PROSODIC SIMULTANEITY AND ICONICITY IN EKEGUSII

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KISII UNIVERSITY

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DEDICATION

To my wife Kemunto, and children, Osoro, Bosire, and Nyanduko
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ABSTRACT

The study examines the simultaneous function of contrastive features of prosody, and analyzes the correspondence between prosody, phonemes and meaning in EkeGusii, a Bantu language spoken in South Western Kenya. The study postulates that meaning in EkeGusii is both arbitrary and non-arbitrary. The objectives of the study were, to evaluate the interaction between simultaneous variation of prosodies and meaning, to describe the iconic mappings between prosodies and meaning, and between phonemes and word meaning, in EkeGusii. The study sought to ascertain whether EkeGusii relies on simultaneous variation of suprasegmental features, including tone, vowel lengthening and harmonized vowel height, to achieve meaning contrasts in orthographically similar lexical items. The study, therefore, argues for prosodic co-articulation. Secondly, the study sought to establish the level of motivation in the variation of suprasegmental features, making them isomorphic; the extent to which something in the feature is mimetic of the real world. Features like vowel lengthening, pitch variations, loudness, resonance, and accent are iconicized to convey particular meaning impressions. Finally, the study sought to establish whether there is a mimetic relationship between word sounds and meaning in EkeGusii. A total of 470 lexical items were examined to substantiate the arguments made in the study. The study was located in Masaba North Sub-county of Nyamira County, and focused on the ekegoro dialect of EkeGusii. Four informants were purposively selected for data generation, recording on Praat, data analysis, and interpretation. Other data was gathered on the basis of native speaker intuition, and from secondary sources, among others, from the EkeGusii-English Dictionary by Bosire and Machogu (2013). Two theoretical approaches were adopted in the analysis of data. Firstly, Goldsmith’s (1976, 1990) Autosegmental Phonology coupled with insights from Clements and Keyser’s (1983) CV phonology was used to analyze tone, vowel length and vowel harmony, posing moderate challenges against moraic phonology. Autosegmental Phonology allowed for the autonomous and simultaneous association of multiple tiers to segmental structure such that vowel length is reflected in the timing tier, tone in the tonal tier and contrastive vowel height in the vowel harmony tier, an enhanced representation of the tiers. Secondly, iconicity, a conceptualization in semiotics was used to explain isomorphism in prosodies, and the mimetic nature of word sounds in EkeGusii. This enabled the researcher to describe the natural relationship between prosodies and meaning, and the correspondence between sound and meaning. Lexicostatistic lists were used to elicit pronunciation contrasts from respondents, which were spectrographically analyzed. Mimetic sounds were analyzed impressionistically, and spectrographically. Findings from the study revealed a unitary approach in the description of prosodies as being concurrently applying features, either for contrastive or mimetic functions. This study reviewed and reorganized the misconstrued syllable patterns in EkeGusii, presenting evidence against moraic trimming. It established that prosodies are applied simultaneously, contrastively or isomorphically, thereby revealing the challenges facing vowel lengthening, and concluding that EkeGusii is better described as a prosodic language. It finally established that several word sounds in EkeGusii are mimetic. It affirmed the relevance of iconicity in studying Ekegusii. Among others, the study recommended that prosodic co-articulation and iconicity be studied in other languages, that future studies try to unravel the puzzle around vowel lengthening, that gestures in EkeGusii be studied from a semiotic perspective, and that iconicity be extended to the study of other aspects of non-verbal communication.
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## LIST OF SYMBOLS AND ABBREVIATIONS

1 First person  
3 Third person  
1Psub First person plural subject marker  
3Ssub Third person singular subject marker  
/ / phonetic representation  
[ ] phonetic transcription  
[CAPS] meaning component of a lexical item  
[+F] Harmony feature  
{ } Morpheme boundary  
Adv adverb (ial)  
AC Association convention  
AP Autosegmental phonology  
ATR Advanced tongue root  
AUG Augment or pre-prefix  
C consonant  
CAUS causative morpheme  
CV consonant, Vowel  
Ext stem extender  
F₀. Fundamental frequency  
FV final vowel  
H High tone  
IDEO ideophone  
L Low tone  
LPM Lexical phonology and Morphology  
N Noun  
obj Object marker  
OCP Obligatory contour principle  
OT Optimality theory  
PF perfective marker  
Quot Quotative form  
R root  
S singular  
SPE Sound pattern of English  
SUB subject marker  
TBU Tone bearing unit  
V vowel  
WFC well-formedness condition
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CHAPTER ONE

INTRODUCTION

1.0 Background to the study

The purpose of the present study was to examine the simultaneous application of prosodies in contrasting lexical items, and the relationship that obtains between prosodies and meaning, and between word sounds and meaning, in EkeGusii. EkeGusii is a Bantu language of the Niger-Congo phylum, the world’s largest genetic grouping (Maho, 2003). The language is spoken in the southwestern part of Kenya, mainly within Kisii and Nyamira Counties, the ancestral home of the native speakers. According to Guthrie (1971, cited in Cammenga 2002, and Maho, 2003), the language is a member of the Ragoli-Kuria group (E40), labelled E.42 (J), grouped together with Logooli, Idaxo, Isukha, Tiriki, Kuria, Shashi, Zanaki, Ikoma, Sonjo, Ngurumi, Ikizu, Suba and Kabwa. However, apart from Guthrie’s geographically influenced grouping, the history recorded by a group of the speakers indicates that Omogusii, the community’s ancestor, is a close relative to the ancestors of other Bantu communities, including omoGikuyu, omoGanda, omoMeeru, omoRagoli, omoNyore, and omoKuria, among others (Okoegegera Ekegusii Association, 2019). EgeKuria, labeled E.43 (J), is the closest language to EkeGusii, considering the existing mutual intelligibility, as evidenced by Nyauma (2016).

Omogusii, the ancestor of the community, is recorded to have had seven children, five sons and two daughters, who made the seven large clans, ‘the houses’ of the Abagusii. The names of these seven clans include Ababasi, Abasweta, Abagusero/Abatondo, Abagirango, Abatabori, Abanchari and Abakeira. The first generation name, abasweta, is being abandoned, so that the second generation sub-clan names of this ‘house’ are now being used, including Abamachoge, Abanyaribari, Abagetutu, Abasamaro, Abarangi and Abasigisa (Okoegegera Ekegusii Association, 2019). Currently, EkeGusii is considered to have two dialects, ekerogoro and ekemaate (Bosire, 1993; Mecha, 2013), though a third
variety, Goseta, is considered to have been in the making from the 1970s, among the speakers of the settlement scheme known as Goseta, in Trans-nzoia county, as a result of interaction with other languages (Abuga, 2013). Currently, the EkeGusii is spoken across Kenya, especially in places where clusters of native speakers have settled, such as Trans-Mara in Narok County, Molo in Nakuru County, as well as parts of Kericho and Bomet Counties, among many other rural and urban places. The present study was focused on the ekerogoro dialect of EkeGusii, as this is considered the standard variety, used in the EkeGusii Bible, other print media, radio stations and audio-visual media, and following the researcher’s considerable reliance on native speaker intuition, among other grounds detailed in subsections 1.6 and 3.3.

The relationship between linguistic signs (concepts and sound image) and the signified has been, for a long time, considered unmotivated, or arbitrary, following the principle of arbitrariness associated with Ferdinand De Saussure (1965). This view maintains that there is no connection between signs and their referents. The Bloomfieldian American structuralists accepted this position while viewing sound-symbolism as marginal. The Saussurean view also dominated the world of transformational generative grammar, while generativists also conceptualized sounds as bundles of features, and not as symbolic, as elaborated in Fordyce (1988).

Recent linguistic investigations have begun paying considerable attention to another view of linguistic signs, that they are motivated. This implies that there is a connection between linguistic signs and the signified; meaning that by examining linguistic signs, there can be found one-to-one mappings between the signs and the concepts they represent in the real world. This is the concept named “iconicity,” associated with Charles Sanders Peirce (1931, 1974), arguing for non-arbitrariness. In this context, while the Peircian view holds that non-arbitrariness deserves considerable space in linguistic
dialogue, and while it challenges the Saussurean view, it does not dispense with it. There is considerable evidence for both the arbitrary, and the non-arbitrary aspects of language.

This study sought to investigate how meaning is conveyed in EkeGusii, considering these two perspectives; prosodic simultaneity in arbitrariness, and in non-arbitrary the iconization of prosodies and sounds. Firstly, the study sought to argue that while the relationship between signs and the signified is arbitrary, EkeGusii, to a considerable extent, uses very many lexical items that are passed as orthographically similar. Such lexical items are distinguished by an application of simultaneously varied prosodies, to contrast these similar-looking items. The three prosodies that were investigated include tone, vowel lengthening, and harmonized vowel height, all considered simultaneously contrastive in nouns and infinitives, except in limited cases with unary (single feature) contrasts. This argument deviates from popular unary analyses where, a single prosody is analyzed as being contrastive, such as it happens in Ongarora (1996), Cammenga (2002), Nash (2011), and Mariera (2011), among others. These earlier analyses have accorded EkeGusii, and other Bantu languages, the widely accepted label, “tone language,” a position reconsidered in this study. The contrastive function of prosodic features, such as tone, in tonal languages like Mandarin Chinese (Clark & Yallop, 1995), and several African languages such as Margi, and Mende (Katamba, 1989), is not disputable. Word meaning can equally be contrasted by tonal variations in EkeGusii. This is witnessed in several nominal forms such as ámató ‘leaves’ versus ámátó ‘ears,’ è-ke’-r-ɔ’ ‘wooden hook’ versus è-ké-r-ɔ’ ‘season,’ and éndà (stomach) versus éndá (jigger), among others (see further elaboration under section 4.1.3). This, unfortunately, is a limited, and unary (or single feature) approach to the study of prosodic features. Adduced evidence shows that suprasegmental features apply concurrently alongside segmental structure, suggesting the need for a unitary analysis, examining the contemporaneous function of prosodic features in meaning contrasting.
Secondly, this study sought to substantiate that non-arbitrariness holds a central place in EkeGusii, challenging the exclusive Saussurean view of arbitrariness. This was done by the examination of prosodies and word sounds in EkeGusii. It was perceived that while prosodies vary simultaneously to convey various delienations of related meanings, such prosodic variations are iconized; there is correspondence between prosodic structure and the concepts signified by relevant lexical items. This relationship holds between meaning and the simultaneous variation of vowel length, pitch, resonance, loudness, and accent, in lexical items. Thirdly, it was conjectured that there is a mimetic relationship between sounds and the meanings conveyed by lexical items. This was considered justifiable within associative and phonoaesthetic icons, onomatopoeic words, and ideophones. As Elleström (2010) observes, it is not possible to separate form from meaning. In other words, there is no form without meaning; all meaning has some sort of form. The connection between the form of a lexical item and its meaning is the correspondence which, according to Hiraga (2007), strikes an iconic moment. Elleström (2010) argues that it is misleading to try to distinguish between perception and reasoning, or between seeing and thinking. Our perception is an interpretation of the external world. Information reaching our brains is not systematically arranged, but a collection of more or less separate signals that the brain selectively puts together into a comprehensible unity. Separate pieces of information are perceived as coherent form, hence given meaning. Perception is strongly linked to unconscious interpretation of sensory data. The distinction between perception and imagination is blurred. According to Kosslyn (1994), the parts of the brain used in visual perception are also used in mental imagery. In the same vein, Arnheim (1994) observes that in the perception of shape lie the beginnings of concept formation.

This study presents evidence for the iconic nature of meaning in EkeGusii, without dispensing with the arbitrary aspect. As Dingemanse, Blasi, Lupyan, Christiansen, and Monaghan (2015) observe, natural language contains a mix of arbitrariness, iconicity and systematicity. In a lexical item, there is a sign
that reflects something in the world. It is such resemblance that allows items to successfully represent or depict concepts shared between speakers and hearers. The analysis of simultaneous prosodic variation attains a unitary (or inclusive) linguistic description of EkeGusii, unlike previous approaches, which would study one feature, such as tone, against the segments. Douaud (1983) gives evidence of convergence (multiple applications of prosodic features) in Cree, a language spoken in Canada, noting that it makes complex use of primary stress, secondary stress, vowel length and pitch. This makes Cree intonation a complex affair. For instance, it is observed that the placement of primary stress in the language depends on the number of syllables in a word, on the configuration of the following word and on the speed of utterance.

A comparable scenario appears in EkeGusii, where tone, vowel length, vowel harmony, and other features, converge for meaning contrasting, so that words such as ơ-boʾ-ròrò (pain) versus ɔb̥:r̥ (hen fleas) are contrasted by simultaneous variations in tone, harmonized vowel height, and vowel lengthening. The co-functional nature of suprasegmental features, alongside segments, reveals the arbitrary and mimetic nature of meaning. Dingemanse, et al. (2015), posit that arbitrariness accounts partly for attested relations between form and meaning, considering that it is complemented by iconicity and systematicity. It is on the basis of this understanding that this study investigated the interaction between simultaneous prosodic variations and meaning, guided by the autosegmental phonology theory (Goldsmith, 1976; 1990), and the analogous nature of meaning in EkeGusii, guided by iconicity, a conceptualization within semiotics. The expression of meaning relates to simultaneous variation of suprasegmental features parallel to segmental structure, and the imitative nature of words, both at the prosodic and phoneme levels. This study, therefore, fills the linguistic gap where prosodies have not been previously described as concurrently contrastive, prosodies have not been perceived as contemporaneous and iconized, and phonemes have not been described as depictive in EkeGusii.
1.1 Statement of the problem

There exists a relationship between phonological features and meaning, prosodic form and meaning, and phonetic form and meaning, in EkeGusii. Autonomous features like tone, vowel length, and harmonized vowel height, appear synchronized in meaning contrasting. Prosodies like vowel lengthening, vowel harmony, pitch, loudness, resonance, and accent, again appear co-functional and iconized, showing correspondence with certain lexical categories in EkeGusii. Other lexical items in EkeGusii have sounds that are imitative of the world, equally attesting to the depictive nature of word sounds. An examination of the simultaneous variation of contrastive prosodies, and the iconized nature of phonological and phonetic material, augments the description of EkeGusii, and clarifies issues around meaning. Previous studies around vowel harmony, tone spread, general phonology and morphology, reduplication and others, have not addressed prosodic simultaneity, and iconicity, in EkeGusii. This study fills the gap occasioned by the limited description of the language in relation to tone as an autonomous and contrastive feature, beyond the segments, by considering other contemporaneously contrastive features of prosody. Further, this study reveals the previously unnoticed correspondence between prosodies and meaning, and between phonemes and meaning, establishing the motivated and imitative and/or depictive nature of the language. This demonstrates that EkeGusii is both arbitrary and motivated, which widens the view of this language.

1.2 Purpose of the study

The purpose of this study was to examine the contrastive function of simultaneously varied prosodies, and the mimetic or motivated relationship between prosodic form and meaning, and between phonetic form and meaning, in EkeGusii.
1.3 Research Objectives

The study sought to achieve the following objectives:

i.) To assess the interaction between simultaneous variation of prosodic features and meaning in EkeGusii

ii.) To examine the iconic mappings between the variation of prosodic features and meaning in EkeGusii.

iii.) To analyze the iconic relationship between phonemes and word meaning in EkeGusii.

1.4 Research Questions

The study sought to address the following research questions:

i) How do prosodic features interact simultaneously, in relation to meaning in EkeGusii?

ii) To what extent are there iconic mappings between the variation of prosodic features and word meaning in EkeGusii?

iii) To what extent is there an iconic relationship between phonemes and word meaning in EkeGusii?

1.5 Rationale of the study

This study points out prosodic and semiotic features of EkeGusii that have hitherto not been described as contemporaneous, and/or iconic. It is conjectured that in EkeGusii, prosodies are varied simultaneously to contrast meaning in lexical items. The revelation of linguistic puzzles around this prosodic function will inform future studies to achieve more accommodative descriptions of other languages. Further, delving into iconicity in EkeGusii, equally informs research in other languages.

This study applies, to a wide extent, a spectrographic approach to the analysis of data in EkeGusii. This deviates from past impressionistic analyses of language, which could lead to erroneous conclusions on
language characteristics, especially on prosodies like tone and vowel lengthening. It becomes clear that reliance on native-speaker intuition to analyze language can be greatly misleading.

Our study advances linguistic adhocracy. The application of Autosegmental Phonology, alongside iconicity, reveals both the iconic and arbitrary nature of language, thereby demonstrating the applicability of the two approaches in explaining language data. Iconicity, as a semiotic conceptualization, has been extensively applied in studying other languages.

The findings of this study have implications for researchers on language acquisition and development, as they reveal the suprasegmental superimpositions in adult speech. This implies that tonal language learners, or children, carry a linguistic burden in their first and second decades of life. As noted by Hazan, Toumainen & Pattinato (2016), the conversational articulation rate increases with age. Older children and adults shorten the average duration of a word sequence. This explains why adults deliberately decrease their articulation rate in storytelling. This allows children to make out the different suprasegmental characteristics of natural speech for language development.

The findings from this study will contribute to the teaching of phonology at advanced levels, by shedding light on prosodic simultaneity, and the iconization of prosodies, and sounds. Finally, this study will point out various research gaps, not only in EkeGusii, but also in other languages, to enhance future linguistic enquiries.

1.6 Scope and limitations

This sub-section explains the depth of investigation conducted in the present study, and the boundaries set for the research study to make it manageable, under scope. Under limitations, it explains factors
relating to the validity and reliability of the study, which would not be controlled by the researcher within the defined scope. The presentation of information in this section is aligned with insight from Lulenburg and Irby (2008).

1.6.1 Scope

The present study was limited to the analysis of suprasegmental features; tone, vowel length, and harmonized vowel height, for the first objective, and for the second, vowel lengthening, pitch variation, loudness, resonance, and accent, to explain how they impact on meaning, as arbitrary, or iconized. In the third objective, the study focused on the analysis of phonemes, to establish the mimetic or depictive nature of word sounds in EkeGusii. Other prosodic features, including nasality and intonation, were not discussed herein as they were not found relevant in the language, and therefore, the study.

The study was guided by Autosegmental phonology (Goldsmith, 1976; 1990), as extended to Clements and Keyser’s CV phonology (1983). Though the review of vowel length by Odden (2011) treats lengthening as an autonomous feature of spread linked to two timing positions, spectrographic analysis reveals that two timing positions lack linguistic accuracy (see section 4.1). The study was also guided by iconicity, to analyze the resemblance between prosodies and meaning, and phonemes and meaning.

Though compatible with autosegmental phonology (AP), the metrical phonology theory was left out, since it handles phonological representations in hierarchical structures of binary branching, while AP has advanced to a tier-based analysis, showing how features and segments relate with the syllable, based on specified principles. The use of syllabic weak and strong nodes is now outdated (Fox, 2000), so that the onset, peak and coda positions are replaced by the CV positions. Long vowels are related to timing positions, instead of a sequential representation of strong and weak segments, showing that,
perhaps, long segments constitute single segments in a sense, an argument supported by Vago (1985). Equally, the metaphorical function of onomatopoeia was excluded from the study, since the conceptual metaphor theories would have to be invoked, which would make the scope of the study unmanageable.

The present study avoided syntactic tone and tonal marking of grammatical aspects like case, tense, person, mood, and modality in the language of study, as such has been handled by Mariera (2011), though with glaring descriptive inaccuracies, which aspects have equally been handled extensively in other language studies, such as Mwita (2008; 2012), who has studied verbal and nominal tone in Kikuria.

Our study focused on the *ekerogoro* dialect of EkeGusii, avoiding *ekemaate* (Bosire 1993), especially because of the former’s larger population of speakers, available data, the extent of use in publications and in other forms of media, the levels of prestige enjoyed by the dialect, which accords it a standard status in the world of usage, and the researcher’s reliance on native speaker intuition to generate and analyze part of the data collected.

### 1.6.2 Limitations

The study was limited to the collection and analysis of lexical data, thereby avoiding post-lexical data, which renders the analyzed data de-contextualized. This was accasioned by delimitations of scope, and the challenges of recording and analyzing data on praat. Post-lexical prosodies would obviously turn out with fairly different results, but that would have extended outside of lexical analyses. On lexical data, however, the study did not define a sample limit, thereby collecting data to the level of saturation (to the extent that no additional data were being found), in an attempt to maximize reliability with a view to coming up with generalizable conclusions as explained in chapter 3.
Though gestures and facial expressions are iconic, our scope would not afford a separate analysis. The study therefore focused on gestures and facial expressions that co-occur with iconized prosodies in subsection 4.2.7, thereby leaving an independent study of gestures and facial expressions for future investigations. Notably, the findings of this study would not be generalized to the ekemaate variety of EkeGusii (which was not examined herein), though a larger percentage of the findings is speculated to be relevant.

While the respondents would pronounce words correctly, to a large extent, the study was limited by the lack of technical linguistic skills on the part of the respondents, to distinguish between various prosodies such as tone and vowel lengthening, so that it required reliance on the researcher’s native-speaker intuition, knowledge, skills, and experience, to distinguish one prosody from another, or decipher what the respondents were really saying, or doing with language.

The unavailability of previous research on prosodic simultaneity, or prosodic co-articulation in a Bantu language (as far as the researcher would locate), hampered the expected cross-linguistic discussions of the findings of this study. It can only be hoped that future research will pursue investigations along similar lines, to assess the applicability of the findings of this study, and if possible, assess the soundness of the claim that contrastive prosodies achieve this function contemporaneously.
1.7 Operational definition of terms

Deixis: Expressions of time and space, that cannot be understood without extra contextual information

Loudness: the sonority levels of a sound

ekemaate: A dialect of EkeGusii mainly spoken in the South Mugirango constituency in Kisii County

ekerogoro: The Northern dialect of EkeGusii spoken in both Nyamira and Kisii counties, Kenya

Iconicity: A theoretical concept that is focused on the mimetic aspect of individual word sounds, clusters, or suprasegmentals such as vowel lengthening, pitch, and accent. It is the implied semblance between phonological or phonetic forms and meaning, the theoretical concept termed ‘motivation.’

Mora: A unit that bears tone (to which tone can be associated), usually called tone bearing unit (TBU)

Pitch: Used synonymously with loudness or sonority as a result of the increased intensity of sound. It is “the perceptual correlate of intensity, expressed as a magnitude of sound pressure variation in the speech signal,” (Clark & Yallop, 1995). Such intensity is controlled by sub-glottal pressure but also influenced by the natural sonority of the segments or sequences of segments in the relative syllable.

Prosodic simultaneity: Concurrent, or contemporaneous, application of various contrastive prosodies including tone, vowel length, and height harmony; the collective function of distinctive suprasegments.

Resonance: A distinctive quality of a voice being deep, full and reverberating; the relative strength of voice as opposed to pitch or loudness; the higher the pitch, the lower the resonance and vice versa. It is a voice feature that is iconically, automatically and sub-consciously related to meaning, though, in other circumstances, it can be controlled voluntarily.

Segment: A bundle of simultaneously occurring features, considered to be vowels and consonants

Spatial and temporal deixis: Space and time deixis, in that order

Tier: The level or layer at which tones are analyzed

Tone: Contrastive or distinctive pitch; pitch that puts words apart in terms of meaning

Vowel length: The relative time a sound is sustained as perceived by the listener
CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter reviews literature on the syllable structure of EkeGusii, presenting additional syllable patterns, as regards Nash (2011). It explores key prosodic features, tone languages, and tone in Kenyan Bantu languages. It includes relevant literature on EkeGusii phonology, regarding tone, vowel length, and vowel harmony. It also reviews general literature on iconicity, and selected literature on ideophones. On theoretical framework, the relevant section discusses the Autosegmental Phonology theory as extended to CV phonology, and then presents Iconicity as a semiotic conceptualization to account for form-meaning relations. The types of iconicity are reviewed in the light of recent views in the field.

2.1 EkeGusii syllable structure

Two main studies, Cammenga (2002), and Nash (2011), are reviewed in relation to EkeGusii syllable structure. Insights from these studies were found significant in discussions dealing with vowel lengthening, and in the analysis of syllable structure of onomatopoeic infinitives and nouns, and ideophones. Cammenga (2002), follows Levin’s (1985) theory of syllable structure, in which codas (N’) and syllable nodes (N”’) are viewed as empty projections of an obligatory nucleus (N), which may or may not branch, typically dominating a [-cons] segment. In case the nucleus branches, it dominates either two distinct vowels or one long vowel. The onset is viewed as an optional element that may or may not branch, and typically dominates a [+cons] segment or a glide (usually a high vowel dominated by N”’). The syllable structure is represented as shown in Figure 1 below.
Cammenga observes that material dominated by the (X) that is dominated by the onset, may become complex. This view allows for the vowels /i/ and /u/ to be dominated by the N” due to their potential to undergo glide formation, though this is not in line with moraic phonology, which accounts for tone in current phonology. This is rather simplified in Nash (2011). Nash (2011) presents EkeGusii syllable structure following rules of moraic phonology. He presents eight possible syllable types, which however, may be more, as shall be evidenced below. EkeGusii syllable structure is presented as follows

In agreement with Cammenga (2002), Nash (2011) notes the following facts: (1) that the nucleus is obligatory with a long or short vowel; (2) that only segments with the nucleus may bear one or two moras; (3) that the R cannot branch since the nucleus is obligatory (so codas are not possible in EkeGusii); and (4) that the onset is an optional element that may have one or two segments. This structure allows that whatever is dominated by the onset are glides (G) but not high vowels. It also shows clear mora positions for explanations of mora functions and long vowels.
The eight possible syllable patterns presented by Nash do not seem to cater for place names like *Nyanchwa* (NCCGV), and people’s names like *Nchogu* with word-initial (NCCV), or *Bwonda* with word-initial (CGV), or *Ntweka* with word-initial (NCGV), some of which Nash says are prohibited word-initially due to compensatory lengthening. It also avoids possible word-final long syllables. The possible EkeGusii syllable patterns are more than eight, and may therefore be reviewed in this study as follows.

*Table 1. Syllable patterns in Ekegusii (Adapted, and reviewed, from Nash, 2011, p. 45)*

<table>
<thead>
<tr>
<th>No.</th>
<th>ONSET</th>
<th>RHYME</th>
<th>EXAMPLE</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Ø</td>
<td>V</td>
<td>e.mbe.ba  [ɛmbeβa]</td>
<td>rat</td>
</tr>
<tr>
<td>b</td>
<td>Ø</td>
<td>VV</td>
<td>aː [aː]</td>
<td>here</td>
</tr>
<tr>
<td>c</td>
<td>C</td>
<td>V</td>
<td>e.mbe.ba  [ɛmbeβa]</td>
<td>rat</td>
</tr>
<tr>
<td>d</td>
<td>C</td>
<td>VV</td>
<td>e.kee [ɛːkɛː]</td>
<td>traditional bowl</td>
</tr>
<tr>
<td>e</td>
<td>NC</td>
<td>V</td>
<td>e.mbe.ba  [ɛmbeβa]</td>
<td>rat</td>
</tr>
<tr>
<td>e</td>
<td>CG</td>
<td>V</td>
<td>ri.gwa  [riɣua]</td>
<td>thorn</td>
</tr>
<tr>
<td>h</td>
<td>NCG</td>
<td>V</td>
<td>e.nswe  [ensue]</td>
<td>fish</td>
</tr>
<tr>
<td>j</td>
<td>NC</td>
<td>VV</td>
<td>e.mboo.re [ɛmboːre]</td>
<td>sulky person</td>
</tr>
<tr>
<td>k</td>
<td>NG</td>
<td>VV</td>
<td>o.mwoo.go[omuːɣɔ]</td>
<td>cassava</td>
</tr>
<tr>
<td>l</td>
<td>NCCG</td>
<td>V</td>
<td>Nya.nchwa [nampedya]</td>
<td>place name</td>
</tr>
<tr>
<td>m</td>
<td>NN</td>
<td>V</td>
<td>ri.nyo  [rɪno]</td>
<td>garden mouse</td>
</tr>
<tr>
<td>n</td>
<td>CG</td>
<td>VV</td>
<td>Bwoo.nda [βuoːnda]</td>
<td>person’s name</td>
</tr>
<tr>
<td>o</td>
<td>NCG</td>
<td>V</td>
<td>Ntwee.ka [ntue:ka]</td>
<td>person’s name</td>
</tr>
<tr>
<td>p</td>
<td>NCC</td>
<td>V</td>
<td>Ncho.gu  [ŋʧɔɣu]</td>
<td>person’s name</td>
</tr>
</tbody>
</table>
Drawing on the above said, the following observations can be made. First, in certain instances, as exemplified in (d), there are instances in which mora trimming does not repair syllable-final long vowels as indicated in Nash (2011); there is no evidence of delinking of a mora from the final long vowel. This rule is also flouted in other lexical items such as kebee [keβɛː] ‘lighthanded / leftwards,’ egetii [eyɛtiː] ‘grazing field,’ omogusii ‘a Kisii,’ in borrowed, nativised nouns like endoo [ɛndɔː] ‘bucket,’ and egetoboo [ɛɣɛtɔβɔː] ‘chisel.’ It is also flouted, limitedly, in infinitives like ogosaa [ɔyosaː] ‘to diarrhoea,’ and okoraa [okoraː] ‘to lead,’ and in names like Moraa (woman’s name). It is further flouted in ideophones like Nyweee [ɲuɛːː] ‘sound of a smooth durative action, like a ride’ and in more others discussed in section 4.3.3. Second, compensatory lengthening does not block the word-initial syllable patterns CGV and NCGV, as reiterated by Nash. Examples (n) and (o) show evidence of such possibilities. It is, therefore, possible to have word-initial syllable patterns NCV, NCCV, NCG in words like ng’ane [ŋane] ‘so and so,’ nchooka [ɲʃɔːka] ‘rest,’ and names like Ngero [ɲɛɾo], Ntabo [ntaβo], Ndemo [ntəmɔ], Nduko [nduko], Mboga [mbɔɣa], and those shown in (o), and (p). Finally, in the event that consonant clusters are entertained, there are sixteen possible syllable patterns in EkeGusii, double the number presented in Nash (2011). However, it should be noted that in the event that homorganic sequences are viewed in the light of Morara (2017), that EkeGusii is a strict (C)V language, then the syllable patterns here are likely to reduce. This progressive position is tentatively overlooked for the purpose of assessing possible combinations in EkeGusii and in the syllable patterns of ideophones in section 4.3.3.6. Otherwise, the present study reverts to Morara’s (2017) position in data analyses in section 4.1.

Nevertheless, in line with Nash (2011), syllabification occurs after inputs have been concatenated and undergone any morphological derivations applicable. Generally, all short vowels are assigned one mora as long vowels are assigned two moras, and all nasals immediately preceding a consonant are assigned
one mora in the first step. Phonological rules then apply, like nasals plus consonants, glide formation, and mora trimming. In the third step, the nucleus, rhyme, and syllable nodes are placed. This process is much more complex as shown in Cammenga (2002) than the much it appears simplified in Nash (2011). Syllabification may thus be exemplified as shown in Figure 3 below, using the word *emerongo* [emeroːŋgo] ‘spines/stingers’ presented in Table 1 in section 4.1.1.

Figure 3. Syllabic representation of *emerongo* [emeroːŋgo] (spines/stingers)

The review of syllable structure in EkeGusii is inevitable as it was found applicable in the analysis of data, theoretical argument around what long vowels are or are not, and was used to pose challenges against moraic phonology throughout chapter 4. Notably, this study makes significant contribution to the understanding of syllable patterns in EkeGusii, with the review and reorganization of work presented by Nash (2011).

### 2.2 Prosodic features

As Clark & Yallop (1995) emphasize, prosodic terminology should be carefully interpreted in the context of use, since they may take particular meanings within particular languages, or sometimes overlap as it happens with ‘pitch’ and ‘tone.’ However, it is important to highlight the view adopted about the features discussed herein as used in the current literature. These include pitch and/or tone, length or duration, and vowel harmony.
Clark & Yallop (1995) define pitch as the perceived correlate of fundamental frequency (F₀). Changes in perceived pitch are proportional to changes of frequency, which refers to the number of times per second that the vocal folds complete a cycle of vibration. Carr (2008) shares a similar view in simpler language, with the emphasis that the higher the rate of vibration of the vocal folds the higher the pitch. Independently meaningful pitch changes that do not keep words apart in terms of meaning but add a discourse meaning to the expression, as in deixis, will be treated as pitch variations. Therefore, Yip (2002) defines intonation as the use of suprasegmental phonetic features to convey ‘post-lexical' or sentence level information in a linguistically structured way. This locks out pitch variations that are neither tonal nor sentential.

On its part, tone entails distinctive pitch in tone languages. A tone language uses pitch to differentiate words, the same way languages use vowels and consonants for this purpose (Carr, 2008; Gussenhoven & Jacobs, 2011). Skandera & Burleigh’s (2005) definition of pitch refers to tone. It still relates to the frequency of vibration of vocal folds but the change of pitch that changes the function of a sound in a tone language like Mandarin Chinese is tone. Clark & Yallop (1995) observe that though “tone may be used synonymously with pitch”, contrastive pitches are tones, and such do not exist in English. English tones, therefore, are part of the English intonation system. Contrastive pitches in the present study have been treated as tones.

Carr (2008) defines length as the relative duration of a vowel or consonant, but notes that length is treated by other scholars as a phonological property, while duration is a phonetic property. As Skandera & Burleigh (2005) observe, though both duration and length refer to the span of time a sound is sustained, duration is restricted to the absolute or actual time taken in the articulation of a sound, while length is restricted to the relative time a sound is sustained as perceived by the listener. The difference
in length can distinguish meaning, or at best, help distinguish meaning. This study pursues vowel length, though without focusing on the technical difference between the two, owing to scope and the potential grayness; a long vowel is here considered to be durative. Though Clark and Yallop (1995) do not make this distinction, they note that length can be determined by phonetic context and biomechanical factors, and that the way in which each language exploits durational relationships within the syllable for phonological purposes, will also affect its temporal structure.

Vowel harmony, according to Goldsmith (1996), is a form of assimilation among vowels that may be separated by consonants. Harmony is observed for individual features and feature clusters. Vowels in harmony will agree in terms of backness (palatal harmony), rounding (rounding harmony), height (aperture harmony), or tongue root advancement or retraction (tongue root harmony). Goldsmith (1996) explores harmony in languages like Tangale, where it is stem controlled and other languages, where it is affix controlled. Harmony is a feature found in many languages such as Finnish, Bantu languages like Ikoma in Tanzania (Higgins, 2012), and EkeGusii in Kenya (Ongarora, 1996; Mariera, 2018). Vowel harmony is further reviewed in section 2.5.4. Throughout section 4.1, harmonized vowel height is treated as a distinctive feature.

2.3 Tone languages

According to Hyman (2001c; 2006b), a language with tone is one in which an indication of pitch enters into the lexical realization of at least some morphemes. This is the definition of ‘a tone language’ considered in this study. For instance, in Cantonese, [yau] has six different pitches that realize six different meanings; ‘worry, paint, thin, again, oil’ and ‘have,’ (Yip, 2002). So, the pitch of a word can change its core meaning and not just its nuances.
Yip (2002) gives a detailed survey of tone languages around the world. Sub-Saharan Africa has the largest concentration of tone languages in the world, mostly in the Niger Congo family, to which EkeGusii belongs. They are fewer in the Northern Sahara. East and South Asia have many tone languages, as well as in the Sino-tibetan and Mon-khmer families. Central America has tone languages like in the Otamanguean family. They are rare in North America, while South America has a few. Europe has a scattering of tone languages. According to Clark & Yallop (1995), over 50% of the languages are estimated to be tonal. It should be remembered here, that the position of the present study is not to dispute the tonal status of EkeGusii, but to demonstrate that tone is not the sole contrastive prosody in the language. Other prosodic features handle this function together with tone, so concomitantly that no feature is underlying, hence ‘prosodic simultaneity.’

2.4 Tone in Kenyan Bantu languages

The lexical and post-lexical rules of Bukusu tonology have been studied by Miner (1991). Miner focuses on the verbal tonal patterns in the light of lexical and metrical phonology. This study sheds light on the nature of Bantu languages and TBU behaviour, but does not bring on board any other autosegmentals for analysis, which is the departure point of the present study. Miner’s work does not involve a semantic analysis, but rather an account of the phonological rules that apply, such as the H tone insertion and dissimilation in a cyclic analysis that reveals the respect of tones for morphemic boundaries. Our study, therefore, deviates again on theory, by combining AP and CV Phonology for its purposes.

While Savala (2005) studies the Tonal patterns of Lwitakho words, certain important aspects stand out for our purposes. Firstly, H tones affect syllable duration, which correlates with this study’s agenda. In Lwitakho, H-toned heavy syllables are more distinct than the L-toned syllables. Secondly, vowel length
is related to the tonal patterns of words. However, prosodic simultaneity is not Savala’s concern, which is the focus of the present study with a view to shedding light on the possibility of similar patterns of prosody in other languages. The rest of the findings of what grammatical aspects tone marks in Lwitakho such as tense, aspect, and mood among others, do not entail immediate significance for this study, as this could replicate previous studies. However, Savala’s theoretical framework informs this study on the extent to which CV phonology can be applied.

Verb tonology in Olunyala, studied by Onyango (2006), is guided mainly by the lexical phonology and morphology (LPM) model, and complemented by the autosegmental phonology theory. It focuses on verb morphology, and endeavours to demonstrate that there is an inherent rule-governed relationship between tone and the grammatical categories of tense, mood, and aspect. The study reveals that Olunyala has H-toned verbs, with the H frequently mapped onto the final stem syllable, and it has seven tenses marked morphologically and/or tonally, it describes the phonological types of verbs in Olunyala, shows that the interactions between the phonological and morphological rules fulfill principles of the LPM theory. It also reveals the four aspects in Olunyala including the completive, the progressive, the prospective, and iterative, among other findings. None of the grammatical categories examined in this study are the concern of the present study, though it benefits from the analysis and description of tones guided by AP. Our study deviates from such agenda by focusing on meaning relations as partly affected by arbitrary and simultaneous variation of prosodic features, and elsewhere by iconic variation of prosodic features, and phoneme-based motivation in EkeGusii. Reliance on iconicity to complement AP in the analysis of data leans toward a demonstration that language is partly influenced by processes of cognition.
Mwita (2012) examines noun tonology in Kuria in the light of Autosegmental Phonology. The study argues that Kuria has complex tonal patterns predictable on the basis of H and L tone melodies, together with a small set of rules. The study explores the basics of Kuria tone including underlying and surface tones, contour tones, downdrift and downstep. It also reveals that as is the case with EkeGusii, the mora is the TBU in Kuria. Though the study does not focus on either, prosodic simultaneity or iconicity, it verses the present study with information relating to the three-part structure of the Bantu noun, morphological analysis of the nominal category, identification of basic tones and syllable classification.

2.5 EkeGusii phonology

This section reviews literature related to EkeGusii phonology with a view to informing the first and second objectives, as tone and vowel lengthening are of critical concern in both, with a focus on non-distinctive pitch variations in the second. It reviews general concepts on EkeGusii phonology, and then proceeds to tonology, vowel length, and vowel harmony.

2.5.1 General studies on EkeGusii phonology

Mose (2010) undertakes a sociological study on Egesembesa, an EkeGusii argot, in the light of the lexical phonology and morphology model, complemented by structural functionalism. The study sheds light on EkeGusii syllable, following Whiteley (1965). The review of the sound system and contrasting words on the basis of unspecified features, points at the urgent need for a detailed and clear study on vowel length, height, and tone, among other features. While reviewing EkeGusii sound system, Mose attempts to contrast words on the basis of vowel height harmony and length. For instance, words such as /esese/ (dog) versus /esese/ (tuberculosis), and /mera/ (swallow) versus /mera/ (germinate), are contrasted using the same upper-mid vowel /e/ described as “more vowels,” instead of vowel height.
Equally, /basa/ (elope) versus /baasa/ (skin an animal), and /bera/ (boil) versus /bεεra/ (stay at a place), pass without explanation of vowel length or height harmony as the contrastive features with the long vowel presented as a sequence of two (Mose, 2010, pp. 23-24). This therefore, points at the analytical gaps, motivating the present study to clarify issues around vowel harmony, vowel length, and tone, among other prosodies in EkeGusii, as being simultaneously contrastive autosegmental features, where applicable.

Nash (2011) unpacks tone properties like mobility, tone spread from one to many TBUs, contour tones as a result of association of multiple tones to one segment, stability and underspecificity, with relevant examples from African languages. The difference between primary tones, lexical high and grammatical high are equally discussed. The obligatory contour principle (OCP) and the factors that may affect the surface representation of underlying high tones, including spreading, shifting and non-finality are equally presented. This study benefits from Nash as regards tone analysis and assignment, Bantu nominal structure and verbal tones. Since Nash is purely focused on nominal and verbal tonology, the departure of this study is at the point of concurrent contrasting, where certain suprasegments like tone, vowel length and harmonized vowel height, apply simultaneously in meaning contrasting. Even more, features like vowel length, pitch variations, resonance, and accent are considered mimetic, as well as sounds are, which Nash does not focus on. Further, our study gains insight on the syllable patterns of EkeGusii from Nash’s study, already reviewed and expanded in section 2.1 above.

The three concepts, EkeGusii phoneme, toneme, and syllable, are reviewed by Morara (2017), who cites evidence of declusterization of consonant clusters of borrowed words, as EkeGusii is a strict CV language. Making reference to Herbert (1986) and Downing (2005), the study reveals that any homorganic consonant combinations like [nchw], [ngw], [nd], [mbw], [nt], [ng], and many more in
Bantu languages, ought to be analyzed as single phonemes, and not clusters of consonants. This position motivates the present study to analyze such homorganic at the timing tier, instead of the segmental tier, which should represent a single C element related to timing positions. This is an improvement on the multilayered AP model (see section 4.1.1). The study also reveals that spectrographic analysis can be used to analyze vowels in terms of height and mouth positions, as recorded from native speakers. This informs the present study regarding spectrographic analysis of harmonized contrastive vowels.

2.5.2 Tone in EkeGusii

The most exploratory study on EkeGusii tonology is Nash (2011). The phonemic status of long vowels is established by an examination of the twenty one possible contrasts, however, without interplay with other prosodies. The directionality of vowel harmony is established as leftward and rightward, though, it excludes the contrastive nature of vowel height observed by Ongarora (1996), yet not as one of concurrent features, as demonstrated in the present study. Notably, Nash substantiates the existence of sound /p/ in EkeGusii with examples limited to ideophones (see examples in section 4.3.3.3) and borrowed lexical items, which does not focus on the iconic aspect of the data, which the present study endeavours to demonstrate. There is an extensive review of vowels, obstruents, nasals, liquids, and glides, revealing their phonemic statuses. The discussion on glide formation and compensatory lengthening benefits this study on data analysis approaches, and helps to reveal the suspension of the contrastive ability of certain long vowels in EkeGusii.

Nash (2011) extensively explores the tonology of nouns. The noun stems with no H tones are preceded by pre-prefixes with immobile H tones which do not spread rightwards as in ényòní (bird). In noun stems with a single right-edge H tone, stem FVs have immobile H tones just as pre-prefix H tones, as in
ékèròré (mirror). In nouns with stem-medial H tones, the H tones occur in pairs due to rightward spread of lexical H as in ómònyàmààbérà (the merciful one). Stem-medial H tones do not spread if they occur on penultimate long vowels due to Long H-toned penultimate delinking as in ésiìndáànì (needle). Noun stems with left-edge H tones demonstrate binary spreading, and a ban on long H-toned penultimate syllable. This is explained by the Long H-toned penultimate de-linking rule in Nash (2011). In other data, H tones span across more than two TBUs as in ómwááná (child). When a stem-initial vowel lengthens, an underlying H undergoes binary rightward and leftward spreading. There is restriction on rising tones with a few exceptions, such as ómògùsì́ (a Gusii native). Some noun stems with left and right-edge H tones violate the restriction on long H-toned penultimate syllables; instead, two adjacent H tones are fused as in ékëmóóní (cat). Though such extensive analysis does not view tone as one of the concurrent features of prosody, it informs the tonal analysis approaches employed in the present study.

On verbal tonology, Nash (2011) notes that verb roots could be underlyingly toneless or H-toned, and that tone is independent of the shape of the root. H-toned verbs have a H tone on the initial moras, which is susceptible to binary spreading. Regarding infinitives, the prefix is underlyingly toneless, and the pre-prefix H does not spread, as there must be a L tone between the pre-prefix and the verb stem. Whenever coalescence and leftward binary spreading cause H to appear immediately after the pre-prefix, the second H tone is down-stepped. The FVs, all prefixes except the reflexive prefix, and Extension suffixes are also toneless. As such, the only sources of a H tone in the V-root are the pre-prefix, the reflexive prefix and the V-root. Vowel length attracts leftward binary spreading of H which prevents a rising tone on a long vowel.
According to Nash (2011), in finite verbs, all subject markers have L tones while the root and final vowels have H tones. Though underlyingly toneless, subject markers can surface with H tones in the subjunctive tense expressing future obligation as in bákááné (they deny). The H is contributed by the tense/aspect/modality marker. Though the object marker is underlyingly toneless, it can acquire a H from a preceding morpheme, such as a tense/aspect marker. The negative prefix /ti-/ is also underlyingly toneless, but has a floating H which docks onto the SUB marker. On the other hand, the negative prefix /ta-/ must be underlyingly H-toned, and there must be a floating H on the Focus prefix, since the subject marker that follows it is always H-toned. The nine Extension suffixes that mark recent, hordienal, and continuity past, sequential, continuity (general), untimed, duration, distal, and perfect, are underlyingly toneless, but a H tone from a verb root can spread to them. There are two FVs in EkeGusii, /-a/ and /-e/ which are also shown to be toneless. Nash (2011) is elaborate on tense, aspect and mood tone in EkeGusii, so the study is recommended for clarification. This study gains with morphological and tonal analytical insight from Nash’s study, while it focuses on how tone interacts simultaneously with other features of prosody for purposes of their contrastive function.

EkeGusii tone has been minimally described in Mariera (2011), who studies a semantic-syntactic analysis of tone titled “The grammatical function of tone in EkeGusii,” which shows how the language tonally expresses grammatical categories, including person, case, tense, mood and modality. This study appears suggestive of how tones can be analyzed, though highly impressionistic, since it lacks spectrographic support on data analysis. This makes it hard for Mariera to distinguish between tone and intonation. The present study keeps away from revisiting any of the five categories studied, as they do not entail immediate relevance for our purposes, but gains were made on gaps, and challenges of impressionistic tone analysis, motivating the exposure of data to spectrographic verification.
Bickmore (1997) examines the problems of constraining high tone spread in EkeGusii, guided by Autosegmental phonology (AP). In this case, he explores the morphological structure of infinitives and finite verbs. Under infinitives, Bickmore explains why the mora, and not the syllable, must be the tone bearing unit (TBU) in EkeGusii; the difference between the long level High and the long Falling can only be accounted for, if the mora is the TBU. This position is adopted in our study. Local rightward spread, leftward spread, and delinking rules are explained, details of which are found in Nash (2011). Bickmore, perhaps deliberately, avoids consonant lenition in underlying representations in the infinitive. Further, he unfortunately skips upper mid-vowel raising, a process that precedes compensatory lengthening, which conceals the underlying neutrality and/or opacity of sounds like /u/ whose presence blocks vowel harmony, such that any prefixal vowels before the back upper /u/ cannot be harmonized in terms of height with the root vowels. Details of this are explained in our study under contrastive vowel height in section 4.1. Finally, under infinitives, in words like ɔkwɔɔmana “to quarrel,” the assigned tones appear correct, but the use of the back lower mid, instead of the back upper mid, as in okwoomana, is non-native, reflecting erroneous vowel height, what is righted in the data in our study, coupled with explanations in instances of contrastive vowel height.

Other studies that have attempted to address issues of tone but without exhaustive detail include whiteley (1960), and Bosire (1993). Cammenga (2002) systematically discredits the tonal analysis of Whiteley (1960), but evades details of tone analysis, but makes suggestions on how tone analysis may be approached, especially marking tone using diacritics, just one of the many approaches explored in Fox (2000). Cammenga (2002) only mentions that tone is distinctive in EkeGusii, at least, in some of its tenses, but evades any commitment on tonal description per se. Moreover, Cammenga confirms one example of a potentially minimal pair without the necessary detail, and makes unsupported assumptions
that lexical tone is marginal in the language. Among the main agendas of this study, is to demonstrate the synchronized nature of suprasegmental features in EkeGusii, of which lexical tone is one.

Whiteley (1960) is reviewed herein because EkeGusii is minimally described around prosodic features, and the study highlights tone, so that an independent review is achieved beyond Cammenga’s (2002) dismissal. It has to be appreciated that Whiteley highlights the ‘toneme’ as a minimal unit of pitch that contrasts words and suggests three examples in EkeGusii, though unverified. However, there is little effort in the direction of tone to the level that the diacritic descriptions are actually wrong, much that the wedge and circumflex are confused for the acute and grave accents, as used in current literature. On tone or other suprasegmentals, this work may not be credited to the benefit of the agenda of the present study, beyond showing glaring gaps around the analysis of suprasegmentals.

2.5.3 Vowel length in EkeGusii

Cammenga (2002) presents analysis of vowel length in EkeGusii shedding light on doubling each of the identified seven contrastive vowels, including proposing the rules that account for such lengthening, as well as pre-nasalization, complex segment formation and glide formation. However, Odden (2011) shows the challenges of a sequential analysis of tones, rather preferring to relate long vowels to prosodic positions in the timing tier. It is with such insights that the present study departs to argue for the autonomy of vowels, hence automatic copying. This study reveals other co-functional autosegments, showing their phonological and iconic roles, and positing other relevant explanations beyond speculation. Iconicity is not explored in Cammenga’s study. The present study endeavours to explain why, speakers lengthen vowels in specific discourse situations.
Komenda (2011; 2015) examines ‘the nature of vowel length in EkeGusii’ in the light of AP and the extended CV model. Komenda noted that vowel length in EkeGusii is both phonemic (distinctive) and phonetic (non-distinctive), the latter being the type Cammenga (2002) refers to as ‘derived length.’ While Phonemic vowel length is unconditioned and compensatory, vowel length is a product of glide formation, raising and vowel deletion as argued by Komenda. However, the analyses raise a few questions. Firstly, the study avoids morphemic analyses as in the examples, (a) ko-roka ‘to vomit’ versus ko-roka ‘to appear,’ and (b) ogwe-kana ‘to click’ versus ogwe-kaana ‘to deny oneself.’ (Komenda 2015), which ends up contrasting different verbal roots. A contrast of meanings in (a) would not be expected where root isolation from the prefixal forms and final vowels would reveal ko-rok-a ‘to vomit’ versus ko-orok-a ‘to appear. The same would be done for (b) to give o-gw’e-kan-a ‘to click’ versus o-gw-e-kaan-a ‘to deny oneself.’ Secondly, the examples given by Komenda (2015), suc as example (c) lekerɔ ‘spike’ versus /ekeerɔ/ ‘curved part of the palm used to feed a child,’ evade vowel harmony. We would expect the low mid front vowel /ɛ/ instead of /e/ in both for purposes of showing height harmony. Being a unary analysis, no other prosodic feature is discussed. Komenda avoids examining length along parameters such as spatial versus temporal deixis or adjectival diminutives to show how speakers relate intended meanings. Even more, the sequential representation cannot be indulged if length to be categorized as an automatic feature of spread related to timing positions. Finally, and most importantly, Komenda does not discuss length in relation to cognition as being motivated. The iconic explanation of lengthening as a motivated feature is inevitable, to reflect word meanings. These are the gaps that the present study undertakes to fill.

2.5.4 Vowel harmony

Osinde (1988) makes an early attempt at describing vowel harmony in EkeGusii noting that the process takes place when an affix is attached to the root of a word. Harmony is displayed as a unary feature that
spreads from root to affix and vice versa, but this has to be confirmed as it lacks theoretical basis. It is further not presented as an auto-segment, but as one of the vowel processes alongside vowel deletion, glide formation, dissimilation, assimilation and coalescence. The only suprasegments mentioned are tone, stress and prominence. Vowel length and polysemy in examples like *sika* ‘respect,’ versus *siika* ‘ferment’ and *roka* ‘vomit or name’, appear confused for impressionistic tone (1988). Further, stress and prominence are speculated upon as existing in EkeGusii without exemplification, but are recommended, in the present study, for a future investigation. Though EkeGusii is classified as a tone language (Cammenga, 2002), there is associated with it, a certain degree of stress, as exemplified in section 4.2.6 of this study.

Ongarora (1996) studies vowel harmony in the *ekerogoro* dialect of EkeGusii in the light of Autosegmental phonology. The study establishes that there exists regressive and progressive vowel harmony in the language with respect to backness, roundness and height, thereby informing the present study. Height harmony is established as distinctive in minimal pairs like *omoko* ‘the sycamore tree,’ versus *omɔkɔ* ‘one’s relative in-law,’ *esese* ‘dog,’ versus *ɛsɛsɛ* ‘whooping cough,’ and *emerongo* ‘hair roots,’ versus *ɛmɛrɔngɔ* ‘tens,’ among others. Harmony is considered, as not being an integral property of any segment, but as an element of co-articulation together with the segments, and a feature that operates on a separate level, the harmony tier, just as tones operate on the tonal tier in line with the principles of AP. Ongarora’s study points at the burden of acquisition that a child learning EkeGusii carries, mastering the sets of features to be merged in order to form an acceptable segment. The study sheds welcome light on the contrastive nature of vowel height. However, Ongarora’s study views the mid-high and mid-low vowels as variants of the same vowels thereby reducing EkeGusii to a five inventory vowel system instead of seven as currently established (Cammenga, 2002), and further considers vowel harmony as the only distinctive feature, thereby leaving out other features like tone
and vowel length in relevant examples, which the present study achieves, demonstrating that two or more features operate concurrently and parallel to the segmental tier, therefore resulting in multiple phonological variations to contrast meanings.

Mariera (2018) studies Triangular vowel harmony in EkeGusii, but faces three main challenges. Firstly, the study makes morphological misanalyses so that instances of glide formation are misconstrued for reflexive morphemes, such as o-ɣ w-εkɔr-a ‘to pretend’, instead of o-ɣ w-εεkɔr-a which includes inevitable compensatory vowel lengthening. The same misanalyses lead to identification of suffixes in place of final vowels in verbs, such as to-siβor-a-ne ‘let us untie one another,’ instead of to-siβor-an-e, to show the reciprocal before the final vowel. Consequently, certain conclusions such as suffix-controlled harmony do appear tenable. Finally, the study relies on native-speaker intuition to argue for eight vowels in EkeGusii, which are yet to be ascertained. This has been avoided here as it is not the major focus of this study. Nevertheless, the study demonstrates certain facts about vowel harmony in EkeGusii. First, it reveals that it is a root-controlled process, that spreads leftwards in nouns, and both leftwards and rightwards, in verbs. Vowel Height is a distinctive feature (equally established by Ongarora, 1996), which, though, happens concurrently alongside other distinctive features, tone and vowel length, which is the core argument of this study, whose detail is demonstrated in chapter four. The high front and back vowels, /i/ and /u/ are both harmony neutral and opaque. Examples such as o-mo-sinyɔntɔ [omosinɔntɔ] ‘an edible sour herb with a juicy stem,’ o-ɣ o-sunger-a [oyoosŋɛrə] ‘to wither,’ and emiɔrɔ [emiɔɾɔ] ‘machetes,’ are used to demonstrate that the segments block harmony. Opacity and neutrality are correctly identified in instances of glide formation such as o-kw-εε -nyeger-i-a ‘to shake oneself’ where the /w/ is as a result of an underlying /u/. Finally, vowel harmony is hampered in compounds, and post-lexically, in EkeGusii as in omont’emɔchenu ‘a hygienic person.’ There are instances of disharmony in EkeGusii, whose explanation still remains challenged. Assuming
that harmony is triangular, then a new feature matrix could be necessary as shown by Mariera, which is equally avoided herein as it goes beyond our scope. The concept of segment opacity and neutrality benefits the analysis of harmonized, contrastive vowel height, and various other conclusions of the present study in chapter four.

Ikoma vowel harmony has been studied by Higgin (2012). This Bantu language of Tanzania has a 7V inventory just like EkeGusii, but with [-ATR] as the dominant harmonizing feature and the syllable as the TBU, with evidence of long vowels receiving a single tone. The study reveals the value of assessing vowel co-occurrence patterns, the need to study monosyllabic, disyllabic, trisyllabic, and even polysyllabic words and the need to apply theories of [ATR] markedness. The adoption of an impressionistic perspective may be inevitable as shown. Considering its comparable closeness to EkeGusii, the study was found very informative on the approaches to analysis of vowel harmony alongside other suprasegmentals.

Krämer (2003) describes vowel harmony as a phenomenon, where potentially all vowels in adjacent moras or syllables within a domain like the phonological or morphological word (or smaller morphological domain) systematically agree with each other with regard to one or more articulatory features. The presence of a feature triggers a systematic alternation in which vowels are in direct neighbourhood on the syllabic or moraic level of representation, so that the involved vowels look alike with respect to the active feature. Nevins (2010) simplifies the notion with the explanation that such languages tend to avoid “mixing” of features, since they divide the vowels along a dichotomy of “odd” and “even”. It is on this a basis that the present study gains insight to explain vowel harmony as a kind of phonological conditioning in cases where it applies, especially in chapter four of the present study.
2.6 General literature on iconicity

This section reviews literature informing the second and third objectives. It focuses on iconicity, which argues for mappings between words and their referents, which is the main focus of both. Note that prosodic iconicity is addressed in the second objective, while phonetic iconicity is handled in the third objective.

Dingemanse et al. (2015), note that arbitrariness is actually complemented by two forms of non-arbitrariness, iconicity and systematicity. In the former, form and meaning in words are related by means of perceptuomotor analogies, while in the latter, there is a statistical relationship between the patterns of sound for a group of words and their usage. They further observe that non-arbitrariness is more widespread than previously assumed, and that dismissing the possibility of an intrinsic connection between form and meaning is case-based reasoning. The scholars reveal that ideophones are found in the domain of perceptuomotor meanings, as in sound, motion, visual patterns, temporal unfolding and other parameters. This position has revealed that iconic relations are a fertile ground for research, which informs the angle from which ideophonic material in EkeGusii has been analyzed.

Gasser, Sethuraman & Hockema (2005) study expressives, also called ideophones or mimetics. They note that expressives tend to denote adverbial meanings related to physical states, sounds, noise, speech patterns, sensations, emotions or mental states, personal appearance, facial expressions and personality traits. This informs our study further, in terms of approaching ideophones better, and assessing how far into or beyond adverbial notions iconicity goes, in EkeGusii. The examination of iconicity as being absolute (one to one semblance) or relative (correlation between form similarity and meaning similarity), gives an edge to the current study in terms of descriptive relevance and adequacy.
Tatomir (2003) also notes that iconic human communication includes nonverbal implicit information, in the form of intonation, gesture and expression, thereby according our study the motivation to investigate the signifier values of prosodic features like vowel length, tone, pitch variations, and loudness, among others. Such features, therefore, can complement the expression of facts, feelings, ideas, qualities and more. Further, Tatomir notes the need to link icons to context. It is on this basis that the role of context was examined in the EkeGusii iconized prosodies in section 4.2.

Perniss, Thompson & Viglioco (2010) look at iconicity as a blanket term for sound symbolism, mimetics, ideophones and iconicity. Systematic and regular iconic mappings exist between form and meaning. Reference is made to Croft (2003), who notes that the structure of language reflects in some way the structure of experience, revealed in contiguity, quantity, repetition, complexity and cohesion. From this view, the present study examines the reflections of experience in vowel length in intensifier verbs and adverbs, deictic expressions, and adjectival forms in EkeGusii. Perhaps, Perniss et al.’s ‘iconicity of sequence principle’ may explain the nature of cacophonous and reduplicative infinitives and nouns in EkeGusii, as it holds that the sequence of forms conforms to the sequence of experience.

2.7 Literature on ideophones

A key study on ideophones is presented by Dingemanse (2011), who makes an examination of the meaning and use of ideophones in Siwu. Of value to the present study, is the definition of ideophones, as ‘marked words that depict sensory imagery,’ on which the definition of ideophones in EkeGusii is pegged and sharpened in section 4.3.3.1. Additionally, Dingemanse presents an exploration of the properties of Siwu ideophones, including deviant phonotactics, special word structures, expressive morphology, syntactic aloofness, their fore-grounded morphology, sensory semantics, and their depictive mode of signification, all which make a background against which the properties of EkeGusii
ideophones were examined. Most importantly, this informs the analysis of the syllable structure of ideophones in EkeGusii. Dingemanse examines the relationships of other word classes to Siwu ideophones, including verbs, nouns, interjections, and ideophonic adverbs, which classes are derived from ideophones, and vice versa. The various types of iconicity are explained in Dingemanse’s study, the relevant types including imagic and diagrammatic iconicity, where in the former, sound mimics sound in the real world, and in the latter, a relationship between forms bears a relation to relationships between meanings, whose sub-types are gestalt, and relative iconicity (see detail in section 2.8.2.1 below). The relationship between ideophones and gestures is also presented in Siwu, against which the patterns are examined in EkeGusii, in sub-section 4.3.3.9.6. Dingemanse also explores an examination of phonaesthemes in Siwu, as sub-morphemic elements found across a number of semantically related words, a special form of relative iconicity. This further informs the examination of word initial sounds established in EkeGusii, such as the alveo-palatal /ɲ/ in phonaesthemes.

In Bowler and Gluckmann (2017), apart from the exploration of the phonological and morpho-syntactic properties of ideophones, which is comparable to other major studies such as Dingemanse (2011), is an analysis of Luhya ideophones, in three dialects, mainly as degree intensifiers, akin to the English intensifiers ‘very,’ and ‘really,’ which presents a comparable scenario to the type of ideophones identified and analyzed in the present study, as anechoic intensifier ideophones. In Luhya, however, while the degree of the gradable adjective that the intensifier ideophone holds exceeds contextual standards, the meanings of EkeGusii ideophones are mainly context-bound, and rarely imply exceeding contextual standards, but intensification of the degrees of the modified adjectives, or rarely, nouns.

On examining ideophones and the nature of the adjective word class in Ewe, Ameka (2001) notes that, languages differ on the extent to which ideophones are integrated into the grammar. In Ewe, for
instance, ideophones are found in several word classes; they are used in questions, imperatives, declaratives, and in negative sentences. However, Ameka observes that in languages where ideophones collocate exclusively with specific word classes, therein they belong to one class or exist as a sub-class. This scenario appears to be the case with ideophones in EkeGusii, which are treated as a class of their own. More importantly, Ameka observes that in a number of languages, ideophones are usually introduced by a demonstrational quotative form, citing examples such as Zulu (cited by Childs, 1994), and Quechua (cited by Nuckolls, 1996). This informs the analysis of EkeGusii ideophones, as words that co-occur with three morphological variants of a quotative form, discussed as part of their syntax, though one variant appears to be an affixal form, as detailed under section 4.3.3.9.

Childs (1994) conducts a survey of African ideophones. Key from this study is the deviant pitch characteristics of ideophones, which may be higher or lower, which seems to inform other cross-linguistic studies. Childs observes, as also do Dingemanse (2011), and Ameka (2001), that ideophones display little morphology, which position is ascertained in EkeGusii ideophones. Childs examines the reduplicative nature of ideophones, and their expressive vowel lengthening, giving examples from languages like Gbaya, Toura, and Vai, which informs the analysis of ideophones in EkeGusii. Childs also examines prosodic features of ideophones, such as tone and syllable structure, among other features, which make ideophones different from other word classes. The non-canonical syllable structure of ideophones is extensively explored in Alto perené by Mihas (2012), who also presents a spectrographic analysis of marked pitch rising in ideophones in the language. This informs the discussion on the prosodic features of EkeGusii ideophones, pitch in particular, as detailed in section, 4.3.3.7.3.
2.8 Theoretical framework

This sub-section makes an overview of the relevant theoretical and Conceptual frameworks; Autosegmental Phonology (AP), which is modified to handle featural simultaneity, and Iconicity, a conceptualization in semiotics, in which three main types of icons are explored. These were applied in data presentation, analysis, interpretation, and discussion of the findings, in sections 4.1, 4.2 and 4.3.

2.8.1 Autosegmental phonology

The Autosegmental phonology model (AP), by Goldsmith (1976; 1990), is a non-linear theory of tone analysis that was later extended to CV Phonology (Clements and Keyser’s, 1983). AP, unlike the linear sound pattern of English (SPE) model, considers certain prosodic elements to be autonomous. These include tone, duration, nasality, vowel harmony, stress, and pitch, among others (Katamba, 1989). In AP, elements are non-linearly arranged and the idea of autonomy makes them independent, unlike the SPE features that would occur simultaneously as features of consonant and vowel elements. Being autonomous, tones can survive the deletion of a tone bearing unit (TBU), hop from one unit to another or influence a neighbouring tone, as in merging two tones to make a contour pattern. The term ‘autonomous features,’ suggests independence, compared to ‘suprasegmentals,’ which implies superiority, to the consonantal and vowel tiers. Tones are realized on a separate level, the tonal tier, but are associated to the segmental tier. Therefore, tones are equal to elements of the segmental tier in contrasting meaning, and are independent from the segments. Moreover, tones can shift, so that a morphological tone can be realized on a TBU for which it is not specified. Tones can also spread, so that a tone of a particular TBU can be associated with another, or float, so that a tone is not associated to any TBU. Equally, a contour tone can split, to result in a falling tone followed by a rising tone.
The TBU varies from language to another. In some, it is a feature associated with the syllable, while in others it is born by the mora. Bickmore (1997) and Katamba (1989) have indicated that vowels and syllables have been established to bear tones besides the syllable in African languages, such as EkeGusii (Kenya), Mende (Sierra Leone), and Gwari (Nigeria). Massamba (1996) provides evidence that vowels bear tones in Ci-Ruri (Uganda). Bickmore (1997) has established that the mora is the TBU in EkeGusii, which displays either high (H) or low (L) tone patterns.

The tenets of AP include the well-formedness condition (WFC), which states that each vowel must be associated with at least one tone; each tone must be associated with at least one vowel, and that no association lines may cross. The others include the multi-linear representation of segments, the association convention (AC), and the obligatory contour principle (OCP), (Katamba, 1989). These were applied as exemplified in Figures 4 (a) and (b) below, to reflect multi-linear representation, where there are more than two tiers, allowing the syllabic, timing, tonal, and vowel harmony tiers, to run parallel to the CV tier.

CV phonology, an extension of AP, has been propagated by Clements and Keyser (1983), to handle syllabic structure. It includes an independent layer within the autosegmental system, known as the CV tier, to define functional positions within the syllable. The syllable is, therefore, taken to be a three-tiered structure, with a syllabic tier, the CV-tier and the segmental tier. Phonological rules can apply independently to the CV-tier, just as they do the segmental tier, and determine how the two tiers relate with each other. However, for purposes of demonstrating simultaneous application of features, the timing tier and the tonal tier can be merged with the tiers in syllabic structure, to demonstrate multiple variations as shown in Figures 4 (a) and (b).
The CV model presents the argument that long vowels cannot be represented as sequences of two or more, since languages can contrast one long vowel to two short ones. Finding it difficult to explain what the sequences of vowels are two or more of, Odden (2011) suggests that vowel length be treated as an autonomous feature of spread, linked to two or more timing positions. This overcomes the challenge in Cammenga (2002), where long vowels are sequentially represented. Figure 4 presents a diagrammatic representation of two EkeGusii words, *emerongo* ‘spines/stingers’ in (a) contrasted to *emerongɔ* (tens) in (b), (see detail in section 4.1.1). It indicates how AP would represent simultaneous application of tone, vowel length and vowel harmony in a multi-layered fashion. This modification accommodates the extra tiers in a completely multi-layered fashion.

(a) Syllabic tier
CV tier
Timing tier
Segmental tier
Tonal tier
Vowel harmony tier

(b) Syllabic tier
CV tier
Timing tier
Segmental tier
Tonal tier
Vowel harmony tier

Figure 4. AP diagrams for *é-mè-ró:ngo’* (spines/stingers) versus *é-mè’-rɔ’ngɔ’* (tens)
In Figure 4, (a) and (b) above, quadra-syllabic words are shown in the syllabic tier, linked to four other tiers. In (a), the long vowel in the root-initial syllable is related to two timing positions as a feature of rightward spread, happening concurrently with H-tone spread to the final mora position in the same direction. Vowel length here is phonetic (derived), that is arbitrary, not iconized. Example (b) shows the contrast achieved by concurrent variation of tone, length and harmonized vowel height, as distinctive features, where vowel harmony is inserted by a rule, in which F stands for the feature as shown in the harmony tier, and should be represented as a feature of spread across the segments as shown. It should be noted that the three contrastive features, vowel height, length and tone, are all attached to the segmental tier, to show the quality of the vowel, both as a TBU and contrastive segment.

The consonant series (homorganic sequences) [ng], are linked to one C segment in the CV tier, showing a single phoneme, but not a cluster, to maintain the strict CV structure of Bantu languages (Morara, 2017; Mutua, 2007). Two timing positions therefore, reflect the consonant as a phoneme longer than the other phonemes as shown, especially because of its nasal feature.

Notice that a purely phonological theory like AP could not address the semiotic dimensions of words and processes in EkeGusii. This warranted the need for Iconicity, a semiotic theoretical conceptualization associated with Peirce (1931), to account for prosodic and phonetic motivation in EkeGusii; the non-arbitrary relationship between prosodies and meaning on one hand, and sounds and meaning on the other. This is better discussed below.

2.8.2 Semiotic Iconicity

Cobley (2001) defines semiotics as the study of signs. Chandler (2002) reiterates that semiotics is concerned with everything that can be taken as a sign, where signs take the form of words, images, sounds, gestures, and objects. On the other hand, Bouissac (1998) defines iconicity as “a semiotic
notion that refers to a natural resemblance or analogy between the form of a sign (‘the signifier’, be it a letter or sound, a word, structure of words, or even the absence of a sign) and the object or concept (‘the signified’) it refers to in the world, or rather in our perception of the world.” Whilst semiology (the science of signs) is associated with Ferdinand De Saussure, Semiotics is associated with Peirce Charles Sanders (1931). Nöth (2001) reiterates that iconicity, as a semiotic concept, was introduced by Peirce, in the framework of a general theory of signs. It follows Saussure’s observation that onomatopoeia was relatively motivated (van Langendonck, 2007). The core of the conceptualization posits that our interpretation of the world does not derive from the structure of the brain as argued by Chomsky (1981), neither is the relationship between the signifier and the signified purely arbitrary, as argued by Saussure (1916). Rather, a considerable degree of words in languages are imitative of something in the objects or concepts that they signify. In other words, there are certain forms of semblance, correspondence, or similarities, between words and denotata.

In the Peircean theory of signs, were involved icons, indices and symbols (Hiraga, 2005). Following Hiraga’s interpretation, an icon is a sign which represents an object, mainly by its similarity to that object. An index represents an object by its existential relation to that object; ‘a sign which refers to the object that it denotes by virtue of being really affected by that object,’ an example being smoke representing fire (p. 30). And finally, ‘A symbol is a sign which refers to the object that it denotes by virtue of a law, usually an association of general ideas, which operates to cause the symbol to be interpreted as referring to that object’ (Peirce, 1931, cited in Hiraga, 2005, p. 31). It will be noted that in real language situations, linguistic signs may involve all the three types of Peircean signs, which overlaps allow our study to adopt recent views of iconicity, as reiterated in Ludovic (2008), Dingemanse (2011), Carling and Johansson (2014), and Johansson, Anikin, Carling and Holmer (2020).
van Langendonck (2007) notes that iconicity has to be contrasted with “arbitrariness,” a common view in linguistics which suggests that linguistic signs are non-iconic. This cognitive view holds that a sign posits something in the world through a mental operation, where something in the form of a sign reflects something in its referent. Language has a natural basis, such as articulatory mimesis, as linguistic signs are relatively motivated. Generativist arguments are, therefore, not based on data, which endeavour iconicity pursues. Explanations in cognitive linguistics are cognitive, experiential, functional, and pragmatic. A number of linguistic structures reflect the world’s structure, and not the brain’s.

Hiraga (2005) describes language as metaphorical, so that the content of the metaphor can be said to constitute an interpretation of reality in terms of mental icons. There is correspondence between two items mediated by metaphor signaling an iconic moment. This allows for mapping of image schemas from the source domain to the target domain. According to Manheim (2000), metaphors are signs that represent a parallel in something else, often through a vaguely sensed affinity, as in constellations of words, in which a similarity of form evokes a similarity of meaning, as in the ‘sl’ words in English; *slip, slide, slush, sleaze*, among others. Such constellations are grouped under a kind of sound symbolism called phonesthesias (Dingemanse, 2011; Carling & Johansson, 2014; Johansson et al. 2020).

If we consider an onomatopoeic infinitive in EkeGusii, *oko-garagaria* ‘to gurgle,’ we can strike correspondence between this word and the act, even as implied in the English gloss, so that the recurrent nature of the consonant sequence /g/ and /r/ in the root are imitative of the action. The phonological analogy uses an immediate and concrete source domain to explain an abstract subject matter (the target domain); the act of harnessing pressure in the oral cavity, and using it to hurl water or other liquid within the chamber.
As Ludovic (2008) argues, onomatopoeia (auditory iconicity) can only be called partial iconicity, since different languages have different representations of the same kind. van Langendonck (2007) notes that iconicity cannot be limited to onomatopoeia or sound symbolism. Rather, it should be looked for in the system of grammatical rules for combining these roots to express complex items. Iconicity can, therefore, be applied to account for the extent to which features like vowel length, consonantal constellations, variations of tones, pitch, and resonance, are used to signal meaning in EkeGusii. As Ludovic (2008) reiterates, a language user is usually not aware that the association between sound and referent is informed by his or her knowledge of the sign’s meaning.

There is evidence of associative phonology at work in several languages as in the correlations between sound and semantic distance (see detail in section 4.3.1). Michelucci, Fischer & Ljungberg (2011) argue that in defining iconic words, we must acknowledge a referential (lexical-semantic) condition in addition to the self-evident morphophonological condition. Further, Ludovic (2008) shows the need for making a distinction between potential iconicity, where any word can be used iconically, and actual iconicity, the discourse or actual language use of words.

### 2.8.2.1 Types of iconicity

From the Peircean three types of icons, image, diagram, and metaphor, we derive three types of iconicity, as chronicled Hiraga (2005), and in van Langendonk (2007): (1) imagic iconicity, (2) diagrammatic iconicity, and (3) metaphor. In imagic iconicity, a simple sign resembles its referent by virtue of sensory characteristics, such as onomatopoeia. Hiraga (2005) simplifies this notion by stating that images are mimetic to their objects. As noted by Smoll (2014), words can be imitative of landing planes, human vocal apparatus like laughing, coughing, snoring, chewing, and natural phenomena like wind, fire, and cutting. This means that all animal calls and other forms of impact, like objects coming
into contact with water, are all examples of imagic iconicity. In our study, all forms with imitative sounds, onomatopoeia, and echoic ideophones, are considered imagic, as discussed in section 4.3. In our study, however, intensifier ideophones, have been classified as anechoic, and have been associated with a type, herein called ‘sensory iconicity’ (see section 4.3.3.3.2).

In diagrammatic iconicity, is entailed a representation of relations of the parts of one thing by analogous relations in their own parts, such as when a circle, two dots and a dash, collectively show a human face. A diagram exhibits a structure that is analogous to the structure of its object. That is to say, of a sign and of an object, the relationship between the diagram and its object is dyadic (Hiraga, 2005). van Langendonck (2007) underscores diagrammatic iconicity as the most fundamental, with two sub-types: isomorphism, and motivation. In the former, there is a one-to-one correspondence, while in the latter, diagrams exhibit the same relationship among their parts as referents do among their parts. In the present study, the terminology preferred, for the two sub-types of diagrammatic iconicity, is that used by, among others, Gasser, Sethuraman, and Hockema (2005), Dingemanse (2011), Carling and Johansson (2014), and Johansson et al. (2020), that is, gestalt, and relative iconicity. In gestalt iconicity, there is a link between the structures of individual words and the structures of what they refer to, as in all forms of vowel lengthening, reduplication, iteration or repetition, monosyllabicity, and gemination, among others. According to Dingemanse (2011), it is gestalt iconicity that taps into the suprasensory attributes of duration and aspectual unfolding. On the other hand, in relative iconicity, a common feature in a set of words gives a correlation between their similar forms and the similarity in meaning, that is, relations between multiple sounds, or sound combinations, has a resemblance to the relations between multiple meanings. It should be noted that more than one form of iconicity can apply simultaneously to word forms.
Metaphors are ‘those which represent the representative character of a representamen by representing a parallelism in something else,’ (Peirce, 1931, cited in Hiraga, 2005, p. 33). Following Hiraga’s interpretation, metaphor brings out the representative character of a sign by representing a parallelism in something else. Therefore, it is by a triadic relation that metaphors achieve their signification. Smoll (2014) gives examples of gestures that display the image or shape of an abstract concept by movement of hands as being metathoric. The co-occurrence of prosodies, gestures and facial expressions in adjectives is handled in section 4.2.7, but not as instances of metaphor. Metaphor is not a major concern of the present study, since it would require invoking the cognitive conceptual metaphor theories for it to be clarified, as Peirce himself did not develop metaphor as noted by Hiraga (2005).

Notably, various scholars may use different approaches and terminology in their classifications of types of iconicity. For instance, Ludovic (2008), following Masuda (2002), focuses on the relationship between sound and referent, referring to it as phonological iconicity, which is herein referred to as phonetic iconicity, since “sound” is key (see section 4.3). Ludovic breaks phonological iconicity into direct and indirect iconicity. In direct iconicity, if the referent is noise or sound, the oral sound represents it by directly modeling it, as in onomatopes. This is treated as imagic iconicity in the present study. Direct iconicity is sub-divided into lexical and non-lexical forms, where the former is concerned with lexical onomatopoeia that complies with the phonotactics of the language, while the latter is concerned with onomatopoeia which exploits phonetic characteristics of the languages, to imitate a sound without attempting to produce recognizable verbal structures. In indirect iconicity, the referent is not an acoustic signal, but a sensation such as pain, or a movement, a feeling, or a property such as size, distance, or colour. The link between the sign and the object can be called indirect, or metaphoric. Indirect iconicity has two forms; associative and phonoaesthetic forms. Associative iconicity focuses on the correlation between vowels and meaning, as in where /i/ is associated with smallness, sharpness
and brightness, and /a/ is associated with largeness, bluntness and darkness. In the present study, highlights of morphemes associated with size are presented in section 4.3.1.2. In the subtype called phonaesthetic iconicity, sound clusters are related to certain meanings based on association, where word-affinity-relations and constellations can be distinguished. Herein, this subtype is called phonaesthetic iconicity, wherein again, morphological iconicity will be noted, as detailed in section 4.3.1

Johansson et al. (2020) observe that iconicity is also referred to as non-arbitrariness, motivatedness, or (lexical) sound symbolism. Therefore, scholars such as Dingemanse (2011), and Carling and Johansson (2014), identify three types of sound symbolism. These include, 1) imitative (absolute) sound symbolism, treated as imagic iconicity, and exemplified by onomatopoeia, 2) diagrammatic (word-relational) sound symbolism, with two sub-types; i) gestalt iconicity iexemplified by reduplication, and ii) relative iconicity, exemplified by the frequency code (Ohala, 1984; 1994) in which high frequency is associated with smallness and low frequency with largeness, and 3), associative sound symbolism, exemplified by phonesthemes. Carling and Johansson (2014) identified four types of sound symbolic mappings wherein is a motivated connection between meaning and: 1) qualitative aspects of a linguistic form (qualitative iconicity), 2) quantitative aspects of a linguistic form (quantitative iconicity), 3) parts as in phonesthemes (partial iconicity), and 4) whole lexemes as in ‘cuckoo,’ (full word iconicity). It should be noted that the function and application of iconicity in language analysis is taking shape as linguists are re-engaging this revitalized conceputalization around data across languages. However, substantial detail on this concept is found in Ludovic (2008).
CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter explains the employed design adopted by the study, the research site, the target population, the sample size and sampling procedures. It also explains research instrumentation, data collection procedures, presentation, analysis and interpretation. It finally addresses ethical considerations.

3.1 Research design

A research design is considered a plan of action for research that specifies methods and procedures for collection and analyzing information (Zikmund, Babin & Carr, 2009; Greener, 2008). According to Rasinger (2013), it is the actual structure, according to which a study is organized; the methodological-analytical framework used to answer questions in relation to theory and to prove or disapprove hypotheses.

This study employed qualitative methods. As outlined by Kombo and Tromp (2009), such a design involves the selection of informants, collection of desired information using the relevant tools, classification, analysis, comparison and interpretation of data. Lulenburg and Irby (2008:89) posit that a qualitative study is based on methods of enquiry that pursue an understanding of a social and human problem. This approach emphasizes understanding, by closely examining people’s words, actions, and records. This is contrasted to a quantitative research approach, which investigates such words, actions, and records at a mathematically significant level, therefore quantifying the results of observations. Qualitative research examines the patterns of meaning that emerge from data gathered; such patterns are often presented in the participants’ own words.” Such patterns are examined in the present study across the results in relation to the three objectives. Patterns of prosodies and sounds in relation to
meaning are the informing basis of the arguments in the study. The patterns are interpreted as implying the arbitrary and non-arbitrary aspects of language. This is in line with Sounders and Thornhill (2009), who note that qualitative research is often associated with an interpretive philosophy where, apart from building theory from a naturalist and emergent design, a deductive approach can be used to test an existing theory using qualitative procedures. This approach focuses on participants’ meanings and the relationships between them. The researcher has to gain physical access to participants, and cognitive access to their data, as it happens in the present study, which undertook to describe the iconic nature of prosodies, and word sounds, to reveal mimetic relations between words and meanings.

It requires a logical mind to make sense out of ambiguity by searching for patterns and connections from words and actions. The study, therefore, also applied an explanatory design. This design agrees with Sounders, Lewis and Thornhill’s (2009), and Yousaf’s, (2017) description of an explanatory design. This helped the researcher to analyze and explain autosegmental features as being co-functional, instead of analyzing them as unary features, which provides new insights to phonological investigation. It further helped explain the cause-effect relationships in phonological iconicity, where EkeGusii displays mimetic relations between prosodies, sounds, and meaning; patterns of relationships between word sounds and meaning as in phonaesthemes, onomatopoes and ideophones. As such, in order to evaluate, synthesize and draw conclusions from data, a qualitative design had to be adopted.

3.2 Research site

The target research site was the whole of the Gusii region, which included both Kisii and Nyamira Counties, where the majority of the native speakers of EkeGusii reside. However, the study was located within Masaba North Sub-County of Nyamira County. This site was purposively selected to make the study manageable on considerations of limited time, resources, and accessibility. Further, enlarging the
research site would not alter the findings in any linguistically meaningful way, since a small number of competent and purposively selected informants could sufficiently avail relevant information on pronunciation, gestural demonstrations, recording of data for analysis, interpretation, and crosschecking.

3.3 Target population

Most important to a linguistic study is the linguistic population, the amount of data used to warrant generalizations and conclusions, and of course the population of speakers. The study targeted over 400 lexical items spread across the three objectives. 160 lexical items, nouns and verbs were studied to ascertain claims related to prosodic simultaneity for the first objective. 62 lexical items were examined to establish the extent to which EkeGusii iconizes prosodies such as vowel lengthening, pitch variations, resonance, loudness, and syllabic accent, in the second objective. Finally, 248 lexical items were examined to ascertain the relationship that obtains between symbolic sounds and meaning in the third objective. In total, 470 lexical items were collected and examined, over 70% of which yielded expected results, and presented for analysis, interpretation and discussion, all data which is appended to the study report. Only a large population of lexical items would warrant findings and support generalization.

In relation to speakers, the study targeted all the native speakers of the ekerogoro dialect of EkeGusii. It excluded the South Mugirango (ekemaate) dialect, especially because the two dialects have considerable phonological, semantic, syntactic and other linguistic variations that would yield clashing results causing considerable inconsistencies in description (Bosire, 1993). Further, the researcher, a speaker of the ekerogoro dialect, relied on native-speaker intuition in making linguistic judgments that would not accommodatethe ekemaate variety. The ekerogoro variety is the one used in local radio and
television stations, in the EkeGusii Bible, early literacy and adult education materials, and other forms of print media, which position is also attested by Mecha (2013). Other EkeGusii radio stations have begun incorporating the speakers of *ekemaate* variety, but to a limited extent. Morara (2017), citing the Kenya bureau of statistics (2009), observes that the population of speakers of EkeGusii was estimated at 2, 205, 669. Considering the fact that over the past decade the National population has increased, following demographic trends (Kenya National Bureau of Statistics, 2019), and the fact that “speaker” refers to all the speakers of the two dialects, it would be untenable, currently, to provide a reliable estimate of the speakers of the *ekerogoro* dialect. While the population of inhabitants of Kisii and Nyamira counties is estimated at 1, 872, 436, this does not accurately reflect the speakers of EkeGusii. Since the *ekerogoro* dialect is the most widely spoken in the two counties, the population may be estimated to be well over 2, 000,000. There is little hope in a future linguistic investigation giving fair estimates of the numbers per dialect. Probably, this may be a futile endeavour, considering intermarriages, neighbouring language influences, practices like semantic borrowing, code-switching and code-mixing, movements, migrations and elsewhere settlements, and such other sociolinguistic factors. For instance, according to Abuga (2013), the Abagusii settlers of *Goseta* region in Kwanza Sub-county of Trans-Nzoia County have had the language heavily influenced by the Kibukusu, Kinandi, Kikuyu, Kiswahili and many other languages, so that we may talk of an upcoming *Goseta* variety of EkeGusii.

3.4 Sample size and sampling techniques

The study applied a hybrid technique, a priori thematic and data saturation (Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J. Bartlam, B., Burroughs, H & Jinks, C, 2017). This is where in the former, given theory, sufficient data is collected to exemplify it, and in the latter, data is collected to the level where no new information is being generated, that is, informational redundancy occurs, not at
the level of the speakers, but at the level of the informants and the available secondary sources. Following the concept behind a priori thematic and data saturation (Saunders et al., 2017), all the linguistic population of 470 lexical items was examined in the various categories explored in the three sections of chapter four. No smaller population would be sampled following the varied categories, patterns, and changing intricacies to achieve a detailed analysis of the data. Sampling a few would result in unsupported generalizations in a number of cases where detail was desired, especially to challenge previous researches as reitered in the chapter one. Johansson et al. (2020) reiterate the importance of analyzing a large number of lexemes in sound symbolism, which benefits its understanding.

A larger sample of informants would not affect a linguistic alteration of the findings. According to Vaux and Cooper, (2003), for a study within articulatory phonology and speech acoustics, the larger the sample the higher chances of error, distortion and irrelevant linguistic argument. This would be counterproductive. Informants needed to be imbued with basic understanding of variations in pitch, changes in tone, and resonance, changes in stress and loudness, long versus short vowels, different vowel qualities such as the differences between /æ/ and /ɛ/, or /o/ and /ɔ/, the upper mid and the lower mid vowels. They also needed to have understanding of the relations between the phonological and phonetic forms of words and their meanings, and had to have grown up within the Gusii region during their childhood to have gained competence in EkeGusii as their mother tongue and first language. Second languages like Kiswahili and English were found advantageous to the study as they were helpful during interpretation, glossing, classification, transcription and such analytical activities. The sample size was therefore limited and purposively selected, a form of non-probability sampling.
Four informants, two males and two females of native-speaker background were selected; all were graduates, two in linguistics, and two in sciences. The informants were free of outstanding speech defects, since their pronunciations were considered representative of native-speaker articulations. Vaux and Cooper (2003, p. 63) argue for this position by observing that “individuals that have not received training in phonetics, phonology, speech pathology or anatomy, normally do not know what to look for in their own pronunciation and, that they lack descriptive tools to label in any useful way what they do observe”. If asked to describe the properties of their own speech, most of their responses are linguistically useless. Purposive selection therefore, eased training informants on what to look for to elicit the desired information. The informants helped with making correct observations and accurate judgements, generation of required data, analysis, crosschecking and categorization. Notice that researchers like Cammenga (2002), Bickmore (1997) and Nash (2011) have successfully used more limited numbers of informants.

3.5 Research instrumentation

The researcher together with the informants generated three sets of lexicographic lists with as many as possible orthographically similar lexical items. Another set of lexicographic lists entailed words that were considered imitative of something in the word like proximal and near distal points, recent and remote times. A third set words entailed sounds of direct imitation, including onomatopoeic words and ideophones. The first set was used to study meaning contrasts, necessitated by variations in tone, vowel height, and vowel length. The second set was used to study the mimetic nature of pitch variations, loudness, accent, resonance, and iconic vowel lengthening lexical items. The third set was used to study iconic items such including phonaesthemes, cacophonous and reduplicant nouns and infinitives, onomatopoes, and ideophones. Such lexicographic lists are appended at the end.
Initially, a mic-attached high fidelity tape recorder was intended for recording voice to enable the researcher and respondents opportunity for retrieval and independent discriminative listening, and analysis. However, this was found impressionistic and untenable. Instead, direct recording of informants’ voices on *Praat version 6036*, a computer speech analyzer, was found convenient and reliable, following its high levels of clarity, precision and efficiency in analysis.

Participant observation was employed in certain instances, especially in the articulation of adjectives that happened spontaneously with facial expressions and gestural demonstrations. This necessitated that photographs be taken of such coarticulations as evidence for prosodic and gestural co-occurrence.

An android camera was used for purposes of photography, to capture respondents’ demonstrations of gestures and facial expressions that co-occur with iconized lengthening in adjectives as shown in Figures 49-56 in sub-section 4.2.7

### 3.6 Data sources and collection procedures

Data collection for this study involved various approaches. Data for multiple contrasting was gathered by respondents and the researcher from both primary and secondary sources. Most of the data from secondary sources was gathered from the Authoritative EkeGusii-English Dictionary (Bosire & Machogu, 2013), and a smaller percentage collected from previous researches, Ongarora (1996), Cammenga (2002), and Nash (2011). In their study on the typology of sound symbolism, Johansson et al. (2020) emphasize the value of data sources and dictionaries, which make the collection of data straightforward. From primary sources, part of it was generated by the respondents, and part of it by the researcher, all on the basis of native speaker intuition, elicited by way of unstructured interviews, and spontaneous discussions with informants. A total of 470 lexical items were collected for analysis.
The second stage involved preliminary discussions and training of the informants on the target features of prosody including pitch variations, vowel lengthening, vowel height harmony, loudness, stress and resonance. There were also discussions on the target form-meaning relations like onomatopoeas, phonaesthemes, iconic interjections and other mimetic forms and sounds in words. The researcher then trained with relevant examples, the informants to separately generate relevant lexicographic lists for comparison, crosschecking and elimination or inclusion for analysis. Data generation was revisited over three or more times as the informants and the researcher needed time to apply native speaker intuitions to generate sufficient data in other cases for analysis to support generalizations.

The third step involved grouping of the lexical items under sub-headings such as tone, vowel height, vowel length, onomatopoeia, sound symbolism, ideophones, cacophony and dissonance and other such categories. The researcher then engaged the informants in a pronunciation crosschecking exercise. This was done in turns guided by the researcher following the native-speaker intuitions of both the informants and the researcher to verify acceptable pronunciations.

Informants were then recorded directly on Praat for spectrographic analysis as playing tape recorded voice proved noisy, unreliable, tedious and difficult to control or manipulate, for desired results. With a human pronouncer, pauses and re-instruction were found easy and efficient to handle, unlike the analysis tape-recorded data. Separate recordings of the informants were made for analysis of tones, vowel length and vowel height.

3.7 Data presentation

Data, in this study, was presented mainly in twenty six tabular formats. The majority of these tables entail columns with the ordinary presentation of lexical items, as they are orthographically represented
in EkeGusii, coupled with (where necessary) tone diacritics. A second column presents phonetic transcriptions, and a third column, glosses that may in other cases be arguably presented in different paraphrases with varying contexts, researcher, and informants. A few of the tables like those presented under adverbial and deictic expressions have tabular columns with varying intensification degrees of the same lexical item. Other tables have two or more columns for purposes of comparative analyses. Only where gestures and facial expressions co-articulated with prosodies like lengthening in adjectives are pictorial representations used as in Figures 49-56. A limited sample of data is presented in sentences for purposes of contextualizing meanings as in section 4.3.4.

3.8 Data analysis and interpretation

Mic-attached headphones were used for data feed-in into the computer on Praat. For female respondents, floors of 100 Hz and ceilings of 500 Hz were set, and for male respondents, the parameters were set at 75 to 300 Hz comparatively. Mono sounds were recorded and saved to a list on the programme, which has an automatic speech analyzer in the form of wave forms, spectrums, formants, pulses, pitch tracks and intensity. Praat allowed retrieval, filtration (denoising) of recorded material, and truncation of unrecorded parts. The program worked better in silent rooms for efficiency and reliability.

Praat-recorded voices were then annotated and saved as Text-Grid, which enabled parsing into segment boundaries. The segmentation was then followed by text feeding-in, in praat picture windows, so that it was easy for the researcher to select and analyze the differences between two or more segments. By running the cursor along the pitch tracks, it was possible to trace the changes in pitch along the utterance and fix the tone levels for particular TBUs. Alternatively, the query buttons displayed the particular changes in pitch values. From the reading and interpretation of pitch tracks, tone diacritics
were used to mark tones; an acute accent [’] for H tones and a grave accent [子弟] for L tones, as the basic tones. The circumflex [´] and wedge [子弟] were left out as EkeGusii does not display patterns (Bickmore, 1997). However circumflexes were minimally used on long vowels to avoid sequential representation in line with the arguments for long vowels in this study.

In diagrammatic analyses of findings, relevant theoretical illustrations were used. Such diagrams display association lines and tiers such as the syllabic, CV, timing, and harmony tiers in line with the AP model. These are followed by relevant phonological descriptions and explanations to account for the various phonological patterns and observations. Concepts of vowel length spread, vowel harmony insertion, and tone assignments have been indicated on tiers parallel to the segmental tier, following the association convention (AC), and in line with the well-formedness condition.

Spectrographic analysis was also used to measure long vowels and/or segment durations. Vowel segment boundaries having been drawn, the sections of interest were selected and the segment lengths would automatically be displayed. These were then copied and transferred (pasted) on the word programs for analysis. For purposes of consistency, as noted above, long vowels were not presented as sequences; rather, the length mark [子弟] was used within the words and timing positions such as [XX] used in diagrammatic representations as in sections 4.1 and 4.2. As Vaux and Cooper (2003) posit, spectrograms can be used to analyze pitch, voice onset time, aspiration and segment length. They can also study vowel height and backness. Spectrographic analysis was used to graph variables of frequency, time and intensity.

Apart from the spectrographic analysis of the pitch tracks of ideophones, other sound data on form-meaning relations (iconicity) did not require spectrographic analysis, but was analyzed as per the
semiotic conceptualization of iconicity (Peirce, 1931). This is where an explanatory approach was used to account for the extent to which iconicity applies in EkeGusii. Iconic words like onomatopoes were morphemically analyzed to separate prefixes and suffixes from the echoic roots. The onomatopoeic value of the root would then be impressionistically analyzed in relation to what it depicts, especially by examining the sequences of consonant and vowel sounds. An analysis of the iconic nature of randomly selected data entries followed together with discussions and deductions guided by linguistic information and sound judgment with the researcher. Comparative discussions with a few examples from other languages then followed, to help assess and/or evaluate other views, challenge unpopular angles, or adopt sound opinions before a stand point was finally taken.

As noted already, since data was elicited to saturation point, while all items were transcribed and glossed as expected, not all items would be analysed in terms of spectrographs, AP diagrams, interpretation and discussion. Therefore, it logically demanded that certain examples be randomly sampled for spectrographic and diagrammatic representation, interpretation and discussion, to avoid interpretational bias, redundancy, and unnecessary repetition of recurrent ideas, or interpretations, especially in section 4.1. Otherwise, where possible, interactive engagement with the available extensive data has been attempted, as far as plausibly possible, and linguistically valuable.

3.9 Ethical considerations.

Ethical issues are Key in linguistic fieldwork though, as Rice (2006) notes, they have received little direct attention in recent years. The following considerations were observed during fieldwork.

Approval of the study from Kisii University, the office of the Registrar, Research and Extension was secured. This enabled the researcher to obtain a research authorization letter and a clearance permit
from the National Commission for Science, Technology and Innovation (NACOSTI). These further enabled the researcher to attain research authorization from the Ministry of Interior and coordination of National Government, Office of the County Commissioner, Nyamira County (See Appendices 4-8).

The researcher observed disclosure of the purpose of the study, and funding, which were necessary to secure informants’ comfort, trust and cooperation. This curbed overambitious goals on the part of informants or unnecessary financial expectations, as the research did not have sponsored funding.

Informants were accorded due respect as they were treated with dignity, decorum and confidentiality to the extents of their comfort and trust. Photographs of the respondents demonstrating facial expressions and gestures were taken with informant consent. Voice recording was done with the each respondent’s informed consent. Minor costs of airtime were met for the informants within meaningful limits, for the benefit of the study. Informants were met during appropriate day hours, in appropriate places, avoiding public social points, for purposes of safety and meaningful academic engagements.

The researcher observed beneficence for the good of the informants, by focusing on informants learning from the experience for their personal, career and professional gains as the researcher would not afford to pay them. According to (Podesva & Sharma 2013), payback can be a very complicated issue. Appreciation was fairly limited within the researcher’s ability. Constant and continuous relationship and responsibility negotiations were guided by active consultation to ensure research objectives were met. Careful role bargains were considered all the time.

At the end of the research, the informants were debriefed and appreciated for their time, dedication and assistance. The consequences of sharing the findings were explained, including possibilities of
publishing the findings and any publications made during the research process were shared with informants. To make the efforts of participants and the researcher worthwhile, the researcher intends to continue publishing the findings of the research (while life holds), to contribute to current discourse in linguistics in general. According to Podesva and Sharma (2013), a researcher’s ethical responsibility involves not just behaving well, during data collection, but doing what they can to make participants, cooperation worthwhile; it is never of any value to just put out the findings of a study.
CHAPTER FOUR
DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter presents, analyzes data, and discusses findings, in three sections. Section 4.1 argues that prosodic features apply simultaneously to contrast meaning in nouns, and in infinitives in EkeGusii, guided by autosegmental phonology. As it will be demonstrated, it is to a smaller extent that prosodic features apply solely to contrast meaning in nouns. Section 4.2 explores the iconic relationship between prosodies and meaning. Variations in pitch, resonance, and loudness, are iconized, as well as vowel lengthening, and accent, are. Section 4.3 avails evidence for sound symbolism. This is exemplified in associative and phonaesthetic iconicity, in onomatopoeic infinitives and nouns, and in ideophones. Therefore, sections 4.2 and 4.3 argue for iconicity, at the prosodic and phonetic levels, in that order.

4.1 Multiple suprasegmental variations

That nouns and verbs are tonally contrasted in EkeGusii is not in dispute, but this study argues, as reiterated, that this view is limited. What has not been explained however, is that meaning contrasting in the majority of the nouns and verbs is mainly achieved by the simultaneous variation of more than one prosodic feature; tone, vowel lengthening, and harmonized vowel height. This section begins with multiple prosodic contrasting in various tonal groupings of nouns, and then introduces the limited number of nouns that are solely contrasted by tone, to argue for the position that lexical items are multiply contrasted. Pairs of infinitives are also presented as words contrasted by multiple feature variation.
4.1 Multiple prosodic contrasting in EkeGusii nouns

To sustain a sound description of nouns, their morphological structure in Bantu has to be highlighted according to Nash (2011). In Bantu Nouns and Adjectives, the structure takes the form prefix + stem. Following this structure, a noun such as regunta’s ‘tens’ from Table 1 (below), should, therefore, be analyzed as follows.

\[
\text{'tens'}
\]

The augment vowel (pre-prefix) is usually a copy of the prefix vowel with a few exceptions. Initial H tones are usually associated with pre-prefixes (Cammenga, 2002). High (H) tones before the root only miss where Augment vowels (AUG) do not occur. Since Bantu prefixes are underlyingly toneless (Nash 2011), the findings of this study agree with this previous research. However, since earlier studies like Bickmore (1997; 1999), Mariera (2011), and Nash (2011), are purely focused on tone, the data in tables 2 to 5 are used to describe the interplay between meaning and the simultaneous variation of three autonomous features of prosody; tone, vowel length and harmonized vowel height.

The contrast based on vowel length and vowel height is consistent throughout the nouns in the two columns of each of the tables in this section. This necessitates the use of tone to classify the data into tonal patterns for purposes of meaningful presentation, analysis and interpretation.

4.1.1 High-toned noun stems versus low-toned noun stems

This section presents seven pairs of nouns that are simultaneously contrasted by three prosodies. The data in Table 2 below is presented with long versus short vowel contrasts throughout the two columns; long root vowels in column 1 are contrasted to short root vowels in column 2. Apparently, all the stems
are H (high-toned) in column 1 but L (low-toned) in column 2, which forms the basis for grouping these nouns together.

*Table 2. High versus Low-toned noun stems*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>é-mè-ró:ŋgo’ ‘spines/stingers’</td>
<td>a. é-mé<code>-r</code>o<code> ŋgo</code> ‘tens’</td>
</tr>
<tr>
<td>b.</td>
<td>é-kè-rè:r-ô `modern style’</td>
<td>b. é-kè-rè:r-ô ‘a cry’</td>
</tr>
<tr>
<td>c.</td>
<td>é-kè-ró:ŋgo’ ‘porcupine’</td>
<td>c. é-kè-rò -ŋgò ‘a lie’</td>
</tr>
<tr>
<td>d.</td>
<td>ó-bo`-sè:rá ‘beauty’</td>
<td>d. ó`-bò-sè:rá ‘charm’</td>
</tr>
<tr>
<td>e.</td>
<td>rì -ró:go’ ‘prostitute’</td>
<td>e. rì-rò:go ‘charm/witchcraft’</td>
</tr>
<tr>
<td>f.</td>
<td>ó` -g ó:tô ‘frog character in myths’</td>
<td>f. ó-gòtò ‘ear’</td>
</tr>
<tr>
<td>g.</td>
<td>rì-ró:ŋgo’ ‘big porcupine’</td>
<td>g. rì-rò:ŋgò ‘firewood ceiling’</td>
</tr>
</tbody>
</table>

Table 2 presents nouns that are multiply contrasted, so that tone, vowel length, and harmonized vowel height are employed concurrently for distinctive purposes. This forms the basis of prosodic simultaneity (suprasegmental multiplicity), a concept that deviates from the traditional unary (single feature) analysis of isolated features. In ordinary orthographic representation in EkeGusii, these nouns are not contrasted. Speakers, therefore, especially readers, depend on contextual clues to bring out the meanings intended of such lexical items.

It looks plausible to first explain the homorganic sounds that appear in both 1 and 2 (a, c, and g) and elsewhere in this section. All homorganic consonant sounds such as [nchw], [ŋgw], [ŋg], [nd], [mbw], [mb], [ntw], [ŋkw], [ŋk], and others common in EkeGusii and many other Bantu languages, are considered unitary consonant phonemes, and not clusters of consonants (Morara: 2017, Mutua: 2007).
This allows Autosegmental Phonology (AP) to represent EkeGusii as a strict CV language to avoid sequential representation in a word like *nchwate* (whip me), as CCCCVCV. Instead, such a word should consistently be represented as CVCV. In this study therefore, the clustered consonantal phonemes are linked to matching timing positions in the timing tier as shown in Figures 5 and 6, so that the timing positions correspond to the number of consonant units in each homorganic sound.

![Figure 5. Modified AP Representation for é-mè-rõ:ŋgo´ (spines/stingers)](image)

![Figure 6. Modified AP Representation for ê-mê´-rɔ´ŋgɔ´ (tens)](image)
Figures 5, and 6 above, show a diagrammatic representation of the contrasted pair of nouns under 1(a) and 2(a) in Table 2. From this AP diagram, the multiple functions of tiers can be explained. In traditional studies, tone has been singly analyzed as a distinctive feature in many African languages (Bickmore, 1997; Cammenga, 2002; Goldsmith, 1990; Mariera, 2011; Nash, 2011). Ongarora (1996) has also analyzed vowel harmony as a separate prosody with height being clearly distinctive, while Whiteley (1960), Cammenga (2002), and Komenda (2011), have analyzed vowel length as a contrastive feature in EkeGusii. However, beyond Whiteley’s analysis of length as a sole contrastive feature in EkeGusii, Cammenga observes additional tonal differences in Whiteley’s data and and speculates that they could be additionally distinctive, since no tonal analysis is given in whiteley (1960). It is, therefore, not clear whether or not the tones are distinctive underlyi

In the event that vowel length, tone and harmonized vowel height are simultaneously varied, each mora is therefore, linked to three non-crossing association lines in agreement with the well-formedness condition (WFC), implying that each prosodic feature concurrently impacts on the mora. Each feature is treated as independent of the other, so that the question of underlyingly contrastive features does not arise. The features are concurrently contrastive, thereby retaining autonomy, instead of portraying one or more features as superimposed on another. The diagrammatic representations in Figures 5 and 6 demonstrate such concurrent (multiple) linkages. Levin (1985), and Kaye (1986), find the CV tier
dispensable, since the role of the segments is predictable from the configurations of the tree, thereby making it redundant, but since the linkage of segments to two timing slots as in Figure 5 is challengeable, it is necessary that the CV tier be retained for purposes of explanatory salience. In other words, the timing tier alone does not appear sufficient to predict the roles of segments as shall be argued in this study.

The rules, o→ o [+F], o→ ɔ, and e → ε [+F], explain the difference between orthographic representation and intended (target) representation, where the commonly assumed vowel in both cases is realized as the back upper mid /ɔ/ in Figure 5 above, or the back lower mid /ɔ/ in Figure 6, while the commonly assumed front upper mid /e/ is realized as the front lower mid vowel in Figure 6. In both cases, in Figures 1 and 2, [+F] shows the addition of the harmony feature across the board.

Distinctive vowel length is shown by the long vowel in the root of (1a), as contrasted with the short vowel in the root of (2a) in Table 2, as spectrographically displayed in Figures 7 and 8 (below), both set at a pitch floor of 75 Hz and ceiling of 300 Hz for male speakers. Ordinary orthographic representation does not differentiate between the two nouns, so they are ordinarily presented as homographs. The long vowel, shown by the length mark (full colon), is related to two timing positions, instead of linking it to two vowel sequences. Odden (2011) notes that sequential representation encounters a number of challenges, including the question, what two or more vowels are more of, which shall be further examined in this study. Vowel length is therefore, treated as an autonomous feature of spread. The short vowel in (2) is related to one timing position as shown in the timing tier while long vowel is related to two, making the latter contrastive. Clearly, vowel length is a contrastive feature that has systematically been ascertained by Nash (2011) in other lexical items, and widely in Cammenga (2002) in infinitives. The change in meaning ascertains the phonemic status of vowel length in Ekegusii. On
the phonemic status of long vowels in EkeGusii, Nash (2011) gives detail, which however does not discuss it as one of the simultaneously contrastive features, as well as does Cammenga (2011). Of interest here, is the phonemic vowel lengthening as opposed to phonetic (derived) vowel length (Cammenga, 2002; Komenda, 2011).

![Figure 7. Root-vowel length in é-mè-ró:ŋgo’ (spines/stingers)](image1)

![Figure 8. Root-vowel length in é-mε’-ro’ŋgɔ’ (tens)](image2)

Spectrographic analyses of the duration of articulation of the words é-mè-ró:ŋgo’ (spines/stingers) and é-mε’-ro’ŋgɔ’ (tens) in Figures 7 and 8, show an approximate time domain of 0.2161 seconds and
0.0780 seconds respectively. Therefore, the former is longer by about 0.1381 seconds, though such may slightly vary from one respondent to another, depending on vocal apparatus, levels of excitement, and context of use, among other factors, and from one selection to another. Approximately, the duration of the short vowel is less by more than half of the long vowel. Notably, speakers that are not careful with length may not bring out the difference in root-vowel length at all; save for the distinctive vowel height. Bosire and Machogu (2013) have indicated this difference in root vowel length in their lexical entries of the two items in the Authoritative EkeGusii dictionary, by use of the colon for the long vowels, of course guided by intuition. The spectrographic difference in duration between the two nouns demonstrates that the longer vowel is not twice as long as the short vowel. This realization challenges the theoretical tenability of linking the long vowel to two timing positions. Moraic phonology (Hayes, 1989), also adopted in Bickmore, (1995b) and Nash (2011), would represent the long and short vowels as in Figure 9, showing the mora as a unit that determines syllable weight (Fox, 2000)

![Moraic representation of long and short vowels](image)

*Figure 9. Moraic representation of long and short vowels*
The challenge posed by the spectrographic durations in the nominal roots of Figures 7 and 8 is that, comparing the root vowels of both, the long vowel is about three times longer than the short vowel. This poses a challenge to MacCawley’s definition of the mora as “one of what heavy syllables have two of” (1968:525-6). Now that even in Moraic phonology the heavy syllable has two mora positions which representation does not appear supported by spectrographic analysis, a different approach to the description of long vowels is needed to account for the difference between long and short vowels. This study inclines towards the prosodic conception of length by Jones (1944; 1967), and Abercrombie (1964), who treat long and short vowels as 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. Such an explanation looks more satisfying than the more recent moraic phonology that follows the mora count approach such as argued in Bickmore (1995b).

Shifting attention to tone, it is possible to isolate and focus on tone alone as a contrastive feature, away from the other features. In (1a), é-mè-ro:ùngò́́ (spines/stingers), the tone melody is H L HH H, so that the root-initial mora has a H tone which spreads to the following stem moras. This noun falls in the category of nouns with left and right-edge H tones (Nash, 2011). Such nouns therefore violate the restriction on H tones on a long penultimate syllable, explained by binary leftward and rightward spread of the H tone, resulting in a pattern HHH, with two Hs in the noun-stem as a result of the long vowel, and the other H on the final vowel. The noun in (2a), è-me ’rɔ̀ ngá́ (tens), has the melody H L L L, making it expressly tonally contrasted to (1a). Following Nash (2011), this noun would fall in the category of nouns with no H tones. It has a H tone on the pre-prefix which however does not appear to spread rightwards, confirming the immobility of such H tones. On the basis of these pitch variations, the words are actually contrasted. Beyond the contrastive vowel lengthening in the root shown in
Figures 7 and 8, tone variation augments the same function, yet not underlyingly. In other words, even without the contrast occasioned by vowel length, tone appears sufficiently phonemic, only parallel to vowel lengthening. The contrastive function of tone is evidenced in Figure 10, after which more of this simultaneous prosodic contrasting follows.

![Figure 10](image.png)

*Figure 10. Pitch traces for é-mè-ró:ŋgó (spines/stingers) Vs. é-mɛ’-rɔ’hɔɔ (tens)*

The third point of interest is the employment of height harmony, which is here considered a phonemic feature, again to enhance the already augmented distinction. The first question that must be addressed is whether height harmony is contrastive; or whether the nouns are contrasted by phonemic segments or phonemic suprasegments. Perhaps the informing question is whether any segment can trigger harmony on its own or whether it will achieve this because it is encoded with relevant features for this function.

While studying classical Manchu, Smith (2016c) observes that a segment’s status as a trigger on non-trigger of harmony is directly encoded in the representation of that segment making it able to serve a contrastive function. A trigger segment, therefore, is actually accompanied by that gesture; one of its composite gestures surfaces as self-deactivating so that it works across the undergoer segments. This
explains why not any other segments in EkeGusii can occasion the harmony apart from the coded. Only the upper-mid and lower-mid segments are coded with such harmony gestures.

The noun é-mè-ró:ngo‘(spines/stingers), employs the upper mid (degree 3) vowels, while é-me´rɔ´ngo’(tens), employs lower mid (degree 2) vowels, on which basis they become successfully contrasted. The direction of spread of vowel harmony can arguably be considered leftward since EkeGusii nouns receive prefixes only (Nash, 2011; Mariera, 2018). The prefixal consonants are therefore, transparent to the harmonizing feature, height, as one of the composite features of the root vowels in both cases, which require that specified height sanctions be obeyed. This across-the-board effect of the harmonizing feature dictates the height of the prefixal segments so that they are contrasted in the two nouns. This feature is actually independent, so that it overrides segment interests. The origin of contrast shall not be misconstrued to be in the segments but in the features associated with the trigger segments. The dashed association lines in Figures 5 and 6 of the AP diagrams can therefore be taken to represent autonomous spread so that the root moras are associated by solid lines. This implies that vowel harmony is a root-controlled and regressive process in this case, though in other circumstances the picture may change (Mariera, 2018). Besides contrastive vowel length and tone as discussed above, root-occassioned height harmony surfaces as solely contrastive. This additional contrasting based on harmonized vowel height augments the argument for multiple suprasegmental phonemicity; prosodic simultaneity.

An argument for one of these suprasegments being fundamentally distinctive may not be sustained. The speculation by Cammenga (2002) that tones could be underlyingly contrastive in the data of Whiteley (1960) cannot be ascertained, since contrastive height harmony and tone, are clearly, additional features to distinctive vowel length. EkeGusii employs suprasegments concurrently for contrastive functions,
displaying a degree of phonological complexity, previously unattended. This forms the basis for prosodic simultaneity; that two or multiple autosegments can be contrastive, as will further be exemplified in the sections that follow.

It is worth noting at this early stage that the native-speaker intuitions of the words are fairly misleading so that the pitch patterns drawn in Mariera (2018) are challengeable, since they appear impressionistically assigned. This means that only spectrographic analysis can verify what speakers actually do with language, provided correct data is fed in.

4.1.1.2 Low toned versus falling tone noun-stems

This sub-section presents the analysis of a group of nouns with short stem vowels in column 1 and long stem vowels in column 2. However, for consistency, the nouns are grouped on the basis of their tone patterns as shown in Table 3 below, for purposes of convenient analysis.

Table 3 Low toned versus falling tone noun-stems

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>ó-boˇ-̀ròrô ‘pain’</td>
<td>a. ɔˇ-̀bò-̀rɔ̀:rò  ‘hen fleas’</td>
</tr>
<tr>
<td>b</td>
<td>é-bì-tègà ‘cooking pots’</td>
<td>b. é-bì-tɛ:ga’ ‘bow legs’</td>
</tr>
<tr>
<td>c</td>
<td>é-gè-tònò ‘swelling’</td>
<td>c. é-gɛˇ-tɔ:nɔ’ ‘type of pot’</td>
</tr>
<tr>
<td>d</td>
<td>é-mòndò ‘gizzard’</td>
<td>d. é-mɔ:ndɔ’ ‘navel/ill will’</td>
</tr>
<tr>
<td>e</td>
<td>é-bì-gɔtì ‘neck’</td>
<td>e. é-bì-gɔ:ti  ‘small coats’</td>
</tr>
<tr>
<td>f</td>
<td>é -ndˇ:rì ‘charm’</td>
<td>f. é -nd’e:ri  ‘cattle shed’</td>
</tr>
<tr>
<td>g</td>
<td>é-sòkò ‘very bitter herb’</td>
<td>g. é-sɔ:ktò  ‘act of getting married’</td>
</tr>
</tbody>
</table>
The nouns in Table 3 above are as well used to exemplify multiple contrasting to demonstrate the complexity of the prosodic system in EkeGusii. The patterns are as a result of all tone melodies in column 1 being HLLL and HL HL L in column 2. All the items in column 1 have short noun-stem vowels, while those in 2 have long noun-stem vowels. Finally, all the words in column 1 employ the upper mid vowels, while those in 2 use lower mid vowels (except example (m) with an interchange in both columns). In cases where the front high /i/ appears in (b) and (e) in both columns, it plays a role that impacts on harmony, which shall be explained below in relation to opacity. Example (a) is therefore used as representative of this group for a more detailed analysis and discussion.

The diagrammatic AP representations of the nouns in Figures 11 and 12 below are customized for purposes of multi-tiered representation. The selected nouns show the difference from the examples used in pattern 1, as the examples used for illustration from Table 3 do not have homorganic sounds, and the front-back opposition between the vowels is also missing. Only the back mid vowels, apply here. Further, whereas vowel lengthening involves the upper mid vowels in Figure 5, it involves the lower mid vowels in the contrasted nouns as shown in Figures 11 and 12. These are referred to as the degree 2 and degree 3 vowels in that order, following Odden (2015).
Figures 11 and 12 above demonstrate how the three features simultaneously impact on the moras in three tiers; contrastive vowel lengthening associated with two timing positions in Figure 12, contrastive tone variation with a HLLL in Figure 11 and H L HL L in Figure 8, contrastive and harmonized vowel height with back upper mid vowels in Figure 11, and the back lower mid vowels in Figure 12. Detail of such simultaneous prosodic contrasting follows.
The starting point for the analysis of the contrast between the pairs of nouns in Table 3 above is harmonized vowel height. This seeks to demonstrate that any of the three features, tone, vowel length and harmonized vowel height, can be viewed as equally and concurrently contrastive. The example in (2b) employs degree 2 (the back lower mid) vowels, where the harmonizing feature spreads regressively (leftwards) from the root to the pre-prefix {قرأ-} and class marker morpheme {-bأ-}. Though in rare instances harmony appears affix-controlled (Mariera, 2018), it mainly appears root-controlled as demonstrated in Figures 11 and 12. The harmonizing feature is assumed to be added as the rule cannot allow any shift in vowel height, where no opaque elements appear. In other words, the nouns are transparent to the harmonizing feature. Therefore, in o→ o [+F], and o→ o [+F]; the rules indicate that /o/ is realized at different heights as shown.

Assuming that vowel length and tone were suspended, harmonized vowel height would solely be, and successfully contrastive, since the example in (1b) é-ب-ت-ي-أ (cooking pots) has a different meaning achieved with the use of the back upper mid vowels in the root that equally spread leftwards. Harmonized vowel height therefore, attains phonemic status. In both cases, the class marker morphemes are transparent to the harmonizing feature. In other languages like Kikuria, the function of harmony seems a little more anomalous. Odden (2015) has established that in Kikuria, there happens stem-internal lowering from degree 2-3 such as in the infinitive oko-рг-er-a (to bewitch for) cf. ugu-س-ر-ر-أ (to praise for). There also occurs in Kikuria, regressive raising in all domains from degree 2 to degree 1 as in the noun umu-ر-م-إ (farmer) compared to oko-رم-أ (to farm). Another anomalous process is regressive stem-internal lowering from degree 1 to degree 2 as in وغ-س-ي-ك-أ (to close for) and ugu-س-ي-ك-أ (to close), and regressive stem-internal raising from degree 3-2 as in وغ-س-ي-ك-أ (to close for) and umu-ر-م-إ (farmer) as in وغ-س-ي-ك-أ (to close) (Odden 2015, p. 9).
The tone melody for (1a) ó-bo´-ròrò (pain), has already been established as H L L L, while that for (2a) ɔ´-bɔrɔˈ-rɔ (hen fleas), is H L H L L. Example (1a) falls in the category of nouns whose stems have no H tones while (2a) falls in the category of nouns with a stem-medial H tone on a penultimate syllable as explained by Nash (2011). Such are stem-medial H tones that do not spread. Notable in (2a) is the long vowel linked to a HL tone. The HL on the long vowel can be explained by the H-tone penultimate delinking of the rightmost association of a H-toned Long vowel in penultimate position. This leads to the L in the pattern. Of interest, is the fact that even if contrastive vowel height and length were equally suspended, tone variation as shown would still be contrastive in that either of the two nouns could convey two different meanings by pitch variation, thereby ascribing to tone, a phonemic status. Tone variation is only an additional contrastive feature to an already contrasted pair of nouns. This unique behaviour of prosodic features is suspected to be present in other Bantu languages, considering how several other language features are shared across language families, though pending investigation and verification, as recommended in section 5.3. For the purpose of exemplification, the pitch traces for the contrasted lexical items is mapped in Figure 13.

![Figure 13. Pitch traces for ó-bo´-ròrò (pain) versus ɔ´-bɔrɔˈ-rɔ (hen fleas)]
The third contrastive feature is vowel length. The long vowels in column 2 have a clear phonemic status which, though, is arbitrary, lacking any evidence of motivation. The spectrographic duration for the root vowels in (1a) in Table 2 is 0.0596 seconds as shown in Figure 14, while that in (2a) is 0.2147 seconds as shown if Figure 15, indicating a duration difference of about 0.1581 seconds. An arithmetic division of the latter over the former gives a Figure of about 3.602, implying that the long vowel could be over three and a half times longer than the short vowel. This therefore, implies that the association of the long vowel to two timing positions is precisely inaccurate, as well as using three or four timing positions could be. The use of two timing positions is, therefore, for the purpose of linguistic convenience and description, but not for any precision whatsoever. This implies that sequential representation of long vowels in orthography is simply unreliable. As observed by Nash (2011), long vowels have an undisputable phonemic status in EkeGusii. This discussion poses a strong argument against features that could be ‘underlyingly’ contrastive. The position sustained for this discussion is to do with contrastive simultaneity of prosodic features, as demonstrated, as opposed to superimposition of features on certain other features that may be erroneously perceived as being fundamental.

Figure 14. Root vowel length in ó-bo’-ròrò (pain)
As noted in section 4.1.1.1, there is a general pattern of simultaneous prosodic contrasting in examples (c-f) of Table 3 above that is further discussed here. The tone melodies in column 1 (c-f) display immobile H tones on pre-prefixes, and L tones on the prefixes, noun-stem moras and final vowels. The tone melody is therefore HLL or HLLL, depending on the number of moras after the pre-prefixal moras to final vowels. For the tone patterns in column 2 (c-f), H tones appear on the pre-prefixal moras and stem-medially. The melody is therefore HLHLL or HHL in quadri-moraic or tri-moraic nouns respectively. In all instances, the contour HL can still be explained by the H-tone delinking stated above. This observes the restriction of H tones on penultimate syllables, unlike example (a) in subsection 4.1.1.1 (above) that violates this condition. As witnessed, tone is a contrastive feature in all the pairs of words in the two columns. The pitch tracks for (1c) and (2c) of Table 3 are mapped in Figure 16.
Figure 16. Pitch tracks for é-gè-tônò (swelling) versus é-ge´-t tônə (small pot)

A second contrastive feature is vowel length, so that all the vowels in column 1 (c-f) are short while all those in 2 (c-f) are long, as indicated in the spectrums in the representation for (1e) and (2e) in that order.

The third contrastive feature is harmonized vowel height. In all the nouns in column 1 (c-f), the front upper mid vowel harmonizes with the back upper mid vowel, while in column 2 (c-f), the front lower mid vowel harmonizes with the back lower mid vowel. 1(c) and 2(c) must be explained, as the pre-prefixes and prefixes are the same in both cases, while the noun stems have upper mid and lower mid vowels. The class marker prefixes have the front high /i/ which does not seem to harmonize with any of the noun-stem vowels. This segment appears to block the AUG from being harmonized. Since it hampers the harmony feature, it is therefore termed opaque. The opacity of /i/ and /u/ has been established by Mariera’s (2018) study, with data confirming that these segments are both opaque and harmony neutral in EkeGusii. Wherever these opaque segments occur, they make segments preceding them invisible to the harmonizing feature. Mariera (2018) observes that they are also irrelevant in other
languages like Ife Yoruba (Nevins, 2010) and neutral in Finnish (Goldsmith, 1996). Otherwise, the harmonized vowel is contrastive even in such pairs.

### 4.1.1.3 High toned versus falling tone noun stems

This section presents the analysis and discussion of nouns whose stems have high tones in column 1 as equally contrasted to those with a high-low melody in their stems as shown in column 2 of Table 4.

**Table 4. High toned versus falling tone noun stems**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. é-gè-tábo’</td>
<td>a. é-gèt<code>a:bo</code></td>
</tr>
<tr>
<td>‘twig/ a piece of something’</td>
<td>‘clay bowl’</td>
</tr>
<tr>
<td>b. ó-mò-gókó</td>
<td>b. ẹ'-mò-g`ó:k-ọ</td>
</tr>
<tr>
<td>‘run off’</td>
<td>‘happiness’</td>
</tr>
<tr>
<td>c. é-sáró</td>
<td>c. ẹ-s`a:rọ</td>
</tr>
<tr>
<td>‘kind of bird’</td>
<td>‘pouch’</td>
</tr>
<tr>
<td>d. ó-bò-étó</td>
<td>d. ẹ'-b ẹ'-ẹ`:tọ</td>
</tr>
<tr>
<td>‘pathway’</td>
<td>‘curvedness’</td>
</tr>
<tr>
<td>e. ọ'-bọ'-k é</td>
<td>e. ó-b<code>ọ:ke</code></td>
</tr>
<tr>
<td>‘smallness’</td>
<td>‘honey’</td>
</tr>
<tr>
<td>f. rì-sábó</td>
<td>f. rì-s<code>a:bo</code></td>
</tr>
<tr>
<td>‘bough’</td>
<td>‘tree bark’</td>
</tr>
</tbody>
</table>

Tone variation shows consistent patterns in Table 4; except for the change in (f), all the nouns in column 1 have a noun stem tonal pattern HH, while those in 2 have stem-medial H tones achieving tonal contrast. On the other hand, except examples (e) which have interchanged vowel height patterns, the nouns in column 1 have degree 3 vowels, while those in 2 have degree 2 vowels. Regardless, vowel height shall be demonstrated as contrastive. Vowel length has a clear pattern, as the nouns in (1) have
short vowels while those in (2) have long vowel patterns. Still, lengthening is a third contrastive feature.

All the noun stems in column 1 can be categorized as noun stems with left and right-edge H tones, though the H tones do not seem to occur in pairs in line with Nash (2011). The H tones on the final vowels can plausibly be accounted for, by rightward binary spread. The nouns in column 2 on the other hand can be categorized as nouns with left-edge H tones which though demonstrate a ban on long H-toned penultimate syllables. The only explanation for the noun-stem HL pattern is the H-tone delinking rule. This is what results in the L on the final vowels of these nouns. While pre-prefixes have static H tones as expected, unique prefixal tones are observed in 1(f) as it lacks pre-prefixes, which pattern does not appear even in Nash (2011). In all the examples in 2, the root-initial morpheme has a HL tone which is displayed on the spectrums and pitch traces in Figure 17. The HL pattern is suggestive of a floating H that docks onto the long vowel from the pre-prefix position which still remains inert as expected. The long vowel in (f) seems in a sense motivated (iconic) as the class marker is augmentative in the opposite sense of diminution. This is a hypothetical position for verification. The detail of iconicity is explained later on in sections 4.2 and 4.3. On the basis of such tonal variations, the pairs are fully contrasted, though the language employs other mechanisms as observed above.

According to Mariera (2018), the pairs in (a) and (f) display partial (root-bound) harmony, a concept built on the argument that the root vowels are different; front and back forms of the low vowel /a/ exist in EkeGusii, that is /a/ and /a/ in that order, making it an eight-vowel inventory system. This should contrast the words as é-gè-taˈbó’ (twig/a piece of something) versus é-gètˈaːbo (clay bowl), thereby displaying partial or incomplete vowel harmony. In this case, there seems to be a form of disharmony that may be comparable to what happens in Kikuria, in which language, stem-internal raising takes
place in verbs (Odden, 2015). What happens here, is a form of prefixal-raising from degree 3 to degree 2 vowels, since harmony is a root-controlled process, which in nouns spreads leftwards (Nash, 2011). However, this debate cannot be pursued further, since it goes beyond the scope of the present study, and so remains subject to further investigation and verification. Other instances of such disharmony are explored in Mariera (2018). The point of interest for the present study lies with the contrastive aspect of harmonized vowel height throughout the pairs in the two columns of Table 4. Example (a) from Table 4 has been recast in the pitch traces in Figure 17 below for purposes of comparison.

![Figure 17](image)

Figure 17. Pitch tracks for é-gè-ta’bo’ (twig/a piece of something) vs. é-gèt’a:bo’ (clay bowl)

As noted in the foregoing discussion, vowel lengthening occurs in the stems of the nouns in column 2, contrasting them to those in column 1. Without having to display the spectrographic length differences (already demonstrated in other examples), lengthening functions as a third phonemic feature. Conclusively, the nouns above are multiply contrasted as opposed to the view of unary segmental analysis, where tones are studied away from other suprasegments. Further, such suprasegmental multiplicity is non-iconic, whereas in other instances, as will be confirmed under prosodic iconicity (section 4.2), prosodic variation is mimetic. The next section explores glide formation as the cause of suspension of the phonemic value of vowel lengthening.
4.1.1.4 Low-high versus falling tone stems with non-contrastive vowel length

This sub-section presents, analyzes and discusses the only two pairs of nouns that were found anomalously contrasted by two features, since lengthening as a third prosody is rendered redundant.

Table 5. Low-high versus falling tone stems with con-contrastive lengthening

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
</table>

The data in Table 5 above is used to explore the notion that contrastive vowel length is suspended in instances of glide formation in examples (a) and (b) in columns 1 and 2. In these nouns, the consonant sequences [mw] and [mj] are as a result of glide formation, which leads to automatic compensatory lengthening (Komenda, 2015; Nash, 2011). The part [w] is a surface representation of an underlying /u/, while [j] is also a surface representation of an underlying /i/. The surface nouns are therefore realized as in the following examples:

[ˈomwaarə] → [o-mu-are]
[ˈemjoorə] → [e-mi-oro]

The surface morphological forms of the first noun are, *o-mwaare* (secluded initiate), with a plural form *a-b-are*, and a derived noun *o-bw-are* (the occasion of circumcision), whose morphological analyses reveal the root to be {*-are*}, as informed by other words in the language like *e-ki-are* (a generation), whose plural is *e-bi-are* (generations). The other surface form is *o-mw-are* (strands of soot), a collective non-count noun. The second noun has two surface forms where one has a singular form *o-moro* (panga) and plural *e-mi-orɔ* (pangas), and the other, a singular form *e-mi-orɔ* (nostril) with the plural *chi-mi-orɔ* (nostrils). The nouns in Table 5 above can be diagrammatically represented as shown
in the illustrations of Figure 18, where an input with a short root-initial vowel is realized with a long root-initial vowel, occasioned by compensatory lengthening.

Figure 18. Glide formation with compensatory lengthening
Once the underlying vowels are dissociated from the syllabic mora, they undergo loss of mora features, and since they acquire consonantal features spread rightwards, they become semi vowels (approximants). Though Nash (2011) finds the resultant sounds to be consonants, they are more of glides than consonants. The remaining vowel slots are attached to the next, and to fill the empty V slots, the vowels double for compensation hence compensatory lengthening.

The main purpose here is to argue that glide formation in both cases leads to the suspension of the phonemic status of long vowels. Underlyingly, the words in (a) and (b) are expected to equally be multiply contrasted as explained in other cases in patterns (i-iii) above, but since glide formation creates automatic vowel compensatory lengthening, it happens that the feature ‘vowel length’ loses its contrastive function in these minimal pairs, considering that there are long vowels in both. In other words, the nouns in (a) and (b) are contrasted by two, instead of three features, tone, and harmonized vowel height, thereby excluding the short versus long vowel contrast, though it is difficult to predict at this stage, which of the minimal pairs should underlyingly have a short vowel, or whether both have underlying short vowels which lengthen after glide formation.

The tone melodies for the nouns in (1a) and (2a) are H LL H and HL HL respectively. The same tone melodies apply for (1b) and (2b). The noun stems in (1a) and (1b) above have right-edge H tones. The H tones can be explained by binary leftward and rightward spreading of the H tone which occurs when a stem initial vowel lengthens. The nouns in (2a) and (2b) have stem-medial H tones which observe the principle of banning penultimate long H tones. H-tone delinking applies to achieve the pattern HL in the noun stems. The resultant tone patterns in each contrasted pair achieve phonemic status as argued in other cases above. The words are therefore, tonally distinguished, though orthographically similar. The pitch traces in Figures 19 and 20 below demonstrate the difference between the pair in (1a) and (2a)
Figure 19. Pitch traces for 1(a). ó-mw-á:rè (strands of soot) versus 2(a). ó-mw-á:ré (secluded initiates)

Figure 20. Filtered Pitch traces for 1a. ó-mw-á:rè (strands of soot) versus 2a. ó-mw-á:ré (secluded initiates)

As realized in section 4.1.1.3 above, one challenge is to explain the pattern of partial vowel harmony, which otherwise suggests disharmony. The explanation lies with the opacity (and simultaneous neutrality) of the front and back high vowels in EkeGusii. The vowels /i/ and /u/ are found to be opaque, since they render the prefixal vowels preceding them invisible to the harmonizing feature, so that they ultimately block harmony. Since these are the underlying vowels in the glide sounds [w] and
[j], the underlying opacity is transferred to these surface forms. Therefore, the nouns appear to have two disharmonized parts where the roots are contrasted by vowel height, but the class marker prefixes have maintained the back upper mid vowels, therefore occasioning disharmony. Nevertheless, Vowel height retains its phonemic status at the root level as argued above so that opacity does not hamper it from playing its contrastive role.

One observation made from the filtered pitch track in Figure 20 above, is the possibility of erroneous reflection of the fundamental frequencies (F₀), as shown by the jumps that tend to double the F₀, especially the abnormally high on the left hand side for the first noun. The jump tendency on the left is negligible and can be read as a true rise. The end rises are potential errors, part of the many errors in pitch trackers explored by Gussenhoven (2004).

4.1.2 Binary prosodic contrasting in nouns

This section advances the view that even in the other nouns, where displays of multiple prosodic contrasts are not functional, two features of prosody are still simultaneously distinctive. Only in limited data do single features of prosody appear distinctive. Therefore, discussions that isolate single autosegmental features as being distinctive deserve narrow space, as shown at the end of this section, and reiterated in sub-section 4.1.3. Two lists of nouns are presented; Table 6 where tone is coupled with vowel lengthening, and Table 7 where tone is synchronised with harmonized vowel height.

Table 6. Contrastive tone and vowel length in nouns

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) ékè-mónyó [ɛkɛmɔɲɔ] ‘bean aphids’</td>
<td>ékè-mónyɔ [ɛkɛmɔɲɔ] ‘low-toned gossip/whisper’</td>
</tr>
<tr>
<td>b) ómɔgàkà [omogaka] ‘aloe vera herb’</td>
<td>ómɔgàkà [omoga:ka] ‘elderly man’</td>
</tr>
</tbody>
</table>
Except for example 1(q) above, which shows relative phonetic lengthening on the prefix vowel, all column 1 nouns have short stem vowels, while all column 2 nouns have long stem vowels. It can therefore, be perceived that stem vowel lengthening is a contrastive feature throughout the noun pairs in Table 5. The lengthening in column 2 is phonemic. Though studies like Cammenga (2002) and Nash (2011) have demonstrated that vowel length is distinctive in EkeGusii, it plays this role, not solely but in conjunction with other features like tone as explained below.
Tonal contrasting is the second contrastive feature that is evidenced throughout all the nouns in Table 6. The tone melodies in column 1 do not display a consistent pattern, but it can be noted that the stems have either HH or LL patterns, while the pre-prefixes have H tones, as the prefixes have maintained L tones throughout. In cases where the pre-prefixes are missing, it appears their floating H tones dock onto the prefixes making them H-toned as in (m) and (p). On the other hand, there appears a three-pattern melody in column 2; there are root-HL pattern in (a-j) making a common HLL stem pattern, a HH-root pattern in (k-p) making a HHH stem pattern, and then a HLH stem pattern in (q), and a LLL stem pattern in (r). Like in column 1, prefixal tones are L and the pre-prefix tones H, in the absence of which they are realized on the prefix as in example 2(p). Generally, these tone patterns have successfully contrasted the nouns in 2 from those in 1.

Conclusively, it has been evidenced that even tone and vowel lengthening play their contrastive roles concurrently, even when vowel height has been rendered non-distinctive unlike in sub-section 4.1.1. Situations in which one of these prosodies is isolated are fewer compared to situations where they occasion contemporaneous contrastive functions.

The following argument, as will be evidenced in Table 7 below, demonstrates that tone is also coupled with harmonized vowel height to achieve contrasts in cases where vowel length remains non-phonemic.

**Table 7. Contrastive tone and harmonized vowel height**

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. éngòrò [ŋgɔɾo] ‘hole’</td>
<td>éngóró [ŋɡɔɾɔ] ‘God’</td>
</tr>
<tr>
<td>b. ékééné [ekeːne] ‘trunk’</td>
<td>ékèéné [ɛkɛːne] ‘truth’</td>
</tr>
</tbody>
</table>
c. émbère [embere] ‘trouble’ émbërè [embere] ‘vagina’
d. émbóró [emboro] ‘pimple’ émbòró [embɔɾɔ] ‘penis’
e. égèsábó [eyesaβo] ‘twig’ égèsàbò [eɣesaβɔ] ‘request for dowry’
f. ómòsè [omose] ‘old man’ ómòsè [ɔmɔse] ‘vigor’

From Table 7 above, it can be noted that a few other examples of nouns do not depend on length as a phonemic feature. Though example (b) has long vowels in both columns with the prefixal vowels followed by the stem-initial vowels, the tone pattern of 2(b) shows a L on the prefix but H on the root-initial vowel as would be expected, but 1(b) violates this prefixal low for a H. As shown, the tones are various between the pairs in 1 and 2, and therefore phonemic. Contemporaneously, vowel height is phonemically harmonized so that the nouns in 1 have the upper-mid vowels, while those in 2 have the lower mid vowels. However, example 2(e) is deviant in the sense that it looks transparent yet the back lower mid /ɔ/ is harmonized unexpectedly with the front upper-mid /e/. In the event of such disharmony, future research may delve further into explanation around such other words as enyaro [enarɔ] (embarrassment), ekebago [ekeβaɣɔ] (hoe), and engako [eŋyaŋkɔ] (chamber), since Mariera (2018, p. 370) explains it thus unsatisfactorily: “One possible explanation is that /ɔ/ in word final position disregards harmony or is unable to sanction harmony.”

These two nouns, ésèèsè [ese:se] (dog) versus ésèsè [esεse] (whooping cough), impressionistically perceived to be contrasted by tone and harmonized vowel height, were found contrasted by vowel length and harmonized vowel height, hence chopped away from the Table 7 above. They were recorded over and over, only to show similar pitch traces. Native speaker intuitions ought to be verified at all costs, though they may vary slightly from individual to another.

1 A rare word in EkeGusii usually used in a saying: omorigi’embere arigie ekerubo ekegare atirerie (Whomever seeks trouble should locate a wide field for the dance). May be considered equivalent of the English saying “As you make your bed so you must lie in it”
4.1.3 Nouns contrasted solely by harmonized vowel height

So far, as shown in Table 8, only four examples were located, in which nouns were contrasted solely on the basis of harmonized vowel height. Example 2 (a) of Table 8 is an adjectival noun which only survives in context when used as such. In the data, the tone melodies are the same in both 1 and 2, and vowels are short in both. The only distinctive element is harmonized vowel height.

Table 8. Contrastive vowel height

<table>
<thead>
<tr>
<th>Column 1</th>
<th>column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) e-bi-oγe [ɛbiɔγe] ‘sharp objects’</td>
<td>e-bi-ɔγe [ɛbiɔγe] ‘eyebrows’</td>
</tr>
<tr>
<td>c) ri-koyo [ɾikɔjo] ‘dead, scaly skin’</td>
<td>ri-koyo [ɾikɔjo] ‘sugarless porridge’</td>
</tr>
<tr>
<td>d) o-mo-ko [ɔmoκo] ‘sycamore tree’</td>
<td>o-mo-ko [ɔmoκo] ‘one’s relation in-law’</td>
</tr>
</tbody>
</table>

From Table 8, all nouns in column 1 have harmonized upper-mid vowels, while those in column 2 have partially harmonized lower mid vowels in (a-c), except (d), which does not have the opaque segment /i/ seen in the prefixal morphemes of the former. As consistently argued in this study, vowel height shifting for purposes of contracting is more than a segmental affair. In as much as the harmonizing feature could lie within the noun stem, the trigger of harmony achieves the clear contrast across the board, which is more autosegmental than segmental. It is not the segments per se, but the harmonized height that plays a phonemic role. Regardless, these are only four pairs thus contrasted, about 6% of the nouns. Simultaneity overrides unary feature interests, as shall be argued further in sub-section 4.1.3.

4.1.4 Nouns as tonal minimal pairs

This section presents a brief discussion on more data that negated the general hypothesis of this study; that lexical items are contrasted by prosodies that function simultaneously, and that prosodies and sounds are iconic to considerable extents. If EkeGusii is to be described as a tone language, the
following data supports such a view though, thirteen pairs of tonal contrasts in nouns is comparatively limited, considering the slender evidence available from verbs in section 4.1.5. Cammenga (2002) agrees with this position by noting that tone is lexically distinctive, though this may happen to a limited extent. Arguably, the majority of pairs in Table 9 differ from each other, by one tonal unit, which data is not available in Cammenga, and even in Whiteley (1960). Cammenga gives slim evidence of two pairs of infinitives, where meaning is solely distinguished by tone (having been limited by time and resources), and observes that Whiteley lists only three pairs of such verbal roots.

A few nouns are contrasted by tone as the sole distinguishing feature. Such nouns considered to be tonal minimal pairs presented in Table 9 below are an attempt to give a list that has collected to saturation point such pairs in EkeGusii (though this cannot be exhaustive), in an attempt to go beyond the ordinary assumptions that EkeGusii performs such a distinctive role by the function of tone variation, without clear evidence of extent. The nouns are arranged according to syllable structure; two pairs are bisyllabic, six trisyllabic, and five quadrisyllabic. This informs the analysis of tone patterns. Interestingly, it was very hard even for educated native respondents of EkeGusii to distinguish between purely tonal distinctions and those based on one or more of the other prosodies such as vowel length and harmonized vowel height.

Table 9. Nouns contrasted solely by tone

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisyllabic</td>
<td>Bisyllabic</td>
</tr>
<tr>
<td>a) é-ndà [enda] ‘stomach’</td>
<td>é-ndá [enda] ‘jigger’</td>
</tr>
</tbody>
</table>
Trisyllabic

c) é-mè-gwà [emeüa] ‘openings’  e-mè-gwá [emeüa] ‘very sharp objects’
f) é-gè-sà [eɣesa] ‘duration’  é-gè-sá [eɣesa] ‘shade’
g) á-mà-tò [amato] ‘leaves’  á-mà-tó [amato] ‘ears’
h) á-m-òbà [amɔːba] ‘mushrooms’  á-m-òbá [amɔːba] ‘cowards – augmentative’

Quadrisyllabic

i) á-mà-gà-sì [amàɣa:si] ‘foot cracks’  á-má-g à:si [amaɣa:si] ‘scissors’
  Baganda community’
k) á-mà- ìgà [amaiɣa] ‘nostalgia/longings’  á-má-ìgá [amaiɣa] ‘fire stones’

As would be expected, their morphological structure has a nominal pre-prefix, noun class marker and noun stem, as outlined in Cammenga (2002), and ascertained in Nash (2011). Some of the nouns such as those in example (l) display partial vowel harmony as a result of an opaque segment, the high front or back vowel, /i/ or /u/. For instance, in (l), the presence of /i/ in the class prefix blocks the pre-prefix from being harmonized with the mid vowels in the noun stem. The rest of the examples display full harmony, as a result of transparency, except in (m), where the stem has an opaque segment so that the pre-prefix and prefix vowels are supplied by default.

The tonal patterns of these nouns are the only point of reference, which distinguishes each pair part from the other, in relation to meaning, with the variation of the basic H and L melodies as shown.
Otherwise, each pair part has the same features as the other in terms of vowel length, such as the long vowels in the stems of examples (i) and (j), and vowel height and the harmony where possible (it is blocked in (l) in both columns). The melodies for the bisyllabic nouns are, HL for 1(a), and HH for 2(a), while they are HLL for 1(b), and HHH for 2(b). The trisyllabic nouns display consistent patterns; HLL for 1 (c-h) and HLH for 2(c-h). For the quadrisyllabic group, the melodies are HLLL for 1 (i-l) except (m) which has HLLH, and for column 2, the melody for (i) is HLH HL L as the rest take HL HL H from (j-m). Only (l) has a short penultimate vowel, which has a L in both cases while the rest have long vowels as shown. Generally, these pairs can sufficiently be described as tonal minimal pairs, though they do not strictly differ from each other by exactly one TBU; after all, tones are not segments.

From the data in Table 9 above, it can be noted that it is to a limited extent that EkeGusii contrasts lexical items solely on the basis of tone, up to 18% of the words examined. Data that confirms simultaneous application of prosodic features is much more available compared to data to the contrary, up to 75%. This position is also confirmed with the discussions on infinitives in sub-section 4.1.4. Perhaps, the popular label given EkeGusii, as a ‘tonal language,’ should be reviewed to term it as a ‘prosodic language,’ to accommodate the rest of the prosodies that perform the same contrastive role as does tone

4.1.5 Multiple prosodic contrasting in the infinitive

This sub-section makes an introduction to EkeGusii infinitives, makes an overview of the morphological structure of the infinitive, presents data in Table 10, and then proceeds to discuss its simultaneous prosodic contrasts starting with harmonized vowel height, tone, and vowel lengthening, before making a summary of the key findings.
4.1.5.1 EkeGusii infinitives

There are two main types of infinitives in EkeGusii; plain infinitives, those without pre-prefixes, and augmented infinitives, those with pre-prefixes (Cammenga, 2002; Bickmore, 1999; and Nash, 2011). According to Cammenga, the pre-prefixes are optional. Table 10 below, presents a list of selected EkeGusii infinitives that are usually presented as orthographically similar, only to rely on context to be distinguished. While popular approaches would single out a particular prosody such as vowel lengthening as the distinctive feature as shown for the infinitives in column 2, this study presents a view that, like in nouns, a considerable percentage of infinitives are contrasted by more than two simultaneously applying features. Before analysis and discussion of the data in Table 10 (below), we briefly examine the the morphological structure and vowel harmony in the EkeGusii infinitive.

4.1.5.2 The morphological structure of the infinitives

The morphological structure of EkeGusii infinitives is here highlighted, following Nash (2011). For instance, if the item in 2 (a), ṭ-ɣ-teɛβ-a (to say) were modified to include the object marker {mo-}, and an extender morpheme to make o-ko-mo-teɛβ-ɛr-a (to say for him/her), it would be analyzed as follows.

\[
\text{Pre-prefix/o/ + class prefix /ko-/ (OBJ) + [Root + (Ext/Apl) +FV/-a] }_{\text{STEM}}
\]

According to Nash (2011), the pre-prefix is H-toned and optional, found in augmented infinitives, missing in plain infinitives. Example (a) therefore would only miss the objective marker {-mo-}. Cammenga (2002) observes that the extender morphemes can be one of the many such as resultative intransitive, stative, reversive intransitive, reversive transitive, applicative, reciprocal, causative, or passive.
4.1.5.3 Vowel harmony in the infinitive

Nash (2011:97) motivates a rule with implications on the vowel harmony of the infinitive: “the pre-prefix surfaces as /ə/ when the verb root has a mid lax vowel.” This rule holds for all the examples in Table 9 except examples (k) and (l); it may not accommodate any other examples of opacity in the infinitive like the following

i) o-go-sior-a [oyosître] ‘to plough early’

ii) o-go-sionor-a [oyosɨnəra] ‘to bruise’

iii) o-ko-bwen-a [okoβəna] ‘to heal’

iv) o-kw-ee-boy-i-a [okuβәjia] ‘to dress’

v) o-kw-ee-ment-er-a [okuɛmɛntɛɾa] ‘to add to oneself’

vi) o-kw-ee-menteer-a [okuɛmɛntɛɾə] ‘to despise oneself’

It is clear from the transcriptions that the verb roots in bold do not have their vowels harmonized to the pre-prefix. This is because there is an opaque element either in the verb root or in the prefix, as observed in Mariera (2018), the high vowels /i/ in (i) and (ii), and the underlying /o/ in (iii-vi). This blocks the leftward spread of harmony. The harmony rules affecting the pre-prefix must therefore be restated as follows: The pre-prefix surfaces as /ə/ only when the the verb root has a mid lax vowel and no opaque element within the verb root or prefix. Alternatively, the rule can be made more inclusive; the pre-prefix surfaces as /ə/ in transparent infinitives, and /o/ in opaque infinitives. This avoids limitation to transparent infinitives, catering for cases of opacity like (k) and (l) in Table 10 below, presenting data for our examination.
Examining the examples in (a) of columns 1 and 2 of Table 10, o-go-teb-a [ogoteβa] (to be sterile) versus o-go-teeb-a [ɔ-go-teːβ-a] (to say or to report), it is evident that the two infinitives are contrasted by vowel height; 1 (a) uses the upper mid in the v-root, while 2 (a) uses the lower mid vowel. Since both infinitives are transparent (they do not have opaque segments), the harmonizing feature works leftwards from the root so that vowel height is harmonized. The contrasting may be perceived as phonemic, but the harmonizing feature operates autonomously, through the prefix and pre-prefix, thereby completely achieving different segment heights. As indicated, full harmony is blocked in examples like 1 (l) ogwekora [oγuekɔra] (to pretend) versus 2 (l) ogwekoora [oγueko:ra] (to finish oneself). In 2 (l), the harmonizing feature is blocked by the underlying high back vowel /u/ (shown in
boldface in the transcription), which is involved in glide formation appearing as /w/ in the prefix. In 2 (l), harmony is still blocked except that the pre-prefix /o/ is supplied by default but not influenced from the root vowel. In both cases, compensatory lengthening is assumed to be working after glide formation, as shown in the prefixal long vowels. The desire for the contrasting of the infinitives, usually represented as ogwekora in both cases cannot be motivated by arbitrary phonemic features but by harmony features associated with the root vowels. The contrast will by no means be occasioned by the phonemes per se, if not by autonomous features, lest the argument boils down to a kind of assimilation. The view of a phonemic contrast must be a limited one; it cannot be the segment but a feature associated with it. This argument, that harmonized vowel height is contrastive applies to all the examples in Table 10, only that (k) and (l) share features of partial harmony due to opacity as explained.

4.1.5.4 Contrastive tone in the infinitive

To sustain an argument that tone is also a contrastive feature between columns 1 and 2, a spectrographic analysis of any two infinitive will have to confirm the claims. However, general facts about tones in the infinitive as presented in Nash (2011) have to be highlighted and assessed, before establishing where the contrast comes in between the pairs in Table 10. The facts presented by Nash can be summarized as follows: the class prefix, the extension suffixes, the object markers and the final vowel are underlyingly toneless. The only sources of a H tone in the infinitive are the pre-prefix, the reflexive morphem /é-/ and the verb root.

On the basis of this position, only H tone spread can make changes in the infinitive. Therefore, only a spectrographic analysis of the data in Table 10 can verify what tonal changes really happen between the
pairs in columns 1 and 2, since native speaker impressions suggest tonal contrast. For purposes of a consistent argument, Figure 21 below presents the pitch tracks for the infinitives in 1 (a) and 2 (a).

![Pitch tracks for infinitives](image)

*Figure 21. Pitch track for ɔ-gɔ-teβ-a [ɔ-gɔ-te:β-a] (to say or to report) versus ɔ-gο-teb-a [οgoteβa] (to be sterile)*

The pitch trace for 2 (a) is on the right hand side while that for 1 (a) is on the left. The formants and wave forms have been retained to clarify boundary assignments and show the concentration of vocal energy, as the same analysis will have to be recast for length. The tone pattern for 2 (a) is HL HL L, starting with the pre-prefix, the prefix, the long root vowel, and the FV in that order. On the other hand, the melody for 1 (a) is HL L L in the same order as for 2 (a). Being short, the root vowel, has one TBU, hence the contrast to 2 (a). While there is a sustained H on the first root vowel in 2 (a), 1 (a) has a L on the root vowel. This of course, strikes clear contrast between the two infinitives. The pattern in the root of 1 (a) is unexpected, since the root vowel should have a high as in 2 (a). The L in 1 (a) is expected to be caused by a H that should have spread rightwards from the pre-prefix so as to occasion downstepping as proposed by Nash (2011, p. 98), but this is not the case. In this event that the source of the root L can not be explained, it follows mutatis mutandis that there are certain infinitives, whose
verb roots can be a source of a L tone, 1(a) being an example. This strikes a second way in which infinitives, like the nouns in sub-section 4.1.1, are simultaneously distinguished by more than one prosodic feature. We now turn to consider a third feature, having ascertained that native speaker impressions may have telling information.

4.1.5.5 Contrastive vowel lengthening in the infinitive

The spectrographic representation in Figure 21 in sub-section 4.1.5.4 above has been broken into two and recast below as Figures 22 and 23 for the purpose of highlighting verb root vowel lengths in the two infinitives, the first being example 2 (a) and the second 1 (a) of Table 10, presented in reverse order. In 2 (a), the spectrums and waveforms show fade-outs without any particular recordings, but the word boundary leaves out this error, one of the errors in pitch tracks discussed by Gussenhoven (2004).

Figure 22. Root vowel length for ɔ-gɔ-tεεb-a [ɔ-gɔ-te:β-a] (to say or to report)
While 1(a) has an approximate verb root vowel length of about 0.152 milliseconds, 2 (a) shows an average of 0.404 milliseconds, at least two times longer than the former. Though the other segments may negligibly differ in length, native speaker intuition guides one to the considerable long vowel in the verb root as verified. Example 2 (a) being a representative of infinitives with long vowels in column 2, where all the infinitives have long root vowels, it can be argued that the infinitives are also contrasted by parameters of verb root quantity.  

In summary, orthographically similar nouns in EkeGusii are contrasted by a contemporaneous variation of prosodies, except a small number distinguished by prosodies that apply singly, 4% for vowel height, and 18% for tone. A similar pattern is witnessed in the EkeGusii infinitives, a larger percentage are contrasted by simultaneous application of distinctive harmonized vowel height, tone variation, and verb root vowel lengthening. It has been realized that the height of pre-prefixes in infinitives depends on the absence or presence of opaque segments, the upper front and back vowels within the prefix and/or the root. It has also been ascertained that there are two kinds of infinitives in EkeGusii, those with H stem tones, and those with L stem tones. It is evident that it will be inadequate to term EkeGusii a tone language. It will be prudent to refer to it as a prosodic language, as prosodies work concurrently.

2 The puzzle ‘long vowel’ is not fully resolved or explained here since it is difficult to account for contour tones, tone spread, floating tones, upstep, downstep and other related phenomena in AP. Odden (2011) shares more detail on the perceptions of vowel lengthening.
4.2 Prosodic simultaneity and iconicity in EkeGusii lexical categories

This section aims to address the second objective of our study. It presents, analyzes, and interprets data, with a view to demonstrating the functionality of a type of diagrammatic iconicity, Gestalt iconicity, in lexical items since, their structures reveal something about the structural, aspectual and spatial parameters of what they depict, that is, that vowel lengthening is an iconized prosody that is simultaneously accompanied by other equally iconized features, including variations in fundamental frequency, voicing and resonance. The basic argument is that 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. Lengthening is examined in the word classes; verbs, adverbs and adjectives, and in deictic expressions of time and space.

4.2.1 Iconic lengthening in intensifier verbs

The data presented in Table 11 below, presents verbs with the stem syllable structures CVC in (a-c) and (e), CVCVC in (d), (g) and (f), and CVVC in (h), following insights developed in section 2.1. In column 1, the tonal melody is LH in (a-c), LHH in (d-f) and HLH in (g-h). An examination of the verbs in column 2 reveals two important features; that it is the root-final vowels that lengthen in each case and, that it is the root-final mora tones that spread rightwards. The resultant tone melodies in column 2 are therefore (assuming that two mora positions are consistently created by lengthening in each case) LHH in (a-c), LHHHH in (d) and (f), LLHHH in (e) and HLLHH in (g) and (h). The final vowels in both columns surface with H tones throughout. Since tones appear to spread automatically and consistently from the stem-final moras, it looks iconically redundant and being non-contrastive,
focus has to shift to vowel lengthening as the iconically informative feature that reveals correspondence between the structure of the verbs and the meanings conveyed.

Table 11. Vowel length in intensifier verbs

<table>
<thead>
<tr>
<th>column1</th>
<th>column2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) sòmá [sɔma] ‘read’</td>
<td>sòmá [sɔ:ma] ‘read for some time’</td>
</tr>
<tr>
<td>b) kòrá [kɔra] ‘do’</td>
<td>kòrâ [kɔ:ra] ‘do for some time’</td>
</tr>
<tr>
<td>c) târá [tara] ‘walk’</td>
<td>tàrá [ta:ra] ‘walk for some time’</td>
</tr>
<tr>
<td>d) timóká [timoka] ‘rest’</td>
<td>timóóká [timo:ka] ‘rest for some time’</td>
</tr>
<tr>
<td>e) sîbâ [sîβia] ‘wash’</td>
<td>sîbîá [sîβia] ‘wash for some time’</td>
</tr>
<tr>
<td>f) bûrûgá [bûruya] ‘weed/stir’</td>
<td>bûrûûgá [bûru:ya] ‘weed/stir for some time’</td>
</tr>
<tr>
<td>g) râgèrá [rayêra] ‘eat’</td>
<td>râgèrâ [raye:ra] ‘eat for some time’</td>
</tr>
<tr>
<td>h) rîká [riika] ‘write’</td>
<td>rîká [rii:ka] ‘write for some time’</td>
</tr>
</tbody>
</table>

As noted above, the data in Table 11 includes intensifier verbs with iconic vowel lengthening, which, however, is non-contrastive. For spectrographic analysis, we take example (d) with the stem structure CVCVC for analysis. The action of ‘resting’ in (d) is the same in both columns, but the degree varies. Figure 24 shows that the vowel has an average duration of 0.1099s compared to an average of 0.6190 in 25. It is clear that the vowel is relatively six times longer in the latter than in the former. This is the most salient difference in segmental lengthening occurring within the verbal stem. However, the spectrographic values are only indicative of what happens as meanings conveyed will rely, to a good extent, on shared knowledge between the speaker and the hearer. It should first be noted that in column 1, the statement is imperative, while it is exhortative in column 2, but in Figure 25 below, it is the durative aspect of the activity that is represented. Such lengthening appears motivated and syllabic as it
does not occur on the final vowel or the prefixal morphemes. Even native speakers would not tell how far they stretch the vowel, which means orthographic representation would at best be a matter of sheer convenience. Neither the use of more colons nor of more vowels would be informative of what exactly the signers do. As noted, such lengthening is basically relative. On examination of the structure of the word in Figure 25 below, it can be observed that the longer the vowels, the longer the activities, making the vowel appear ‘elastic.’ Lengthening is the sole indicator of the relationship between the signifier and the signified. This means, how long one should rest, in EkeGusii, can only be conveyed by the relative length, and such meanings are highly context-dependent. Vowel elongation spans the activity of the verb over time.

**Figure 24. Vowel lengthening in timoka (rest)**

**Figure 25. Vowel lengthening in timo:ka (rest for some time)**

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Though relative high pitches are noted on both short and long vowels, changes in the fundamental frequency along the long vowel show a consistent rise. One female respondent produced on the long vowel pitches from a low of 204.5 Hz through 213.3 Hz to the high of 218.6 Hz. One male respondent registered on the long vowel, a low of 131.2 Hz rising consistently to a high of 164.5 Hz. The rise in pitch along the lengthened vowel has to be attributed to the emphatic aspect of the verb, which must be motivated by the mentally perceived necessity of taking the advice given, that is, ‘it is important to rest for quite some time before embarking on another task.’ Once de-contextualized, it becomes a challenge to get the natural rise in pitch which should imply that the statement is anticipatory, but all the same, the rise is not lost. Generally, iconic lengthening is associated with rising pitches, especially for emphatic information.

A comparison to the above scenario is herebelow presented in Figures 26 and 27, using examples 11(a) in columns 1 and 2, where the root vowel of the disyllabic verb is elongated in the second column. A relative segment length of 0.2561s compared to 0.6379s in the root vowels still indicates that the long vowel is about three times longer than the short vowel.

*Figure 26. Pitch track with vowel length in səma (read)*
The same female respondent made different length stretches in the two cases as observed. This confirms that the use of double colons for representation of the long vowel is neither correct nor accurate, but a matter of choice for descriptive convenience. Notably, the pitch range in the long vowel rises from a low of 184 Hz through 187 Hz to a high of 203 Hz. This supports the above conclusion, that lengthening is associated with rising pitches. Assuming that a floating H tone docks onto the final mora, this should be the source of the H tones preceding the final mora H tones. Examples (g) and (h) for the same respondent appear to disagree with this conclusion, but the respondent does not articulate them anticipatorily. Once uttered as statements, then the pitches will drop inevitably. Such cannot therefore, be used to vitiate the observation that iconic vowel lengthening and rising pitches occur concurrently in utterances of this kind. What these examples reveal instead is that pitch variation is more of an automatic than a motivated feature.

The above comparison strikes the fact that a long vowel is more of an elastic segment, than a duplicative one. This is because it is clearly difficult to tell how many mora positions are occupied by a long vowel. It will be recalled from section 4.1.1.1 that the moraic view of long vowels remains
challenged the same way MacCawley’s (1968) view is. If moraic phonology were applied in the representation of example (d) of column 2 as revealed from Figure 25, it would result in the following unsustainable representation (see Figure 28).

![Figure 28. Supposed moraic representation for timo:::ka (rest for some time)](image)

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 six mora positions? (2) What of more or less positions? (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, Odden’s (2011) view of a long vowel as being 1+infinity looks more plausible, but the question that remains unaddressed is, what this ‘one’ is, to which infinity is added. Treating long and short vowels as one and the same elastic or autonomously spreadable segment over time spans looks more convincing.

As noted in section 4.1.1.1, Jones’ (1944, 1967) and Abercrombie’s (1964) views may therefore be found more seminal in studies of vowel length; 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. Regardless, issues of syllable weight remain unaddressed as it appears that a vowel can stretch to any context-determined length, thereby implying that syllabic weight is inevitably relative.
Simard (2013) observes that lengthening indicates durativity in Australian languages, with particular examples from Jaminjung. For instance, the intonation units yirrurra-wardagara-nyi=ngardi::: means “catching the goats took quite some time” while waya=wung ga-yingi::: means “the callout continued for some time,” (2013, p. 67). Similar language features (iconic lengthening), are observed in Japanese (Iwaski, 2002), and Zulu (Childs, 1994). In the analysis of Kisi ideophones, Childs notes that prolonged ideophones have an iconic component so that vowel elongation is associated with extension in time or space.

4.2.2 The intersection of contrastive tone variation and iconic lengthening

Table 12 below presents two examples (i) and (j). The first difference between (i) and (j) is achieved by the contrastive tone assignment. That is, (i) and (j) are again contrasted by vowel length as shown in Figures 29 and 30 below. Therefore, vowel lengthening and tone variation apply simultaneously as contrastive features though they are non-iconic in this case. However, between columns 1 and 2, (i) and (j) have their meanings in column 1, repeated over time, and achieved by iconic vowel lengthening. For convenience, two colons are added in each case in column 2, suggestive of two length positions, which position, as already noted can neither be accurate nor specific as lengthening is relative and context-dependent. All that can be noted is that vowels can lengthen for distinctive purposes as in between (i) and (j) of column 1, and then lengthen iconically to suggest more of the action as in 2(i) and 2(j).

Contrastive lengthening shows about two positions in Figure 30, occupied by the root vowel compared to the length of the root vowel in Figure 29. The phonemic status of long vowels in EkeGusii is not debatable, as evidenced in Cammenga (2002). The change of view point is to do with the consideration
of the iconic nature of vowel lengthening, where each of the verbs can have the root vowel stretching to signify that the action can be repeated over a span of time, now and then before an ultimate stop.

Table 12. Vowel length and tone in intensifier verbs

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>té:mà ‘cut’</td>
<td>té::mà ‘cut for some time’</td>
</tr>
<tr>
<td>j)</td>
<td>tè:má ‘try’</td>
<td>tè::má ‘try for some time’</td>
</tr>
</tbody>
</table>

Figure 29. Stem vowel length in tɛma (cut)

Figure 30. Stem vowel length in te:ma (try)
The question that remains insufficiently addressed hitherto, is whether long vowels are a sequence of short vowels, whether they are two of what a short vowel has one of, or whether they are one position, plus infinity. This study maintains the chroneme concept to explain long vowels. The main purpose for reiteration of this position is mainly due to the contextual demands of vowel lengthening that end up varying from context, and from individual to another. Therefore, that there are chroneme differences between short and long vowels looks more logical.

The following diagrams show iconic lengthening in each case as shown in column 2. The contrastive lengthening is overtaken, so that only the tonal variation may distinguish the words as iconic length is relative and context-determined. As shown by the highlighted section, the iconically lengthened vowel spans over 0.49 seconds while the second spans over about 0.563 seconds. Still, the second is longer as it were, though both are now lengthened to imply action repeated over and over.

*Figure 31. Iconic lengthening in the words tɛma (cut) and tɛːma (try)*
4.2.3 Vowel length and pitch variation in adverbial expressions

The data in Table 13 below explores adverbial expressions, where stem-initial vowels are lengthened to signify increased degree of the quality of the adverb. The lengthening pre-modifies the adverb to various relative degrees, so that the glosses show two amplifier adverbs like ‘very’ and ‘indeed’ as in example (a) in column 3. Other glosses use ‘quite’ eg. (c, e, and f), to imply the greatest extent in the third degree as compared to ‘very’ which implies a lesser extent of the same in the second degree.

Table 13. Vowel lengthening and pitch variation in adverbial expressions

<table>
<thead>
<tr>
<th>Column 1</th>
<th>column 2</th>
<th>column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) buya [βuja] ‘well’</td>
<td>bu:ya [βu:ja] ‘very well’</td>
<td>bu::ya [βu::ja] ‘very well indeed’</td>
</tr>
<tr>
<td>b) bobe [βoβe] ‘badly’</td>
<td>bo:be [βo:βe] ‘very badly’</td>
<td>bo::be [βo::βe] ‘very badly indeed’</td>
</tr>
<tr>
<td>c) mono [mono] ‘so much’</td>
<td>mo:no [mo:no] ‘so much’</td>
<td>mo::no [mo::no] ‘quite so much’</td>
</tr>
<tr>
<td>d) iɣo [iɣo] ‘so’</td>
<td>i:go [i:yo] ‘much so’</td>
<td>i::go [i::yo] ‘very much so’</td>
</tr>
<tr>
<td>e) bwango [βuanŋo] ‘fast’</td>
<td>bwa:ngo [βua:nŋo] ‘very fast’</td>
<td>bwa::ngo [βua::nŋo] ‘quite fast’</td>
</tr>
</tbody>
</table>

Notably, the speakers express this as a mental operation that is dependent on context, and remains highly relative so that one speaker cannot convey exactly the same meaning as the other, if the activity, context and hearer change. Even the same speaker may express more levels of the same adverbial quality suggesting up to four or five degrees that may lack equivalents in another language like English. A lay interpreter may express the highest degree as: “very, very, very well indeed,” to emphasize the highest degree of the ‘wellness.’
The picture here looks as shown in Figure 32, where the stem-initial vowel can be spanned over time as far as the speaker finds it contextually relevant, to transfer intended meaning. The challenge with this kind of representation is to do with the unexplained mora positions that do not look contained in terms of number. On the other hand, if we represent the long vowel with an extra mora position, it fails to capture what signers do with language as they keep lengthening the vowel as they increase the degree of the adverb. The lengthening is observed to occur in the first syllable of the adverb demonstrating the expandable nature of the long vowel.

![Diagram of vowel length](image)

**Figure 32. Expandable length in buya [βuja] (well)**

A spectrographic representation of the lengthening vowels is shown in Figures 33, 34 and 35. It can be noted that the vowels lengthen from 0.217s to 0.608s, up to the longest of 0.835s. The longer the vowel, the greater the degree of ‘wellness’ implied. As can be noted from the diagram, the floor and ceiling values were adjusted for a female respondent, 100 to 500 Hz for better results from the spectrograph.

![Spectrograph of vowel length](image)

**Figure 33. Spectrographic vowel length for buya [βuja] (well)**
What else happens while the vowels lengthen? Pitch keeps rising with vowel lengthening as a concurrent prosody. Whether rising pitches are as a result of meaning delivery or an automatic physiological mechanism is of paramount consideration. A dissociation of the rising pitch from a communicative function will be erroneous, since a speaker can still moderate the fundamental frequency towards a low, which however, will convey a different and wrong impression, thereby ruling out an automatic physiological mechanism.
Lengthening, and a sustained higher fundamental frequency, encodes a message; it implies an emphasized and higher degree of the quality of the adverb. While lengthening is basically durative in Jaminjung (Simard, 2013), it has other wider functions in EkeGusii, including this emphatic function in the adverbs. Comparatively, like in Jaminjung, it is also marked with a higher relative pitch.

One more aspect changes here; reducing resonance. To revisit the functional definition in chapter 1, resonance is considered to be the distinctive quality of a voice being deep, full, and reverberating; the strength of voice. On listening to a respondent, the more durative the adverb, the lower the resonance became. The respondent was able to reverberate the voice, but the meaning got distorted (the emphatic aspect got lost) regardless of maintained lengthening. This implies that vowel lengthening in degree adverbs works concurrently with rising pitches and decreasing resonance to convey an increasing degree and emphasis in the adverb. The three prosodies are therefore autonomous and iconized.

4.2.4 Iconicity in deictic adverbs

According to Levinson (1983), deixis is concerned with the ways in which languages encode or grammaticalize features of context of utterance or speech event, and how the interpretation of utterances depends on the analysis of the context of the utterance.

Certain expressions in EkeGusii are indexical in nature, for they perform semantic and pragmatic functions. They perform semantic functions in the sense that the speaker encodes particular meanings in the expressions, hoping to convey the same meanings to the target hearer. They perform pragmatic functions in the sense that the hearer decodes context-bound meaning as far as they interpret the speaker’s intentions. The referents of these expressions are, therefore, to be particularized within the context shared between the interlocutors. The expressions may be defined in the words of Birner (2013)
as referring expressions; linguistic forms that the speaker uses with the intention that they correspond to some discourse entities and they bring those discourse entities to the mind of the addressee.

The indexicals in tables 14 and 15 below, are not exhaustive of those available, in the language but include those considered iconized by vowel lengthening so that by examining the form of the expression we can get information about its referent. Table 14 below has adverbs that are iconized along temporal deixis while those in Table 15 (see page 114) are iconized along spatial deixis.

4.2.4.1 Iconicity in temporal deixis

EkeGusii has various adverbs that are used to refer to times and seasons such as *bono* (now), *rero* (today), *igor* (yesterday), *ankio* (tomorrow), *kendabu* (before dark), *ngora* (later), *genkio* (very early the following day) and many others. In their base form, such deictic references may not display any semblance between them and their referents. They may not therefore, be considered motivated. However, a term such as *kendabu* (before dark) may be contextually modified by vowel lengthening as in *kendaaabu* (very early before dark), to convey emphatic meaning. By examining the long vowels, we get semblance between the new form of the word and its meaning. Being motivated, the lengthening is the indicator of the isomorphism. Such adverbs are considered as prosodically iconized, as displayed in columns 2 and 3 of Table 14 below.

<table>
<thead>
<tr>
<th>Column 1</th>
<th>column 2</th>
<th>column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.  emambia ‘early in the morning’</td>
<td>ema:mbia ‘very early’</td>
<td>ema::mbia ‘quite early’</td>
</tr>
<tr>
<td>b.  botuko ‘night’</td>
<td>botu:ko ‘late in the night’</td>
<td>botu::ko ‘very late into the night’</td>
</tr>
<tr>
<td>c.  kare ‘long ago’</td>
<td>ka:re ‘long long ago’</td>
<td>ka::re ‘quite long long ago’</td>
</tr>
</tbody>
</table>
d. riria ‘that time’  
   ri:ria ‘remote past time’  
   ri::ria ‘extra-remote past time’

e. oria ‘past year/month’  
   o:ria ‘remote past year’  
   o::ria ‘extra-remote past year’

f. mobaso ‘in the day’  
   moba:so ‘late in the day’  
   moba::so ‘very late in the day’

g. moisonde ‘recently’³  
   moiso:nde ‘more recently’  
   moiso::nde ‘quite recently’

The time marker adverbial expressions in 14 above have stem-initial vowel lengthening, which seems to have a psychological basis. This lengthening is witnessed in columns 2 and 3, since the first column has neutral time markers but those in 2 and 3 are psychologically perceived as more distant from the neutral time marker which is psychologically closer to the speaker; the longer the vowels the more distal the time. For instance in (a), ema:mbia in 2 is earlier than emambia in column 1 above, while ema::mbia in 3 is much earlier than the time of 2. The speaker perceives the ‘early’ in 1 as proximal to them and if there is need to express a much earlier time, closer to the night hours, the vowels are increased as it is perceived as more removed from the speaker. This psychological perception makes the speaker keep increasing the length to convey further distance into the night. The speaker subconsciously fixes their location in time somewhere as their deictic centre, then makes a psychological “walk” to cover the relevant distance into the night. It is important to mention that the number of vowels shown in the data are only representative of what speakers do, but cannot represent what interlocutors can do in particular contexts. Other speakers may do more of the vowel positions to reflect a much earlier time in the morning as determined from context to another. This is purely relative representation. Otherwise, the isolated words as shown in Table 14 cannot convey particular meanings unless contextualized. All they convey is the sheer surface meanings that one time is much earlier in than another. Lengthening, as evident, has a pragmatic basis.

³ Can also be translated as ‘the day before yesterday’ but this is not the meaning implied here. The glossing gives metaphorical meaning related to ‘lately’ as opposed to the usual meaning of the day before yesterday.
While the psychological “travel” back in time as in (a) applies for the other examples in (b), (c), (d) and (e), which are distal time markers, the reverse is true for (f) *mobaso* (in the day), and (g) *moisonde* (the day before yesterday/recently). The time markers *mobaso* (in the day) and *moisonde* (recently/the day before yesterday) are perceived as proximal time markers, so that a speaker has no option other than emphasize how much closer the time is to the speaker. Psychologically, the times are absolutely proximal so speakers can only make them more proximal as in recently, more recently and quite recently in (g). A speaker in a context of conversation moves the time of reference much closer to the present time; the longer the vowel, the closer the time. This sounds as though it negates the “travel” trajectory above, but it does not. The psychological interpretation is that the absolute marker is at a position a little away from the speaker, so that the longer the vowel, the more the distance covered towards the speaker. So, the travel schema survives as only the direction of the “walk” changes. It could be much more away from the speaker or present time or much closer to the speaker or present time.

In both cases, it is clear that vowel lengthening is motivated, that is iconized, so that an examination of the form of the deictic expression reveals something about its meaning. Figures 36, 37, and 38 indicate increasing vowel length from 0.251 seconds to 0.736 seconds and 1.088 seconds in that order. The first long vowel in 37 is nearly three times the short vowel in 36, while the second long vowel in 38 is nearly four and half times the short vowel. This indicates that the use of the double and triple colons is a choice of convenience to show increasing length but is quite difficult to reflect what exactly happens, bearing in mind that even these figures are indicators of relative length that can vary from speaker to another. As noted earlier, the definition and representation of long vowels is a theoretically compounded problem, especially if tone assignment has to be associated with mora positions.
Figure 36. Pitch track for emambia (early morning)

Figure 37. Pitch track for emambia (very early)

Figure 38. Pitch track for emambia (quite early)
Before moving away from vowel lengthening as an iconized feature in time marking, some clarification about examples (d) *riria* (that time) and (e) *oria* (past year) suffices here. These can be described as psychological time pointers that cannot be understood in isolation without the relevant contextual coordinates. The expressions are therefore to be found in such constructions:

Rituko riria ‘that day’  
rituko ri:ria ‘that other past day’

Omwaka oria ‘last year’  
omwaka o:ria ‘that other past year’

Without such contextual coordinates, the time pointers can pass for spatial object and people (human) deictics. It is the coordinates that supply particular information of what exactly is being indexed, displaying clear context-dependance. Though day and year are nouns, that are perceived as objects that have travelled farther away from the speaker so that they mark past or gone time. Vowel lengthening is psychologically perceived as travelling as far as the day or year has gone, so length increases as appropriate.

One more issue for clarification is the physical or psychological position of the addressee. The addressee is physically or psychologically fixed at the speaker’s present position or time, so that they are expected to perceive time from the point of view of the speaker. This, so happens that even in monologues, the speaker is the psychologically perceived (reflexive) addressee in the location of the speaker so that past times keep “moving” farther as recent times are likely to “move” closer to both the speaker and the “addressee” (whether real or imaginary). In the monologue ‘*Omwaka oria ig’omber’omobe* (last year turned out bad for me),’ the speaker is the addressee.

Though vowel lengthening has been associated with rising pitches, already, the opposite happens for deictic lengthening. Pitch drops consistently across the three utterances, from a high of 249.9Hz to a
low of 156.7Hz in 36, 279.7Hz -188.5Hz in 37, and 364.5Hz-197.8Hz in 38. This picture of falling pitches can be attributed to the declarative nature of deictic adverbs, which means they are also iconized, since falling pitches convey a sense of finality. This would obviously change if they were uttered say in a question-answer context. Conclusively, pitch variation and vowel lengthening are simultaneous and iconic events in indexicality.

4.2.4.2 Iconicity in spatial deixis

It is distance that is relevant to spatial deixis. According to Yule (1996), the truly pragmatic basis of spatial deixis could be psychological distance. Therefore, physically proximal or distal things can be treated as either far or near the speaker. Table 15 presents spatial deictics in EkeGusii along the here-there axis, beginning from the proximal adverbs in column 1, with the distance away from both the speaker and the addressee increasing rightwards, from near to remote.

Table 15. Vowel lengthening and pitch variations in spatial deixis

<table>
<thead>
<tr>
<th>Column 1 proximal</th>
<th>Column 2 (near)</th>
<th>Column 3 (distant)</th>
<th>Column 4 (far)</th>
<th>column 5 (remote)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>aa [a:] ‘here’</td>
<td>a:ria</td>
<td>a::ria</td>
<td>a:::ria</td>
</tr>
<tr>
<td>b</td>
<td>iga: [iya:] ‘here’-emphatic</td>
<td>iga:ria</td>
<td>iga::ria</td>
<td>iga:::ria</td>
</tr>
<tr>
<td>c</td>
<td>eke [eke] ‘this’-inanimate</td>
<td>ke:ria</td>
<td>ke::ria</td>
<td>ke:::ria</td>
</tr>
<tr>
<td>d</td>
<td>oyo [ojo] ‘this one’-animate/inanimate</td>
<td>o:ria</td>
<td>o::ria</td>
<td>o:::ria</td>
</tr>
<tr>
<td>e</td>
<td>aba [aβa] ‘these’-human</td>
<td>baria [βaria] ‘those people’</td>
<td>ba:ria</td>
<td>ba::ria</td>
</tr>
<tr>
<td>f</td>
<td>eye [eje] ‘this one’-animate</td>
<td>eria [eria] ‘that one’</td>
<td>e:ria</td>
<td>e::ria</td>
</tr>
</tbody>
</table>
A morphological examination of the data shows that as the distance moves away from the speaker, the index morpheme {-a-}, which is a replica of the noun class prefix (except in b), first drops the copy of the nominal pre-prefix (augment), then affixes the distal morpheme {-ri-} before the final vowel, leading to {a-ri-a} (there), as shown in column 2 (a). For the index morpheme (deictic marker), to index farther distance, the pointer vowel (the indexical morpheme-initial vowel) is replicated (that is lengthened) as far as the speaker intends the addressee to “pick out.” The speaker invests the longer vowel with particular, context-bound distal meaning impressions, and invites the addressee to share the intended meaning within that context. The index (deictic) morphemes are shown in bold in columns 1 and 2, to show that they are retained as replicas of noun class prefixes and that all the augments are dropped as shown throughout column 2. In (d) and (f) above, the glide y /j/ loses its consonantal features by being raised to a vowel /i/, then gets deleted by phonotactic rules before another vowel as the resultant sequences /io/ and /ie/ are unacceptable word–initially, in EkeGusii.

Notably, the speaker’s location is both physically and mentally fixed. In the physical sense, the speaker will, for instance, say aa [a:] (here) to point to their current position, the addressee included. Outside the interlocutors’ context, one cannot tell how far the speaker intended to point. In this case, the speaker and the addressee share the current physical location. Increasing vowel length is therefore motivated, within context, to be depictive of increasing distance away from both the speaker and the addressee. Vowel lengthening is therefore iconized as it gives information about increasing distance. In as much as the vowel lengthening could give inaccurate representation, we can certainly tell that the longer the vowel, the longer the distance implied will be.

In a situation where the location of both the speaker and addressee is mentally fixed, the speaker psychologically locates themselves at an imaginary or real aa [a:] (here), in relation to a past and
invisible *aria* [aria] (there). For instance, in case the speaker and addressee have shared experience of a certain place, the speaker can refer to the place as *aria* (there) by way of treating it as though it is within remote view of both interlocutors, to enable this ‘mental pointing.’ Psychologically, the speaker “moves” with the addressee to a little distance away from that past place then verbally “points” to that place as in *aria nas’abe* (that is a bad place). This kind of reference is overtly in contrast to their psychological “current” location, so that if the two are travelling, say on a bus while recollecting memories of a past place, the current better place is obviously not the bus but, “outside” that bad place. In such a case, only the distal markers in column 2 are used, since the relevant contrasting is limited between “here” and there” so that iconizing the distal reference is out of question. However, in case another older place is recalled for comparison to the current two, then a speaker may revert to the “far” distal deictics in column 3, thereby making it iconized, but this in rare natural conversations.

It should be noted that other distal references such as *abwo* [aβuo] (there), *ekio* [ekio] (that one – animate/inanimate), *oyio* [ojio] (that one – human/ inanimate), *echio* [etʃio] (those- plural inanimate), and such others entailing the “near addressee away from speaker” meanings lie outside prosodic iconicity. Otherwise, they clearly point towards isomorphic iconicity as recurrent morphological patterns can be noted in the morphemes in bold.

Figures 39 to 42 below, show progressive increase in vowel lengthening between columns 2 and 5. The short vowel spans over 0.469 seconds, and the subsequent vowels span over 0.692, 0.903 and 1.372 seconds, from long to longest in that order.
Figure 39. Pitch track for *aria* (there)

Figure 40. Pitch track for *a:ria* (there - distal)

Figure 41. Pitch track for *a::ria* (there - far)
Once again, vowel lengthening appears associated with rising pitches, as displayed in Figures 39-42 above. In Figures 40 to 42, pitch rises consistently from a low of 210Hz to 238Hz, 249Hz to 279Hz, and 313Hz to 342Hz in that order. Since the rising pitches and lengthening occur as instances of co-articulation, iconic prosodic simultaneity is confirmed.

4.2.5 Gestalt iconicity in Adjectives

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, where vowel lengthening, changes in pitch, resonance, and stress placement, signal the structural shapes of the qualified nouns.

4.2.5.1 Iconicity in adjectives

Following Nash (2011), the morphological structure of adjectives is considered to take the form \( \text{PREFIX+STEM} \) analyzable as \( [\text{[nominal pre-prefix-adj agreement prefix]}_{\text{APX}} \text{ Adjective stem}]_{\text{ADJ}} \). Example (b) from Table 16 (listing class pre-prefixes and prefixes) can therefore be analyzed as follows:
Table 16 below, gives a list of all the EkeGusii class pre-prefixes and prefixes as identified in Nash (2011).

Table 16. EkeGusii class pre-prefix and class prefix (Source: Nash 2011, p. 67)

<table>
<thead>
<tr>
<th>Class</th>
<th>nominal pre-prefix (pp)</th>
<th>noun class prefix</th>
<th>adjective agreement prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ó-</td>
<td>mo-</td>
<td>mo-</td>
</tr>
<tr>
<td>1b</td>
<td>Ø</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>á-</td>
<td>ba-</td>
<td>ba-</td>
</tr>
<tr>
<td>3</td>
<td>ó-</td>
<td>mo-</td>
<td>mo-</td>
</tr>
<tr>
<td>4</td>
<td>é-</td>
<td>me-</td>
<td>me-</td>
</tr>
<tr>
<td>5</td>
<td>é-</td>
<td>ri-</td>
<td>ri-</td>
</tr>
<tr>
<td>6</td>
<td>H</td>
<td>rii-</td>
<td>rii-</td>
</tr>
<tr>
<td>7</td>
<td>á-</td>
<td>ma-</td>
<td>ma-</td>
</tr>
<tr>
<td>8</td>
<td>é-</td>
<td>ke-</td>
<td>ke-</td>
</tr>
<tr>
<td>9</td>
<td>é-</td>
<td>bi-</td>
<td>bi-</td>
</tr>
<tr>
<td>9a</td>
<td>é-</td>
<td>n-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>H</td>
<td>chi-</td>
<td>chin-</td>
</tr>
<tr>
<td>10a</td>
<td>H</td>
<td>chin-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ó-</td>
<td>ro-</td>
<td>ro-</td>
</tr>
<tr>
<td>12</td>
<td>á-</td>
<td>ka-</td>
<td>ka-</td>
</tr>
<tr>
<td>14</td>
<td>ó-</td>
<td>bo-</td>
<td>bo-</td>
</tr>
<tr>
<td>15</td>
<td>ó-</td>
<td>ko-</td>
<td>ko-</td>
</tr>
<tr>
<td>16</td>
<td>á-</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>21</td>
<td>H</td>
<td>nya-</td>
<td>nya-</td>
</tr>
</tbody>
</table>
Table 17 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 nouns’ subject prefixes. All the adjectives, therefore, qualify inanimates 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, Greenbum, Leech, & Svartvik, 1972, p. 267), the features listed in (a) to (g) of Table 17 below are not in any way ordered (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 the table, instead of sequencing vowels as elsewhere in the study, unless sequences are used for exemplification. However, notice that the use of colons is not to be considered as an accurate representation of the degrees of the adjectives.

Table 17. Iconic vowel lengthening in adjectives

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Increasing negativity</th>
<th>Increasing positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute adj</td>
<td>Very...</td>
</tr>
<tr>
<td>a Quality</td>
<td>ekebe [ektebe] ‘bad’</td>
<td>eke:be ‘very bad’</td>
</tr>
</tbody>
</table>
The first question to address is which part of the adjective is actually affected by lengthening. Using examples (a) and (b) 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 (following their absence in the noun), as in ase a:be ‘a very bad place,’ it is the nominal pre-prefix attached to the adjective that lengthens as shown below.

\[
\begin{array}{c|c|c|c}
\text{a} & \text{se} & \text{a:} & \text{be} \\
(\text{nom pre-prefix}) & (\text{nom stem}) & (\text{nom pre-prefix}) & (\text{adj stem})
\end{array}
\]

Place \hspace{1cm} \text{very} \hspace{1cm} \text{bad}

‘A very bad place’

Secondly, in all the examples (a-g) above, 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, as 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 copy of nominal pre-prefix attached to the adjective. 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 adverbial meaning in duration.

Part of the core agenda of this section being to ascertain whether lengthening is motivated, analysis of more examples from Table 17 above is warranted. Example (a) has lengthening of the nominal prefix in two different degrees, apart from the absolute, where *ek:be* means “very bad,” and *ek::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 *eki:ya* glosses as “good,” *eki:ya* “very good” and *eki::ya* as “very good indeed.” In example (g), the word *ekero:ro* can act as a noun to mean ‘local brew’ but there are relevant contrastive tones that have been suspended here. The adjective *ekero* glosses as ‘bitter,’ *ekero:ro* as ‘very bitter’ and *ekero::ro* as ‘very bitter indeed.’ Clearly, lengthening rules apply on the adjective stem’s penultimate vowel. Generally, the more the vowels are on the adjective, the higher the degree of the attribute. By examining the form of the adjective, we can get information about its meaning. This means that there is evident correspondence between form and meaning in the sense of comparison.

While languages like English can express comparison in gradable adjectives morphologically (Quirk, et al., 1972), one way in which EkeGusii expresses such comparison is by prosodic means as evidenced above. Other ways of expressing gradability could be grammatical by use of post-modifiers (adverbs of degree) at the post-lexical level 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, therefore iconized, and is motivated by the linguistic necessity on the speaker’s part to convey particular impressions.

A few more questions solicit answers: How far can vowels lengthen in iconized adjectives? Does context play any role in such lengthening? Could there be other prosodies that are motivated in iconized adjectives? To address these questions, Figures 43-45 below display a spectrographic analysis of example (d) from Table 17 above, focusing on the negative attributes though the positive would equally turn out with fairly similar patterns.

*Figure 43. Spectrograph for ekenyerere (thin/slim/narrow)*

*Figure 44. Spectrograph for ekenyerere:re (very thin/slim/narrow)*
In the three spectrographs in Figures 43-45, 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 45, 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 geminate, 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 Figures 43 to 45; 0.096645s, 0.610210s, and 0.758193s, in that order. The values indicate that the short vowel in figure 45 is by far shorter than the other two. The second vowel (the first long vowel) in Figure 44 is much closer to the third (second long) vowel in Figure 45. These values, checked against those of another respondent, give different values though the value gaps show similar length patterns, but all the same, these are relative length values that cannot, whatsoever, be
represented by the single or double colons as shown in Table 17. The length marks (colons) only give a
guide to which vowel is longer than which other. So, it is a challenge to determine how far penultimate
vowels can lengthen as speakers will stretch vowels guided by contextual parameters. The shared
knowledge between the speaker and the addressee will dictate how conveniently speakers convey
iconic meanings. Further, it is inaccurate to represent long vowels, as already noted, in moraic
phonology or sequential representation. The colons cannot 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 44 and
45 above display fall-rise pitches in both cases. Intensifier pitches, therefore, tend to rise suggesting
their iconic characteristic. Notably, prosodies apply simultaneously even in adjectives.

4.2.5.2 Iconic resonance and pitch variations in adjectives

Having given introduction to adjective morphological structure in 4.2.5.1 above, the following
discussion focuses on how similar adjectives can be articulated to convey different meaning
impressions, by prosodic variation. Table 18 below recasts adjectives with positive connotations from
Table 17 above, to show how the same adjective can be varied to convey different notions on the basis
of simultaneous variation of prosodies. The adjectives in column 1 are generally characterized as those
having high pitches while those in column 2 are characterized with low pitches as exemplified in
Figures 46 and 47.
Table 18. New versus anticipated information in adjectives

<table>
<thead>
<tr>
<th>Column 1 (High pitches)</th>
<th>Column 2 (Low pitches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New/emphatic/narrative information</td>
<td>Anticipated/confirmatory/contradictory information</td>
</tr>
<tr>
<td>a</td>
<td>eki::ya [ekija] ‘very good indeed’</td>
</tr>
<tr>
<td>b</td>
<td>ekene::ne [ekenene] ‘very big indeed’</td>
</tr>
<tr>
<td>c</td>
<td>ekeri::to [ekeritzə] ‘quite heavy’</td>
</tr>
<tr>
<td>d</td>
<td>ekeg::are [ekeyare] ‘extremely wide’</td>
</tr>
<tr>
<td>e</td>
<td>ege::mbe [eyetambe] (really long)</td>
</tr>
<tr>
<td>f</td>
<td>eke::nge [ekenje] ‘awfully much’</td>
</tr>
<tr>
<td>g</td>
<td>egia::nsu [eyiansu] ‘tremendously sweet’</td>
</tr>
</tbody>
</table>

Using example (b) from Table 18 above, the spectrographic representation of the two adjectives is contrasted in Figure 46 below, showing how the same adjective can be articulated, to change meaning impressions. In the first column, is assumed to be sharing information that the hearer is also receiving for the first time as in a narrative context. The speaker is therefore emphasizing the idea. In the second column, the speaker expects that the hearer finds it common knowledge shared between the two. The speaker is therefore confirming it or opposing what the hearer obviously knows but was trying to assume.

Figure 46. Pitch track for different articulations of ekene::ne (very big indeed)
Figure 47. Extracted Pitch contours for different impressions of *ekene::ne* (very big indeed)

The two long vowels display fairly equal length spans of about on 0.514249 seconds on the first and 0.566243 seconds on the second, making the difference negligible, though as observed already, the emphatic aspect of the adjective is partly and mainly achieved by iconized relative vowel lengthening in both cases.

While the adjective displays similar lengthening patterns in the two articulations, the difference between the two articulations of the same adjective lies in different patterns of fundamental frequency, that is in pitch variation, in intensity, in resonance and vocal energy. As shown in Figure 46 above, the first long vowel displays a high Fundamental frequency range of 207-193Hz, while the second long vowel displays a low fundamental frequency range of 88-92Hz, with a high pitch on the last vowel. The pitch track extracted for clarity appears in Figure 47, to show the notable difference with a range of over 100Hz between the two long vowels.

On articulation of the two, the first adjective’s stem vowels feel shriller than the second due to raised intensity on the first. The vocal folds feel less resonated on the first and more on the second. There is a considerable difference in resonance; the distinctive quality of a voice being deep, full and
reverberating; the higher the pitch, the lower the resonance and vice versa. This is evidenced by the darker and richer wave forms in the first adjective, and the darker and richer spectrograms on the vowels and nasals of the first adjective indicating more vocal energy in each segment compared to the second. The second long vowel gives clear evidence of reduced vocal power compared to the first with darker spectrograms throughout. Due to higher vocal power in the first adjective, it makes even the voiceless stop more distinct than in the second due to its increased plosive quality standing between highly pitched vowels.

This adjective articulated with such simultaneous prosodic variations conveys different meaning impressions. In both cases the noun described by both vowels can actually be glossed as “very big indeed” or “extremely big,” but there is one more difference. While the basic meanings are preserved, the first adjective is used to express especially new information, where the addressee is being persuaded to ‘see’ or perceive the impression. This is coupled with a sense of emphasis implied by the high pitch. It may be described as narrative pitch, since the speaker is putting the sense across to the addressee for the first time. The speaker does not make any assumptions or take anything for granted. The adjective is used more or less in a descriptive context, expecting to create correct impressions on the hearer. On the other hand, the second adjective is used in a manner that the speaker is not really giving new information to the hearer but where the speaker may be saying something contrary to what the hearer had earlier suggested, making assumptions that the hearer should have noted the noun is “very big indeed.” Some information on the part of the addressee is taken for granted as the speaker anticipates that the addressee has the impressions already or the addressee’s earlier judgement was wrong. This adjective can be said to be coupled with anticipatory pitches, or further still, confirmatory pitches in cases where the speaker agrees with the addressee’s earlier observation.
The first “new information” impressions are created by simultaneous vowel lengthening, high pitches with high intensity and higher vocal energy with low resonance. These may be termed as cataphoric prosodies. On the other hand, the “confirmatory information” is conveyed by vowel lengthening, lower pitches with reduced intensity and lower vocal energy with higher resonance. These may also be termed anaphoric prosodies for they relate to obvious information, in the sense of backreferencing.

The prosodic patterns here, confirm the notion of prosodic simultaneity in EkeGusii, where iconized prosodies act contemporaneously to convey related but different context-dependent meaning impressions. In this case the meanings are not contrasted but the notions are different. In other words, the patterns in the suprasegments are motivated; they convey particular information that can be deduced from the patterns. This relationship between the prosodic form and meaning or impressions confirms that EkeGusii is highly iconic.

4.2.6 Iconized syllabic accent in adjectives
A simpler definition of stress is given by Gordon (2011, p. 141) who states that “stress refers to increased prominence associated with a certain syllable or syllables in a prosodic domain.” As observed by Fox (2000), the terms ‘stress’, ‘accent’, ‘force,’ ‘prominence’, ‘salience,’ and ‘intensity’ among others, are used both interchangeably and differently by different scholars, with legitimate reasons. In this study, stress is treated synonymously with accent where an accented syllable is perceived as louder, longer, more prominent, more salient and higher-pitched than the unstressed counterparts.

It was established from discussions with respondents that EkeGusii has an alternative way of directly expressing a “superlative” sense of adjectives, apart from the use of iconized vowel length as already demonstrated. In this, the gradients of vowel length are overlooked, so that a speaker moves directly
from the absolute level of the adjective to its extreme end, so that the sense of comparison is disregarded. This is achieved by use of accented or stressed syllables in such adjectives, so that the syllable in question feels louder, stronger, longer, more salient and higher pitched than all the rest of the syllables in the word. As noted already, stress in EkeGusii is a type of Gestalt iconicity, since its placement conveys impressions of size, shape, weight, length, and other general attributive qualities of the noun in question, as shown in the glosses in Table 19 below.

Table 19 below, presents some of the examples from Table 17, including a few different others, on the basis of syllabic patterns to attest to this observation. In the data, there are monosyllabic stems in 1-2, bisyllabic stems in 3-5, trisyllabic stems in 6, and quadrisyllabic stems in 7-9. Where an adjective is repeated, (a) and (b) are used. It should be noted that this kind of syllabic analysis conforms to the syllable patterns presented in section 2.1, where consonant sequences have been analyzed singly as elements of the syllable for convenient description, though as it will be recalled, the direction of this study follows the strict (C)V analysis.

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. eki’ya</td>
<td>[ekija]</td>
<td>‘really good’</td>
</tr>
<tr>
<td>2. eke’be</td>
<td>[ekeβe]</td>
<td>‘very bad’</td>
</tr>
<tr>
<td>3a) eke’gusu</td>
<td>[ekeɣusu]</td>
<td>‘extremely light’</td>
</tr>
<tr>
<td>3b) ekegu’su</td>
<td>[ekeyusu]</td>
<td>‘extremely light’</td>
</tr>
<tr>
<td>4a) eke’nene</td>
<td>[ekɛnɛne]</td>
<td>‘enormously big’</td>
</tr>
<tr>
<td>4b) ekene’ne</td>
<td>[ekɛnɛne]</td>
<td>‘enormously big’</td>
</tr>
<tr>
<td>5a) ege’tambe</td>
<td>[eyetambe]</td>
<td>‘quite long’</td>
</tr>
<tr>
<td>5b) egeta’mbe</td>
<td>[eyetambe]</td>
<td>‘quite long’</td>
</tr>
</tbody>
</table>
6a) ege’sinini [eɣesinini] ‘very small indeed’
6b) egesini’nī [eɣesinini] ‘very small indeed’
7a) omo’sang’a,ang’aru [omosaŋaŋaɾu] ‘naughty/mischievous’
7b) omosang’aŋ’a’ru [omosaŋaŋaɾu] ‘naughty/mischievous’
8a) omo’tirigoyu [omotiɾiɣyju] ‘very chaotic’
8b) omotirigo’yū [omotiɾiɣyju] ‘very chaotic’
9a) omo’chorochombu [omotʃoroʃomba] ‘extremely poor’
9b) omochorocho’mbu [omotʃoɾoʃomba] ‘extremely poor’

From the stress assignments above, it is clear that the nominal pre-prefixes and the adjective agreement prefixes are not stressed at all; stress targets only the adjective stems. The second observation to make is that in monosyllabic stems, stress docks inevitably onto the only syllable available. Monosyllabic stems, therefore may not reveal much about stress patterns in EkeGusii adjectives. From the bisyllabic stems, it turns out that stress docks onto stem-initial syllables or stem-final syllables as exemplified in 3-5 in both (a) and (b) of the duplicate pairs. This choice is rather subconscious that speakers do not decide when and whether to shift stress; placement is subconscious. Example 6 above has trisyllabic stems, where stress docks onto the stem-initial syllable or the stem-final syllable skipping the medial syllable, yet the meaning does not change in both cases. All the stems in 7-9 are quadrisyllabic. It can be noted that stress docks onto the stem-initial syllable or the stem-final syllable in (a) and (b) of each example, hopping over the medial syllable just as it happens in trisyllabic stems. From the foregoing, it can be concluded that stress is a subconsciously applied stem-bound prosody, which is assigned stem-initially or stem-finally in polysyllabic adjective stems in EkeGusii, or hops between either of the two in bisyllabic stems, or docks onto the only adjective stem in monosyllabic stems, for purposes of conveying meaning intensification. The fact that stress appears to hop over other potential
stress-carrier syllable attests to its autonomy as a feature of prosody, as well as does tone, vowel harmony, and vowel lengthening. Figure 48 presents a spectrograph of example 4 (a) labeled (2), as contrasted to the emphatic form presented in Figure 47 labeled (1) in the spectrograph.

**Figure 48. Vowel length and stress as alternatives of emphasis in the same adjective ekenene (big)**

It can be seen that the stressed stem-initial syllable in (2) begins with a voiced nasal, which appears longer (represented as a double nasal), since it sounds like a homogamnic, showing vocal strength from the spectrograms and picking with a high pitch right from the nasal through the following vowel. This high pitch keeps rising to the final vowel. On articulation, the syllable feels louder than all the rest as indicated by the evidence of a rising pitch track. Notably, the concentrated vocal energy on the long vowel in 1 is missing in 2. Each of the segments in 2 is almost picked separately as shown by the clear articulatory gaps as compared to the continuous utterance in 1. This can be explained by the breathe-in pseudo pauses in which the lungs gulp in more air in anticipation and preparation for the “explosion” of the stressed syllable.

The core of this discussion lies in the realization of the iconic nature of stress in adjectives. Subconsciously, the mind selects either the stem-initial or stem final syllable and accents it to express the extreme quality of an adjective in a noun. The louder, longer, stronger, more salient and the high-
pitched a syllable is, the intense the adjectival quality there is in the noun of interest. By “listening’ to stress patterns in EkeGusii adjectives, we get information regarding how much of certain traits a noun entails. Stress is therefore, a motivated prosody that occurs as multiple features of prosody to convey certain impressions of meaning in terms of the extent or degree of the characteristic.

4.2.7 Co-occurrence of iconized prosodies, gestures and facial expressions in adjectives

This section presents the argument that iconic prosodies in adjectives can optionally, obligatorily, and spontaneously be co-articulated with mimetic gestures and facial expressions that complement the meanings implied by the adjectives. A few salient examples from Table 17 above have been recast in Table 20 for convenience, to help exemplify the argument. It should be noted that the first three columns of the adjectives with increasing negativity are related to diminution, while the last three columns of increasing positivity are related to augmentation.

Table 20. Adjectives with gestural and facial expression co-articulation

<table>
<thead>
<tr>
<th>Increasing negativity (diminution)</th>
<th>Increasing positivity (augmentation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Size</td>
<td></td>
</tr>
<tr>
<td>Egesinini [egesinini] ‘small’</td>
<td>Ekenene [ekenene] ‘big’</td>
</tr>
<tr>
<td>egesini:ni ‘very small’</td>
<td>ekene:ne ‘very big’</td>
</tr>
<tr>
<td>egesini::ni ‘very small indeed’</td>
<td>ekene::ne ‘very big indeed’</td>
</tr>
<tr>
<td>c) weight</td>
<td></td>
</tr>
<tr>
<td>Ekegusu [ekeyusu] ‘light’</td>
<td>Ekerito [ekeritɔ] ‘heavy’</td>
</tr>
<tr>
<td>ekegu:su ‘very light’</td>
<td>ekeri:to ‘very heavy’</td>
</tr>
<tr>
<td>ekegu::su ‘very light indeed’</td>
<td>ekeri::to ‘very heavy indeed’</td>
</tr>
<tr>
<td>d) Breadth/thickness</td>
<td></td>
</tr>
<tr>
<td>ekenyerere [ekenyerere] ‘thin/slim/narrow’</td>
<td>Ekegarere [ekegarere] ‘wide’</td>
</tr>
<tr>
<td>ekenyere:re ‘very thin’</td>
<td>ekega:re ‘very wide’</td>
</tr>
<tr>
<td>ekenyere::re ‘very thin indeed’</td>
<td>ekega::re ‘very wide indeed’</td>
</tr>
<tr>
<td>e) Height/length</td>
<td></td>
</tr>
<tr>
<td>ekieŋ’e [ekieŋe] ‘short’</td>
<td>Egetambe [egetambe] ‘long’</td>
</tr>
<tr>
<td>ekie::ng’e ‘very short’</td>
<td>egeta:mbe ‘very long’</td>
</tr>
<tr>
<td>ekie::ng’e ‘very short indeed’</td>
<td>egeta::mbe ‘very long indeed’</td>
</tr>
</tbody>
</table>
It was observed that while the speaker uttered the adjectives related to diminution in (b), the right hand would sub-consciously move up in the air to join and press the thumb and index fingers to depict intensified smallness in the second and third columns. In (c) above, the palm would wag in the air as in weighing an imaginary feather-light substance. Gestural demonstration was not clear in (d) but in (e), the hand would pump downwards in the air to depict mimetic shortness. In all these cases of diminution, facial expressions were applied sub-consciously and automatically; the nose would wrinkle up, the brows would drop and the eye lids tended to close with dropping corners of the mouth to depict the unlikable aspect of the reduced attribute; size, weight, thickness, height, among others. Such facial expressions are mimetic of the increasing negativity or diminution. These gestural and facial imitations co-occur with the iconized prosodies discussed in section 4.2.5.1 above. While gestures looked optional, facial expressions appeared spontaneously synchronized with the verbal articulation of the adjectives. It should be noted that though gestural demonstrations appear optional, both gestures and facial expressions should not be misconstrued as synonymous to the oral articulations but as signs that are part of co-articulation in a complex semiotic system.

On the other hand, it was observed that while speakers utter the adjectives related to increasing positivity or augmentation in (b) and (d), both hands would move out and away from one another suggesting increased size and width. Another respondent would sub-consciously flip the thumb and index fingers away from each other to suggest increasing size, the opposite of which is pressing them together to mark diminution, which contrasts are photographed in Figures 53 and 54. In the utterance of example (e), one hand would move suggesting increasing length from a point depicted by the immobile hand. In (c), one hand would raise the palm in the air depicting imaginary weight. In all cases, sub-consciously and automatically, the eyebrows would be raised, the eyes would open widely and the jaws more open to depict surprise as a result of intensification of the positive attribute or augmentation, as in
increasing size, height, weight and breadth. Equally, such gestural and facial expressions are mimetic and happen simultaneously with prosodic variations in lengthening to mark durativity, changes in pitch and resonance as discussed in sub-section 4.2.5.1 (above). Figures 49 to 56 (below) are pictorial representations of two respondents showing such gestural and facial representations that co-occur with iconized lengthening. The first respondent in Figures 49 to 52 clarifies gestural articulations, while the second respondent in Figures 53 to 56 clarifies facial articulations of the adjectives as shown, of course, together with the gestural representation of co-articulation.

*Figure 49. Respondent’s gestural demonstration of *egesini::ni* [eɣesin::ni] (very small indeed)*
Figure 50. Respondent’s gestural demonstration of ekene::ne [ɛkɛnɛ::nɛ] (very big indeed)

Figure 51. Respondent’s Gestural Demonstration of ekie::ng’e [ekie::ŋe] (very short indeed)
**Figure 52.** Respondent’s Gestural Demonstration of *egetaː:mbe* [eyetāː:mbe] (very long indeed)

**Figure 53.** Respondent’s facial and gestural demonstration of *egesiniː:nī* [eyesinː:nī] (very small indeed)
**Figure 54.** Respondent’s facial and gestural demonstration of *ekene::ne* [ɛkɛnɛːne] (very big indeed)

**Figure 55.** Respondent’s facial and gestural demonstration of *ekie::ŋe’* [ɛkieːŋe] (very short indeed)
The actual role of these iconized gestures and facial expressions in EkeGusii seems to go beyond complementing verbal communication, as they also seem to clarify and amplify the meanings conveyed. Gestures and facial expressions may not be perceived as substitutive of verbal communication (though this can only be ascertained by future research), but once applied, they, like durativity and other prosodies, seem to carry semantic roles drawn from imitation. As noted, gestures may be described as parallel expressions, but facial expressions are more spontaneous, and identical in form with the iconized adjectives. However, beyond the optional nature of gestures in EkeGusii, they appear more iconized, since they augment information with dimensions of shape, size, width and length. On the other hand, mimetic facial expressions are more emphatic and tend to refine the utterance.

While this section does not address ideophones (which are handled in section 4.3 below), co-speech gestures are similarly evidenced in Aweti ideophones, with varying facial expressions, giving evidence
of co-articulation as noted in Reiter (2011). In Aweti, ideophones are nearly always accompanied by gestures and/or gaze. The co-occurrence of gestures and ideophones has also been noted in Xinguan by Stein (1894, cited in Reiter, 2011, p. 405), wherein the functions of gestures have been reviewed by Kendon (2004, p.161), as including playing a parallel expression function, refining, qualifying or restricting meaning, providing aspects of spatial and orientational information, creating images and providing visual animations for a much richer sensory experience. Dingemanse (2011, p. 169) asserts that there is evidence of hand gestures that accompany folk definitions of ideophones. A given example is mûnyem ùnye~ ‘twinkling of light’, during whose pronunciation, speakers make flashing gestures in synchrony with the reduplicated base. Dingemanse notes that gestures provide evidence of an event’s construal.
4.3 Phonetic iconicity in EkeGusii

This sub-heading is more of a cover term, as this section explores the iconic relationship between word sounds and meaning, while noting the iconic role of morphemes. One or more types of iconicity are demonstrated in the sub-sections; associative, relative, imagic and/or gestalt types of iconicity. Sub-section 4.3.1 handles associative and phonaesthetic iconicity, gestalt and relative iconicity in infinitives, with cacophony and reduplication, revealing interface issues. The concept of imagic iconicity in onomatopes is discussed in sub-section 4.3.2. In sub-section 4.3.3, imagic and gestalt forms of iconicity are discussed in ideophones, which are classified as being either echoic, or anechoic. Nouns and infinitives related to ideophones are discussed, while ideophones are distinguished from interjections and intensifier adverbs in sub-sections 4.3.3.4 and 4.3.3.5 respectively. Their syllabic structure, prosody, morphology, and syntax are also highlighted. This section ends a discussion on the circumlocutous nature of ideophones and onomatopes, in sub-section 4.3.4.

4.3.1 Associative and phonaesthetic iconicity

Associative and phonaesthetic (phonaesthetic) types of iconicity are related, in the sense that both are associative in nature. While sounds are associated to distance and size in the former, sound or morpheme clusters or groupings are associated with related meanings in the latter. The two are better discussed in the following sub-sections.

4.3.1.1 Associative iconicity in the expression of distance and size

Following Masuda (2002), (cited in Ludovic, 2008), this is an indirect type of iconicity that pursues a correlation between vowels and meaning, and morphemes and meaning. In deictic references in EkeGusii, sound /o/ is associated with distal referencing, so that it depicts an object, person, or even an abstract concept actually away, or perceived as being away, from the speaker, but closer to the actual or
hypothesized addressee. That said, we note that the morpheme \{ri\} is also iconized to mark size. Examples of such phonetic and morphological associations are shown in bold in Table 21 below.

**Table 21. Iconized distal sounds markers, and size prefixal morphemes**

<table>
<thead>
<tr>
<th>Diminutive NOUN</th>
<th>Neutral NOUN</th>
<th>Augmentative NOUN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOUN</strong></td>
<td><strong>proximal</strong></td>
<td><strong>distal</strong></td>
</tr>
<tr>
<td>egekungu 'woman'</td>
<td>eke ekio omokungu oyo oyio</td>
<td>rikungu (natural) eri erio</td>
</tr>
<tr>
<td>agakungu 'woman,' (natural)</td>
<td>aka akwo omokungu oyo oyio</td>
<td>rigakungu (amplified) eri erio</td>
</tr>
<tr>
<td>ebikungu 'women,' (pejorative)</td>
<td>ebi ebio abakungu aba abwo</td>
<td></td>
</tr>
<tr>
<td>akakoke 'honey'</td>
<td>aka akwo oboke obo obwo</td>
<td></td>
</tr>
<tr>
<td>ebiboke 'little bottles of honey' (count)</td>
<td>ebi ebio amoke aya ayio</td>
<td></td>
</tr>
<tr>
<td>ekiche 'water'</td>
<td>ebi ebio amache aya ayio</td>
<td></td>
</tr>
<tr>
<td>ebiwere 'milk'</td>
<td>ebi ebio amabere aya ayio</td>
<td></td>
</tr>
<tr>
<td>akaremo 'small land'</td>
<td>aka akwo oboremo obo abwo riremo eri erio</td>
<td></td>
</tr>
<tr>
<td>ekeremo 'land' (pejorative)</td>
<td>eke ekio - -</td>
<td></td>
</tr>
<tr>
<td>ebiremo 'small pieces of land' (pejorative)</td>
<td>ebi ebio amaremo aya ayio</td>
<td></td>
</tr>
<tr>
<td>ekereko (body dirt)</td>
<td>eke ekio</td>
<td></td>
</tr>
<tr>
<td>akang'ombe 'cow'</td>
<td>aka akwo eng'ombe eye eyio ri-ng'ombe eri erio</td>
<td></td>
</tr>
<tr>
<td>ebing'ombe 'cows'</td>
<td>ebi ebio chiombe echi echio ama-ng'ombe aya ayio</td>
<td></td>
</tr>
<tr>
<td>akamoni 'small cat'</td>
<td>aka akwo ekemoni eke ekio rimoni eri erio</td>
<td></td>
</tr>
<tr>
<td>obomoni 'small cats'</td>
<td>obo obwo ebimoni ebi ebio amamoni aya ayio</td>
<td></td>
</tr>
</tbody>
</table>
From the ‘proximal’ column of Table 21 above, it can be noted that the default proximal reference is a copy of the nominal pre-prefix and prefix (comparing with the entries in the ‘noun’ columns), to which a copy of the pre-prefix is added in plural forms, following the phonotactics of the language, in case of its absence in the noun, as in the neutral plural in (m). Only in cases where the prefixal form has a nasal /m/, /n/, or /ŋ/, or a sibilant /s/ is the sound replaced by /j/, as in examples (e), (f), (g), (j), and (l). Therefore, from Table 21 above, proximity is morphologically marked (nominal pre-prefixes and prefixes are associated with nearness), while distance is phonologically marked, since it is the iconized sound /o/, following the high front and back vowels, /i/ and /u/, that is associated with distal reference, which pattern, witnessedly, replicates in the diminutive or augmentative nouns. Notably, the high back vowel /u/ is realized as /w/, as a result of glide formation, as earlier explained in sub-section 4.1.1.4. It is the preceding high vowels that help distinguish the distal marker /o/, from the proximal marker /o/, in the neurtral proximal references in (a), (b), (d) and (h). From the whole picture, since the nominal pre-prefix resurfaces in the nominal prefix, this explains the origin of the said proximal /o/, which is, therefore, different from the distal marker /o/, shown in bold in all distal references across the three degrees, which, as already noted, occurs after the high back vowels /i/, or /u/ realized as a glide /w/.

It can be predicted here that sound /o/ achieves its iconized deictic function as a result of the preceding high vowels, where articulating the high /i/ and /u/ depicts the distance between the speaker and the object of reference, whether actual or psychological. In essence, the speaker psychologically ‘travels’ from their position, depicted by the raising in /i/ or /u/, to the distant ‘destination,’ depicted by the lowering in /o/. This argument will therefore infer, and correctly so, that the prefixal /i/ in the proximal references in the diminutive [(c), (e), (f), (g), (j), and (m)], and in the augmentative [(a), (b), (h), (l), and (h)] is actually a morphemic element (a copies of the nominal pre-prefixe and prefix), while the /i/ in
the distal counterparts in those examples is a depictive phonological segment that works iconically with the following iconized /o/ to depict distance.

It should be noted that, in certain instances, lengthening of the distal marker /o/, can be used to express approval, extreme excitement, or satisfaction, on the part of a speaker giving directions, as in ekioooo! ‘thaaaat one!’ This would literally translate as “There you are!”, or ‘Ve…ry good!’ Otherwise, it may not have an English equivalent. In this case, the demonstrative equally functions like an interjection, which word may be termed a ‘distal deictic exclamative.’

On the other hand, size is morphologically expressed by iconized morphemes, such as the singular {-ka} and plural {-bi}, in the diminutive, and the singular {ri(ga)-} and the plural {-ma}, in the augmentative. Even morphemes are, therefore, iconically associated with size, as reiterated in section 4.3.1.2. In this case, it happens that morphological iconicity reveals itself alongside phonological iconicity. Nonetheless, morphological iconicity may not be pursued further here.

Examples of associative iconicity given in Ludovic (2008) include the association of sound /i/ with smallness, sharpness and brightness, as in ‘mini,’ ‘sweety,’ and ‘petite,’ and the association of sound /a/ with largeness, bluntness, and darkness, as in ‘tall,’ ‘large,’ and ‘grand.’ Ludovic (2008, p. 111) cites Tanz (1971), who examined the pairs ‘here’ vs. ‘there’ in 42 languages, and found that there is significant correlation between vowel space (front vs. back) and semantic distance (proximal-distant). Similar results are noted to have been established by Woodsworth (1991) in a sample of 26 languages.

One interesting reference made by Ludovic is Ohala’s (1984; 1994) frequency code, in which high frequency is associated with smallness, and low frequency with largeness. For instance, confident aggressors deploy low frequency to appear large and strong, while non-threatening or submissive ones
will deploy high frequencies. In reference to Masuda (2002), Ludovic restates that it is not surprising to find out that associative phonology is mostly observed in simple and basic words denoting size or proximity, which scenario has been attested in EkeGusii.

4.3.1.2 Phonaesthemic iconicity versus morphological iconicity

Gasser, Sethuraman, and Hockema (2005) define relative iconicity as mapping a relation between forms onto a relation between meanings; the property of a set of words for which there is a correlation between form similarity and meaning similarity. This is the type of iconicity evidenced in EkeGusii in phonaesthemes (also called phonaesthetic or phonaesthec iconicity), in iconized morphemes, and other clustered symbolic sounds. Our argument follows Ludovic’s (2008), where a sound cluster is related to a certain meaning based on association with similar sound clusters. In such a case, it is possible to distinguish word-affinity-relations or word constellations. In reference to Ohala’s (1983; 1994) Frequency code, Smoll (2014) notes that although the relationship between form and meaning may be arbitrary, the iconicity lies in the relationship between words with similar form and which have similar meanings.

In the data in Table 22 below, sound /t/ occurs stem-initially in all the lexical items. Except examples (f, g, m, n, and v) which are infinitival forms, the rest are nominal forms. The consonant sounds are followed by vowel sound /u/ in (a-g), vowel /i/ in (h-n), and vowel /a/ in (o-v). The glosses given are relative, as other speakers may gloss them variously, though with closely related meanings. We now focus on the stem-initial position, or recurrent nature of sound /t/, in the light of associated meanings, in Table 22 below.
### Table 22. Phonaesthemes of sound /t/  

<table>
<thead>
<tr>
<th>Lexical item</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) ebi-turuturu</td>
<td>[eβituruturu]</td>
<td>‘abominable acts’</td>
</tr>
<tr>
<td>b) obo-turubanu</td>
<td>[oβoturubanu]</td>
<td>‘behavioural instability’</td>
</tr>
<tr>
<td>c) obo-turutumbi</td>
<td>[oβoturutumbi]</td>
<td>‘awful actions’</td>
</tr>
<tr>
<td>d) obo-tumanu</td>
<td>[oβotumanu]</td>
<td>‘misappropriation’</td>
</tr>
<tr>
<td>e) obo-tutukanu</td>
<td>[oβotutukanu]</td>
<td>‘confusion’</td>
</tr>
<tr>
<td>f) ogo-tuguta</td>
<td>[oγotuguta]</td>
<td>‘to throw away’</td>
</tr>
<tr>
<td>g) ogo-tung’atunga</td>
<td>[oγotunγatunga]</td>
<td>‘to move confusedly’</td>
</tr>
<tr>
<td>h) obo-tindu</td>
<td>[oβotindu]</td>
<td>‘drunkenness’</td>
</tr>
<tr>
<td>i) obo-tirigoyu</td>
<td>[oβotirigoyu]</td>
<td>‘chaotic behaviour’</td>
</tr>
<tr>
<td>j) obo-tindi</td>
<td>[oβotindi]</td>
<td>‘brutality’</td>
</tr>
<tr>
<td>k) obo-tiororoku</td>
<td>[oβotiororoku]</td>
<td>‘hornbill-like behaviour’</td>
</tr>
<tr>
<td>l) obo-tibongi</td>
<td>[oβotibongi]</td>
<td>‘the act of rape’</td>
</tr>
<tr>
<td>m) ogo-tiringa</td>
<td>[oγotiringa]</td>
<td>‘to dirty/soil’</td>
</tr>
<tr>
<td>n) ogo-tibogeria</td>
<td>[oγotiβogeria]</td>
<td>‘to wade in mud’</td>
</tr>
<tr>
<td>o) obwe-antagari</td>
<td>[oβueantagari]</td>
<td>‘pride/show-off’</td>
</tr>
<tr>
<td>p) obo-tabagu</td>
<td>[oβotaβagu]</td>
<td>‘wretchedness’</td>
</tr>
<tr>
<td>q) obo-taka</td>
<td>[oβotaka]</td>
<td>‘poverty’</td>
</tr>
<tr>
<td>r) obo-tantanu</td>
<td>[oβotantanu]</td>
<td>‘confusion’</td>
</tr>
<tr>
<td>s) obo-tayayi</td>
<td>[oβotayayi]</td>
<td>‘loitering/immoral conduct’</td>
</tr>
<tr>
<td>t) obwe-takori</td>
<td>[oβuetakori]</td>
<td>‘boastful talk’</td>
</tr>
<tr>
<td>u) obwe-tangareki</td>
<td>[oβuetangareki]</td>
<td>‘know-it-all behaviour’</td>
</tr>
<tr>
<td>v) ogo-tang’an’ga</td>
<td>[oγotanγa]</td>
<td>‘puzzlement/bewilderment’</td>
</tr>
</tbody>
</table>
The impression one gets from these phonaesthemes is that of sounds clustering to convey related meaning impressions. The position or recurrence of sound /t/ makes a group of words that are strikingly clustered to convey related topical ideas, messages or impressions. Indeed, the alveolar plosive /t/ symbolically recurs stem-initially in nominal and infinitival lexical items that express a sense of ‘the unlikable, the undesirable, the disgusting, the horrible’ and so forth. Generally, the meanings put across all bend over to the negative. From Whiteley (1960), Cammenga (2002) and Nash (2011), the voiceless alveolar plosive /t/, appears in the EkeGusii negative prefixes, {ti-} or {ta-}. As cammenga (2002) notes, a deletion rule applies on the vowel /i/ before any other vowel applies in any other tense. We are concerned with the ‘behaviour’ of the negative-marker /t/, now considered phonaesthemic. From Cammenga’s point of view, we may therefore presume that the underlying sequence in all the items in Table 22 above is {ti-}, which allows other vowels, /u/ or /a/, in the place of /i/ after its deletion. Notably, a few of the stems are fully reduplicative, (a) and (g), while a number are partially reduplicative with modification, as in (b), (c), (e), (k), (r), and (s), or the stem-initial segments are followed by other sequences of dissonant consonant sounds, whose places of articulation feel to disharmonised, as in (e) -kanu /kanul/, (i) -goyu /ɣɔju/, (l) -bongi /βɔŋgi/, (p) -bagu /βaɣu/, and (u) - ngareki /ŋgareki/, which are also associated with the meaning component [UNLIKABLE], better illustrated in section 4.3.1.3 below.

The question of interest is whether speakers cluster such sounds consciously, or whether they are aware of an association between the sounds and the meanings in such words. Speculatively, they are not. So, the mind subconsciously, associates sound /t/ to the negative, implying the perception of the UNLIKABLE. In the the articulation of sound /t/, the blade of the tongue is raised to the alveolar ridge, and on release of the obstructed air, it moves out with plosive noise, perhaps indicating a sub-conscious desire to [REJECT]. This might explain why sound /t/ recurs in the cluster with negative connotations.
As Elleström (2010) notes, the speakers’ perception is always an interpretation of the external world. Information reaching the brain may not be systematically arranged, but is a collection of more or less separate signals that the brain puts together into a comprehensible unity. In a sense, there is a way the speakers of EkeGusii relate sound /t/, and certain vowel patterns with the sense of [DISLIKE]. This scenario is comparable to a situation of morphological iconicity discussed next, in relation to the data in Table 23 below.

Ludovic (2008) gives examples from English, like ‘crash, dash, clash, gash, gnash, smash, flash,’ in which the words involve sound /ʃ/, which is related to explosion or collapse. Other examples of phonaesthemes in English are given in Hiraga (1994), who enlists words of movement that result in word affinity relations as in flap, flare, flee, flick, flicker, fling, flip, flit, flutter, flow, flutter, fly. From Bloomfield (1933: 47, 244) Hiraga cites demonstratives including the, this, that, they, their, thee, thou, thy, thine, then, there, thus, than, though, and from Jakobson and Waugh (1979: 55), he cites following interrogatives: what, why, when, where, which, whether, how. More of such examples come in a little while, before the end of this sub-section. Dingemanse (2011) treats phonesthemes as a special kind of relative iconicity, which is herein particularized as phonaesthetic iconicity, actually a variant of associative iconicity. Otherwise, slim the difference lies in terminology and view, but these universal features cut across languages.

Arnheim (1969) argues that, in the perception of shape lie the beginnings of concept formation. Elleström (2010) supports this view by positing that the distinction between perception and imagination is blurred. From the data in Table 23 below, it is should be observed that the subject marker morpheme {ri-} in EkeGusii is related to mental shapes to do with the meaning component [HUGE], plus a negative sense like [UGLINESS], [DISTORTION], [HIDEOUSNESS], [GRUESOMENESS], or
[UNSIGHTLINESS] and so forth, carried by the following discordant sound sequences. How an object is perceived is related to how it is subconsciously interpreted. All the examples in Table 23 below are iconic nominal references relating to people of certain negative qualities. Except (a) and (b), the rest are collected with glosses from Bosire and Machogu (2013). The examples in the data provide clearer examples of phonesthesia, size-sound symbolism. Though this may also be termed morphological iconicity, the concept here, lies within ‘synesthesia,’ which is to do with size-sound symbolism (Fordyce, 1988).

**Table 23. Nouns referring to people in the negative sense**

<table>
<thead>
<tr>
<th>Noun</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) ri-koneke</td>
<td>[rikoneke]</td>
<td>‘disorganized person’</td>
</tr>
<tr>
<td>b) ri-gene</td>
<td>[riyene]</td>
<td>‘someone hard to learn’</td>
</tr>
<tr>
<td>c) ri-chara</td>
<td>[riʧara]</td>
<td>‘idiot, fool’</td>
</tr>
<tr>
<td>d) ri-komo</td>
<td>[rikomo]</td>
<td>‘dweeb, one lacking in social skills’</td>
</tr>
<tr>
<td>e) ri-kunyati</td>
<td>[rikuɲati]</td>
<td>‘foolish person’</td>
</tr>
<tr>
<td>f) ri-mansu</td>
<td>[rimansu]</td>
<td>‘dumb person’</td>
</tr>
<tr>
<td>g) ri-maya</td>
<td>[rimaja]</td>
<td>‘idiot’</td>
</tr>
<tr>
<td>h) ri-mama</td>
<td>[rimama]</td>
<td>‘dumb temporarily’</td>
</tr>
<tr>
<td>i) ri-gata</td>
<td>[riyata]</td>
<td>‘paralytic’</td>
</tr>
<tr>
<td>j) ri-bagoki</td>
<td>[riβayoki]</td>
<td>‘loose talker’</td>
</tr>
<tr>
<td>k) ri-kangi</td>
<td>[rikaŋgi]</td>
<td>‘tart’</td>
</tr>
<tr>
<td>l) ri-mong’o</td>
<td>[rimoŋo]</td>
<td>‘a stupid, annoying person’</td>
</tr>
<tr>
<td>m) ri-achi</td>
<td>[riɔʧi]</td>
<td>‘infantile, mentally underdeveloped’</td>
</tr>
<tr>
<td>n) ri-tendu</td>
<td>[ritεndu]</td>
<td>‘lay-about’</td>
</tr>
</tbody>
</table>
o) ri-urugenye [ɾiuruyɛɲε] ‘a huge, lazy person or polar bear’
p) ri-kara [ɾikara] ‘naïve or a piece of charcoal’
q) ri-geki [ɾiɣɛki] ‘a glutton or a rodent’
r) ri-kanabo [ɾikanabo] ‘an impotent man or a stingless bee’

Going back to the prefixal subject marker {ri-}, in the nominal references above, the speakers use it to convey meanings related to “unattractively BIG.” That is, the morpheme works as a pejorative augmentative; it depicts the ‘disfigurement’ in all the nouns, striking the underlying sound-size symbolism. The morpheme connotes to ‘too-big-to-like,’ so that in most cases, it relates to a form of ‘socio-psychological ugliness’. Of course, in other cases, the morpheme has positive connotation as in ri-entenyi [ɾientɛɲi] ‘a rich person,’ ri-mura [ɾimura] ‘an energetic young man’ and so forth, but the stems in such cases are already in the positive, so that the morpheme only amplifies the positive quality. In the cases in Table 23, the stems connote to negative meaning, which meaning may not be clear unless the prefixal subject marker {ri-} is attached. In a sense, the stems are nearly meaningless on their own, non-words of a kind; the stems sound arbitrary on their own, but are clearly iconized with prefixation. Precisely, the prefixes are iconized absolute augments that go beyond the ordinary prefixal forms. However, as noted already, the discordance of the stem sound patterns complements the phonographic aspect of the words.

In examples (o-r) above, the stems carry the original meanings of the nouns so that the meanings related to people may be considered more of metaphoric than direct references. The meanings are actually transferred. For instance, rikanabo [ɾikanabo] ‘a stingless bee,’ is comparable to a man that cannot perform conjugal duties as indicated in (r). In (o), riurugenye [ɾiuruyɛɲe] ‘polar bear’ is a slow and lazy-looking animal, despite its size, muscle build, and strength. This is metaphorically transferred
to such a person. Such examples may also be explained in the light of Lakoff and Johnson’s (1980) conceptual metaphor theory, where ‘A,’ the target domain, is understood in the light of ‘B,’ the source domain. This situation is comparable to what Köhler (1929) discovered in Spanish speakers. They match the non-word _maluma_ with a curvy, round shape and _takete_ with spiky, angular shape. Fonagy (1961) found sounds /l/ and /m/ to occur more in tender poems, but /k/ and /t/ more in aggressive poems. EkeGusii stretches beyond phonological iconicity to a level of drawing mappings between morphemes and referents, which is on one hand a form of morphological iconicity, but with the sound sequences that follow, it boils down to phono-iconicity.

Any claim about exhausting the exemplification, and the study of phonaesthetic iconicity in EkeGusii, will be untenable, since untapped data seem to point towards the need for further investigation. For instance, just as Dingemanse (2011) establishes in Siwu (see examples at the end of this sub-section), EkeGusii also displays word initial _ny_- related to meanings of weakness in things or structures. There are examples to attest to this observation, including _nyenganyenga_ ‘move weakly or unstably’, _nyeganyega_ ‘grow weak’, _nyuganyuga_ ‘shake to weaken’, _nyegenyege_ ‘sound of a weak structure’, _nyegeria_ ‘shake’, and _nyegerigwa_ ‘be shaken when unstable,’ which again relate to gestalt iconicity.

Schmidtke, Conrad and Jacobs (2014) have observed that in phonaesthesmes, phonemes cluster, say at syllable onsets or as rhymes, in words that belong to specific semantic fields, as in tables 21 and 22 above. Phonoasthesmes facilitate the participant’s ability to deduce new meanings, even outside of context. The examples of clusters given in bold-face from Thai by Rungrojsuwan (2009), involve initial consonants like /kru,ap/ (chewing hard), /khliin/ (thundering), /khlak/ (boiling rice), /khirin/ (thundering), and others. These examples are onomatopoeic, but they demonstrate the tendency of languages to cluster sounds at certain word positions for meaning purposes. Related examples from
English also appear in Downing and Steibels (2012, p. 5) including words like ‘glossy, glitter, glimmer, glow, glare, gleam, glance, glint, and glisten.’ In studying Siwi ideophones, Dingemanse (2011, p. 173) gives examples of word initial ny- involving some kind of torsion, wriggling, wrinkling or twisting. Such examples include nyâkânyâkâ ‘wrinkled’, nyegedée ‘twisted, crooked’, nyemere-nyemere ‘small snake wriggling’, nyɔɔɔ ‘big snake wriggling’, nyɛn ɛn ɛ ‘shivering of cold’, and nyɔɔ ɔɔɔ ‘writhing due to being nauseated,’ among others. All these attest to the widespread nature of phonaesthemic iconicity across languages.

4.3.1.3 Gestalt and relative iconicity achieved via reduplication and cacophony

This section evidences both gestalt iconicity (a type of diagrammatic iconicity), and relative iconicity, in EkeGusii, where in the former, there is analogy between the structure of words and what they refer to, and in the latter, relationships between forms relate to the concepts they refer to. Cacophony relates to auditory unpleasantness as a result of sounds in a sequence being discordant. Cacophonous sounds are, therefore, associated with words that are auditorily repulsive. The parts of words where such sound sequences occur are reduplicated, which enables EkeGusii to communicate negative meanings by way of the consequential dissonance. The reduplicated stem parts, in a sense, are arbitrary, but to native speakers, they carry context-dependent meaning components complemented by reduplication. The pre-prefixes and class-prefixes only perform infinitival morphological functions, as noted in Bickmore (1997), Cammenga (2002), and Nash (2011), under the morphological structure of EkeGusii infinitives, which is not of immediate relevance for a detailed discussion here (see explanation at section 4.1.5). The data in Table 24 below is a collection of infinitives whose meaning impressions may be collapsed as [UNATTRACTIVE].
Table 24. Cacophonous and reduplicative infinitives

<table>
<thead>
<tr>
<th>Infinitive</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) oko-mayamaya</td>
<td>[okomajamajə]</td>
<td>‘to loiter’</td>
</tr>
<tr>
<td>b) oko-mangamanga</td>
<td>[okomangamanɡa]</td>
<td>‘to mooch’</td>
</tr>
<tr>
<td>c) oko-magamaga</td>
<td>[okomayamayə]</td>
<td>‘to look suspiciously’</td>
</tr>
<tr>
<td>d) ogo-segasega</td>
<td>[oyoseyaseya]</td>
<td>‘to move up and down in tension’</td>
</tr>
<tr>
<td>e) ogo-saagasagia</td>
<td>[oyosaaɣasaaɣia]</td>
<td>‘to eat inattentively or hurriedly’</td>
</tr>
<tr>
<td>f) oko-riimariima</td>
<td>[okori:riami:ma]</td>
<td>‘to wallow in darkness’</td>
</tr>
<tr>
<td>g) oko-miirumiira</td>
<td>[okomi:riimi:ra]</td>
<td>‘to move fast, stressedly’</td>
</tr>
<tr>
<td>h) oko-rumaruma</td>
<td>[okorumaruma]</td>
<td>‘to act hastily’</td>
</tr>
<tr>
<td>i) ogo-karakaria</td>
<td>[oyokarakaria]</td>
<td>‘to rummage through objects’</td>
</tr>
<tr>
<td>j) ogo-kaarakaria</td>
<td>[oyokaarakaria]</td>
<td>‘to do hurriedly’</td>
</tr>
<tr>
<td>k) ogo-keerakeeria</td>
<td>[oyokeerakeeria]</td>
<td>‘to do carelessly’</td>
</tr>
<tr>
<td>l) oko-ragaraga</td>
<td>[okoraɣaraɣaɣa]</td>
<td>‘to walk aimlessly’</td>
</tr>
<tr>
<td>m) oko-garagaria</td>
<td>[okoɣaragaria]</td>
<td>‘to annoy’</td>
</tr>
<tr>
<td>n) oko-beegabeega</td>
<td>[okoβeegaeɣeγa]</td>
<td>‘to act lazily’</td>
</tr>
<tr>
<td>o) oko-gwong’agwong’a</td>
<td>[okoɣwongˈawonga]</td>
<td>‘to move confusedly’</td>
</tr>
<tr>
<td>p) oko-ng’warang’waria</td>
<td>[okoŋuarangwaria]</td>
<td>‘to decorate unattractively’</td>
</tr>
</tbody>
</table>

The consonant sequences that recur in the stem reduplicates can be identified down the list (a-p) as follows: /m-ʃ/, /m-ŋɡ/, /m-ɣ/, /s-ɣ/, /m-ɬ/, /ɬ-ɬ/, /ɬ-ɣ/, /ɣ-ɬ/, /ɣ-ɣ/, /ɣ-ʃ/, /w-ŋ/ and /ŋ-ɬ/, in that order. An attempt to articulate the sequences without the intervening vowels makes them all feel so jagged or rough, and coupled with a sense of discord, which makes them feel both articulatorily, and auditorily, repugnant. For instance, the sequences with flap at the beginning or end of the reduplicated stem, imply the meaning component [ROUGH] as in oko-rimonimà [okorimima] ‘to wallow in darkness’ in (f),
ogo-keerakeeria [oɣokeerakeeria] ‘to do carelessly’ in (k), and oko-garagaria [okoɣarayaría] ‘to annoy’ in (m). The articulatory shifts from an alveolar flap to a nasal, velar plosive to an alveolar flap, velar non-sibilant fricative to an alveolar flap in that order, creates the impression of a rough articulatory experience, which conveys the meaning component [ROUGH] or the unlikable. A closer examination of any of the sequences picked at random like (n), oko-beegabeega [ɔkɔβεεɣaβεεɣa] ‘to act lazily,’ still reveals a shift from a root initial bilabial fricative to a velar non-sibilant fricative. With reduplication of the root, it maximizes the unpleasantness. Example (b), equally has oko-mangamanga [okomãŋgamaŋga] ‘to mooch,’ which has movement from a bilabial nasal to a complex nasalized homorganic sound, suggestive of unpleasantness. Generally, the impressions are conveyed by the nature of sounds that occur in the strings, the order of occurrence, the stem-initial or stem-final selections, and the reduplicative nature of the stems. This evidences a convergence of various types of iconicity.

For instance, the examples in (i-k) above have the sound sequence /k-ɾ/, which sounds indirectly mimetic of noise from something that is being done hurriedly, in a disorderly, or careless manner. The same happens in the sequence /ŋ-r/ in (p). The meaning components in all of them are related to [ATTACK] + [HURRY], which conveys unattractive meaning impressions. [CARE] is not one of the components. Such an observation could arguably be language-bound, since each language has its own order of sounds and words, but the native speakers of EkeGusii, and perhaps of other languages with which EkeGusii shares considerable mutual intelligibility, may identify with such impressions. Since EkeGusii is a strict CV language (Morara, 2017), the consonant sequences must allow the intervening vowels, in obedience to the phonotactics of the language, for the strings to convey sense. The duplicated near-arbitrary sequences, therefore, attain the sense of things happening in ways unorthodox. As Croft (2003) emphasizes, the structure of language can reflect in some way, the structure of
experience; contiguity, quantity, repetition, complexity, cohesion. The data in Table 24 above agrees with the “Iconicity of sequence principle” noted in Perniss, Thompson and Vigliocco (2010), which holds that the sequence of forms conforms to the sequence of experience. The data may, therefore, be treated as sound-symbolic words, where the properties of the consonants and the patterns of combination with the vowels together with reduplication, convey sensory events. Of emphasis is the morphopragmatic aspect of reduplication, where motivated morphology appears to have a pragmatic basis. Considering aspects of the speech situation (time, location, setting, participant’s roles) and elements of the speech event (speaker’s strategies, plans, goals, and intentions) as outlined by Kiefer (2001), speakers can sound judgmental and express disapproval, which meaning impressions are contextually augmented, coupled with relevant non-verbal cues. Generally, reduplication is an isormorphic morphological process that is infused with pragmatic impressions that enable speakers to convey discontenentment as evidenced throughout Table 24. However, only when the pragmatic aspect of diagram is widely examined, can we afford to fully understand the functions of reduplication in EkeGusii, and perhaps other languages, which encompass the favorable or positive aspects, as opposed to the narrow view of negative meaning impressions. In other occasions, for instance, the reduplicated base of (c) ‘magamaga’ can be used as a directive verb in the exhortatory mood, to sanction an iterative act of looking for something for a strongly desired, positive purpose, as in ‘searching here and there’ with a view to spotting something lost.

This scenario around phonosymbolic cacophony may further be exemplified by the data in Table 25 below, which has nouns with similar sequences. A few of the nouns and the glosses are from Bosire and Machogu (2013), and the rest from respondent information. While in sub-section 4.3.1.2 focus was on phonesthesia, here it shifts to metaphorical sound symbolism, where gestalt, imagic, and relative types of iconicity seem to converge.
Table 25. Cacophonous, iterative and inherently onomatopoeic nouns

<table>
<thead>
<tr>
<th>Noun</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) e-sagasaga</td>
<td>[esayayasaya]</td>
<td>‘chaos or undefined noise’</td>
</tr>
<tr>
<td>b) e-segesege</td>
<td>[eseyeseyeq]</td>
<td>‘unpleasant happening’</td>
</tr>
<tr>
<td>c) e-obaobe</td>
<td>[eoβaoβe]</td>
<td>‘fracas or pandemonium’</td>
</tr>
<tr>
<td>d) e-sosobe</td>
<td>[esosoβe]</td>
<td>‘fear or extreme fear’</td>
</tr>
<tr>
<td>e) e-samusamu</td>
<td>[esamusamu]</td>
<td>‘disease causing skin rash’</td>
</tr>
<tr>
<td>f) e-buruburu</td>
<td>[eβuruβuru]</td>
<td>‘noisy conflict’</td>
</tr>
<tr>
<td>g) e-burukano</td>
<td>[εβurukanɔ]</td>
<td>‘untidy situation/disorder’</td>
</tr>
<tr>
<td>h) e-ruchano</td>
<td>[εɾuʧanɔ]</td>
<td>‘a mixed up situation/pandemonium’</td>
</tr>
<tr>
<td>i) e-kobakobe</td>
<td>[ekoβakoβe]</td>
<td>‘disorder/chaos’</td>
</tr>
<tr>
<td>j) obokayayu</td>
<td>[oβokajaju]</td>
<td>‘promiscuity’</td>
</tr>
<tr>
<td>k) obochorochombu</td>
<td>[oβoʃoroʃombu]</td>
<td>‘abject poverty’</td>
</tr>
</tbody>
</table>

As with the infinitives in Table 24, the reduplicating consonant sequences of the nouns in Table 25 are /s-ɣ/, /β-β/, /s-s-β/, /s-m/, /β-r/ /β-r-k/, /r-ʃ/, /k-ʃ/, and /ʃ-ɾ/, down the list. Apart from (c), which has stem parts that sound, perhaps, derived from the interjection obe ‘Oh!,’ used to convey shock, surprise, or disappointment, the rest of the reduplicative parts (bases) may be construed to be undepictive, in the anechoic sense, therefore, arbitrary. However, the preceding pre-prefixes help them attain nominal meaning.

The unpleasantness of the sound patterns in relation to the meanings conveyed by the words all show evidence of iconic mappings between the forms of the nouns and their meanings, just as in the infinitives in Table 24 above. The cacophonous properties of the consonant sequences conform to the auditory and visual experiences of the situations depicted by the nouns. For instance, in example (a), e-
sagasaga [esayasa] ‘chaos or undefined noise,’ the alveolar fricative makes turbulence suggestive of [COMMOTION], as the articulation proceeds to a velar fricative, suggestive of [FRICTION]. Once this stem is reduplicated, it depicts repetitive and durative nature of a chaotic situation. Of course, this noun may arguably be inherently onomatopoeic, in the sense of being derived from environmental noises, but the application fits the meaning components conveyed. The same applies to example (b).

A similar observation can be made from example (f), which has the bilabial fricative /β/ in the stem-initial position, and /ɾ/ in the stem-final position, before it undergoes reduplication with the intervening segment /u/. The consonant-vowel sequence conveys [DISORDER], which is inherently a kind of implicit onomatopoeia (detailed in sub-section 4.3.2.3). The same meaning component is entailed in the first part of the stem of (g). The sound patterns indeed sound unattractive or unpleasant. In example (h), e-ruchano [eɾuʧanɔ] ‘a mixed-up situation,’ there is a flap at the stem initial position, suggesting inherently disorderly ‘noise,’ and with a sibilatory alveo-palatal affricate, the noise is augmented well enough, to convey the meaning of ‘a pandemonium.’

Westcott (1973, p. 201), cited in Childs (1994, p. 193), avails very interesting examples from Bini, a Nigerian language, in which non-uniform tones denote irregular shape and motion. Though this pattern is found in ideophones (which are examined in section 4.3.3 in our study), they exemplify the correspondence between irregular tone patterns and irregular meaning impressions. The two ideophones are rhûrhûrhû ‘staggering,’ and tíghítíghítíghí ‘twisted.’ The irregular tonal patterns fluctuating between high and low are clearly observable as indicators of the irregular patterns of movement when one staggers, or of something twisted. This is a clear form of gestalt, a type of diagrammatic iconicity.
According to Persnis et al. (2010), a wider range of sensory events can be accommodated into sound-symbolic mappings, including manners and types of motions, physiological and psychological states, and tactile, mental, and emotional experiences. Maeder, Fischer and Herlofsky (2005) compare words to sketches, maps, charts, graphs, and pictorial diagrams that show relationships between sounds and meaning. More of sound-meaning mappings shall be exemplified in the sub-sections after 4.3.1.4.

4.3.1.4 The iconicity-arbitrariness interface

A closer examination of associative and phonaesthetic words in EkeGusii reveals that human language is simply complex. Certain words, such as example (o) of Table 24, *oko-gwong’a-wong’a* [oko oyuŋayuŋa] ‘to move confusedly,’ demonstrate that EkeGusii, at the lexical level, could be both arbitrary and iconic. The iterative stems sound mimetic of noises of movement, perhaps of objects that displace air currents, to make such noises represented by the consonants /ɡ/ and /ŋ/. Isolated, the stems do not sound iconic, but simply arbitrary. For instance, ‘gwong’a’ is actually meaningless, or nonsuggestive. In other words, the clear iconic value of the root [guŋ] is actually lost, or suspended, before iteration. In a sense, arbitrary or vaguely iconic sounds are combined to form stems, which at the level of iteration attain an iconic status. The resultant iterative strings accommodate affixes, whose result is the infinitival form *oko-wonga-wonga* ‘to move confusedly.’ The iconic function of iteration is achieved in the verbal dramatization of the movement happening now and again. In as much as this lexical item could be regiolectical, it can be used thus, to demonstrate that the Saussareian and Peirceian views of language intersect; language at some point could be viewed as both arbitrary and motivated. This view may be extended to the roots of Table 25, from (a-h), where the stem parts *may, mang, mag, sag, saag, rim, mir, and ruum,* are all sound descriptive, that is unmotivated, or arbitrary, in the ‘ears’ of native speakers. Any attempt at affixing the relevant final vowels to the first parts of the reduplicative bases does little good, leaving them still arbitrary, which picture, however,
changes with reduplication. In other examples, like (f) *oko-riimariima* ‘to wallow in darkness,’ there occurs a kind of phonemic (distinctive) lengthening within the base, that helps distinguish it from another meaning of the base with a short vowel like *okorimarima* ‘to die out repeatedly, of fire, light or power.’ The moment the bases are reduplicated, beyond the gestalt notion of ‘more form more content,’ the words attain a degree of depiction, or motivation, that renders them indirectly or ‘translucently’ iconized. This scenario may well be expressed in the words of Dingemanse (2015, p. 964); “description and depiction are not insulated from each other and are best studied in conjunction.”

Arbitrary iconization has been observed by Marchand (1959;1960, cited in Fordyce, 1988), in the words ‘*slide, slither, slip, slouch, slump, slime, slush, slop, slough, slobber, sludge, slosh,*’ where the semantic correlate of this set is “falling or sliding movement” and/or “slimy/slushy matter.” The sequence ‘sl-’ is arbitrarily associated with its meaning. Other examples are presented from Ladd (1978, cited in Fordyce, 1988) which include ‘*glitter, glimmer, glow, gleam*’ where the particle ‘gl-’ has acquired an arbitrary sound-meaning association, but its function in English is an iconic one. More of such have already been encountered in sub-section 4.3.1.3.

**4.3.2 Imagic iconicity in EkeGusii onomatopoes**

While this section is focused on imagic iconicity, a few of the examples given in the following sub-section are also instances of gestalt, a type of diagrammatic iconicity, as will be highlighted in relevant occasions. The heading given for this sub-section is therefore a guiding cover term. Otherwise, it will remain clear that more than one form of iconicity is at work in words.

The concept behind imagic iconicity is that of a word mimicking a sound in the real world. One of the forms of this type of iconicity noted by Smoll (2014), is onomatopoeia, and of course, ideophonicity.
Smoll gives examples of animal calls, laughing, sounds related to water, running, light and heavy footsteps, throws, swallowing, and walking among others. As it will be noted, both onomatopoeas and ideophones are, mainly, examples of imagic iconicity, but immediate focus is on onomatopoeas as the latter will be handled in sub-section 4.3.3. However, one question has to be addressed this early. How do ‘onomatopoeas’ differ from ‘ideophones’ in EkeGusii?

A major challenge lies with the tendency of linguistis using the terms ‘ideophones’ and ‘onomatopoeias’ interchangeably, so that what are ideophones in one language, might be onomatopoeas in another, while other scholars feel that onomatopoeas are part of ideophones. This looks untenable for EkeGusii, if we pay attention to the semantics, syntactic distribution, morphological structures, and the phonetic features of sound-imitative words, or words depictive of sensory imagery. As Dingemanse (2019) observes, such a question can only be addressed on the basis of language-internal grounds.

Sound imitation is a core feature to both onomatopoeic words and ideophones, as clarified in Dingemanse’s, (2018) misconceptions. Quoting Samarin (1965), Dingemanse (2018, p. 4) observes that “…ideophones depict many aspects of sensory scenes beyond sound, and onomatopoeia makes up only a minor portion of most well-described ideophone inventories.” The challenge posed by this position, as regards EkeGusii, lies in the characteristics that may not accommodate two groups of lexical items under ideophonicity. Firstly, ideophones appear unavailable to affixation, save for the demonstrative quotative form detailed in sub-section 4.3.3.9.1. On the other hand, onomatopoeias have only echoic roots. Otherwise, they are completely lexicalized in the language so that they are simply nouns or infinitives describable by the morphological structures outlined in Nash (2011), and Cammenga (2002). The below examples, show how onomatopoeas may be analyzed.
Infinitive

{o- \textit{go-} \textit{togot} -a}

\begin{tabular}{llll}
\textsc{PRE-} & \textsc{CLASS} & \textsc{ROOT} & \textsc{FV} \\
\end{tabular}

PREFIX  PREFIX

\[ [\text{ɣ-t \textit{ɣ} t-a}] \]

‘to boil, of water’

Noun

{\textit{e-} bi- \textit{chuchu}}

\begin{tabular}{llll}
\textsc{NOM} & \textsc{CLASS} & \textsc{STEM} \\
\end{tabular}

PREFIX  PREFIX

\[ [\text{e-} \textit{βi-} \textit{ʧuʧu}] \]

‘chicks’

It should be noted that the particular infinitive above does not include the object marker, and the extender morphemes, as shown in Nash (2011), but the basic morphological structure is reflected. The depictive parts in the lexical items, the root and the nominal stem, can be termed ‘onomatemes,’ following Ma (2018), to which affixal morphology applies to generate the words entrenched in the language. In the case of verbs, rules of affixation would generate inflections like \textit{go-togot-i-a} ‘to cause to boil,’ \textit{go-togot-er-a} ‘to boil with,’ \textit{go-togot-er-an-a} ‘to boil at the same time,’ \textit{go-togot-i-gw-a} ‘to be boiled,’ and \textit{go-togot-er-i-a} ‘to boil for,’ all built on a common onomateme (onomatopoeic root).

Secondly, while ideophones display wider semantic and syntactic versatility (they may function as exclamatives, adverbs, nouns, or clausal elements), onomatopoes are rigid members of distinct word classes, carrying particular and conservative semantic and syntactic functions, and can only be isolated from the rest of the arbitrary words on the basis of their iconic properties. Precisely speaking, they display weakened or covert ‘ideophonic characteristics,’ only identifiable in the onomatemes; the mimetic features in onomatopoes are more obscure than they are in ideophones. This agrees with the position taken by Ma (2018, p. 52), that “onomatopoeia is an important sign of quasi-language evolving into real language, after which the function of language turns from expressing feelings to knowledge.” Therefore, an attempt to go by Samarin’s (1965) position, if onomatopoes are treated as part of ideophones, would necessitate that we divide EkeGusii ‘ideophones’ into two or more types, such as

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‘ideophonic nouns,’ ‘ideophonic infinitives,’ and other ‘ideophones,’ which would attract a number of challenges. Firstly, it would be linguistically cumbersome, requiring that we lump together two or three different word classes, just on the basis of their semiotic kinship. Secondly, this would be imprudent as it would create obvious classificational problems that would demand moving ordinary lexical items such as onomatopoeic infinitives and nouns, into a new, cumbersome class, ‘ideophones,’ leading to untenable linguistic retrogression. Finally, reclassification, instead of a separate identification of ideophones per se, would propagate the already misconstrued ‘peculiarity’ and extend the possible marginalization that has seen EkeGusii ideophones undescribed in the past, which Dingemanse (2018) has fairly and successfully pushed out of place, in current linguistic dialogue. Identifying ideophones as a class of words that is as part, and parcel of EkeGusii, expands the margins of language. This section will therefore be focused on onomatopoeia, a group of lexical items which may not be treated as a sub-set of ideophones.

Finally, the versatility associated with ideophones may be compared to their variable nature, that they are context-dependent, group-bound, may be individualized, or vary from signer to another, which features are not associated with onomatoposes. Signers are likely to come up with new ideophones, with the changing world, and quite a number have, probably, been abandoned already, but onomatoposes like ebichuchu ‘chicks,’ and ogotogota ‘to boil,’ are enduring parts of the lexicon. Generally, it can be argued that, while iconicity is somewhat obscure in onomatoposes, it remains more obvious in echoic ideophones regardless of their higher levels of versatility and variability, and linguistically identifiable in nonimitative ideophones, in our study called ‘echoic.’ Generally, this argument culminates in a separate discussion of onomatoposes in sub-sections 4.3.2.1 and 4.3.2.2, and ideophones in sub-section 4.3.3.
4.3.2.1 Imagic iconicity in onomatopoeic infinitives

One of the household terms in Kenyan families is *kususu*, a Swahili slang and euphemism for *kukojoa* ‘to urinate,’ commonly used with children. The sibilant sounds /s-s/ in the word, are actually imitative (echoic) of the sound from the act. English *poo poo*, which sounds onomatopoeic, has equally been corrupted as *kupuupuu*, used with children, to refer to the act of going for long call. According to Gleason (2005), word acquisition in early childhood often refers to onomatopoeic expressions, because their inherent echoic relation to a referent enhances comprehension. van Langendonk (2007) describes onomatopoeia as articulatory mimesis. Schmidtke et al. (2014) argue that sound-meaning mappings are more established in, onomatopoeia, ideophones (see sub-section 4.3.3), and phonaesthemes (discussed in sub-section 4.3.1.2 above). They observe that onomatopes may express emotion or sentiment on the part of the speaker; onomatopes are used to lend a voice to bodily feelings and effects.

The data in Table 26 below avails an exploration of a few of the many infinitives built on onomatopoeic roots, in EkeGusii. In all the examples, the boldfaced echoic roots have been separated from pre-prefixes, class prefixes, reflexive morphemes, causative morphemes, extenders, and final vowels, to allow them stand out, for ease of focus on the onomatopoeic elements of interest. This is not a morphological engagement, but an endeavour to clarify analysis and make it convenient. The data entails twenty six examples, to demonstrate, besides iconicity, the wealth and magnificence of such data in EkeGusii. The combinations of consonants and vowels in each of the echoic roots may convey, even to non-natives, the echoic value of the roots, especially when read in the light of the glosses. In other words, the infinitives are echoically transparent, so much that some words like *okwegogia* [okuɛɣɔɣia] ‘to gurgle’ has a glossing that also sounds onomatopoeic. Let us first examine the data in Table 26 below.
<table>
<thead>
<tr>
<th>Infinitive</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) o-go-togot-a</td>
<td>[tɔɣɔta]</td>
<td>‘to bubble, of boiling water’</td>
</tr>
<tr>
<td>b) o-ko-ber-a</td>
<td>[okoβera]</td>
<td>‘to boil, of milk’</td>
</tr>
<tr>
<td>c) ogo-sanonok-a</td>
<td>[ɔyasanonoka]</td>
<td>‘to make the noise of melting fat’</td>
</tr>
<tr>
<td>d) o-go-sarorok-a</td>
<td>[ɔyosaroroka]</td>
<td>‘to make the noise of melting fat’</td>
</tr>
<tr>
<td>e) o-ko-gon-a</td>
<td>[ɔkɔɣɔna]</td>
<td>‘to snore’</td>
</tr>
<tr>
<td>f) o-ko-rum-a</td>
<td>[okoruma]</td>
<td>‘to grumble’</td>
</tr>
<tr>
<td>g) o-go-sinyoor-a</td>
<td>[ogosĩɔnɔra]</td>
<td>‘to urinate’</td>
</tr>
<tr>
<td>h) o-kw-e-mir-i-a</td>
<td>[okuemiri]</td>
<td>‘to blow one’s nose’</td>
</tr>
<tr>
<td>i) oko-nach-a</td>
<td>[okonafa]</td>
<td>‘to cut’</td>
</tr>
<tr>
<td>j) o-go-twang-a</td>
<td>[oɣotwanga]</td>
<td>‘to beat’</td>
</tr>
<tr>
<td>k) o-go-chwat-a</td>
<td>[ɔyɔfjuata]</td>
<td>‘to beat with a whip’</td>
</tr>
<tr>
<td>l) o-go-chwan-i-a</td>
<td>[ɔyɔfjuaŋia]</td>
<td>‘to whip’</td>
</tr>
<tr>
<td>m) o-go-tir-i-a</td>
<td>[oɣotiria]</td>
<td>‘to caper, of a calf’</td>
</tr>
<tr>
<td>n) o-ko-rok-a</td>
<td>[okoroka]</td>
<td>‘to puke, or vomit’</td>
</tr>
<tr>
<td>o) o-ko-inyiamb-a</td>
<td>[okoɲiamba]</td>
<td>‘to fart’</td>
</tr>
<tr>
<td>p) o-go-sigik-i-a</td>
<td>[oyosiɣika]</td>
<td>‘to rub things causing friction’</td>
</tr>
<tr>
<td>q) o-ko-garagar-i-a</td>
<td>[oɣɔyarayaɾia]</td>
<td>‘to annoy’</td>
</tr>
<tr>
<td>r) o-kw-e-gog-i-a</td>
<td>[okoɣuɣia]</td>
<td>‘to gurgle, or attempt to puke’</td>
</tr>
<tr>
<td>s) o-go-kurur-a</td>
<td>[oɣɔkururua]</td>
<td>‘to drag on a surface’</td>
</tr>
<tr>
<td>t) o-ko-geker-i-a</td>
<td>[ɔkɔɣɛkɛɾia]</td>
<td>‘to cluck, of a layer hen’</td>
</tr>
<tr>
<td>u) o-go-chon-i-a</td>
<td>[oɣɔfɔnia]</td>
<td>‘to milk drying teats’</td>
</tr>
<tr>
<td>v) o-go-koror-a</td>
<td>[ɔɣɔkɔɾɔɾa]</td>
<td>‘to cough’</td>
</tr>
</tbody>
</table>
A discussion of sampled examples will be used to demonstrate the levels of iconic mappings between the onomatopoeic infinitives and their referents. For instance, example (a) above, o-go-togot-a ‘to bubble; of boiling water,’ occurs also in Kiswahili as ku-tokot-a, only that in EkeGusii, the root consonant has undergone voicing and subsequent lenition, being vowel-sandwiched. In both languages, the root is mimetic of the bubbling noise made by boiling water, or porridge. The speaker approximates the noise they hear with the sounds /tɔɣ/ as recurrent, hence the reduplicative stem, which, again, strikes gestalt iconicity. The word okogona ‘to snore’ in (e), already has a voiced stem-initial velar fricative [ɣ], followed by a mimetic vowel sound [ɔ], and then a voiced alveolar nasal [n], all related to the parts of the vocal tract associated to the origins of snoring noises, therefore echoing the very noise. There is nothing arbitrary about this sound sequencing. Rather, it is perceptuo-motor involvement that has come up with such a word. Technically speaking, this lexical item is a product of one-to-one sound mappings between the word and the sounds of the spontaneous act. Example (r) with o-kw-e-gog-i-a ‘to gurgle, or to puke,’ is already glossed with an onomatopoeic English equivalent. The two share related sounds [ɣ] and [g], showing the universal nature of phono-iconicity. The voiced velar consonants sandwiching the back lower-mid vowel are actually imitative of gurgling, or any attempt to force oneself to puke, especially by inserting fingers to the back of the oral cavity. The actual event of ‘vomiting’ is almost cleary depicted in example (n), when someone actually vomits. Each gush-out of stomach contents is heard to sound like the imitative root sequences, which suggest a pattern like rɔɔɔ…k. This is fairly comparable to the word in (v), o-go-koror-a ‘to cough,’ with similar consonants
regardless of sequence, relating to common places of articulation, since in both cases, the gullet is the point of action.

The depictive sounds in example (g), *o-go-sinyor-a [ogosịnɔra] ‘to urinate,’ may be used to discuss the relationship between the sequences and the conveyed meaning components, as already done in subsections 4.3.1.2 and 4.3.1.3. The root in bold-face has the consonants /s/, /ɲ/ and /ɾ/. The first sound, the alveolar fricative is a sibilant whose turbulence conveys the initial stage of urination with a [GUSH], implying the jet-like start as a result of full bowel pressure. The following sound, an alveo-palatal nasal may be assumed to convey the meaning component [SMOOTH], as a result of reduced pressure, implying reduced friction, yet retaining the continuity of the act by its continuant and approximant nature. The final alveolar flap, /ɾ/, depicts the end point of the act of urination, suggestive of the fill-up noise of the erosive, temporal, and foamy [POOL], especially on loose ground, before the urine percolates. This noise becomes clearer as the bladder gets drained. Generally, the root of this infinitive maps the act of urination from the start to the end, with sounds that tend to convey the relevant meaning components, making it purely onomatopoeic, and of course, the sequence of the sounds strike a moment of gestalt iconicity.

Any other infinitive like example (v), *o-go-koror-a [ɔŋɔkɔɾɔɾa] ‘to cough,’ can be analyzed by examining the initial root sounds, the nature and order of the sounds. Coughing is a reflex-controlled activity, which attacks with a sudden [BURST], represented by the velar plosive /k/. A productive cough allows mucus in the pipe, which is jointly represented by the vowel /ɔ/, and the recurrent rolled sound /ɾ/, as one tries to push out the lamp. The rest of the affixations are the ordinary derivational morphemes that change word classes as shown.
Perhaps, it is important to note that certain nouns like a-ма-kororo [amakɔɾɔɾɔ] ‘phlegm’ in Table 27 below, are derivatives from such finite verbs as korora [kɔɾɔɾa] ‘cough,’ the same echoic stem for the infinitive in Table 26, both occurring as a result of affixation. The discussion on onomatopoeic nouns, in sub-section 4.3.2.2 below, complements the argument for onomatopoeia being a richer meaning relation way, which has in the past been left unattended, in linguistic research in EkeGusii. As noted already, though the infinitives in Table 26 above are instances of imagic iconicity, in certain cases, the sequences of the sounds have evidenced intersection with gestalt iconicity.

4.3.2.2 Imagic iconicity in onomatopoeic nouns

This section demonstrates the reality of imagic iconicity in nouns. To demonstrate the function of onomatopoeia in the EkeGusii noun class, the nouns in Table 27 have the pre-prefixes (augments) and the nominal class prefixes separated by hyphens, leaving the stems intact, since the final vowels are part of the echoic elements of the nouns. The data is arranged in such an order that, creature-imitative onomatopes are reflected in (a-n), object-sound imitative onomatopes are in (o-t), an event related onomatope is in (u), onomatopes related to human reflex-controlled activities are in (v-y), and a metaphoric-sound-echoic noun is in (z).

Table 27. Onomatopoeic nouns

<table>
<thead>
<tr>
<th>Noun</th>
<th>Transcription</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) e-bi-chuchu</td>
<td>[eβiʧufufu]</td>
<td>‘chicks’</td>
</tr>
<tr>
<td>b) chi-ngi</td>
<td>[ʧiŋgi]</td>
<td>‘flies’</td>
</tr>
<tr>
<td>c) e-bi-siriri</td>
<td>[eβisiriri]</td>
<td>‘crickets’</td>
</tr>
<tr>
<td>d) e-bi-chuni</td>
<td>[eβifuni]</td>
<td>‘fruit flies’</td>
</tr>
<tr>
<td>e) ri-bururu</td>
<td>[riʃururu]</td>
<td>‘locust’</td>
</tr>
</tbody>
</table>
As demonstrated under infinitives, onomatopoeic lexical items are literally based on mimicry, guided by the auditory impressions inscribed on the hearer’s mind. In (a) above, for instance, from perceived
chick sounds, speakers combine and duplicate the alveo-palatal affricate and vowel sounds /ʧu/ in the root, then add the class marker morpheme {ge-} (plural form {-bi-}), and the augment {e-}, to lexicalize the string into a functional item, [eyeʧuʧu] ‘chick,’ or plural [eβʧuʧu] (chicks). The affricate implies the strenuous passage of resonated air through the narrow chick pipes, mimicking the noisy airflow by its fricative nature and continuant tendency. The voiced /u/ makes the impression of a cry. The reduplicate sequence depicts the repetitive nature of chick noises, an instance of gestalt, while it also conveys the meaning component [THIN CRY], an instance of imagic iconicity. To this iterative pattern, the augment {e-} and the class marker {ge-} are affixed to derive the noun from the onomatopoeic root. Apparently, the final vowels are modified to sound onomatopoeic, that is, depictive of sounds together with the roots, evidently, also serving a morpho-phonological function.

In (e), the speakers perceive sounds /p/ and /r/ in the movement of the locust, as in making a sound string close to [p-r-r-r], with a plosive followed by a trill sequence. These sounds could be maintained if the movement of the locust was to be described in an ideophone. The voiceless plosive undergoes lenition and voicing, resulting in the bilabial fricative /β/, while the trill changes to a flap in the process of noun formation. The new string of sounds should be [β-r-r-r], but with phonotactic demands, the vowel sound /u/ is selected as the closest, mimetically, to depict the perceived sounds of movement. The resultant root [βururu], conveys the meaning components [VIBRATION] and [CHIRPING], to imitate the noise created by the rapid snapping of wings as the locust moves. This onomatopoeic root allows affixation of the prefix {ri-} to form the noun ribururu [riβururu], which refers to the solitary insect. Such mappings are possible for all the creature related onomatopoes in Table 27 above.

The reduplicated sequence [tar] in (o) is imitative of the tapping sound of sandals, when one is in motion. As one pulls up the foot to take a yard, the elastic Y-shaped straps pull the loose and light
rubber sole, which gently taps the lower back side of the heel. With alternation between the right and left legs, the whole journey orchestrates a flip-flop kind of rhythm, which earns the footwear its name, implied in the reduplicative onomatopoeic root [ta tara]. This conveys the meaning component [TAP TAP]. With affixation, the noun formed is therefore e-bi-taratara [eβitaratara]. Since sandals are not culturally original Gusii artifacts, the speakers are bound and justified to imitate the noise to derive new words. One again, imitation and reduplication are clear instances of imagic and gestalt types of iconicity. In the same vein, example (z), e-gi-ateko [eɣiateko] ‘breakage or outbreak,’ has two plosives in the root, /l/ and /kl/, suggestive of an explosion, eruption or a blast when something breaks. The two plosives convey meaning components related to [BURST], [EXPLODE] or [RUPTURE].

Example (n), e-ge-chuguchugu, appears as an entry in the ‘Authoritative EkeGusii Dictionary: endabaro endabasia y’ektegusii,’ Bosire and Machogu (2013, p. 268), explained as “a type of bird which makes ‘chuguchugu chuguchugu’ sound when flying.” Though no more information is given in Bosire and Machogu, the reference targets a small brownish bird with a long tail, comparable to the scissor-tailed hummingbird, whose snapping of wings makes a whistle-like sound on flight. However, the term appears to be a regiolectical reference, as random questioning outside selected respondents showed that many speakers do not seem to agree on the bird being referred to, leave alone identifying it. The transcription of the noun, as given in Table 27 above, makes it clear that the noun is imitative of the sounds made by the shattering of wings. Such morphophonological mappings are manifest throughout the rest of the lexical items based on animal and insect sounds, raising the curtains on the Saussureian claims on the arbitrary nature of signifiers of denotata.

Reiteratively, it can be demonstrated that onomatopoeic roots, compared to echoic ideophones (see sub-section 4.3.3.3.1), are a more fertile ground for affixation as a word formation process in EkeGusii,
since related nouns, infinitives and finite verbs can be built on common onomatopoeic roots, as demonstrated using the root in (w), which is onomatopoeic of the sound of nose blowing. The inflection of the roots is advanced to ordinary morpheme combination patterns, as shown in the below examples.

```
a- ma- mir -i -a  [amamiria]  
AUG PL R EXT FV

'mucus'

mir -i -a  [miria]  
R CAUS FV

'wipe off mucus'

mo- mir -i -e  [momirie]  
SUB R CAUS FV

'wipe mucus off him/her'

o- ko- mir -i -a  [okomiria]  
AUG CLASS R CAUS FV

'to wipe off mucus'

o- kw- e- mir -i -a  [okuemiria]  
AUG CLASS REFL R CAUS FV

'to blow one's nose'
```
Perniss, et al. (2010) observe that onomatopoeia is limited to sounds, especially animal sounds, objects in motion, or sounds upon impact on other objects, which may in other circumstances exhibit phonesthesia. They give examples from English, such as “whoosh, swish, whack, crack, crash, and bang,” which are all onomatopoeic. Maeder, et al. (2005, p. 177) place onomatopoeia under imagic iconicity, where “there is a more or less direct one-to-one relation between the linguistic ‘sign’ (usually a stem, that is, a morphologically unstructured form) and the ‘signified.’ They give sounds like Al-falaq from Arabic, which has fricatives and stops showing movement through a narrow cavity followed by a final explosion as a way of mimicking reality. The order of consonants in Arabic shows a three-fold sequential action of splitting: xalaq ‘creates,’ waqab ‘flows,’ ʕuqad ‘knots,’ and hasad ‘envies’ (Maeder, et al., 2005, p. 178).

Despite the evidence adduced in support of imagic iconicity in EkeGusii onomatopes, van Langendonck (2007, p. 402) makes unfortunate remarks about onomatopoeia: “Compared to normal vocabulary, onomatopoeia remains a marginal phenomenon in natural language, though there may be differences in the degree to which it is implemented from one language to another...” Such marginalization has already been contested by the data availed in the present study, confirming that such sentiments have been overtaken. Dingemance (2018) argues against attempts to treat as peripheral, the iconic aspects of language, like the iconicity in onomatopoeia and ideophones. It is still inopportune for van Langendonck to proceed with the narrative in the following terms: “The more onomatopoeic words we get integrated in the linguistic system, the more they become symbolic and the more they lose their iconic value” (Dingemanse, 2007, p. 402). Fortunately, such remarks are clearly not data-based, and are negated by van Langendonck’s own subsequent illustrations on phonetic and morphological iconicity.
Contrary to van Langendonck’s argument, Kirtchuck (2011) has availed evidence from Hebrew, showing that the language is highly onomatopoetic. Onomatopoeia permeates Hebrew lexicon and grammar deeply, widely and consistently. Of the many mappings between sounds and words identified include swift movements, tearing or stripping apart, dripping liquids, striking, piercing sounds made by a frightened person, and many more. For instance, sounds /sl/, /zl/, /lʃ/, /ʒ/ suggest swift movements, and /bl/ suggests dismay. Just like in EkeGusii, onomatopoeia in Hebrew is equally iterative (repetitive). Kirtchuck argues that onomatopoeia is the best exponent of iconicity, a part and parcel of language; a major devise in the understanding of language and the way it functions. Kirtchuck cites Bolinger (1949), who observes that there is adequacy found in language, to some extent, between content and form.

Dofs (2008) provides evidence of iconicity in a comparative study based on English and Swedish animal sounds. The sound of a cat in English is [meow], and [mjau] in Swedish. A cuckoo in English makes a sound cuckoo, and [ko-ko] in Swedish; a medium dog makes the sound [wu:f wu:f] in English, and [vuf-vuf] in Swedish; and a cow makes a sound [mu:] in English, and [mū] in Swedish. [Ku:] is the sound made by doves in English, which is [uːhuː uːhuː] in Swedish. Several examples of similar phonetic features between the sounds and animals are given as evidence of a degree of iconicity in the two languages. Dofs observes that even words that seem arbitrary, at first glance, have a particular sound in common. Even in Swedish and English, reduplication is a common feature of onomatopoeia. Moreover, a number of onomatopoeic words are now conventionalized. For instance, the English word coo also means, “to say something in a soft, quiet voice, especially to somebody that you love” (Oxford advanced Learners Dictionary). Though Dofs argues that with extensive conventionalization of onomatopoeic words, iconicity seems to be lost, the valid perspective is, the iconic nature of the words tends to become obscured at the sub-conscious level of the speaker, but it is remains clear, and
accessible to linguistic investigation, shedding indispensable light on the nature, origin, and function of language, as evidenced in Johansson et al. (2020).

Pertiwi (2015) shows that the translation of Indonesian words to English shows evidence of iconicity in both languages. Indonesian *aaahm* translates to ‘yawn’; *hmm* to ‘hmm’ expressing doubt or hesitation; *tok tok* to ‘knock knock,’ for a nock with knuckles; *haeek* to ‘yuck’ expressing disgust; *krak krak* to ‘crack crack’ for breaking into cracks; *kraus* to ‘crunch’ for the crushing of something with teeth; and *plup* to ‘plop’ for the sound of a small object falling into water. Although Pertiwi appears to mix onomatopoes and ideophones (from the viewpoint of our study), the concept of mimicry is clearly demonstrated in the two languages. Interestingly, the word for ‘yawn’ in EkeGusii is *okwaora* {o-ko-aaor-a}, and though the sound sequences are far from being identical to the sounds of English and Indonesia, the boldfaced root sounds are echoic, making the word onomatopoeic. Onomatopoeia, therefore, cannot be warranted on the basis of identical sound sequences between two or more languages, as one may misconstrue from Dofs’ illustrations, but on the basis of mimicry or mimesis, as cognitively interpreted by the speakers of a particular language. Therefore, a rooster’s [*kɔkʌdu:dldu:*] in English, and the Swedish [*kɔkɛliku*] (Dofs, 2008, p. 13), should be perceived as spontaneous instances of onomatopoeia, independently motivated in their respective languages.

4.3.2.3 Explicit, implicit, and metaphorical onomatopoeia

Following the data presented in Tables 26 and 27 above, the current study proposes a priori, a classification of the onomatopoes in EkeGusii into two major kinds; explicit (transparent), and implicit (metonymical) onomatopoeia, forms that may be termed direct and indirect onomatopoeia, respectively. A third slimer category, metaphorical onomatopoeia, is discussed as an extension of the two major types.
Explicit onomatopoeia can be considered a form of direct re-enactment of sounds from the source. This form can be viewed as express imitation, since the sounds are derived from the origin. The speaker assumes the role of the originator of the sounds, by playing a kind of parrot role; a play-back mode of reenacting the noise made by the source, replicated in human sounds. For instance, the words *emoori* [ɛmɔ:ɾi] ‘calf,’ *ebichuchu* [ɛbritʃu] ‘chicks,’ *ekegonkoru* [ɛkeɣɔŋkɔɾu] ‘crow,’ *ekong’a* [ekoŋa] ‘crown bird,’ *egechibi* [ɛɣeʃiβi] ‘song bird,’ and *okogona* [ɔkɔɣɔna] ‘to snore,’ are directly imitative of the sounds made by a calf, the named birds, or a snorer. Explicit onomatopoeia is transparent, especially to the native speaker (the signers), as they can expressly understand the direct imitation of the sounds picked from the source. This kind of onomatopoeia involves minimal cognitive processing, as the brain replicates, in the human fashion, the perceived acoust impressions. This accounts for the similarity of animal sounds, say the barking of dogs, across languages, as illustrated with exemples from Rungrojsuwan (2009), at the end of this sub-section.

Implicit onomatopoeia, on the other hand, is that form of circuitous imitation of sounds activated in the cognitive ‘ear’ of the speaker, as perceived. This second form of onomatopoeia can be viewed as associative or metonymical, since the speaker generates human sounds that can fairly imitate (or represent) the sounds triggered by an associated action, movement or noise, with a view to naming the trigger, an animal, thing or object. To illustrate it, words such as *ogosinyora* [ogɔsiɲɔra] ‘to urinate,’ *egechuguchugu* [ɛɣeʃuɡuʃuɡu] ‘type of a bird that moves with noise,’ and *a-ma-miria* [amamiria] ‘mucus,’ are examples of implicit onomatopoeia, where the speaker approximates the perceived sounds of urination, a moving bird, or nose blowing. Comparatively, this form of onomatopoeia may be termed translucent, since it is less directly imitative, compared to explicit onomatopoeia. The parrot role in explicit onomatopoeia is here replaced by replication of perceived auditory impressions in terms of approximative sounds. This form of onomatopoeia involves a higher degree of cognitive processing,
since the brain is engaged in a kind of sound searching-and-equation-or-marching task; locating the closest equivalents of the perceived auditory impressions. This explains why individual speakers of the same language may reenact sounds variously, in relation to the same concept, object or animal. Technically, this may be called metonymical onomatopoeia, because it imitates sounds associated with something, where the sounds may be used to name their own trigger or the source.

There could be limited examples of opaque onomatopoeia in EkeGusii, but the present study has not elicited sufficient data for this argument. Names of diseases like *omokururo* ‘measles,’ and *ekeera* ‘asthma’ sound onomatopoeic. The name for measles appears derived from example (s) of Table 26, *ogo-kurur-a* [oyokurura] ‘to drag on a surface,’ since the skin rash caused by measles makes one appear as though they have been dragged over some rough surface. The word *ogokurura* [oɣokuɾura] ‘to drag on a surface’ is onomatopoeic, but its onomatopoeic basis has been transferred to the disease, following its major form of presentation. The name for measles, therefore, is indirectly onomatopoeic, sub-consciously transferred by way of association, which, though, may not be realized by non-speakers. Even the modern signers (native users) may require such a research-grounded explanation to help them make out such depictive impressions. This form of onomatopoeia is, therefore, opaque, or metaphoric. The same can be said of *ekeera* ‘asthma’. Ordinarily, *ekeera* refers to a noisy stream of water flowing over a precipice or steep incline, such as a cataract, cascade or waterfall. The word is, therefore, onomatopoeic, since it imitates stream noises. Once this acoustic impression is transferred to the name for asthma, associated with the orchestrated wheezing noise, from the standpoint of the name *ekeera*, onomatopoeia becomes partially blocked or opaque. This is the more reason why the term metaphorical onomatopoeia may be more appropriate, since acoustically depictive impressions are transferred to name related ideas. The onomatopoeic basis of *ekiegeso* ‘hiccup’ suggested by the noise of hiccup, but it is nearly lost, and is hard to pin down. Other disease names such as *esosera* ‘malaria,’ may be
considered iconically metaphoric, but not onomatopoeic. Malaria was presumed to be characterized by a kind of algae-green vomit. The name for alge is *esosera*, which was metaphorically transferred to name malaria. Since the present study did not elicit sufficient data for the case of metaphoric onomatopoeia, this may better be handled by a future investigation.

Of the two major kinds of onomatopoeia, explicit and implicit, the former is more limited, but not always, to living things. Such roots are, comparatively, less productive for affixation as a word formation process. Of all the examples in Table 26, about 6 out of 26 are explicit onomatopoeic infinitives. In Table 27, about 12 out of 26 are explicit onomatopoeic nouns, that is, except (e), all examples in (a-m). All other nouns in Table 27 are considered implicit. In general, about 35% of the data in Tables 26 and 27 are explicit onomatopes, while 65% are implicit onomatopes. Therefore, metonymical onomatopoeic roots, based on their numbers, are more accommodative to affixation.

A few vaguely imitative onomatopoes (nouns and infinitives) may pose a classificational challenge, especially to non-natives. For instance, onomatopes referring to reflex-determined and spontaneous processes like farting, coughing, and vomiting, that is *okoinyamba*, *ogokorora*, and *okoroka* respectively, appear partially transparent, and reflexive (in the sense of self-mimicking), and therefore a little confusing, but they should be considered to belong more to explicit, than implicit, onomatopoeia. A word like *o-go-sa-a* [ȳosaa] ‘to diarrhoea,’ may, arguably, not clearly belong to either category, as the word itself sounds partially imitative of the actual sound in the act, though considering its approximative and variant nature, it can be grouped under implicit onomatopoeia.

Three parameters, therefore, may inform this criterion: the noise source, the saliency of the noise, and the referent. Explicit onomatopes should originate from the source, are more salient for imitation, and
are directly used to name the source. Implicit onomatopes, on the other hand, are associated with the referent, are a little vague, that is less salient (or more approximative), and are associatively used to name the trigger. So, if an EkeGusii speaker utters another word such as *ensagara* (*ensaɣara*) ‘lizard,’ it can be grouped under implicit onomatopoeia, since, as the lizard moves, the speaker approximates the sounds heard as given in the sequence /sa-ya-ra/, re-enacting the noises associated with the movement of the lizard, especially on dry matter. This sequence is transferred to name the reptile, giving the name its metonymical basis; the lizard is named after the noise associated with it. Another word such as *enyang’au* (*eɲaŋau*) ‘hyena,’ will be considered explicit, since the hyena’s cries are closer to human /ŋ-a-a-u/ cries. So, the carnivore is named after its own sounds, where the name *enyang’au* suggests ‘the animal of the sounds [ŋ-a-a-u]’. Though both onomatopes refer to living things, they may be grouped thus differently. This classification of onomatopoeia is more of an ignition of a language-specific and potentially-universal intellectual debate, than a conclusion, since languages vary in their treatment of words and sounds. However, this could be a fertile ground for linguistic analysis, and hypothesizing, for future investigations.

In support of the conjectured classification, Rungrojsuwan (2009:54) avails evidence of similarities of lexicon in six languages, in what we called explicit onomatopes, refering to DOG’S BARK as follows.

<table>
<thead>
<tr>
<th>Language</th>
<th>Phonetic forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>/baw waw/</td>
</tr>
<tr>
<td>German</td>
<td>/wau wau/</td>
</tr>
<tr>
<td>Spanish</td>
<td>/gua gua/</td>
</tr>
<tr>
<td>Italian</td>
<td>/bau bau/</td>
</tr>
<tr>
<td>Thai</td>
<td>/hông hông/</td>
</tr>
<tr>
<td>Japanese</td>
<td>/waŋ waŋ/</td>
</tr>
</tbody>
</table>
Surprisingly, if child-speakers of EkeGusii were asked to report how a dog barks, they would use /gwogwo/ [ɣuoɣuo], as an ideophone in the adverb position! What a striking similarity! Rungrojsuwan does not account for phonetic similarities in onomatopoeia. Such similarities can only be made possible within explicit onomatopoeia, as a demonstration, that regardless of the slight sound variations, the speakers in each language tend to reenact, as closely as possible, the sounds of the dog; speakers ape the dog, what is here called a ‘play-back’ or ‘parrot’ role in the production of words. Therefore, in cases of implicit onomatopoeia, such similarities are likely to be minimal, or even absent, though, this is better left as a research agenda, especially in related Kenyan Bantu languages.

Interestingly, Bellugi and Klima (1978), cited in Fordyce (1988), also pursue a distinction between transparent, translucent and opaque signs. In transparent signs, the meaning of the sign can be determined from its form alone. In translucent signs, non-signers agree on the relationship between the sign and its meaning when presented with a sign and its translation. Opaque iconicity is distinguished from the other two, when there is an arbitrary association in phonosthesia, such as when words beginning with ‘sl’ in English are associated with a sliding or falling movement; examples include ‘slide, slither, slip, slime, slush’ among others, already given in sub-section 4.3.1.2. It should be noted that while our study shares similar terminology, our interpretations are quite different.

4.3.3 Iconicity in EkeGusii Ideophones

This sub-section delves further into imagic and other types of iconicity in EkeGusii, where ideophones are viewed as words whose sounds are depictive of acoustic and other sensory modalities. This sub-section starts with an introductory description of the EkeGusii ideophones, presents relevant corpus in two Tables 28 and 29, and then highlights the characteristics of EkeGusii ideophones. This section presents a classification of ideophones into two major categories, echoic and anechoic, and then
handles a phonosemantic description of echoic ideophones, adducing evidence of their mimetic nature, before it proceeds to discuss anechoic ideophones. The following sub-sections discuss ideophones in terms of their syllable structure, prosodic features, morphological processes, and their syntax, before presenting a discussion on the circumlocutous nature of EkeGusii ideophones and onomatopes.

4.3.3.1 An introductory description of ideophones

The word ‘ideophone,’ is, by many scholars, attributed to Doke (1935), who is believed to have coined it (Fordyce, 1988). However, Dingemanse (2011) raises clear evidence, that Doke only gave a definitional twist to an already existing term. In Doke’s view, ideophones are words that tend to “give a vivid representation of an idea in sound” (Doke, 1935, p. 118, cited in Downing & Steibels, 2012, p. 5). Perhaps, this view informed most of the various views of this word, related to sound symbolism. For instance, Fordyce (1988) defines a Yoruba ideophone as a member of a set of words with a phonologically determined semantic feature or field. Tedlock (1999) considers ideophones to be “words or phrases that do the work of representation by phonetic means.” Gasser et al. (2005) consider ideophones to be one of the forms with mimetic relationships between linguistic signs and the signified, classifying them to be a kind of absolute iconicity. Maeder et al. (2005), group ideophones under auditory iconicity, where there happens a reenactment of the sound. Ameka (2001) shares this view.

Dingemanse (2011, p. 151) emphasizes, that despite their characteristics, like syntactic aloofness and prosodic foregroundig, ideophones are not a different species of signs. They are built from the same segmental material as ordinary words. They, therefore, have potential to be used as ordinary words, not because they are sound, but because they are speech. This idea had been noted earlier by Ameka (2001, p. 26), also cited in Dingemanse (2011, p 159), as follows: “ideophones are first and foremost a type of words.” This is thus sharpened by Dingemanse (2011, p. 160): “Ideophones are first and foremost
depictive words, the most important characteristic setting them apart from ordinary words.” One of the most opportune observations, which agrees with current perceptions of ideophones, is that made by Fordyce (1988, p. 40): “So while ideophones may vary from language to language in their phonological makeups (and most certainly in their syntactic behaviour), they tend to group themselves fairly neatly into sensory categories in all of the cases of which I am aware.”

Ideophones are currently viewed, and defined, as marked words that depict sensory imagery (Dingemanse, 2011; 2012; 2015). The most progressive definition of ‘ideophone’ is that of Dingemanse (2019), which describes it as a member of an open lexical class of marked words that depict sensory imagery. This is derived from Dingemanse’s five key properties of ideophones, including that they are marked, are conventionalized lexical items, are depictive, have meanings that lie in the broad domain of sensory imagery, and form an open lexical class that allows addition of new items. Dingemanse’s view agrees with Ameka (2001, p. 29), who cites Childs (1994), positing that it is generally agreed that ideophones are an open and productive lexical class. However, the statement in Childs (1994, p. 179), does not sound as conclusive. Its word, “… ideophones constitute an open and productive class in many languages,” leaves room for languages like EkeGusii that may have a closed set. Apparently, EkeGusii presents two sets of ideophones, echoic, and anechoic (see section 4.3.3.3, and tables 28 and 29 below), where the former is actually an open and productive set, but the latter, a closed and unproductive set. Therefore, while it is right to the extent of relevant languages, Dingemanse’s (2019) definition may not accommodate part of the data found in EkeGusii. to accommodate EkeGusii, our study, therefore, postulates to retailor Dingemanse’s definition as follows: Ideophones are marked words of open or closed sets of lexical items that depict sensory imagery. This accommodates both the echoic (imitative) and anechoic (nonimitative) sets of ideophones, where the former allows spontaneous ad-hoc creations in varying contexts, and the latter presents as a closed,
selective, and restricted set of intensifier ideophones that depict sensory modalities, with no new ones being added.

4.3.3.2 Characteristics of EkeGusii ideophones

A number of features are to be taken into account in the description of EkeGusii ideophones. Compared to other word classes, ideophones are not as much open to affixation as nouns and verbs are, which perhaps, has seen them escape placement in their correct grammatical status. However, they are not peripheral, since they serve indispensable adverbial functions, carrying core semantic weight in the language. Perhaps this is why Samarin (1971) describes African ideophones as ‘uninflected’ or monomorphemic.’

Ideophones can be context-dependent, so that they may vary on the basis of idiolect, regiolect and dialect, though a number others, like most of those in Tables 28 and 29 below, have acquired conventional status, so that a native hearer decodes pronto the meaning being put across by the encoder. For instance, the ideophone (e-) tara [tara] ‘sound from a sudden smack, hit or slap,’ in Table 28, appears also in Table 29 to refer to things that are symmetrical or identical. Notably, these two are semantically different ideophones, the first being echoic, and the latter anechoic. On the same note, ideophones may have various meanings, so that we may not limit the meaning of a particular ideophone. For instance, the ideophone in chwa [ʧua] ‘the sound of a whip,’ may also refer to the sound of splashing water at something, or the sudden completion of an activity, among others. On the other hand, different ideophones compete for the same usage. For instance, while the sudden completion of an activity, like ending a speech suddenly, can be described by example (o) of Table 28, as in (e)ngwa [eŋua], or (e)chwa [eʧua], to depict ‘the sound of whipping,’ it can also be expressed by many other ideophones like (n) cha [ʧa] ‘the sound of cutting with a sharp object,’ and others including twa [tua].
$kwa$ [kua], and $ka$ [ka], which, apparently, do not appear in Table 28, except the last one which appears in Table 29 below.

Further, the list of EkeGusii echoic ideophones may be termed indefinite, since speakers can form new ones each time they communicate, as noted in Dingemanse (2019). For instance, in the process of roasting maize or making popcorn, a speaker of EkeGusii can report that the corn pops up as $tora \ toro \ toro$, or $dwa \ dwa \ dwa$, indicating the recurrent pops. Several other contexts, including pouring water from a bottle, milking a cow at the beginning, and dry milking, scratching surfaces, water trickling from a tap, noises from animals, such as snakes, and nestlings, swallowing food, noises of engines being raved, in idling mode, or in motion, like moving planes, and many others not included in Table 29 below, could all have their own echoic ideophones. Perhaps, this informs Dingemanse’s (2019) slight modification of the definition of the word ‘ideophone’ (recast here), as ‘a member of an open lexical class of marked words that depict sensory imagery.’

While ideophones appear inherently ‘demonstrative’ in the adverbial sense of showing ‘how,’ a few of them may convey exclamatory impressions. For instance, from Table 28 below, examples (b) $da \ da \ da$ [da da da] ‘sound of fast action like kicks in a fight,’ (m) $tara$ [tara] ‘sound of a sudden smack, hit or a slap,’ (e) $dwa$ [dua] ‘sound of an explosion,’ and (t) $pwa$ [pua] ‘sound of a sudden rupture,’ can all convey exclamatory impressions in narrative contexts. However, it should be noted here that this expressive function does not, whatsoever, make them overlap with interjections. Dingemanse (2011), citing Ameka (1992a), notes, that while interjections can be syntactically independent, ideophones, though also independent, need to be supported by other talk. Fundamentally, interjections index speakers’ stances to events in the immediate context. On the other hand, ideophones are depictions of events, and not responses as interjections are. This means, that EkeGusii ideophones could express

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exclamatory impressions in their end of utterance position, as depictive but not as exclamative words. This may be exemplified in *Nigo amoaka ng’a da da da* ‘He smacked him like [IDEO].’

A small percentage of ideophones in EkeGusii engage sounds that are not part of the language’s inventory. For instance, the dental fricative /ʃ/, and the labio-dental fricative /f/ in the sequence *shhh/ffff* ‘sound of gas or liquid from a nozzle,’ are not found in the rest of EkeGusii lexicon. In the language, these sounds are uncommon. The same is true of sound /d/ in the ideophones *da! da! da!* ‘sound of fast actions,’ and *dimbwi* ‘sound of an immersion’ in (b) and (j) of Table 28 below. Though this is only 9% of the ideophone data, it is important to note that, perhaps in the event of running out of options, speakers do turn to sounds not afforded by their own language. It is speculated that this linguistic behaviour is associated more with a younger generation of speakers, compared to an older generation who wonder which alien sounds these are. This feature of ideophones is observable across languages. Rungrojsuwan (2009, p. 256) has made similar observations of unusual sounds with examples from other languages, including sounds like /tx/ and /j/ in Haustec, /ts/ and /tz/ in Modern Greek, and reduced reduplication in Lahu. Similarly, Smoll (2014, p. 40), notes unusual sounds in Katuena including the consonants /ɓ/, /ɗ/, /ʄ/, /ŋ/, /Ɂ/, the long vowels /i:/, /e:/, /u:/, and one diphthong /ai/, which appear to have extended the phoneme inventory of the language. Samarin (1971) equally notes that alien sounds have also been observed in other languages like Cewa and Tswana. Klamer (2001, p. 171), cited in Downing and Steibels (2012), also cites the language Kambera, in which a set of marked vowels, à, è, ò, ü, occurs only in ideophones. Klamer further notes that ideophones violate the phonotactic constraints of the language. In the same vein, Dingemanse (2011, p. 137) gives evidence of a handful of what he terms ‘outlandish’ forms in Siwu. He gives examples like *gbrrr* ‘sensation of electric shock,’ and *korror karra* ‘gnawing through bones.’
EkeGusii ideophones are, like in most other languages, introduced by a quotative form, which appears in three different forms, as separate word forms. This quotative marker carries the meaning of ‘like,’ and is common throughout echoic ideophones, but rare in non-echoic ideophones. An example is the ideophone pa, ‘like IDEO,’ which mimics the manner of slapping. Detail of this is discussed in subsection 4.3.3.7.2.

Finally, most of the ideophones can be reduplicative to undefined extents, so much that users manipulate them to serve context-bound linguistic needs, so that representing them as separable or inseparable words appears correct, either way. From Table 28 below, though some are monosyllabic like those in group 3, others are disyllabic like (h-m), some quadri-syllabic like (d) in group 1, while others are double or triple stem reduplicants as will be seen in (a-d) of group 1. As noted, some ideophones are plain consonant sequences. From Table 29, it will be noted that the ideophone ti (ti ti) ‘totally black’ in (b) is optionally, reduplicative, while ng’arara ‘full to the brim’ in (l) is partially reduplicative. Ideophones experience a wide range of freedom and are quite playful in nature, including their ability to lengthen vowels indefinitely, among many other traits. We now shifts focus to grouping them, based on their depictive characteristics, which later guides the presentations of the two separate sets of ideophones in Tables 28 and 29 below.

4.3.3.3 Classifying ideophones in EkeGusii

While other types of ideophones are likely to be established in future research, our study establishes two major categories of ideophones in EkeGusii; those ideophones that are imitative, and those that are nonimitative. The imitative type is considered mimetic of sounds, so that it is much easier to ascribe iconicity to this group, since they are much more transparent. In this category, the words are echoic of the sounds of the noises of humans, animals, natural events, objects and machines of modern
technology. These are discussed in section 4.3.3.3.1 below as echoic ideophones. The second type is considered nonimitative, which is why the term anechoic has been used for this group. While iconicity is also attributed to this group, they are less transparent, but more depictive of sensory modalities. They may also be categorized as intensifier ideophones, as discussed in section 4.3.3.3.2 below, considering their grammatical function after adjectives and nouns. Generally, both groups are depictive. The main difference between the two is that, while echoic ideophones are directly depictive of sounds (acoustic modalities), anechoic ideophones are indirectly depictive of non-acoustic sensory modalities. Of the data collected in this study, echoic ideophones are 26, making a substantial 60.5 %, while anechoic ideophones are 17, comprising 39.5%. Compared to Siwu, a language spoken in Ghana, Dingemanse (2011) finds that a paltry 8% of ideophones can be classified as directly imitative of sound, while the rest 82% are not. Regardless of such differences, Dingemanse acknowledges that there is a wider cross-linguistic distinction between ideophones depicting sounds, and those depicting other types of sensory events. Reiter (2011) also mentions two types of ideophones in Aweti. The first is a more conventionalized type depicting activities, and the second is the type depicting sounds and events emitted by animals and humans.

4.3.3.3.1 Imagic and gestalt iconicity in EkeGusii echoic ideophones

Table 28 below presents echoic ideophones in EkeGusii, whose syntactic features may portray them as adverbs of manner, and which class of words may not be limited to particular English equivalents for glossing. Each item is, therefore, followed with a brief explanation of meaning, which glossing may vary from one native speaker to another depending on user and context. Notably, one ideophone may be used variously in different contexts, depending on applicability, so that the usages given below are only for exemplification purposes.
<table>
<thead>
<tr>
<th>Ideophone</th>
<th>transcription</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) (e-) tege, tege, tege</td>
<td>[teɣe teɣe teɣe]</td>
<td>sound of footsteps taken over a long time</td>
</tr>
<tr>
<td>b) (e-) da da da</td>
<td>[da da da]</td>
<td>sound of fast actions like kicks in a fight</td>
</tr>
<tr>
<td>c) (e-) kurukuruku</td>
<td>[kurukuruku]</td>
<td>sound of frolicking animals</td>
</tr>
<tr>
<td>d) (e-) papapapa</td>
<td>[papapapa]</td>
<td>sound of huge fire flames</td>
</tr>
<tr>
<td>e) (e-) kong' kong'</td>
<td>[kɔŋkɔŋ]</td>
<td>sound of a light knock with an object</td>
</tr>
<tr>
<td>f) (e-) tony tony</td>
<td>[tɔɲ tɔɲ]</td>
<td>sound of rain drops or dripping liquid</td>
</tr>
<tr>
<td>g) (e-) kabkab</td>
<td>[kaβkaβ]</td>
<td>sounds of an animal gobbling food</td>
</tr>
<tr>
<td>h) (e-) butu</td>
<td>[βutu]</td>
<td>sound of hitting with a blunt object</td>
</tr>
<tr>
<td>i) (e-) kung’</td>
<td>[kuŋ]</td>
<td>sound of a dull knock</td>
</tr>
<tr>
<td>j) (e-) dimbwi</td>
<td>[dimbui]</td>
<td>sound of an immersion dive into a pool of water</td>
</tr>
<tr>
<td>k) (e-) chogo</td>
<td>[ʧɔɣɔ]</td>
<td>sound of sharp object piercing a soft target</td>
</tr>
<tr>
<td>l) (e-) saga</td>
<td>[saya]</td>
<td>sound of noise from an undefined direction</td>
</tr>
<tr>
<td>m) (e-) tara</td>
<td>[tara]</td>
<td>sound from a sudden smack, hit or slap</td>
</tr>
<tr>
<td>n) (e-) cha</td>
<td>[ʧa]</td>
<td>sound of a sudden cut with a sharp object</td>
</tr>
<tr>
<td>o) (e-) ng’wa /chwa</td>
<td>[ŋua] / [ʧua]</td>
<td>sound of a whip with a stick, or quick, sharp cut</td>
</tr>
<tr>
<td>p) (e-) po</td>
<td>[pɔ]</td>
<td>sound of swallowing a liquid like water</td>
</tr>
<tr>
<td>q) (e-) ndi</td>
<td>[ndi]</td>
<td>sound of a hit with a blunt object, say with a fist</td>
</tr>
<tr>
<td>r) (e-) pa</td>
<td>[pa]</td>
<td>sound of hit with a flat object</td>
</tr>
<tr>
<td>s) (e-) dwa</td>
<td>[dua]</td>
<td>sound of explosion, like gunfire</td>
</tr>
<tr>
<td>t) (e-) pwa</td>
<td>[pua]</td>
<td>sound a rupture as in the amniotic bag</td>
</tr>
</tbody>
</table>
u) (e-) gwaaaaa [ɣua::] sound of pouring liquids like water
v) (e-) nyweee [ɲuε::] sound of a smooth durative action, like a ride
w) (e-) ndiii [ndi::] sound of a buzzing insect like a beetle
x) (e-) saaa [sa::] sound of a hissing radio or melting fat
y) (e-) krrr / rrrr [kɾ::] / [ɾ::] sound of a sewing machine
z) (e-) shhh / ffff [ʃ::] / [f::] sound of gas or liquid from a nozzle

We first of all pursue to describe the imitative nature of a few of the ideophones in Table 28 above, to show evidence of imagic iconicity, before we turn to their demonstration of gestalt iconicity. As noted in Dingemanse (2011), in imagic iconicity, the sound of a word mimics a sound in the real world. The main idea here is that ideophones are depictive of sounds, making words symbolic of sounds.

All the items in (a-z) down the four groups of Table 28 above are depictive of sounds, evidencing the reality of imagic iconicity in ideophones. They sound replicative of noises, pegged on simulation. For instance, children that grow up playing alongside rivers are likely to get fond of swimming. So, when one leaps for an immersion dive, co-swimmers may express the act of immersion as “dimbwi,” as in example (j). This is an approximate re-enactment of what they promptly hear. The initial alveolar stop does not actually occur in ordinary EkeGusii vocabulary (noted above) except in the homorganic variant of /t/ as /nd/, or the South Mugirango /dʒ/, without evidence of usage as noted in Cammenga (2002). In this expression of immersion, there is conveyed the meaning component [HEAVY DROP], to imply the sudden sinking into the water. The second bilabial complex part [mbui] conveys the last part of the immersion where bubbles of make such a noise.
The sounds in (g), ngwa [ŋua] or chwa [ʧua] imply the imitative use of a whip, lash or stick to whip. The lips in either case are rounded to produce the initial nasal velar or the alveo-palatal affricate, and both are continuants to convey the whistle-like beginning and durative aspect of the act of whipping. The final front, open vowel sound /a/ implies the end of the act, in which quick and displacive [FRICTION] is created with air currents to make the noise. This invokes visual, auditory and sensory effects. This is comparable to example (h), where sound [βutu] mimics the noise of hitting with a blunt object, which equally causes considerable turbulence.

When galloping water, it feels as though it makes noise down the pipe, as the epiglottis covers the air passage. So, a speaker of EkeGusii may replicate example (p) in a sentence such as, omerire e po po po! ‘He has swallowed like [IDEO]’ placing the iterative ideophone in (p) in the adverb position. In such a case, iteration signals gestalt, as will be explained in a little while, in this sub-section. The plosive /p/ followed by the vowel, convey the esophageal noise with the meaning components [CLOSE], [OPEN], [DROP], to imply the stages of the swallowing reflex action, in which the trachea is closed to avoid chocking. This process is simply more complex than a linguistic description of mimetic sounds can claim, which detail is beyond the scope of the present study, and lies in a different territory.

From gunfire, speakers report to hear a sound like dwa [dua], in (s). This sound is re-enacted and contextualized, as an adverb of manner in its raw form, as in ‘akamorasa ng’a dwa!’ (He shot him like IDEO!) The word order is non-English in this case, but the impression created by the plosive in the ideophone is that of a sudden [BURST] or [EXPLOSION]. As noted above, except in dental homorganics as in enda ‘jigger,’ sound [d] never singly occurs in EkeGusii words, but in such ideophone contexts. When huge flames of fire are consuming flammable material, the inferno can be
described by the ideophone *papapapa* in (d), and when one really enjoys a ride, they report to have gone *nyweee! [ɲuεεε]*, as explained in example (v). In the latter example, the aveo-palatal nasal is a continuant with non-turbulent airflow to convey the meaning component [SMOOTH]. The vowel lengthening that follows is iconized in relation to the [DURATION] in the journey. Some ideophones are simply imitative of machine actions, such as *krrr /rrr* in (y), and *shhh/ffff* in (z), syntactically occurring in adverb positions. It is clear that echoic ideophones in EkeGusii, display indisputable direct correspondence between the concrete linguistic forms and meanings, the most salient of imagic iconicity, in the sense of sound recreation. However, as noted in Dingemanse (2011), words employing imagic iconicity are never perfectly faithful copies of the sound mimicked. Linguistic signs, like the ones in Table 28 above, are dependent on the affordances of a language’s phonemic inventory. They are therefore grouped as forms of partial iconicity by Ludovic (2008).

In a nutshell, the type called echoic ideophones in EkeGusii, are imitative in the sense of sound recreation. While EkeGusii onomatopes have their bases fully available to morphological affixation, ideophones are not as available to affixation, except for a small percentage that have still survived as ideophones, while other word classes have been derived from them, as discussed in section 4.3.3.4 below. While Dingemanse (2018), is persuaded that onomatopes are a subset of ideophones, which position is linguistically sound, it is however argued in this study that it is the nouns and infinitives whose roots are echoic that shall be termed onomatopes. Onomatopoeic roots in such words have had their echoic nature almost obscured by affixation. Regarding usage, ideophones are an inevitable repertoire of the natural and picturesque day-in-day-out conversations in EkeGusii, without which conversations and banter would feel dry and deficient of core meanings and impressions.
We now turn to discuss the extent to which the ideophones in Table 28 above, are structured to reflect the structure of the events they depict. On the basis of gestalt iconicity, the ideophones in Table 28 above are arranged in the following order: 1) imitation of reduplicative and iterative sounds in (a-d), 2) imitation of two-part reduplicative sounds in (e-m), 3) imitation of sounds in unitary events in (n-t), and 4) imitation of durative sound sequences in (u-z). In gestalt iconicity, a type of diagrammatic iconicity (see section 2.8.2.1), there is resemblance between the structure of words and the structure of the perceived event (Gasser et al. 2005; Dingemanse, 2011). Therefore, the arrangement can be explained as follows. In groups 1 and 2, the gestalt relationship between the words and the depicted events is reflected in the repetition. For instance, in (a), (b), (e), and (f), the events are heard as recurring is separate happenings, while in (c), (d) and (g), the events are heard as irregular and uninterrupted sequences of repetition, hence the use of the words ‘reduplication’ for the former, and ‘iteration’ for the latter. The difference between 1 and 2 is that the latter has groups of ideophones that depict events that happen in two parts, where the first part of the sounds depicts the beginning of the event, and the second part, the end of the event, in the mimetic sense. The gestalt lies in the structure.

In group 3), the events are heard as unitary, that is, as singular incidents. The monosyllabic representation is, therefore, indicative of events like the sudden rapture of the amniotic sac which releases the fluid after an animal has calved, explosions like gunfire, a lash of a whip, hitting someone once with a fist, or cutting of something like a banana stalk once, in preparation for feeding cattle. The single syllables are actually diagrammatic, in particular, as evidence of gestalt. Monosyllabicity is the structure that tells about the events. Finally, in group 4, there is a clear relationship between the signs and the durativity of the events, reflected by the vowel lengthening in (u-x), or the consonant gemination in (y) and (z), which phonological processes are gestalt motivated. As evidenced from Table 28 above, apart from all the ideophones being imitative or mimetic of the sounds (as argued
above), they are structured in a manner that reflects the perceived structure of the events. It should, therefore, be noted that two forms of iconicity are simultaneously at work here, imagic and gestalt iconicity. Dingemanse (2011) has already noted similar examples in Siwu, in which a word like *saaa* ‘cool sensation,’ has vowel lengthening indicating durativity. Dingemanse argues that gestalt iconicity taps into the suprasensory attributes of duration and aspectual unfolding.

4.3.3.3.2 Anechoic ideophones in EkeGusii

Dingemanse (2011) notes that ideophones do not have to be necessarily imitative or sound-symbolic as it may usually be misconstrued. Some other ideophones pick psychoacoustic properties like the siwu ideophone *kpenene* ‘shrill piercing [of sound]’. Interestingly, only 8% of ideophones in Siwu can be classified as imitative of sound. The data in Table 29 below presents a rich set of ideophones in EkeGusii that have been categorized as nonimitative, or anechoic, adducing evidence to ascertain Dingemanse’s (2011) position that it is the depictive mode of representation that is the fundamental aspect of ideophones, as opposed to the sound symbolic aspect.

**Table 29. Anechoic intensifier ideophones in EkeGusii**

<table>
<thead>
<tr>
<th>Lexical item</th>
<th>transcription</th>
<th>gloss</th>
<th>ideophone</th>
<th>transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ekerabu</td>
<td>[ekeraβu]</td>
<td>‘white’</td>
<td><em>se (se, se)/che</em> [se (se, se) / ʧɛ]</td>
<td></td>
</tr>
<tr>
<td>b. ekemwamu</td>
<td>[ekemuamu]</td>
<td>‘black/dirty ’</td>
<td><em>ti (ti ti)</em></td>
<td>[ti (ti, ti)]</td>
</tr>
<tr>
<td>c. ekebariri</td>
<td>[ekeβaɾiɾi]</td>
<td>‘red’</td>
<td><em>burure</em></td>
<td>[βurure]</td>
</tr>
<tr>
<td>d. kerabogete</td>
<td>[keraβoɣete]</td>
<td>‘tarnished’</td>
<td><em>pwe</em></td>
<td>[pue]</td>
</tr>
<tr>
<td>e. egesunte</td>
<td>[eɣesunte]</td>
<td>‘darkness’</td>
<td><em>endi</em></td>
<td>[endi]</td>
</tr>
<tr>
<td>f. ekiomo</td>
<td>[ekiomo]</td>
<td>‘hard’</td>
<td><em>pa (pa, pa)</em></td>
<td>[pa (pa, pa)]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>g. ekiomo</td>
<td>[ekiomo]</td>
<td>‘very hard’</td>
<td>paragaka</td>
<td>[parayaka]</td>
</tr>
<tr>
<td>h. egekong’u</td>
<td>[εɣεkɔŋu]</td>
<td>‘tight’</td>
<td>ma</td>
<td>[ma]</td>
</tr>
<tr>
<td>i. gekirete</td>
<td>[ŋekirete]</td>
<td>‘silent’</td>
<td>kiri</td>
<td>[kiri]</td>
</tr>
<tr>
<td>j. geichire</td>
<td>[ɣεiʧire]</td>
<td>‘full’</td>
<td>cha(bi)</td>
<td>[ʧaβi]</td>
</tr>
<tr>
<td>k. geichire</td>
<td>[ɣεiʧire]</td>
<td>‘full’</td>
<td>ng’a</td>
<td>[ŋa]</td>
</tr>
<tr>
<td>l. geichire</td>
<td>[ɣεiʧire]</td>
<td>‘full’</td>
<td>ng’arara</td>
<td>[ŋarara]</td>
</tr>
<tr>
<td>m. keerete</td>
<td>[kɛ:ɾɛte]</td>
<td>‘depleted’</td>
<td>pyo</td>
<td>[pjɔ]</td>
</tr>
<tr>
<td>n. egekendu</td>
<td>[eɣekendu]</td>
<td>‘cold’</td>
<td>kendi</td>
<td>[kendi]</td>
</tr>
<tr>
<td>o. bibuekaine</td>
<td>[βiβuekaine (ŋa)]</td>
<td>‘alike’</td>
<td>tara</td>
<td>[tara]</td>
</tr>
<tr>
<td>p. bimagaine</td>
<td>[βimaɣaine (ŋa)]</td>
<td>symmetrical</td>
<td>ka</td>
<td>[ka]</td>
</tr>
<tr>
<td>q. ekeroro</td>
<td>[ekeɾoɾo]</td>
<td>‘spicy/sour/bitter’</td>
<td>se (se, se)</td>
<td>[sɛ (sɛ, sɛ)]</td>
</tr>
</tbody>
</table>

Unlike the imitative ideophones presented earlier in Table 28, the data in Table 29 above comprises a set of anechoic ideophones, the majority of which occur after adjectives, except (e), which selects for a noun, with their major function being intensification of the quality of the preceding prosaic adjectives, or noun for that matter. The ideophones are arranged in the following order: 1) the perception of colour or degree of clarity in (a-e), 2) the experiential perception of hardness, strength, firmness or tightness in (f-h), 3) the auditory perception of sound impressions in (i), 4) the perception of volume or quantities in (j-m), 5) the perception of temperature in the sense of touch in (n), 6) the perceptual view of likeness.

4 The quotative form in brackets is obligatory in examples (o) and (p) for the constructions to be acceptable, unlike elsewhere in the table. It can appear in any of the forms explained under section 4.3.3.9.1. It should not be confused with the ideophone in (k) which does not have an initial vowel ‘i’ as in the ideophone, represented by the apostrophe to mark its omission.
or similarity in (o-p), and 7) the perception of taste in (q). From the assessment of this order, Dingemanse’s (2011) definition of ideophones, as marked words that depict sensory imagery, holds, but as modified in sub-section 4.3.3.1. This is evidenced by the extension of their meanings to sensory modalities, which include inner feelings, sensations, and experiences, psychoacoustic and visual impressions, all which may not be mapped iconically in speech.

As Dingemanse (2011) cautions, we should be very careful before ascribing iconicity to ideophones, especially this nonimitative category, which already implies no degree of sound symbolism. We begin from the basic meaning of the iconicity of mimetic ideophones in which we find some resemblance between the sounds in ideophones and their meanings. Now that such a feature is absent in anechoic ideophones, we go back again, to certain key points raised by Dingemanse (2011, p. 164) about ideophones. They may be summarized as follows: ideophones are never exclusively iconic (they are both symbolic and indexical), in ideophones, there are several types of iconicity at play, imitation is just one minor one, and that not all ideophones are transparently iconic.

Armed with such information, we now proceed to postulate that that anechoic ideophones in EkeGusii are still iconic. Leaving out sound symbolism, there are sensory mappings holding between nonimitative ideophones and the meanings they imply. The indexical nature of ideophones in which they invite the listener to ‘see’ for themselves (Dingemanse, 2011), nonimitative ideophones in EkeGusii ‘invite listeners to experience for themselves’ the degrees of intensity of quality of the adjective or noun. In other words, when listeners ‘listen’ to the ideophones, they can ‘hear,’ that is, discern, or perceive, the sensory mappings between the word and its meaning. The listener can decode pronto the suggested link between the ideophone and the meaning implied. This is why the triplication witnessed in examples (a, b, c, f, g, l, and q) in Table 29 above, is considered motivated. This is implied
gestalt in associative sensory iconicity. For instance, the ideophone in (l) ngarara ‘full to the brim’ implies that the supposed container is not only full, as suggested by ng’a ‘full’ in (k), but about to spill over. This picture holds for example (j) in which cha means ‘full’ and chabi means ‘to the brim.’ The same can be said of the cacophonous sequence of sounds in example (g) paragaka ‘excessively tight,’ which is motivated to imply a higher degree of the tightness implied by pa ‘very tight,’ In (f). In fact, the triplication in (f) may depict a relative medial degree of the tightness compared to (g), which is on the extreme. Generally, increased intensification is also depicted by triplication in se se se ‘quite white or quite spicy/sour/bitter,’ ti ti ti ‘quite black/dirty,’ and burure ‘quite red.’ It should be noted that most of the ideophones in Table 29 above have potential to reduplicate as in kendi kendi ‘very very cold,’ pyo pyo ‘completely depleted or finished’ and kiri kiri ‘very, very silent.’

Bowler and Gluckman (2017) have availed evidence of the expressive nature of ideophones, conveyed by reduplication and triplication in three Luhya dialects, which are Llogoori, Lunyore and Lutiriki. Examples include khai/kha ‘very red,’ pa ‘very hot,’ ti ‘very black or dirty,’ and zi ‘very cold, still, or quiet.’ They have established the point that Luhya ideophones are degree markers that imply exceeding contextual standards, which point is moderated in EkeGusii. They go to the extent of treating ideophones as fundamentally being degree intensifiers. However, this threatens the categorial status of ideophones, a debate beyond the present argument. They cite many examples of intensifying ideophones in languages like Hausa (Chadic), Siwu (Niger-Congo), Wolof (Niger-Congo), Xitsonga (Bantu) and Zulu (Bantu). Dingemanse (2011, p. 165) also gives examples from Siwu, of the ideophones kpɔkɔtɔɔ ‘nervous feeling,’ or yekpetee ‘frail,’ in which it is difficult to establish mimetic relations between them and their meanings.
Our point, on there being a type herein name ‘associative sensory iconicity’ in anechoic ideophones in EkeGusii, is made; there are indirect sensory mappings between anechoic ideophones and their meanings. This reconciles the classifications of iconicity by Ludovic (2008) and Dingemanse (2011). The link between a sign and its referent, so argues Ludovic, is a sensation such as pain, or a movement, a feeling, or a property such as size, distance, or colour. To reiterate Dingemanse’s observation (2011, p. 165), the meanings of ideophones do extend over all sensory modalities, and also include inner feelings and sensations, thus encompassing many percepts that are difficult to map iconically in speech. Citing Bühler (1934:203), Dingemanse agrees to the point that sound symbolism could never form a coherent representational field.

4.3.3.4 Nouns and infinitives related to ideophones

Certain nouns and infinitives are related to ideophones in the sense that they have either been derived from ideophones or vice versa. Table 30 below presents five ideophones of this kind. It appears that in (a-c), the nouns and infinitives must have been derived from the ideophones, leaving their bases echoic. In (d), it appears that the ideophone has also lead to the derived infinitive without a noun derived, so that the infinitive doubles as the noun. However, the ideophone is rarely used. In (e), it can only be speculated that the ideophone has been derived from the noun, from which even the infinitive must have been derived, which makes the direction of derivation difficult to define. Generally speaking, all onomatopoeic infinitives and nouns have echoic bases, the majority of which bases have not been retained as ideophones. Since the majority of the infinitives and nouns presented in sections 4.3.2.1 and 4.3.2.2 do not have their bases existing as ideophones in current usage in EkeGusii, and since the words are entrenched in the language as specific word classes, it would be rather confusing and untenable to reclassify them under ideophones. For this reason, these words were only be considered onomatopoeic, since their bases have accepted morphological affixation that has pushed them into their word classes.
Table 30. Word classes related to ideophones

<table>
<thead>
<tr>
<th>ideophone</th>
<th>transcription</th>
<th>noun</th>
<th>infinitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. tony</td>
<td>[tɔŋtɔŋ]</td>
<td>chintonyi</td>
<td>ogotonya</td>
</tr>
<tr>
<td>sound of</td>
<td>‘water drips’</td>
<td>‘to drip or drop’</td>
<td></td>
</tr>
<tr>
<td>drips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. chororr</td>
<td>[ʧɔɾɔɾɾɾ]</td>
<td>ekenyororia</td>
<td>okonyorokereria</td>
</tr>
<tr>
<td>sound of a</td>
<td>‘trickle’</td>
<td>‘to pour tricklingly’</td>
<td></td>
</tr>
<tr>
<td>trickle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. kong</td>
<td>[kɔŋ]</td>
<td>enkongonta</td>
<td>ogokongonta</td>
</tr>
<tr>
<td>sound of a</td>
<td>‘knocker’</td>
<td>‘to knock’</td>
<td></td>
</tr>
<tr>
<td>knock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. tog</td>
<td>[tɔɣ tɔɣ]</td>
<td>_______</td>
<td>ogotogota</td>
</tr>
<tr>
<td>sound of</td>
<td>‘to boil’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>boiling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. kendi</td>
<td>[kendi]</td>
<td>obokendu</td>
<td>ogokendia</td>
</tr>
<tr>
<td>IDEO for cold</td>
<td>‘cold’</td>
<td>‘to make cold’</td>
<td></td>
</tr>
</tbody>
</table>

Dingemanse (2011) had earlier noted that ideophones in Siwu are related to other word classes including verbs, nouns, interjections and ideophonic adverbs. He notes that in most of the Bantu languages, it is not easy to fix the direction of derivation. However, there is a clear difference between ideophones and any word classes that may be confused for them, such as interjections, since ideophones are depictive words.

4.3.3.5 Distinguishing EkeGusii ideophones from interjections and intensifier adverbs

While ideophones are depictions of events, Dingemanse (2011) describes interjections as speakers’ stances to events in the immediate context. The same is true for EkeGusii interjections, which are sudden, undepictive, and spontaneous responses, or direct reactions to information, visual perceptions, smells, tactile sensations, internal feelings, and recollections, among others. Interjections express
amazement, surprise, shock, pain, regrets, emotions and so forth. Examples include *achi!* ‘ouch!’, *tata okwete!* ‘my late father!’, *obe!* ‘ooh!’, *Nyasaone!* ‘my God!’, and *gekone!* ‘What a miracle!’, among others. The following example shows the common sentence-initial position of interjections, in which they function as independent clauses. The sentence has two parts, the interjection, and the following predicative part that complements the interjection by clarifying its meaning.

*Fyoo*, *giatiokire bobe*.

‘INTERJ!, it smells so awfully.’

We now turn to intensifier adverbs, which function more like the anechoic intensifier ideophones in Table 29 above. Bowler and Gluckman (2017) propose that ideophones in Luhya should be treated as degree modifiers, akin to English ‘very’ and ‘really.’ This view would work very well for EkeGusii ideophones also, but one problem remains to be handled. That while anechoic ideophones function as intensifiers also, we must address the depictive, selective and restricted nature of ideophones, vis-à-vis, the descriptive, non-selective and unrestricted nature of the adverbs of intensity. Examples of EkeGusii adverbs of intensity include the following: *pi* ‘totally,’ *mono* ‘so much,’ *kegima* ‘indeed,’ *atambe* ‘quite far,’ and *saana* ‘very,’ among others. The anechoic ideophone *Pyo* [pjo] ‘completely,’ in (m) of Table 29 above, occurs after an adjective, with meanings such as ‘depleted’ or ‘finished.’ Compared to the adverb of intensity *pi* ‘totally’ or ‘completely,’ both the ideophone and the adverb do occur after similar adjectives, serving a similar function, intensification. However, the ideophone cannot select any other lexical category that does not entail ‘finishing to zero.’ On the other hand, the intensifier adverb *pi* ‘completely,’ displays greater semantic freedom, so that it collocates with a wider range of lexical items and clausal structures. There are many examples that display this freedom including, *ekabariri pi* ‘totally red,’ *ekemwamu pi* ‘totally black,’ *ekerabu pi* ‘totally white,’ *ekeroro pi* ‘totally bitter, ekiya pi* ‘totally good,’ *ekebe pi* ‘totally bad,’ and *nakoigure pi* ‘I have totally heard you.’ Interestingly, any other relevant intensifier adverb such as *mono* ‘so much,’ *saana* ‘very much,’ or *kegima* ‘indeed,’ can
effectively replace the intensifier adverb *pi* ‘totally,’ in these examples, so long as context permits. Such freedom is not permissible with anechoic intensifier ideophones. They select for, and are restricted to, particular lexical items. This means, that while they serve functions of intensification, there is no evidence for assuming that they are intensifier adverbs, at least for now. Perhaps, a more sound argument would be that functions of intensification in EkeGusii are handled by intensifier adverbs, and intensifier ideophones, but the latter are collocatively selective, and therefore, limited.

This position deviates from that taken by Bowler and Gluckman (2017) on intensifying ideophones in Luhya languages, where the word *mmo* ‘very’ (which is comparable to EkeGusii *mono* ‘so much,’ both being related Bantu languages) is considered an ideophone, and treated as an intensifier adverb. Bowler and Gluckman leave us at a dilemma, between semantic function and word class. To this end, it appears that ideophones, in EkeGusii, have to remain within their own class, that is, ‘ideophones.’ This argument may not hold for other languages (perhaps Luhya included), as Ameka (2001), as well as Childs (1994), reiterates that ideophones may not belong to the same word class in one, or across other languages. They could even be found in different word classes in the same language. A similar observation has been made by Dingemanse (2011). This means, therefore, that ideophones can only be treated within language-specific parameters.

### 4.3.3.6 The syllable structure of EkeGusii ideophones

From Tables 28 and 29, in sub-sections 4.3.3.3.1 and 4.3.3.3.2 above, EkeGusii ideophones are of four syllable types; monosyllabic (60%), bisyllabic (27%), trisyllabic (4%), and quadrisyllabic (2%). The consonant sequences (geminates) make 7%. As noted, the first two are the major types, while the latter two are minor. Monosyllabic ideophones can be exemplified by (a) *se* ‘very white,’ and (b) *ti* ‘very black,’ in Table 29, and the bisyllabic, by (h) *butu* ‘sound of hitting with a blunt object’ in Table 28,
and (n) *kendi* ‘very cold,’ in Table 29. Trisyllabic ideophones include (c) *burure* ‘very red,’ and (l) *ng’arara* ‘full to the brim,’ and only one quadrisyllabic ideophone in (g) *paragaka* ‘very hard,’ all in Table 29. The echoic consonant sequences such as those in (y) *krrr*, and (z) *ffff*, of Table 28, are unusual sound re-enactments, which can be considered deviations that do not match the syllable patterns of the language. Reduplication gives an impression of polysyllabicity, but the reduplicative stems are either monosyllabic or bisyllabic. The ideophones display the syllable patterns shown in Table 31 below.

*Table 31. The syllable patterns of EkeGusii ideophones*

<table>
<thead>
<tr>
<th>No.</th>
<th>Onset</th>
<th>Rhyme</th>
<th>Example</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>C</td>
<td>V</td>
<td>pa</td>
<td>very hard</td>
</tr>
<tr>
<td>b</td>
<td>C</td>
<td>VV</td>
<td>saaaa</td>
<td>sound of a hissing radio or melting fat</td>
</tr>
<tr>
<td>c</td>
<td>C</td>
<td>VC</td>
<td>kab,kab</td>
<td>sound of animal gobbling food</td>
</tr>
<tr>
<td>d</td>
<td>C</td>
<td>VN</td>
<td>kong</td>
<td>sound of a noisier knock</td>
</tr>
<tr>
<td>e</td>
<td>CC</td>
<td>V</td>
<td>cha</td>
<td>sound of a sudden cut with sharp object</td>
</tr>
<tr>
<td>f</td>
<td>CG</td>
<td>V</td>
<td>pyo</td>
<td>completely finished</td>
</tr>
<tr>
<td>g</td>
<td>CG</td>
<td>VVV</td>
<td>gwaaa</td>
<td>sound of pouring liquid</td>
</tr>
<tr>
<td>h</td>
<td>NC</td>
<td>V</td>
<td>ndi</td>
<td>sound of hitting with a blunt object</td>
</tr>
<tr>
<td>i</td>
<td>NC</td>
<td>VVV</td>
<td>ndiii</td>
<td>sound of buzzing bee</td>
</tr>
<tr>
<td>j</td>
<td>NCG</td>
<td>V</td>
<td>di.mbwi</td>
<td>sound of object falling into water</td>
</tr>
<tr>
<td>k</td>
<td>NG</td>
<td>V</td>
<td>ng’wa</td>
<td>sound of a whip</td>
</tr>
<tr>
<td>l</td>
<td>NG</td>
<td>VVV</td>
<td>nyweee</td>
<td>sound of a smooth ride</td>
</tr>
<tr>
<td>m</td>
<td>CCC</td>
<td>Ø</td>
<td>krrr</td>
<td>sound of a sewing machine</td>
</tr>
</tbody>
</table>
As it will be noted from Table 31 above, a few of these syllable shapes seem to flout the distributional restrictions noted by Nash (2011:45), and those presented in this study, as reviewed in sub-section 2.1. Example (c) ends with a bilabial fricative, (d) ends with a nasal stop, while (m) is a rhymeless consonant sequence, all being in violation of any restrictions. Examples (g), (i) and (l) have extra-long vowels, all in clearer negation of mora trimming, as earlier exemplified in sub-section 2.1. It should be reiterated here, that ideophones show no evidence of delinking of a mora from the final long vowel. Since we treat ideophones as words that are part and parcel of this language, long vowels are, therefore, allowed word finally in EkeGusii. The prohibition of syllables with long vowels in word-final positions is flouted, where again the anticipated mora trimming does not occur. The shapes CGV and NCGV are assumed not to occur word-initially in EkeGusii, but they occur in (f), (i) and (j) with glide formation, yet without the anticipated compensatory lengthening in (f) and (j), as the hampering process remains unclear. Uniquely, the pattern CCC in (m) does not occur in the lexicon. Such non-adherence to the phonotactic rules of EkeGusii can only be explained by the echoic nature of the ideophones, as the syllable sequences are motivated from ‘elsewhere.’ Future research may better explain why certain ideophones seem to override syllabic structure.

The kind of syllabic deviation that has been witnessed in EkeGusii, has also been observed in Ewe by Ameka (2001), where there are found non-canonical CVV and CVN syllable structures, in ideophones such as kpóó ‘quietly,’ glɔmɔɔ ‘crocked, uneven,’ kɛŋ ‘completely,’ and kpaŋ ‘sound of a collision between surfaces.’ On the same note, while studying Siwu, Dingemanse (2011) notes that ideophones show more freedom in terms of syllable structure than ordinary words do. In Siwu, they have more than ordinary words, including CV (open syllable with a long vowel), CVN (the closed syllable in the coda is a nasal), and CV₁V₂ (a diphthong ending in a long vowel), which kind of features have also been noted in EkeGusii. Similar deviations have been noted in Katuena, by Smoll (2014), in which language
there occurs, in ideophones, the acceptance of closed (CVC) syllables, and (CC) syllables. Ideophones, in Katuena also, override syllable structure constraints, perhaps, as speculated by Smoll, due to the sound symbolic nature of ideophones. Further evidence of non-canonical syllable structure can be found in Alto peréné, in a study by Mihas (2012). For instance, the pattern CVC, in the ideophone pok ‘light object hitting a solid surface, is a deviation. Another example is the fortis articulation (gemination), patterned as CVNN, in ideophone tány ‘sensation of a metal object hitting the surface’; a ringing church bell,’ which expresses durativity, comparable to example (m) of Table 31 above, in which the gemination in Krrr expresses the durativity of sewing (see detail in sub-section 4.3.3.7.2).

4.3.3.7 The prosodic features of EkeGusii ideophones

In EkeGusii, it is the echoic ideophones in particular, that show evidence for the iconization of two prosodic features, vowel lengthening, and consonant gemination. The iconization of pitch variations happens in both the echoic and anechoic ideophones, as explained below. Vowel harmony is mentioned in relation to echoic ideophones. Features that are simultaneously iconized are of much interest in our study, as it pursues to explain ‘prosodic simultaneity’, alongside iconicity.

4.3.3.7.1 Vowel lengthening

Vowel lengthening is a contrastive and autonomously spreading feature in EkeGusii, which is functional in ordinary lexical items, as discussed in sub-section 4.3. While other scholars have handled it under expressive morphology (see Dingemanse, 2011; and Childs, 1994), it is viewed as a prosody in our study. In EkeGusii, only a small fraction of echoic ideophones display vowel lengthening. This is witnessed in Table 28 in (u) gwaaa ‘sound of pouring water,’ in (u) nyweee ‘sound of a smooth ride,’ in (w) ndiii ‘sound of a buzzing bee,’ and in (z) saaa ‘sound of melting fat,’ making about 9%.’ However, vowel lengthening here is diagrammatic, being isomorphic of the durative nature of the actions
represented by the ideophones; the pouring of liquids like water, events like experiencing a smooth car ride, noises of insects like bees and beetles, and the melting of fat, or burning of a flammable liquid. It can actually be noted that imagic and gestalt forms of iconicity intersect; the sounds and the structure of the words are both echoic and motivated. The iconic value of vowel lengthening goes beyond the depiction of durativity, to convey the adverbial sense of manner. For instance, water poured from a small and narrow-knecked bottle may not be described by the ideophone gwaaa, since the flow is partially obstructed. So, the water has to be poured from a large and open container, like a bucket. Therefore, the sounds and the lengthening are depictive of a bigger volume of water that can be poured over time, imagically suggested by the sound of the consonant /ɣ/, and gestaltally by the lengthening.

On the other hand, an old and unserviced van or motorcycle may not afford a smooth ride, as implied by the ideophone nyweee. Only an automotive in good condition, plying a good road can give one the experience of a smooth ride depicted by the ideophone. Further, the concept of quantity is also suggested in the ideophone saaa. This is because, a drop of oil or a very small amout of fat, may not melt, or remain flammable, over time, unless it is sufficient to afford the conveyed temporal sense, depicted by lengthening. It should be noted, regardless, that lengthening, like in other languages, is expressive.

According to Dingemanse (2011, p. 138), in Siwu, lengthening only obtains in ideophones, and it is not distinctive in the language in general. Dingemanse examines reduplication and lengthening under expressive morphology, which provides ideophones with a degree of expressive freedom. In the survey of African ideophones, Childs (1994, p. 185) gives examples of lengthening from Kisi, such as fiyü-ú-ú-ú ‘moving rapidly,’ and pukf-é-e ‘sound of rice falling into a fanner,’ in which elongation indicates an iconic extension over time. However, such an example is given alongside reduplicative others, and both are still discussed under morphological processes, quite a different perception of lengthening,
which is herein considered an autonomous prosody. Later on, Childs (1994, p. 193, citing Noss, 1985b, pp. 242-243), gives more examples of lengthening under ‘iconic lengthening,’ from Gbaya. Two relevant examples are \( f_{\text{ee}} \) ‘a breath of air,’ and \( f_{\text{e}e} \) ‘a long breath of air.’ The other examples entail consonant geminates, which, in our study, is considered a separate issue of prosody discussed in the next sub-section.

### 4.3.3.7.2 Consonant gemination

Examples (y) \( krrr/rrr \) ‘sound of a sewing machine’ and (z) \( shhh/ffff \) ‘sound of gas or liquid from a nozzle,’ of Table 28, depict the iconized temporal nature of the activities, by way of consonant gemination, just as vowel lengthening does. In these consonantal ideophones, the only sound-replicative consonants are lengthened to convey the durative nature of the actions. For instance, the gushing of a liquid out of a spray pump nozzle is durative. If the trigger were pressed to release with breaks, the eventful nature of the activity would be represented with spacing to suggest the breaks. Beyond the period of time, consonant gemination also implies the quantitative nature of the job done, either by covering a large area of spray, or by releasing a large quantity of the liquid. The same case of durativity is implied in (y) \( krrr \), where the pricking taps of a sewing machine usually happen over time, and the longer the span of time, the larger the portion of the job is completed. One other aspect that is iconically implied by consonant gemination, in both cases, is the pace or speed at which the actions happen. With a pump, one sprays faster than, say, with a spraying can. With a sewing machine, the pace of sewing is much faster than doing manual stitches. Consonant gemination is, therefore, simultaneously iconized to depict the sound, and the aspects of durativity, speed, and quantity, a very rich kind of gestalt iconicity.
Consonant gemination is also attestable in Katuena, where speakers use it to express duration, speed, and accuracy in the distribution of information about an event. One of the examples presented by Smoll (2014, p. 48) is the ideophone *Tʃitowi::::::, whose lengthened alveopalatal fricative (judging from the quality of sound) depicts ‘rain falling over a long time.’ Smoll confirms that, the same ideophone, without the final consonant gemination, would represent rain falling for a shorter period of time. It should be noted that, just as in EkeGusii, consonant sequences do not occur in Katuena. In both languages, they only occur in ideophones to serve iconic functions as discussed.

4.3.3.7.3 Pitch

A spectrographic analysis to ascertain the correct the pitch patterns for EkeGusii ideophones was conducted. It was realized that all the initial native-speaker impressions of the pitch variations were utterly wrong. Precisely, out of all the 45 ideophones (both echoic and anechoic in Tables 28 and 29), 40 had significantly falling pitches, comprising a whooping 88%. Specifically, of the echoic ideophones in Table 28, only examples (h) *butu* ‘sound of hitting with a blunt object,’ and (j) *dimbwi* ‘sound of an immersion dive into a pool of water,’ had rising pitches. Examples (y) *krrr/rrr* and (z) *shhh/ffff*, turned out pitchless, obviously due to the lack of vowels, which are the tone bearing units. On the other hand, from Table 29, except the ideophone *pyo* ‘completely finished’ which shows a rising pitch, all the rest of the anechoic ideophones displayed a consistent picture of falling pitches throughout the list. The overall impression, therefore, is that EkeGusii ideophones are low-pitched. Quite rarely do ideophones get to be high pitched. Like in other languages, EkeGusii ideophones are prosodically foregrounded, with pitches falling much lower than do the falling pitches of ordinary words. Figure 57 below shows the falling pitch tracks for the first four echoic ideophones in Table 28 (a-d), to exemplify this position. For the purpose of ascertaining the correct pitch patterns, the ideophones were contextualized, so that the ideophones were preceded such utterances as *tokagenda etege tege tege* ‘we
went + IDEO,’ *akamoaka ng’a da! da! da!’ ‘he hit kicked him like + IDEO,’ *chikominyoka ekurukuruku* ‘they are running + IDEO,’ and *ogwoka epapapapa* ‘it is burning + IDEO.’ The pitch traces for the ideophones are therefore the last four for (a-c), and the last five for (d), where the first falling pitch is that of the quotative form, which ushers in the subsequent drops for the ideophones. Equally, for Figure 58, the anechoic ideophones have been contextualized as follows: *geichire ng’a ‘full +IDEO,’ keerete pyo ‘finished+ IDEO,’ egekendu kendi ‘cold+ IDEO,’ bibuekaine ng’a tara ‘alike as+IDEO,’ bimagaine nga ka ‘symmetrical as +IDEO,’ and *ekerabu se ‘white+ IDEO.’

![Image](image.png)

**Figure 57. Pitch traces for the echoic ideophones (a-d) of Table 28 (tege tege tege, da da da, kurukuruku, papapapa)**

Figure 58 below, shows the pitch tracks for six anechoic ideophones from Table 29, (k) and (m-r), also preceded by the lexical items (the adjectives) that they select for, to contextualize the ideophones as explained above. Though the pitch values of the lexical items tend to rise as shown, the last parts of the pitchtracks for the ideophones are falling as shown (except for the second ideophone with a rising pitch), ignoring the erroneous jumps in two cases. The dropping final pitches for each ideophones are clear. The consistent pitch drops lead us to the conclusion that EkeGusii ideophones are, like in other languages, prosodically foregrounded, mainly by falling pitches.
Figure 58. Pitch traces for the anechoic ideophones (k, m-q) of Table 29. (ng’a, pyo, kendi, tara, ka, se)

It may be speculated that the falling pitches of most of the ideophones in EkeGusii are iconized, since they convey absolute meaning impressions. However, why, if at all they are iconized as it seems, is better handled in a future research. For the falling pitches of the echoic ideophones displayed in Figure 57 above, it looks plausible to hypothesize that the pitches fall iconically alongside the iconic reduplication, which also co-occurs with lengthening. Iconic prosodies and morphology are also contemporaneous in ideophones.

Mihas (2012) exemplifies expressive prosody in Alto Perené, an Amazonian Arawak language. In this language, before and after the enunciation of the ideophone, there is a pause. During the performance of the ideophone, the pitch rises markedly, going way above the pitches of ordinary lexical items. This pitch rising is spectrographically exemplified in the ideophone mamporik, which means ‘sensation of the bursting thread.’ Such prosodic foregrounding is comparable to the marked pitch drops noted in EkeGusii ideophones. Prosodic foregrounding is a cross-linguistic feature of ideophones also noted by Dingemanse (2011).
4.3.3.7.4 Vowel harmony

Vowel harmony in EkeGusii ideophones may not be discussed in much detail, mainly because only a small number of the echoic ideophones give us evidence for it. From Table 28, the ideophones (e-)tege tege, tege [ε-teɣε teɣε teɣε] ‘sound of footsteps taken over a long time,’ (e-)kong’ kong’ [ε-kɔŋkɔŋ] ‘sound of a light knock with an object,’ and (e-)tony tony [ε-tɔɲ tɔɲ] ‘sound of rain drops or dripping liquid’ and (e)chogo [ɛtʃɔɣɔ] ‘sound of a sharp object piercing a soft target,’ all reflect aperture vowel harmony across the board. This is true of the anechoic ideophone se [sɛ] ‘very white,’ only if it is reduplicated as in [sɛ sɛ sɛ]. These ideophones obey the lower mid vowel harmony. Since EkeGusii is sensitive to height harmony as noted in sections 2.5.4 and 4.3, it is also not flouted in ideophones. To show obedience to upper mid vowel harmony, we may appeal to use another ideophone, not captured in our study, bereberebere [bɛɾeɾeɾeɾeɾe], which is diagrammatically imitative of people that talk endlessly. Since vowel harmony may not be explained as an iconic feature, we leave it at this point.

4.3.3.8 Morphological processes in EkeGusii ideophones

The EkeGusii ideophones studied in this research display two limited morphological processes, including reduplication, and compounding, briefly highlighted in turns, in the following sub-sections.

4.3.3.8.1 Reduplication

Ideophones are generally noted to be displaying little morphology (Childs, 1994; Ameka, 2001; Dingemanse, 2011; Bowler & Gluckman, 2017). In EkeGusii ideophones, reduplication could be the most productive morphological process, as it is not limited to particular ideophones. From Table 28, examples (a-g) display full reduplication, that is, the entire part is replicated to convey recurrence or continuity of the action. Interestingly, most of the ideophones in Table 28 can be reduplicated,
depending on contextual demands. For instance, the ideophone in (m) can be used as a reduplicant as follows.

\[ o \quad mo-aka \quad chindoe \quad ing’a \quad tara \quad tara \]

3Ssub-obj-hit \quad N (plural) \quad as \quad IDEO \quad IDEO

He him hit \quad slaps \quad as \quad tara tara

‘He slapped him as tara tara’

The use of the reduplicated ideophone is iconically relevant in the sense that it is implying two forms of iconicity, imagic and gestal. In the sense of imagic iconicity, the ideophone is echoic of the sound of slapping someone, whereas in the sense of gestalt, the ideophone is structured in two separate parts, being depictive of two events of slapping, and the span of time between one slap event and another. Speakers may actually increase the ideophone towards triplication or quadruplication, to imply more slap events, and not necessarily the accuracy of the number. Nevertheless, the extent of reduplication reflects the extent of recurrence of the event. Even more, the pace of utterance of the reduplicated ideophone is depictive also, of the the pace of the event; the quicker the slapping, the faster the rate of utterance. Generally, there are iconic mappings between the ideophone and the occurrence of the event, ranging from sound, extent of recurrence, and the rapidity. It should be noted that speakers can form new ideophones and reduplicate the parts, as may be contextually sanctioned, varying from individual, and context to another. For instance, another speaker may perceive the slaps as sounding as pa pa pa, therefore replicating example (r) in Table 28. As explained under section 4.3.3.3.1 above, the nature of reduplication maps the nature of the activity.

It has already been noted that even anechoic ideophones can reduplicate or triplicate, in examples such as \[ se \ se \ se \ [sɛ \ sɛ \ sɛ] \], to imply intensified whiteness, or even clarity (see section 4.3.3.3.2). It is only in example (j) of Table 29 above, where the ideophone \[ ng’arara \] ‘full to the brim,’ shows partial
reduplication in anechoic ideophones, where the reduplicated part implies a ‘beyond standards’ concept, of a container being filled. This can be contextualized as shown below.

\[
\begin{array}{cccc}
  a & -icho & -ir & -e & ng’arara \\
  \text{sub} & -full & -pres perf & -fv & + IDEO \\
\end{array}
\]

‘It has filled to the brim’

Dingemanse (2011, citing Zwicky & Pullum, 1987), notes that ideophones are susceptible to playful word formation processes, including reduplication, and lengthening, which concepts he describes as expressive morphology. In Siwu, Dingemanse observes, there is a resemblance between word structure and the structure of the perceived event. In the same vein, Bowler and Gluckman (2017) have noted, that reduplication and triplication express intensity in Luhya. In the languages in which degree intensifier ideophones are examined, they assert that the degree to which the gradable adjective holds exceeds the contextual standard. This is minimally found in EkeGusii, as argued above, in the ideophone ng’arara ‘filled to the brim.’ Mihas (2012) explores many examples of reduplication, which involve copying of the word-final CV segment of the ideophonic form in Alto peréné. Childs (1994), also notes that reduplication affects stems, and partials, or copies prosodic features. Further cross-linguistic evidence is found in Smoll (2014), who gives many examples of reduplication in Katuena, featuring inherent reduplication, partial reduplication, and expressive reiteration.

4.3.3.8.2 Compounding

This is a limited process, which appears to involve word formation. A more detailed discussion on this topic may be attained in a future investigation, since even the first parts of the compound ideophones handled in this section, do not appear in the two Tables, 28 and 29 above. In compounding, two ideophones are combined to form a compound ideophone. Compounds result in ideophones of movement. One example is nchiii…ka, which describes the movement of an insect that flies and rests
on flat surface such as a plate. The first part, nchiii…, is imitative of the buzzing during the flight, with the lengthened vowels depicting the durative aspect of the movement. The second part, ka!, is echoic of the sound made on the final stop. While the compound noun has mappings of imagic iconicity, the structure reflects gestalt iconicity. Such compounds are more common with a younger age of speakers.

A second example is chuguchugu…mo, which depicts a light piece of wood hurled through the air before it finally lands on a target. The first part, chuguchugu…, depicts the air-displacive sounds made during its movement, while, the second part, mo, depicts the sound of hitting the target. A third example, nyweee…ka!, relates to a smooth ride as shown in example (v) of Table 28. If someone drives, or rides, towards the speaker and halts at a position near him or her, they may express the action as in e-nyweee…ka! The first part, nyweee…, depicts the smooth ride or drive, and the second part, ka, depicts the stylish halt, at the destination. This can be contextualized as follows.

```
Nigo a -cha e-nyweee…ka!
Foc 3Ssub -PERF (come) Quot+IDEO….+ IDEO!
Did he come compound IDEO!

‘He did come as in IDEO….IDEO!’
```

Generally, EkeGusii ideophones are morphologically limited, as noted at the beginning of this subsection. It is full reduplication, and compounding, that seem to be working with ideophones. The evidence available for partial reduplication in ideophones is limited as discussed above. Therefore, of the three processes, compounding is least productive. Derivation has not been addressed here, since a related concept was addressed in 4.3.3.4, where nouns and infinitives were shown to be related to ideophones in the sense of derivation, with directionality remaining undefined. Related ideas are presented in sub-section 4.3.3.9.2 below.
Smoll (2014, p. 56) explores examples of ideophone compounds in Katuena, where both parts of the compound are iconized. One of the examples given is the ideophone ɸuʔɗow, which depicts the dropping of something. The first part, derived from ɸuŋ, implies the movement of something through air, while the part dow implies the impact of something upon another. Smoll emphasizes that ɸuŋ actually appears in many ideophones of movement. These iconic mappings are closely comparable to the compound ideophones discussed in EkeGusii, though most of them are diminishing from current use among the speakers.

4.3.3.9 The Syntax of EkeGusii ideophones

As noted at the beginning of this sub-section, it is no easy task placing EkeGusii ideophones as adverbs, exclamatives, or as sheer ideophones. Though they seem to have limited syntactic functions, they co-occur with a quotative form, function narrowly as subject noun phrases in rare constructions, as adverbial categories, which function seems to be their major one, and sometimes, as clausal exclamatives. They also limitedly appear as own sentences, and as context-dependent gesture collocates. The six functions that were established from this research are highlighted below.

4.3.3.9.1 Co-occurrence with a quotative form

This process can be considered to be a kind of collocation, in which quotative forms syntactically precede, and co-occur with most ideophones, save for one particle, e-. At least, all echoic ideophones in Table 28 are usually preceded by a demonstrational quotative form. Only two anechoic intensifier ideophones, examples (o) tara ‘very alike,’ and (p) ka ‘quite symmetrical,’ co-occur with a quotative form (see Table 29 above). The quotative form in EkeGusii may be termed trimorphic, since it is varied in three ways, as ing’a /iŋa/, or buna /buna/ (contracte as ‘na), or as a marker e-. In whatever variant, the quotative form carries the meaning ‘how’ or ‘as,’ and the impression ‘the,’ since it pre-modifies the
ideophone with an adverbial impression, or at times, a nominal meaning. The sentences below demonstrate how the introductory quotative form may alternate.

\[
\text{nigo amoaka epa!}
\]

\[
\text{nigo a- mo- ak- a e pa!}
\]

\[
\begin{array}{c|c|c|c|c|c}
\text{foc} & \text{sub} & \text{obj} & \text{hit} & \text{FV} & \text{Quot IDEO}
\end{array}
\]

‘He did hit him like IDEO!’

\[
\text{Or}
\]

\[
\text{nigo a- mo- ak- a ing’a/buna/na pa!}
\]

\[
\begin{array}{c|c|c|c|c|c}
\text{foc} & \text{sub} & \text{obj} & \text{hit} & \text{FV} & \text{Quot IDEO}
\end{array}
\]

‘He hit him like pa!’

This quotative marker, \(e\)-, can turn the ideophone into a noun phrase category that functions both in the subject and object positions in a sentence. Illustrations are given in sub-section 4.3.3.9.2 below.

It appears that the quotative form is an optional element, across languages. For instance, Ameka (2001) observes that there are no quotative forms in Ewe. He also cites Nuckolls (1994), who equally notes that there are no quotative forms in Pastaza Quechua. However, Ameka cites other languages, such as Kana (Nigeria), in which the quotative form \(dòò\) ‘do like,’ introduces ideophonic adjectives, nouns and adverbs. Childs (1994), gives \(thi\) ‘do,’ as a quotative form that introduces ideophones in Zulu. Childs further emphasizes that ideophones are often introduced by a dummy verb with meanings such as ‘do,’ ‘say,’ ‘quotes,’ or ‘think.’ Quoting other sources, Childs (1994, p. 187) gives more examples, including \(ŋin\) ‘say, think,’ in Kanuri, \(waka\) ‘only,’ and \(ti\) ‘V[erb]’ in Chitumbuka, \(yi\) ‘do, make’ in Hausa, \(mba\) ‘he said, quote’ in ShiNzwani, and in Yag Dii, \(mbàà\) ‘sit, is,’ \(moo\) ‘speak,’ and \(kÔ\) ‘do.’
4.3.3.9.2 Noun phrase categories

In this section, we are addressing a special form of derivation, illustrating the grammatical class of the derived lexical item as a noun phrase, in a sentence context. This derivation may be termed special, because the quotative form e- is a collocate of the majority of ideophones, which it turns into noun phrase categories, as already indicated in sub-section 4.3.3.9.1 above. The resultant noun phrase category occupies the subject and object positions in a sentence. For instance, example (c) kurukurukuru, and (e), ekong, from Table 28 above, can function as noun phrases, as illustrated below.

i) \( Na-igu-r-e \quad e-kurukurukuru \)
\[ \text{I -hear-PF-FV} \quad \text{Quot-IDEO (noun)} \]
\[ \text{‘I have heard} \quad \text{NOM IDEO’} \]

ii) \( Na-igu-r-e \quad e-kong. \quad e-kong \quad ne-yaki? \)
\[ \text{Sub- hear [PF]-FV} \quad \text{Quot+IDEO[kəŋ]} \quad \text{Quot+IDEO [kəŋ]} \quad \text{Foc + why} \]
\[ \text{‘I have heard a nock.’} \quad \text{‘Why the knock?’} \]

In example (i), the ideophone functions as an objective ideophonic noun. In example (ii), the first nominalized ideophone functions as an object, while the second nominalized ideophone functions as a subject of the sentence. As noted, the quotative marker behaves like the augment that is usually prefixed to ordinary nouns, as in \( e-kemoni \) ‘cat,’ \( e-kea\text{fuso} \) ‘broom,’ and \( e-ngombe \) ‘cow.’ The attaching behaviour of the quotative marker makes us speculate that the whole process may be explained as cliticization. The phonological features of the supposed ‘clitic’ that explain its reliance on the host ideophone are beyond the scope of the present study. Otherwise, this morphemic variant of the quotative forms is considered a variant of those discussed in sub-section 4.3.3.9.1 above.
Following Adger (2002), it may be argued that this quotative marker carries with it, uninterpretable nominal categorial selection features, which ensure that it subcategorizes for a feature N (noun particle), so that the attachment of the ideophone lets them delete before the semantic selection features apply, to give it the nominal meaning of ‘a nock,’ and not the verbal meaning of ‘knock’. However, this is better left for a future investigation, as it stretches beyond our scope and objectives.

While ideophones are cross-linguistically considered to occur peripherally in sentences (see Mihas, 2012; Dingemanse, 2011; Ameka, 2001; Childs, 1994), the second ideophone in the example above comes at the sentence-initial position in EkeGusii. However, this is because the word in question is an ideophonic noun. Otherwise, the peripheral nature of ideophones still remains relevant to a large extent. It needs no emphasis, for the mimetic nature of the ideophonic noun to be clarified; the sounds of the ideophone are transparently imitatative of the sound of knocking, as their structure strikes a gestalt moment.

4.3.3.9.3 Adverbial categories

The major syntactic function of EkeGusii ideophones is adverbial. While any of the echoic ideophones can be used to convey the sense of manner, ‘how,’ all the anechoic ideophones serve the adverbial function of intensification. As discussed, in sub-section 4.3.3.9.1 above, the quotative form (mainly co-occurring with echoic ideophones) ascribes to the collocating ideophone, adverbial features. The quotative form functions as a demonstrative, which, together with the ideophone, form a determiner phrase (DP) of manner, whose semantic function is adverbial, or forms an adverbial complex.

\[o\text{-}kong^\prime\text{onta} \quad \text{ing}^\prime \text{a} \quad \text{kong}^\prime.\]

\[3S\text{sub+k} \quad \text{Quot} \quad \text{IDEO}[k\text{ɔn}]\]

‘S/He knocked like IDEO’
Another example that can be used to illustrate this syntactic function of ideophones is the reduplicant in example (a), *tegetegetege*, from Table 28, as shown below.

\[
\text{Twa } \text{-genda } e \text{-tege tege tege}
\]

\[
\text{1Psub go [PAST]} \quad \text{Quot+ IDEO [tεɣε tεɣε tεɣε]}
\]

‘We went like IDEO’

This demonstrative ideophone depicts the manner of the walking, and further, the durative aspect of the walk, and the distance covered, all implied by its reduplicative pattern. The alternative use of the quotative form \{e-\} instead of *ing’a* in the second example above, reveals that either of the two variants of the quotative form forms a constituent with the demonstrative ideophone, but not with a possible other adverb such as *bwango* ‘quickly,’ which can be introduced to precede the resultant A bar category (from the quotative form and the ideophone) as shown in Figure 59 below.

![Figure 59. Syntactic representation of adverbial categories](image)

Mose (2010) has extensively examined the structure of the EkeGusii determiner phrase (which of course does not include such a structure) showing its complexity, but whether this complex is a DP to which an adverb merges, or adverb phrase within another, can only be addressed outside of this study.

As noted already, under section 4.3.3.3.2, intensification in anechoic ideophones is achieved by partial reduplication as in *ng’arara* ‘full to the brim’, full reduplication as in *pa pa pa* ‘very, very hard,’
cacophonous sequencing of sounds as in *paragaka* ‘very, very hard,’ and by one hitherto unmentioned process, ablaut motivated reduplication, occasioned by a kind of vowel antiphony, where a vowel is substituted for another. This form of reduplication is motivated between the intensified adjective or infinitive, and the intensifier ideophone, so that it becomes clear when the two are examined together. In the phrases *ekobariri burure* ‘very very red,’ and *ogokira kiri* ‘to be very quiet,’ the intensifier ideophones *burure* and *kiri* show the modification of the vowels, so that those in the ideophone are different from those in the modified adjective or infinitive. The same process works in *egekendo kendi* ‘very very red,’ where the ideophone has modified the final vowel in the adjective. It can, therefore, be argued that that such ideophones attempt to be reduplicative of their collocate adjectives, or infinitive, but they modify elements within the copy. By such modification, they depict the degree of the quality, or state, implied. Their iconic function is, therefore, discernible, or perceptible, to the native speaker. it will be remembered that this was referred to as ‘associative sensory iconicity,’ a kind of indirect iconicity, in sub-section 4.3.3.3.2.

Brdar (2013) avails a rich cross-linguistic examination of reduplications that modify consonant or vowel elements within adjectives, which examples are comparable to the scenario found in EkeGusii. Some of the examples given by Brdar include *teeny-weeny* ‘very small,’ from English; *herky-jerky* ‘spasmodic, irregular, unpredictable,’ from Australian English; *tanda-manda* ‘confused, disorganized,’ from Romanian; *tip-top* ‘excellent,’ and *teeny-tiny* ‘very small,’ from English, *rissz-rossz* ‘very bad,’ and *fidres-fodros* ‘very much curly,’ from Hungarian. It is evident, from Brdar’s illustrations, that such forms of iconicity are attestable across languages.
4.3.3.9.4 Exclamative clauses

Only echoic ideophones may stand as clauses preceding other dependent clauses, to function as exclamatives. Below is an example of an echoic ideophone, used in a narrative context, where it functions exclamatively to convey the shock accompanied by an action, such as slapping.

\[
\begin{align*}
Pa! & \quad -ka \quad -mo \quad -rut \quad -a \quad 'nse \\
IDEO! & \quad \text{Sub-} \quad \text{PAST} \quad \text{obj} \quad V \quad Fv \quad \text{Adv (place)} \\
IDEO! & \quad \text{he} \quad \text{PAST} \quad \text{him} \quad \text{throw} \quad Fv \quad \text{down} \\
\end{align*}
\]

‘IDEO! He knocked him down’

Any speaker of the language can decode pronto, from context, that the narrator is using the ideophone to convey complete clausal meaning, achieved by the demostrative and imitative nature of the ideophone, which invites the listener to ‘hear for himself’ the shocking force of the slap, and the shocking effect, that the victim fell down. The ideophone can be said to be cumulatively depicting the slap by sound imitation, re-enacting the manner of the slapping, and conveying the shock of the slap which floors the victim. Our present focus on the ideophone is the shock that it conveys, achieved in its clausal status, hence its function as a clausal exclamative. Otherwise, the depictive functions of ideophone may be considered synchronized, striking imagic iconicity in sound imitation, and gestalt iconicity, as the ideophone is depictive of the singularity of the action.

Turning to anechoic intensifier ideophones, it turns out that it is to a lesser degree that they may entail the exclamative impressions found in echoic ideophones. They, too, may express surprises when they function as responses to felicitous questions. In that case, their meanings are contextually bound, so much that they may not be understood if de-contextualized. Therefore, they may be termed to be anaphoric responses. This may be exemplified in the questions-response string below.
Question | Response
--- | ---
*Nekera*bu kere? | *Se!*
‘Is it clean?’ | ‘IDEO’

The response above may be viewed as an anaphoric matrix that entails an exclamative sentence tailored as a one word response to confirm the asker’s enquiry.

### 4.3.3.9.5 Matrix clauses

Clausal ideophones are sometimes contextually elevated to full sentential status, so that they can convey complete grammatical meaning on their own. As in clausal exclamatives in section 4.3.3.9.4 above, sentential ideophones appear in narrative contexts. The following example illustrates such sentential usage of the echoic ideophone *kung* ‘sound of a dull knock,’ in example (i) of Table 28 above.

\[
\text{Nigo 'ntegererete nyomba. Kung! Kongosoka, onde taiyo.}
\]

(I was in the house, rested. IDEO!). As I moved out, I wouldn’t see anybody)

‘I was rested in the house, when something went *Kung!* However, on moving out, there was nobody to be seen’

The ideophone carries complete grammatical weight with an inherent (null) subject, predicate, and object, and the very echoic adverbial sense of the ideophone. The clausal exclamative function and the matrix functions are related, except that in the latter, the ideophone attains greater syntactic independence, as well as an ordinary sentence does.

### 4.3.3.9.6 Gesture collocates

Dingemanse (2011) groups gestures into four types; deictives, emblems, depictive gestures, and beats. Deictive gestures are pointers that indicate concrete or imaginary objects or people, while emblems are
are highly contextualized gestures with lexicalized meaning, such as joining index and thumb fingers to convey approval. Depictive gestures depict aspects of the same scene that speech also does, and beats are movements without discernible meaning.

Relying on discussions with informants, and native-speaker experience, only depictive gestures, and beats, seem attestable in EkeGusii. The first point to be addressed is how many ideophones can actually be accompanied with gestures in EkeGusii. Appealing to native-speaker experience again, it is in about ten of the data available (both echoic and anechoic ideophones in Tables 28 and 29 above), that it looks practical to have gestures accompanying the ideophones. The echoic ideophones include *papapapa* ‘sound of huge fire flames,’ *kong kong* ‘sound of light knock,’ *ng’wa* ‘sound of a whip with a stick, or quick, sharp cut,’ *chogo* ‘sound of sharp object piercing a soft target,’ *pa* ‘sound of a hit with a flat object,’ and *dwa* ‘sound of an explosion.’ The anechoic ideophones include *pyo* ‘completely depleted,’ *cha(bi)* or *ng’a,* both of which mean ‘full (to the brim),’ and *ng’arara* ‘full to the brim (about to spill over).’ Out of 45 ideophones, this makes about 22%. Of the other ideophones left, 78%, it practically looks less appealing, or unnatural, if one could have gestures co-occurring with them. However, these percentages are not cast in stone, though it is not common for speakers to use ideophones and accompany them with gestures. Of course, when a situation is ‘very hard or difficult,’ speakers may make certain head or hand movements, which may co-occur with the anechoic ideophones *ma* and *pa,* to imply ‘very tight, hard or difficult,’ but this is not so much as pronounced in the language. So, the general impression is, that gestures minimally co-occur with ideophones in EkeGusii, but in those cases where they do, gestures and ideophones, are potential collocates.

So, what actually happens when ideophones co-occur with gestures? When the anechoic ideophone *chabi* ‘full to the brim’ is used, a speaker may beat the hand downwards in the air, to depict and clarify
the fullness. The same happens with the ideophone ng’a, which has the same meaning. However, in the related and reduplicative ng’arara, the speaker may wave the hand horizontally in the air to depict fullness that threatens to spill over. When the anechoic ideophone pyo ‘completely depleted’ is used, a speaker usually brushes the palms once, to depict and emphasize the depletion. Alternatively, a speaker may sweep the index finger across rounded lips to depict total depletion. This gesture can communicate alone, especially if the speaker and addressee are so far apart that the signer may not prefer to shout, or voice may not be heard. These two are common in non-narrative contexts. If a speaker uses the ideophone chogo ‘sound of a sharp object penetrating a soft target,’ he or she may raise the hand and drive an imaginary object, like a spear, into an imaginary body, especially in a narrative context. Still in narrative contexts, when a speaker uses the echoic ideophone papapapa ‘sound of fire flames,’ the speaker may raise both hands and quaver, or tremble the fingers, in quick motions that imitate fire flames. With the ideophone kong kong, the speaker may fold the index finger and imitate an imaginary knock. Further, a speaker may wave the hand to depict an imaginary slap accompanying the depictive role of the ideophone pa, and snap the thumb and index fingers in collocation with the ideophone dwa, to depict an explosion. In the use of the ideophone ng’wa ‘sound of cutting with a sharp object,’ as, the ideophone is likely to be an accompaniment of the throat-cutting gesture, which carries the core meaning, augmented by the ideophone, as explained below. The small number of ideophones co-occurring with gestures, paints a picture, opposite to our expectations, that gestures always accompany ideophones.

EkeGusii ideophones are displayed as contextually dependent, but syntactically independent; the meaning the ideophone depicts is clarified by context. On the other hand, gestures, sometimes, can communicate complete meaning on their own, but some ideophones may not, in certain contexts. The ideophones end up depending on the gestures for their meanings to be understood. More precisely, the
gestures and the ideophones carry similar meanings, so that the two are used as collocates. However, in other cases (such as in the example below), the ideophone may clarify, or emphasize, the meaning conveyed by the gesture. In other contexts, the opposite of this may be true. This is a more complicated function of EkeGusii ideophones, which may roughly be illustrated in the following construction.

*Ochiese?* [throat cutting gesture] + *ng’wa!* [ŋua]

If you joke around? [throat cutting gesture] + IDEO

‘If you joke around? *Gesture + IDEO* = ‘I will kill you’

The gesture will be performed by the use of the hand, or the index finger, squiggled across the neck, to demonstrate the act of cutting off one’s throat, which can sufficiently be used on its own, to pass the message of a murder threat. However, if the ideophone is used alone, it may not be understood. So in this case, it is the ideophone that accompanies the gesture, to clarify it.

On the examination of ideophones in Ewe, Dingemanse (2011) finds that up to 62% do not co-occur with gestures, thereby casting doubt on the validity of the argument that gesture almost always accompanies the ideophone. While the percentages of synchrony between ideophones and gestures in EkeGusii may not be accurate, the impression of limited synchrony between the two is overall reliable. Dingemanse, further observes, that it is depictive gestures that are most prevalent in Siwu. Dingemanse, therefore, conjectures as follows: “If a communicative move features both a depictive gesture and an ideophone, the two will tend to be synchronized.” (2011, p. 350). That means, only when the two are present, will they tend to be synchronized. Otherwise, data from EkeGusii gives additional evidence to the point that it may not be assumed that gestures always co-occur with ideophones.
4.3.4 The circumlocutous nature of ideophones and onomatopes in EkeGusii

This section discusses the periphrastic nature of sound symbolism in EkeGusii. This is a roundabout, or circumlocutory character of the language, in which related echoic ideophones and/or onomatopes are built on different roots, which, however, are echoic of the the same concept. These ideophones and onomatopoeic nouns, or infinitives, would be expected to be related in the sense of derivation (regardless of direction), but they are not. Instead, each word is imitative of the same idea in a different way, by selecting and re-enacting a different set of sounds.

An example of this situation can be demonstrated by the onomatopoeic infinitive *ogo-koga* [ɔɣɔkoɣa] and the ideophone *gwogwo* [ɣuɣu]. It turns out that the root of the infinitive is echoic of noise made a dog, while the reduplicative ideophone is equally echoic of the barking sound of a dog. Both onomatemes in the two words are echoic of sounds made by the animal, but the imitative parts re-enact different sounds of barking, thereby passing for different words. This goes against expected derivation where ideophones and onomatopoeic words are related as in the infinitive *ogosinyora* [ogosiɲɔɾa] ‘to urinate,’ the noun *amasinyoro* [amasiɲɔɾɔ] ‘urine,’ and the ideophone *nyorrrr* [ɲɔɾɾɾ] ‘sound of urination,’ in which it can be speculated that the infinitive and the noun are derived from the ideophone, since they are built on the same onomatopoeic or ideophonic root, and they depict the same concept, as explained in section 4.3.3.4 above. When the language deviates from this kind of picture, but goes ahead to present depictively related onomatopes and ideophones differently as shown, we consider this to be a form of circumlocution. This may be described as echoic-base synonymy, where the language may present one lexical item as a verb, another as a noun, and possibly, another as an ideophone, yet all are imitative of the same concept, built on different onomatopoeic roots. The language affords a kind of imitative tautology.
This circumlocutional behaviour of EkeGusii is further evidenced in the examples below, in which the eight sentences present eighteen words (a-h) in bold, to substantiate our claims around circumlocution. The echoic bases or stems in boldface do not appear in the glosses, because iconicity is lost with translation or glossing, except in example (f), in which there is an echoic equivalent of a rooster’

a)  *Esese eyio nigo egokoga ng’a gwogwo*
   
   ‘That dog barks like IDEO’

b)  *Esese yarorire omonto nigo ekoronya ng’a mmhhh*
   
   ‘A dog that has seen someone roars like IDEO’

c)  *Riruma riabugire ng’a kurrrr kwokwo*
   
   ‘A dove has cried like IDEO + IDEO’

d)  *Riruma riorosana riabugire ng’a kuuu kurrre*
   
   ‘A wild dove has cried like IDEO + IDEO’

e)  *Nigo ainyiamba risuri nga mbuu*
   
   ‘He broke the wind with a fart like IDEO’

f)  *Etuoni enke nigo ekwegogia, enene yabuga ng’a turugunkuu*
   
   ‘The cry of a young rooster is ‘okwegogia’, a mature one cries as kɔkʌduːdluː: (IDEO)

g)  *Engoko nigo ekobuga ng’a kwokwo*
   
   ‘A hen makes the sound IDEO’

h)  *Ekerasi ekio nigo giateka ng’a karr*
   
   ‘The glass broke with a noise IDEO’

Using the words appearing in sentence (e) for illustration, it can be noticed that there are three words in bold face that may be termed ideophonic, all referring to the taboo concept of breaking wind. In line with the explanations given earlier under sub-sections 4.3.2.3, and 4.3.3.3.1, the words in sentence (e)
can be accounted for within implicit onomatopoeia. The verbal *ainyiamba* [aiɲiamba] ‘he broke the wind’ has the continuant alveo-palatal nasal [ɲ] and the complex bilabial [mb], which are imitative of the sounds of the act, by suggesting the strenuous outbreak of air via the anal orifice. The nominal form *risuri* [risuri] (fart), has the alveolar fricative [s] with the vowel [u], and the alveolar flap [ɾ], which are, also, imitative of another variety of sounds related the same act. The adverbial ideophone at the end again combines the bilabial complex [mb], with the long vowel sound [u:], which is both echoic and depictive of the durative nature of the act. This exemplifies both imagic and gestalt iconicity.

In (b), the verbal word *okoronya* (to roar), and the adverbial sounds *mhhh*, are both imitative of the roaring of an animal, such as a dog. In both (c) and (d), the noun *riruma* (dove) has echoic sounds in the root, and the ideophonic adverbs simulate the variant sounds of the home dove and the wild dove. Dofs (2008) presents the same sounds for English as [ku:], and for Swedish as [u:hu:u:hu:]. This further exemplifies the universality of ideophonicity. In (f), a young rooster is said to *kwegogia* [kɥɛɣɔɣia], that is ‘to rehearse to crow,’ while the crow of a mature rooster produces the explicit onomatopoes *turugunkuu*, which also appears in English as [kʊkʌdu:dldu:], and in Swedish as [kʊɛkɛlikʊ] (Dofs 2008, p. 13). Childs (1994, p. 189) gives an example in Japanese as *kokoko*, as *kukuriku* in Hebrew, and *kukuluukuu* in Kisi. The universality of ideophonicity is therefore, further evidenced. In (g), derivation with slight modification can be speculated, since the noun *engoko* ‘hen,’ and the ideophone *kwokwo*, sound closely echoic of similar sounds. Probably, the noun is derived from the ideophone. In example (h), the infinitive *ogwateka* has already been explained, in section 4.3.2.2, as using the plosive /t/ and /k/ to depict the breaking, while the ideophone has used the velar plosive /k/ at the initial position, and proceeded to use a recurrent flap /ɾ/, which may vary from speaker, and situation, to another, being an implicit ideophone.
Though to a limited extent, there is evidence that in certain ideophones and other onomatopoeic words, EkeGusii disprefers derivation, but relies on circuitous re-enactment of sounds, to form ideophonic (echoic) words around a concept. With affixation, the echoic bases lead us to the different word classes. This portrays an exploratory character of the language when we study the formation of echoic words.
CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

This study purposed to explain the interaction between concurrent variation of prosodic features and meaning in EkeGusii. It also aimed to demonstrate that there are iconic mappings between the variation of prosodies, such as vowel harmony, pitch variation, vowel lengthening, resonance, and accent, and the meanings of the words in which these features apply. Further, the study undertook to assess the relationship holding between word sounds and word meaning, with a view to ascertaining that word sounds are depictive, especially in phonaesthemes, onomatopoeia, and ideophones. The following is a summary of the findings.

The first objective of this study was to assess the interaction between simultaneous variation of prosodic features and meaning in EkeGusii. This was guided by a realization that, though previous research had concluded that EkeGusii contrasts words by the isolated use of features like tone and vowel lengthening, these features are better explained as instances of co-articulation, as argued in section 4.1. It was established that in several lexical items in two major word classes, nouns and infinitives, tone, vowel lengthening, and harmonized vowel height, are concurrently contrastive. No feature plays this role underlyingly; prosodic features apply contemporaneously. The three autosegments are linked up in a one-stop AP diagram with six tiers in all, an improvement on AP. It was further noted that neither MacCawley (1968), nor moraic phonology, could sufficiently address the concerns about the nature of vowel lengthening. Therefore, following Jones (1944; 1967), and Abercrombie (1964), long and short vowels were treated as identical, with a chroneme difference between them. Harmonized vowel height is considered contrastive, since it is not the segments that
achieve the across-the-board effects, but the gestures encoded in the selected segments. Generally, the simultaneous function of prosodies to contrast words, confirms that EkeGusii displays a level of phonological complexity, worth studying. This revelation of prosodic simultaneity is a welcome throw-in insight into linguistic investigation.

It was also observed that in certain cases, instances of glide formation that lead to compensatory lengthening, end up blocking the phonemicity of vowel lengthening (see section 4.1.1.4). In pursuit of the first objective however, it was realized that a few noun pairs are contrasted solely by tone; no prosodic simultaneity was realized. The same happened with a paltry four pairs that were found contrasted by harmonized vowel height alone (see section 4.1.3).

The second objective was to examine the iconic mappings between the variation of prosodic features, and meaning in EkeGusii. From intensifier verbs, it was observed that vowel lengthening and rising pitches are iconized, and they function concurrently, to signal the temporal aspects of an activity; they depict the durativity of an activity. From the same verbs, it was also realized that tone and vowel lengthening mark repetition of an activity over time.

Various meaning impressions in the adverbs of degree were found to be expressed via iconized vowel lengthening. This function is contemporaneously achieved by rising pitches. Increasing vowel length and rising pitches also mark intensification. From adverbs in temporal deixis, vowel lengthening is also motivated (mimetic). The longer the vowel, the earlier the time is. The co-attendant of vowel lengthening was found to be iconized falling pitches (see section 4.2.4.1). This is due to the declarative nature of deictic adverbs which express a sense of finality. From spatial deixis, it was observed that increasing vowel length signals increasing distance away from the speaker (see section 4.2.4.2).
Iconized rising pitches were found to work simultaneously with lengthening, to express increasing distance. This contributes to, and ignites a debate on prosodic simultaneity, which may inform future research.

From the examination of adjectives, it was observed that only penultimate vowels, either in the agreement prefix or adjective stem, lengthen iconically, to mark durativity in relation to the adjective attribute. The extent of lengthening depends on shared knowledge between the speaker and the hearer. Pitches are also iconized, and they rise contemporaneously, for the purpose of expressing durativity. The longer the duration, the higher the degree of the attribute is. It was also observed, from adjectives, that high pitches work concurrently with decreased resonance, high vocal energy, and high intensity to express new information. These were termed ‘cataphoric prosodies.’ On the other hand, low vocal energy led to low pitches, low intensity, and increased resonance, to express obvious (known) information. These were termed ‘anaphoric prosodies.’

In the second objective, it was finally realized that accent functions iconically, in specific adjectives in EkeGusii. Accent hopes between stem-initial or stem-final syllables, or functions on the only syllable in a monosyllabic adjective, to mark intensity. Stress placement happens sub-consciously, augmented by high pitches, which are also iconized to express intensification, as detailed in section 4.2.6.

The third objective of our study was to assess the iconic relationship between EkeGusii phonemes, and word meaning, an exemplification of relative, image, and gestalt types of iconicity. Sounds in in onomatopes and echoic ideophones are imitative of animal, human, and other environmental sounds, and the structure of words and arrangement of sounds depicts the structure of experience, events and activities in the world. From phonaesthemes, sound /t/ was found to occur stem-initially or stem-finally
in single or reduplicant stems, to convey sound-symbolic meanings associated with the ‘unlikable.’ (see section 4.3.1). A similar pattern was noticed in the morpheme {ri-}, which is also part of an iconic cluster. From cacophony, it was established that certain consonant sequences in words feel rough, jagged, discordant and repugnant. Such sounds are coupled with reduplication to reveal the sequence of experience as detailed in section 4.3.1.2.

Imagic iconicity was established in onomatopes, where lexical items were found built on onomatopoeic or echoic roots, in both infinitives and nouns. Onomatopes accept ordinary morpheme combinations. This is detailed in sections 4.3.2.1 and 4.3.2.2. Therefore, onomatopes were classified as either being explicit, where noises from the source are replicated, or implicit, where noises associated with the source are approximated. The detail of this is in section 4.3.2.3.

From the analysis of EkeGusii ideophones, it was established that they present cross-linguistic characteristics, including being context dependent, and being limited to age, having indefinite meanings, functioning as adverbs, and as exlamatives, entailing a few alien phonemes, being introduced by a quotative form, and being reduplicative, among others (see section 4.3.3.2). Ideophones were found to be of two major types; the echoic ideophones, those that imitate other sounds, and the anechoic ideophones, those that do not imitate any sounds. It was noted that two or more echoic ideophones can depict the same concept. Ideophones were found to be lexical items, like any other ordinary words (see the definition of ideophones in section 4.3.3.1). Ideophones were also found to be related to other words in EkeGusii, such as nouns and infinitives. The phonology of ideophones showed that they display limited vowel lengthening, and consonant gemination, which mark the durative aspects of events, within gestalt iconicity. The pitch patterns of both echoic and anechoic ideophones were found to be falling and iconized (see section 4.3.3.7.1). The morphology of EkeGusii ideophones
shows that ideophones display reduplication. Ideophones in EkeGusii also display highly limited compounding. The syntax of EkeGusii ideophones showed that co-occur with a demonstrational quotative form, which turns some ideophones into nominals, or makes them function as adverbial elements. Further, they can function as noun phrase categories, adverbial categories, exclamative clauses, matrix clauses, and a few other, as gesture collocates (see sub-sections under 4.3.3.9).

On closer examination, it was finally observed that ideophones, and onomatopoeic words, display a characteristic of being circumlocutional, where a few ideophones and other onomatopoeic words imitate similar sounds in different ways (see section 4.3.5).

### 5.2 Conclusions
From the findings, the following conclusions can be drawn. EkeGusii contrasts meanings in nouns and infinitives, by simultaneous variation of prosodic features. Tone, vowel lengthening, and harmonized vowel height, apply concomitantly to contrast meanings in words. The debate on vowel lengthening is more complex, than handled in this, and other previous researches. The traditional sequencial representation of long vowels is untenable, yet current theories look challenged to account for long vowels, moraic phonology included. Vowel length remains an unresolved puzzle.

Prosodies like pitch, vowel lengthening, resonance and accent, work simultaneously in verbs, adverbs, and adjectives to mark intensification. Variations in these prosodies also signal meaning, in temporal and spatial deixis. However, only spectrographic analysis of speech can verify how speakers apply prosodic features, such as tone variation, lengthened segments, vocal energy in the production of segments, and in such other related notions.
Phonaesthemes in EkeGusii are instances of overlapping forms of iconicity, including relative and gestalt iconicity. In the same vein, onomatopes and ideophones display imagic and gestalt forms of iconicity in EkeGusii. Generally, onomatopes and ideophones are related, except that the former are lexicalized by affixation, while the latter are not available to ordinary affixation. Despite their unique characteristics, ideophones are not a unique group of words, but words like any other in the language.

5.3 Recommendations

Following the findings and conclusions of this study, the following recommendations are made for future research, for purposes of linguistic, academic and theoretical advancement.

Co-articulation in EkeGusii, and other Bantu languages, is a fertile ground for research and theoretical advancement. Considering the position that prosodies are mainly applied contemporaneously to contrast meaning in EkeGusii, it is highly probable that the same happens in many other languages, especially of the lacustrine family. It is, therefore, recommended that investigation be conducted into the concurrent function of prosodies, such as loudness, tone, intonation, stress, vowel and consonant harmony, and vowel lengthening, in relation to meaning. On the same note, whether such prosodies are also iconized in other languages is worth of investigation. This will inform future studies on the origin of language, beyond the popular assumptions that lean towards the arbitrariness of language, and widen the view of meaning.

The actual concept underlying vowel lengthening has been ascertained to be complicated. This study has demonstrated that approaches like moraic phonology may not satisfactorily address issues around vowel lengthening, as revealed by spectrographic analysis. It will be worthwhile for future research to spare effort on the puzzle around long vowels, to come up with a better way of accounting for what
they actually are, and how exactly they differ from short vowels. This study has also challenged popular definitions like MacCawley’s (1968), that a long vowel is “one of what heavy syllables have two of,” and leaned, unsatisfactorily, towards Jones’ (1944; 1967), and Abercrombie’s (1964) conceptions of long vowels. Further research on vowel lengthening is inevitable.

On prosodies, it appears that a better future lies with theoretical robustness, if a complete understanding of these notions is to be attained. For instance, Culioli’s (1995) ‘Theory of enunciative operations’ (TEO), propelled by Schaefer (2013), should be applied in the examination of claimed iconic link between prosodies and meaning. This is likely to pose comparative or meaningful advances against prosodic iconicity, and perhaps, shed new light on the function of prosodies in EkeGusii.

It will be worthwhile to conduct a detailed study on the use of gestures in EkeGusii, from a semiotic perspective. This will enhance better understanding of how the language conveys information. Though it was realized that ideophones and gestures are fairly tied in terms of synchrony, a systematic study in this area should be conducted to ascertain the exact role played by gestures in EkeGusii. Related to this, a study on the pragmatic function of ideophones in EkeGusii, extending to the context of use, and the effect of education, age, sex, and variety, is recommended. It was mainly due to bounds of scope, that a detailed examination of gestures would not be included in this study.

Onomatopes are speculated to be highly metaphoric (see Mariera, 2020). A systematic examination of onomatopoeia in EkeGusii from a general perspective of cognitive linguistics, preferably, using other theoretical perspectives like the conceptual metaphor, mental spaces, or Fauconnier and Turner’s (1993) conceptual blending, will be worth the effort of linguistic investigation, to accord EkeGusii an enhanced description, now that the language still remains underdescribed, as notes Nash 2011. In this
study, a few examples of onomatopoeic nouns were inexhaustively discussed as falling under opaque onomatopoeia, and due to limitations of scope, no relevant theory was evoked to discuss how precisely metaphoric such examples are, as highlighted in section 4.3.2.3. The study of onomatopoeia should be extended to other languages, to help determine whether the claims made in this and related studies can be used to draw generalizations about Bantu and related languages.

The function of accent in EkeGusii has always been treated as peripheral, following the label ascribed EkeGusii as “a tone language” by previous studies. This study has revealed that accent plays a role in the language. However, no detailed description of accent had been attempted, either herein or elsewhere (to the best of the knowledge of the present researcher). A detailed and systematic investigation into accent in EkeGusii is highly advisable.

Ideophones seem to display non-adherence to the phonotactic rules of EkeGusii, which has unsatisfactorily attributed to the echoic nature of the ideophones. Only a future research can settle this question. Further, why, whether, and how exactly, ideophones iconize pitches, has not been exhaustively addressed in this study. This remains a challenge that must be addressed by a future research.

On theory, the customized AP model should be further tested in the studies of other languages. This study has come with a linkage of five tiers to the segmental tier, on the basis of simultaneity of prosodies (see section 4.1). The syllabic tier, the CV tier, the timing tier, the tonal tier, and the vowel harmony tier, have all been linked by association lines to the segmental. An attempt to apply this approach in the analysis of autosegments in other languages, has potential of making improvement on the theory, or coming up with better suggestions on restructuring this model.
Finally, iconicity is quite robust a concept. This conceptualization should be extended to the investigation of other aspects of language and communication. Iconicity may help explain the meanings behind artifact, cultural conduct, dress, body odour, paralanguage, proxemics, and so forth. For instance, Mariera and Mecha (2018) have studied the iconic communication strategies for social cohesion and integration in Trans-Mara, Narok County, in Kenya. The extension of iconicity to other aspects of language and communication may help improve the understanding of human communication in general.
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APPENDICES

APPENDIX 1:

RAW DATA FOR OBJECTIVE 1

**Lexicostatistic List**

i. Study and pronounce each word differently to bring out different meanings.

ii. Write in front of each word the different meanings you realized above

iii. Guided by the researcher, pronounce each as naturally as possible word to record the variations in pronunciation

**NOUNS A**

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<th>Meaning 3</th>
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160 (one hundred and sixty lexical items)
APPENDIX 2:  
RAW DATA FOR OBJECTIVE 2

OBJECTIVE 2: ICONIC VOWEL LENGTH, PITCH AND ACCENT

Vowel length in intensifier verbs

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<tr>
<td>k) soma (read)</td>
<td>so::ma (read and read)</td>
</tr>
<tr>
<td>l) kora (do)</td>
<td>ko::ra (do and do)</td>
</tr>
<tr>
<td>m) tara (walk)</td>
<td>ta::ra (walk and walk)</td>
</tr>
<tr>
<td>n) ragera (eat)</td>
<td>rage::ra (eat, eat and eat)</td>
</tr>
<tr>
<td>o) rika (write)</td>
<td>ri::ka (write and write)</td>
</tr>
<tr>
<td>p) timoka (rest)</td>
<td>timo::ka (rest, rest and rest)</td>
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Vowel length and tone in intensifier verbs

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<th>q) téma (cut/spit)</th>
<th>té::má (cut or spit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>r) tè:ma (try)</td>
<td>tè::má (try and try again)</td>
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Vowel length and pitch in intensifier and adverbial expressions

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<tr>
<td>g) buya (well)</td>
<td>bu:ya (very well)</td>
<td>bu::ya (very well indeed)</td>
</tr>
<tr>
<td>h) bobe (badly)</td>
<td>bo:be (very badly)</td>
<td>bo::be (very badly indeed)</td>
</tr>
<tr>
<td>i) mono (so much)</td>
<td>mo:no (so much)</td>
<td>mo::no (quite so much)</td>
</tr>
<tr>
<td>j) igo (so)</td>
<td>i::go (much so)</td>
<td>i::go (very much so)</td>
</tr>
<tr>
<td>k) bwango (fast)</td>
<td>bwa:ngo (very fast)</td>
<td>bwa::ngo (quite very fast)</td>
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<tr>
<td>l) ngora (slowly)</td>
<td>ngo:ra (very slowly)</td>
<td>ngo::ra (quite very slowly)</td>
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Vowel length and pitch in temporal deixis

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<td>m) emambia (morning)</td>
<td>ema::mbia (early morning)</td>
<td>ema::mbia (so early in the morning)</td>
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<tr>
<td>n) botuko (night)</td>
<td>botu:ko (late in the night)</td>
<td>botu::ko (very late into the night)</td>
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<tr>
<td>o) mobaso (day)</td>
<td>moba:so (late in the day time)</td>
<td>moba::so (very late in the day)</td>
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<td>p) kare (long ago)</td>
<td>ka::re (long long ago)</td>
<td>ka::re (quite long long ago)</td>
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<tr>
<td>q) bwango (fast)</td>
<td>bwa:ngo (so fast)</td>
<td>bwa::ngo (so fast)</td>
</tr>
<tr>
<td>r) ngora (slowly)</td>
<td>ngɔ:ra (very slowly)</td>
<td>ngɔ::ra (very very slowly)</td>
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<td>s) riria (that time)</td>
<td>ri::ria (that recent time)</td>
<td>ri::ria (that time in the remote past)</td>
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<td>t) oria (recent past)</td>
<td>o:ria (‘that one’ remote past)</td>
<td>o::ria (that of extra-remote past)</td>
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Vowel length and pitch in spatial deixis

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<th>Column3 (remote)</th>
<th>Column4 (extra-remote)</th>
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<td>iga::ria</td>
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<td>b) aria (that place)</td>
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<td>a::ria</td>
<td>a:::ria</td>
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<td>c) keria (that thing)</td>
<td>ke:ria</td>
<td>ke::ria</td>
<td>ke:::ria</td>
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<td>d) oria (that person)</td>
<td>o:ria</td>
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<td>o:::ria</td>
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<td>e) baria (those people)</td>
<td>ba:ria</td>
<td>ba::ria</td>
<td>ba:::ria</td>
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<td>f) eria (that one – animate)</td>
<td>e:ria</td>
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Vowel length in adjectival forms

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The iconic function of emphatic stress

ekiya
ekebe
egesinini
egesinini
ekeguusu
egetambbe
egetambbe

New information versus prior/ anticipated information
Discourse meanings in the following examples
Omuuya (falling pitch)
Omuuuuuya (longer vowels + rising pitch)
Ekeebe (falling pitch)
Ekeeeebbe (longer vowels + rising pitch)

**Accented Adjectives**

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<tr>
<td>eki'ya</td>
<td>(really good)</td>
</tr>
<tr>
<td>eke'be</td>
<td>(very bad)</td>
</tr>
<tr>
<td>eke'gusu</td>
<td>(extremely light)</td>
</tr>
<tr>
<td>eke'nene</td>
<td>(enormously big)</td>
</tr>
<tr>
<td>ege'tambe</td>
<td>(quite long)</td>
</tr>
<tr>
<td>ege'sinini</td>
<td>(very small indeed)</td>
</tr>
<tr>
<td>omo'sang’,ang’aru</td>
<td>(naughty/mischievous)</td>
</tr>
<tr>
<td>omo'tirigoyu</td>
<td>(very chaotic) riling</td>
</tr>
<tr>
<td>omochorocho’mbu</td>
<td>(extremely poor)</td>
</tr>
</tbody>
</table>

**62 (sixty two) lexical items**
APPENDIX 3:
RAW DATA FOR OBJECTIVE 3

OBJECTIVE 3: Sound-based iconicity
Sound symbolism - phonaesthetic phonological iconicity-consonant /t/
ogo-tung’atun’ga (to move confusedly) ebi-turuturu (abominable acts)
obo-turubanu (instability) obo-tindu (drunkenness)
obo-tindi (brutality) obo-tantanu (confusion)
obo-tutukanu (corruption) obo-tirigoyu(chaotic behaviour)
obo-tiororoku (horn-bill-like behaviour) obwe-takori (boastful talk)
obwe-antagari (pretence/pride/show off) obo-turutumbi (awful actions)
obwe-tangareki (know-it-all conduct) obo-tumanu (misappropriation)
ogo-tibonga (to rape) ogo-tayaya (loitering)
ogo-tibogeria (to wade in mud) ogo-tang’ang’a (puzzlement/bewilderment)
obotabagu (wretchedness) obotata (poverty)

obochinga
obochayi
obochichiba
obochumeria
obochorochombu
obocharoku
obochege
ogochiogorora
ogocharangia
ogochandeka
echonachoni

What of
obochnu
ogochabumba

Vowel /o/ related to hearer position-distal reference
Speaker (this/these) hearer (that/those)
ekte/ebi ekio/ebio
oyo/aba oyio/abwo
eri/aya erio/ayio
oro/echi orwo/echio
eye/echi eyio/echio
obo/aya obwo/ayio
oko/aya okwo/ayio
Cacophony in infinitives- dissonance – unpleasant consonant sequences

Are there a few pseudowords?
okomayamaya (to loiter) ogosegasega (to move up and down in tension)
ogosagasagia (to eat without unattentively) okomangamanga (to linger)
okorimarima (walk unsteadily) okomiramira (to move fast stressed)
okomagamama (to look suspiciously) okorumaruma (to act hastily)
ogokarakaria (to annoy) ogokaarakaaria (to do hurriedly)
ogokeerakeeria (to do carelessly) okogwong’agwong’a (to move aimlessly)
okoragaraga (to walk aimlessly) okobegabega (to act lazily)
okorimarima (to walk in darkness) okong’warang’waria (to decorate unattractively)

Cacophony in nouns-dissonance- unpleasant consonant sequences

esagasaga (chaos)
eobaobe (destruction oriented assault by a mob)
eburuburu (noisy conflict)
ekobakobe (disorder)
obokayayu (promiscuity)
obochorochombu (abject poverty)

Vowel consonant combinations associated with undoing

do undo
bwata bwatoka
soa soka
soia sokia
seta setoka
banga bangora
someka somora
kuneka kunora
bana banora
ara arora
kendeka kundora
richa richora
bunga bungora

Study these Onomatopoeic infinitives
ogotogota (to boil food) okobera (to boil of water or milk)
ogosanonoka (to make fry noise) ogosaroroka (to melt of fat)
okogona (to snore) okoruma (to grumble)
ogosinyora (to urinate) okoinyiamba (to fart)
ogosigikia (to rub against each other) okwemiria (to blow nose)
okonacha (to cut) ogotwanga (to beat)
ogochwata (to beat) ogochwania (to whip)
ogotiria (to run joyfully) okoroka (to puke/vomit)
okogaragaria (to annoy) okwegogia (to gurgle)
ogokurura (to pull on surface) ogokogekeria (to make layer’s noise of a hen)
ogochonia (to milk) ogokorora (to excavate)
ogosaa (to diarrhea) okweumia (to lament)
okonyenya (to cut with nife)       okonyuganyuga (to shake)

**Study these Onomatopoeic nouns**
Ebichuchu (chicks)
chingi (flies)
Ebisiriri (crickets)
ebichuni (fruit flies)
ribururu (locust)
ogwateka (to break)
ebitaratara (slippers)
ekengere (bell)
engoko (hen)
ekonu (mortar)
amate (saliva)
ekeero (palm feeding with porridge)
chinchigiri (shakers)
amasinyoro (urine)

**Study these Phonological derivates (Derived nouns) – phonological form is inherent**
Ekururano       omokururo
echoni          enyakuemia
okomeeneka*     egurube*
eburuburu       ebinyegega
egurugura

**Study these Ideophonic adverbial expressions and add the list**
*What do the sounds suggest?*
e-tegetegetege  -walking
e-kurukurukuru  - walking
cha             –cutting with a sharp object
ng’wa           -whipping
e-butu          -hitting
e-ndi           -hitting with a fist
e-pa            -hitting with a flat object
e-papapa        -with huge fire flames
e-waaaa         -with liquids like pouring water
e-kung’         -a dull knock especially on a mud wall
e-kong’ kong’   -knocking dry wood with a hammer or log of wood
e-tony tony      -trickling water

**list of intensifier words**
ekerabu         ‘white’       se, (se, se) / che
ekemwamu       ‘black’       ti (ti ti)
ekebariri       ‘red’         burure
kerabogete     ‘tarnished’    pwe
egesunte        ‘darkness’    endi
ekiomo          ‘hard’        pa (pa)
ekimo ‘very hard’ paragaka
egekong’u ‘tight’ ma
gekirete ‘silent’ kiri
geichire ‘full’ cha(bi)
geichire ‘full’ ng’a
geichire ‘full’ ng’arara
keerete ‘depleted’ pi
egekendu ‘cold’ kendi
bibuekaine (ng’a) ‘alike’ (as) tara
bimagaine (nga) symmetrical (as) ka
ekeroro ‘sour, or bitter’ se /sa

Interjections to study- the accompanying pitches, volumes, intonations
Are they inherently onomatopoeic? Do they give voice to feelings?
Ach! Obe! Gaki!
Ayii! Aah! Mmmh!
mmmh ! agh! mama!

Metaphorical references
obeire ekonu –a coughing man
obeire enyakuemia -A mourning mother
ebeire endege-a noisy person

Extended meanings –very cognitive (riddled with sensory imagery), but is phonology inherent?
risondokeramioro ebianda
ekteuno esosera
ekiegeso okominwa
enyamoreo ebisukari

Are there inherent tones or intonations here? HLLL>>
Study the words below and add any related words
Read to pronounce each word as in natural speech

Positive nominal forms
obwanchani omogoko omorembe oboremereria obuya okwegena obwororo
obokanyeku oboitongo obweriti obwechoki oboitebere okwerita ekeene

Read each word as you would in natural speech

Negative nominal forms HLHH>>
Eriomana eramano esegi echayano egeitano obogechani
Obobe eriogi earano egesende endamwamu ribero
emoko oborimo oboenenu oboi bi ekeenene endigitania
echeche etobo emondo ekeenga oborogi eng’areka
How would you read these words?  
Do you find any suggestive patterns here? Sound, pitch, tones or so HLLL>>

**Positive adjectival forms**
omuya  omweriti  omwetangi  omokanyeku  omorengereria  omotegereru  
omwechoki  omoene  omwororo  omoitongo  omongaini  omosibore

**Negative adjectival forms**
omotindi  omweimokereria  omweanchi  omochayi  
omwekagi  omoenenu  omonyandamwamu  omosiereria  
omoiti  omwerori  omonyariogi  omonyaibero  
omoetania  omosiereria  omounereria  omoibi  
omwesigeki  omoibi  omwerusanani  omwetangareki

248 (Two hundred and forty eight) lexical items

TOTAL NUMBER OF LEXICAL ITEMS 470 (FOUR HUNDRED AND SEVENTY)
APPENDIX 4:
LETTER OF INTRODUCTION TO NACOSTI FROM KISII UNIVERSITY

KISII UNIVERSITY

OFFICE OF THE REGISTRAR RESEARCH AND EXTENSION

KSU/R&E/ 03/5/vol.1/199
Date: 5th December, 2018

The Head, Research Coordination
National Council for Science, Technology and Innovation (NACOSTI)
Utalii House, 8th Floor, Uhuru Highway
P. O. Box 30623 – 00100
NAIROBI - KENYA.

Dear Sir/Madam

RE: MARIERA ELIJAH OMWANSA REG. NO. DAS/60056/14

The above mentioned is a student of Kisii University currently pursuing Doctorate of Philosophy (PhD) in Linguistics, in the Faculty of Arts and Social Sciences. The topic of his research is, “Contrastive Suprasegmental Multiplicity and Iconicity in Ekegusii”.

We are kindly requesting for assistance in acquiring a research permit to enable him carry out the research.

Thank you.

Prof. Anakalo Shindji, PhD
Registrar, Research and Extension
CC: DVC (ASA)
Registrar (AA)
Director SPGS

KISII UNIVERSITY IS ISO 9001:2008 CERTIFIED
APPENDIX 5:

LETTER OF RESEARCH AUTHORIZATION FROM NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349-3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote
Ref. No: NACOSTI/P/19/39868/27484
Date: 15th January, 2019

Elijah Omwansa Mariera
Kisii University
P.O. Box 408-40200
KISII

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Contrastive suprasegmental multiplicity and iconicity in Ekegusii” I am pleased to inform you that you have been authorized to undertake research in Nyamira County for the period ending 14th January, 2020.

You are advised to report to the County Commissioner and the County Director of Education, Nyamira County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:
The County Commissioner
Nyamira County.

The County Director of Education
Nyamira County.
APPENDIX 6:
COPY OF RESEARCH PERMIT FROM NACOSTI
APPENDIX 7:

RESEARCH AUTHORIZATION FROM THE COUNTY COMMISSIONER, NYAMIRA

REPUBLIC OF KENYA

THE PRESIDENCY

Ministry of Interior and Coordination of National Government

OFFICE OF THE COUNTY COMMISSIONER

NYAMIRA COUNTY

NYAMIRA

DATE: 31st January, 2019

REF: NYRC/ED.2/VOL.II/190

All Deputy County Commissioners

NYAMIRA COUNTY

RE: ELIJAH OMWANSA MARIERA – KISII UNIVERSITY

RESEARCH AUTHORIZATION

Reference is made to letter Ref. No. NACOSTI/P/19/39868/27484 dated 31st January, 2019 from the Director General/CEO, National Commission for Science, Technology and Innovation, Nairobi authorizing Elijah Omwansa Mariera to carry out research on “Contrastive Suprasegmental multiplicity and iconicity in Ekegusii.”

This is to inform you that the planned research will be conducted in Nyamira County, upto 14th January, 2020.

Kindly accord him the necessary assistance.

GRACE L. NGINDA
FOR: COUNTY COMMISSIONER
NYAMIRA

Copy to:

National Commission for Science, Technology & Innovation,
P.O. Box 30623
NAIROBI

County Director of Education
P.O Box 4
NYAMIRA
APPENDIX 8:
RESEARCH AUTHORIZATION FROM COUNTY DIRECTOR OF EDUCATION NYAMIRA

Telegram: “EDUCATION”, Nyamira
Telephone: (058) 6144224
When replying please quote
NCEO/1/25 VOL.II/98
REF: ........................................

COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY
P.O. BOX 745
NYAMIRA

DATE: 31st January 2019

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CONDUCT RESEARCH BY ELIJAH OMWANSA
MARIERA
The above named person is a student at KISII UNIVERSITY. He has been
given authority by the National Commission for Science, Technology and
innovation to conduct Research on “Contrastive Suprasegmental
Multiplicity and Iconicity in Ekegusii” in Nyamira County.

The research will commence immediately and end on 14th January 2020

ROBERT ASUTA
FOR; COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY.
APPENDIX 9:

RESPONDENT CONSENT & PROFILE FORM

I ……………………………………………………………………….  ID No  …………………….. of 
………………………… SUB-COUNTY in  ……………………COUNTY willingly accept to serve as 
a fieldwork respondent for Mr. MARIERA ELIJAH OMWANSA, a student at KISII UNIVERSITY, 
Registration Number DAS/60056/14, ID Number 21714527, pursuing a Doctoral course in Linguistics. 

I declare that the following have been clarified by the said researcher:

i. That the research is duly authorized and that such authorities have been availed, and the 
researcher duly identified himself

ii. That confidentiality and good faith shall be observed as far as possible

iii. That interviews, discussions and oral recording are meant for research purposes only

iv. That any photographs taken may be used with my permission for research purposes

v. That the findings of the research may be used for purposes of academic publication

vi. That I may be requested from time to time to assist the researcher during field work

vii. That the research exercise shall not benefit me (the respondent) with monetary gain

viii. That the outcome of the research may be communicated to me when due and as appropriate

Respondent Profile

Name……………………………………………. Age……………. Gender…………………………

Sub-County .................... County ................. Current Residence .........................

Former Residence .......................First language ........................................

Other Languages 1 ................ 2 ........................... 3 ..............................

Occupation ............................. Level of Education .............................

Signature.................................. Date Day……Month........Year..............

Researcher/Student

Name ................................. Signature ........................... Date.......................
APPENDIX 10

PLAGIARISM REPORT

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<td>1%</td>
</tr>
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</tr>
<tr>
<td>4</td>
<td>&quot;Signergy&quot;, John Benjamins Publishing Company, 2010 Publication</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>5</td>
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<td>Ludovic De Cuypere. &quot;Limiting the Iconic&quot;, John Benjamins Publishing Company, 2008</td>
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