

MIXED CATEGORIES IN WORD GRAMMAR: SWAHILI INFINITIVAL NOUNS

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ABSTRACT

In this article the theory of Word Grammar, including recent work on morphology, is utilised to give an account which covers both the morphological facts and the syntactic ones associated with infinitival nouns in Swahili, a Bantu language spoken widely in East Africa. The paper is organised as follows: in 1 a brief account of some of the data is given; 2 is an introduction to Word Grammar (WG); in 3 the analysis of the Swahili data is given; 4 is a conclusion and comparison with other recent theories.

1. SOME DATA

The infinitival noun construction in Swahili has a morphological aspect and a syntactic aspect. Both aspects present analytical problems for the linguist studying them.

Morphologically, the Swahili infinitival noun, like the verbal infinitive, occurs with an obligatory *ku-* prefix (traditionally numbered 15 in nominal contexts), an obligatory *-a* suffix, and optional prefixes associated with negation and object agreement:

- (1) a. *ku-pika*
 INF/15-cook
 'to cook, cooking'²

¹ E-mail: creider@julian.uwo.ca. Thanks to Arvi Hurskainen for facilitating access to the Helsinki Corpus of Standard Swahili and to Ellen Contini-Morava for introducing me to it. Nearly all of the Swahili data is taken from this corpus. Thanks also to Dick Hudson, the creator of Word Grammar, both for giving linguists such an elegant and parsimonious theory and for specific comments on this paper and to two anonymous reviewers who provided useful and thoughtful criticism (and who are hereby absolved of complicity in any remaining errors). Work on this paper was made possible with funding from the SSHRC, and I am grateful for this support.

² Numbers in glosses refer to noun classes. These classes are similar to the gender classes of many Indo-European (and other) languages in being associated with patterns of agreement. Bantu noun classes traditionally are numbered from 1 upwards and frequently occur in odd/even, singular/plural pairs. It is customary in addition to recognise a prefix series which is associated with the nouns and also other series which are associated with other lexical categories

- b. ku-to-ɔika
INF/15-NEG-cook
'not to cook, not cooking'
- c. ku-(to)-i-pika
INF/15-NEG-9-cook
'(not) to cook it (Cl.9), (not) cooking it'

If the infinitive is considered within the context of Swahili verbal morphology, these are all and only the inflections found for infinitives in the language.³ That the stem is verbal is shown by its occurrence with verbal derivational suffixes:

and which are said to display agreement with the noun class prefixes (Ashton 1947: 10-12). Eleven of the traditional 16-18 Bantu noun classes analysed for Swahili in Contini-Morava (1997: 600, 615-616), are given here in the order class-number, noun-prefix, verb-prefix. I have added class (15), in which infinitival nouns are traditionally placed:

1)	1	m-	a-/m-
	2	wa-	wa-
	3	m-	u-
	4	mi-	i-
	5	ø/ji-	li-
	6	ma-	ya-
	7	ki-	ki-
	8	vi-	vi-
	9	ø/n-	i-
	10	ø/n-	zi-
	11/14	u-	u-
	15	ku-	

There are also verbal prefixes which co-occur with first and second person self-standing pronouns, **mimi/sisi** 'I/me, we/us' and **wewe/n(y)inyi** 'you(sg.)/you(pl.)'. There is no agreed-upon numbering for these prefixes, but I will follow the practice of Whiteley (1960: 9-10) and label them as follows:

2)	1a	ni-	'I, me'
	1b	u-	'you (sg.)'
	1c	a-/m-	'she, he / her, him'
	2a	tu-	'we, us'
	2b	m-/wa-	'you (pl.)'
	2c	wa-	'they, them'

³ Readers who are not Bantuists should be careful in generalising from this situation. An anonymous reviewer points out that the Swahili situation, with inflection for object and negation, is not atypical across the Bantu languages when one adds: inflection for a limited set of suffixal aspects. However, there is something of a continuum of possibilities from inflection only for subject

- (2) a. ku-pik-w-a
'to be cooked'
b. ku-pik-i-a
'to cook for'
c. ku-pik-i-w-a
'to be cooked for'

Syntactically, the infinitive/infinitival noun occurs as a dependent in a variety of contexts, viz. as subject, as adjunct (a topicalised element), as object of a preposition, and as sharer.⁴ In the latter two relations it is traditionally considered to be a 'verbal infinitive' or a 'verb in the infinitive' (Ashton 1947: 123, 145; Polomé 1967: 133). In the first relation, it is considered to be a verbal noun (Ashton 1947: 123).

- (3) a. Ku-imba ku-me-kwisha.
15-sing 15-PERF-finish
'The singing is finished.'
b. Ku-fagia, a-fagia.
INF/15-sweep 1c-sweep
'As for sweeping, s/he sweeps.'
c. maneno y-a ku-pendeza
6-word 6-of INF-please
'pleasing words'
d. M-tu a-taka ku-soma.
1-person 1c-want INF-read
'The person wants to read.'

In all these contexts the infinitive/infinitival noun may itself have an object dependent. As a subject, the infinitival noun controls agreement on verbs, adjectives, determiners, other nouns and other word categories. Here are further examples from the Helsinki Corpus of Standard Swahili (Hurskainen 1997):

- (4) U-me-umb-wa ki-shupavu mno, na ku-to-kubali kw-ako ku-one-wa ku-ta-kuwa m-zigo m-zito sana katika dunia i-li-yo-jaa ma-onevu na dhuluma nyingi.

(Kuria) through inflection for a number of tense/aspect categories (Shona) (David Odden, p.c.).

⁴ A sharer is a complement of a verb which has either the subject or the object of the verb as its own subject (Hudson 1990: 235). For example, *raining* is the sharer of *is* and *it* is the subject of both *is* and *raining* in *It is raining*. In the Swahili example, the infinitival verb *ku-soma* is a sharer dependent of the main verb *a-taka*, and both have as a subject dependent the noun *mtu*.

1b-PERF-create-PASS 7-obstinate too, and 15-NEG-agree 15-your 15-persecute-PASS 15-FUT-be 3-burden 3-heavy very in world 9-PAST-9REL-fill 6-prejudice and injustice much

'You have been created too obstinate, and your not agreeing to be persecuted will be a great burden in a world that is full of prejudice and much injustice.'

- (5) **Ku-to- uza ki-tu halafu ku-fika nyumba-ni u-siku, ku-weza ku-wa-ridh-isha wa-zee ...**
 15-NEG-sell 7-thing then 15-arrive house-LOC 11/14-night, 15-able INF-2c-agree-C.AUS 2c-elders ...
 'Not selling anything then arriving home at night can cause the elders to agree...'

Notice that this last example shows that it is not only a verb's complements which are part of the verbal noun, but its adjuncts as well (*usiku* '(at) night' is a temporal adjunct).

- (6) **Ku-faulu kw-ao ku-li-kuwa ku-faulu kwa n-chi n-zima, na ku-shind-wa kw-ao ku-li-kuwa ku-shind-wa kwa wa-tu w-ote.**
 15-succeed 15-their 15-PAST-be 15-succeed for 9-country 9-whole, and 15-defeat-PASS 15-their 15-PAST-be 15-defeat-PASS for 2c-person 2c-all
 'Their success was success for the whole country, and their defeat was defeat for everyone.'

Although the traditional grammars make no mention of the infinitival noun occurring as a direct object, it may:⁵

- (7) **A-na-taka ku-soma kw-a ma-shairi**
 1c-PROG want 15-read 15-of 6-poetry
 'S/he wants the reading of the poetry.'
- (8) **A-taka ku-soma kw-ake kw-a ma-shairi**
 1c-want 15-read 15-his/her 15-of 6-poetry
 'S/he_i wants his/her_{i,j} reading of the poetry.'

Note that the object is available to participate in a passive construction:

- (9) **Ku-soma kw-ake kw-a ma-shairi ku-na-tak-iwa**
 15-read 15-his/her 15-of 6-poetry 15-PROG-want-PASS
 'His/her reading of the poetry is wanted.'

Compare (with sharer):

- (10) **A-taka ku-soma ma-shairi y-ake**
 1c-want INF-read 6-poetry 6-his/her
 'S/he wants to read her/his poetry'

⁵ I would like to thank Deo Tungaraza (Tanzania) and Nasiombe Mutonyi (Kenya) for confirming the grammaticality of these clumsy creations. Actual examples from written Swahili follow shortly.

Here are some examples from the Helsinki corpus:

- (11) Moyo-ni mw-ake a-li-fikiri kwamba wa-nafunzi wa-li-kuwa
wa-ki-shangilia ku-fuku-z-wa kw-ake.
heart-LOC 18-her/his 1c-PAST-think that 2c-student 2c-PAST-be 2c-SIMUL-
rejoice 15-flee-CAUS-PASS 15-her/his
'In his heart he thought that the students were rejoicing at his being
sacked.'
- (12) **Ha-wa-ku-jali ku-wa-ko kw-angu** pa-le.
NEG-2c-PAST-attend to 15-be-LOC 15-my 16-there
'They didn't pay attention to my being there.'
- (13) Ninahisi nini n-a-taka ku-sema, lakini akili ha-i-u-p-i u-limi
ma-neno **ya-na-yo-eleza ku-hisi kw-angu** au feelings z-angu.
1a-PROG-feel what 1a-Pres-want INF-say, but mind NEG-9-11/14-give-NEG
6-word 6-PROG-6REL-explain 15-feeling 15-my or 'feelings' 10-my
'I feel what I want to say, but (my) mind doesn't give (my) tongue words
which explain my feelings or my 'feelings'.'
- (14) Wewe ha-po ndi-ye **u-na-ye-sababi-sha ku-anguka kw-angu.**
you there-16 be-REL 1b-PROG-REL-be-CAUS 15-fall 15-my
'You there are the one who brought about my fall.'
- (15) A: **Ni-li-eleza ku-choka kw-angu** tu, si kwamba si-tak-i.
1a-PAST-explain 15-tire 15-my only, be:NEG that 1a+NEG-want-NEG
'I explained my tiredness only, not that I don't want (it).'

Here are some examples, not of subjects or objects but of sharers (see note 4) which are inflected for negation and an object:

- (16) Kisha a-li-amua ku-to-mw-andik-ia barua Tuli.
then 1c-PAST-decide INF-NEG-1c-write-APP letter Tuli.
'then s/he decided not to write Tuli a letter.'
- (17) Li-li-kuwa kosa l-angu ku-to-mw-ambia mw-anamke hu-yu a-
ach-e kabisa m-chezo w-a namna hi-i baada_ya ku-oa.
5-PAST-be mistake 5-my INF-NEG-1c-tell 1c-woman 1c-this 1c-leave-
SUBJUNC completely 3-game 3-of kind this-9 after INF-marry
'My mistake was not telling this woman to leave completely a game of
this type after marrying.'

In summary, data have been presented showing that morphologically the Swahili infinitival noun has an obligatory *ku-* prefix, an obligatory *-a* suffix and optionally may occur with prefixes associated with negation and object agreement. These are all verbal properties, and to them we may add that the stem of a verbal noun is always a verb. Syntactically, the infinitival noun occurs as a subject, as an adjunct and as an object. It is this blend of verbal and nominal properties that the analysis in section 3 must account for. We also noted that infinitives (as verbal constructions) occur

as sharers and as objects of prepositions. In section 3 we will consider in detail the question of whether infinitives functioning as sharers should be regarded as infinitival nouns (we will reject this possibility).

2. WORD GRAMMAR

Word Grammar (hereafter WG) belongs to the family of generative grammars which have been characteristic of modern linguistics since Chomsky (1957). However, it is much more compact than its competitors as it lacks transformations, lacks empty categories, is monostratal, and treats phrasal structure as derivative. Formally, it is an enriched variety of dependency grammar where the enrichment comes from allowing a word to have multiple parents (this is done to handle phenomena such as long-distance dependencies, extractions, etc.).

At the heart of WG are the mechanisms of default inheritance and multiple inheritance. A grammar is formally a collection of networks where the nodes are collecting points for the propositions which specify the grammar. Using default inheritance means that typical constructions may be specified initially and overridden at lower levels of specificity. The most complete formal presentation of WG is Hudson (1990), and the propositional language is described most fully there. However, as this work is nearly a decade old, there have been numerous changes in the theory. Many of these are contained in the entries to Hudson (1998). Both full and partial parsers have also been constructed for WG (Hudson 1989, Poch 1992).

A simple example of the operation of default inheritance is provided by the classification of birds. Birds typically fly, so the proposition *Birds fly* may be posited for all birds and inherited by each bird by virtue of the fact that it, e.g., a sparrow, is a bird. However, ostriches are birds (laying eggs, having beaks, having feathers, etc.) which do not fly. For these birds the default proposition must be *overridden* by a specific proposition: *Ostriches do not fly*. A simple linguistic example is provided by Swahili, where the default specification of imperative verbs (inherited by the verb class) calls for the stem to be suffixed with the vowel *-a*, but the verb *kuja* 'to come' idiosyncratically has the shape *njoo*. This situation is represented in WG as follows:

(18) The stem of JA is /ja/.

but

(19) The stem of [JA: imperative] is /njoo/.

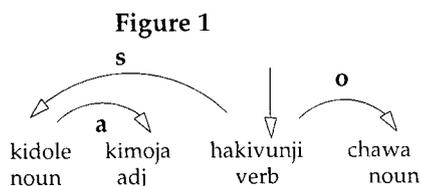
where the notation [JA: imperative] identifies the lexeme as JA and the inflectional class as imperative (Creider & Hudson 1999: 177).

A syntactic analysis of a sentence in WG consists of the specification of the word class of each word and of the dependency relations which exist between words. There is a hierarchy of dependency relations and a separate hierarchy of word (lexeme) classes. An English-like propositional language is used to formalise a grammar, including its syntax, as shown in the following examples.

- (20) a. A word must have a head.
 b. A finite verb need not have a head. (overrides a.)
 c. A verb has a subject.
 d. A verb may have an object.
 e. VUNJ isa verb.
 f. The subject of a verb isa noun.
 g. The object of a verb isa noun.
 h. A noun may have an adjunct.
 i. The adjunct of noun isa adjective.

These propositions are used in the analysis of the sample sentence (21), illustrated graphically in Figure 1.

- (21) Ki-dole ki-moja ha-ki-vunj-i ch-awa.
 7-finger 7-one NEG-7-break-NEG 7-louse
 'One finger doesn't crush a louse'



Lexemes participate in morphology through the relation *stem*: lexemes provide stems, which are orthographic or phonological strings, and these are then used by the morphological relation *whole*. Inflections are word type subclasses which provide attachment points for semantic and syntactic propositions which are inflection-specific – e.g., in English, only finite, tensed verbs may display subject agreement (and this is subject to overriding in more specific inflectional classes). Inflections are also the domains for the morphological relation *whole* through which the shapes of inflected words are specified. The relation between morphemes and syntax is thus indirect in that syntactic behaviour is specified in terms of word-classes (most typically, inflectional classes), not morphemes. For a lan-

guage which is not highly inflected, such as English, the whole of a word is simply its *stem*, but this approach is not appropriate for more highly inflected languages like Swahili and Nandi where the default forms of most word classes are inflected. An overview of WG morphology, with illustrations of how it is applied to a variety of languages is given in Creider & Hudson (1999), and an in-depth analysis of the inflectional classes of Swahili is given in Creider (1998). Here are some example propositions for the morphological analysis:

- (22) The whole of a verb is its prefix-1 < its prefix-2 < its prefix-3 < its prefix-4 < its prefix-5 < its prefix-6 < its stem < its suffix.

This proposition specifies relative occurrence but does not specify which parts are obligatory and which parts are optional. This is done with the following propositions which specify basic, default, properties of verbs.

- (23) a. A word has a stem. (Since a verb is a word, it has a stem, too.)
 b. A verb has a suffix.
 c. A verb has a prefix-2.
 d. A verb has a prefix-4.
 e. A verb may have a prefix-6.
 f. The suffix of a verb is /a/.
 g. The agreement number of a verb's prefix-2 is the same as the agreement number of its subject.

In the sample sentence *ki-dole* is the subject of *ha-ki-vunj-i* and has the agreement number: 7. Therefore, the agreement number of prefix-2 is 7.

The default propositions specify a single suffix /a/, subject prefix (prefix-2), a tense/aspect prefix (prefix-4), and, optionally, an object prefix (prefix-6). In addition to the default propositions, which apply to all verbs, there are propositions which apply to more specific verb subclasses. Some of these override the default propositions.

- (24) a. A negative-verb may have a negative prefix.
 b. The negative prefix of a negative-verb is /ha/.
 c. The position of /ha/ is prefix-1.
 d. An i-negative-verb has no prefix-4. (overriding the default)
 e. The suffix of an i-negative verb is /i/. (overriding /a/)

3. ANALYSIS

Before undertaking the analysis of verbal nouns let us consider in some detail the traditional analysis of infinitives functioning as sharers as verbal constructions. The alternative to this analysis is to regard the infinitive as

sharer as a kind of noun. However, a numbers of facts support the correctness of the traditional analysis. First, as far as I know, modification by a determiner or other nominal modifier is not possible:

- (25) * A-taka ku-soma kw-ake⁶
 1c-want INF-read 1s-her/his
 'S/he_i wants to read his/hers_i.'

Second, there is a parallelism between clearly verbal sharers and infinitival sharers:

- (26) a. Wa-tu wa-li-kuwa bado wa-ki-ingia
 2-person 2c-PAST-be still 2c-SIMUL-enter
 'People were still entering.'
 b. Wa-tu wa-li-kuwa bado ku-ingia (cf. Ashton 1947: 270)
 2-person 2c-PAST-want INF-enter
 'People were still entering.'

Third, to the extent that conjoining links only constituents of the same type, examples such as the following support the non-noun analysis (Ashton 1947: 278):

- (27) Wa-tu wa-li-kuwa wa-na-ingia na ku-toka
 2-person 2c-PAST-be 2c-PROG-enter and INF-leave
 'People were coming in and out.' (lit. People were entering and to leave)
 (28) Ha-ku-sema wala ku-cheka⁷
 NEG-PAST-say nor INF-laugh
 'S/he neither spoke nor laughed.' (lit. to laugh)

Although the decision does not affect the analysis in a major way, I will therefore analyse infinitives functioning as sharers as purely verbal constructions. In addition, as noted in section 2 traditional grammars agree in regarding the form occurring after prepositions to be an infinitival verb. This decision is supported by the fact that such infinitivals may have subjects:

- (29) Baada ya **serikali ya kikoloni kutambua** kwamba ujuzi wao wa lugha za kwanza ulikuwa hafifu kiasi cha kutowawezesha kufanya kazi ya ukachero vizuri ilianzisha sera mpya ya kusomesha lugha za kwanza.
 'After the colonial government discerned (lit. to discern) that their knowledge of vernacular languages was insufficient in not enabling

6 This sentence has an alternative reading, 's/he wants his/her reading', which is grammatical. The existence of this reading provides further evidence that an infinitival sharer is not the same as that of a noun object.

7 Note that the morpheme *-ku-* in the first word is unrelated to infinitival *ku-*.

them to do the work of surveillance well, it began a new manner of teaching vernacular languages.'

This construction is not a nominalised clause, but a non-tensed verbal clause. Its head is an infinitival verb dependent on the preposition *baada ya* 'after'. The absence of an agreement marker on the verb is a consequence of the fact that infinitives have no subject prefix.

The analysis given below will not be affected in any major way should these decisions be changed. I will follow Contini-Morava (1989) in not regarding the *ku-* prefix which is found with infinitival verbs as a Class-15 agreement marker. This seems appropriate given that in the sharer context and in the context dependent on a preposition with a subject dependent, this marker is very clearly **not** associated with agreement.

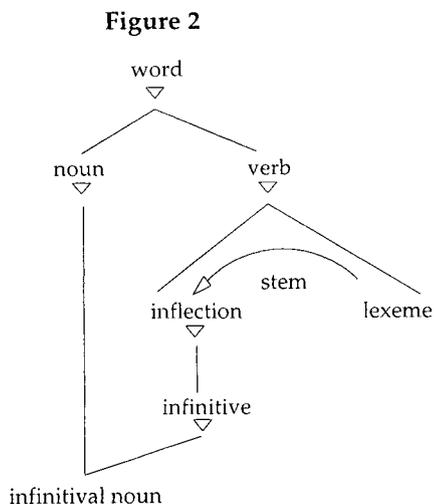
As far as infinitival nouns are concerned, what the analysis must account for is that they inherit their stem, and nearly all of their morphology and a good bit of their syntactic behaviour from the verbal inflectional class verb:infinitive (including taking the same dependents, both complements and adjuncts, as infinitives), but are otherwise nouns (functioning as a dependent in the same ways and taking the same dependents as other nouns). WG is beautifully designed to express generalisations such as these.

The following propositions guarantee that infinitival nouns will have just the requisite properties:⁸

- (30) a. An infinitival-noun isa noun.
 b. The stem of an infinitival-noun isa verb.
 c. The inflection of an infinitival-noun isa verb:infinitive.

The following figure shows these relationships graphically (the triangle expresses the isa relationship). Note that the inflection consists of a verbal lexeme and associated morphological material. We thus rule out in principle the possibility of a tripartite construction where, for example, a nominal receives verbal inflection and an adjectival lexeme.

⁸ Isa is the basic inheritance connective. *x isa y* means that *x* inherits all propositions associated with *y*. In the formal statement of propositions, a hyphen is used to identify a subclass without regard to its internal makeup and a colon is used to separate a lexical and a specifically inflectional category. Thus infinitival-noun and verb:infinitive (lexeme is verb, inflectional class is infinitive).



Morphologically, a noun is characterised very simply:

- (31) The whole of a noun is its prefix + its stem.

An infinitival noun requires the following:

- (32) The prefix of a noun:infinitival is *ku*.

The morphology of the inflectional class of infinitival verbs is more complex. The default propositions given in (23) are overridden by propositions which state that an infinitival verb does not have a subject prefix and which specify the content of the already present but empty prefix-4. A new prefix position (prefix-5) (used with negative infinitives) is added and filled.

- (33) a. A verb:infinitive has no prefix-2.
 b. The prefix-5 of a verb:infinitive is *to*.⁹
 c. The position of *to* is prefix-5.
 d. The prefix-4 of a verb:infinitive is *ku*.¹⁰

⁹ The negative marker *-to-* is normally found only with infinitive forms, but occasionally occurs in finite verbal forms (Ashton 1947: 280):

(i) A-ki-ja Hasani, a-ki-to-ku-ja Huseini.
 1c-SIMUL-come Hasani, 1c-SIMUL-NEG-INF-come Huseini
 If Hasani comes or if Huseini doesn't come.

¹⁰ It has been very difficult to decide between this analysis and an alternative one where *ku-* is regarded as a prefix-2, i.e., a subject prefix. My reasons for preferring the alternative adopted here are three. First, since sharers show no agreement, it seems wrong to call this element an agreement element.

As a result of the previous propositions, the following is true:

- (34) The whole of a verb:infinitive is its prefix-4 < its prefix-5 < its prefix-6 < its stem < its suffix.

Finally, it is possible to identify the prefix of the infinitival noun:

- (35) The prefix of a noun:infinitival is the prefix-4 of its verb:infinitive inflection.

Syntactically there is no special treatment which is required for infinitival nouns. The possibility of their occurrence as subjects and objects is inherited from the general propositions of (20), repeated here for convenience:

- (36) a. The subject of a verb is a noun.
b. The object of a verb is a noun.

Their ability to control agreement is again inherited. Agreement is handled in WG by the association of agreement features with nouns and verbs and with propositions relating the two (Creider 1998):

- (37) a. A noun has an agreement number.
b. The agreement number of a noun:infinitival is 15.
c. The agreement number of a verb's prefix-2 is the same as its subject's agreement number.
d. The agreement number of a verb's prefix-6 is the same as its object's agreement number.

Since the shape of the agreement prefix 15 on verbs is the same whether the agreement is with a subject or an object, the following suffices to specify verbal agreement:

- (38) a. A verb's agreement prefixes are its prefix-2 and its prefix-6.
b. /ku/ is an agreement prefix.
c. The agreement number of /ku/ is 15.

Second, Cortini-Morava (1989) regards the *ku-* as part of the tense/aspect/mode system and it occupies a secure semantic niche in her analysis. She refers to it as *ku₂₋* in order to distinguish it from *ku₁₋*, negative past, and labels it as 'unspecified for assertion' and thus in contrast with all modal forms. Finally, it is quite easy to specify the identity of form between the two *ku*'s. On the other hand, it must be admitted that the alternative (suggested to me by Steve Nicolle), in which *ku-* is a prefix-2, is almost as natural and is just as easy to formalise.

Although not common, a prefix-2 of shape *i-* is sometimes found with infinitival noun subjects:

- (39) ...lakini ku-kubali au ku-to-kubali **i-ta-kuwa** ni juu ya wa-kazi
w-a ki-jiji w-enyewe
but 15-agree or 15-NEG-agree 9-FUT-be COP on 2c-inhabitant 2c-of 7-town
2c-self
'but agreeing or not agreeing **will be** the responsibility of the inhabitants
of the village themselves'

Since agreement with *i-* is normal with sentential complements, it is perhaps understandable that this slight extension be made.¹¹

4. CONCLUSIONS AND COMPARISON WITH OTHER THEORIES

I will discuss two recent approaches to the analysis of mixed category constructions which might be used as alternatives to the Word Grammar analysis given here for Swahili infinitival nouns: Lexical-Functional Grammar (LFG)-based (Bresnan 1997) and Head-driven Phrase Structure

¹¹ A claimed association of an infinitival noun with a verb displaying a *vi-* prefix, however, is due to a mistranslation. Amidu (1997: 284) gives the following sentence from the well-known writer Shaaban Robert (1966: 48) (glosses mine, translation Amidu's):

- (i) Ku-soma ku-si-po-tangulia vi-tabu vi-zuri vi-ta-onekana vi-baya
15-read 15-NEG-RELTIME-precede 8-book 8-good 8-FUT-seen 8-bad
'Reading, when not supported by good quality books, will be evidently poor.'

However, consideration of the preceding context makes it clear that an entirely different, and much more natural sense is intended:

- (i') 'Unless reading comes first, good books will be seen as bad.'

The preceding context is the following:

- (ii) Kama ulimwengu usingalitangulia kuumbwa, wakaaji wake wasingalikuwa na mahali pa kukaa. Ukitaka biashara ya vitabu isitawi watu hawana budi kufunzwa kusoma kwanza. Kusoma kusipotangulia ...

'If the world hadn't preceded the creation, its inhabitants wouldn't have had any place to live. If you want the bookselling business to flourish people have no alternative but to be taught to read first. Unless reading comes first ...'

In other words the sentence in (i) expresses the same notion as the second sentence in (ii). Perhaps Amidu was misled by the fact that only 'good books' are mentioned, but this is just a good writer's way of dramatising the situation. That is, all books will be viewed with suspicion and among these will be books which are in fact good.

Grammar (HPSG)-based (Malouf 1998). Both of these works contain excellent criticism of earlier approaches and for that reason it is not necessary to do the same here. Some familiarity with LFG and HPSG is assumed. Although in terms of formal expression, LFG is quite different from WG, both theories are lexicalist. The Lexical Integrity Principle of LFG has always been characteristic of WG, and this together with the absence of serial derivational mechanisms (Bresnan 1997: 10) and the significance accorded to grammatical relations (part of *f*-structure in LFG), both also true of WG, means that the two theories are in fact quite similar. Bresnan (1997: 10) presents the Lexical Integrity Principle as the following:

- (40) Relativised lexical integrity: morphologically complete words are leaves of the *c*-structure tree and each leaf corresponds to one and only one *c*-structure node.

One way in which the two theories differ is in the absence of *c*-structure as an independent component in WG.

Bresnan makes two extensions to extended head theory in LFG in order to handle mixed category constructions. Extended head theory allows categories different in *c*-structure to have the same category in *f*-structure.

Informally stated, extended head theory as modified by Bresnan has the following provisions:

- (41) a. A lexical category X^0 and its sister correspond to the same *f*-structure.
 b. Every lexical category has a(n extended) head. (X is an extended head of Y if X corresponds to the same *f*-structure as Y , X is of the same/nondistinct category type as Y or X is a morphological derivative of a category identical to or nondistinct from Y , and every node other than Y that dominates X also dominates Y .)

Applied to Swahili, these extensions would allow an infinitival noun to serve as an extended head of a VP. What they would *not* do is allow for the presence of verbal inflectional morphology on the infinitival noun (assuming that inflectional information would not form part of the morphological derivational process that converts a verbal lexeme into a nominal one in Swahili).

HPSG would appear to have fewer similarities to WG than LFG. In particular, it lacks WC's central use of grammatical relations (represented in WG as dependencies) and instead gives considerable prominence to phrasal structure (as the 'PS' in HPSG suggests). However, Malouf's analysis of mixed-category constructions, the heart of which is given in Malouf

(1998: 155-171), contains substantial additions to HPSG-theory which not only make it strikingly similar to WG but which in the present context result in an analysis which is quite similar to that motivated and independently proposed here. The primary addition Malouf makes to standard HPSG theory is the use of default inheritance and multiple inheritance in the context of a type hierarchy which includes the representation of both inflectional information and word-type (lexeme) information (1998: 160). English gerunds are analysed (1998: 154) as belonging simultaneously to the head type categories of *noun* and *relational* (a category which also includes verbs, adjectives and prepositions). Thus gerunds, as nouns, project phrases which can occur wherever NPs occur but are capable of adverbial modification by virtue of their membership in the category relational. On the other hand since verbs are a distinct subclass of relational, gerund phrases will not have the same distribution as 'true VPs' (1998: 171). Morphology is specified by including in the lexical rule for gerunds specification for composition in terms of a root and an inflectional suffix. Gerunds, *vger*, are treated as a subclass of *v* (verb) with some of their specifications inherited from *v* and with others, such as their head, overridden (1998: 163).

Syntactically, Malouf's approach is probably reasonable when applied to Swahili. However, the approach results in the curious and unexplained coincidence that infinitival nouns and infinitival verbs have the same inflectional morphology. In the context of a language such as English with a high degree of syncretism and a morphology where most morphemes have multiple functions, Malouf's approach is sensible, but when it is generalised to a language with a fuller inflectional morphology such as Swahili, anomalies such as the one under discussion will appear. The treatment argued for in this paper, in which infinitival nouns inherit their inflectional morphology from verbal infinitives, is preferable for Swahili.

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