

# Gestalt Iconicity in EkeGusii Adjective Vowel Lengthening

## Abstract

*In this paper, I seek to demonstrate three key points. That vowel lengthening in EkeGusii, a Kenyan Bantu language, is iconized. That the extent of vowel lengthening in the adjectives shows isomorphic relations between durative vowels and meaning impressions in the sense of structural degrees of adjective intensity. That iconic vowel length cannot be accounted for without appealing to theoretical arguments that perceive durativity as an elastic concept of timespans, and not mora positions. To achieve this, I explain the concept gestalt iconicity, explore vowel lengthening, clarify why I treat long vowels as concepts of chronemity, and highlight the structure of EkeGusii adjectives, following Nash (2011). I then present primary data collected from native speakers, analysed in tabular form. I proceed to discuss iconized vowel lengthening, and finally use samples of spectrographic analyses to show why vowel lengthening may not be a matter of mora positions in iconized forms, neither a concept explainable under vowel sequencing nor syllabic weight for that matter. A wider discussion regarding iconic vowel lengthening in EkeGusii can be found in Mariera (2021a).*

**Key words:** *Gestalt Iconicity, Vowel Lengthening, Moraic Phonology, Chroneme*

## 1 Introduction

The prosodic structure of adjectives gives clue to the spatial dimensions of the nouns they qualify. This is gestalt iconicity discussed in relation to adjectives in which prosodic features like vowel lengthening, and other changes in pitch, resonance and stress placement signal the structural shapes of nouns. The analysis of vowel lengthening in adjectives could be described using various approaches such as syllabic weight by MacCawley (1968), or the more recent moraic phonology, but these approaches may not satisfy certain contextual needs in EkeGusii where speakers and hearers tap exclusive and contextually dictated gradients of meaning most appropriately afforded by factors of context and common ground. To address this problem,

Odden's (2011) approach to vowel length is explained in the perspective of older views of vowel length by Jones ([1944]1967), and Abercrombie, (1964). This allows us to perceive lengthening as an expandable feature that spans over time rather than a matter of mora positions. This position is supported by spectrographic analysis of vowel lengthening in the roots of EkeGusii adjectives.

## **2 Gestalt Iconicity**

This is a type of diagrammatic iconicity in lexical items where structures reveal something about the structural, aspectual and spatial parameters of what the isomorphic lexical items depict. In particular, vowel lengthening is an iconized prosody that is simultaneously accompanied by other equally iconized features, including variations in fundamental frequency, voicing, resonance and others (see Mariera, 2021b). On a wider scale, by examining the structure of lexical long vowels in specified word classes and in deictic, spatial and temporal expressions, we find isomorphic information that correlates to notions such as size, intensity or degree, geographical distance, and novelty, among others. Structure and the prosodic correlates of segments mirror grammatical information. This paper is focused on prosodic vowel lengthening in EkeGusii adjectives, which reveals speakers' conceptualization of increasing intensities of nominal qualities. Though iconic lengthening is considered attestable in other word classes including verbs, adverbs, and in deictic expressions of time and space (Mariera, 2021b), details this argument are not part of our present discussion.

## **3 Vowel Lengthening**

At this early point, I wish to address the question of what long vowels are in a situation where vowels span over time showing correspondence with adjective degree impressions being conveyed, varying from context to another. The findings herein pose a challenge to the definition of the mora being "one of what heavy syllables have two of" (MacCawley, 1968:525-6). This challenge is extended to moraic phonology where a heavy syllable is perceived as having two mora positions. A spectrographic analysis of data (see § 8 below) reveals that a different approach to the description of long vowels is needed to explain what long vowels are. My argument will be a little retrogressive, inclining towards the prosodic conception of length by Jones (1944; 1967), and Abercrombie (1964), who treat long and short vowels as being identical, and the length difference between them as a chroneme, a separate feature independent of the

vowels. This implies that a long vowel is that which is stretched over a time-span. The second timing slot is therefore, an indicator of extra time, but not just an additional mora position. This explanation looks more satisfying for our purposes as compared to moraic phonology which follows the mora count approach, as adopted in (Hayes, 1989), Bickmore, (1995b), Nash (2011) among others.

If moraic phonology were applied in the representation of lengthening in *ekenyere::re* (very narrow/thin/slim indeed), two mora positions would not account for what speakers actually imply in varying contexts, so a customized application would result in the following unsustainable representation in Figure 1.

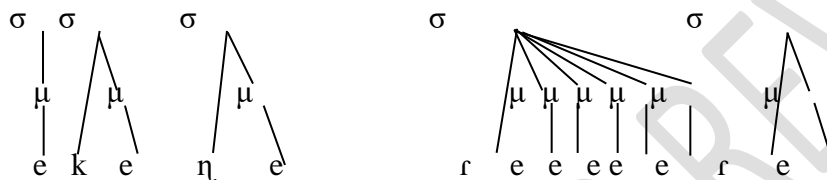


Figure1. A Customized Moraic Representation of *ekenyere::re* (very narrow/thin/slim indeed)

The challenges facing this kind of representation are not only obvious, but also pose the following questions. (1) What is it that informs the presentation of five mora positions? (2) What if more or less positions were presented? (3) Does moraic phonology allow for such positions apart from two positions for the long vowels? (4) Is this representation tenable for generalizations? (5) Does the stretch of the long vowel really meet contextual demands? Since this looks simply cumbersome and theoretically unsound, only for our present argument, Odden's (2011) view of a long vowel being '1+infinity' looks more plausible. However, the question that remains unaddressed is: What is this 'one,' to which infinity is added? To address this, treating long and short vowels as one and the same elastic or autonomously spreadable segment over timespans looks more convincing. Of course, this captures Odden's sense of infinity. Therefore, Jones' (1944, 1967) and Abercrombie's (1964) views may be found more seminal in this study, where the length difference between short and long vowels is a chroneme, a separate feature to do with time, most likely dependent on contextual demands. Though neither Jones nor Abercrombie addresses contextual issues, the role of context is cannot be ignored. This is mainly because speakers in EkeGusii lengthen vowels, on the basis of contextual

understanding. This becomes contextually understood knowledge between speaker and hearer. Regardless, issues of syllable weight remain unaddressed as it appears that a vowel can stretch to any context-determined extent, rendering root syllable weight to be inevitably relative.

Elsewhere, it has been observed that lengthening indicates durativity in Australian languages, with particular examples from Jaminjung. For instance, the intonation units *yirrunra-wardagara-nyi=ngardi:::* means “catching the goats took quite some time” while *waya=wung ga-yingi:::* means “the callout continued for some time,” (Simard, 2013, p. 67). Five different levels of emphasis in Japanese adjectives have also been attested by Kahawara and Braver (2013, p.141). Apart from the non-emphasized *いたい* [itai] which seems to describe ordinary knee pain (my interpretation), two of these examples include *いたーい* [itai] labeled as level 1 emphasis, and *いた————い* [itaaaaai] labeled as level 5 emphasis. The other three medial levels have been omitted here since the number of “—” (dashes) can predict the level of emphasis being expressed. Similar language features of iconic lengthening had also been observed in Japanese by Iwasaki (2002). In Kisi language, Childs notes that prolonged ideophones have an iconic component so that vowel elongation is associated with extension in time or space, as in the ideophone *hã-ã-ã-ã* (Childs, 1994, p. 183). Further, in his sampling of Gbaya ideophones, Childs (1994, p. 193) shows iconic lengthening besides reduplication in the word *fεε* ‘a breath of air,’ and the lengthened form, *fεεε* ‘a long breath of air.’ The same applies to *dirr* ‘a rumble like thunder,’ and *dirrr* ‘a long rolling rumble like thunder or like an earthquake.’ Braver, Drescher, and Kahawara (2016) have explored lengthening in English where the adverbs ‘*mad, very, too, so, way, super, and really*’ are lengthened up to five different levels, with a steady increase in duration from one level to another. These examples point at the universal nature of lengthening.

#### 4 The Morphological Structure of EkeGusii Adjectives

Following Nash (2011), the morphological structure of adjectives is considered to take the form PREFIX+STEM. This is analyzable as follows:

[ [nominal pre-prefix-adj agreement prefix]<sub>APX</sub> Adjective stem ]<sub>ADJ</sub>.

Figure 2. Morphological Structure of EkeGusii Adjectives

Table 1 (below), adopted from (Nash 2011), gives an outline of the classes of adjectives, with their analyses as shown. It is clear that that the adjective agreement prefix actually agrees with the noun class prefix; the adjective agreement prefixes is a copy of the noun class prefixes. For instance, example (b) from Table 2 below, if mapped from Table 1 (listing class pre-prefixes and prefixes) is, therefore, analyzable as follows:

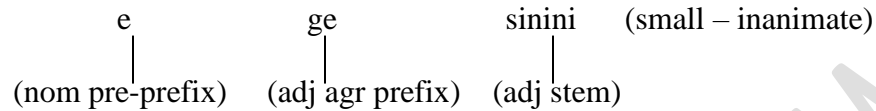


Figure 3. Morphological Analysis of an EkeGusii Adjective

This falls under class 7, only that the voiceless stem initial consonant requires a voiced consonant in the adjective agreement prefix for ease of articulation. In fact, the possible noun that can be qualified by the adjective will have the noun class prefix being *ke-* or *ge-* as in examples (i) and (ii) below:

- i.    e-            ge-    kombe            e-            ge-            sinini  
       pre-pref    pref    cup            nom pre-pref    adj agr pref    small  
       /e            ye    kɔmbe        e            ye            sinini/  
       ‘a small cup’
- ii.    e-            ke-    moni            e-            ge-            sinini  
       pre-pref    pref    cat            nom pre-pref    adj agr pref    small  
       /e            ke    moni        e            ye            sinini/  
       ‘a small cat’

Table1. EkeGusii class pre-prefix and class prefix (Source Nash 2011:67)

Class	nominal pre-prefix (pp)	noun class prefix	adjective agreement prefix
1	ó-	mo-	mo-
1b	∅	∅	
2	á-	ba-	ba-
3	ó-	mo-	mo-
4	é-	me-	me-
5	é-	ri-	ri-
	H	rii-	rii-
6	á-	ma-	ma-

7	é-	ke-	ke-
8	é-	bi-	bi-
9	é-	Ø	n-
9a	é-	n-	
10	H	chi-	chin-
10a	H	chin-	
11	ó-	ro-	ro-
12	á-	ka-	ka-
14	ó-	bo-	bo-
15	ó-	ko-	ko-
16	á-	Ø	Ø
21	H	nya-	nya-

## 5 Data Sources and Analysis

For our purposes, the data presented here was developed initially by introspection. This approach has been supported by various scholars including Talmy (2018, cited in Mariera, Barasa and Gesura 2024). The data was then exposed to four purposively selected native speakers. The respondents had grown up among natives, had between 30-45 years, and still resided among natives of Nyamira County in Kenya, which factors ensured increased reliability. They had attained a formal education to tertiary levels, which enabled them to pronounce words appropriately and bring out correct impressions of adjective intensification. They were allowed to examine, understand, rehearse and, on appointed days, read the adjectives to bring out various meaning impressions of adjective intensification. Their native speaker competence allowed them to produce varied decontextualized adjective lengths as normally used in EkeGusii. The respondents were recorded in silent rooms to increase efficiency and reliability. The readings were analysed using *Praat* version 6036. This program allowed retrieval, filtration (denoising) of recorded voice material, setting boundaries and truncation of unrecorded parts. Wave forms, pitch tracks and formants were extracted for analysis. The analyses given in Figures 5-7 below represent one of the three respondents as no substantive variations would be realized between the four respondents. Though tone diacritics for pitch variations have not been placed on the data herein, the discussion under §8 relies on the visible pitch tracks in Figures 5-7, yet, regardless, the overall impression on lengthening is not distorted.

## 6 Data Presentation

Table 2 (below) introduces a list of adjectives with the transcriptions done down the first columns, the glosses given once for each different adjective on both sides of the contrasts, and function of the intensified meaning exemplified once across row (a) to avoid redundancy. The adjective agreement prefixes for all the adjectives relate to inanimate subject prefixes of class 7 in the relevant noun subject prefixes. All the adjectives, therefore, qualify inanimate things in both negative and positive aspects. Change of the adjective agreement prefix, say from class 7 to 6 or 3, does not affect the target vowel lengthening in the agreement prefix or adjective stem, or rather, the changes in relative pitch and other prosodies in the adjective string.

Though languages like English spell out a particular order of adjectives determined by semantic sets (Quirk, Greenbaum, Leech, & Svartvik, 1972:267), the features listed in (a) to (g) of Table 2 are not in any way ordered, as this is of no immediate priority, but they help explain the contrasted feature between the two sides of negative and positive attributes. The increasing degree of the attributes in the negative and positive aspects is represented by increasing colons across Table 2 instead of sequencing vowels as done in other studies such as Childs (1994). Regardless, the use of single or double colons is not an accurate representation of lengthening, whatsoever.

Table 2. Iconic Vowel Lengthening in Adjectives

		Increasing negativity →			Increasing positivity →		
	<i>attribute</i>	<i>Absolute adj</i>	<i>Very...</i>	<i>Very ... indeed</i>	<i>Absolute adj</i>	<i>Very...</i>	<i>Very... indeed</i>
a	Quality	ekebe [ekeβe] (bad)	eke:be  (very bad)	eke::be  (very bad indeed)	ekiya [ekija] (good)	eki:ya  (very good)	eki::ya  (very good indeed)
b	Size	egesinini [egesinini] (small)	egesini:ni	egesini::ni	ekenene [ekeneɛ] (big)	ekene:ne	ekene::ne
c	Weight	ekegusu [ekeγusu] (light)	ekegu:su	ekegu::su	ekerito [ekeritɔ] (heavy)	ekeri:to	ekeri::to
d	Breadth/	ekenyerere	ekenyere:re	ekenyere::re	ekegare	ekega:re	ekega::re

	thickness	[eken̩erere] (thin/slim/narrow)			[ekeyare] (wide)		
e	Height /length	ekieng'e [ekien̩e] (short)	ekie:ng'e	ekie::ng'e	egetambe [eyetambe] (long)	egeta:mbe	egeta::mbe
f	Quantity	egeke [eyeke] (little)	ege:ke	ege::ke	ekenge [eken̩e] (much)	eke:nge	eke::nge
g	Taste	ekeroro [ekeroro] (bitter)	ekero:ro	ekero::ro	egiansu [eyiansu] (sweet)	egia:nsu	egia::nsu

## 7 A Discussion of Iconicity in EkeGusii Adjectives

The first question to address regards the morpheme in the adjective that is actually affected by lengthening. Using examples (a) and (b) (Table 2 above), it can be observed that both prefixal and adjective stem vowels can be lengthened. The adjective agreement prefix vowel lengthens in (a) while the adjective stem vowel lengthens in (b). In adjectives that lack the agreement prefix (having been phonologically ellipted in the noun) as in *ase a:be* (very bad place), it is the noun pre-prefix that lengthens as shown in Figure 4 below. In rapid speech, the stem final vowel is usually deleted so that the phrase reads like *as'a::be* [asa::βe]

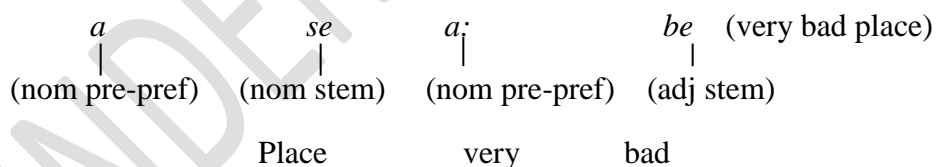


Figure 4. Analysis of Lengthening in an Adjective Lacking an Agreement Prefix

Secondly, in all the examples (a-g), and from the example above, it is clear that it is the penultimate vowel that lengthens. Therefore, the rules of vowel lengthening in the adjective are insensitive to morpheme categories; they apply non-selectively to penultimate vowels.

Having established where the rules of lengthening apply, the second question to address is the function of the said lengthening. Using the example above, *ase a:be* (a very bad place), naturally

ellipted as *as'a:be*, it turns out that the intensifier “very” is conveyed by lengthening which applies to the nominal pre-prefix. This morpheme, therefore, serves both morphological and phonological functions where the latter communicates emphasis. The durative aspect of the vowel spans over time implying that there is motivated adjectival meaning in duration.

For us to ascertain whether lengthening is motivated, analysis of more examples from Table 2 is warranted. Example (a) has lengthening of the nominal prefix in two different degrees, apart from the absolute, where *eke:be* means “very bad,” and *eke::be* can be glossed as “very bad indeed” or “extremely bad.” The contrast with the positive attribute equally displays up to three relative degrees of comparison where *ekiya* glosses as “good,” *eki:ya* “very good” and *eki::ya* as “very good indeed.” If stem tones are varied upwards coupled with vowel lengthening in example (g), the word becomes a noun meaning ‘local brew. However the contrastive tones are not focused on for our present purposes. The adjective *ekeroro* glosses as “bitter,” or as *ekero:ro* “very bitter,” and as *ekero::ro* “very bitter indeed.” Clearly, lengthening rules apply on the adjective stem’s penultimate vowel. Generally, the more the vowels on the adjective, the higher the degree of the adjective attribute. By examining the form of the adjective, we can get information about the degree to which its meaning is intensified. There is clear correspondence between form and meaning, comparatively speaking.

While languages like English can express comparison in gradable adjectives morphologically (Quirk, Greenbum, Leech, & Svartvik, 1972), one way in which EkeGusii expresses such comparison is by prosodic means as shown. Other ways of expressing gradability could be grammatical, by way of post-modifiers as in *ekeroro mono* (so bitter), but the iconic value of such phrases cannot be established here. Certainly, lengthening, in a considerable number of EkeGusii adjectives, is a signal of adjective intensification, which is motivated by the linguistic necessity on the speaker’s part to convey particular impressions. Since lengthening is informative, it is, therefore, considered iconized. The gestalt lies in the isomorphic relationship obtaining between form and conceptual structure.

## **8 A Spectrographic Analysis of Vowel Lengthening in Adjectives**

A few more questions solicit answers. How far can vowels lengthen in iconized adjectives? Does context play any role in such lengthening? Which other prosodies are motivated in iconized

adjectives? To address these questions, Figures 5-7 (below) display a spectrographic analysis of example (d) from Table 2 focusing on the negative attributes though the positive would equally turn out with fairly similar patterns.

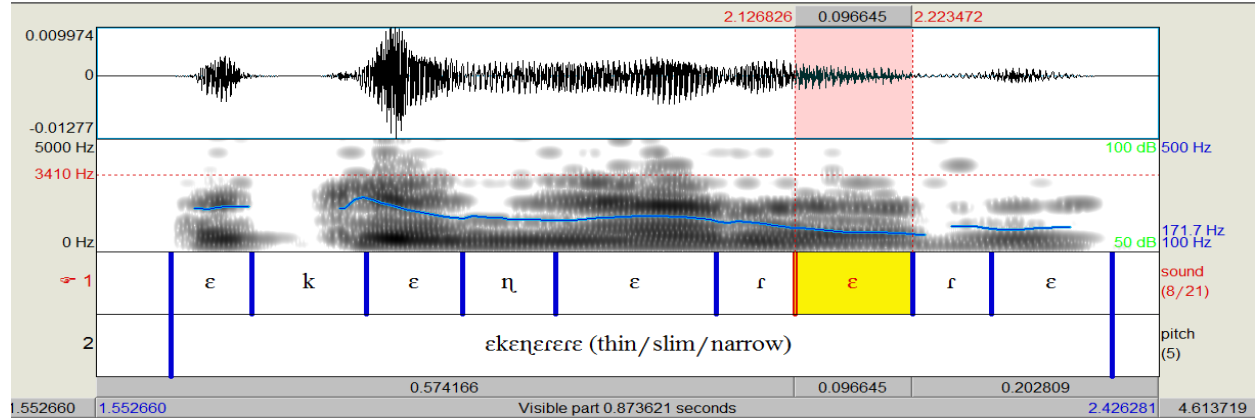


Figure 5. Spectrograph for *ekenyerere* (thin/slim/narrow)

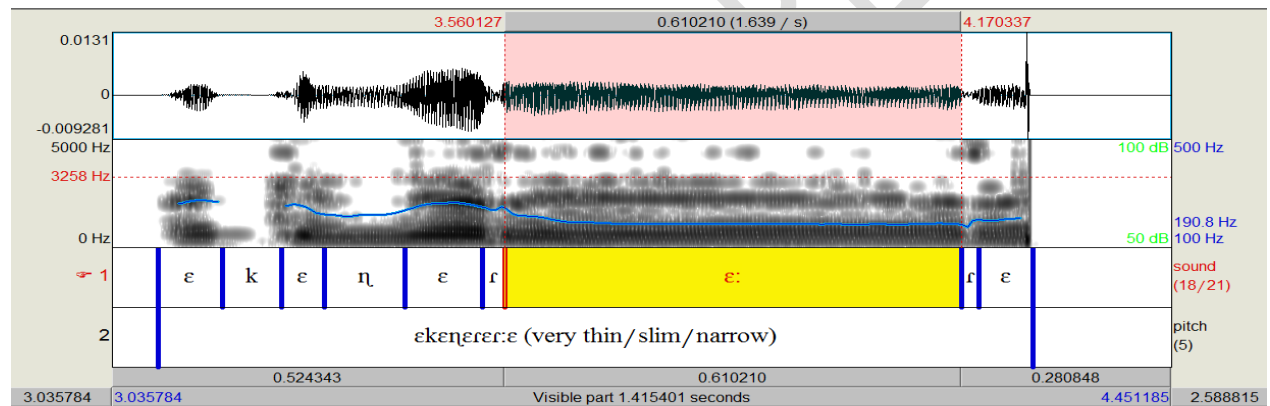


Figure 6. Spectrograph for *ekenyere:re* (very thin/slim/narrow)

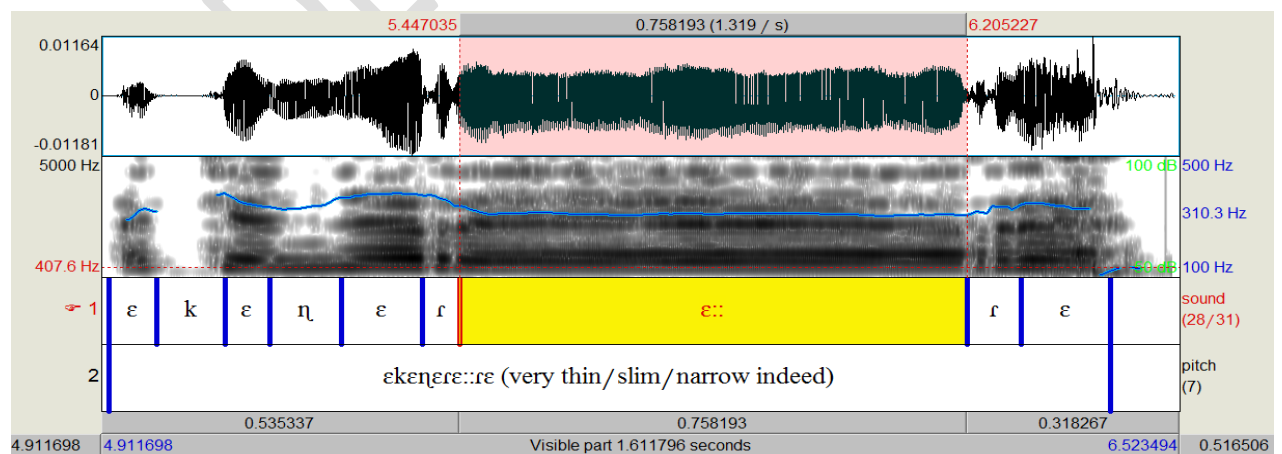


Figure 7. Spectrograph for *ekenyere::re* (very thin/slim/narrow indeed)

In the three spectrographs in Figures 5-7, the spectrograms have been displayed to show the concentration of acoustic energy especially on the lengthened vowels, and justify the segment boundaries therein. For Figure 7, the end of the word boundary sticks inwards away from an unedited noisy scratch. The final vowel spectrograms clearly show the concentration of acoustic energy. The waveforms for the last consonant show it as a double sound because this sound comes out correctly as a flap.

How far the vowels lengthen can be read from the length values of the highlighted penultimate vowel in each spectrograph from Figure 2 to 4; 0.096645s, 0.610210s, and 0.758193s in that order. The values indicate that the short vowel in Figure 5 is by far shorter than the other two. The second vowel (the first long vowel) in Figure 6 is much closer to the third (second long) vowel in Figure 7. These values, checked against those of other respondents, give negligible inter-respondent differences in values, but the value gaps show similar patterns. Most important is that these are relative length values that cannot, whatsoever, be accurately represented by the single or double colons as shown in Table 2. The length marks (colons) only give a guide to which vowel is longer than the other. Therefore, it is a challenge to determine how far penultimate vowels can lengthen from time to time, as speakers will stretch vowels more appropriately guided by contextual parameters. The shared knowledge between the speaker and the addressee will control how conveniently speakers convey iconic impressions of degree intensification. Further, it is a challenge to represent long vowels, as already noted, in moraic phonology or sequential representation. Therefore, the colons used herein should not be misconstrued to represent mora positions. All that can be consistently ascertained is that long vowels are characteristically durative in their iconic functions.

To determine which other iconic prosodies are affected, an examination of the spectrographs shows what happens along the pitch tracks. While the first absolute adjective displays falling pitch patterns, picking on highs of 259Hz dropping consistently to lows of 167Hz, the long vowels in Figures 6 and 7 display fall-rise pitches in both cases. High pitches are observed on the stem-initial vowel, possible triggered by the automatic emphasis to signal intensification and anticipated lengthening. While amplitude decreases on the final vowel in 5, they are clearly raised in 6 and 7. The impression from the raised pitch contours on the final vowels, and the impression of the wave forms confirm higher stem-initial and stem-final pitches. Intensifier

pitches, therefore, tend to rise suggesting their iconic characteristic. Notably, prosodies seem to apply simultaneously in adjectives, as they expected to apply in other word categories, including nouns and verbs as detailed in Mariera (2021b).

## 9 Conclusion

It is clear that iconic vowel lengthening is well accounted for if it is studied as a concept of timespans. The use of colons for sequential length marking, or the application of moraic phonology, may not indicate contextually determined and iconized lengthening, hence the inevitable application of spectrographic analysis for vowel lengthening. This is the one-stop solution to challenges of iconized prosody challenges. A similar picture of lengthening is anticipated in deictic expressions, adverbs, and verbs in EkeGusii, as detailed in Mariera (2021b). I am highly persuaded that there is a degree of iconic stress in EkeGusii adjectives, but this calls for a thorough examination using primary data collected from native speakers to establish this persuasion. Only sound research can establish the extent to which iconic lengthening is attestable in other Kenyan Bantu languages, and shed light on other approaches that could explain it better. As for our purposes, I posit that any analyses of vowel lengthening could only be established using a speech analyzer program, *Praat*, since native speaker impressions could be grossly misleading.

### Symbols and abbreviations

$\sigma$	-syllable node
$\mu$	-mora position
adj agr pref	-adjective agreement prefix
nom pre-pref	-nominal pre-prefix
nom stem	-nominal stem
pre-pref	-pre-prefix
pref	-prefix

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