

LING 75 — FIELD METHODS

Kikamba: Noun Class Morphology

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1 Introduction

Kikamba is a Bantu language spoken by over three million Akamba people of East Africa, primarily in Kenya and Tanzania. Beyond the native speaking population, there are 600 thousand L2 Kikamba speakers. Kikamba is genetically related to other nearby languages, such as Kikuyu, and, more distantly, Kiswahili. The following discussion of the Kikamba noun class system is based on interviews conducted with Elizabeth Ndeto¹, a native Kikamba speaker. Ms. Ndeto is a particularly capable research consultant—she has been speaking English since a young age and has some formal training in phonology. Many of the conclusions drawn in this paper rely heavily on her intuitions about Kikamba. The orthography also often provided clues about otherwise difficult phonological distinctions. Additionally, many of these conclusions are based on sparse data. We would benefit greatly from more tokens of natural speech, especially in regards to some of the less frequent constructions.

2 Orthography

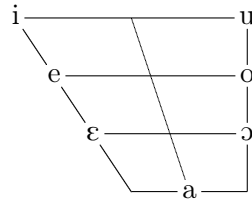
This paper makes an effort to use the traditional orthographic symbols of Kikamba wherever possible. This choice is intentional so as to minimize confusion between different phonetic realizations of certain phonemes. In particular, some phonemes such as /y/ can be realized as any of [j], [ɔ̃], [λ], [j] at the beginning of certain words (*e.g.* ⟨ĩeyo⟩ ‘tooth’). According to Elizabeth, any of these pronunciations can be acceptable, depending on which dialect you are speaking. The phonemes of Kikamba are given below with the standard IPA transcriptions:

Table 1: Kikamba consonant phoneme inventory [IPA]

	BILABIAL	DENTAL	ALVEOLAR	PALATAL	VELAR
NASAL	m		n	ɲ	ŋ
PLOSIVE	^h b		t ^h d		k ^h g
AFFRICATE			^h tʃ		
FRICATIVE	β	s ^h z	ð		
LATERAL			l		
APPROXIMANT	u			j	

¹To that end, almost all of the data for this paper comes from a small number of files: ENKikamba10-24-17DistressedSyllables.WAV, ENKikamba10-23-17class2.WAV, ENKikamba11-14-17DistressedSyllables.WAV, ENKikamba11-13-17class.WAV, and . ENKikamba11-21-17DistressedSyllables.WAV

Table 2: Kikamba vowel phoneme inventory [IPA]



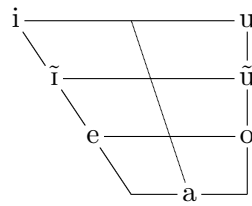
And here the same phonemes are given in standard orthography:

Table 3: Kikamba consonant phoneme inventory [ORTHOGRAPHY]

	BILABIAL	DENTAL	ALVEOLAR	PALATAL	VELAR
NASAL	m		n	ny	ng'
PLOSIVE	mb		t nd		k ng
AFFRICATE			ky		
FRICATIVE	v	s nz	th		
LATERAL			l		
APPROXIMANT	w			y	

Of particular interest here are the choices ⟨ky⟩ for /tʃ/, ⟨th⟩ for /ð/, and ⟨ng'⟩ for /ŋ/. Beyond these choices, most sounds have a reasonable correspondence between Kikamba grapheme and IPA grapheme. Although Kikamba does employ several digraphs (⟨ny⟩, ⟨ng'⟩, ⟨mb⟩, ⟨nd⟩, ⟨ng⟩, ⟨ky⟩, ⟨nz⟩, ⟨th⟩), it is actually rarely ambiguous. Kikamba has an extremely restrictive phonotactic system, never allowing consecutive obstruents/laterals or final consonants.

Table 4: Kikamba vowel phoneme inventory [ORTHOGRAPHY]



Again, it is important to note the choice of ⟨ĩ⟩ for /e/ and ⟨e⟩ for /ɛ/ as well as ⟨ũ⟩ for /o/ and ⟨o⟩ for /ɔ/. Unless one is careful, it is easy to mistake the high-mid and low-mid front and back vowel series.

Beyond articulatory position, it is clear that Kikamba vowels are distinguished by length and by tone. We have evidence that Kikamba distinguishes between two degrees of length (short and long), with a long vowel written as two short vowels in sequence (*i.e.* ⟨aa⟩ for /a:/), although the literature suggests up to four different degrees of length. Additionally,

we have clear evidence of the existence of two distinct tones (low and high), although there could be more tonemes (including possibly contour tones). Since tones are not marked in the traditional orthography, we will largely ignore them in this paper.

In addition to disambiguating between different phonemes, the choice of using Kikamba orthography will hopefully lend itself to greater accessibility to the Kikamba speaking community itself.

3 Contrasts

Like many Bantu languages, Kikamba exhibits a high degree of consonant alternation in specific environments. Based on our data, certain features of nouns appear to trigger this alternation on various other guys within a phrase or utterance. More precisely, the phonological shape of certain nouns tend to correlate highly with the phonological of other features in the sentence, such as possessive pronouns, verbal forms, adjectival forms, and demonstrative pronouns. For this reason, we say that these features “agree” with their complementary nouns. Usually, this agreement manifests as vowel and/or consonant harmony.

Other Bantu languages share this agreement system on the same set of semantic features. Further, the literature suggests that Kikamba may extend this agreement system onto relative clause markers (*e.g.* ‘*who*’, ‘*which*’, ‘*that*’), object clitics (which incorporate into the verb), and “independent pronouns” (the literature was unclear about what this may look like in Kikamba). The agreement system exhibited by these features is not discussed in this paper, but it could be an area of further research.

With this scheme in mind, the following sections present all of the different phonetic realizations of each of the lexical categories.

3.1 Possessive pronouns

Table 5: Contrasts among possessive pronouns

TOKEN	GLOSS	‘ <i>my</i> ’	‘ <i>our</i> ’	‘ <i>your</i> ’ (sg.)	‘ <i>your</i> ’ (pl.)	‘ <i>his/her</i> ’	‘ <i>their</i> ’
mũndũ	‘ <i>person</i> ’	wakwa	witũ	waku	wenyu	wake	woo
andũ	‘ <i>people</i> ’	makwa	maitũ	maku	menyu	make	moo
mĩte	‘ <i>trees</i> ’	yakwa	yitũ	yaku	yenyu	yake	yoo
kĩkoyo	‘ <i>leopard</i> ’	kyakwa	kitũ	kyaku	kyenyu	kyake	kyoo
ikoyo	‘ <i>leopards</i> ’	syakwa	sitũ	syaku	syenyu	syake	syoo
ngitĩ	‘ <i>dog</i> ’	yakwa	sitũ	yaku	yenyu	yake	yoo
kakitĩ	‘ <i>puppy</i> ’	kakwa	kaĩtũ	kaku	kenyu	ake	koo
tũkitĩ	‘ <i>puppies</i> ’	twakwa	twitũ	twaku	twenyu	twake	twoo
vandũ	‘ <i>place</i> ’	vakwa	vaitũ	vaku	venyu	vake	voo
kũndũ	‘ <i>places</i> ’	kwakwa	kwitũ	kwaku	kwenyu	kwake	kwoo

This set of contrasts is extremely illuminating. All tokens in our data follow one of the above patterns. The surface forms of the possessive pronouns appears to be determined by a prefix attached to a base stem. For example, each of the translations for ‘*my*’ has the stem ⟨-akwa⟩ attached to one of nine prefixes (⟨w-⟩, ⟨m-⟩, ⟨y-⟩, ⟨ky-⟩, ⟨sy-⟩, ⟨k-⟩, ⟨tw-⟩, ⟨v-⟩, or ⟨kw-⟩). Similarly, the forms for ‘*our*’ all end in ⟨-itũ⟩ (with one exception), all the forms for ‘*your*’ (sg.) end in ⟨-aku⟩, all the forms for ‘*your*’ (pl.) end in ⟨-enyu⟩, all the forms for ‘*his/her*’ end in ⟨-ake⟩, and all the forms for ‘*their*’ end in ⟨-oo⟩. The only exception to this otherwise highly regular system is ⟨kaĩtũ⟩ instead of ⟨*kaitũ⟩. It appears that ⟨kaĩtũ⟩ is an irregularity of the possessive pronoun system rather than a peculiarity of ⟨kakitĩ⟩, since it appears elsewhere. Thus we can construct the possessive pronominal system as a set of base forms (the suffixes) and a set of noun agreement prefixes (the prefixes).

Table 6: Possessive pronoun stems

GLOSS	‘ <i>my</i> ’	‘ <i>our</i> ’	‘ <i>your</i> ’ (sg.)	‘ <i>your</i> ’ (pl.)	‘ <i>his/her</i> ’	‘ <i>their</i> ’
STEM	-akwa	-itũ	-aku	-enyu	-ake	-oo

Table 7: Possessive pronoun prefixes

TOKEN	GLOSS	‘ <i>my</i> ’	‘ <i>our</i> ’	‘ <i>your</i> ’ (sg.)	‘ <i>your</i> ’ (pl.)	‘ <i>his/her</i> ’	‘ <i>their</i> ’
mũndũ	‘ <i>person</i> ’	w-	w-	w-	w-	w-	w-
andũ	‘ <i>people</i> ’	m-	ma-	m-	m-	m-	m-
mĩte	‘ <i>trees</i> ’	y-	y-	y-	y-	y-	y-
kĩkoyo	‘ <i>leopard</i> ’	ky-	k-	ky-	ky-	ky-	ky-
ikoyo	‘ <i>leopards</i> ’	sy-	s-	sy-	sy-	sy-	sy-
ngitĩ	‘ <i>dog</i> ’	y-	s-	y-	y-	y-	y-
kakitĩ	‘ <i>puppy</i> ’	k-	kaĩtũ*	k-	k-	k-	k-
tũkitĩ	‘ <i>puppies</i> ’	tw-	tw-	tw-	tw-	tw-	tw-
vandũ	‘ <i>place</i> ’	v-	va-	v-	v-	v-	v-
kũndũ	‘ <i>places</i> ’	kw-	kw-	kw-	kw-	kw-	kw-

* irregular

Viewed this way, we can see that the prefixes for ‘*my*’, ‘*your*’ (sg.), ‘*your*’ (pl.), ‘*his/her*’, and ‘*their*’ are identical. The only unique form is the ‘*our*’ form. Thus, if we know the form of ‘*my*’ and ‘*our*’ that a particular noun takes, we can predict its entire possessive pronoun paradigm.

3.2 Verbal forms

The following chart gives all of the different conjugations for two forms of the verb ⟨kũvalũka⟩ ‘*to fall*’.

Table 8: Contrasts among verbal forms for ⟨kūvalūka⟩

TOKEN	GLOSS	‘falls’ (habitual)	‘is falling’
mündũ	‘person’	nūvalūkaa [†]	nūvalūkīte
andũ	‘people’	nĩmavalūkaa	nĩmavalūkīte
mũte	‘tree’	nūvalūkaa [†]	nūvalūkīte
mĩte	‘trees’	nĩvalūkaa	nĩvalūkīte
ĩtema	‘liver’	nĩyĩvalūkaa	nĩyĩvalūkīte
kĩkoyo	‘leopard’	nĩkĩvalūkaa	nĩkĩvalūkīte
ikoyo	‘leopards’	nĩsivalūkaa, nivalūkaa	nĩsivalūkīte, nivalūkīte
kakitĩ	‘puppy’	nĩkavalūkaa	nĩkavalūkīte
tũkitĩ	‘puppies’	nĩtũvalūkaa	nĩtũvalūkīte
vandũ	‘place’	nĩvavalūkaa	nĩvavalūkīte
kündũ	‘places’	nĩkũvalūkaa	nĩkũvalūkīte

[†] possible tonal distinction

Note that we give two forms for ‘*the leopard falls*’ and for ‘*the leopard is falling*’. Elizabeth claims that these forms are exactly equivalent and completely interchangeable.

This set² of contrasts is similarly illuminating. For one, we have our first appearance of a possible tonal minimal pair within our paradigm. Elizabeth claims the verbs in ⟨mündũ nūvalūkaa⟩ and ⟨mũte nūvalūkaa⟩ have the same segmental features. However, she hears the first as [mondo novaloka:˩] and the second as [mote novaloka:˩]. Thus, this is a tonal minimal pair. Since this paper does not deal in depth with tones, we will note it as a distinction but not explore further. An analysis of the interaction of phonological tone with other morphological processes could be a possible direction for a future paper.

Of further note is that this differential tone occurs on the last vowel of the verb. Thus, the morpheme ⟨nũ-⟩ is a prefix and the tonal change is a suffix. Yet every other token only shows evidence of prefixing. We see no other examples in the data of agreement being marked with a suffix. Therefore, we note this tone counterexample and propose that the surface form of the verb is determined by a prefix attached to a base stem.

For example, every form for ‘falls’ (habitual) has the stem ⟨-valūkaa⟩ attached to one of ten prefixes (⟨nũ-⟩, ⟨nĩma-⟩, ⟨nĩ-⟩, ⟨nĩyĩ-⟩, ⟨nĩkĩ-⟩, ⟨nĩsi-/ni-⟩, ⟨nĩka-⟩, ⟨nĩtũ-⟩, ⟨nĩva-⟩, or ⟨nĩkũ⟩). In fact, the prefixes for ‘is falling’ has the exact same set of possible stems. For this reason, we can infer that the prefix set is a feature of the particular noun class and not a feature of the verb. Our data contains only tokens for ⟨-valūkaa⟩ and ⟨-valūkīte⟩³, so we would obviously need more data to support this claim, but this evidence is very compelling. From these forms, we can propose the following set of verbal prefixes.

²Note that this is not the same set of contrasts as before. The ⟨ngitĩ⟩ series patterns with the ⟨mĩte⟩ series with respect to its verbal prefixes. Additionally, the ⟨mũte⟩ series patterned with the ⟨mündũ⟩ series with respect to its possessive pronouns, and the ⟨ĩtema⟩ series patterned with the ⟨mĩte⟩ series with respect to its possessive pronouns.

³We note that ⟨-valūkīte⟩ has no minimal tonal contrasts.

Table 9: Contrasts among verbal prefixes

TOKEN	GLOSS	PREFIX
mũndũ	‘ <i>person</i> ’	nũ- [†]
andũ	‘ <i>people</i> ’	nĩma-
mũte	‘ <i>tree</i> ’	nũ- [†]
mĩte	‘ <i>trees</i> ’	nĩ-
ĩtema	‘ <i>liver</i> ’	nĩyĩ-
kĩkoyo	‘ <i>leopard</i> ’	nĩkĩ-
ikoyo	‘ <i>leopards</i> ’	nĩsi-, ni-
kakitĩ	‘ <i>puppy</i> ’	nĩka-
tũkitĩ	‘ <i>puppies</i> ’	nĩtũ-
vandũ	‘ <i>place</i> ’	nĩva-
kũndũ	‘ <i>places</i> ’	nĩkũ-

[†] possible tonal distinction

In each of these instances, the prefix on the verb agrees with its subject. That is, ‘*the person falls*’ is ⟨mũndũ nũvalũkaa⟩. Since each of these tokens is for a simple clause (one subject, one verb), we have no data for ways in which this paradigm patterns with other paradigms. In fact, a further topic for investigation could be the ways in which these subject-agreement stems influence other agreement stems (which may or not exist in Kikamba), such as direct object, indirect object, etc. For example, it is unclear whether the ⟨nĩ-⟩ present in many of these prefixes is a clitic or fused/suppletive form. Or maybe it is a totally productive form. In any case, we cannot conjecture about the relative ordering or phonetic alternations that may occur from this data alone. The literature implies that there may be some interesting complications affected by argument animacy. Further investigation along these lines would likely be interesting and fruitful.

3.3 Adjectival forms

The following chart gives all of the different conjugations for three adjectives.

Table 10: Contrasts among selected adjectives

TOKEN	GLOSS	‘good’	‘small’	‘big’
mũndũ	‘person’	mũseo	mũnĩnĩ	mũnene
andũ	‘people’	aseo	anĩnĩ	anene
mĩte	‘trees’	mĩseo	mĩnĩnĩ	mĩnene
ĩtema	‘liver’	ĩseo	ĩnĩnĩ	ĩnene
matema	‘livers’	maseo	manĩnĩ	manene
kĩkoyo	‘leopard’	kĩseo	kĩnĩnĩ	kĩnene
ikoyo	‘leopards’	nzeo	nĩnĩ	nene
kakitĩ	‘puppy’	kaseo	kanĩnĩ	kanene
tũkitĩ	‘puppies’	tũseo	tũnĩnĩ	tũnene
vandũ	‘place’	vaseo	nanĩnĩ	vanene
kũndũ	‘places’	kũseo	kũnĩnĩ	kũnene

As we expect, the adjectival agreement system is highly similar to the possessive pronoun and verbal agreement systems. Again, each adjective appears to have a base or stem which attaches to a prefix determined by its head noun. Further, this data⁴ is interesting for a few reasons.

For one, the ⟨ikoyo⟩ series appears to have a null prefix morpheme. That is, for ‘small’ and ‘big’, each of the Kikamba forms contains the suffix ⟨-nĩnĩ⟩ and ⟨-nene⟩ respectively. Each form has prefix (⟨mũ-⟩, ⟨a-⟩, etc.) that attaches identically to each verbal stem except for the tokens which pattern like ⟨ikoyo⟩. These forms just have the bare stem.

In addition, this pattern is slightly irregular for ‘good’. Whereas all of the other forms attach their prefix to ⟨-seo⟩, we have ⟨ikoyo nzeo⟩ for ‘the good leopard’. Thus, our agreement morpheme is not quite a null morpheme. Instead, one hypothesis could be that it induces voicing and prenasalization on voiceless initial segments. Thus, we see no alternation in the adjectival stems ⟨-nĩnĩ⟩ and ⟨-nene⟩: they are already voiced nasals. Thus we could construct the following set of adjectival prefixes.

⁴Again, we note that this is not the same set of contrasts as before. The ⟨mũte⟩ series patterns with the ⟨mũndũ⟩ series with respect to its adjectival prefixes. Additionally, the ⟨matema⟩ series patterned with the ⟨andũ⟩ series with respect to its possessive pronouns and verbal prefixes.

Table 11: Contrasts among adjectival prefixes

TOKEN	GLOSS	PREFIX
mũndũ	‘person’	mũ-
andũ	‘people’	a-
mĩte	‘trees’	mĩ-
ĩtema	‘liver’	ĩ-
matema	‘liver’	ma-
kĩkoyo	‘leopard’	kĩ-
ikoyo	‘leopards’	Ø- [‡]
kakitĩ	‘puppy’	ka-
tũkitĩ	‘puppies’	tũ-
vandũ	‘place’	va-
kũndũ	‘places’	kũ-

[‡] possible floating [+vcd,+nas] phoneme

However, this [+voiced] conjecture is not particularly well supported. The data only contains data for these three adjectives. Once again, we could make much stronger conclusions with more tokens, and so this could be another avenue for exploration at a later date.

3.4 Demonstrative pronouns

According to Elizabeth, Kikamba speakers make use of two demonstrative pronouns, which are roughly equivalent to English ‘this’ and ‘that’. That is, one is proximate and one is distal. The following chart gives all of the different forms these demonstratives can take.

Table 12: Contrasts among demonstrative pronouns

TOKEN	GLOSS	‘this’	‘that’
mũndũ	‘person’	ũyũ	ũsu
andũ	‘people’	aya	asu
mĩte	‘trees’	ĩnũ	ĩsu
ĩtema	‘liver’	yĩ	yũ
kĩkoyo	‘leopard’	kĩ	kũ
ikoyo	‘leopards’	ii	isu
kakitĩ	‘puppy’	kaa	kau
tũkitĩ	‘puppies’	tũũ	tũũ
vandũ	‘place’	vaa	vau
kũndũ	‘places’	kũũ	kũu
maaũ	‘feet’	aa	asu
sĩĩkalĩ	‘governments’	ithi	isu
ũta	‘bow’	ũũ	ũsu

Again, we have a slightly disjoint set of patterns⁵. Words that pattern with ⟨ngitĩ⟩ for demonstrative pronoun agreement pattern with ⟨mĩte⟩ for possessive pronoun and verbal prefix agreement, but pattern with ⟨ikoyo⟩ for adjectival agreement. Additionally, tokens that pattern with ⟨ũta⟩ for demonstrative pronoun agreement pattern with ⟨ikoyo⟩ for possessive pronoun, verbal, and adjectival prefix agreement.

Of note here is the fact that ‘*this*’ and ‘*that*’ do not have discernible stems. While there at least seems to be a pattern of ⟨-u/-ũ⟩ for ‘*that*’, no such pattern holds for ‘*this*’. Rather than scrap our entire analysis of PREFIX + STEM → LEXEME, it is reasonable to suppose that these might be fused or suppletive. In this case, further investigation would be difficult without reconstructing proto-forms.

3.5 Other agreement

As noted above, there is reason to believe that Kikamba extends its agreement system to relative clause markers, object clitics, and independent pronouns. This paper leaves this topic as another area of further research.

4 Noun class structure

Now that we have discerned the possible phonetic axes along which agreement schemes can diverge, we can make a reasonable guess at the structure of the underlying noun classes. For this analysis, we rely heavily on the traditional numbering system used in the literature (which is itself based on reconstructions of Proto-Bantu).

4.1 Numbering the classes

As we saw above, our data implies that the ways in which a given noun class can pattern together include the forms for ‘*my*’, ‘*our*’, the verbal prefix, the adjectival prefix, ‘*this*’, and ‘*that*’. Thus we collect all of our relevant data into a single table below, including the number inherited from earlier research on Bantu noun classes. Some of our datasets do not align perfectly with any obvious Proto-Bantu class (which traditionally numbers Class I through Class XXIII). For these cases, the class is labeled as one of Class A through Class F.

⁵We note that this is not the same set of contrasts as before. The ⟨matema⟩ series patterns with the ⟨andũ⟩ series with respect to its demonstrative pronouns. Additionally, the ⟨maaũ⟩ series patterned with the ⟨andũ⟩ series with respect to its possessive pronouns and verbal prefixes but with the ⟨matema⟩ series with respect to its adjectival prefixes; the ⟨sĩlikālĩ⟩ series patterned with the ⟨ikoyo⟩ series with respect to its possessive pronouns, verbal prefixes, and adjectival prefixes; the ⟨ũta⟩ series patterned with the ⟨mũndũ⟩ series with respect to its possessive pronouns, verbal prefixes, and adjectival prefixes.

Table 14: Noun class contrasts

#	TOKEN	GLOSS	‘my’	‘our’	VERB	ADJ	‘this’	‘that’
I	mũndũ	‘person’	w-	w-	nũ- [†]	mũ-	ũyũ	ũsu
II	andũ	‘people’	m-	ma-	nĩma-	a-	aya	asu
III	mũte	‘tree’	w-	w-	nũ- [†]	mũ	ũyũ	ũsu
IV	mĩte	‘trees’	y-	y-	nĩ-	mĩ-	ĩnũ	ĩsu
V	ĩtema	‘liver’	y-	y-	nĩyĩ-	ĩ	yĩ	yĩu
VI	matema	‘livers’	m-	ma-	nĩma-	ma-	aya	asu
VII	kĩkoyo	‘leopard’	ky-	k-	nĩkĩ-	kĩ-	kĩ	kĩu
VIII	ikoyo	‘leopards’	sy-	s-	nĩsi-, ni-	∅- [‡]	ii	isu
IX	ngitĩ	‘dog’	y-	s-	nĩ-	∅- [‡]	ĩno	ĩsu
XII	kakitĩ	‘puppy’	k-	kaĩtu*	nĩka-	ka-	kaa	kau
XIII	tũkitĩ	‘puppies’	tw-	tw-	nĩtũ-	tũ-	tũũ	tũu
A	vandũ	‘place’	v-	va-	nĩva-	va-	vaa	vau
B	kũndũ	‘places’	kw-	kw-	nĩkũ-	kũ-	kũũ	kũu
C	maaũ	‘feet’	m-	ma-	nĩma-	ma-	aa	asu
D	sĩlĩkalĩ	‘government’	y-	y-	nĩ-	∅- [‡]	ii	ĩsu
E	sĩlĩkalĩ	‘governments’	sy-	s-	nĩsi-, ni-	∅- [‡]	ithi	isu
F	ũta	‘bow’	w-	w-	nũ- [†]	mũ-	ũũ	ũsu

* irregular

† possible tone distinction

‡ possible floating [+vcd,+nas] phoneme

Upon close inspection, we can see that Class D does not actually have any unique morphemes. It does, however, combine morphemes into a unique paradigm. That is, its possessive pronouns and verbal prefixes pattern like Class 3 and its adjectival prefixes and demonstrative pronouns pattern like Class 8. For this reason, it is treated as a morphologically unique class.

4.2 Noun class characteristics

Within this morphological paradigm, we can find a number of nouns that trigger similar patterns of agreement. The following chart summarizes some examples for each numbered noun class.

Table 15: Noun class examples

#	EXAMPLES
I	mũndũ ('person'), mwaki ('builder'), lelu ('road')
II	andũ ('people'), aki ('builders'), akamba ('Akamba people')
III	mũte ('tree'), mwaki ('fire'), mwaka ('year')
IV	mĩte ('trees'), ĩaki ('fires'), myaka ('years')
V	ĩtema ('liver'), ĩtumbe ('egg'), ĩeyo ('tooth'), yanga ('cassava')
VI	matema ('livers'), matumbe ('eggs'), maeyo ('teeth'), mathayũ ('souls')
VII	kĩkoyo ('leopard'), kīvīla ('chair'), kītuo ('shoulder'), kīwũ ('water')
VIII	ikoyo ('leopards'), ivīla ('chairs'), ituo ('shoulders'), syīwũ ('waters')
IX	ngitĩ ('dog'), ng'ũmbe ('cow'), nyũmba ('house')
XII	kakitĩ ('puppy'), kana ('small baby')
XIII	tũkitĩ ('puppies'), twana ('small babies')
A	vandũ ('place')
B	kũndũ ('places'), kũũ ('foot'), kwũkũ ('hand'), kũtũ ('ear')
C	maaũ ('feet'), mwũkũ ('hands'), matũ ('ears')
D	sĩlĩkalĩ ('government'), sīvĩtalĩ ('hospital')
E	sĩlĩkalĩ ('governments'), sīvĩtalĩ ('hospitals')
F	ũta ('bow'), ũvwau ('blackboard'), ũsi ('river'), stima ('electricity')

Some clear patterns begin to emerge when we list out nouns like this. For one, singular and plural versions of the same noun are usually placed in different classes. In this way, nouns with a singular in Class I tend to have their plural in Class II. Further, plurals of Class III are in Class IV, plurals of Class V are in Class VI, plurals of Class VII are in Class VIII, plurals of Class XII are in Class XIII, plurals of Class B are in Class C, and plurals of Class D are either in Class E or Class VI.

These rules are far from universals, however. For one, we already saw ⟨lelu⟩ ('roads', Class I) can have its plural as ⟨lelu⟩ (Class XIII) or as ⟨malelu⟩ (Class XI). For another example, we have ⟨thayũ⟩ ('soul', Class F), which has as its plural ⟨mathayũ⟩ (Class VI).

Also, there is no distinct Class X for the plurals of Class IX. We have the singular ⟨ngitĩ⟩ ('dog') and plural ⟨ngitĩ⟩ ('dogs'), as well as the singular ⟨ng'ũmbe⟩ ('cow') and plural ⟨ng'ũmbe⟩ ('cows') and singular ⟨nyũmba⟩ ('house') and plural ⟨nyũmba⟩ ('houses'). Although the singular and plural forms are identical, they have distinct agreement paradigms. The Class IX noun patterns are detailed above, and the Class X nouns pattern identically to the Class VIII nouns.

A similar scheme holds for (some of) the plurals of Class F nouns. We have singular ⟨ũta⟩ ('bow') and plural ⟨mbũta⟩ ('bows'), as well as singular ⟨ũvwau⟩ ('blackboard') and plural ⟨mbvwau⟩ ('blackboards') and singular ⟨ũsi⟩ ('river') and plural ⟨mbũsi⟩ ('rivers'). The Class F noun patterns are detailed above, and the Class XXV nouns pattern identically to the Class VIII nouns.

Further, some nouns do not have plurals at all. For example, ⟨mũyũ⟩ ('happiness', Class F) has no corresponding plural whatsoever.

As is alluded above, Elizabeth claims that some nouns can have multiple acceptable plurals. Three examples are given below.

Table 16: Ambiguous plurals

TOKEN	GLOSS	‘my’	‘our’	VERB	ADJ	‘this’	‘that’
lelu	‘road’	w-	w-	nũ-	mũ-	ũyũ	ũsu
lelu	‘roads’	sy-	s-	nĩsi-, ni-	Ø- [‡]	ii	isu
malelu	‘roads’	m-	ma-	nĩma-	ma-	aya	asu
sĩlĩkalĩ	‘government’	y-	y-	nĩ-	Ø- [‡]	ii	ĩsu
sĩlĩkalĩ	‘governments’	sy-	s-	nĩsi-, ni-	Ø- [‡]	ithi	isu
masĩlĩkalĩ	‘governments’	m-	ma-	nĩma-	ma-	aya	asu
sĩvĩtalĩ	‘hospital’	y-	y-	nĩ-	Ø- [‡]	ii	ĩsu
sĩvĩtalĩ	‘hospitals’	sy-	s-	nĩsi-, ni-	Ø- [‡]	ithi	isu
masĩvĩtalĩ	‘hospitals’	m-	ma-	nĩma-	ma-	aya	asu

[‡] possible floating [+vcd,+nas] phoneme

In addition to these singular-plural patterns, there is some evidence that nouns are placed into a particular class for semantic reasons. For example, most of our examples for Class I and II are humans. Classes III through VIII seem to be living things or body parts. Classes V and VI contain augmentatives. Class IX is mostly animals and kinship terms. Classes XII and XIII are almost exclusive for diminutives. The literature suggests that the noun classes of inanimate objects are determined by their shape, with long skinny items classified differently than small round objects and so on. Our data does not contain enough tokens (especially for inanimate objects) to determine whether this tendency holds in Kikamba.

Even more unusual, Elizabeth claims that ⟨vandũ⟩ (‘place’, Class A) is the only noun of its pattern. Although normally this could be written off as an error in transcription or translation, ⟨vandũ⟩ has a distinct set of morphemes for every semantic category. Thus, we claim Class A gives a meaningfully distinct set of size one.

Finally, we can see that nouns within the same class tend to have a similar phonological shape. They often start with the same sequence of phonemes. The table below outlines these patterns.

Table 17: Noun class prefixes

#	COMMON PREFIXES
I	mũ-, mw-, l-
II	a-
III	mũ-, mw-
IV	mĩ-, ã-, my-
V	ĩ-, y-
VI	ma-
VII	kĩ-
VIII	i-, sy-, mb-, ng- (and various other nasalized segments)
IX	mb-, ng-, ng'-, ny- (and various other nasalized segments)
XII	ka-
XIII	tũ-, tw-
A	v-
B	kũ-, kw-
C	ma-, mw-
D	sĩ-
E	sĩ-
F	ũ-

5 Conclusions

Like most Bantu languages, Kikamba exhibits a sophisticated noun class system marked by agreement between head nouns and various types of modifiers. The modifiers which mark noun class agreement include possessive pronouns, verbal prefixes, adjectival prefixes, and demonstrative pronouns. There may be other modifiers that exhibit similar behavior, such as relative pronouns, object clitics, and independent pronouns, although those domains are outside the scope of this paper. Within this framework, nouns are loosely classed by semantic category. Usually, singular and plural forms of nouns are placed into different classes. Kikamba has seventeen of these distinct classes, as described in detail above. The final table below summarizes the structure and agreement system of each noun class.

Table 18: Noun class structure and agreement

#	PREFIX	‘my’	‘our’	VERB	ADJ	‘this’	‘that’
I	mũ-, mw-, l-	w-	w-	nũ- [†]	mũ-	ũyũ	ũsu
II	a-	m-	ma-	nĩma-	a-	aya	asu
III	mũ-, mw-	w-	w-	nũ- [†]	mũ	ũyũ	ũsu
IV	mĩ-, ĩ-, my-	y-	y-	nĩ-	mĩ-	ĩmũ	ĩsu
V	ĩ-, y-	y-	y-	nĩyĩ-	ĩ-	yĩ	yũ
VI	ma-	m-	ma-	nĩma-	ma-	aya	asu
VII	kĩ-	ky-	k-	nĩkĩ-	kĩ-	kĩ	kũ
VIII	i-, sy-, [+nas]-	sy-	s-	nĩsi-, ni-	Ø- [‡]	ii	isu
IX	[+nas]-	y-	s-	nĩ-	Ø- [‡]	ĩno	ĩsu
XII	ka-	k-	kaĩtu*	nĩka-	ka-	kaa	kau
XIII	tũ-, tw-	tw-	tw-	nĩtũ-	tũ-	tũũ	tũu
A	v-	v-	va-	nĩva-	va-	vaa	vau
B	kũ-, kw-	kw-	kw-	nĩkũ-	kũ-	kũũ	kũu
C	ma-, mw-	m-	ma-	nĩma-	ma-	aa	asu
D	sĩ-	y-	y-	nĩ-	Ø- [‡]	ii	ĩsu
E	sĩ-	sy-	s-	nĩsi-, ni-	Ø- [‡]	ithi	isu
F	ũ-	w-	w-	nũ- [†]	mũ-	ũũ	ũsu

* irregular

[†] possible tone distinction

[‡] possible floating [+vcd,+nas] phoneme