

Tone in the CiRuri Present Continuous

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1. Introduction

The present paper is a discussion of the tone pattern of the present continuous tense of CiRuri, a Bantu language spoken in north-western Tanzania studied by David Massamba (1982, 1984).¹ Massamba presents a complete survey of the relevant data, which I will sketch in section 3, and he also proposes an analysis which does correctly generate the observed patterns. In this regard it is superior to the analysis that I proposed in Goldsmith (1982), an analysis which appealed crucially to cyclic application of two rules. The failure (using the term advisedly) of Goldsmith (1982) stemmed, first, from the fact that it was based on familiarity with only a limited portion of the entire range of relevant data, that part which was then known to this writer and David Massamba, with whom I was working at the time; as I have indicated, the range of data now available is considerably broader. Just as importantly, and unforeseeably, perhaps, time has shown that the cyclic account presented there simply cannot be extended to the entire range of facts.

The facts are quite complex. This conclusion appears to be unavoidable; no theoretical innovation will likely provide a means of rendering the tonal paradigms simple and transparent. No doubt the difficulties are largely due to complexities introduced historically, as the phrase level rule of Tone Shift, a rule which shifts each High tone to the right by one syllable, forced the remolding of the tonal pattern of the verb tenses.

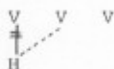
To help make the tone pattern of the Present Continuous more accessible, I will organize the exposition in the following way. In the next section (2), I will present some of the basic facts about the CiRuri system (from Massamba (1982, 1984)); these are uncontroversial. In section 3, I will present the facts of the Present Continuous, largely as Massamba describes them, and point out which forms require additional rules, and suggest an account that adds three rules that flow almost ineluctably from the data, but which have both empirical and theoretical drawbacks; in section 4, I will sketch the facts from the subjunctive, which are quite parallel to those of the present

continuous; in section 5, I shall attempt to modify that account with the incorporation of some recent suggestions by Hayes and by Steriade and Schein to make the analysis more acceptable.

2. General rules of CiRuri

CiRuri is a tone language of the Lacustrine area, spoken in the northwest part of Tanzania near Lake Victoria, a language in which only High tones play a role in the word-level tonology, a fact equally true in virtually all of the phrase-level tonology. The most pervasive and unmistakable rule of CiRuri is a phrase-level rule that shifts all High tones one syllable to the right. This rule, like the others discussed in this section, are discussed at length in Massamba (1982, 1984), as well as in Goldsmith (1982). A High tone on a word-final syllable will shift to the next word, if there is a following word; if the tone is phrase-final, it will, of course, not shift and will be realized, in fact, as a Rise-Fall pattern spread over the final two syllables of the phrase).

However, a High tone on the penultimate vowel of a word (not just of a phrase, but of any word) is not shifted; rather, it remains in place. Thus, in principle, a High tone on the penultimate syllable of a word has two possible sources. It may be the realization of a High tone on the antepenult, or it may be the realization of an unshifted High tone on the penult itself.² In this note, I will not be concerned with the proper formulation of this rule, which derives, I believe, from a correct understanding of metrical structure. That is, in CiRuri only one metrical foot is established per word, and only one metrically strong position is established--the penultimate syllable. All tones in a metrically weak position shift to the right by one syllable; a tone on the strong position does not shift. However, for our present purposes, we may simply retain the formulation roughly as given in Goldsmith (1982):



Because of the complete generality and exceptionlessness of this rule, the rules discussed below will all be given (except where noted) before this

rule applies. When an asterisk (*) is used over a vowel, this unambiguously describes a High tone at the point before Tone Shift has applied.

The general structure of the verb in CiRuri is essentially the familiar one among the Bantu languages. Finite verbs are generally composed as in (2); there may be zero, one or two Object Markers (OM). The "base" is a derivational constituent, composed on the first layer of the morphology.

- (2) Subject Tense Object Radical Extensions Final Vowel
 Marker Marker Marker

-----base-----
-----stem-----

In addition, as we shall see, a "preprefix" may occur before the Subject Marker in just one tense--the Present Continuous. Comparative evidence suggests that this was once a nominalizing prefix, but from a synchronic point of view there is no reason to view it as such presently.

A second general rule of the language is a common Bantu rule which is frequently referred to as "Meeussen's Rule", the rule that neutralizes High and non-High stems after a High tone. More generally, the rule deletes a High tone following a High toned vowel, as in (3). As we shall see below, Meeussen's rule does not apply to the Final Vowel; elsewhere, it applies simultaneously to strings of contiguous High tones, deleting all but the first High. A toneless vowel, of course, surfaces as Low.

- (3) Meeussen's Rule



A third, quite general tone rule of the language is rather odd from a synchronic point of view. This rule has the effect of placing a High tone on the Final Vowel in case there are two Object Markers in the verb. Thus *o ku gurir* 'to buy for' is a Low toned verb, but *o ku gu mu gurir* 'to buy it for him/her' has a High tone on the Final Vowel by this rule. This rule applies in all tenses, and may be tentatively formulated as in (4).

(4) Two Prestem High rule



There is a certain amount of redundancy and indeterminacy in the way this rule (called the Two Object Marker rule in earlier studies) is formulated here, indeterminacy which can be reduced as we consider the Present Continuous data below. Since all Object Markers in CiRuri are High, it seems to be (and, indeed, is) redundant to mark as a condition in (4) that the triggering elements should be both High toned and Object Markers. On the other hand High toned Tense Markers do not trigger processes (as Massamba (1982) notes); still, as we shall see, High toned subject markers do. That is, a single High toned Subject Marker, when combined with a (High toned) Object Marker, will trigger the insertion of a High tone on the Final Vowel. However, the Present Continuous is the only tense in the language with High toned Subject Markers.

3. Present Continuous: the facts

The Present Continuous is formed with the following structure in almost all cases:

- (5) Preprefix Subject (Object Stem
 Marker Marker(s))

The preprefix has the same form as it does with nouns: it is a single vowel, a [-high] copy of the following vowel, which will always be the vowel of the Subject Marker. Thus if the Subject Marker is *ni-* (1st person singular), the corresponding preprefix is *e-*; if the Subject Marker is *u-* (2nd person singular), the preprefix is *o-*, and so on.

For Class 1 nouns (as Bantuists refer to them; that is, 3rd person singular human nouns) the structure is slightly different:

- (6) *ka* *a* (Object Stem
 Marker(s))

Massamba suggests that here *ka* is the subject marker. It is clear that the *ka* is Low in tone, unlike the High toned Subject Markers in the first con-

struction (see below as well). It may be that there is a permutation here of the "preprefix" and the Subject Marker, as Massamba has suggested. As noted earlier, all OM's are underlyingly High in tone.

As noted above, the data below notates a High tone before the exceptionless, phrase level High tone shift with an asterisk above the vowel. The sequence of "V"s represent the vowels of the "base", i.e., the stem minus the Final Vowel. Verbs divide into those which are lexically High and those which are lexically not High, i.e., toneless.

Class 1 subject:

No Object Marker 1 Object Marker 2 Object Marker

High tone Stem:

ka a ^{*}*v a*

ka a ^{*}*v v a*

ka a ^{*}*v v v a*

ka a ^{*}*v v v v a*

ka a ^{*}OM *v a*

ka a ^{*}OM *v v a*

ka a ^{*}OM *v v v a*

ka a ^{*}OM *v v v v a*

ka a ^{*}OM OM *v v a*

ka a ^{*}OM OM *v v v a*

ka a ^{*}OM OM *v v v v a*

Low tone Stem:

ka a ^{*}*v a*

ka a ^{*}*v v a*

ka a ^{*}*v v v a*

ka a ^{*}*v v v v a*

ka a ^{*}OM *v a*

ka a ^{*}OM *v v a*

ka a ^{*}OM *v v v a*

ka a ^{*}OM *v v v v a*

ka a ^{*}OM OM *v v a*

ka a ^{*}OM OM *v v v a*

ka a ^{*}OM OM *v v v v a*

Table 1

Other subjects: here, 1st person singular

High tone Stem:

e ni ^{*}*v a*

e ni ^{*}*v v a*

e ni ^{*}*v v v a*

e ni ^{*}*v v v v a*

e ni ^{*}OM *v a*

e ni ^{*}OM *v v a*

e ni ^{*}OM *v v v a*

e ni ^{*}OM *v v v v a*

e ni ^{*}OM OM *v v a*

e ni ^{*}OM OM *v v v a*

e ni ^{*}OM OM *v v v v a*

Low tone Stem:

e ni ^{*}*v a*

e ni ^{*}*v v a*

e ni ^{*}*v v v a*

e ni ^{*}*v v v v a*

e ni ^{*}OM *v a*

e ni ^{*}OM *v v a*

e ni ^{*}OM *v v v a*

e ni ^{*}OM *v v v v a*

e ni ^{*}OM OM *v v a*

e ni ^{*}OM OM *v v v a*

e ni ^{*}OM OM *v v v v a*

Table 2

The data in Table 1, involving Low toned subject markers, are reasonably straightforward in the light of the three rules presented in Section 2. The data in the first half, involving High toned stems, is easily derived, assuming that the Two Pre-Stem High rule is ordered, of course, before Meeussen's Rule (as it must be, since otherwise it would never get a chance to apply).

The data in the second half, which involves non-high stems, is a bit more complex. There appear to be three processes involved here that are new, and specific to the Present Continuous and the Subjunctive. The first is one that places a High tone at the end of any Low-toned stem. The second involves the copying back of the High tone from the Final Vowel to the preceding vowel when the stem is Low toned and has exactly three vowels. When the stem has three or more vowels, and has not undergone the preceding rule, a High on the Final Vowel is copied back from the Final Vowel to the first vowel of the stem. For some reason (and we shall have more to say on this matter, to be sure) the second and third processes do not apply to the forms listed in boxes in Table 1, which is to say, in the forms with two Object Markers. The three processes mentioned in this paragraph will be formulated as, respectively, rules 2, 5, and 3 below.

The data in Table 2 is straightforwardly accounted for with the general rules of the language and the three processes mentioned in the preceding paragraph. It should be noted, however, that the forms with two object markers are not exempted from rules 3 and 5 as they were in the boxed forms mentioned above. Also, as we see here, a High tone from a Subject Marker "counts" in triggering the two Pre-Stem High rule.

(7) Ordered set of rules for Present Continuous:

1. Two Pre-Stem High rule: Put a High tone (*) on the Final Vowel if there are 2 Highs preceding the stem.

2. Put a High tone (*) on the Final Vowel of a non-High stem.

3. $\begin{array}{c} [\text{V} \quad \text{V} \quad \text{V}] \\ \text{stem} \quad \quad \quad \uparrow \\ \quad \quad \quad \quad \quad \text{H} \end{array}$ Applies only to Low tone (i.e., lexically toneless) verbs

4. Meeussen's Rule: $\begin{array}{c} \text{V} \quad \text{C} \quad \text{V} \\ | \quad | \quad | \\ \text{H} \quad \text{H} \end{array}$ becomes $\begin{array}{c} \text{V} \quad \text{C} \quad \text{V} \\ | \quad | \quad | \\ \text{H} \end{array}$

NB: Does not apply to a High tone on the Final Vowel.

5. FV Copyback: $\begin{array}{c} [\text{V} \quad \text{V} \quad \text{X} \quad \text{V}] \\ \text{stem} \quad \quad \quad \uparrow \\ \quad \quad \quad \quad \quad \text{H} \end{array}$

(That is, add an association line, making the FV High tone also linked to the first vowel of the stem.)

As noted above, Rules 2, 3, and 5 apply only in the Present Continuous and Subjunctive. Rules 1 and 4 are general.

As they stand, this set of rules has two drawbacks:

Drawback 1. It fails to work correctly—it makes the wrong predictions in the boxed set of forms in Table 1. As noted above, what is wrong is that rules 3 and 5, as written, will apply; but to get the correct forms, they must not apply. The generalization seems to be this:

(8) Exception Clause: Rules 3 and 5 do not apply when (i) the Subject Marker is Low toned and (ii) there are two object markers in the verb.

This Exception Clause seems rather unenlightening as it stands, to be sure. Drawback 2. Rules 3 and 5 seem to be more connected than our formulation suggests; 3 shifts a High tone off the FV to the left, and 5 reassociates it to the left; they apply in complementary environments. They exceptionally fail to apply in exactly the same set of cases. We could almost write Rule 3 as a copying rule, making it look even more like 5, since Meeussen's Rule, which follows, would delete the High tone on the Final Vowel; the only problem is that we must restrict Meeussen's Rule not to delete a High tone on the Final Vowel (because of forms like "e nĩ gu temá"). Yet our formulation separates them into two rules, rules which are not even adjacently ordered. In addition, as we have already noted, these two rules are grammatically specified as applying only in the Present Continuous and the Subjunctive (which is to say, the tenses in which Rule 2 also applies).

The reason for separating Rules 3 and 5 by Meeussen's Rule is straightforward enough. Rule 3 must be sensitive to whether the stem is High or Low underlyingly, since Massamba's data show that Rule 3 does not apply to the High toned stems. Thus Rule 3 must precede Meeussen's Rule, which neutralizes the contrast. On the other hand, it is clear that the FV Copyback rule must follow Meeussen's Rule, since it counterfeeds M's Rule: FV Copyback blatantly creates environments for Meeussen's Rule to apply in, such as e nĩ $\begin{array}{c} \text{V} \quad \text{V} \quad \text{V} \quad \text{V} \\ | \quad | \quad | \quad | \\ \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \end{array}$ where M's Rule fails to apply.

4. The subjunctive

In the subjunctive, there is no Tense Marker (and no morpheme before the Subject Marker, either). Since the Subject Marker is word-initial, it is always Low-toned. The tonal data are as in Table 3.

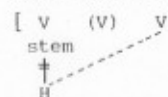
Subjunctive		
No object marker	1 OM	2 OM
High tone Stem:		
SM V [*] e	SM OM V [*] e	-----
SM V V [*] e	SM OM V V [*] e	SM OM OM V V [*] e
SM V V V [*] e	SM OM V V V [*] e	SM OM OM V V V [*] e
SM V V V V [*] e	SM OM V V V V [*] e	SM OM OM V V V V [*] e
Low tone Stem:		
SM V [*] e	SM OM V [*] e	-----
SM V V [*] e	SM OM V V [*] e	SM OM OM V V [*] e
SM V V V [*] e	SM OM V V V [*] e	SM OM OM V V V [*] e
SM V V V V [*] e	SM OM V V V V [*] e	SM OM OM V V V V [*] e

Table 3

The tonal analysis of the subjunctive is straightforward in light of the analysis of the Present Continuous presented in the preceding section. The five rules present there account for the data of the subjunctive with the following two provisos:

1. There is an additional rule that applies in the subjunctive: Subjunctive Shift, apparently ordered after (4) Meeussen's Rule (but *before* (5) Backshift, since it applies only to underlying (lexical) High tones):³

(9) Subjunctive Shift



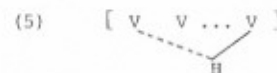
2. Rules 3 and 5 again fail to apply in a few cases, and in a way that our odd Exception Clause predicted: when the subject is low in tone (as it always is in the subjunctive), and there are two Object Markers, then Rules 3 and 5 do not apply.

5. An improvement, perhaps

The two principal ways we could improve the analysis so far would be with the incorporation of the Exception Clause, and with the unification of rules 3 and 5.

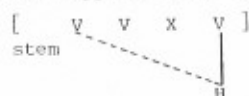
Let us consider a way to reorder our rules so that 4. Meeussen's rule applies *after* Rule 5. Such a move will require rethinking the placement of 9. Subjunctive Shift, to be sure. The problem with that ordering that was noted above was that it appears that there is a counterfeeding order; Copyback (Rule 5) creates sequences of adjacent Highs. But if the FV Copyback rule is formulated as a reassociation rule, as we have indicated, rather than as a true copying rule, it is not clear that Meeussen's rule should be able to undo its effects. We will adopt a principle in the spirit of Hayes' (1984) Inalterability Condition, and Steriade and Schein's (1984) Applicability Constraint: No deletion rule can apply unless all association lines of the element undergoing deletion satisfy the structural description of the rule. Then Meeussen's will not be able to undo the effects of the Copyback rule since the multiply-associated High does not fit the structural description of Meeussen's Rule, which requires for its application a singly-associated High tone.

Adopting this account, we are a large step closer to being able to integrate rules 3 and 5 now, since Meeussen's Rule does not stand between them in the ordering. We repeat them here:



It seems not unreasonable to suppose that the special trisyllabic forms, which we have treated up to now with their own special rule (rule (3)), actually undergo first a generalized version of (5), given now as (3'), the New Copyback rule, and only then undergo a special Trisyllabic Rule, to be given in (11).

(3') New Copyback rule (tentative formulation, to replace rules 3 and 5)



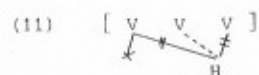
I have formulated the New Copyback rule in as simple way as possible, and assuming that variables such as the "X" can in principle be null, the rule must incorporate a V so as not to apply to bisyllabic stems. The New Copyback rule will apply equally to High toned and Low (no-toned) toned verbs.

Two questions remain about the effects of this rule, once we grant that Meeussen's Rule will not undo its effects, for the reasons cited above. The first concerns how we should account for the facts that used to be accounted for by means of rule 3, that is, the contrast in the trisyllabic stems between underlyingly Low and High tone stems (when the subject marker is High). When the stem is Low, we find only a High on the penult vowel; when the stem is High, we find a High on both the first and last vowels. The second question concerns how we should incorporate the Exception Clause effects of (8).

The first point concerns the contrast in (10) between the Low stems, as in (10a), and the High stems, as in (10b).

	a. Low stem	b. High stem
Underlying	e nī OM [v v a]	e nī OM [[↑] v v a]
Derived	e nī OM [v [↑] v a]	e nī OM [[↑] v v [↑] a]

We must posit a special Trisyllable rule. A direct statement of it is given in 11. It will apply only in the Present Continuous and the Subjunctive, but this need not be explicitly marked on it.



The derivations are sketched in (12).

	a.	e nī OM [v v a]	b. e nī OM [v v a]
New Copyback Rule		H H 3 H	H H H H



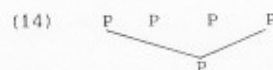
This accounts for all the forms in Tables 1 and 2, then.

The second point concerns the character of the Exception Clause (8). Positive conditions of the sort in (8) cannot be formally imposed on the non-application of a rule; this is an assumption that runs thorough generative phonological systems. We can respect the letter of this prohibition (though perhaps not the spirit), and still get the facts right, if we order a rule ("Escape Clause Rule") immediately after the New Copyback rule. This rule is given in (13), and it quite simply undoes the effects of the Copyback rule, under the conditions mentioned in (8).



We have arrived, then, at a possible analysis of the tone patterns of the CiRuri Present Continuous tense. No doubt some of the complexity of this analysis can be overcome in future analyses, perhaps with theoretical advances yet unforeseen. Comparative work on the Lacustrine languages (cf. Goldsmith (1985), for example) will also, no doubt, shed useful light on the origins of the system under examination in this paper.

This author finds especially problematic one formal characteristic of the Copyback rule which has not been explicitly remarked upon so far. Following the argumentation of Pulleyblank (1983), we have considerably weakened the Well-formedness Condition as proposed in Goldsmith (1976) (a move that has led to considerable simplifications in area of the grammar, to be sure). No principles rule out, therefore, representations of the general form (14), and we have used this kind of representation in the output of the Copyback rule. It was the double association of the FV's High, combined with a version of the Inalterability Condition, which allowed the sought-after reordering of Meeussen's Rule.



However, while it is beyond the scope of this short paper to detail the reasons, there is some reason to suspect that the "internal skipping" found in (14) is not, in general, found in autosegmental representations. If the analysis of this paper stands the test of time, that suspicion will have to be laid to rest; if the present analysis can be improved upon, it will be a step towards the elimination of structures such as (14).

Notes

1. This work would not have been possible without the works cited by David Massamba (1982, 1984) of the KiSwahili Institute (University of Dar es Salaam, Tanzania), or our extended joint work. This material is based on work supported by the National Science Foundation under Grant No. BNS-8421245.
2. Massamba's work was able to distinguish between surface Highs originating from a penult High and those arising from an antepenult High, however. In a closely related dialect, Jita, the phrase-level rule of rightward high tone shift applies even to High tones in penultimate position in a word so long as the word is followed by another word in the phrase. Putting the same point another way, the restriction on High tone shift in Jita is that the High tone will not shift from a *phrase*-penultimate vowel, rather than word-penultimate vowel as in CiRuri.
Massamba could then attempt to "imitate" a Jita pronunciation, using this in effect as a productive language game, and he could decide whether a High on a penult in CiRuri would be shifted or not in "Jita" when followed by another word. His judgment was that the asterisk-marked penults in Tables 1, 2 and 3 would shift.
3. In light of the suggestion in the next section that Meeussen's Rule is ordered after the Copyback rule, it is necessary rather to specify (9) Subjunctive shift in such a manner that it will only apply to single associated High tones, for the stem-initial tones created by Copyback have the distinctive feature of being multiply-attached.

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