition just given, in large part because he casts it within a particular grammatical framework, Government and Binding theory, whereas I aim to be more theory-neutral here. Hyman (2003a) adopts a sense of the Mirror Principle which is essentially the same as the one used above.

historical morphology.

The primary purpose of this paper is to survey available comparative data in order to determine what ordering restrictions held between verbal suffixes expressing applicativization and causativization in Bantu. As will become clear, there is good evidence that there was a fixed order among these suffixes in Proto-Bantu—thus implying that the templatic effects observed by Hyman (2003a) have been inherited rather than innovated. Given this conclusion, I will suggest reasons why the order is fixed in the way it is and sketch a scenario through which such a fixed order could have evolved.

In the following two sections, I will go into the nature of applicativization and causativization in Bantu in more detail. In section 4, I will discuss the structure of the Proto-Bantu verb stem as it is generally reconstructed. In section 5, I will present the results of a survey of the morphological exponence of causativization and applicativization in thirty-two Bantu languages. In section 6, I will present arguments for a templatic reconstruction of the ordering restrictions of three relevant verbal suffixes in Bantu. In section 7, I will provide an explanation for one important aspect of the reconstructed template—specifically that a suffix marking causativization must appear before the suffix marking applicativization. In section 8, I will sketch a scenario for the development of the Proto-Bantu verb based on the reconstruction given here. Finally, in section 9, I will offer a brief conclusion.

A note on terminology is in order at the outset of this paper. I will use the terms ‘causativization’ and ‘applicativization’ throughout to refer to abstract sets of morphological strategies which encode the particular semantics associated with those terms. In addition, I will use three other terms, ‘causative’, ‘applicative’, and ‘transitive’, to refer to three suffixes reconstructed for Proto-Bantu (and their reflexes in the Bantu daughter languages) which have important roles in marking causativization and applicativization on verb roots within the Bantu

family.

## 2. Applicativization

The first point to be made about applicativization in Bantu is that, across the family, it is generally marked with an applicative suffix reconstructed as \*-id- which typically takes on a form like *-il-* or *-ir-*.<sup>5</sup> The morphological exponence of applicativization on its own is, therefore, generally relatively simple. We will see below that the same cannot be said for the morphological exponence of causativization, and, in some cases, the complex realization of causativization will cause the applicative to surface in a way which deviates from its form in non-causativized contexts.

In his discussion of Bantu applicativization, Peterson (1999: 120) characterizes the original use of the Bantu applicative as follows: “[I]t made intransitive verbs transitive and transitive verbs ‘supertransitive’ in that they had two direct objects.” Importantly, it made intransitive verbs transitive by letting them take an object—not by adding a subject argument, as seen for causativization in (1b).

One of the more interesting features of Bantu applicativization is the range of semantic roles that applicativized objects can take on.<sup>6</sup> The sentence in (2b) shows an applicativized object taking on a benefactive role. The sentence in (4a) shows an applicativized object taking on a locative role, and an applicativized object takes on an instrumental role in (4b)—both the sentences in (4) are from Kichaga. These sentences do not exhaustively exemplify the different roles applicativized objects can take on, though they do represent some of the most common ones.

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5. It is not uncommon to find instances where the vowel in the applicative suffix is *e* instead of *i*. This can be due to sound change or be the result of productive vowel harmony processes found in many Bantu languages (see Hyman (1999) for a detailed discussion of vowel harmony in Bantu).

6. By my use of the term ‘applicativized object’ I mean an object which can be realized without oblique marking because of the presence of an applicative suffix on its verb.

(4) KICHAGA (E.62)

(Bresnan and Moshi 1993: 49)

a. *N-ǎ-í-lyì-í-à*                      *m̀r̀inyì*                      *kélyà*.  
FOC-3S-PR-eat-APP-FV **7.homestead**.LOC 7.food  
“He is eating food at the homestead.”

b. *N-ǎ-í-lyì-í-à*                      *m̀àwòkó* *kélyà*.  
FOC-3S-PR-eat-APP-FV **6.hand** 7.food  
“He is eating food with his hands.”

The bolded words in (4) are the applicativized objects which have been “promoted” to direct object status. If the verbs in those examples had not been applicativized, those objects would have had to be marked as oblique in some way.

The syntactic properties of applicativized objects can vary greatly from language to language—or from semantic role to semantic role in a given language. For a more thorough discussion of applicativization, from a cross-linguistic perspective but also with attention paid to Bantu, see Peterson (1999).

### 3. Causativization

Causativization in Bantu is semantically similar to causativization in many other languages. The process typically gives causative semantics to a verb which can include, among other things, adding a causer subject argument to the verb. When this is the case, the subject of the non-causativized form of the verb then becomes realized as an object or, in some cases, may not appear at all (examples of this latter possibility can be seen in, for example, the data in (16), from Runyambo).<sup>7</sup> A typical example of the operation of causativization, from Chichewa, was seen in (1). The sentence in (1a) contains a non-causativized verb and the one in (1b) contains its causativized variant.

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7. More rarely, in some languages, (e.g., Kinyarwanda (Kimenyi 1980)) the causative is also observed to promote instruments to object status or to introduce an instrument, much like an applicative.

Some Bantu languages formally distinguish between direct and indirect causativization, as can be seen in (5). The paradigm in (5a) illustrates this for Nkore, and the one in (5b) illustrates this for Nyoro. The first causativized verb in each paradigm is marked with what will here be called the transitive suffix and, in Nkore and Nyoro, conveys a type of causative semantics wherein the causer of an action is also the agent of that action (and, therefore, no new causer argument is introduced)—hence, it marks direct causativization.<sup>8</sup> The second causativized verb in each paradigm is marked with what will here be called the causative suffix and conveys a type of causative semantics where the causer of an action is not necessarily the agent of that action—hence, it marks indirect causativization.

(5) a. NKORE (E.13)

(Bastin 1986: 116)

STEM	GLOSS	TRANSLATION
<i>-ham-a</i>	“be_assured-FV”	“be assured”
<i>-ham-y-a</i>	“be_assured-TRANS-FV”	“confirm”
<i>-ham-is-a</i>	“be_assured-CAUS-FV”	“make confirm”

b. NYORO (E.11)

(Bastin 1986: 116)

STEM	GLOSS	TRANSLATION
<i>-og-a</i>	“bathe-FV”	“bathe”
<i>-og-y-a</i>	“bathe-TRANS-FV”	“wash”
<i>-og-is-a</i>	“bathe-CAUS-FV”	“make wash”

Languages, like Nkore and Nyoro, which use the transitive and causative suffixes to mark a formal distinction between direct and indirect causativization are not particularly common. This is not to say that languages making use of both the transitive and causative suffixes are uncommon—it is just the case that most languages which employ the two suffixes do not consistently use them to make this particular semantic distinction.

<sup>8</sup> The typical strategy for labeling the transitive suffix in earlier work has been to label it “causative”, or, in some cases, the “short causative” (since it is phonologically shorter than the \*-ic- suffix to be discussed below). I deviate from that tradition here for the purposes of clarity.

The transitive and the causative suffixes have distinct etymologies. The transitive is reconstructed with the form *\*-j-*, where *j* represents the highest front vowel in a seven-vowel system, and its reflex is typically *y*, as in the examples in (5), or palatalization of the consonant which would have preceded it in Proto-Bantu. The causative is generally reconstructed with a form like *\*-ic-*, and its reflexes are most typically something like *-is-*, as seen in (5), or *-ish-*.<sup>9</sup> I will come back to some important aspects of the reconstruction of the causative and transitive in section 4.

There are two main morphological patterns for the use of the causative and the transitive to mark causativization in languages which still productively employ both suffixes. The first, and simpler, pattern is simply that a causativized verb appears with one or the other suffix. The choice between the two suffixes can be conditioned by any one of several factors. It can, for example, be made on semantic grounds, as seen in the Nkore and Nyoro data in (5), phonological grounds (most typically relating to the final segment of the verb root), and it can also be lexically conditioned.

There is also a more complex pattern for marking causativization where both the causative and transitive appear together on the verb. Languages showing this pattern invariably mark causativization with the suffixes ordered *\*-ic-j-* “CAUS-TRANS” and never in the opposite order.

In fact, there is evidence that the causative suffix was always followed by the transitive in Proto-Bantu—however, this fact is obscured in many daughter languages where a productive

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9. As with the applicative, the vowel of the causative is sometimes realized as a mid or a lax vowel in some languages.

reflex of the transitive has been lost.<sup>10</sup>

The bipartite structure of causativization marked with a sequence of the etymological form \*-ic-*j*- means that, in certain morphological environments, another suffix can intervene between the two halves of the complex unit. A fact which will become quite important in later discussion is that the applicative \*-id- is one of the suffixes which is known to do this. An example of this phenomenon can be found in the marking of causativization and applicativization in Ciyao, seen in (6).

(6) CIYAO (P.21)

(Ngunga 2000: 236)

STEM		PROTO-BANTU	GLOSS
-won-	<	*-bon-	“see”
-won-el-	<	*-bon-id-	“see-APP”
-won-es-y-	<	*-bon-ic- <i>j</i> -	“see-CAUS-TRANS”
-won-ec-es-y-	<	*-bon-ic-id- <i>j</i> -	“see-CAUS-APP-TRANS”

The data in (6) shows that the general form of the applicative in Ciyao ends in an *l*. However, in verbs marked for causativization and applicativization the applicative ends in an *s*. Note also that, in this context, the final consonant of the causative shifts from *s* to *c*. In addition, the transitive suffix, which has the form *y* appears as the last derivational suffix on the verb stem in each of the verbs where it appears.

These final-consonant alternations are easily understood as resulting from a historical situation where causativization is marked with the etymological reflex of the causative-transitive sequence \*-ic-*j*- “CAUS-TRANS” and causativization and applicativization on the same verb is marked with the etymological sequence \*-ic-id-*j*- “CAUS-APP-TRANS”. The transitive \*-*j*- would have triggered palatalization, perhaps in several stages, of a consonant immediately preceding it,

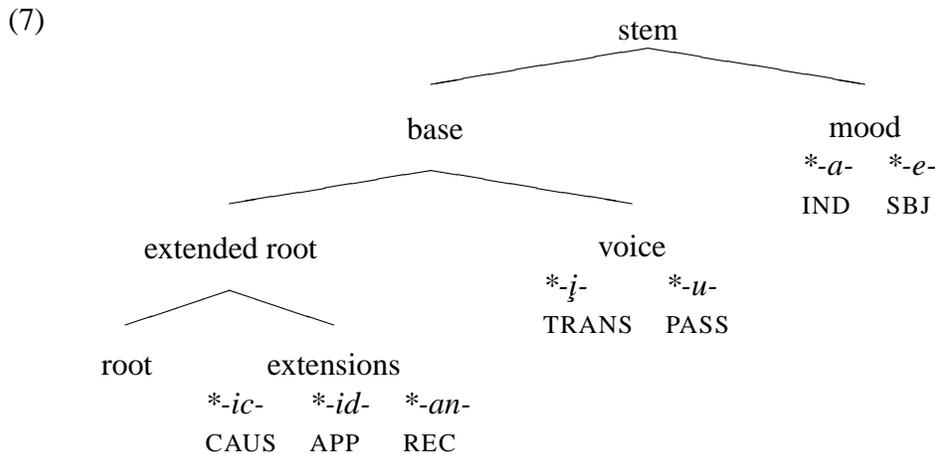
<sup>10</sup> Evidence for this cooccurrence restriction comes from Bastin’s (1986) reconstruction of two causative suffixes in Proto-Bantu with form \*-*j*c*j*- and \*-*j*-. The \*-*j*c*j*- suffix is taken to be bimorphemic here, as will be discussed in section 4 below, having form \*-ic-*j*- “CAUS-TRANS”. Given this analysis, the fact that Bastin does not reconstruct a suffix of the form \*-ic- or \*-*j*c- indicates that the causative was obligatorily followed by the transitive in Proto-Bantu.

accounting for the present pattern. On the example verb marked only for causativization, the *-es-* suffix reflects the effect of this palatalization on the etymological causative suffix *\*-ic-*. However, in verbs marked for causativization and applicativization, the causative was “protected” from palatalization by the intervening applicative, and it was the *\*-id-* applicative, instead, that underwent palatalization. This accounts not only for the alternation of the *-es-* causative with the *-ec-* causative but also the alternation between the non-palatalized *-el-* applicative in non-causativized environments with the palatalized *-es-* applicative in causativized environments.

Alternations of the type seen in (6) involving applicativization and causativization are fairly common, and we will see other examples of them below. Finally, it is worth pointing out here that palatalization triggered by the high front vowel *\*i*, of the sort just discussed in the explanation of the data in (6), is extremely common throughout Bantu and will come up again in later discussion.

#### 4. The Proto-Bantu verb stem

The Bantu languages are fairly conservative, making it possible to develop a relatively detailed reconstruction of the Proto-Bantu verb stem. The general structure of it that I assume here is given in (7).



This structure is based on the work of Meeussen (1967). However, some aspects of the structure in (7) were not explicitly proposed by Meeussen, which I will discuss below. The

structure in (7) is intended to schematize only the verb stem—in addition, prefixal agreement and tense elements are found in the Bantu languages. However, these do not interact in any crucial way with the suffixes of interest to us here and have, therefore, not been included.

As the tree in (7) indicates, the Proto-Bantu verb stem is reconstructed as consisting of a verb root potentially followed by a number of different categories of suffixes. Of the layers of suffixal structure given, only the one with the label ‘mood’ is obligatory. The suffixes associated with this level of structure are typically referred to as ‘final vowels’ in Bantu description, and, here, they will simply be glossed FV.<sup>11</sup> The three -VC- suffixes given in (7) which come immediately after the root are traditionally referred to as ‘extensions’, though I will sometimes also refer to them simply as suffixes here.<sup>12</sup>

The tree in (7) makes a distinction between “extensions” and “voice” markers, which departs from traditional descriptions. Specifically, the label ‘voice marker’ and the explicit addition of an extra level of morphological structure reserved for the transitive and passive suffixes has not been previously proposed.<sup>13</sup> This extra layer is meant to encode an idea first mentioned by Meeussen (1967) that the voice markers were obligatorily positioned after all the -VC- extensions in

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**11.** The label ‘mood’ for this level of morphological structure is only intended to give a rough indication of the function of the morphemes found at that level. Final vowel alternations are not strictly conditioned by mood but are also conditioned by, for example, tense and negation.

**12.** There are reconstructed extensions, not given in the tree in (7) but which would belong in the same position as the others, for example the *-ik-* stative extension. In addition, there are some extensions found in Bantu languages which appear to have been less than fully productive in Proto-Bantu, like the reversives *-uk-* and *-ud-*. Meeussen (1967: 92) offers relevant discussion. It is not clear where these would belong in the tree because of their status as nonproductive suffixes in Proto-Bantu itself.

**13.** In section 8, I discuss the reason for the label ‘voice marker’. I use this label mostly in order to distinguish between those suffixes labeled extensions and the transitive and passive suffixes. While classifying these two suffixes as voice markers seems reasonable, and is not without precedent, I do not intend to stand firmly behind its appropriateness here.

Proto-Bantu.<sup>14</sup> So, while this structure is somewhat innovative, it is not out of line with previous proposals. Assuming this extra level of structure will not be crucial for the rest of the discussion. What is crucial is the assumption that the transitive obligatorily followed the causative and applicative suffixes in Proto-Bantu. I take this assumption to be uncontroversial since I am unaware of anyone having taken issue with since it was first suggested by Meeussen (1967: 92) in a well-known work within Bantu historical linguistics, and it is well-supported by a wide range of data from the Bantu daughter languages. Data like that shown in (6), discussed in section 3 above, for example, supports such a reconstruction since understanding potentially obscure alternations of the causative and applicative in Ciyao becomes straightforward if we assume that the transitive followed whatever the last extension was in a given verb stem. We will also see that this reconstruction is supported by data to be presented in section 5.

The label ‘transitive’ for the suffix reconstructed with form \*-j- is also new to this work. This suffix is often simply referred to as a causative or, in some cases, the “short” causative. I have not used these labels here mostly to avoid terminological confusion between this suffix and the \*-ic- causative suffix. I have chosen the particular label ‘transitive’ since that reflects its function as a transitivizer of inherently intransitive verbs in languages like Nkore and Nyoro, seen in (5), which use the causative and the transitive to mark different semantics.

My use of the labels ‘causative’ and ‘transitive’ for the \*-ic- and \*-j- suffixes respectively implies that semantic considerations governed the distribution of the two suffixes in Proto-Bantu. While Bastin (1986: 130) proposes something along these lines, she reaches this conclusion only tentatively. In addition, Bastin clearly shows that, even if semantics did play a role, formal factors were also important in the distribution of the causative and transitive. Specifically, only the

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**14.** Further reason for grouping these two suffixes separately from the other extensions is that their phonological shape is simply -V- whereas the extensions (including ones not described here) are reconstructed with shape -VC-.

causative could immediately follow non-canonical vowel-final roots with shape -CV- or -CVCV-. In these contexts, the -VC- causative would have acted as a “stabilizer” bringing the root closer to canonical -CVC- form (see Hyman (2003a: 262)).

This fact could be interpreted as suggesting that, in Proto-Bantu, the \*-ic- causative only appeared following vowel-final roots, and its use on consonant-final roots is innovative—the result of analogical extension in a large number of Bantu languages. It will not be possible here to resolve the precise conditions under which the \*-ic- causative and \*-j- transitive initially appeared.

However, fortunately, this will not prevent us from reconstructing their relative order when they cooccurred, since there is strong indication that they could appear together on the same verb—and, when they did, their order was strictly causative-transitive. Evidence for this comes from Bastin’s (1986) reconstruction of the exponence of causativization in Proto-Bantu, which, though differing somewhat from the reconstruction here, offers important insights into the ordering relations between the causative and the transitive in the Bantu parent language.<sup>15</sup> Here, if the exponence of causativization has a form which reconstructs to some sequence along the lines of \*icj, this sequence is taken as etymologically consisting of the causative following the transitive (i.e. \*-ic-j-). Bastin (1986: 130), on the other hand appears to reconstruct such sequences as a monomorphemic causative.<sup>16</sup> The bimorphemic reconstruction of the sequence \*icj marking causativization is not new here but can be found in Guthrie (1970: 219) and is also

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15. One difference between Bastin’s reconstruction and the one assumed here is the reconstruction of the initial vowel of the causative with form \*-ic-, following Guthrie (1970: 219), instead of \*-jc- (see Bastin (1986: 89–90) for discussion as to why the latter might be the preferred reconstruction). This choice has no implications for the general conclusions which will be reached here. In some of the discussion below of Bastin’s (1986) reconstructions, I will maintain aspects of the reconstructions and glossing conventions used here, even if they vary from those used by Bastin, in the interests of clarity.

16. I have not, in fact, found a specific statement to this effect, but it is implied by the lack of any morpheme boundaries in the forms she gives.

found in Hyman (2003a: 261). Strong evidence for the bimorphemic reconstruction comes from data like that in (6) where a sequence of etymological form \*icj is “split” by an intervening suffix—and it is on the basis of such evidence that I adopt that reconstruction in this work.

Assuming the bimorphemic analysis of causativization expressed with a sequence like \*icj, the reconstructions of causativization in Proto-Bantu given by Bastin (1986: 130) have important implications. She reconstructs two causativizing morphemes roughly of form \*-j- “TRANS” and \*-ic-j- “CAUS-TRANS” but does not reconstruct a morpheme of form \*-ic- “CAUS”. These reconstructions suggest that the transitive could appear without the causative in Proto-Bantu but that the causative was obligatorily followed by the transitive. For the present purposes, this implies that, regardless of the conditions governing the distribution of the \*-ic- causative and \*-j- transitive (i.e., whether they were semantic or formal in nature), they could cooccur in the order causative-transitive in Proto-Bantu.

Having discussed the Proto-Bantu situation, in the next section, I will present the results of a survey of thirty-two Bantu languages for the morphological exponence of causativization and applicativization with a focus on the order of causative, applicative, and transitive suffixes on verbs marked for both types of semantics. As we will see, though there will be some complications, the present study will verify Meeussen’s (1967) idea, encoded structurally in the tree in (7), that the \*-j- transitive followed the \*-ic- causative and the \*-id- applicative in Proto-Bantu. In addition, it will suggest that the order between the causative and applicative was fixed as \*-ic-id- “CAUS-APP”—this is a new proposal to the best of my knowledge, though it is anticipated by the synchronic study of Hyman (2003a).

## 5. The order of the causative, applicative, and transitive: A survey

### 5.1 Basic results

In this section, I discuss the results of a survey of the morphological exponence of causativization and applicativization in Bantu. The survey made use of available grammatical descriptions to determine the way causativization and applicativization were marked on their own as well as how they were both marked on the same verb. The main focus of the survey was how the etymological reflexes of the causative suffix \*-ic-, applicative suffix \*-id-, and transitive suffix \*-ĩ- could be ordered with respect to each other when a verb was marked both for causativization and applicativization. Where possible, the survey also examined whether there was any morphological distinction made when applicativization had semantic scope over causativization versus when causativization had scope over applicativization. This type of grammatical detail has not been frequently reported on explicitly, however. So, the survey is very incomplete in this regard.

From a methodological standpoint, I took a language to allow a particular set of morpheme orders for the causative, applicative, and transitive (i) if the source either explicitly stated that some order was possible or (ii) if a clear example could be found showing a given order as productive. Similarly, I took a language to disallow a set of morpheme orders (i) if there was an explicit statement that some order was not possible or (ii) if the description of possible orders was reasonably thorough and no mention was made of that order being possible. The languages reported on here are those for which at least one of the two criteria for allowed orders and one of the two criteria for disallowed orders was met. In some cases, usually supported directly by the grammatical description, I took a language not to allow a particular morpheme order, even if there were some examples of it, because this order did not appear to be productive. In section 5.2, I discuss the nature of such cases, and the logic behind excluding such orders—which, generally,

various authors of the grammatical descriptions, as well as myself, attribute to suffixes being lexicalized as part of particular verb stems.

The choice of the languages used in the survey simply reflects those for which I could find enough data to determine what ordering restrictions held between the causative, applicative, and transitive.<sup>17</sup> Fortunately, the survey was able to achieve a reasonable degree of geographic and familial coverage given this limitation. In the ideal case, of course, language choice would have been determined by genetic affiliations among the Bantu languages. However, there is, as of yet, no satisfactory genetic classification of Bantu languages (for general discussion see Williamson and Blench (2000: 34–5)), making an examination along such lines difficult. Clearly, a different sampling method as well as availability of data from a larger number of languages could yield different results. This study is, therefore, better understood as exploratory rather than definitive.

Table 1 gives an overview of the relative morpheme orders found for the causative extension (C), the applicative extension (A), and the transitive suffix (T) for the surveyed languages.<sup>18</sup> In

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17. Of these languages, the data I have available for Bukusu is much more limited than the others. I include it because I have very specific information on a limited context where applicative-causative (AC) order is possible which will prove to be of interest below.

18. The data in the table 1 comes from the following sources, listed by language: Basaa (A.43), Hyman (2003b); Bukusu (E.31c), David Peterson (personal communication); Ciyao (P.21), Ngunga (2000); Chichewa (N.31b), Baker (1988), Alsina and Mchombo (1993), Alsina (1999), Hyman (2001); Chimwi:ni (G.41), Abasheikh (1978); Emakhuwa (P.31), Kathupa (1983), Kathupa (1991); Ganda (E.15), Hyman (2003a); Holoholo (D.28), Coupez (1955); Ikalanga (S.16), Mathangwane (2000); Isangu (B.42), Idiata (1998); Kimeru (E.53), Hodges (1977); Kinande (D.42), Hyman (1993); Kinyarwanda (D.61), Kimenyi (1980), Coupez (1980); Kinyamwezi (F.22), Maganga and Schadeberg (1992); Kirundi (D.62), Meeussen (1959); Kitalinga (E.20), Paluku (1998); Kongo (H.16), Bentley (1887); Korekore (S.11), Dembetembe (1987); Lingala (C.36d), Institut National de Recherche et d'Action Pédagogiques (1982); Lomongo (C.61), de Rop (1958), Hulstaert (1965); Luvale (K.14), Horton (1949); Mwera (P.22), Harries (1950); Ndebele (S.44), Sibanda (2000); Nugunu (A.62), Orwig (1989); Nyakyusa (M.31), Schumann (1899), Meinhof (1932); Runyambo (E.21), Rugemalira (1993); Sesotho (S.33), Jacottet (1927), Machobane (1989); Shi (D.53), Polak-Bynon (1975); Shona (S.12), Fortune (1955); Swahili (G.42), Shepardson (1986), Baker (1988); Swazi (S.43), Ziervogel (1952); Xhosa (S.41), Satyo (1985).

addition, it gives the form of the various endings for each language. A “—” in the table means that no productive reflex of that suffix was reported as existing in the language.<sup>19</sup> In languages indicated as having a reflex of the transitive \*-j-, it usually does not appear in all phonological environments, and, when it does, it typically is realized as a -y- or as palatalization—therefore the segmental forms given in that column of the table should be understood liberally. In many cases, the form in the \*-ic- column may not properly be the reflex of only the causative extension but the reflex of the causative where the last consonant shows palatalization due to the historical presence of the transitive.<sup>20</sup> In languages like Ciyao and Mwera, for example, this can be clearly discerned to be the case because the final consonant of the causative alternates with *c* in applicativized environments (as seen in (6) for Ciyao). Otherwise, it is simply not possible to know for sure whether or not this is the case without a detailed examination of the sound changes generally affecting consonants for each of the languages in the survey, which was not done as part of this study. As discussed in section 3, in some languages, the causative obligatorily appears with the transitive. This is not explicitly indicated in the table.

In the column entitled “productive combinations” in the table, I have given the phonological form and the morpheme order of the combinations found to be productive in the various languages.<sup>21</sup> Importantly, the form of the combined suffixes is not always trivially related to the form of the suffixes in isolation—and because of this labels like CAT or AT in this column

**19.** It is often the case, especially with the transitive, however, that traces of the suffixes remain in particular lexical items. Sometimes I had to make my own judgement regarding the productivity of a suffix. However, whenever possible, I took the lead of the various sources in deciding if a suffix was productive.

**20.** In one language, Ciyao (Ngunga 2000: 162–8), an innovative causative suffix has developed with the form *-aas-y-* which has not been included in this study and which has ordering restrictions different from the causative deriving from the Proto-Bantu \*-ic- causative.

**21.** For one of the languages in the table, Shona, I have encountered one form, given below, which shows an order not mentioned in table 1 and which I have no reason to believe (or disbelieve) contains a stem with a lexicalized suffix.

**Table 1.** Survey of morphological exponences of causativization and applicativization in Bantu

LANGUAGE	*-ic-	*-id-	*-i <sub>3</sub> -	PRODUCTIVE COMBINATIONS
Basaa (A.43)	-is-	-il-	—	-h- <i>en</i> - (CA)
Bukusu (E.31c)	-isy-	-il-	—	-is-il- (CA), -il-isy- (AC)
Ciyao (P.21)	-is-	-il-	-i <sub>3</sub> -	-ic-is-y- (CAT), -is-y- (AT)
Chichewa (N.31b)	-its-	-ir-	—	-its-ir- (CA)
Chimwi:ni (G.41)	-ish-	-it <sub>3</sub> -	-i <sub>3</sub> -	-ish-it <sub>3</sub> - (CAT), -it <sub>3</sub> - (AT)
Emakhuwa (P.31)	-ih-	-el-	—	-ih-el- (CA), -el-ih- (AC)
Ganda (E.15)	-is-	-ir-	-i <sub>3</sub> -	-is-iz- (CAT), -iz- (AT)
Holoholo (D.28)	-isy-	-il-	-i <sub>3</sub> -	-is-y- (AT)
Ikalanga (S.16)	-is-	-il-	—	-is-il- (CA)
Isangu (B.42)	-is-	-il-	—	-is-il- (CA)
Kimeru (E.53)	-i <sub>3</sub> th-	-ir-	-i <sub>3</sub> -	-i <sub>3</sub> th-ir-i <sub>3</sub> - (CAT)
Kinande (D.42)	-is-	-ir-	-i <sub>3</sub> -	-is-ir-i <sub>3</sub> - (CAT), -ir-i <sub>3</sub> - (AT)
Kinyarwanda (D.61)	-ish-	-ir-	-i <sub>3</sub> -	-ish-ir-iz- (CAT), -ir-iz- (AT)
Kinyamwezi (F.22)	-iish-	-il-	-i <sub>3</sub> -	-ij- (AT), -ilij- (AT)
Kirundi (D.62)	-iish-	-ir-	-i <sub>3</sub> -	(-ir)-iz- (AT)
Kitalinga (E.20)	-is-	-il-	-i-	-is-il-i- (CAT), -il-i- (AT)
Kongo (H.16)	-is-	-il-	—	-is-il- (CA)
Korekore (S.11)	-is-	-ir-	—	-is-ir- (CA), -ir-is- (AC), -idz- (AT)
Lingala (C.36d)	-is-	-el-	—	-is-el- (CA)
Lomongo (C.61)	-ey-	-el-	-i <sub>3</sub> -	-ey-el- (CA), -ej- (AT)
Luvale (K.14)	-is-	-il-	—	-ish-il- (CA)
Mwera (P.22)	-iy-	-il-	—	-ic-iy- (CAT)
Ndebele (S.44)	-is-	-el-	—	-is-el- (CA)
Nugunu (A.62)	—	- <i>en</i> -	-i-	- <i>en</i> -i- (AT)
Nyakyusa (M.31)	—	-il-	-i <sub>3</sub> -	-(i)k-is- (AT)
Runyambo (E.21)	-is-	-ir-	-i <sub>3</sub> -	-is-iz- (CAT), -iz- (AT)
Sesotho (S.33)	-is-	-el-	—	-is-ets- (CAT)
Shi (D.53)	-is-	-ir-	-i <sub>3</sub> -	-is-iz- (CAT), -iz- (AT)
Shona (S.12)	-is-	-ir-	—	-idz- (AT)
Swahili (G.42)	-ish-	-i-	—	-ish-i- (CA)
Swazi (S.43)	-is-	-el-	—	-is-el- (CA)
Xhosa (S.41)	-is-	-el-	—	-is-el- (CA), -el-is- (AC)

are not always completely etymologically accurate. Rather, these labels are intended to give a succinct characterization of how a given combined form instantiates a possible relative order of the suffixes in some language. Special combined forms not attributable to the sort of palatalization pattern seen in (6)—and their etymologies—will be discussed in section 5.3 below.

In figure 1 below, I give a map of the Bantu-speaking area, created with Bantu MapMaker (Lowe and Schadeberg 1996), on which either a black dot or a white star marks the central area where the languages in table 1 are spoken. A star indicates a language where applicative-causative (AC) order is attested—this uncommon attested order will be of great interest to the discussion below. As can be seen, this selection of languages covers a fairly large extent of the Bantu-speaking area, which includes most of the area of southern Africa given on the map, except for the southwest and northeast corners where languages from other families are found. There is no obvious geographical generalization to be made about the languages showing AC order.

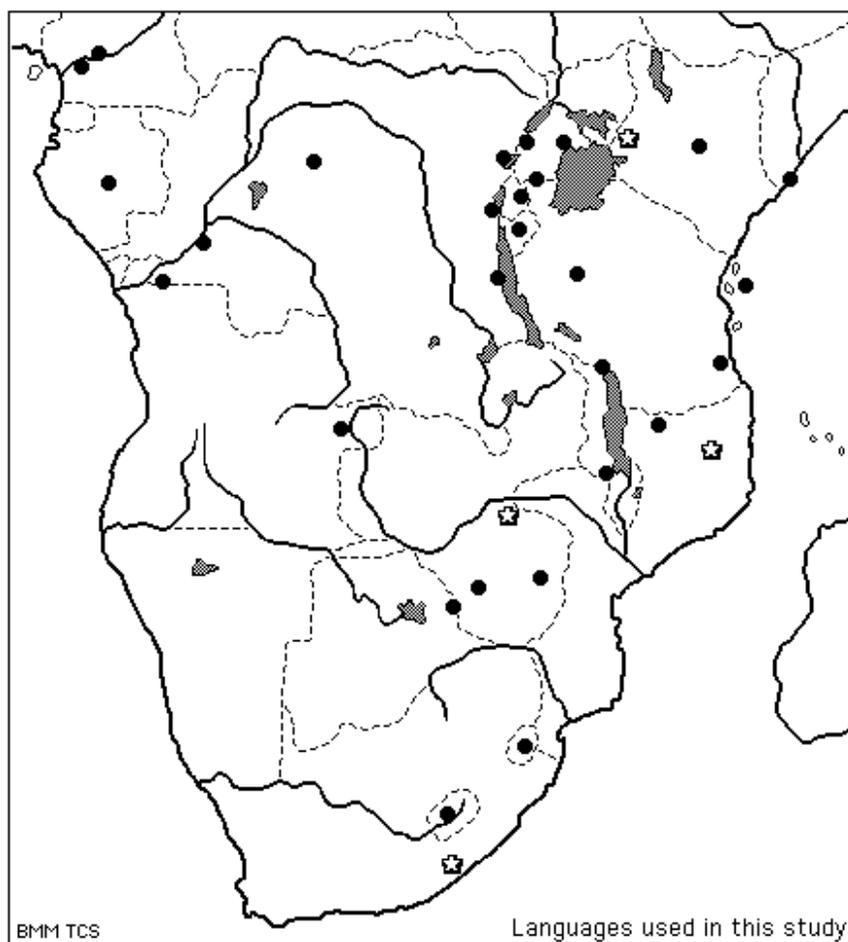
The most striking generalization to come out of table 1 is the predominance of causative-applicative-transitive (CAT) order, or some suborder of CAT, throughout the Bantu-speaking area. Only one possible productive order found in the survey in the table does not follow the CAT pattern—applicative-causative (AC) order—and every language which allows AC order also allows causative-applicative (CA) order.

The most notable gap in the possible orders found in the survey are cases where the transitive precedes either the causative or the applicative. From an etymological perspective, such orders

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SHONA (S.12)	(Hawkinson and Hyman 1974: 157)
<i>múdzídzísi á-kà-nyór-ér-és-à</i>	<i>mùrúmé yé múkâdzí</i>
teacher 3s-PST-write-APP-CAUS-FV	man for woman
“The teacher made the man write for the woman.”	

The description of Shona in table 1 follows what is found in Fortune (1955: 211). As the above example was one sentence in an article not focused on ordering restrictions of the extensions, it is not clear to me if the way it differs with the description of Fortune is significant.



**Figure 1.** Location of the languages examined in this survey

are attested. However, there is very good reason to believe this is the result of lexicalization of the transitive suffix onto particular verb stems and does not represent a productive use of the suffix. I will discuss this issue in section 5.2.

Returning to AC order, according to my interpretation of the sources, four languages in the table allowed this order in contexts other than cases where the applicative was lexicalized onto a verb root: Bukusu, Emakhuwa, Korekore, and Xhosa.<sup>22</sup> These cases of AC order will be discussed

<sup>22.</sup> There are some indications that Ikalanga also allows AC order (Mathangwane 2000: 16). However, the examples and conditioning environment are very difficult to interpret, and I have not included them here. If it is the case that Ikalanga allows this order, it would only allow it in restricted contexts, much like, for example, three of the languages allowing AC order, Bukusu,

in section 5.7. Significantly, only one language, Xhosa, has been reported as allowing fully productive and semantically compositional AC order. In the other languages reported as having AC order, there are special semantic restrictions on its appearance—this is in marked opposition to CA order which was not generally reported as being subject to the same sorts of restrictions.

Beyond the appearance of a minority of languages showing AC order, there are various other complications with respect to the morphemic exponence of causativization and applicativization in Bantu which could not be easily conveyed in table 1. These are (i) special forms of the applicative in causativized environments, discussed in section 5.3, (ii) the effect of complex suffix combinations involving extensions other than the applicative, causative, and transitive, discussed in section 5.4, (iii) ambiguity of semantic scope for some orders, discussed in section 5.5, and (iv) suffix doubling resulting in different semantics, discussed in section 5.6. In section 5.7, I will discuss the languages found showing productive applicative-causative order. First, in section 5.2, I will discuss the existence of verb stems with lexicalized extensions sometimes resulting in the appearance of forms which etymologically diverge from the CAT pattern.

## 5.2 Lexicalized suffixes

An important aspect of the data given in table 1 is that the possible combinations of suffixes listed there do not include instances where an order is only instantiated because an extension has been lexicalized onto a particular stem. This particular situation can be found fairly frequently in Bantu. So, here, I give data here which illustrates the general phenomenon.

Korekore, for example, is described as showing some verb forms which show etymological transitive-causative (TC) and transitive-applicative (TA) order. An example of TC order, from Dembetembe (1987: 82), can be seen in (8), and an example of TA order, also from Dembetembe Emakhuwa, and Korekore.



STEM	GLOSS	→	CAUS. STEM	GLOSS
-svik-	“arrive”	→	-svits-	“make arrive, help to arrive”
-rir-	“sound, ring”	→	-ridz-	“cause to sound, ring”
-wand-	“be plentiful”	→	-wanz-	“increase”
-net-	“get tired”	→	-nets-	“cause trouble, be troublesome”
-yimb-	“rely on”	→	-yinzv-	“cause to rely on”
-rep-	“be long”	→	-redzv-	“make long, lengthen”
-péng´	“be insane”	→	-pénzv´	“madden”

The presence of consonant mutations is even further restricted than the table in (10) might indicate since the last three verbs, the ones ending in *mb*, *p*, and *ng*, are the only known instances of a reflex of the transitive being used with verbs ending in those consonants (Dembetembe 1987: 57).

So, while the Korekore data seen in (8) and (9) certainly represents a non-CAT order from a purely etymological perspective, the restricted nature of the reflexes of the transitive is indicative of a situation where the transitive was, at some point, lost as a true suffix in the language and reanalyzed as a set of mutations on the final consonant of certain verb stems. This lexicalization would have triggered the loss of any special ordering restrictions for the transitive, producing an innovative type of marking for causativization but not true deviance from the pattern where the transitive *suffix* obligatorily followed the causative and applicative suffixes.

The transitive appears with non-segmental reflexes in many Bantu languages, and this has made it especially prone to the sort of lexicalization pattern attributed to Korekore here. While it is easy to find cases like the Korekore one, I am aware of no case where the transitive can appear before the causative or applicative in a language where it still has a consistent segmental reflex.

Another case where lexicalization has been analyzed as producing morpheme orders which deviate from the CAT pattern are cases of non-productive applicative-causative (AC) order. We saw above in table 1 that some languages allow this order productively as well.

An example of a lexicalized applicative affix being followed by the causative can be found in Luvale. Horton (1949: 87) gives a statement for the productive order of suffixes in the language which includes, as a subset, the order causative-applicative (CA). He then comments, “That order may be ignored when a derived form has largely lost its derivative significance (Horton 1949: 87)” and cites the verb forms given in (11), the third of which contains a sequence etymologically corresponding to an applicative followed by a causative.

(11) LUVALE (K.14)

(Horton 1949: 87)

STEM	GLOSS	TRANSLATION
<i>-lw-a-</i>	“fight-FV”	“fight”
<i>-lw-il-a-</i>	“fight-APP-FV”	“save”
<i>-lw-il-is-a</i>	“fight-APP-CAUS-FV	“cause to save”
<i>-lw-ish-il-a</i>	“fight-CAUS-APP-FV	“cause to fight for”

As can be seen in (11) the verb stem *-lw-il-* has been lexicalized to mean “save”. This frozen stem can then be causativized, showing etymological AC order. However, since the meaning “save” is unpredictable, Horton does not consider this to be a productive case of applicative suffixation. By contrast, he gives the form *-lw-ish-il-a* to show that the productive CA order has a predictable meaning. Not every source laid out these kinds of facts as clearly as Horton (1949). However, it was often fairly easy to tell if the author considered one order productive and another one restricted in a way corresponding, roughly, to the idea of lexicalization.<sup>25</sup>

Interestingly, in light of the general importance of morpheme ordering relations to the present study, it is not uniformly the case that lexicalized suffixes necessarily “fuse” onto the verb stem and, thereby, fail to follow the causative-applicative-transitive (CAT) pattern. In Kinande, for example, Hyman (1993: 13) reports the existence of a class of “pseudocausative” verbs which are

<sup>25</sup> An interesting case of lexicalized applicative suffixes allowing AC order is found in Sibanda (2000: 58) where “subminimal” verb roots, with shape -C-, as opposed to the canonical shape -CVC-, are particularly prone to lexicalization of the -VC- applicative suffix since the addition of this suffix creates verb roots with the canonical shape.

lexicalized with the transitive suffix but for which there is not a corresponding root in the language without the transitive suffix. An example is given in (12).

(12) KINANDE (D.42)

(Hyman 1993: 13)

STEM	GLOSS	TRANSLATION
*- <i>song-</i>	“SONG”	no meaning
- <i>song-ǝ-</i>	“SONG-TRANS”	“gather”
- <i>song-an-ǝ-</i>	“SONG-REC-TRANS”	“gather each other”

In (12) the basic form of the verb for “gather” is given, *-song-ǝ-*. This verb is suffixed with the transitive, but, unexpectedly, there is no verb *-song-* in Kinande. Thus, *-song-ǝ-* must be considered a lexicalized combination. Despite this, when the reciprocal suffix is added to the verb it appears before the transitive, consistent with the fact that the transitive is found to occur after the reciprocal generally across Bantu.<sup>26</sup>

Data like that in (12) shows us that, while in some languages lexicalized suffixes result in the expected situation where there is fusion between the stem and the affix, this is not universally the case. This somewhat surprising fact is a strong indication that, at least in certain Bantu languages, CAT ordering is not simply a tendency but is, rather, a grammatically active ordering restriction which is imposed on the structure of the verb stem. Hyman (2003a) explores this idea, from a synchronic perspective, in some detail.

There is an important methodological question which should be addressed with respect to the exclusion of the kinds of lexicalized forms just discussed in a study which is attempting to reconstruct morpheme order in a proto-language. Specifically, it would seem to neglect the possibility that lexicalized forms could, in fact, be important archaisms preserving older

26. Hyman and Mchombo (1992: 359) report similar data from Chichewa, involving lexicalized root-applicative combinations which, when causativized, rather than showing atypical AC order, appear with CA order. They give the example of the verb stem *-uk-ir-* “wake\_up-APP” which has the lexicalized meaning “rebel against”. The causative form of this verb, meaning “cause to rebel against” is *-uk-its-ir-* “wake\_up-CAUS-APP”, not *\*-uk-ir-its-*.

productive patterns—much as, for example, irregular plural alternations in English like *mouse/mice* or *foot/feet* constitute important evidence for the presence of productive plural-formation strategies in earlier stages of English that are now lost.

It is certainly possible that lexicalized forms might, in fact, be revealing important aspects of Proto-Bantu word structure. However, there is an important pattern to the kinds of lexicalizations which were excluded in this study. They were instances of a particular verb stem containing what was interpreted as a *lexicalized* applicative or transitive suffix followed by another suffix which appeared to be applied *productively* to the verb stem.

This kind of pattern would seem to say little about productive ordering relations in Proto-Bantu since it involves combinations of two suffixes of such different grammatical status. The sort of pattern which could, potentially, be quite revealing about the structure of the Proto-Bantu verb would be one where there was an apparently archaic lexicalized *combination* of suffixes going against the CAT pattern.

I have not encountered any descriptions of “anti”-CAT lexicalizations of that sort. A language like Shona, as described in table 1, offers a relevant comparison here. Fortune (1955: 213) treats the transitive as no longer being productive in Shona, explicitly describing it as “not a living” suffix in the language. However, he also states that the transitive frequently combines with the applicative, forming the sequence *-idz-* (Fortune 1955: 211).<sup>27</sup> This *-idz-* formation can readily be interpreted as deriving from a sequence *\*-id-ǰ-* “APP.TRANS” with palatalization. The lexicalization of this suffix combination can be taken as evidence that AT order was once productive in Proto-Bantu (or, at least, in pre-Shona).

This Shona pattern, of course, follows CAT order. However, if we could find a comparable

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27. I classify this *-idz-* formation in Shona as a special form of the applicative in causativized environments. I discuss such forms in section 5.3.

pattern, in some other language, of, say, a lexicalized suffix pair consisting of an applicative followed by a causative (AC), this certainly would need to be carefully analyzed with respect to the present study. In fact, as will be discussed in section 5.7, Korekore does show something somewhat like this insofar as AC order is productively used only in a particular relativization construction.<sup>28</sup> As indicated in table 1, AC order in Korekore was not excluded from the study in the way TC and TA order in the language was (as just discussed with reference to the examples in (8) and (9)).

The exclusion, here, of an instance of non-CAT order which appeared to be the result of lexicalization of a particular suffix as part of a verb stem, should, therefore, not be confused with the exclusion of a lexicalized combination of suffixes violating the CAT pattern. It is only the former type of lexicalization which was not taken to be informative with respect to the possibilities of morpheme order in Proto-Bantu, while the latter type of lexicalization was considered carefully in the study in the one case it was found (the Korekore case just mentioned).

Having gone over the issue of lexicalized suffixes with respect to the surveyed languages, in the next sections, I will discuss other complications encountered in the survey regarding morpheme combinations, paying particular attention to how they are relevant to the general question of suffix ordering in the marking of causativization and applicativization.

### 5.3. Special forms of the applicative in causativized environments

In several of the languages described in table 1, there are special forms of the applicative when it is used with a verb stem marked for causativization.<sup>29</sup> That is, the form of a verb marked

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28. As will be seen in section 6, I will treat this as an innovation not an archaism.

29. An examination of table 1 makes it appear that Basaa has a special form of the causative-applicative combination. This form, however, turns out to be phonologically predictable (Hyman 2003b). Nyakyusa has developed an interesting kind of special form wherein the sequence applicative-transitive (AT) must be preceded by a *k*, either because this is the predicted ending of the root preceding it or via an extra *ik* morph (see Hyman (2003a: 269–70)). I leave it

for causativization and applicativization is not straightforwardly predictable from the form of the suffixes marking causativization and applicativization in isolation. The data in (13) from Kinyarwanda gives an example of this.<sup>30</sup>

(13) KINYARWANDA (D.61)

- a. *Úmwáalímu a-ra-andik-iish-a íbárúwa íkárámu.*  
 teacher 3s-PRS-write-CAUS-FV letter pen  
 “The teacher is writing a letter with the pen.” (Kimenyi 1980: 79)
- b. *U-ra-andik-ir-a íbárúwa íki.*  
 2s-PRS-write-APP-FV letter what  
 “Why are you writing the letter?” (Kimenyi 1980: 109)
- c. *U-ra-andik-iish-ir-iz-a iyo kárámu íki.*  
 2s-PRS-write-CAUS-APP-APP.TRANS-FV that pen what  
 “Why are you writing with that pen?” (Kimenyi 1980: 109)

Sentences (13a) and (13b) show the causative and applicative when not in combination. The expected combination of the causative and applicative would be something like *-ish-ir-*. However, as Kimenyi (1980) states, “Whenever both [causative] and applicative morphemes occur in the same verb, an extra suffix *-iz-* appears on the verb (234).” Furthermore, data in Coupez (1980: 363–70) indicates that, at least for some verbs, an *-ir-iz-* variant exists to mark a verb for causativization and applicativization, even when the *-ish-* causative suffix is not present.

This *-iz-* form is glossed as APP.TRANS since I take it to be the reflex of a fusion of the applicative and transitive (*\*-id-j-*) which was reanalyzed as marking (along with other morphemes) causativization and applicativization on a single verb.<sup>31</sup> Such an analysis implies that out of the discussion here since it is clearly an innovation specific to Nyakyusa and has no broad implications for the understanding of causative, applicative, and transitive order in Proto-Bantu.

30. The sentences in (13b) and (13c) are both examples of an uncommon use of the causative in Bantu which promotes an instrument to object position, much like an applicative.

31. A comparable proposal is made for Kinyamwezi (Maganga and Schadeberg 1992: 168) to account for a class of verbs which are marked for causativization and applicativization with a form of the shape *-ilj-*.

verbs marked for causativization and applicativization in Kinyarwanda show a reduplicated applicative etymologically since, in addition to surfacing with a form corresponding to a fusion of the applicative and the transitive, there is also a more recognizable *-ir-* applicative element preceding the fusional element.

Comparable special forms of verbs marked for applicativization and causativization were found in four other languages in the survey: Chimwi:ni (Abasheikh 1978: 65–9), Kinyamwezi (Maganga and Schadeberg 1992: 168), Korekore (Dembetembe 1987: 78), and Shona (Fortune 1955: 211). None of these special forms was found to deviate etymologically from the relative ordering restrictions described by the causative-applicative-transitive (CAT) pattern. In a language like Kinyarwanda, of course, causativization and applicativization is clearly not marked by a strict etymological CAT combination but, rather, by an etymological CAAT combination. Nevertheless, such a pattern maintains the relative ordering restriction wherein the applicative must follow the causative and precede the transitive.

#### 5.4. The effect of complex suffix combinations

A noteworthy fact in some languages is that, even though they do not allow the suffix order applicative-causative (AC), they do allow the applicative extension to precede the causative if another extension intervenes. This has been noted, for example, as occurring with the reciprocal, as seen in the data in (14), from Chichewa.

(14) CHICHEWA (N.31b)

(Hyman and Mchombo 1992: 354)

STEM	GLOSS	TRANSLATION
<i>-mang-ir-an-</i>	“tie-APP-REC”	“tie for each other”
<i>-mang-ir-an-its-</i>	“tie-APP-REC-CAUS”	“cause to tie for each other”
<i>*-mang-ir-its-</i>	“tie-APP-CAUS”	

Data like that seen in (14) has rarely been looked for explicitly. So, it is hard to say how widespread a phenomenon this is. The only other language where I am aware of it is Ikalanga

(Mathangwane 2000: 14).

In order to understand why applicative-reciprocal-causative (ARC) order is possible in a language like Chichewa, it is worth examining a verb like the one in (15), taken from (Alsina 1999: 7), which shows that reciprocal-causative (RC) order is generally possible in the language.

- (15) CHICHEWA (N.31b)  
*Alēnje a-na-mény-án-its-á mbûzi.*  
2.hunter 3p-PST-hit-REC-CAUS-FV 10.goat  
“The hunters made the goats hit each other.”

When we examine the data in (14) and (15) together, we can see that, in Chichewa, the orders applicative-reciprocal (AR) and RC are both independently possible. These two orders are also independently possible in Ikalanga (Mathangwane 2000: 5–6). The fact that ARC order is possible in these languages, but AC order is not, can be straightforwardly understood by suggesting that the \*AC restriction is only local and, therefore, the combination of AR and RC orders as ARC order is not disallowed.

I lack data from enough languages on the effects of intervening suffixes to make any statement on what the situation in Proto-Bantu may have been with respect to whether or not the suffix ordering restrictions being examined here would have been local or non-local.<sup>32</sup>

### 5.5. Ambiguity of semantic scope for CA, AT, and CAT order

An important, underrecognized fact about many Bantu languages is that particular verbal suffix orders are often ambiguous for semantic scope. This phenomenon is reported on extensively in Hyman (2003a). For our purposes, what is important is that, when the morphological exponence of causativization and applicativization is realized with causative-applicative (CA), applicative-transitive (AT), or causative-applicative-transitive (CAT)

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32. I have encountered one language where ARC has been explicitly reported as being dispreferred, if not completely disallowed, Ndebele (Sibanda 2000: 30–1).

order, scopal ambiguity of the semantics of causativization with respect to applicativization has been reported for some languages. Such ambiguity has not been reported for AC order in the languages where it is allowed.<sup>33</sup>

The data in (16a) from Runyambo illustrates a case where etymological AT order is ambiguous for semantic scope, and the data in (16b), also from Runyambo, illustrates a case where etymological CAT order is ambiguous.<sup>34</sup>

- (16) RUNYAMBO (E.21) (Rugemalira 1993: 189)
- a. *a-ka-mu-kor-ez-á* *egári*  
 3s.SUBJ-PST-3s.OBJ-repair-APP.TRANS-FV bicycle  
 “She had the bicycle repaired for him.”
- b. *a-ka-tu-son-es-ez-á* *emyênda*  
 3s.SUBJ-PST-1p.OBJ-sew-CAUS-APP.TRANS-FV dresses  
 “She had dresses made for us.”

With respect to these sentences, Rugemalira (1993) writes, “The glosses in [(16)] contain two scope interpretations: ‘cause to V-for’ (causative of applicative) and ‘on behalf of, cause to V’ (applicative of causative) (189).” So, for example, sentence (16b) could have an interpretation (roughly) along the lines of *She had the dresses made for us to wear* (causativization with scope over applicativization since the applicativized object *us* is benefited as part of the caused action). Or, it could have the interpretation, *She had the dresses made on our behalf* (applicativization with scope over causativization since the applicativized object is benefited as a result of the caused action, not as part of it).

The same basic sort of ambiguity is reported for Chimwi:ni (Abasheikh 1978: 209–227), Kinyamwezi (Maganga and Schadeberg 1992: 156), Ikalanga (Mathangwane 2000: 13), Ndebele

33. This statement even holds for cases of ARC in Chichewa (Hyman 2003a: 273), discussed in section 5.4, and the translations in Mathangwane (2000: 14) indicate that this is also true for Ikalanga.

34. In both sentences in (16), the applicativized object, a benefactive, is realized as a prefixed pronominal object.

(Sibanda 2000: 17–18), and Chichewa (Hyman 2001: 3) (in these last three languages, it is CA order which is ambiguous, since the transitive is no longer productively employed in them). Since these are among the most thorough descriptions of the semantics of different suffix orders I had access to, it is very likely that this type of ambiguity is significantly underreported.<sup>35</sup>

This type of scopal ambiguity has not been reported for applicative-causative (AC) order in any of the four languages in the survey documented as allowing that order productively.

### 5.6. Suffix doubling resulting in different semantics

Kirundi is reported as exhibiting a rather striking phenomenon not encountered elsewhere in the survey involving a semantic opposition between a suffix combination consisting of an etymologically reduplicated applicative followed by the transitive, with phonological form *-ir-iz-*, and a combination consisting of just one etymological applicative followed by the transitive, with phonological form *-iz-*. These two different forms are reported to mark different scopal semantics of causativization with respect to applicativization.

The data in (17) represents the only contrastive cases of the use of these two suffixes given by Meeussen (1959). The English translations, adapted from Hyman (1993: 10), are given, followed in parentheses by Meeussen’s (1959:59) original French translations.

(17) KIRUNDI (D.62)

(Meeussen 1959: 59)

STEM	GLOSS	TRANSLATION
<i>-gum-</i>	“firm”	“be firm” (“être ferme”)
<i>-gum-y-</i>	“firm-CAUS”	“hold” (“tenir”)
<i>-gum-ir-</i>	“firm-APP”	“hold fast at” (“tenir quelque part (intr.)”)
<i>-gum-iz-</i>	“firm-APP.TRANS”	“make hold fast at” (“tenir quelque part”)
<i>-gum-ir-iz-</i>	“firm-APP-APP.TRANS”	“hold for” (“tenir pour”)

35. In section 6, I will give evidence that Xhosa also allows this type of ambiguity. I have not included it in the languages listed above because, although some translations in Satyo (1985) imply that CA order is ambiguous in the language, Satyo does not explicitly say that this is the case.

The idea that forms like *-gum-ir-iz-* “be\_firm-APP-APP.TRANS” contain a doubled applicative was originally put forth by Meeussen (1959: 58) and is not new to this work. Though he did not give examples of the verbs in (17) in sentences, he made it clear that he interpreted forms with the doubled applicative to represent applicativization having scope over causativization whereas the forms with just a single applicative followed by a transitive represented cases where causativization had scope over applicativization (Meeussen 1959: 58–9).

Kirundi is the only language I have found exhibiting causativization and applicativization data like that seen in (17). However, suffix doubling associated with different semantics is found elsewhere in Bantu for combinations of suffixes other than the causative, applicative and transitive, and some other cases are documented in Hyman and Katamba (1991).

With respect to the general question here about the relative order of the causative, applicative, and transitive suffixes in Bantu, it is worth noting that the development of this opposition between the *-iz-* and *-ir-iz-* forms did not result in a loss of the relative ordering restrictions of the causative-applicative-transitive (CAT) pattern—much like the special forms discussed in section 5.3.

The fact that Kirundi formally marks different scope of causativization with respect to applicativization via reduplication is particularly interesting in light of the leading idea behind Mirror-Principle approaches to affix order (see, e.g., Baker (1988)). These approaches suggest that affix order should reflect semantic scope. In Kirundi, we appear to be seeing an innovative morpheme combination (AAT) employed specifically to mark a particular scope. However, this combination maintains the relative order embodied by the CAT pattern. It is not a change in order but, rather, a single instance of a suffix versus a reduplicated suffix, which is used to mark a scopal distinction.

## 5.7. Languages showing productive AC order

The final topic to be covered in this section are those languages which are reported as allowing productive applicative-causative (AC) order. These languages are Korekore, Emakhuwa, Bukusu, and Xhosa. As we will see, an important pattern in all of these languages, except Xhosa, is that there are “funny” restrictions as to where they use AC order. I will go through AC order in each of these languages in turn.

In (18) I give representative examples of AC order from Dembetembe (1987) for the Korekore dialect of Shona.

(18) KOREKORE (S.11) (Dembetembe 1987: 78–79)

a. *Ndinedá bhásikoro re-kú-dzok-er-es-a kumushá.*  
1s.PRS.want.FV 5.bicycle 5-INF-return-APP-CAUS-FV to.3.home  
“I want a bicycle to get me back home.”

b. *Nd-a-mú-reg-er-es-a basa ráké.*  
1s.SUBJ-PERF-3s.OBJ-leave\_alone-APP-CAUS-FV 5.work 5.3s.POSS  
“I made him leave his work.”

Dembetembe (1987: 78) specifically says about AC order that, “It occurs mostly in possessively inflected infinitive inflections.” This is the use in the example in (18a). The one example he gives where AC order is not in such a construction is given in (18b). The semantics of this latter use of AC order are fairly opaque. Dembetembe does not offer discussion of this particular example but does indicate elsewhere (1987: 47) that the applicativized verb stem *-reg-er-* is atypical insofar as it has the same meaning and use as the root *-reg-* without the applicative suffix.

My conclusion from this is that the verb stem *-reg-er-* in (18b), contains a lexicalized applicative suffix, much like the Luvale example in (11), accounting for this instance AC order. In the cases of AC order exemplified by (18a), while this order is productive, it does not productively mark causativization and applicativization, but has a specialized morphosyntactic function

wherein it allows relativization of an instrumental argument. Since applicativization has the general property of promoting instruments to the status of unmarked objects, this use is interesting, but not particularly surprising.

AC order in Emakhuwa (Kathupa 1991) appears to have a wider distribution than it does in Korekore, though its precise semantics are far from clear. Examples of AC order alternating with causative-applicative (CA) order are given in (19).

(19) EMAKHUWA (P.31)

(Kathupa 1991: 307)

VERB	GLOSS	TRANSLATION
<i>o-lip-el-ih-a</i>	“INF-hard-APP-CAUS-FV”	“cause to get hard for somebody”
<i>o-lip-ih-er-a</i>	“INF-hard-CAUS-APP-FV”	“harden towards something”/ “harden for some reason” ? “cause to harden for somebody”
<i>o-we-el-ih-a</i>	“INF-come-APP-CAUS-FV”	“cause to come for something”
<i>o-wi-ih-er-a</i>	“INF-come-CAUS-APP-FV”	“bring something for somebody”/ “bring for some reason”/
<i>o-tek-el-ih-a</i>	“INF-build-APP-CAUS-FV”	“cause to build on behalf of”
<i>o-tek-ih-er-a</i>	“INF-build-CAUS-APP-FV”	“cause to build for some reason”/ ? “cause to build on behalf of”

Kathupa (1991: 307–310) discusses the distinction between the verb pairs in (19) and gives examples of these verbs in main clauses. After analyzing their meaning, he comes to the conclusion, “[I]t may be said that the order between the applicative and the causative does not reflect the Mirror Principle in any straightforward manner (Kathupa 1991: 310).”

I take Kathupa’s evaluation to mean that, even if AC order is morphologically productive in Emakhuwa, its use is not obviously semantically transparent in the same way that CA order is generally in Bantu. It is possible that the Emakhuwa data involves lexicalization of particular suffixes onto verb stems—though one cannot come to such a conclusion with any certainty based on the available data. I would treat the Emakhuwa case in more detail here except for that fact that I have found other languages where AC order appears to be more semantically transparent and which, I believe, shed clearer light on the general issue of this suffix order in Bantu.

The first of these is Bukusu, which I only have very limited data on. However, this data is interesting in that there is a clear difference in what semantic readings are available for the applicativized object when the verb shows AC order instead of CA order.

David Peterson (personal communication) has observed that it is possible in Bukusu, though somewhat marginal, to mark a verb with AC order if the applicative is introducing an instrumental object when the instrument is used to initiate the caused action. The data in (20a) illustrates this. The sentence in (20b) gives the preferred variant for (20a) where the instrumental object is marked with a preposition rather than being applicativized. The sentence in (21) gives a minimal pair for (20a) with the verb showing CA order where the applicative introduces an instrument used in the caused action.

(20) BUKUSU (E.31c)

- a. *a-mu-lim-il-isy-a* *em-bako*  
 3s.SUBJ-3s.OBJ-cultivate-**APP-CAUS**-FV 9-hoe  
 “He made him cultivate with a hoe (specifically, he used a hoe to make him cultivate).”
- b. *a-mu-lim-isy-a* *n-em-bako*  
 3s.SUBJ-3s.OBJ-cultivate-CAUS-FV INS-9-hoe  
 “He made him cultivate with a hoe.” (preferred variant of (20a))

(21) BUKUSU (E.31c)

- a-mu-lim-is-il-a* *em-bako*  
 3s.SUBJ-3s.OBJ-cultivate-**CAUS-APP**-FV 9-hoe  
 “He made him cultivate with a hoe (specifically, he caused him to use a hoe to cultivate)”

It is not clear whether or not Bukusu would allow AC order for benefactive applicativized objects. However, to the extent that it might be possible, it appears that AC order would be more marginal if a benefactive is applicativized than it is when an instrumental is applicativized (David Peterson, personal communication). Bukusu, therefore, even with limited data, represents an important instance where AC order can be associated, in some cases, with more or less compositional semantics but where the semantics of applicativization for this morpheme order is

more limited than with more common causative-applicative order, which would allow benefactive semantics of an applicativized object.

Something noteworthy about the Bukusu data is that the relationship between morpheme order and semantic interpretation in the examples in (20a) and (21) is the exact opposite of the predictions of the Mirror Principle. The sentence showing AC order in (20a) is a case where applicativization has scope over causativization since the applicativized instrumental object plays a role in causing the action. The sentence showing CA order, on the other hand, is a case where causativization has scope over applicativization since the applicativized instrumental is used in the caused action. The Mirror Principle would predict that the verb in (20a) would show CA order and the verb in (21) would show AC order.

The final language showing productive AC order which needs to be discussed is Xhosa, the language where this order was most thoroughly documented. The facts from Xhosa will be prominent in the next section, when a reconstruction of causative, applicative, and transitive ordering restrictions in Bantu will be proposed. Following the general pattern, Xhosa productively allows CA order as exemplified in the forms in (22).

(22) XHOSA (S.41) (Satyo 1985: 244)

STEM	GLOSS	TRANSLATION
<i>-qhum-is-el-</i>	“emit-CAUS-APP”	“puff at or for”
<i>-sebenz-is-el-</i>	“work-CAUS-APP”	“cause to work at or for”
<i>-thenth-is-el-</i>	“speak-CAUS-APP”	“make to speak at or for”

The forms in (23) show that Xhosa also productively allows AC order. In addition, as we will see immediately below, AC order appears to have the “expected” Mirror-Principle semantics of causativization with scope over applicativization.

(23) XHOSA (S.41) (Satyo 1985: 239)

STEM	GLOSS	TRANSLATION
<i>-bhal-él-is-</i>	“write-APP-CAUS”	“cause to write to”
<i>-qumb-él-is-</i>	“be_angry-APP-CAUS”	“cause to be angry with”
<i>-coth-él-is-</i>	“approach-APP-CAUS”	“make someone/something approach...”

The examples in (24) give full sentences containing verbs marked with AC order.<sup>36</sup> These sentences are strongly biased towards an interpretation where causativization has scope over applicativization—however, Satyo (1985) does not specifically discuss this.

(24) XHOSA (S.41)

- a. *Utitshala u-bhal-él-is-a                      ínqúnunu ileta ngábafúndi*  
 teacher 3s-write-APP-CAUS-FV principal letter INS.students  
 “The teacher makes the students write a letter to the principal.” (Satyo 1985: 296–7)
- b. *Óotitshala ba-bon-an-él-is-a                      ábadlálí ébáléni*  
 teachers 3p-see-REC-APP-CAUS-FV players playground  
 “The teachers make the players meet on the playground.” (Satyo 1985: 249)

The translations of both of the sentences in (24) allow a reading where causativization has scope over the applicativization. In (24a) this seems to be the only acceptable interpretation since the students are being caused to write to the principal, and the teacher does not directly act on the principal in any way.<sup>37</sup> In (24b) the English translation does allow a reading wherein the teachers are on the playground—that is, a reading where applicativization has scope over causativization. However, the reading where the players meet on the playground is much more salient and, therefore, presumably the intended reading is for causativization to have scope over applicativization. So, although Satyo (1985) does not explicitly state that AC order marks for causativization having scope over applicativization, I take these example sentences as a strong indication that this is the case.<sup>38</sup>

36. Satyo (1985) does not give word-by-word glosses for any of the sentences used to illustrate his discussion. Such glossing is my own.

37. Satyo (1985) gives at least two other examples of sentences containing verbs marked with AC order on pages 256 and 265. These are both essentially the same as the example in (24a), for our purposes, since they involve someone being made to write to someone else.

38. Below, in the discussion of the sentences in (25), I will present examples from Satyo (1985) which indicate that CA order is ambiguous for scope in Xhosa in the way discussed for other languages in section 5.5.

Xhosa represents the one case where I have extensive data and where there is productive AC order that can be associated with semantics which is more or less transparently related to its morphological form. Because of this, it is an important language for the present study insofar as, of the four languages allowing productive AC order, it most clearly shows that this possible AC order can be found in Bantu, even if it is rare.

Having summarized the results of the survey, in the next section, I will offer a reconstruction for the order of the causative, applicative, and transitive in Proto-Bantu.

## **6. Reconstructing a CAT template for Bantu verbal suffixes**

### **6.1. The possibilities for CA and AC order in Proto-Bantu**

In this section, I will argue that, in Proto-Bantu, the morphological exponence of causativization and applicativization was through the fixed morphological sequence causative-applicative-transitive (CAT)—that is, I will be arguing that a relative-order CAT template was active in Proto-Bantu verbal morphology.<sup>39</sup> By reconstructing a fixed order to the sequence, this diachronic analysis converges with Hyman’s (2003a) synchronic analysis of Bantu languages making use of a “pan-Bantu” template, part of which included CAT order.

As discussed above in section 4, the view that the transitive suffix obligatorily followed the causative and the applicative in Proto-Bantu has been accepted for some time. The aspect of the

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<sup>39</sup> By my use of the term ‘template’ here, I mean a grammatical construction wherein the linear order of the constituents of some linguistic constituent cannot be predicted by general principles and, therefore, needs to be arbitrarily stipulated. In this particular case, the relevant constituent is the Bantu verb stem and the “templatically-ordered” constituents are the causative, applicative, and transitive suffixes. I qualify the CAT template as a relative-order template in order to convey the fact that the template is a stipulation on the order of these morphemes when they cooccur and is not the sort of template associated with so-called “slot filler” or “position-class” morphology wherein a word is conceived of as a set of linearly-defined positions which are always filled by some morpheme (perhaps with “zero” phonological form). My use of the term template for Bantu is borrowed directly from Hyman (2003a). I will briefly discuss some of the theoretical consequences of this templatic reconstruction in section 9.

CAT reconstruction which is, therefore, novel is that the causative obligatorily preceded the applicative, and that is what I will focus on here. This claim can be opposed to the two other logical possibilities for causative-applicative ordering in Proto-Bantu: that the order was fixed as applicative-causative (AC) order or that the ordering relations were morphologically free, and dictated by extra-morphological considerations (e.g., semantic scope).

As indicated in section 5, only two types of languages are attested with respect to the order of the causative and the applicative, those with fixed CA order and those which allow both CA and AC order. This rules out any reconstruction requiring fixed AC order. However, it leaves open the possibility that Proto-Bantu allowed both CA and AC order, contrary to the fixed CA reconstruction being proposed here. In the following section, I will give arguments against an analysis where both CA and AC are reconstructed as possible orders for Proto-Bantu. In section 6.3, I will then propose a diachronic scenario for the development of AC order in those languages where it is productive.

## **6.2. Arguments against both CA and AC order in Proto-Bantu**

There are at least three arguments to be made favoring a fixed CA order reconstruction over a morphologically-free reconstruction of order for the causative and applicative in Proto-Bantu, each of which I will discuss in turn.

The first argument for favoring an analysis of fixed CA order over free order is simply numerical. Only one language, Xhosa, was reported as having fully productive, semantically-transparent AC morpheme order, against twenty-eight languages where AC order was not reported at all, and three languages (Korekore, Emakhuwa, and Bukusu) where it was productive, but semantically restricted.<sup>40</sup> These facts lend support to a fixed CA reconstruction.

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**40.** As pointed out in section section 5, there is no striking geographic generalization to be made about languages showing AC order.

However, on their own they constitute a relatively weak argument for such a reconstruction because of the nature of the sampling method used in this study. As discussed in section 5, the choice of languages reflected the availability of data, as opposed to, say, genetic considerations, making it dangerous to apply a “majority rules” approach here.

However, another numerical comparison gives us a second argument for a fixed CA reconstruction. As discussed in section 5.5, in six languages (each of them among the most thoroughly described languages in the survey), CAT order (or a CA or AT subset of CAT order) was ambiguous for the scope of causativization with respect to applicativization.<sup>41</sup> None of the sources for languages showing AC order indicated that it was similarly ambiguous—this is even the case for Xhosa, which was also very well documented. Positing that CAT order was templatically fixed allows this fact to fall out more or less naturally: If the order of these morphemes were solely morphologically determined, there would be no structural reason why it could not have had ambiguous semantics in Proto-Bantu and, therefore, encountering such ambiguity in the daughter languages would not be surprising.

For this line of argumentation to be valid, one needs to assume that a good deal more languages show scopal ambiguity for CAT order than have been reported to this point and that such ambiguity is not an idiosyncrasy of the languages discussed in section 5.5. This seems likely since no source in the survey explicitly ruled out ambiguity for CAT order, and the common factor among the languages for which ambiguity was reported is simply that the semantics of the combinations of verbal extensions was more thoroughly described than in most of the other sources.<sup>42</sup>

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41. As with languages showing productive AC order, there is no particularly striking geographic generalization which can be made for languages reported as showing this kind of scopal ambiguity.

42. Meeussen’s (1959) description of Kirundi AT order, discussed in section 5.6, could be interpreted as implying that it is not ambiguous for scope—however, this is not explicitly stated.

Even in the case of Satyo’s (1985) description of Xhosa, where no specific comment is made about whether or not CA order is ambiguous, there is some indication that it is, as indicated in the two examples given in (25).<sup>43</sup>

- (25) XHOSA (S.41) (Satyo 1985: 261)
- a. *Ábazingéli ba-qhum-ís-el-a únyôsi.*  
 hunters 3p-smoke-CAUS-APP-FV bees  
 “Hunters plague the bees with smoke.”  
 (Literally: “Hunters cause something (e.g., incense) to smoke in/around the bees.”)
- b. *Úmfúndisi u-wa-sebenz-ís-el-a ukúlima amábanjwá.*  
 pastor 3s-TNS-work-CAUS-APP-FV cultivate.INF prisoners  
 “The pastor uses the prisoners for ploughing.”  
 (Literally: “The pastor makes the prisoners work by ploughing.”)

The sentence in (25a) most readily takes on an interpretation where applicativization has scope over causativization since Satyo’s (1985) free translation (the literal translations in the examples in (25) are my own) treats the bees as malefactive objects of the verb. This indicates that the intransitive verb root *-qhum-* “smoke” is first causativized, giving it an agent, and then applicativized, to mark that the agent is acting in a malefactive manner towards some object.<sup>44</sup>

It would seem dangerous to infer from his description that AT order in Kirundi is not ambiguous since descriptions of that era are generally not particularly sensitive to such issues. In fact, even as recently as Baker (1988), a work from the generative tradition, where matters of scope are often considered quite important, ambiguity of scope for CA order in Chichewa appears to have gone undetected.

43. As discussed above, with reference to the examples in (24), Satyo (1985) does not offer word-by-word translations. This presents a problem in the glossing of *ukúlima* in (25b). Satyo (1985: 244) gives the specific translation of the stem *-sebenz-ís-el-* as “cause to work at or for”. However, *ukúlima* is an infinitive form of the verb rendering a literal translation difficult. This infinitive form is almost certainly being used nominally (much like an *-ing* gerund in English, hence the particular “literal” translation given in (25b).

44. As seen in (22), Satyo (1985: 244) gives the verb stem *-qhum-ís-el-* in isolation the translation “puff at or for”. This also indicates that, for this verb, applicativization is interpreted as having scope over causativization since this translation only allows such a reading. It can be usefully opposed to a comparable translation, but one which Satyo (1985) does not give, making use of a periphrastic causative, along the lines of “make smoke at or for”, which would allow an

The sentence in (25b), on the other hand, is most readily interpreted with causativization having scope over applicativization. This is because the causees (*amábanjwá* “prisoners”) are being caused to work in a particular manner—since applicativization introduces the manner expression *ukúlima* “cultivate.INF”, causativization would seemingly have to have scope over it.

These sentences do not provide crystal-clear examples of scopal ambiguity of CA order. However, they strongly indicate that Xhosa, too, is a language where CA order is ambiguous for scope. It is not possible for me to say, with certainty, that AC order in Xhosa cannot be ambiguous for scope. However, I was not able to find any examples of sentences containing verbs showing AC order in Satyo (1985) whose English translations had salient readings where applicativization had scope over causativization—the examples I did find were like those seen in (24) where there was only one salient reading, causativization with scope over applicativization.

Since Xhosa is the language where AC order is most productive, the fact that CA order appears to be ambiguous with respect to scope is particularly interesting since it indicates that such ambiguity is a pan-Bantu feature of CA order, unrelated to the general morpheme-ordering possibilities of a given language. I take this as an indication that this ambiguity was a feature of Proto-Bantu—and, as just discussed above, such a feature would appear to be a natural consequence of CA order being morphologically fixed in the Bantu parent language and, thus, provides evidence for a fixed CA reconstruction.

The third (and final) argument against the idea that Proto-Bantu allowed variable CA versus AC order is also related to semantics. If both orders were allowed, the default expectation would be that the alternation between them was semantically conditioned in some way and that this interpretation where “make” has scope over “smoke at or for”—that is an interpretation where causativization has scope over applicativization. (Satyo (1985: 241) does in fact use periphrastic causatives to translate other verbs marked with a CA combination, as can be seen in the data in (22)—so, it is not the case that he avoids such structures generally.)

semantic conditioning would be reconstructible from the languages exhibiting productive AC order, much as ambiguous scopal semantics seems reconstructible for CA order. However, the uses of AC order in Korekore, Emakhuwa, Bukusu, and Xhosa are quite varied. It is used for infinitival relatives where the relativized argument is an instrumental in Korekore, its semantics are unclear in Emakhuwa, it can be used in Bukusu for cases where applicativization has scope over causativization, and it is used to mark the exact opposite scope in Xhosa. If the different meanings ascribed to AC order were related in some obvious way, we could assume semantic drift from Proto-Bantu had taken place in languages allowing it. However, the particular semantic patterns we see, especially the apparently opposite uses of AC order in Xhosa and Bukusu, do not lend themselves easily to such an analysis, suggesting that AC order in these languages has not been inherited from a common source and has, instead, innovated independently in each of them since the breakup of Proto-Bantu.

### **6.3. On the development of AC order**

There are two related barriers to an analysis where Proto-Bantu causative-applicative order was fixed as CA. The first is that we would need to devise a scenario for the development of AC order. The second is, ideally, we would want to understand why AC order has arisen in some languages but not in others.

There is a sense in which treating AC order as innovative might seem unexpected since it forces us to assume that causative-applicative order went from morphologically fixed to free in some languages, which runs counter to the more typical pattern wherein morphology tends to become more fixed over time, via reduction and lexicalization. However, in the Bantu case, where morphology is generally agglutinating, it is easy to imagine free ordering developing via a very simple type of analogical extension. Essentially, the productivity of the \*-ic- causative on verbs

would allow it to be extended to verbs already suffixed with the \*-id- applicative. Such an analogy is schematized in (26).

- (26) [X]-ic- : causative of X (where X does not contain an applicative suffix) ::  
[Y-id-]-ic- : causative of [Y-id-]

An immediate positive aspect of the analysis of the rise of AC order schematized in (26) is that it gives us a way to explain why CA order has relatively consistent semantics across Bantu languages (e.g., it tends to be associated with ambiguity of semantic scope) whereas AC order has different semantics in the languages where it is reported to be productive. If CA order were inherited, its semantics would be expected to be more or less consistent across languages. If AC order, on the other hand, were taken to be innovative via analogical extension, there would be no reason to believe it would be extended in the same set of semantic environments in every language where such extension took place. The analogy schematized in (26) could be taken to be restricted to a specialized relative-clause use in Korekore, for example, while its extension in Xhosa would have been more general—applicativizing verbs which had already been causativized and, thus, resulting in verb forms where the scope of causativization with respect to applicativization was unambiguous.

To the extent that the form of the proposed analogical extension is quite simple, this proposal for the development of AC order has an important drawback: On its own, it is unable to account for why so few languages have innovated such a morpheme order. We, therefore, need to see if there are any structural factors found in languages exhibiting productive AC order which would have made them more likely than the other languages in the survey to undergo the analogy in (26).

An examination of table 1 reveals one relevant characteristic of the languages showing AC order—they all lack productive reflexes of the transitive suffix. Furthermore, in only one language, Lomongo, where the transitive was reported as being productively employed could the

morphological exponence of verbs marked for causativization and applicativization be CA. All other such languages marked such semantics either with a CAT combination or an AT combination.

In those languages, any analogical extension along the lines of (26) would be more complex than in the languages where it is proposed to have taken place because it would involve a shift not only in the ordering restrictions of the causative and the applicative but also of the causative with respect to the transitive. The two logically possible innovative patterns where the causative could follow the applicative in a language where the transitive would also appear in the relevant semantic environments would be applicative-causative-transitive (ACT) order and applicative-transitive-causative (ATC) order. Innovative ATC order seems a particularly unlikely innovation since it would require the transitive to lose its stem-final ordering restriction, which we have seen is quite robust in Bantu.

Innovative ACT order is not as obviously problematic. However, assuming that CAT order was fixed in Proto-Bantu, it requires two innovations in ordering restrictions. First, the causative would have to be allowed to follow the applicative—this is the proposed innovation schematized in (26). Second, there would also be an innovation wherein the causative would directly precede the transitive when the applicative was present. In other words, innovative ACT order would involve deviations from the Proto-Bantu ordering pattern on both the left and the right side of the causative, presumably making it less likely than the sort of innovation schematized in (26).

This scenario, of course, only helps us understand why a subset of the languages in the survey did not innovate AC order. It does not apply to the Lomongo case, for example, since, even though Lomongo productively uses the transitive, it also allows causativization and applicativization on the same verb to be expressed without the transitive. Furthermore, it cannot account for languages, like Chichewa or Ikalanga, which do not productively employ the transitive at all and

also do not allow AC order. Importantly, while it might be the case that AC order is possible, but unreported, in some of the languages in the survey, Chichewa is very clearly described as not allowing it. So we can say with certainty that while the loss of the transitive suffix may be a necessary condition for the development of AC order, it is not a sufficient condition. Nevertheless, this account of the source of AC order can go a long way towards explaining why it was not more frequently innovated, given the reconstruction being developed here.

While I lack enough data to suggest additional factors that may have contributed to the rise of AC order in Korekore, Emakhuwa, and Bukusu, in the Xhosa case there is evidence that ordering restrictions among suffixes in the language have generally undergone fairly extensive restructuring. This would allow us to understand the development of AC order as part of a more widely-observed pattern in the language.

I will focus here on one particularly striking innovation in Xhosa morpheme ordering—the fact that the reflex of the passive suffix \*-u-, which has the form -w-, has lost the restriction that it must appear after the -VC- extensions. Satyo (1985: 245) gives the examples in (27) of the passive suffix preceding the reciprocal and the applicative. He does not give examples of the passive preceding the causative, but he writes that, “This combination is interchangeable with /-is-/ + /-w-/” (Satyo 1985: 245)—that is, the order passive-causative is allowed and has the same range of uses as the order causative-passive.

(27) XHOSA (S.41)

(Satyo 1985: 245)

STEM	GLOSS	TRANSLATION
<i>-béth-w-an-</i>	“fight-PASS-REC”	“fight among one another”
<i>-bhal-w-él-</i>	“write-PASS-APP”	“be written for”

The \*-u- passive, like the transitive, has been uncontroversially reconstructed as having to appear after all of the -VC- suffixes. Thus, these examples almost certainly reflect an innovation from Proto-Bantu. Passive-applicative order, specifically, is highly unusual in Bantu

languages—Hyman (2003a: 253) reports several cases where the passive can precede the applicative. In all of these, the passive has an innovative form with respect to Proto-Bantu \*-u-. In Chichewa, for example, the passive has the form *-idw-* and can precede the applicative in certain semantic contexts. Xhosa is the only language I am aware of which allows a morpheme which appears to be a direct reflex of the the Proto-Bantu passive to appear before the applicative. With respect to the main argument being presented here, I take this to mean that, if we consider AC order to be the result of an innovation in Xhosa, we do not need it to be considered an isolated innovation in morpheme ordering in the language. While this still leaves us with the broader question of why Xhosa has so extensively restructured the Proto-Bantu suffix-ordering system, it helps with the narrow question as to why AC order was innovated specifically in this language and not in, for example, Chichewa.

In the ideal case, of course, we would want to also bring forth data particular to Korekore, Emakhuwa, and Bukusu which would help account for why they would have been likely to innovate AC order and, perhaps, when and if more data on these languages becomes available, it will be possible to do so. My sources on these languages did not indicate that they were generally as innovative as Xhosa. So, the sort of explanation just discussed would not seem to readily apply to them. This is actually, to a certain extent, consistent with the fact that the uses of AC order in Korekore, Emakhuwa, and Bukusu are more restricted than in Xhosa. The development of AC order in these languages, not being part of a general pattern of morpheme-order innovation, would be expected to occur only in more restricted environments. Devising a precise analysis for the innovation of AC order in each of these languages, however, will have to await further study.

In this section, I have developed a scenario in which Proto-Bantu allowed only CA order and where AC order is taken to be innovative in those few languages which allow it. In the next section, I will examine cross-linguistic evidence that suggests that a morpheme marking

causativization would, as a default, be expected to appear closer to a verb root than one marking applicativization. Since this is true of CA order in Bantu, such evidence can be taken to support the fixed CA reconstruction given here since it would appear to not be an anomaly within the family but, rather, a specific instantiation of a general cross-linguistic pattern.

I will only look at the relationship between the morphophonologically similar \*-ic- causative and \*-id- applicative immediately below and will discuss how the transitive \*-j- relates to these two suffixes in section 8.

## **7. Some notes on why CA is attested instead of AC**

In this section, I will argue that, if a language were to fix the order of morphemes marking causativization and applicativization, the more likely pattern would be for the exponence of causativization to be found closer to the root than the exponence of applicativization—which is the case for Bantu. To support this, I will look at cross-linguistic data on the occurrence of causative and applicative morphemes generally. The arguments in this section are meant to lend support to the idea that causative-applicative (CA) order was fixed in Proto-Bantu by establishing that such a pattern would be consistent with cross-linguistic tendencies.

In developing the arguments, I will make crucial use of the notion of ‘relevance’, in the sense of Bybee (1985). Bybee (1985: 13) defines relevance as follows: “A meaning element is ‘relevant’ to another meaning element *if the semantic content of the first directly affects or modifies the semantic content of the second.*” Bybee (1985: 33–6) then makes the general observation that the degree of relevance of a derivational morpheme to a root is one of the factors determining how close it is to the root, where a more relevant derivational morpheme tends to occur closer to the root than a less relevant derivational morpheme. In addition, relevance is an important factor with respect to whether or not some morpheme becomes grammaticalized at

all—the more relevant some morpheme is to the meaning of a verb, for example, the more likely it is to become a derivational morpheme marking that verb (Bybee 1985: 38).

Based on these ideas, if causativization could be shown to be more relevant to the meaning of verbs than applicativization, then there would be an immediate prediction that a causative morpheme should appear closer to the root than an applicative morpheme. While this would not directly support the idea that causative-applicative order was *fixed* in Proto-Bantu, it would suggest that if their order was fixed, it would be fixed as CA, not AC.

As part of a general study of applicative constructions, Peterson (2003) collected data, examining a range of parameters, from two sample sets of languages, fifty languages which were determined to make use of applicative constructions and fifty which were not. In addition, he tried to ensure, as much as possible, that the samples were areally and genetically diverse. His findings with respect to causative marking found in these two sample sets are given in (28).

(28)

	APPLICATIVE	NO APPLICATIVE	TOTAL	
CAUSATIVE	44	34	78	
NO CAUSATIVE	6	16	22	
TOTAL	50	50	100	$\chi^2=5.886, p \leq .025$

An important pattern which emerges from the data in (28) is that a language with an applicative is more likely to have a causative than a language without one. Eighty-eight percent of languages in Peterson’s applicative sample had causatives, while only sixty-eight percent in his general sample did, and, as indicated in (28), this difference is statistically significant.

The results from Peterson (2003), on their own, do not indicate that causativization is more relevant to the verb than applicativization. It is also important to determine whether or not languages with causatives tend to have applicatives more often than languages without causatives—that is, whether or not causatives and applicatives tend to occur together evenly or whether there is any kind of asymmetry in their distribution.<sup>45</sup>

45. The data in (28) could, in principle, be used to examine this. However, it is not ideal since the

Data taken from the typological survey found in Nichols (1992: 154) can be used to help deal with this question.<sup>46</sup> Her study was not limited narrowly to causative and applicative constructions. Rather, it examined the more general categories of agent-introducing (+A) verbal marking and object-introducing (+O) verbal marking. Though there is not complete overlap, agent-introducing verbal marking, in her survey, generally corresponded to causativization. Object-introducing verbal marking, in her sample, brought together two categories: applicatives and cases where a *direct* object was promoted. Though her categories are broader than the ones of interest to us here, I will take her findings to be generally indicative of the relationship between causatives and applicatives.

Nichols' data suggests that there is a cross-linguistic bias towards agent-introducing verbal marking over object-introducing verbal marking that is, statistically, highly significant. The relevant figures are given in (29). On its own, this is a first piece of evidence in favor of an argument that causativization is more relevant to the meaning of the verb than applicativization, since it indicates that causatives grammaticalize more frequently than applicatives do.

(29)

	+A	+O	TOTAL	
YES	110	42	152	
NO	20	88	108	
TOTAL	130	130	260	$\chi^2=73.2358, p \leq .001$

However, the data in (29) combined with the data in (28) tells us something of further interest. If applicatives were comparably common in languages with causatives as causatives are in languages with applicatives, the disparity between agent-introducing and object-introducing verbal marking, as found in Nichols' survey, should not be found (or, at the very least, should not

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sample sets were devised to test hypotheses about languages with applicatives, not all languages.

46. Ideally, it would be possible to cite data, paralleling the applicative data from Peterson (2003), using sample sets of languages specifically designed to test hypotheses about causatives cross-linguistically. Because I am unaware of such a survey, I use the more general survey of Nichols (1992) here.

be as pronounced as the figures in (29) indicate). We can, then, take the results in (28) and (29) to indicate that there is an asymmetry between applicatives and causatives where the former tends to imply the presence of the latter but the latter does not imply the presence of the former.

There would seem to be a natural expectation that a language grammaticalizing a less relevant semantic process would also grammaticalize a more relevant one—but not vice versa. Given such a view, taking causativization to be more relevant to the verb than applicativization would immediately predict the presence of the cross-linguistic asymmetry in the distribution of applicatives and causatives noted just above. This asymmetry, therefore, is additional evidence that causativization is a more relevant semantic process than applicativization.

Following Bybee (1985), then, we would expect, all things being equal, that causative markers would appear closer to a verb root than applicative markers. Since the analysis of Proto-Bantu as having fixed CA morpheme order is consistent with this, cross-linguistic tendencies can be taken to support the reconstruction for Proto-Bantu suffix order provided in section 6.

There are two further issues which need to be addressed. The first is understanding what kind of diachronic scenario would have resulted in fixed CA order. The second is fitting the transitive into the picture—this suffix is often used to mark causativization. So, given the cross-linguistic tendencies just discussed, it is a bit of a mystery as to why it tends to appear after the other suffixes. I will address these issues in the next section.

## **8. From pre-Proto-Bantu to Proto-Bantu**

In trying to determine how the situation reconstructed for Proto-Bantu may have arisen in pre-Proto-Bantu, we are necessarily becoming more speculative than we have been to this point. In fact, the work of Voeltz (1978) has suggested that the Bantu extensions are a Niger-Congo inheritance. If this is the case, then the hypothetical “pre-Proto-Bantu” referred to here might be

more aptly labelled “pre-Niger-Congo”.

Proto-Bantu verb roots are reconstructed as typically having -CVC- shape. However, in the daughter languages, one frequently encounters cases where verb roots have the shape -VC- because of the loss of an initial consonant (especially the consonant *j* (Meeussen 1967: 86)). Using such reconstructed -CVC- > -VC- changes as a basis for a change affecting pre-Proto-Bantu, we can schematize a scenario for the development of the verbal extensions as in (30). This type of change affecting pre-Proto-Bantu has already been proposed by Givón (1971: 153), and it implies that, at some stage of pre-Proto-Bantu, the language’s syntax was of a type where any auxiliary verbs in a clause followed the main verb.

(30) [CVC]<sub>v</sub> [CVC]<sub>aux</sub> > [CVC-VC]<sub>v</sub>

In (30) two CVC verbs are schematized as reducing to one CVC verb followed by a -VC suffix which has lost its initial consonant. The first CVC verb is taken to be any verb while the second verb would be some specialized auxiliary whose semantics would either be the same as those of one of the reconstructed extensions or of a type such that the semantics of the extension would be a natural development from the semantics of the auxiliary.<sup>47</sup>

Even if we were to unequivocally adopt the scenario in (30) for the development of the verbal extensions, we would still need to amend it to account for the causative-applicative-transitive (CAT) morpheme order reconstructed for Proto-Bantu here. As discussed above, there are two separate issues to resolve. The first is how *fixed* CA order would have developed, and the second is how the transitive \*-j-, with shape -V-, fits into the picture.

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47. There are, of course, a number of issues raised by the suggestion that the development schematized in (30) was the source of the causative and applicative extensions. The identity of the proposed auxiliaries would need to be determined, reasonable candidates being a verb like “do” or “make” for the causative extension and “give” for the applicative. Another issue with the proposed change in (30) is that, to be properly scrutinized, it would have to be embedded within a proposal of the syntax of the relevant stage of pre-Proto-Bantu.

The cross-linguistic data discussed in section 7, combined with the scenario schematized in (30), offers us a ready explanation for fixed CA order. The auxiliary which would have developed into a marker of causativization, being more relevant to the verb, would have been expected to grammaticalize as a suffix before the auxiliary which would have developed into a marker of applicativization. Under this scenario, fixed CA order would simply be a reflex of the fact that there would have been some stage in pre-Proto-Bantu when causativization would have already been marked with a suffix but applicativization would still have been marked with some sort of auxiliary. At such a stage, the applicative would necessarily have followed the causative, and the fixed order of the two suffixes in Proto-Bantu would simply be a relic of the fact that they grammaticalized at different times.

With respect to the transitive \*-j-, since its shape is -V-, and not -VC-, it could not have arisen from the sort of process schematized in (30)—barring an assumption that the transitive was derived from a phonologically irregular verb in pre-Proto-Bantu or some extra sound change occurred resulting in the loss of its final consonant.<sup>48</sup> So, in order to understand its development, it will be useful to look for some other source.

Hyman (2003a: 262) suggests that, “the [transitive] and the passive were, most likely, part of a historical voice-marking system consisting of final-vowel morphemes.” In other words, the historical source of the transitive was completely different from the source of the -VC- suffixes. Accepting this idea, of course, leaves open many questions, including what its ultimate source might have been. Nevertheless, it can help us understand why the transitive could have different ordering restrictions from the semantically similar causative.

The relevance principle, invoked in section 7 above, is not intended to be a synchronic

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48. These statements apply to the other -V- suffix, the passive \*-u-, and many of the conclusions of this section could be extended to it. I leave it out in the discussion to maintain focus on the CAT ordering problem of primary interest here.

absolute. Rather, it was formulated in order to explain broad patterns in morpheme ordering. Furthermore, Bybee (1985: 38) understands the role of relevance in shaping morpheme order to be essentially diachronic in nature. Specifically, the greater the relevance of one word to another, the more likely those words will be syntactically proximate to each other, thereby increasing the likelihood that one of the words will grammaticalize and become an affix to the other.

Such an understanding of the relevance principle immediately makes the issue of the position of the Bantu transitive with respect to the causative and the applicative unproblematic. Relevance should be expected to be a factor if the diachronic origins of two affixes are roughly similar (as would seem to be the case for the -VC- causative and applicative), but it would have little to say if the diachronic origins of two affixes were not particularly similar. In this case, the idea that the -V- transitive suffix came from a different basic type of source than the two extensions would mean that relevance does not have any particular bearing on the issue of how it should be ordered with respect to them and that we would need to seek some other explanation for its ordering properties.

This is not to say that we are not left with a range of questions about the development of the Proto-Bantu verb. It would be worthwhile to more explicitly work out how the voice-marking system described by Hyman (2003a) might have operated and to, thereby, come to a better understanding of why it must be ordered after the extensions. Furthermore, as discussed in section 4, Bantu verbs also appear with a so-called final vowel that participates in the marking of certain semantic features, like mood, tense, and negation. These final vowels follow all the suffixes of interest to us here, and their origin also needs to be explored before we can come to a full understanding of the origin of the causative, applicative, and the transitive. It is worth pointing out that the scenario envisaged by Givón (1971) and schematized in (30) works best if one assumes that, at the stage when the -VC- causative and applicative developed, the final vowel was not yet present. I know of no evidence which would argue for or against this.

## 9. Conclusion

I have argued here that there was a fixed order among three suffixes reconstructed for Proto-Bantu, the causative, the applicative, and the transitive. Specifically, they had to appear in causative-applicative-transitive (CAT) order. Suggesting that the transitive necessarily followed the other suffixes is not new to this work, but the idea that the causative necessarily preceded the applicative is new, to the best of my knowledge.

There are two final points I would like to bring up with respect to this reconstruction. The first is that it implies that suffix ordering in Proto-Bantu was, at least partially, governed templatically—that is, the order of the suffixes had to be morphologically stipulated and could not be predicted on other grounds. In the generative tradition, some researchers have suggested that templatic morphology should either be rare, or even non-existent. Rice (2000), for example, presents detailed arguments against the templatic analysis of the extraordinarily complex Athabaskan verb. However, this view is far from universal, and, as discussed above, Hyman (2003a) has suggested that a pan-Bantu template drives many aspects of suffix ordering in the Bantu daughter languages. The reconstruction given here clearly supports Hyman's (2003a) synchronic analysis by suggesting that part of his pan-Bantu template is not accidental in nature but is, in fact, inherited. Additionally, the results of this paper lend general support to the idea that morphological templates are, in fact, possible grammatical structures.

The second point to be made with respect to this reconstruction is that it runs directly counter to the leading idea behind the Mirror Principle—that morpheme order reflects semantic scope. The fact that the semantically similar causative and transitive are on different sides of the applicative is one reason for this. Another is the claim that CAT order is ambiguous for semantic scope in many languages because fixed ordering made it ambiguous for scope in Proto-Bantu itself (discussed in section 6). A Mirror-Principle approach would suggest that such fixed order

would not have been ambiguous but would have had a fixed scopal interpretation corresponding in some regular way to the fixed order. While it would be useful to have more descriptions of Bantu languages which specifically look for scopal ambiguity in order to solidify the aspect of the reconstruction where CAT order in Proto-Bantu was taken to be ambiguous for scope, the current state of the evidence suggests that the predictions of the Mirror Principle are not borne out.

Two particular languages in the survey stand out with respect to Mirror Principle approaches to morpheme order and bear mention here. The first of these is Kirundi, discussed in section 5.6. This language is reported as marking causativization with scope over applicativization with an AT sequence and applicativization with scope over causativization with an AAT sequence. The Mirror Principle would predict that an innovation marking such a semantic distinction would be manifested via a change in possible morpheme orders. However, the Kirundi innovation involves reduplication of the applicative, and, thereby, has not resulted in a deviation from the relative order encoded by CAT pattern.

The other language which is of particular interest to Mirror Principle approaches to morpheme order is Xhosa. This is because Xhosa AC morpheme order, taken here to be innovative, is used to mark verbs where causativization has scope over applicativization, as the Mirror Principle would predict. This suggests that innovations consistent with the Mirror Principle are in fact possible—it simply seems to be the case that other options are also available.<sup>49</sup>

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**49.** Somewhat interestingly, with respect to theoretical formulations of the Mirror Principle, the particular version adopted by Baker (1988) suggests that the lack of AC order in Swahili is tied to a general cross-linguistic ban on the ability of a causative morpheme to have scope over an applicative morpheme (Baker 1988: 395–400). Thus, even if a language like Xhosa is consistent with an informal sense of the Mirror Principle, it is inconsistent with the most well-known theoretical version if it.

## References

- Abasheikh, Mohammed. 1978. *The Grammar of Chimwi:ni Causatives*. University of Illinois Ph.D. Dissertation.
- Alsina, Alex. 1999. "Where's the Mirror Principle?". *The Linguistic Review* 16:1.1–42.
- Alsina, Alex and Sam A. Mchombo. 1993. "Object Asymmetries and the Chichewa Applicative Construction". *Theoretical Aspects of Bantu Grammar* ed. by Sam A. Mchombo, 17–45. Stanford: CSLI.
- Baker, Mark. 1985. "The Mirror Principle and Morphosyntactic Explanation". *Linguistic Inquiry* 16:3.373–415.
- Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago.
- Bastin, Yvonne. 1986. "Les suffixes causatifs dans les langues bantoues". *Africana Linguistica* 10.55–145.
- Bentley, W. Holman. 1887. *Dictionary and Grammar of the Kongo Language As Spoken at San Salvador, the Ancient Capital of the Kongo Empire, West Africa*. London: Baptist Missionary Society. (Reprinted 1967. Farnborough: Gregg.)
- Bresnan, Joan and Lioba Moshi. 1993. "Object Asymmetries in Comparative Bantu Syntax". *Theoretical Aspects of Bantu Grammar* ed. by Sam A. Mchombo, 47–91. Stanford: CSLI.
- Bybee, Joan. 1985. *Morphology: A study of the relation between meaning and form*. Amsterdam & Philadelphia: Benjamins.
- Coupez, André. 1955. *Esquisse de la langue holoholo*. Tervuren: Tervuren.
- Coupez, André. 1980. *Abrège de grammaire rwanda*. Butare, Rwanda: Institut national de recherche scientifique.
- de Rop, Albert. 1958. *Grammaire du Lomongo: Phonologie et morphologie*. Léopoldville: Éditions de l'université.
- Dembetembe, N.C. 1987. *A Linguistic Study of the Verb in Korekore*. Harare: University of Zimbabwe.
- Fortune, George. 1955. *An Analytical Grammar of Shona*. London: Longmans.
- Givón, Talmy. 1971. "On the Verbal Origin of Bantu Verb Suffixes". *Studies in African linguistics* 2.145–164.
- Guthrie, Malcolm. 1967. *Comparative Bantu: An introduction to the comparative linguistics and prehistory of the Bantu languages*. Volume 1. Farnborough: Gregg.
- Guthrie, Malcolm. 1970. *Comparative Bantu: An introduction to the comparative linguistics and prehistory of the Bantu languages*. Volume 4. Farnborough: Gregg.
- Guthrie, Malcolm. 1971. *Comparative Bantu: An introduction to the comparative linguistics and prehistory of the Bantu languages*. Volume 2. Farnborough: Gregg.
- Harries, Lyndon. 1950. *A Grammar of Mwera*. Johannesburg: Witwatersrand University.
- Hawkinson, Annie K and Larry M. Hyman. 1974. "Hierarchies of Natural Topic in Shona". *Studies in African Linguistics* 5.147–170.

- Hodges, Kathryn Speed. 1977. "Causatives, Transitivity and Objecthood in Kimeru". *Papers from the Eighth Conference on African Linguistics* ed. by Martin Mould and Thomas J. Hinnebusch, 113–125. (= *Studies in African Linguistics, Supplement 7*.)
- Horton, A. E. 1949. *A Grammar of Luvale*. Johannesburg: Witwatersand Press.
- Hulstaert, G. 1965. "Grammaire du Lomongo: Deuxième partie, morphologie". *Annales du Musée Royale de l'Afrique Centrale, Série 8, Sciences Humaines* 57.1–679.
- Hyman, Larry M. 1993. "Conceptual Issues in the Comparative Study of the Bantu Verb Stem". *Topics in African Linguistics* ed. by Salikoko S. Mufwene and Lioba Moshi, 3–34. Amsterdam & Philadelphia: Benjamins.
- Hyman, Larry M. 1999. "The Historical Interpretation of Vowel Harmony in Bantu". *Bantu Historical Linguistics: Theoretical and empirical perspectives* ed. by Jean-Marie Hombert and Larry Hyman, 235–295. CSLI: Stanford.
- Hyman, Larry M. 2001. Templatic and/or Compositional Morphology: Suffix ordering in Bantu. Talk given at the Workshop on Linguistic Typology, Berkeley, California, March 17, 2001.
- Hyman, Larry M. 2003a. "Suffix Ordering in Bantu: A morphocentric approach". *Yearbook of Morphology 2002* ed. by Geert Booij and Jaap van Marle, 245–281. Dordrecht: Kluwer.
- Hyman, Larry M. 2003b. "Basaá". *The Bantu Languages* ed. by Derek Nurse and Gérard Phillipson, 257–282. London: Curzon Press.
- Hyman, Larry M. and F. X. Katamba. 1991. "Cyclicity and Suffix Doubling in the Bantu Verb Stem". *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society, Special Session on African Language Structures* ed. by Kathleen Hubbard, 133–44. Berkeley: Berkeley Linguistics Society.
- Hyman, Larry M. and Sam A. Mchombo. 1992. "Morphotactic Constraints in the Chichewa Verb Stem". *Proceedings of the Eighteenth Meeting of the Berkeley Linguistics Society, General Session and Parassession* ed. by Laura Buszard-Welcher, Lionel Wee, and William Weigel, 350–363. Berkeley: Berkeley Linguistics Society.
- Idiata, Daniel Franck. 1998. *Aperçu sur la morphosyntaxe de la langue isangu (bantou, B42)*. München: Lincom Europa.
- Institut National de Recherche et d'Action Pédagogiques. 1982. *Éléments de grammaire lingala*. Paris: Nathan Afrique.
- Jacottet, Edouard. 1927. *A Grammar of the Sesuto Language*. Johannesburg: University of Witwatersand.
- Kathupa, José Mateus Muária. 1983. *A Preliminary Description of Sentence Structures in the E-sáaka Dialect of E-mákhwa*. School of Oriental and African Studies, University of London.
- Kathupa, José Mateus Muária. 1991. *The Grammar of Emakhuwa Verbal Extensions*. School of Oriental and African Studies, University of London.
- Kimenyi, Alexandre. 1980. *A Relational Grammar of Kinyarwanda*. Berkeley: University of California.
- Lowe, John and Thilo Schadeberg. 1996. *Bantu Mapmaker* (Computer Program). Berkeley and Leiden: CBOLD and Department of African Linguistics, University of Leiden.
- Machobane, Malilo. 1989. *Some Restrictions on the Sesotho Transitivity Morphemes*. Montreal: McGill University Ph.D. thesis.

- Maganga, Clement and Thilo Schadeberg. 1992. *Kinyamwezi: Grammar, texts, vocabulary*. Cologne: Rüdiger, Köpper Verlag.
- Maho, Jouni. 2001. "The Bantu Area: (towards clearing up) a mess". *Africa and Asia: Göteborg working papers on Asian and African languages and literatures* 1.40–49.
- Mathangwane, Joyce T. 1999. *Ikalanga Phonetics and Phonology*. Stanford: CSLI.
- Mathangwane, Joyce T. 2000. Suffix Ordering in the Ikalanga Verb Stem: A case against the repeated morph constraint. Gaborone: Department of English, University of Botswana (ms.).
- Meeussen, A. E. 1959. *Essai de grammaire rundi*. Tervuren: Tervuren.
- Meeussen, A.E. 1967. *Bantu Grammatical Reconstructions*. Tervuren: Tervuren.
- Meinhof, Carl. 1932. *Introduction to the Phonology of the Bantu Languages*. Translated by N.J. van Warmelo. Berlin: Dietrich Reimer. First published 1910.
- Ngunga, Armindo. 2000. *Lexical Phonology and Morphology of Ciyao*. Stanford: CSLI.
- Nichols, Johanna. 1992. *Linguistic Diversity in Space and Time*. Chicago: University of Chicago.
- Orwig, Carol. 1989. "Les extensions verbales en nugunu". *Descriptions de langues camerounaises*, 283–314. Paris: ORSTOM.
- Paluku, André Mbula. 1998. *Description grammaticale du kitalinga (langue bantu du nord-est du Zaïre)*. München: Lincom Europa.
- Peterson, David. 1999. *Discourse-Functional, Historical, and Typological Aspects of Applicative Constructions*. Berkeley: UC Berkeley Ph.D. Dissertation.
- Peterson, David. 2003. Structural Correlates of Applicative Constructions. Hanover, New Hampshire: Dartmouth College, Department of Linguistics (ms.).
- Polak-Bynon, Louise. 1975. *A Shi Grammar: Surface structures and generative phonology of a Bantu language*. Tervuren: Tervuren.
- Rice, Keren. 2000. *Morpheme Order and Semantic Scope: Word formation in the Athapaskan verb*. Cambridge: Cambridge University.
- Rugemalira, Josephat. 1993. *Runyambo Verb Extensions and Constraints on Predicate Structure*. Berkeley: UC Berkeley Ph.D. Dissertation.
- Satyo, Sizwe Churchill. 1985. *Topics in Xhosa Verbal Extension*. Pretoria: University of South Africa Ph.D. dissertation.
- Schumann, C. 1899. "Grundriss einer Grammatik der Kondesprache". *Mitteilungen des Orientalische Seminars zu Berlin* 2:3.1–86.
- Shepardson, Kenneth N. 1986. *Productivity and the Swahili Lexicon*. Bloomington, Indiana: Indiana University Ph.D. Dissertation.
- Sibanda, Galen. 2000. Constraints in Ndebele Suffix Ordering. Berkeley: Department of Linguistics, UC Berkeley (ms.).
- Voeltz, Erhard Friedrich Karl. 1978. *Proto Niger-Congo Verb Extensions*. Los Angeles: UCLA Ph.D. Dissertation.
- Williamson, Kay and Roger Blench. 2000. "Niger-Congo". *African Languages: An introduction* ed. by Derek Nurse and Gérard Phillipson, 11–42. Cambridge: Cambridge University.

Ziervogel, D. 1952. *A Grammar of Swazi*. Johannesburg: Witwatersrand University Press.

## Summary

The morphological ordering relationships among a set of valence-changing suffixes found throughout the Bantu family have been of theoretical interest in a number of synchronic studies of the daughter languages. However, few attempts have yet been made to reconstruct the principles governing their ordering in the parent language. Based on a survey of over thirty Bantu languages, this paper proposes a reconstruction wherein the order of suffixes marking causativization and applicativization was fixed in Proto-Bantu. This reconstruction runs counter to approaches to morphosyntax where semantic scope is taken to determine the order of morphemes but is consistent with templatic approaches to morpheme ordering in the Bantu family.

**Keywords:** Bantu, causative, applicative, morpheme order, template, diachronic morphology

## Résumé

Les rapports d'ordre morphologique parmi un ensemble de suffixes qui changent la valence des verbes trouvés dans toute la famille bantoue ont été d'intérêt théorique pour un certain nombre d'études synchroniques des langues fille. Cependant, il y a eu peu de tentatives de reconstruire les principes qui ont régi leur ordre dans la langue mère. Sur la base d'une étude de plus de trente langues bantoues, cet article propose une reconstruction où l'ordre des suffixes marquant la causativisation et l'applicativisation a été fixé en protobantou. Cette reconstruction est opposée aux approches de la morphosyntaxe qui proposent que la portée sémantique détermine l'ordre des morphèmes, mais elle se conforme aux approches qui utilisent une matrice positionnelle ('template') pour rendre compte de l'ordre de ces morphèmes dans la famille Bantoue.

## **Zusammenfassung**

Die Reihenfolgebeziehungen zwischen einer Reihe von valenzändernden Suffixen, die in der ganzen Bantu-Familie erscheinen, hat schon theoretische Interesse in mehreren synchronen Studien der Tochtersprache erregt. Jedoch gibt es noch wenige Versuche, die Grundregeln aufzubauen, die ihre Reihenfolge in der Ursprache regeln. Das Paper gründet sich auf eine Studie von mehr als dreissig Bantusprachen und schlägt eine Rekonstruktion vor, in der die Reihenfolge der Kausativierungs- und Applikativierungssuffixe in Proto-Bantu festgelegt war. Diese Rekonstruktion läuft den Theorien zuwider, in denen der semantische Bereich die Reihenfolge der Suffixen bestimmt, aber ist mit Template-Morphologie in der Bantu-Familie im Einklang.