

PHONOLOGICAL ALLOMORPHY IN SWAHILI:
ON THE FORM OF INANIMATE PRONOMINAL CLITICS*

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Swahili has two forms of inanimate pronominal clitics, one, like the relative pronouns, typically ends with /o/ and the other, like the subject agreement affixes, are never /o/ final. According to the traditionalists, a semantic feature associated with /o/ differentiates two sets of clitics semantically as well as phonetically. The present account argues that the two sets do not form separate morphemes. They are instead allomorphs of the same morpheme derived by a phonological rule, 0 Epenthesis, which suffixes /o/ onto any constituent final pronominal clitic. This virtually exceptionless account provides synchronic evidence for a dual constituent analysis of the verbal complex. The discussion of such well known forms adopts basic assumptions from lexical and autosegmental phonology.

1. Introduction

Descriptions of word formation processes typically rely on a characterization of the morpheme as the smallest meaningful unit in a given language. Although it is well known that such a semantically based description too narrowly delimits the elements of word construction in language, the definition persists in many descriptive works. This paper redresses a misconception found frequently in traditional texts and in much current research in

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Swahili: the relationship between two sets of pronominal clitics, exemplified by *ki* and *cho*. Here I will propose that forms like *ki* and *cho*, long assumed to be semantically distinct, are in fact allomorphs, related by a set of purely phonological rules.

As we shall see, there are few exceptions to this analysis of the strictly delimited pronominal clitics in Swahili (but see section five). If successful, the analysis here is indebted to recent innovations in two theoretical frameworks. This accomplishment is possible once we adopt certain basic assumptions from lexical and autosegmental phonology. Certain aspects of this proposal will suggest further analytical consequences for Swahili based inquiries. And, like this study, additional research in Swahili will further validate or indicate modifications for the frameworks.

1.1. Swahili pronominal clitics. Typical of Bantu languages, Swahili exemplifies a rich network of agreement morphemes whereby a pronominal clitic (PCL) noun class agrees with some NP position in the sentence. Two PCL's occur in the *amba* relative clause constructions in (1). The subject prefix (SP) is affixed onto the verb, and the relative PCL, agreeing with the relativized subject is suffixed onto *amba*, a complementizer-like word.

- | | | | | |
|--------|--------|----------|-----------------------|---------------------------|
| (1) a. | mtu | amba-ye | a-ta-faa ¹ | 'the person who will do' |
| | person | REL | SP-FUT-suffice | |
| b. | watu | amba-o | wa-ta-faa | 'people who will do' |
| | people | REL | SP-FUT-suffice | |
| c. | kisu | amba-cho | ki-ta-faa | 'the knife which will do' |
| | knife | REL | SP-FUT-suffice | |
| d. | visu | amba-vyo | vi-ta-faa | 'knives which will do' |
| | knives | REL | SP-FUT-suffice | |
| e. | miti | ambayo | itafaa | 'trees which will do' |

Consider the form of the relative pronouns in (1). Except for the singular human class relative pronoun in (1a), all of the relative pronouns are *o*-final. On the other hand, all of the SP's are *o*-less. We might

¹There are no definite articles per se in Swahili. The glosses here are suggestive rather than exact.

ask why Swahili has the two sets of PCL's listed below in (2) at all.

	PCL	
	o-less	o-form
a.	u	o
b.	i	yo
c.	zi	zo
d.	ki	cho
e.	vi	vyo
f.	li	lo
g.	ya	yo
h.	pa	po
i.	ku	ko
j.	mu	mo

The traditional position assumes that /o/ augments the meaning of the o-less PCL. However, this characterization masks a predictable distributional pattern and imposes an unwarranted semantic burden on /o/. By making the opposite assumption, that /o/ has no semantic content, a very straightforward generalization emerges. When a PCL ends a word, an /o/ occurs, but elsewhere the PCL is o-less. So, in (1) the amba-final relative pronouns are o-form PCL's, whereas the word initial SP's in (1) are o-less PCL's. Viewed in this way, the position, not the meaning, of the PCL accounts for its form. In a positional analysis, then, ki and cho are variants of the same morpheme, and /o/ contributes absolutely no semantic information.

Yet the relative pronoun is not the only o-form PCL in Swahili. Indeed, the motivation for the positional account is overwhelming. Section two presents the positional analysis and closes with a brief survey of the environments where o-less and o-form PCL's are found. The traditional account, the one generally adopted by contemporary Swahili scholars, is the subject of section three. Section four includes analyses of three apparent counterexamples. The conclusion in section five presents specific questions raised by this analysis for Lexical Phonology.

Before moving on to those sections, a caveat is in order. Throughout this discussion, the term *PCL* will designate the class of non-nominal inflectional affixes associated with the inanimate classes, or, stated differently, the inanimate subset of Welmer's [1973] secondary concords. These are the affixes listed in (2). While limiting the scope of the analysis to a smaller set of pronominal clitics, this stipulation nonetheless brings a wide range of data under scrutiny. Moreover, the distinction is a natural one reflecting a well-documented contrast arising quite often in both morphology and in phonology. With this in mind, we can proceed to a discussion of the phonological rules which account for the form of the *PCL*'s.

1.2. Assumptions. Recent work from Kiparsky [1983], Mohanan and Mohanan [1984] and Halle and Mohanan [1985] develops the framework of lexical phonology which organizes the lexicon into ordered levels where each morphological process is confined to a specific stratum or level. Phonological rules interact with the strata of the morphology in that phonological rules are assigned to specific levels as their domain. The output of the morphological and phonological operations at a given level may provide the input for subsequent levels.

Certainly extensive inquiry is needed to provide a more precise characterization of the morphological and phonological operations at each stratum and the number of strata in Swahili. The present discussion ignores these broad issues and assumes that *PCL* Affixation takes place independently of other morphological operations despite the fact that certain immediate problems result for Lexical Phonology. Those problems are raised in section 5. We turn now to the proposal.

2. The Positional Analysis

2.1. A phonological proposal. I propose that the form of the underived *PCL* is identical to that of the *SP*, repeated here in (3). I adopt the double square brackets [[]] to indicate the beginning and end of word level constituents [Halle and Mohanan 1985]. I assume such brackets enclose word-level morphemes and that quadruple brackets surround a word.

iii. Glide Deletion

$$y \rightarrow \emptyset / \begin{matrix} C \\ [+cor] \end{matrix} \underline{\quad}$$

iv. Lowering

$$i \rightarrow e / \begin{matrix} V \\ [+lo] \\ [+bk] \end{matrix} \underline{\quad}$$

v. Vowel Deletion

$$V \rightarrow \emptyset / \underline{\quad} V$$

I have chosen to insert rather than to delete /o/ because insertion allows the (4) and (5) to remain unordered. If /o/ were underlying and deleted initially, a rule of O Deletion must be ordered before the Merging Rules in (5). Without this ordering stipulation, the system of rules would produce unacceptable forms like *cholitosha. On the other hand, O Epenthesis requires no ordering stipulation.

Although the rules in (5) merely sketch the kind of phonological operations to which the PCL's are subject, they require a few comments. First, the two sets of double brackets in O Epenthesis will indicate constituent final position. Recall that a PCL will be enclosed in its own set of double brackets, and in addition, its host constituent will contribute another set. O Epenthesis applies when those two sets of brackets follow the PCL. This perhaps unorthodox use of the bracketing actually translates the SPE word boundary into the Lexical Phonology framework. Secondly, (5i) through (5iii) express the fact that PCL's like [ki] and [ku] behave differently depending upon whether they are adjacent to /o/ or /a/, as explained in footnote 2. Finally, O Epenthesis will generally feed the Merging Rule in (5i) since it introduces a [-hi] vowel. We will see directly that almost any such vowel will trigger Glide Formation.

Let us now consider the derivation for the two cases from section one. First [[[[ki]] [[i]] [[tosha]]]]³ 'it was enough' has the following der-

³This bracketing will be revised in section 4.3. That revision will not alter the derivations in (7) and (8).

ivation:

- (6) [[[[ki]] [[itasha]]]] (the rest of the form need not concern us here)

where no rule applies because *ki* is constituent initial and the adjacent segment is not a [-hi] vowel.

On the other hand, the A tense morpheme, described in Ashton [1966] as the present indefinite tense, is a [-hi] vowel and will trigger the Merging Rules.

- (7) a. *ki a tosha*
 ky a tosha (5i)
 ch y a tosha (5ii)
 ch a tosha (5iii)
- b. *i a tosha*
 y a tosha (5i)

In the *amba* cases where the PCL's occur word finally, we begin with the form produced by the Affixation rules. O Epenthesis applies followed by the relevant Merging Rule.

- (8) a. i. [[[[amba]] [[ki]]]]
 ii. *amba k^hi o* (4)
 iii. *amba ky o* (5i)
 iv. *amba ch y o* (5ii)
 v. *amba ch y o* (5iii)
- b. i. [[[[amba]] [[i]]]]
 ii. *amba li o* (4)
 iii. *amba l o* (5v)
- c. i. [[[[amba]] [[i]]]]
 ii. *amba i o* (4)
 iii. *amba y o* (5i)

It is appropriate to conclude this section with a description of the cases subject to the analysis presented here. Perhaps the most obvious, if

not famous, characteristic of Swahili is its rich inflectional morphology which allows almost any lexical category to accept a PCL as an affix. For the sake of brevity, then, I will omit irrelevant, albeit interesting, details about each form cited below and restrict my remarks to pertinent phonological information about each form. And so, this brief survey will generally exclude unrelated traits associated with each form like range of meanings, subcategorization, categorial affiliation, and the like. For a fuller description, I refer the interested reader to the Swahili language texts cited in the references.

2.2. Inventory of Swahili PCL's

2.2.1. Word initial PCL's. Word initial PCL's include the following:

The Far Demonstrative: [[[[PCL]] [[le]]]]

- (9) a. kitabu vile 'that book'
 b. mahali pale 'that place'

The Interrogative -pi : [[[[PCL]] [[pi]]]]

- (10) a. kitabu kipi? 'which book'
 b. jicho lipi? 'which eye'
 c. nyumba zipi? 'which houses'

None of the phonological rules apply in (9-10) because the PCL is constituent initial and doesn't precede a [-hi] vowel.

The Possessive: [[[[PCL]] [[possessive stem]]]]

- | | | | | |
|------|----------|------|--------|---------------------|
| (11) | singular | | plural | |
| | { | angu | { | etu 1st |
| PCL | | ako | | enu 2nd |
| | | ake | | ao 3rd |

Our proposal predicts that the Merging Rules will apply since all of the stem initial vowels are [-hi], and they do, producing

- (12) a. kitabu changu 'my book'
 b. vitabu vyangu 'my books'

- | | | | |
|----|--------|-------|------------------|
| c. | nyumba | zake | 'his/her houses' |
| d. | kitabu | chetu | 'our book' |
| e. | vitabu | vyenu | 'your books' |
| f. | nyumba | zao | 'their houses' |

-enyewe 'self'; -enye 'having': [[[[PCL]] [[X]]]]

Of course, these forms represent distinct words. I have included both forms in one section because their stem initial vowels are [-hi]. As in the previous cases, they will trigger the Merging Rules when a PCL is prefixed.

- | | | | |
|---------|---------|-----------------|----------------------|
| (13) a. | kitabu | chenyewe | 'the book itself' |
| b. | dirisha | lenyewe | 'the window itself' |
| c. | nyumba | yenyewe | 'the house itself' |
| d. | nyumba | yenye madirisha | 'house with windows' |

-ingine 'another, other': [[[[PCL]] [[ingine]]]]

Sometimes a nominal concord (a non-PCL, as defined here) is prefixed onto this stem. Just as acceptable, however, are the PCL prefixes illustrated in the examples below.

- | | | | |
|---------|--------|---------|-----------------------|
| (14) a. | kitabu | kingine | 'another book' |
| b. | nyumba | zingine | 'other houses' |
| c. | yai | lingine | 'another egg' |
| d. | mahali | pengine | 'another place' (5iv) |

2.2.2. Word Final PCL's. In this subsection, I will present eight cases of PCL final constituents. As predicted, all occurrences of word final PCL's emerge with /o/ as their nuclei.

[[[[kwa]] [[PCL]]]]

The preposition *kwa* may be followed by a lexical NP. When no NP follows, a PCL is suffixed onto *kwa*.

- | | | | |
|---------|------------|---------------|-----------------------------|
| (15) a. | kata nyama | kwa kisu | 'cut the meat with a knife' |
| b. | kata nyama | <u>kwacho</u> | 'cut the meat with-it' |

c. *kata nyama kwaki

- (16) ataweza kusalimika na ile aibu waliyomtia
 he will be able to escape from the stigma which they put him
 chapa { *kwai }
 brand { kwayo } ?
 with-it
 'will he be able to escape the stigma with which they have branded him?'

In (16) the object of the preposition, *kwa*, is relativized, and two o-form PCL's occur in the sentence: one, the relative pronoun internal to the verbal complex, and the other attached to *kwa*.

[[[[na]] [[PCL]]]]

The preposition *na* has a variety of uses and translations. In all of them, *na* may be followed by a lexical NP. But if no lexical NP follows, an /o/ final PCL is suffixed onto *na*.

- (17) a. karatasi zile, angalia ufike nazo
 papers those take care that you arrive with-them
 'see that you arrive with those papers'

*karatasi zile, angalia ufike nazi.

- b. kalamu hii, nimeweza kuandika nayo
 pencil this I am able to write with-it
 'I am able to write with this pencil'

*kalamu hii, nimeweza kuandika nai

kuwa and Locative Noun Phrases: [[[[X]] [[PCL]]]]

The copula *kuwa* occurs with adjectival and NP complements. When *kuwa* has a locative NP complement, an /o/ final PCL may cooccur with the locative. Furthermore, there are sentences where there is no lexical locative NP, and an o-form PCL is suffixed onto *kuwa*.

- (18) a. nitakuwa hapa kesho
 'I will be here tomorrow'

- b. nitakuwapo hapa kesho
'I will be here tomorrow'
- c. nitakuwapo kesho
'I will be here tomorrow'
- d. *nitakuwapa kesho

The Present Tense Copula: [[[[PCL]] [[PCL]]]]

When the complement is a locative NP, the "verb" is a combined form, SP + o-form PCL.

- (19) a. kisu kiko mezani
'the knife is on the table'
- b. *kisu kiku mezani
- c. kalamu zimo sandukuni
'the pencils are inside the box'
- d. *kalamu zimu sandukuni

The Emphatic Copula: [[[[ndi]] [[PCL]]]]

The emphatic copula, ndi-, agrees with its subject. However, in this case, the SP is a suffixed o-form PCL.

- (20) a. hicho ndicho kitabu nilichokitafuta
'this is the very book that I looked for'
- b. *hicho ndiki kitabu nilichokitafuta
- c. dawa hii ndio nzuri sana
'this medicine is indeed very good'
- d. *dawa hii ndii nzuri sana.

-ingine- : [[[[X]] [[PCL]]]]

The word *-ingine-* agrees in two places with the noun it modifies. It is translated as 'some NP of the same kind'. In (21c) its prefix is from the nominal concordial affixes. Its suffix, however, is always an /o/ final PCL.

- (21) a. nione kitabu kinginecho
'show me a book of the same sort'
- b. *nione kitabu kingineki
- c. nione nyumba nyinginezo
'show me houses of the same sort'
- d. *nione nyumba nyinginezi

And from Ashton [1966],

- (22) ah walimu wa Nairobi wa macho kwa jambo hili na jinginelo
teachers of Nairobi have eyes for matter this and others of the
same kind
'ah, the teachers of Nairobi are awake as regards this matter and
any other like it'

The General Relative: [[[[X]] [[PCL]]]]

In the general relative construction, there is no overt tense marker, and such relatives are most commonly interpreted as habitual. The relative pronoun is suffixed directly onto the verb stem, and it is an o-form PCL.

- (23) a. kazi i-tu-faa-yo
work SP-us-suffice-REL
'work which suits us'
- b. *kazi itufaai
- c. vitabu ni-vi-soma-vyo
books SP-them-read-REL
'books which I read'
- d. *vitabu nivisomavi

The -li- Relatives: [[[[X]] [[PCL]]]]

The present tense copula for relatives is -li-, prefixed with the SP and suffixed with the relative pronoun. The relative pronoun is an o-form PCL.

- (24) a. kitabu kilicho kidogo
'books which are small'

- b. *kitabu kiliki kidogo
- c. nyumba nilizo nazo
houses which I am with-them
'houses which I have'
- d. *nyumba nilizi nazo

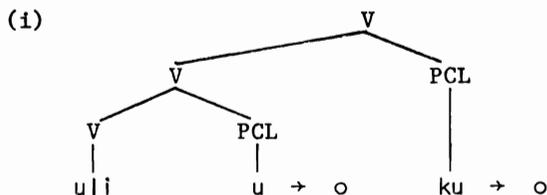
Actually the sentences in (24) are further examples of the general relative construction. In this case the verb stem is *-li-*.

In (18) we saw that the verb 'to be' may have a locative complement and that an *o*-form PCL may be suffixed to the stem *kuwa*. Identical facts are obtained with the present relative copula *-li-*. In this case *-li-* will end with two *o*-form PCL's, the relative pronoun and the locative clitic.⁴

- (25) a. unga u-li-o-ko sokoni
flour SP-be-REL-LOC at the store
'flour which is at the store'
- b. *unga uliku sokoni
- c. nataka kujua mahali u-li-po-po
I want to know the place SP-be-REL-LOC
'I want to know (the place) where you are'
- d. *nataka kujua mahali ulipapa

We may compare the sentence in (25a) with that in (24c). In the latter sentence, the second *o*-form PCL occurs because the object of *na* has been relativized. *Na* always occurs with a clitic or with a lexical NP. In (25a)

⁴Frankly, forms like those in (25) pose a problem for this analysis since *o* Epenthesis applies twice. If the internal *o*-form PCL is constituent final, then the structure for (25a) would be something like (i):



the locative clitic is optional, just as they are in non-relatives, when a lexical NP follows the verbal unit.

To summarize, we have seen that PCL initial constituents are o-less, whereas in word final position an /o/ is epenthesized. Whether or not the system of rules in (4) and (5) apply will depend upon the position of the PCL and the height of the adjacent vowel, if there is one.

3. The Traditional Account

The formal similarity between o-form PCL's and their o-less counterparts has not escaped traditional grammarians. Yet they generally assume that o-form PCL's are semantically complex units in which the meaning associated with /o/ augments the meaning of the o-less PCL's. Loogman [1965: 105] uses the term "kihusiano" and Ashton [1966] uses "O of Reference" to label the PCL+o union.

- (26) "The term 'kihusiano', recently introduced, refers to an element that introduces a reference to another element of the sentence. The Swahili grammar of E.O. Ashton rightly puts all the weight on the special vowel which is used for that purpose and calls it the 'o of reference'." [Loogman 1965]

Most traditionalists share Loogman's characterization of the semantic parameter introduced by /o/. Haddon's [1955:9] is a succinct and fair summary of the position taken in every printed discussion of these forms I have seen

- (27) "Referential Partical: This formative uses the O of Reference completed with a pronominal concord to construct a particle, usually a suffix, which refers to something already mentioned or is understood." [italics, C.B-K.]

Essentially, (26) and (27) reduce to this: o-final PCL's are distinguished from o-less PCL's on the basis of semantic complexity. The former are composed of two morphemes while the latter are simple morphemes. According to (27), a PCL like *yo* in (2g) has all of the semantic features of its counterpart *ya*. However, *yo* has an additional feature, [+Already Mentioned], (hereafter, [AM]), a feature introduced by /o/ and unique to *yo* and all other o-final PCL's.

3.1. A syntactic consequence. Unfortunately, (27) does not accurately describe the simplest Swahili data, for a strict interpretation of Loogman's statement leads us to expect o-final PCL's as SP's. In Swahili, the subject NP normally precedes the verbal unit, which hosts the agreeing SP.

- (28) a. kisu ki-ta-faa 'the knife will do'
 knife SP-TSN-suffice
 *kisu chotafaa
- b. visu vi-ta-faa 'the knives will do'
 knives SP-TNS-suffice
 *visu vyotafaa
- c. mti u-ta-faa 'the tree will do'
 tree SP-TNS-suffice
 *mti otafaa
- d. miti i-ta-faa 'the trees will do'
 trees SP-TNS-suffice
 *miti yotafaa

Even though the subject NP is positionally already mentioned, the SP's in (28) are o-less PCL's. And this should not be the case if [AM] adequately differentiated the two sets of PCL's.

3.2. A semantic consequence. It is not impossible to imagine what it means for a PCL to refer to something already mentioned or understood. But what is difficult to imagine is what it means for a PCL not to refer to something already mentioned. If [AM] has any descriptive content at all, we would expect that PCL's which lack the feature to be non-referential or to refer to something not already mentioned or understood. But o-less PCL's refer just as o-form PCL's do. Out of context the referent in (29) is almost as unclear in Swahili as it is in the English gloss.

- (29) kilianguka⁵ 'it fell'

⁵The Swahili speaker is, however, a little more certain about the kind of referent *kí* might have, because *kí* contains more information than the English indefinite pronoun. The Swahili speaker would be safe in assuming

To be sure, the SP *ki* agrees with some absent NP. But more crucially, given an array of NP's earlier on in the spoken discourse (or even gestured at) only one of which is a KI class noun, *ki* will refer to that NP. In this sense, o-less PCL's like the SP in (29) refer to things that are already mentioned or understood in discourse. Since statements like (29) are perfectly well formed in discourse given the conditions mentioned above, the o-less SP's are referential in exactly the same way as o-form PCL's.

A point that should be stressed is that often the distribution of pronouns, or, as we have here, PCL's, may not be statable in sentence grammar or even in discourse grammar. But the distribution of o-form PCL's is limited to PCL final words, a generalization easily captured in the sentence grammar by a phonological rule.

3.3. The positional account. Traditionally the morpheme has been described as an arbitrary union of sound and meaning in the sense that its meaning cannot usually be predicted from its sound and vice versa. Such a description allots to meaning an essential role in assigning morphemic status to some phonetic string. However, it is commonly known that this definition excludes strings without the requisite constant meaning but which nevertheless regularly enter into word formation processes. Aronoff, for example, notes that words can be constructed from forms with underspecified meanings, like the latinate *mit* when combined with a set of latinate prefixes, e.g. *remit*, *commit*, *permit*, and the like. Yet, Aronoff [1976] isolates *mit* as a morpheme in its own right because it is linked to a phonological operation which produces the allomorph *mis* in the immediate environment of specific suffixes, *+ion*, *+ive*, *+ory*, and *+or*. While some morphemes may have a constant meaning, Aronoff concludes, those phonetic strings which do not show a specific meaning may nonetheless be isolated as morphemes because they are linked to a phonological operation before a set of designated morphemes. In such cases, the role of meaning must be "moved up", so to speak, to the word

that the *ki* does not refer to something outside of the inanimate KI class, like an egg.

level. Aronoff [1976] goes on to broaden the definition of the morpheme to include not only an arbitrary union of sound and meaning as before, but also, where the meaning is underspecified as with *mit*, the linkage of the morpheme to a phonological operation.

The lexical phonology framework straightforwardly accommodates these conclusions. Simply stated, the /t/ → /s/ rule applies to the constant phonetic string /mit/ at the level where *+ion*, *+ive*, *+ory*, and *+or* are attached (presumably all are on the same stratum). In fact, adopting the lexical phonology framework subordinates questions about the meaning of a phonetic string to theoretical considerations of the organization of the lexicon itself where derivational and inflectional processes occur in a series of levels each associated with a set of phonological rules for which the level defines the domain of application. Within this framework, questions about the morphemic status of forms like *mit* demur to the kind of inquiry that lays the crucial theoretical and empirical foundation for establishing the strata in the lexicon of a particular language. Aronoff's constant input form, with or without a constant meaning, and a phonological operation adjust quite naturally within such a framework.

These considerations can shed some light on the status of /o/. I have attempted to show in the previous sections that the traditional meaning [+AM] is clearly inadequate. Moreover, it is unlikely that a uniform meaning can be established for the segment. However, if we adopt the lexical phonology framework, a slightly different question arises: is /o/ introduced phonologically or via morphological affixation? Having assumed earlier that the affixations and the phonological operations affecting PCL's all occur at the same level, suppose, in addition, that /o/ is suffixed by affixation rather than phonologically as proposed here. If so, then the operation deriving o-form PCL's would be comparable to the English rule which attaches the affixes mentioned above onto *mit*. According to Aronoff such outputs would be assigned some meaning after the affixation since *mit* has no inherent meaning. However, the Swahili case differs from the English case not only because the PCL's, the input, have unimpeachable morphemic status but also be-

cause the output is semantically identical to the input. In other words, whatever inherent meaning each PCL may have remains unaltered once /o/ is attached. Thus, although /o/ and *mit* may be similarly underdetermined semantically, the latter receives a specific meaning once affixation applies while the Swahili /o/ remains un(der)determined.

There is another consideration which reveals a further dissimilarity between the two forms. In the English case an arbitrary set of affixes combines with *mit* to derive the outputs, but we cannot predict which morphemes can undergo affixation, e.g. we get *permit* but not **premit*, *admit* but not **inmit*, and so forth. However, in the Swahili case the affixation rule suffixes only one form onto PCL's. While nothing much can be made of this fact by itself, when it is taken in conjunction with the fact that the two PCL forms are in complementary distribution, a rule of /o/ affixation would reveal the crime without unmasking the culprit. Indeed, the data from section 2 leads unavoidably to the conclusion that a strong generalization about the distribution of PCL's stands to be missed if /o/ is simply suffixed by a rule of morphological affixation which ignores the phonological position of the PCL, for what is crucial here is more than simply the fact that /o/ is a PCL suffix. It is presence of o-form PCL's in *constituent final position*, a purely phonological environment. Clearly, a phonological rule should incorporate this critical phonological information, as this analysis has done.

This conclusion immediately raises an important question. Why is it an /o/ that is introduced? Of course, this question raises broad issues spanning more topics than those involving just Swahili PCL's, and any attempt to address the question will require extensive investigation into the phonology of the language. But one interesting observation about the segmental composition of Swahili clitics touches this question. Swahili clitics provide at least superficial support for the phonological analysis advanced here because the nuclei of almost all constituent non-final affixes, not just the PCL's, are typically not the mid vowels /o/ and /e/. The overwhelming majority of Swahili non-final affixes exclude /e/ and /o/ from their nuclei. On the other hand, constituent final clitics display high, mid and

low vowels in their nuclei. However, if Tense has constituent status, as I will suggest in Section 4.3, then even the tense markers containing mid-vowel nuclei (-me , -to , -japo , and -nge) may themselves be constituent final morphemes. As such, their nuclei pattern along with the other Swahili clitics.

While this proposal represents a significant advance in the analysis of Swahili pronominal clitics, it also suggests a rich program of research. Once /o/ is accepted as a phonologically introduced segment, further research can proceed onto the substantially deeper issues concerning the organization of the Swahili lexicon.

4. Counterexamples

If, as I conjecture, its phonological position conditions the form of the PCL, this proposal makes strong predictions about the phonetic shape of word final, initial, and medial PCL's. We have seen that O Epenthesis inserts /o/ when a PCL ends a constituent. Accordingly, there should be no word initial or medial o-form PCL's. Conversely, only o-form PCL's should surface in word final position. Unfortunately, there are perfectly acceptable forms corresponding to each case that this proposal predicts should be unacceptable. The legitimacy of such cases appear to subvert this proposal. We shall see that the positional account correctly predicts that the Swahili verbal unit is structured. Before that discussion, I will present what seem to be the two prima facie counterexamples which will succumb to the positional account once it is enhanced with some basic assumptions from autosegmental phonology. I turn now to those cases.

4.1. The Near Demonstratives: [[[[h]] [[PCL]]]]. No doubt the tenacious appeal of [+AM] derives from its handy description of the near demonstratives, two forms where /o/ final and o-less PCL's occur side-by-side, as it were. Both near demonstratives agree with the noun they modify, and both end with a PCL. The forms in (31a) are the near speaker demonstrative and those in (31b) are the near listener demonstratives (hereafter SD and LD).

- (31) a. kitabu hiki 'this book (near me)'
 miti hii 'these trees (near me)'
 yai hili 'this egg (near me)'
- b. kitabu hicho 'this book (near you)'
 miti hiyo 'these trees (near you)'
 yai hilo 'this egg (near you)'

As for [+AM], Loogman [1965:354-355] associates the LD with the feature showing the best near-minimal pair I have seen:

- (32) "The combination of demonstratives with the o of reference always refers to a previously mentioned situation, person or thing. It is therefore not correctly used to refer to something that has yet to be introduced into the discussion.

alipokwisha kusema maneno hayo
 when he had finished saying words these
 (the words have already been mentioned)

alipokwisha akasema maneno haya
 when he had finished he said words these
 (words to be quoted)"

For the traditionalists, then, the case of the near demonstratives support [+AM] because both PCL's are word final, but only one is o-final. The problem introduced by these forms for our analysis is clear: O Epenthesis is blocked in the SD but not in the LD.

Actually, we will want O Epenthesis to play no crucial role in the derivation of these demonstratives for a very good reason. Throughout this discussion, we have claimed that the /o/ introduced by O Epenthesis is integrated into the segmental composition of the PCL and carries no morphemic weight. Accordingly, our phonological rules account for the form of the PCL depending upon its phonological position and the height of the adjacent vowel, if there is one. However, if O Epenthesis, a purely phonological rule, were allowed to apply in derivation of the LD, the proposal would become internally inconsistent, for, as we have seen, there is a uniform meaning difference between the two near demonstratives. This meaning dissimilarity attests that the /o/ retained in the LD is a morpheme in the classic sense.

When it is concatenated with a PCL and the near demonstrative stem, a meaning emerges which is distinct from that produced with a plain PCL. Quite simply, the meaning of the near demonstratives depends crucially on whether or not the LD /o/ , not the epenthetic /o/ in (4), is present.

The analysis for these forms requires some basic assumptions from the version of autosegmental phonology described in McCarthy [1981, 1982] and Marantz [1982]. The essential notion is that information about lexical forms may be laid out as multidimensional representations. Each dimension, or autosegmental tier, represents an extraction of some aspect of the lexical form. One such tier which I will adopt in the analysis of the demonstratives is the CV tier or, following McCarthy, the prosodic template. We may think of the prosodic template as the tier which outlines the canonical shape of, in this case, the near demonstratives. The essence of the outline are the C's and V's, anchors which will support or bear the feature composition of consonantal and vocalic segments from the phonemic tier, the segmental level which contains the detailed feature composition of the prosodic template. General principles will normally determine how the features from the phonemic tier are associated or linked to the prosodic template. Taken from Marantz [1982:446-447], the conditions listed in (33) will provide for analyses of two of the apparent counterexamples.

- (33) Condition A: Unless overridden by a special proviso, feature complexes containing the feature [-syllabic] can be linked only to C slots in the skeleton, and feature complexes containing the feature [+syllabic] can be linked only to V slots in the skeleton.

Condition B: After as many phonemes as possible are linked to C-V slots *one-to-one* in accordance with other conditions and principles, extra phonemes and C-V slots are discarded. There is no multiple attachment of phonemes to C-V slots or of C-V slots to phonemes....

Condition C: The slots in a C-V skeleton may be preattached to distinctive features. These features take precedence over the features of any phonemes from a phonemic melody which may link to these slots.

Condition D: (i) Linking of the phonemic melody to the reduplicating skeleton either begins with the leftmost phoneme of the melody linking to the leftmost C-V slot in the skeleton eligible under Condition A and proceeds from left to right or begins with the rightmost phoneme of the melody linking to the rightmost C-V slot of the skeleton and

proceeds from right to left. In the unmarked case, reduplicating prefixes associate with their melodies from left to right, reduplicating suffixes from right to left....

To illustrate, consider the representation of the interrogative *-pi* with a PCL prefix.

(34)	<i>kipi</i>	'which one'	
	μ	μ	morpheme
	⏟	⏟	
	k i	p i	phonemic tier
	⏟	⏟	
	C V	C V	prosodic template
	⏟	⏟	
	σ	σ	syllabic tier

A representation like (34) expresses the fact that *kipi* is a bisyllabic form composed of two morphemes where μ = morpheme and σ = syllable.

Such mappings must conform to Universal Well-formedness Conditions which prohibit (1) many-to-one mappings and (2) the crossing of association lines. Consider, then, the representation for *nacho*. After the application of the relevant phonological rules in (4) and (5) have applied to the string $[[na][ki]]$, the string *nacho* may be mapped onto the prosodic template.

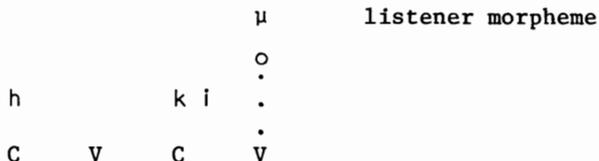
(35)	<i>nacho</i>	'with it'	
	μ	μ	morpheme tier
	⏟	⏟	
	n a	ch o	phonemic tier
	⏟	⏟	
	C V	C V	prosodic template
	⏟	⏟	
	σ	σ	syllabic tier

Like *kipi*, *nacho* is a bisyllabic form consisting of two morphemes. However, the relevant Merging Rules apply triggered by the presence of the epenthetic /o/.

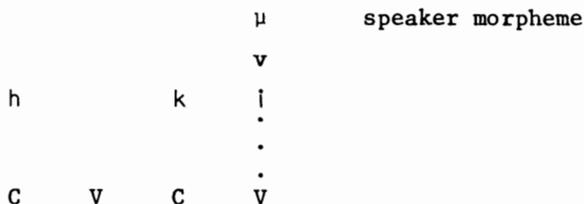
Like (34) and (35), both near demonstratives have identical prosodic templates, namely CVCV. However, for their analysis we must invoke Conditions C and D in (33). The former condition permits the speaker or listener morpheme, the final vocalic segment in the prosodic templates, to be preassoci-

ated. The word formation rule supplies the demonstrative morpheme *h-* and PCL.

(36) Near Listener Prosodic Template



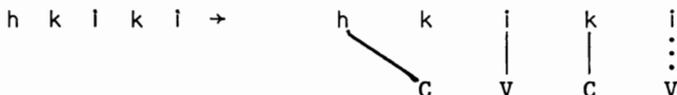
(37) Near Speaker Prosodic Template



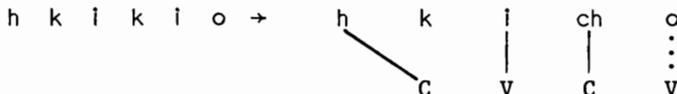
(where v = the nucleus of any PCL)

Along with B, Condition D allows the entire phonemic melody of the PCL to be copied yielding the mappable representations shown below.

(38) a. near speaker



b. near listener



In (38) the unassociated segment /k/ deletes by Condition B, leaving both forms with a word final CV, but only the near speaker demonstrative with a word final PCL. Importantly, the 0 Epenthesis rule may not introduce its /o/ because the preassociated final V overrides it. In this way, 0 Epenthesis plays no role in the derivation of the near demonstratives.⁶

⁶This solution to a difficult form may raise more problems than it

used. Thus, (32) does not present a problem. Both demonstratives reflect a spatial relationship whether they refer to physical or abstract entities.⁷

To summarize, the exceptionality of the near demonstratives lies in their partially preassociated prosodic templates. Everything else follows from universal principles and from the language particular rules proposed here. The near demonstratives are not counterexamples to our claim that the distribution of the o-form PCL's is phonologically determined because O Epenthesis plays no role in their derivation.

4.2. FCA Quantifier: [[[[PCL]] [[PCL]] [[ote]]]. The positional account predicts that all word initial PCL's will be o-less. However, the "free choice any" quantifier (hereafter, FCA) is such a case. It is composed of two o-form PCL's from the same noun class preceding the stem -ote. Since nothing may intervene between the two PCL's, I assume FCA's are one word units.

- (39) a. nipe kitabu chochote
 SP-give book FCA
 'give me any book at all'
- b. sikuvuna tunda lolote
 SP-not-harvest fruit FCA
 'I did not harvest any fruit whatsoever'
- c. daktari yule ataponya magonjwa yoyote
 doctor that SP-TNS-cure disease FCA
 'that doctor will cure any disease whatsoever'

What is peculiar about these forms is that O Epenthesis appears to have inserted /o/ onto the *initial* PCL, where it should not have. Strictly following our analysis, we would get forms which turn out to be unacceptable,

⁷While agreeing that the demonstratives differ semantically, Wilt [1987] and Leonard [1985, 1987] present competing discourse conditions that determine the distribution of the SD and Far Demonstratives, seen in (9). For Leonard, the former includes the meaning High Concentration of Attention (COA) and the latter Low COA. On the other hand, Wilt proposes that an extended notion of proximity characterizes the demonstratives.

like *k|chote . Fortunately, this data does not pose as serious a problem for our analysis of the PCL's as it might appear to at first glance once we recognize that the initial syllable is reduplicated. To see how FCA conforms to this analysis, let us briefly consider another quantifier, -ote , called here UQ. A PCL is prefixed onto the UQ stem.

- (40) a. kiaz| chote 'the whole potato'
 b. viazi vyote 'all potatoes'
 c. pori lote 'the whole bush'
 d. miti yote 'all trees'

The prosodic template for UQ is CVCV. Drawing association lines for chote in (40a) poses no problem, since the Merging Rules will convert the PCL [ki] into /ch/ when it is adjacent to /o/ .

- (41) [[[[ki]] [[ote]]]]
 ki ote → ch o t e
 | | | |
 C V C V

It follows, then, that all PCL's will be o-final when prefixed onto UQ because the stem initial vowel is [-hi].

Turning now to the FCA, unfortunately several possibilities emerge for its analysis when the conditions in (33) are adopted. None of the various analyses will be examined in any detail here since FCA's status as a *non-counterexample* remains unaltered regardless of which analysis turns out to be the most pleasing. For now, let us assume FCA is formed by reduplicating the phonemic tier of the UQ prosodic template which is mapped onto CV prefix where the stem consonant is preassociated.

- (42) FCA Prosodic Template

ch	o	t	e		ch	o	t	e
					⋮			
C	V			+	C	V	C	V

The left to right association principles maps /ch/ and /o/ onto the initial CV affix slots while /t/ and /e/ delete by principle. Importantly, the initial UQ segments are derived by the Merging Rules which, as we have

seen above, ignore the brackets separating a PCL from a stem initial vowel. The first V slot in the FCA is actually -ote's stem initial vowel, not the epenthetic /o/, which can play no role in the derivation of either UQ or FCA. That an /o/ surfaces in both forms is purely accidental. If the stem were, say, -ate, we would predict chate as a UQ and chachate as the corresponding FCA.

We conclude that FCA is a spurious counterexample since O Epenthesis does not apply, as it should not. FCA is simply a mapping of a reduplicated UQ template onto an initial CV affix. The relevant conditions in (33) take care of the rest.

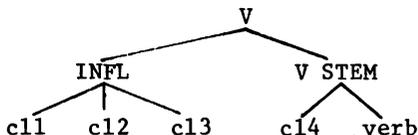
4.3. The Relative and Object PCL's: Medial PCL's. Our analysis predicts that medial PCL's should be o-less since O Epenthesis applies to constituent final PCL's. However, it turns out that two PCL's may occur medially, the relative and the object clitic (hereafter OP). In the relatives below, both clitics are present.

- (43) a. kitabu ni-li-cho-ki-andika
 book SP-TNS-REL-OP-write
 'the book which I wrote'
- b. watu wa-li-o-li-lima shamba hili
 people SP-TNS-REL-OP-cultivate farm this
 'people who cultivated this farm'
- c. ndizi ni-li-zo-zi-nunua
 bananas SP-TNS-REL-OP-buy
 'bananas which I bought'

The examples above are from the tensed relative construction where the relative pronoun may be cliticized onto one of four tense affixes: -li- past; -taka- future; -na- present; or -si- past, present, or future negative. Since the OP is not word final, it is o-less as predicted. Of course, the OP occurs in non-relatives as well, and in those sentences it remains o-less. But it is the form of the relative clitic that superficially damages this proposal because it surfaces as a medial o-form PCL.

Actually, our proposal makes a strong prediction about the structure of the Swahili verb. If 0 Epenthesis applies to the relative PCL, as it has in the *amba* and general relative constructions, then that clitic is constituent final in the *tensed relative* construction as well. On the other hand, the *o*-less OP is constituent initial. At the word level, then, the Swahili verb is analyzed as two constituents, as shown in the diagram below:

(44)

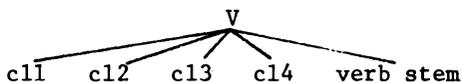


C11 is the subject affix, c12 the tense morpheme, c13 the relative PCL.

These clitics are dominated by INFL. However, the OP, c14, is dominated by another word level constituent, called here Verb Stem. Below, I will present the argument that validates the OP's position as a Verb Stem dependent. For now, assuming such an analysis allows 0 Epenthesis to apply to c13 producing the relative clitic. The object clitic, c14, will not undergo the rule since it is constituent initial.

Contrast this analysis with a flat structure, one where the relative and object PCL's are indeed "infixes".

(45)



Under such an analysis, the relative clitic would not be subject to 0 Epenthesis and unacceptable surface representations like **nilikikisoma* would result. The rest of this subsection presents the evidence that supports the structured analysis in (44).

The first supporting evidence comes from stress. Primary word stress in Swahili is penultimate. For example, a question using the word translated as 'how' is asked in two ways. Either *namna gani* occurs at the end of the question, or *je* is suffixed onto the verb.

- (46) a. alikwénda namna gani?
 he left how
 'how did he leave?'

- b. alitengéza baiskeli namna gani?
 he repaired bicycle how
 'how did he repair the bicycle?'

(47) a. alikwendáje?
 'how did he leave?'

- b. alitengezáje baiskeli?
 'how did he repair the bicycle?'

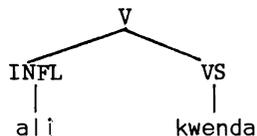
In (46) primary stress falls on the penultimate syllable of the verb stem. However, in (47) primary stress falls on the syllable preceding *je*. So much for primary stress.

While traditional grammarians widely report secondary stress on some tense morphemes, as in (48d), my informants readily accept secondary stress on the syllable preceding the tense morpheme, as indicated below.

- (48) a. mtu àlikwénda sokoni
 person went to the store
 'the person went to the store'
- b. mtu àtakwénda sokoni
 'the person will go to the store'
- c. mtu ànakwénda sokoni
 'the person is going to the store'
- d. kama ni-ngàli-júa kusoma ni-ngàli-nunúa kitabu
 if SP-COND-know to read SP-COND-buy book
 'if I had known how to read, I would have bought a book'

How are these facts to be accounted for in each analysis? In the structured analysis in (44), the primary stress rule applies to two constituents, Verb Stem and the material dominated by INFL. Thus the verb in (46a) would be analyzed as follows:

(49)



The primary stress rule applies to both portions of the verb. In order to account for the fact that INFL surfaces with secondary, not primary, stress, there is a rule which cliticizes INFL onto the verb, and a stress reduction process follows.

Somewhat different would be the analysis of secondary stress if the verb had the flat structure in (45). Secondary stress might be assigned by syllable counting from right to left. However, there is no uniform number of syllables to count. In (48a) through (48c), the fourth syllable receives the secondary stress. But it falls on the fifth syllable in (48d), as it does in (50a) and (50b), on the sixth in (50c) and the seventh in (50d).

- (50) a. wa-|ì-po-simáma
 SP-TNS-REL-stand
 'where they stood'
- b. kitabu a-takà-sho-ki-sóma
 book SP-TNS-REL-OP-read
 'the book which he will read'
- c. kitabu a-|ì-cho-ki-andíka
 book SP-TNS-REL-OP-write
 'the book which he wrote'
- d. watu wa-takà-o-ni-andíkífa barua
 people SP-TNS-REL-OP-write to/for letter
 'people who will write a letter to/for me'

A superficially plausible procedure for assigning secondary stress, syllable counting clearly doesn't account for the facts in any insightful way. On the other hand, with a dual constituent analysis, the primary stress rule will uniformly assign stress to the appropriate syllables.

The second piece of evidence favoring a structured analysis of the verbal unit comes from monosyllabic verbs. When monosyllabic verbs occur with some tense morphemes, like the ones we have seen in this paper, the infinitive marker *ku* is retained as a stress prop.

- (51) a. ní-|ì-kú-|a 'I ate'
 SP-TNS-INF-eat

- b. a-me-kú-fa 'he has died'
SP-TNS-INF-die
- c. a-ta-kú-ja 'he will come'
SP-TNS-INF-come

However, when an object clitic occurs, that clitic replaces ku .

- (52) a. a-li-kí-la 'he ate it'
SP-TNS-OP-eat
- b. *alikukila
- c. *alidikula

I will state the facts in (51) and (52) as a constraint.

- (53) *Monosyllabic Verb Constraint*: A monosyllabic verb retains ku unless it is preceded by a sister-PCL when V contains T (where T is a partial list of the relevant tense affixes).

The constraint includes the sister-PCL proviso so as to be compatible with either a flat or structured verbal analysis. If the verb is unstructured, presumably all morphemes will be sisters. Essentially the constraint requires a PCL to intervene between the monosyllabic verb stem and the relevant set of tenses. The OP meets this requirement.

A plausible replacement for the constraint might be that Swahili verb stems must be at least bisyllabic. While this version of the constraint is compatible with the structured analysis in (44), the flat structure in (45) is already polysyllabic. Moreover, a constraint on the number of syllables doesn't explain why the OP counts as a syllable extender but the relative PCL doesn't.

- (54) a. watu wa-li-o-kú-la chakula
people SP-TNS-REL-INF-eat food
'people who ate food'
- b. watu wa-li-o-kí-la chakula
people SP-TNS-REL-OP-eat food
'people who ate the food'
- c. *watu waliola chakula

- d. watu wa-li-o-sóma vitabu
 people SP-TNS-REL-read books
 'people who read books'

Example (54d) is included here to show that a polysyllabic verb need not co-occur with an OP when the subject is relativized.

It might be suggested that (53) may be replaced by a more general constraint, namely that o-form PCL's may not be stressed. However, we have seen above that two o-form clitics may be suffixed onto the monosyllabic copula -li-. And as expected, stress will fall on the penultimate syllable containing an o-form PCL.

- (55) a. unga u-li-ó-ko sokoni
 flour SP-be-REL-LOC at the store
 'the flour which is at the store'
- b. watu wa-li-ó-mo nyumbani
 people SP-be-REL-LOC inside the house
 'people who are in the house'

So, o-form PCL's are stressable, and the OP is the only PCL which can replace ku .

While we might restate the constraint in this way, such a revision provides no insight into why it is the OP, not the relative, which can replace ku . However, if the verb has the structure in (44), a clear explanation emerges. Since stress is penultimate, monosyllabic verbs dominated by the word level constituent, Verb Stem, must have at least two syllables. Either ku or an OP extends those verbs allowing the stress rule to apply.⁸

These arguments from stress and from monosyllabic verbs demonstrate that the verb has the structure in (44).⁹ O Epenthesis will apply to the rela-

⁸In addition, the rule which cliticizes INFL onto the Verb Stem (or vice versa) and the Stress Reduction rule apply.

⁹Both Wald [1973, 1976] and Givón [1971a, 1971b] reach this conclusion. Givón surveys the evidence suggesting that verb-deriving suffixes have historically arisen from main verbs. Relevant to this section, he proposes that the relative tense markers derived originally from verbs to which the relative pronoun was suffixed. The evidence from O Epenthesis provides syn-

tive clitic, an INFL final PCL, but not to the OP, a Verb Stem initial PCL.

As promised, I can now show that the OP is a Verb Stem dependent. As we have argued above, the primary stress rule applying to the word level INFL accounts for the secondary stress on that constituent. If the OP were an INFL dependent, secondary stress would fall on the relative PCL when there is no OP.

(56) a. [wa-lì-o] [lì-líma]
 SP-TNS-REL OP-cultivate
 'those who cultivated it'

b. [walìo] [líma]
 'those who cultivated'

c. *[waliòli] [líma]

(57) a. [wa-takà-o] [zi-nunúa]
 SP-TNS-REL OP buy
 'those who will buy it'

b. [watakào] [nunúa]
 'those who will buy'

c. *[watakaòzi] [nunúa]

However, the presence or absence of an OP does not alter secondary stress. As a Verb Stem dependent, the OP will not displace stress onto the relative PCL as in (56c) and (57c).

This subsection has provided support for a prediction made by the phonological analysis of o-form PCL's, namely, that the Swahili verb contains two word level constituents. The arguments from stress and monosyllabic verbs provide strong support for a structured verb. We can see now that relative pronouns in all three relative constructions in Swahili are o-form PCL's because O Epenthesis has applied to these word final clitics triggering the Merging Rules.

chronic support for a two-word analysis of the verbal complex.

5. Conclusion

This lengthy discussion has been unswerving in its goal. I have proposed that the form of the inanimate inflectional clitic is positionally determined, modified by the purely phonological rules of O-Epenthesis and/or Merging. We have seen that a wide range of data succumbs to the treatment here and that the *prima facie* counterexamples provide further support for the analysis.

But some data doesn't submit as easily to this positional account. It is fitting to conclude by providing some perspective on what has been achieved here, what has not, and what issues this analysis raises. Before looking at the problematic data, a general assumption should be repeated here. Adopting the ordered strata of Lexical Phonology has permitted the account of the PCL allomorphic variation to be stated as purely phonological rules, unencumbered by + or # boundaries, or by diacritics. This simplicity, a welcome accomplishment, is due to the broad morphological assumption that PCL Attachment takes place on one level. However, a survey of all non-nominal PCL's reveal two cases which indicate that a one-level account of PCL Attachment doesn't easily complement the phonological analysis presented here.

First, we have proposed that the Merging Rules apply whether or not the adjacent [-hi] vowel is introduced by O Epenthesis or is word-stem initial. Yet, Merging never applies when a PCL like the OP precedes a [-hi] vowel initial verb stem, as in *aliklona* 'he saw it'. According to the standard explanation, a word boundary # surrounds the lexical category, verb stem, and effectively blocks the relevant phonological rules. But this sort of explanation is unavailable in Lexical Phonology.

Secondly, for the most part we have systematically excluded animate inflectional clitics from this analysis for a very good reason. While word initial animate PCL's like the subject prefix normally merge with an adjacent [-hi] vowel, O Epenthesis simply doesn't apply when an animate PCL occurs word finally. O Epenthesis is, thus, restricted to inanimate PCL's. These facts are summarized in the table opposite.

(58) NON-NOMINAL INFLECTIONAL PCL ATTACHMENT

	<u>PCL + X</u>	<u>PCL # X</u>	<u>X + PCL</u>	<u>X # PCL</u>
INANIMATE				
example:	<u>chatosha</u> 'it is enough'	<u>alikuona</u> 'he saw it'	<u>nacho</u> 'with it'	<u>akionacho</u> 'he who sees it'
P. Rules:	Merging	No Rule	O Epenthesis Merging	O Epenthesis Merging
ANIMATE				
example:	<u>nasoma</u> 'I read'	<u>aliniona</u> 'he saw me'	<u>nami</u> 'with me'	<u>aonaye</u> 'he who sees'
P. Rules:	Merging	No Rule	No Rule	No Rule

That the phonological rules are blocked in the areas marked 'No Rule' constitutes a problem for the morphology, for it would seem that the morphology is the appropriate place to handle distinctions between animate and inanimate clitics and major lexical categories (like verb stem) and minor lexical categories (like Tense, FCA and the like). If so, then the burden of explanation for the inconsistencies in (58) falls naturally on the morphological companion to this phonological piece, for the table in (58) raises a fundamental question for Lexical Phonology: on what universal or parametric basis are the morphological strata established? The resolution of this question will settle both theoretical and Swahili specific issues such as whether PCL Attachment is achieved in ordered or simultaneous sub-levels divided on the basis of position or animacy or both, whether or not those sub-levels are blind to each other, whether or not the divisions are maintained in subsequent levels, and finally, what kind of morphological framework best complements these appealingly simple phonological operations. These puzzles form the basis of work in progress.

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