

# **The Zulu Verb Within the Constraints of the LCA**

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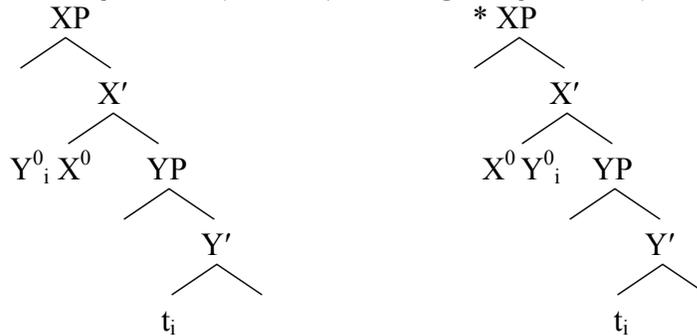
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There is a rich descriptive literature dealing with Bantu verbs, but relatively little work has been done in analyzing these from a standpoint in which morphology is the reflex of syntactic operations. Zulu, a Bantu language spoken primarily in South Africa, provides fertile ground for such research because of its rich tense, mood, and agreement morphology. This paper looks at a subset of the verb forms of Zulu assuming both a close correspondence between syntax and morphology and a constrained theory of head movement. When the assumption that words are constructed transparently in the syntax is combined with a constrained theory of movement, such as imposed by Kayne's (1994) Linear Correspondence Axiom (or LCA), the conclusion is quickly reached that Zulu "verb forms" are not complex heads, but structures which contain phrasal remnants. This conclusion brings to the fore issues concerning dependencies between different parts of these verb forms, some of which are non-local. This paper explores these dependencies to find what syntactic and morphological mechanisms are needed to account for them under these assumptions.

## **1 Bantu verbs as phrases**

Kayne's (1994) Linear Correspondence Axiom enforces a strict correspondence between the linear order and syntactic structure. One consequence of the LCA is that it precludes right-adjunction of any overt head to another, while allowing left-adjunction of such heads:

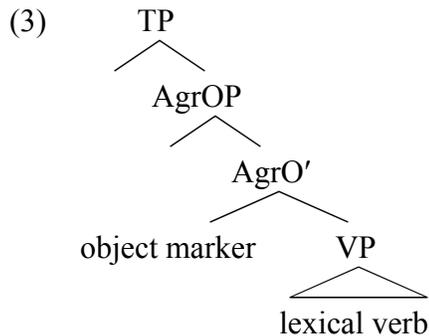
- (1) a. Left-adjunction (allowed)    b. Right-adjunction (disallowed)



Now, there are a series of prefixes in Zulu (and in most other Bantu languages) called “object markers” which immediately precede the verb stem:<sup>1</sup>

- (2) a. Without object marker  
 ngi-    cul-    ile  
 1S.SBJ- sing- PERF  
 “I sang”
- b. With object marker  
 ngi-    **zi-**    cul-    ile  
 1S.SBJ- 10.OBJ- sing- PERF  
 “I sang them (e.g. the songs)”

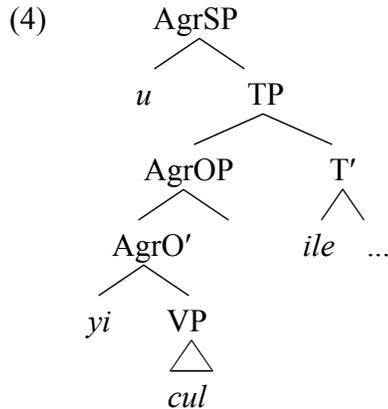
It is assumed that the object marker is merged somewhere above the lexical verb and any valence-changing morphology (applicative, passive, etc.), as in Ngonyani (1996):



These two assumptions prevent us from viewing the object created by prefixing an object marker to the verb stem as a complex head, because the LCA does not allow the verb stem to head-move and attach to the right of the object marker. Now consider the fact that this object marker sometimes precedes I domain morphology, such as tense, mood, and

<sup>1</sup>Some of the data in this paper is taken from Beuchat (1966), Doke (1973), Khumalo (1981, 1982), and Poulos and Msimang (1998).

negation, as exemplified by the recent past tense suffix *ile*. This forces us to move this object as a phrasal remnant to precede the suffix:



The LCA thus provides theoretical motivation for treating Zulu verb words as structures containing phrasal remnants rather than as complex heads. However, other types of evidence can also be found. It should first be noted, though, that orthography alone should not be taken as motivation for any particular analysis. That is, we should not assume that something is a head merely because it is written as a single word. The decision to write Zulu verb forms as single words was standardly adopted only after much debate. (See, for example, Stuart 1906.) And in fact, related languages using similar verbal morphology came to use different conventions for dividing the string into orthographic words, as shown by the following verb forms from Zulu and Northern Sotho (data adapted from Ziervogel and Lombard 1977):

- (5) a. ba a di rat- a N. Sotho  
       2.SBJ ya 8.OBJ like- FV  
       b. ba- ya- ku- thand- a Zulu  
       2.SBJ- ya- 15.OBJ- like- FV  
       “they (the children) like it (the food)”

These two forms represent morpheme-for-morpheme translations of each other, yet the Northern Sotho string is divided into four orthographic words, while the Zulu form constitutes a single orthographic word. In the absence of clear evidence that the two strings behave differently with respect to constituency, prosody, or movement, it should be presumed that they are structurally similar, not that the Zulu form is a head while its Sotho counterpart is not.

One type of evidence which can be brought to bear on the question is the existence of morphemes which can be treated consistently as suffixes only if the word in which they appear is not assumed to be a head. An example of such a morpheme in Zulu is the final negation morpheme *-i*. Except for future forms, *-i* uniformly appears as a suffix on the verb throughout the verbal paradigm:

(6) Present principal:	akacul-i	“she doesn’t sing”
Present participial:	uma engacul-i	“if she doesn’t sing”
Infinitive:	ukungacul-i	“to not sing”
Subjunctive:	ukuze angacul-i	“so that she not sing”

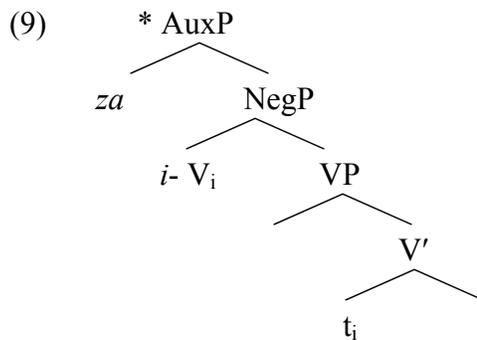
However, in the future tenses this morpheme shows up internal to the verb form, appearing as *-i* in the full forms:

(7) Immediate future affirmative		
Full	uzokucula	“she will sing”
Contracted	uzocula	
Immediate future negative		
Full	akaziyukucula	“she won’t sing”
Semi-contracted	akazukucula	
Contracted	akazucula	

While in the contracted forms (which are now the usual forms), certain deletions and coalescences occur, the presence of the suffix *-i* can still be detected in the distinction between the internal vowels *o* and *u* in the affirmative and negative forms, respectively. The morphophonological processes in these forms need not be taken as evidence of head movement, and one need not look farther than English to find examples of such processes applying even across clause boundaries, as in the case of the contraction of *will* to *'ll*:

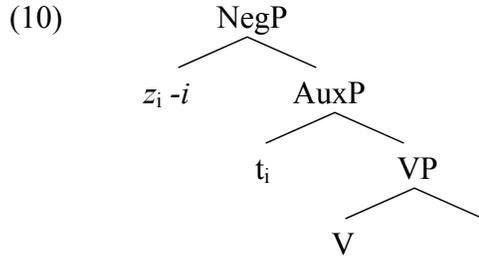
(8) Who do you think [<sub>CP</sub> 'll come?

If we assume that the Zulu future negative forms are complex heads, we cannot maintain that *-i* is a suffix, because the verb stem would have to raise to attach to the right of *-i*, making it a prefix on the verb stem (which constitutes right-adjunction, a process which we assume doesn’t exist anyway):



Conversely, by forgoing the assumption that Zulu future verb forms are heads, we can maintain that *-i* is always a suffix by moving the future auxiliary *za*<sup>2</sup> up to the left of *-i*, leaving the verb stem below:<sup>3</sup>

<sup>2</sup>The auxiliary verb *za* of the immediate future tense means “come” when employed as a main verb. The



Thus, in spite of the fact that Zulu future forms are written as single words and that they are subject to special morphophonological processes of deletion and coalescence, negative forms show that treating these forms as structures other than complex heads allows us to capture the generalization that *-i* is a suffix.

Having now seen some evidence in support of a phrasal analysis of Zulu verb forms, we can now consider some of the issues which present themselves under these assumptions.

## 2 The final suffix and biclausal feature concord

A characteristic of Bantu verb forms is the “final suffix”, which appears finally on the verb form. The final suffix can encode a variety of features and combinations of features, a sampling of which is given here:<sup>4</sup>

- (11) a. negation  
           akacul-*i*           “she doesn't sing”       neg. present principal indic.
- b. negation and past tense  
           akacul-*anga*       “she didn't sing”       neg. past principal indic.
- c. negation and potential modality  
           angedul-*e*       “she can't sing”       neg. principal potential
- d. mood  
           ukuze acul-*e*       “for her to sing”       subjunctive

In many cases, a feature encoded in the final suffix seems redundant, because the same feature is also encoded in material preceding the verb stem, as in the case of the negative of the present principal indicative:

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analogous *ya* of the remote future tense means “go” when employed as a main verb. This has been noted by other authors, including Beuchat.

<sup>3</sup>Similar argumentation has been used to show that Swahili synthetic relatives, which are also essentially “verb forms”, are not heads (Buell 2002). Those forms internally contain a type of pronominal clitic which elsewhere occurs only as a suffix.

<sup>4</sup>An assumption is being made that certain “features” are actually defaults, such as present tense and affirmative polarity.

(12) Present principal indicative	
Affirmative (short)	Negative
u- cul- a	a- ka- cul- i
1.SBJ- sing- FV	NEG- 1.SBJ- sing- NEG
“she sings”	“she doesn't sing”

The fact that the form is negated is encoded in both the preverbal and postverbal portions of the word. In this negative form, the initial *a* is identified as a negation morpheme because it occurs only in negative forms, and in the case of some non-verbal predicates, such as predicate nominals, it is, in fact, the only portion of the string which encodes negation:

(13) Predicate nominals	
Affirmative	Negative
ngi- ngu- mfana	a- ngi- ngu- mfana
1S.SBJ- COP- 1.boy	NEG- 1S.SBJ- COP- 1.boy
“I’m a boy.”	“I’m not a boy.”

As for the final *i*, it is identified as a negation morpheme because it occurs only in a few negative verb forms:

(14)	akacul-i	negative present principal indicative
	engacul-i	negative present participial indicative
	angacul-i	negative subjunctive
	ukungacul-i	negative infinitive

All forms in which final *-i* appear also have a preverbal negator (either *a* or *nga*).

This pattern of bipartite negation is familiar, of course, from languages like French:

(15) French	
Elle ne chante pas.	
she NEG sings NEG	
“She doesn't sing.”	

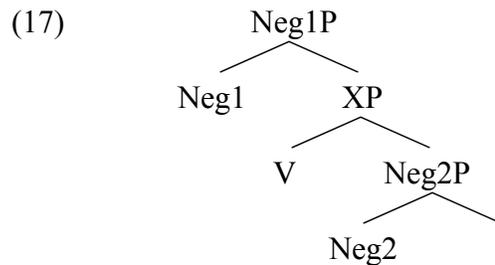
However, Zulu verb forms also doubly encode features which are not doubly encoded in an analogous way in familiar non-Bantu languages. Take, for example, subjunctive mood:

(16)	ukuze	a-	cul-	e
	in.order	1.SBJ-	sing-	SBJNCT
	“so that she sing”			

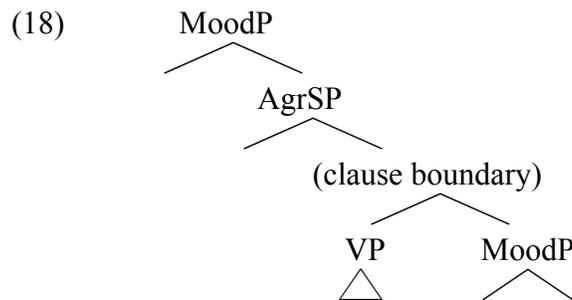
Mood is encoded in the preverbal subject marker, which for noun class 1 agreement takes the special form *a*, which the subjunctive shares only with the potential principal. Mood is simultaneously encoded in the final suffix *e*, which is not shared by any negative or

potential form. Unlike the bipartite negation pattern above, it is hard to find an analogous “bipartite subjunctive mood” in an unrelated language.

The negative and subjunctive forms are clear cases of dependency between preverbal and postverbal elements. The question arises as to how these dependencies hold in structural terms. It is standardly assumed that in cases of bipartite negation, the rightmost negator is c-commanded by the leftmost one:



But such an analysis seems unnatural for the Zulu subjunctive case, because it forces us to posit high and low mood projections within the same clause. Because there is no known evidence for two mood projections of the same type within a single clause in other languages, it is proposed that forms such as the subjunctive be treated as biclausal,<sup>5</sup> with a mood projection in each of the two clauses:



In this configuration, the mood of the lower clause must be in concord with that of the higher clause. We will call this mechanism “biclausal feature concord”.

Obviously, the complement clause in such an analysis differs in important respects from the main clause. For example, it lacks an AgrSP projection and its mood feature is expressed differently. While such an analysis may seem radical, it does resemble an approach needed independently for languages such as Twi which have serial verb constructions in which features such as tense and negation appear on the non-initial verbs, in concord with the features of the higher verb.<sup>6</sup>

<sup>5</sup>Cinque (1999) has several mood nodes in a single clause. However, the moods they host are different in nature. They cannot be used to license two separate instantiations of the same mood in a single clause.

<sup>6</sup>Harold Torrence, p.c.

(19) Twi

a. Future

Wo- be- ko edwaso \*( a- ) to bayere.  
you- FUT- go market a- buy yams  
“You’ll go to the market to buy yams.”

b. Habitual

Wo- ko edwaso (\* a- ) to bayere.  
you- go.PRES market a- buy yams.  
“You go to the market to buy yams.”

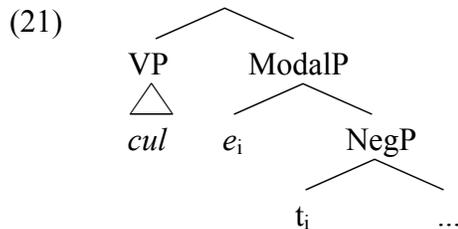
In this case, occurrence of the prefix *a-* on the lower, lexical verb BUY is dependent on the tense of the higher verb GO. A purely morphosyntactic solution is clearly not feasible because of the lexical material which intervenes between the two verbs.

It is also worth noting that by claiming that preverbal negation, modality, and tense morphemes are verbs, Khumalo essentially suggests the same analysis, and for purely morphophonological reasons. Khumalo makes this claim because the lowering of the tone of the subject marker before either the verb stem or such a morpheme can be accounted for in a uniform fashion if it is simply assumed that those morphemes are, in fact, verbs.

The features which need to be able to agree in this way in preverbal and postverbal material are subjunctive mood and negative polarity (as just seen), as well as participial submood (of the indicative mood) and potential modality. The potential forms are particularly interesting because in their negative forms, the final suffix is in concord with the preverbal material in both potential modality and negation, the final suffix *e* being peculiar to the potential (among negative forms):

- (20) a. a- nga- cul- a potential affirmative  
1.SBJ- POT- sing- FV  
“she can sing”
- b. a- nge- cul- e potential negative  
1.SBJ- POT=NEG- sing- POT.NEG  
“she can’t sing”

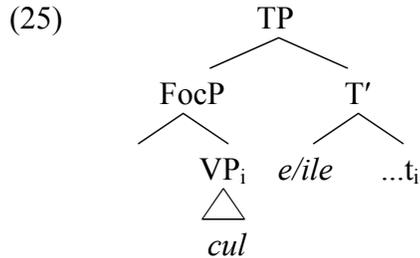
This can be captured by head movement of the final suffix between two projections encoding the distinct features:



In addition to the biclausal feature concord needed to account for dependencies between preverbal and postverbal material, more familiar relations are needed to account for other types of dependencies within a verb form. These are described in the sections that follow.



Because this alternation interacts with the distribution of the object marker, in ways we cannot detail here, we will assume that the relevant focus projection (FocP) is located in the region of AgrOP, somewhere below the inflectional domain. The final suffix can thus be informed of the focus properties of the predicate which raises to it by virtue of the remnant FocP itself raising, with the VP embedded inside it:



#### 4 Tautoclausal c-command

A c-command relation is needed within a single clause to regulate the distribution of the durative *sa* morpheme. Besides its meaning of “still” noted above, *sa* usually has the meaning of “no longer, any more” when in a negative form. *Sa* is specifically compatible with the negative prefix *nga*, as shown by the negative present participial form:

- (26) a. u- sa- cul- a                      present principal  
           1.SBJ- DUR- sing- FV  
           “she still sings”
- b. a- ka- sa- cul- i                    present principal negative  
           NEG- 1.SBJ- DUR- sing- NEG  
           “she doesn’t sing any more”
- c. e- nga- sa- cul- i                present participial negative  
           1.SBJ- NEG- DUR- sing- NEG  
           “she not singing any more”

What is interesting, then, is that *sa* cannot appear in an infinitive, including a negative one:

- (27) a. u- ku- (\* sa- ) cul- a  
           15- 15- DUR- sing- FV  
           “to (still) sing”
- b. u- ku- nga- (\* sa- ) cul- i  
           15- 15- NEG- DUR- sing- NEG  
           “to not sing (any more)”

This appears to be a non-local dependency (or rather, a non-local cooccurrence restriction) between the infinitival features (encoded in the prefix *ku*) and *sa*, since the negative present participial form shows that *sa* is compatible both with a preceding *nga* and with a following verb stem negated by *i*. This appears to be a truly morphosyntactic property of



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