第 11 章

Does Kimakunduchi have stress and tone?
Prosody in Kimakunduchi

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1. Introduction

This article discusses prosody in Kimakunduchi (G43c),[1] also known as Kihadimu and Kikae. In the coastal areas of Eastern Africa, there are several similar language varieties regarded as local dialects of Swahili, one of which is Kimakunduchi (Nurse & Hinnebusch 1993). Kimakunduchi is mainly spoken in Makunduchi District, located in the southeastern part of Unguja, the largest island of the Zanzibar archipelago in Tanzania. According to the Tanzanian National Census of 2012, the population of Makunduchi District was 11,742.[2] The number of Kimakunduchi speakers probably approximates this, although there are non-native speakers in the district as well as native speakers elsewhere.

Amongst Bantu languages, Standard Swahili[3] belongs to a minority group because it lacks tonal distinction. Its most notable pitch-related phenomenon is prominence on the penultimate syllable of words or phrases, referred to as 'stress' or 'accent' (Kisseberth & Odden 2003: 59, Downing 2004: 121ff.).

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[1] Bantu languages are assigned referential codes, proposed by Guthrie (1948; 1967-71) and further updated by Maho (2009). These codes are generally used for reference to geographical distribution (rather than genetic classification) of Bantu languages.

[2] Makunduchi District consists of six wards, Nganani, Kijini, Mzuri, Kajengwa, Kiongoni, and Tasani. The Tanzania National Bureau of Statistics did not publish the population of the district as a whole, but the population of each ward (see https://www.nbs.go.tz/).

[3] Standard Swahili is based on Kiunguja, originally the local dialect of Zanzibar City and environs, on the west coast of Unguja (Whiteley 1969: 79ff., Nurse & Hinnebusch 1993: 12). Because of this, we use the label 'Standard Swahili' when referring to data we collected from a Kiunguja native speaker as well as those from previous studies on (Standard) Swahili.

Kimakunduchi has prosodic characteristics that differ from Standard Swahili. Whiteley (1959) and Racine-Issa (2002) have attributed this difference to the presence of lexical tone in Kimakunduchi, as summarised in (1).[4] However, there are also suggestions that these descriptions need to be reconsidered. Nurse & Hinnebusch (1993: 522) cast doubt on Whiteley's (1959) description, based on Hinnebusch's fieldwork observations, while Werner (1916: 358) notes that Kimakunduchi has a toneless pitch pattern. We ourselves, although impressionistically, observe that the nouns in (1) are consistently pronounced with little difference in pitch between syllables, contrary to the previous descriptions.

(1) Summary of previous descriptions on Kimakunduchi nominal tone

	Example		Gloss	Tone pattern	Source
a.	ipu	(*ipu*)	'ash'	LL	Whiteley (1959: 47)
	ipú	(*ipu*)	'boil'	LH	
b.	ɓwɛ́	(*bwe*)	'stone'	H	Racine-Issa (2002: 27)
	ʧʰí	(*chi*)	'ground'	H	
	ɱtʰú	(*mtu*)	'person'	LH	
	mɔjɔ́	(*moyo*)	'heart'	LH	
	tumbɔ́	(*tumbo*)	'stomach'	LH	
	kití	(*kiti*)	'chair'	LH	
	ʧuŋgú	(*chungu*)	'pot(s)'	LH	
	ndɛgɛ̌	(*ndege*)	'bird(s)'	LH	
	ndʒiá	(*njia*)	'road(s)'	LH	
	máʃí	(*maji*)	'water'	HH	
	físí	(*fisi*)	'hyena(s)'	HH	

[4] Examples are transcribed using the IPA symbols representing approximate phonetic values of each sound and the parenthesised and italicised orthography of Standard Swahili. When needed, hyphens are also used to mark morpheme boundaries. The transcriptions and translations of the examples from previous studies have been modified to match the format used in this article.

pʰémbɛ́	(*pembe*)	‘horn(s)’	HH
m̩gɛ́ní	(*mgeni*)	‘guest’	LLH
m̩kíá	(*mkia*)	‘tail’	LHH
m̩kɔ́nɔ́	(*mkono*)	‘arm, hand’	LHH
mafútá	(*mafuta*)	‘oil’	LHH
kisímá	(*kisima*)	‘well’	LHH
upɛ́pɔ́	(*upepo*)	‘wind’	LHH
míɠúú	(*miguu*)	‘leg(s)’	HLH
kíɗɛvú	(*kidevu*)	‘chin’	HLH

Thus far, there have been no descriptions of stress in Kimakunduchi. The examples in (1), however, provide a hint about it, because they show that high pitch does not obligatorily occur on the penultimate syllable. Considering that stress in Standard Swahili is realised as a higher pitch (Ashton 1947: 13, Maw & Kelly 1975: 3), Kimakunduchi may lack stress, which is mandatorily assigned on the penultimate syllable.

This article deals with whether Kimakunduchi has penultimate stress in a similar way to Standard Swahili and whether it actually has lexical tone as was argued in previous studies (cf. Devos 2005). In Section 2, we explain acoustic analyses we carried out in order to compare F0 values and duration of each syllable of various nouns. The results of the analyses form the basis of Section 3, where we discuss the (non-)presence of stress and tone in Kimakunduchi. In Section 4, we conclude with a brief summary and a novel suggestion of a diachronic prosodic change.

2. Acoustic analyses of nouns

2.1 Participants

Two native speakers of Kimakunduchi (MM1, MF2) and one speaker of Standard Swahili (SM3) participated in our investigation. MM1 and SM3 were male speakers

in their sixties at the time of the investigation, while MF2 was a female in her fifties. MM1 and MF2 had both grown up in Makunduchi District and were able to speak Standard Swahili as well. SM3 had lived in Zanzibar City (on Unguja) since childhood and only spoke Standard Swahili.

2.2 Target words

As summarised in (2), 20 disyllabic and 20 trisyllabic nouns with CVCV(CV) or NCV(CV) structures (C: obstruent or nasal, V: vowel, N: syllabic nasal) were adopted as targets. These words are commonly used in both Kimakunduchi and Standard Swahili. Some of the nouns presented in Racine-Issa (2002, see Section 1) are included in the list. According to Johnson (1939), (**ma**)**ɗuka** (*maduka*) 'shop(s)', **piʧa** (*picha*) 'picture(s)', **kitaɓu/vitaɓu** (*kitabu/vitabu*) 'book(s)', **samaki** (*samaki*) 'fish(es)', **ʃɛtani** (*shetani*) 'evil spirit(s)', and **maʃinɛ** (*mashine*) 'machine(s)' are loanwords. In both varieties, nouns can be categorised into 'noun classes' numbered from 1 to 18 (12–14 are missing) (Meinhof 1932: 128, Racine-Issa 2002: 30ff.).[5] Our target nouns cover most noun classes, although classes 2, 11 and 15–18 were excluded for the following reasons: Classes 2 and 11 nouns begin with (semi)vowels, while classes 15–18 have few inherent members.

(2) Target words

a. Disyllabic nouns

ṃtʰu	(*mtu*)	'person'	kiti	(*kiti*)	'chair'
ṃkɛ	(*mke*)	'wife'	viti	(*viti*)	'chairs'
ṃʧi	(*mchi*)	'pestle'	kitʰu	(*kitu*)	'object'

[5] Noun classes numbered from 1 to 23 have been reconstructed in Proto-Bantu (Maho 1999: 51). This noun class system has been inherited but reduced in most Bantu languages, as, for instance, Standard Swahili and Kimakunduchi lack classes 12-14, 19-23. While in the descriptions of non-Bantu languages, nouns are generally categorised into numerous noun classes based on indicators outside of the nouns, such as modifiers (Hockett 1958, Greenberg 1978, Heine 1982, Aikhenvald 2000, Dixon 2010), in Bantu linguistics, nouns are classified on the basis of the prefixes they take (Katamba 2003: 103): Nouns belonging to the same class are basically marked with the same prefix.

miʧi	(*michi*)	‘pestles’	vitʰu	(*vitu*)	‘objects’
ɓata	(*bata*)	‘duck’	ɓuɓu	(*bubu*)	‘dumb person(s)’
ɗafu	(*dafu*)	‘coconut’	ʧʰatu	(*chatu*)	‘python(s)’
ɗuka	(*duka*)	‘shop’	ndɛʤɛ	(*ndege*)	‘bird(s)’
kapu	(*kapu*)	‘basket’	piʧa	(*picha*)	‘picture(s)’
kuti	(*kuti*)	‘coconut leaf’	siku	(*siku*)	‘day(s)’
ʃuzi	(*shuzi*)	‘breaking wind’	tʰatu	(*tatu*)	‘three’

b. Trisyllabic nouns

ṃʤɛni	(*mgeni*)	‘guest’	kiɗɛvu	(*kidevu*)	‘chin’
ṃkɔnɔ	(*mkono*)	‘arm, hand’	viɗɛvu	(*videvu*)	‘chins’
mikɔnɔ	(*mikono*)	‘arms, hands’	kisima	(*kisima*)	‘well’
maɓata	(*mabata*)	‘ducks’	visima	(*visima*)	‘wells’
maɗafu	(*madafu*)	‘coconuts’	kikapu	(*kikapu*)	‘basket’
maɗuka	(*maduka*)	‘shops’	vikapu	(*vikapu*)	‘baskets’
mafuta	(*mafuta*)	‘oil’	kitaɓu	(*kitabu*)	‘book’
makuti	(*makuti*)	‘coconut leaves’	vitaɓu	(*vitabu*)	‘books’
maʃuzi	(*mashuzi*)	‘breaking wind’	maʃinɛ	(*mashine*)	‘machine(s)’
ʃɛtani	(*shetani*)	‘evil spirit’	samaki	(*samaki*)	‘fish(s)’

2.3 Procedure

Acoustic data of the target words were collected in December 2015 and January 2016. Recording was conducted in a silent room or outdoors. The target words were presented by the first author and then produced by the participants. Each word was produced five times in isolation. The recorder and microphone were a Zoom H4n and an AKG C520, respectively. The sampling rate was 44.1kHz, while the bit-depth was 16 bit.

2.4 Measurements

All recorded sounds were analysed with Praat (Boersma & Weenink 1992-2020; version 6.0.40). Ten F0 points were measured at 0% to 100% of the duration of vowels and syllabic nasals of each syllable in the target words, using the ProsodyPro script (Xu 2013; version 5.5.2). Note that hereafter in this section, not only vowels, but also syllabic nasals are referred to as vowels.

2.5 Results

2.5.1 Pitch

Figure 1 illustrates the F0 contours of vowels of all tokens of the disyllabic **kiti** (*kiti*) 'chair' and the trisyllabic **kisima** (*kisima*) 'well' produced by our participants. Note that in Figure 1, we have provided F0 values from 0%–90% time points but have removed those from 100% points, which tend to include errors. We notice that in Kimakunduchi, all tokens show relatively flat pitch contours throughout the words (Figure 1a-d); in contrast, the Standard Swahili data show that pitch-lowering occurred at the final syllable in both disyllabic and trisyllabic words and that the pitch values of the penultimate syllable seem to be higher than those of the first syllable in trisyllabic words (Figure 1e-f).

In order to examine the above tendencies in more detail, the following normalisation and statistical analyses were conducted. In the normalisation process, each speaker's F0 values were transformed into an LZ-score (Zhu 2005). This score is calculated as the difference between the logarithmic F0 (log Xi) and the logarithmic mean F0 (log $\bar{X}$) of each speaker, divided by the logarithmic standard deviation (log SD) of the overall F0 of the same speakers, as shown in (3). This normalisation greatly reduces the influence of speaker differences on pitch values.

(3) LZ-score (Zhu 2005): $LZ = (\log Xi - \log \bar{X}) / \log SD$

Afterwards, we conducted a smoothing spline analysis of variance (SS ANOVA). SS ANOVA is a statistical technique that estimates the difference between multiple

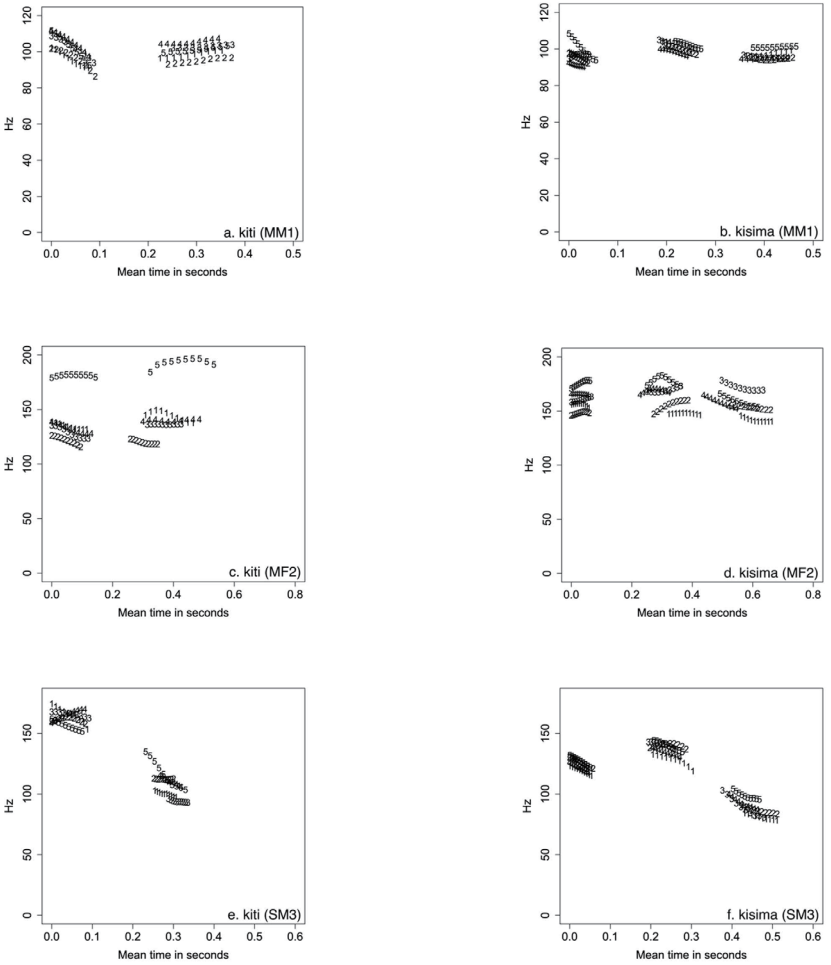

Figure 1. F0 contours of the 5 tokens of **kiti** (*kiti*) 'chair' and **kisima** (*kisima*) 'well' in Kimakunduchi (MM1, MF2) and Standard Swahili (SM3)

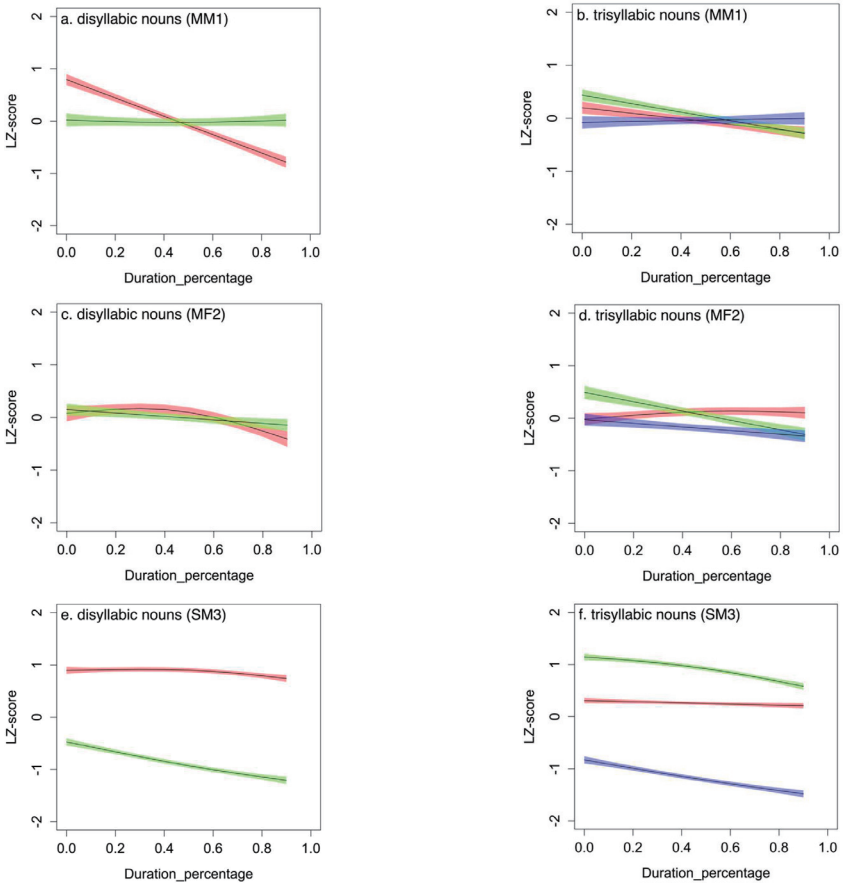

Figure 2. SS ANOVA results of the target words in Kimakunduchi and Standard Swahili (red: first syllable, green: second syllable, blue: third syllable)

curve shapes (Gu 2002; 2013), which has been used in tonal studies of various languages (Chuang et al. 2013, Takahashi 2019 and others). In this study, the

smoothing splines representing pitch contours of the first, second and third vowels of the disyllabic and trisyllabic words compared with one another; if the resulting splines do not overlap with 95% confidence intervals, shown as coloured areas in Figure 2, there is a statistical difference between them. In other words, this analysis indicates whether the pitch contours of each syllable are statistically different or not.

Figure 2 illustrates the SS ANOVA plots of the first, second, and third vowels of the disyllabic and trisyllabic words. Each contour was generated from data consisting of 100 tokens (5 repetitions of 20 target words). In Figure 2, red, green, and blue areas correspond to the 95% confidence intervals of the first, second, and third vowels, respectively.

The coloured areas representing the first and second vowels of the Kimakunduchi disyllabic words are crossed in Figure 2a and largely overlapping in Figure 2c. For the Kimakunduchi trisyllabic words, all three contours are assembled in a narrow range, and their 95% confidence intervals overlap considerably (Figure 2b and 2d). In Standard Swahili, on the other hand, the coloured areas of the contours do not cross or overlap at all in either disyllabic or trisyllabic words (Figure 2e and 2f), and the contours of the penultimate syllables consistently have the highest pitch values (the red contour in Figure 2e and the green one in Figure 2f).

We summarise the results of the SS ANOVA as follows: For the Kimakunduchi disyllabic and trisyllabic nouns, there was no significant pitch difference among syllables in large parts of their pitch contours. In contrast, the Standard Swahili nouns showed differences in pitch realisation among syllables. The penultimate syllable of the disyllabic nouns was higher in pitch than the final syllable, while the penultimate syllable of the trisyllabic nouns was higher than the initial and final syllables.

2.5.2 Duration

In addition to F0 values, we calculated mean duration of vowels for each syllable; the results are summarised in Table 1 and Figure 3.

Table 1. Mean duration (in msec) of vowels in disyllabic and trisyllabic words

a. Disyllabic words

	First syllable	Second syllable
MM1	106.85	114.96
MF2	161.94	184.99
SM3	117.08	87.86

b. Trisyllabic words

	First syllable	Second syllable	Third syllable
MM1	66.63	103.80	107.49
MF2	91.32	152.60	164.02
SM3	67.94	117.18	83.03

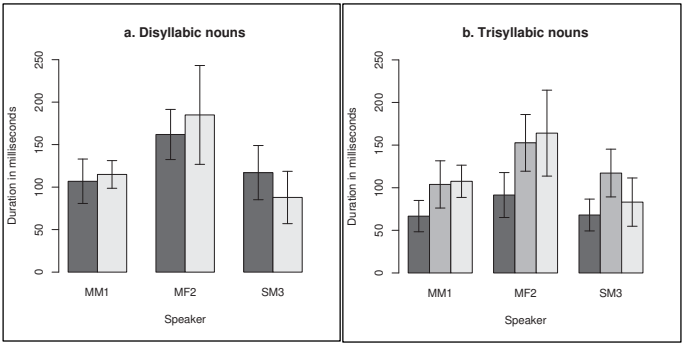

Figure 3. Average vowel duration of the target words with a standard deviation

The results indicate that in Kimakunduchi, the final vowel had the longest duration in both disyllabic and trisyllabic words, though the differences between the penultimate and final syllables were very slight, while in Standard Swahili, the penultimate vowel was consistently longer than the others.

In order to evaluate the significance of the difference in terms of duration, two

statistical analyses were conducted: a paired t-test between the durations of vowels of the first and second syllables in disyllabic words, and a repeated-measures ANOVA with duration as the dependent variable and vowel (first, second, and third vowels) as the independent variable in trisyllabic words. The results of the t-test revealed that there were significant differences between the duration of the first and second vowels in all speakers [MM1: $t_{(99)} = -2.83$, $p < 0.01$, MF2: $t_{(99)} = -4.12$, $p < 0.001$, SM3: $t_{(99)} = 8.88$, $p < 0.001$]. The results of the ANOVA revealed significant differences between vowels in all participants [MM1: $F_{(2, 297)} = 104.6$, $p < 0.001$, MF2: $F_{(2, 297)} = 105.6$, $p < 0.001$, SM3: $F_{(2, 297)} = 98.74$, $p < 0.001$]. Tukey post-hoc tests showed that significant differences were found among all vowels except two pairs (the second vowel vs. the third vowel in MM1 and MF2).

We summarise the results of the statistical analyses as follows: The penultimate syllable of the Kimakunduchi disyllabic words was significantly shorter than the final syllable. For the Kimakunduchi trisyllabic words, the penultimate and final syllables were longer than the initial syllable, while there was no significant difference in duration between the penultimate and final syllables. In Standard Swahili, the penultimate syllable was longer than the others regardless of word length.

3. Discussion

3.1 Stress

The results of the acoustic analyses in 2.5 allow us to state that the penultimate syllable of the Standard Swahili nouns was higher in pitch and longer than the other syllables. This is fully compatible with the previous description that Standard Swahili has penultimate stress. In contrast, the penultimate syllable of the Kimakunduchi nouns was not necessarily higher or longer than the other syllables; that is, we did not find any phonetic correlates of penultimate stress in the acoustic investigation.

There are also morphological differences which appear to be related to the (non-)presence of penultimate stress in each variety. As mentioned in 2.2, nouns in

the two varieties are categorised into numbered noun classes. Nouns belonging to the same noun class and the adjectives that agree with these nouns are marked with the same prefix,[6] as can be seen in (4), where a class 7 noun **ki-ti** (*kiti*) 'chair' is modified by an adjective -**ɗɔgɔ** (*-dogo*) 'small' prefixed with **ki-** (*ki-*).

(4) ki-ti ki-ɗɔgɔ (*kiti kidogo*) 'a small chair' (Racine-Issa 2002: 54)

In both varieties, class 9 and 10 nouns are prefixed in the same way. The form of this prefix varies depending on the initial segment of stems. The prefix appears as the palatal nasal **ɲ** in the case of stems starting with vowels, as in (5a). As for nouns and adjectives starting with prenasal stops, the initial nasal part is analysed as the class 9/10 noun prefix. For example, the initial prenasalised stop **nd** of **ndɔgɔ** (*ndogo*) 'small' in (5b) is morphologically divided into the prefix **n** and the stem initial **d**, the latter of which alternates with the alveolar implosive **ɗ** in other environments, as **ki-ɗɔgɔ** (*kidogo*) in (4) shows. Stems starting with other sounds are not accompanied by an overt prefix, as can been seen in (5c) and (5d), though stem-initial voiceless stops like **k** of **kʰuɓwa** (*kubwa*) 'big' in (5c), as well as stem-initial voiceless affricates are aspirated.[7]

(5) Class 9/10 nouns and adjectives with polysyllabic stems
   a. ɲ-umba (*nyumba*) 'house(s)'
   b. n-dɔgɔ (*ndogo*) 'small (adj.)'
   c. kʰuɓwa (*kubwa*) 'big (adj.)'
   d. fimbɔ (*fimbo*) 'stick(s)' (Ashton 1947: 83-85, Racine-Issa 2002: 41, 54)

In Kimakunduchi, this generalisation applies to all the class 9/10 nouns regardless

[6] Exceptionally, class 11 adjectives are marked with a prefix different from that of the nouns.
[7] This article puts aside the question of whether class 9/10 prefixations are productive or fossilised.

of stem length, with the exception of loanwords. In Standard Swahili, on the other hand, monosyllabic stems are exceptionally marked with syllabic nasal prefixes.[8] This contrast between the two varieties is summarised in (6).[9]

(6) Class 9/10 nouns and an adjective with monosyllabic stems

Kimakunduchi		Standard Swahili		Gloss
m-bu	(*mbu*)	m̩-ɓu	(*mbu*)	'mosquito(s)'
m-bwa	(*mbwa*)	m̩-ɓwa	(*mbwa*)	'dog(s)'
ŋ-gɛ	(*nge*)	ŋ̩-ɠɛ	(*nge*)	'scorpion(s)'
ʧʰa	(*cha*)	n̩-ʧʰa	(*ncha*)	'tip(s)'
ʧʰi	(*chi*)	n̩-ʧʰi	(*nchi*)	'ground(s)'
tʰa	(*ta*)	n̩-tʰa	(*nta*)	'wax'
zi	(*zi*)	n̩-zi	(*nzi*)	'fly (flies)'
pʰja	(*pya*)	m̩-pʰja	(*mpya*)	'new' (adj.)

According to Nurse & Hinnebusch (1993: 165-167), the syllabicity of the class 9/10 noun prefix can be attributed to the requirement for stress assignment. In this view, the prefix is assigned syllabicity only when it occurs in the stressed penultimate syllable. This hypothesis not only accounts for the fact that monosyllabic stems are marked with syllabic nasal prefixes in Standard Swahili, but also indicates that Kimakunduchi lacks penultimate stress. If the penultimate syllable were stressed, the Kimakunduchi class 9/10 prefix marking monosyllabic stems would be syllabic in

[8] More precisely, stems starting with a voiced fricative are also prefixed differently. Such nouns and adjectives are marked with a prenasal prefix in Standard Swahili but lack an overt prefix in Kimakunduchi, as for instance, the class 9/10 adjective **n-zitɔ/zitɔ** (*nzito/zito*) (Standard Swahili/Kimakunduchi) 'heavy' illustrates. This gap is due to the phonotactic rule that allows nasals to precede voiced fricatives in Standard Swahili but not in Kimakunduchi.

[9] The sources of the Kimakunduchi examples in (6) are Chum (1994), Racine-Issa (2002), BAKIZA (2012), and the first author's field notes, while the sources for Standard Swahili are Johnson (1939), Ashton (1947), Polomé (1967), and the first author's field notes. For Kimakunduchi **ʧʰi** (*chi*) 'ground' and **tʰa** (*ta*) 'wax', our informants used forms marked with nasals as well, which had likely resulted from contact with Standard Swahili.

the same way as those in Standard Swahili.

Furthermore, a certain observation on verbal morphology is also compatible with the assumption that Kimakunduchi lacks penultimate stress. While polysyllabic verbal stems in isolation can constitute the imperative form both in Kimakunduchi and in Standard Swahili, as, for example, **-tizama** (*-tizama*) 'look' illustrates in (7a) and (8a), the imperative form of monosyllabic verbs differs between the two varieties. Kimakunduchi monosyllabic stems can occur in isolation in the same way as polysyllabic stems, as **-lja** (*-lya*) 'eat' shows in (7b); in Standard Swahili, on the other hand, monosyllabic stems like **-la** (*-la*) 'eat' in (8b), the cognate with Kimakunduchi **-lja** (*-lya*), are accompanied by the empty morph **ku-** (*ku-*) in the imperative form. Assuming that that **ku-** (*ku-*), derived from the infinitive prefix, has been retained due to stress on the penultimate syllable in Standard Swahili (Meinhof 1932: 130-131, Nurse & Hinnebusch 1993: 335, Marten 2002, cf. Downing 2006), it appears that **ku-** (*ku-*) has been lost in Kimakunduchi because of the lack of penultimate stress.

(7) Kimakunduchi
  a. tizama (*tizama*) 'Look!'
  b. lja (*lya*) 'Eat!'

(8) Standard Swahili
  a. tizama (*tizama*) 'Look!'
  b ku-la (*kula*) 'Eat!'

3.2 Tone

Some previous studies have suggested that Kimakunduchi nouns are tonally distinguished (see Section 1). In our impressionistic observation, however, Kimakunduchi words, including the nouns in previous studies, tend to be produced with little difference in pitch between syllables; that is, we have found no cues indicating the existence of tone. The results of our acoustic analyses in 2.5.1 confirm

our auditory impression because the pitch contours of Kimakunduchi di- and trisyllabic nouns in isolation were relatively flat throughout the words. For trisyllabic nouns in particular, the pitch contours of all syllables largely overlapped without significant differences. In sum, the results of our acoustic analyses as well as our impressionistic observation do not support the argument that Kimakunduchi has lexical tone.[10]

While in other Bantu languages, tonal realisation can change depending on the environments where nouns occur (Philippson 1993: 249-250, Marlo & Odden 2019: 164), Kimakunduchi nouns are pronounced with little difference in pitch between syllables even when followed by modifiers.[11] Furthermore, modifiers do not appear to change their pitch pattern according to the nouns they co-occur with. Therefore, it is less likely that tonal distinction can surface when nouns co-occur with other constituents, although we do not entirely exclude the possibility that tonal distinction emerges when nouns appear in specific environments we have overlooked.

4. Conclusion

In this article, we have conducted comparative acoustic analyses of nouns in the Kimakunduchi dialect of Swahili and in Standard Swahili. While some previous studies have proposed that Kimakunduchi differs from Standard Swahili in that it has lexical tone, the results of our analyses do not back up this claim. Rather, we argue that the absence of stress is what prosodically differentiates Kimakunduchi from Standard Swahili. In our acoustic analyses, Standard Swahili but not Kimakunduchi nouns demonstrated acoustic cues of stress on the penultimate syllable. Furthermore, two morphological differences also support our argument: In Kimakunduchi, unlike in Standard Swahili, class 9/10 nouns are not marked with a syllabic nasal prefix

[10] In some tokens, pitch rise is attested on the last part of the final vowel where vowel reduction occurs. While Racine-Issa (2002) consistently marks high tone on the final syllable of nouns (see Section 1), this mark may simply reflect such a pitch rise.

[11] Kimakunduchi is similar to Standard Swahili in that nouns show flat pitch realisation when followed by modifiers (Maw & Kelly 1975: 5, Yoneda 2012).

when stems are monosyllabic, and the imperative form of verbs occurs without the empty morph regardless of stem length. These morphological differences can be explained from the absence of penultimate stress in Kimakunduchi.

If our argument is on the right track, it turns out that Kimakunduchi is prosodically unique. To our knowledge, no similar prosodic feature has been reported in other Swahili varieties, although it has been noted that some dialects of Swahili prosodically differ from Standard Swahili (Sacleux 1909, Guthrie 1948, Kisseberth & Abasheikh 1974; 2004; 2011).

According to Nurse & Hinnebusch (1993: 553), while Proto-Sabaki, the hypothetical proto-language of a group of related Eastern Bantu languages, including the Swahili dialects, had both stress and tone systems, most Swahili dialects inherited only its stress system, and not the tone system (see also Philippson 1993: 265). Assuming gradual and unidirectional reduction of prosodic systems, we propose that Kimakunduchi, which lacks a stress system, is located at a later diachronic stage than other Swahili dialects. In the proposed process of reduction, penultimate stress can only be lost after the loss of tonal distinction. This allows us to predict that there is no distinctive tone in Kimakunduchi, and it is compatible with the results of our acoustic analyses as well as our impressionistic observation which found no evidence of nominal tone. Future work should elaborate on this diachronic process, as well as aim to describe the entire range of Kimakunduchi prosody.

Acknowledgements

This study was supported by JSPS KAKENHI Grant number 13J03150, 16J03295, 18K12371 and 19H01254, as well as the ILCAA joint research projects ‘Typological Study of Microvariation in Bantu (2)’ and ‘An Inter-Disciplinary Approach to the Diversity and Dynamics of Swahili Varieties’. We express our gratitude to the following speakers of each dialect: Nyachia Kawaida Nyachia, Sigombe Haji Choko, Zainabu Khatibu Bonde (Kimakunduchi), and Ahmed Khamis (Kiunguja/Standard

Swahili). We are also grateful to Daisuke Shinagawa, Seunghun Lee, and Shigeki Kaji for very useful comments and suggestions.

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