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## Phonological Processes of the Kikuyu Dialectal Words: A Distinctive Features Approach

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### Abstract:

*Kikuyu language is a highly agglutinative language with an S-V-O sentence structure. This study aims to find out the phonological processes of the Kikuyu dialectal words and determine the phonological rules. A limited number of studies have been done in the Kikuyu language concerning the phonological processes. Therefore, this study is justifiable because it will not only give more lexical units which are subject to phonological processes in the Kikuyu language, which may be inadequate in the previous studies but also create awareness among the scholars of the various Kikuyu lexicons which undergo the phonological processes. The data for analysis is presented using phonetic transcription, and it was collected from the native, resourceful speakers of the Kikuyu language and from selected Kikuyu texts like Phonetics and Tonal Systems of Kikuyu (Lilias Armstrong, 2017) and Modern Kikuyu Dictionary: Kikuyu-English, English-Kikuyu (Kasahorow, 2014). The Distinctive Features theory is used in the phonological analysis of the data. The results of the study showed that different Kikuyu words undergo phonological processes evident in this study, like assimilation, consonant strengthening, glide formation, nasal coalescence, consonant coalescence, insertion, and vowel deletion.*

**Keywords:** Phonological processes, distinctive features theory, Kikuyu consonant phoneme, Kikuyu vowel phoneme, Kikuyu dialects

### 1. Introduction

There are 6.6 million speakers of the Kikuyu language as a first language (L1) in Kenya. Its speakers are located in an area between the Kenyan capital city, Nairobi, and the Mount Kenya region. The Kikuyu language follows the S-V-O structure, where modifiers follow the head. Apart from the English language, the Kikuyu language constitutes the largest linguistic group in the country. It is used in mainstream media and social networking sites. Television programs and radio stations use the Kikuyu language as the chief language in running their programs. Thespians in cinemas also use the Kikuyu language in their acting programs. In addition, the Kikuyu language has its own dialects: Ndia, Gichugu, Mathira, Southern Kikuyu, and Northern Kikuyu making the Kikuyu people to be highly decentralized due to their high population (Iribe, 2016).

It is easier to distinguish the Kikuyu language from other Bantu languages because it has pre-nasalized consonant phonemes and tones. In the Kikuyu language, there are 25 contrasting speech sounds consisting of 18 consonant and 7 vowel phonemes (Navarro, 2015). Pre-nasalized consonants consist of a nasal+ a stop (<sup>m</sup>b, <sup>n</sup>d) and a nasal+ affricate (<sup>n</sup>dʒ). There are some consonant sounds in Kikuyu which has no equivalents in the English language like the velar fricative (ɣ) and the voiced bilabial fricative (β). Other consonant sounds in the Kikuyu language are /ð/ = 'th' in a word like "thata"; /ʃ/ = in a word like 'cuha'; /tʃ/ = 'ch' in church; /dʒ/ = 'j' in judge; /ɲ/ like in the Kikuyu word *nyau* /ɲau/. We also have /ŋ/ in a word like *ng'ombe*; /j/ in a word like yet. Nasalization in Kikuyu is represented by a tilde like in the word "cũcũ" which means grandmother. Vowels can be nasalized. In addition, the Kikuyu language consists of two tones: the low tone and the high tone. The former is represented by a grave accent like á, while the latter is represented by an acute accent like á.

The researcher chose this topic mainly to investigate the phonological processes in the Kikuyu dialectal words and give a wider range of Kikuyu lexicons undergoing phonological processes. The data collected was analyzed phonologically. Linguists should not ignore phonetic facts. Sara Garnes (1973, 1974) states that some linguists ignore phonetic facts or take them for granted, and they also ignore the verification of phonetic facts. This study will also explain phonological rules, how phonological processes occur, and what influences them.

There are various research studies conducted on phonological processes: "Sound Changes and Reconstruction of Kikamba Consonantal Sounds." In this study, the researchers look into the main consonantal sound changes in Kikamba, and for every similar change, there is a reconstruction of a proto-sound. The study concluded that most of the rules were

constrained not to spread further due to semantic/morphological considerations. *"A Phonological Study of derived Words in Kikuyu with Reference to Nouns and Adjectives"* (Muthui, Job W., 2001). In this dissertation study, the researcher studies the phonological processes in Kikuyu nouns and adjectives and also looks into the sound systems in the Kikuyu language to determine phonemic status. It concluded that although derivation is a morphological process, it is also subject to phonological changes. *"The Phonological Change Processes of English and Indonesian"* (Diani & Azwandi, 2021) conducted research to investigate the phonological processes which are realized in English and Indonesian. They determined the phonological forms between the two aforementioned languages. (Benabed, Berrabah, 2021) *"Contact Induced Phonological Change of the Phoneme /s/ in the Speech of EFL Learners and Teachers in Algeria."* The research paper was carried out to find out the phenomenon of contact-induced phonological change. The two researchers used the phoneme /s/ in the speech of EFL learners in secondary schools and teachers in higher education.

*"Diachronic Study of Phonological Changes in TIV Language"* (Aor, Damkor, 2021) was conducted to investigate the various aspects of Phonological and Sound Changes in Tiv language. It explored the implication of Sound Change and the state cause of sound change. *"The Structure of Kiswahili Sounds, Sound Changes and Words"* (Iribe Mwangi, 2011) investigates sound adjustments, how they affect the borrowed vocabulary in Swahili, and how such adjustments relate to phonology. *"A Synchronic Study of the Major Phonological Processes of Kichonyi"* (Esther Munyazi, 2019) was conducted to investigate the phonological processes of Kichonyi sounds. It also investigated the conditions under which the processes take place. The phonological processes involving consonants and vowels in Kichonyi were conducted. Also, the conditions under which these processes occur were also investigated.

## 2. Literature Review

This section will foreground the Literature which has contributed to this study and the theory employed in this research project.

### 2.1. Kikuyu Dialects and Pronunciation

Kenya has a population of 50 million people and 42 tribes. Kikuyu language is spoken in the central region of Kenya, and the Kikuyu people are the most decentralized community in the country, forming a population of 6.6 million people (Iribe, 2016). An iconic writer like Ngugi wa Thiong'o uses the Kikuyu language in his creative writings, backed up by others like Mwangi wa Mutahi, Gatua wa Mbugwa, and Waithira wa Mbuthia who use Kikuyu language in their essays, poetry, and children's books. Kikuyu language has five dialects that are highly distributed in these counties: Kirinyaga, Mũrang'a, Nyeri, and Kiambu, although we have other speakers in Meru, Embu. The five major dialects are: Ndia, Gichugu, Mathira, Southern Kikuyu, and Northern Kikuyu. It is said that we have most Kikuyu speakers between Nairobi and Nyeri. It is prudent to note that the Kikuyu from Kirinyaga is further divided into two sub-dialects which include: Kĩndia and Gĩgĩchũgũ. The majority of speakers of Kĩndia dialect reside in Kerũgoya, the capital city of Kĩrĩnyaga county in Kenya. Apparently, there is the absence of the "ch" and "sh" sound in Kĩndia and Gĩgĩchũgũ dialects and instead, they use the "s" sound. Embu and Meru are sister languages to Kikuyu and share a lot of features with the Kikuyu language.

Kikuyu phonology establishes rules governing the internal structures of words in the Kikuyu words. Phonology deals with the sound structure in languages and the Kikuyu language is not exceptional. It is subject to these sound changes which play a pivotal role in the structure of a word. Both phonology and phonetics correlate when it comes to the phonetic study of languages and phonological analysis of languages. Production of speech sounds helps in the study of the structure of sounds. The Kikuyu language has 18 consonant phonemes and 7 vowel phonemes. The two additional vowel phonemes are the tilde /ũ/ and /ĩ/. The tilde usually represents nasalization. There is a similarity between the Kikuyu vowels and the Italian vowels. For example, they share /a, ɛ, e, i, o, u, ɔ/. The existence of pre-nasalized stops differentiates Kikuyu phonemes from other Bantu languages. There are four pre-nasalized stops in the Kikuyu language /<sup>m</sup>b, <sup>n</sup>d, <sup>ɲ</sup>dʒ, <sup>ŋ</sup>g/, which are realized as [b, d, dʒ, g]. Just like the English language that has digraphs like "ng" in the word sing, the Kikuyu language has some sounds represented by digraphs, too, like "ng" for the velar nasal /ŋ/. For example, "ngoro" translates to heart.

### 2.2. Minimal Pairs in Kikuyu

There are minimal pairs in the English language like fan, van, tear, wear, set, vet. If there is one phonological element different from the other in words which can be a phoneme, toneme, or chroneme, then those words are called minimal pairs. Minimal pairs portray two phones representing different phonemes in a language. It is worth noting that phone, toneme, and phoneme are elements exhibited in the Kikuyu language. The language, too, has minimal pairs, which mostly involve a variety of vowel sounds as the phonological elements, although consonants are also involved. The seven Kikuyu vowels constitute different phonemes.

Word 1	Transcription	Word 2	Transcription	Meaning Word 1	Meaning Word 2
Aka	/aka/	Eka	/ɛka/	Build	Puke
Una	/una/	Ona	/ɔna/	Break	See
Kena	/kena/	Kina	/kena/	Be happy	Of some type
Hutia	/hutia/	Hutia	/hotia/	Touch	Make hungry
Ina	/ina/	Ena	/ɛna/	Sing	He has
Ria	/ria/	Ria	/rea/	Weed	Eat
Heta	/heta/	Hota	/hota/	Uncover	Defeat

Table 1: Minimal Pairs in Kikuyu

### 2.3. Phonology versus Phonetics

When linguists look at the sound organization in languages, that is what is referred to as *phonology*. Thus, phonology deals with the structures of speech sounds. Other linguists of goodwill will define phonology as the study of the smallest units of speech sounds in a given language referring back to consonants and vowels. In a nutshell, phonology deals with the organization, selection, and functional classification of sounds in a language. Furthermore, it is prudent to note that phonology has phonemics that deal with sound distribution and function and phonetics, which systematically studies human speech sounds. We have two main types of transcription: broad transcription and narrow transcription. While dealing with phonology, we usually use phonemic transcription, where sounds are enclosed in slashes /t/ or what also may be called diagonal bars. This is because we are dealing with phonemes. Phonology deals with phonemes, allophones, syllables, minimal pairs, etc.

Phonology can be divided into generative phonology, structural phonology, lexical phonology, natural phonology, post-lexical phonology, and cognitive phonology. Structural phonology deals with phones of phonological systems containing segments within a language. On the other hand, generative phonology encompasses rules and statements which produce utterances in a language. Lexical phonology entails phonology at the lexical level or word level. The view of phonological processes as innate natural phenomena is tackled under natural phonology. Post-lexical phonology deals with phonological rules that are applied after a linguist uses the lexical rules. Cognitive phonology studies the systems of sounds, looking at both phonemes and allophones.

Phonetics deals with the universal study of human speech sounds. This means phonetics entails how speech sounds are received, transmitted, and produced. Phonetics also acts as a pedestal during phonological analysis. It is divided into auditory, acoustic, and articulatory phonetics. Auditory phonetics deals with the reception of speech sounds, acoustic phonetics entails the production of speech sounds, and articulatory phonetics deals with the transmission of speech sounds. In phonetics, phones are enclosed in square brackets [p]. Also, phonetics deals with phonation type and sound characteristics in languages.

### 2.4. Theoretical Framework

The study employs the Distinctive Features Theory by Noam Chomsky and Jakobson (1941) to discuss phonological processes in the Kikuyu dialectal words.

#### 2.4.1. Distinctive Features Theory

Distinctive Features Theory (Noam Chomsky, Roman Jakobson, 1941) is employed for data analysis. Phonemes are in contrasted distribution. They are made of distinctive features which make it easy to distinguish one phoneme from another. The distinctive features are categorized into laryngeal, place, manner, and major class features. These features define contrasts, groupings of sounds in rules, and also the different changes involved in the rules. This means distinctive features give lexical differences and phonological patterns exhibited by different lexicons. Different phonological processes have been discussed in this research paper like consonant coalescence, nasal coalescence, assimilation, consonant strengthening, insertion, and deletion. It is correct to say that distinctive features/properties define phonemes and the phonological rules employed. Jakobson, Halle, and Fant (1952) discuss the acoustic features mostly pertaining to what words and segments sound like. Some of the distinctive features are classified according to the 'neutral position,' which entails the movement of the tongue. It is also worth noting that other features relate to the vibration of the vocal cords.

The core importance of the distinctive features is to differentiate sounds or groups of sounds. For example, sounds /r/ and /t/ have different distinctive features, which are /r/: [-syll, +cons, +cor, -ant, +cont, +son, +voice] and /t/: [-syll, +cons, -son, +cor, +ant, -voice, -cont]. The major class features depict whether sounds can be used as the nucleus/peak of a syllable. For easier understanding, I will explain briefly what is contained in the three main class features in the distinctive features.

Due to constrictions of airflow from the lungs, the major class features were derived (Chomsky & Halle, 1968). The major class features have these sub-categories:

**Syllabic/non-syllabic:** All vowels are +syllable (+syll) while all consonants are -syllable (-syll) except the English syllabic sonorants, [r], [l], [ŋ]. Syllabic sounds can be used as the peak of a syllable.

**Consonantal/non-consonantal:** Obstruents, nasals, and liquids are (+cons), but vowels and glides are (-cons). They are produced with a blockage of airflow which happens in the vocal passage.

- **Sonorants:** Liquids, vowels, nasals, and semi-vowels are (+son), but obstruents are (-son). Their production is achieved through non-turbulent airflow in the sound passage tract.

The place of articulation features deals with the location of two speech production organs that come together to produce sounds. For example, when the tongue and the teeth come together, there is a formation of a dental sound like /θ/ in the word 'thousand.' The place of articulation features has the following sub-categories:

- **Coronal/non-coronal:** alveolar, retroflex, dentals, alveolar-palatal and palatal sounds are (+cor). However, pharyngeal, uvular, velar, and labial are non-coronal (-cor). The production of coronal sounds occurs when the tongue's blade is raised toward the front teeth, the hard palate, or the alveolar ridge.
- **Anterior/non-anterior:** It is only the alveolars, labials, and dentals that are (+ant), but all other sounds are (-ant). Production of the anterior sounds happens in front of the mouth.
- **Strident:** They include fricatives and affricates (+stri) while other sounds are not strident phonemes (-stri). The production of strident occurs when there is noise resulting from turbulence in the place of articulation.

The manner of articulation features deals with how different sounds are formed or made. The manner of articulation features has the following sub-categories:

- Continuant/non-continuant: plosives (oral stops), laterals, nasals and affricates are non-continuants (-cont) while all other sounds are continuants (+cont)
- Delayed release-Instantaneous release: Realized only by sounds produced in the mouth cavity. Affricates are (+del rel), while other sounds are (-del rel).
- Nasals: Their production is achieved when the air escapes through the nose when the velum is lowered. [m, n, ng] are +nasal while other sounds are not.
- Laterals: The English sound /l/ is +lateral is produced when the mid part of the tongue is lowered at the side.

### 3. Methods

This study uses a qualitative-descriptive method as well as a comparative method. This study collected data for analysis from four resourceful informants and two selected texts in the Kikuyu language. The informants who were selected to aid in data collection were chosen on the basis of their language competency, fluency, age, and resourcefulness. Data for the analysis was obtained from texts such as *"The Phonetics and Tonal Systems of the Kikuyu by Lili Armstrong" (2017)* and the *"Modern Gikuyu Dictionary: Gikuyu-English, English-Gikuyu" (Kasahorow, 2014)*. Additional data was obtained through self-introspection to have a comprehensive and satisfying phonological processes analysis. The researcher collected the Kikuyu words, which were the main focus of this paper. The instruments which were employed for data analysis were: a Dictaphone, tape recorder, and some stationeries like notebooks, pens, and diaries. Informants spoke the words, and they were later recorded using a Dictaphone. Also, a tape recorder was used for easier transcribing after the data collection. The classification of the data was done through phonological processes undergone by different dialectal words in the Kikuyu language.

### 4. Results and Discussion

This section will look into the following:

- Kikuyu Phonological Inventory
- Phonological Processes in Kikuyu

#### 4.1. Kikuyu Phonological Inventory

In tables 1 and 2, given below, we have the Kikuyu Consonant Phoneme and the Kikuyu Vowel Phoneme, respectively. The Kikuyu language consists of 25 contrasting speech sounds having 18 consonants and 7 vowel phonemes (Navarro, 2015). There are some notable realizations in the Kikuyu Phonological Inventory.

- There are 7 vowel phonemes, and the additional two vowels are the tilde [ũ] and the tilde [ĩ], which mostly indicate nasalization.
- It can be differentiated from other Bantu languages because of the existence of pre-nasalized stops like the bilabial stop [mb].

	bilabial	Dental	alveolar	postalveolar	palatal	velar	glottal
Stop	<sup>m</sup> b (mb)		t <sup>n</sup> d (nd)			k <sup>ŋ</sup> g (ng)	
Nasal	m		n		ɲ (ny)	ŋ (ng')	
Tap			ɾ (r)				
Fricative	b (b)	ð (th)		ʃ (c)		ɣ (g)	h
Affricate				<sup>n</sup> dʒ (nj)			
approximant	w				ɟ		

Table 2: Kikuyu Consonant Phoneme/Orthography

	Front	Central	Back
High	i		U
Mid-high	e (ĩ)		o (ũ)
Mid low	ɛ (e)		ɔ (o)
Low		a	

Table 3: Kikuyu Vowel Phoneme/ Orthography

#### 4.2. Phonological Processes in Kikuyu

Just like the English language, Kikuyu language undergoes phonological processes which are subject to discussion and analysis. In this study, I have discussed consonant strengthening, consonant coalescence, nasal coalescence, vowel deletion, vowel insertion, glide formation, and assimilation in the Kikuyu language.

#### 4.2.1. Consonant Strengthening

In Linguistics, strengthening is also called 'fortition.' It involves the increase of stricture intensity in sounds, especially in consonant strengthening. Consonant Strengthening is manifested if there is **voicing**, as illustrated in the data below:

Word	meaning	Underlying	word	phonetic transcription	meaning
koma	'sleep'	/n+koma/	gome	[yome]	'I sleep'
kora	'meet'	/n+ kora/	gore	[yore]	'I meet'
kūgeria	'to try'	/n+ kūyeria/	geria	[yeria]	'try'
toca	'fine'	/n+ toʃa/	ūtoca	[yūtoʃa]	'to fine'
tema	'cut'	/n +tema/	gūtema	[yūtema]	'cutting'
tahika	'vomit'	/n+ tahika/	gūtahika	[yūtahika]	'vomiting'
tinia	'cut'	/n+ tinia/	gūtinia	[yūtinia]	'cutting'
toma	'end'	/n+ toma/	gūtoma	[yūtoma]	'ending'
tūra	'pierce'	/n+ tūra/	gūtūra	[yūtūra]	'piercing'
kūhīa	'burn'	/n+ kūhīa /	gūkūhīa	[yūkūhīa]	'will burn'
kera	'chop'	/n+kera/	gūkera	[yūkera]	'chopping'

The voiceless alveolar /t/ and voiceless velar /k/ change to voiced velar /g/ and strengthening is said to have taken place. In data 1 above, the low front vowel sound /a/ changes to the close-mid vowel sound /e/ and remains the same in some words, as illustrated below. In Kikuyu consonant phoneme, /ɣ/ is a voiced velar fricative sound. In the data below [g] represented as /ɣ/ becomes a voiced non-continuant. This means that it is produced with occlusion (blockage) of the airstream, and therefore, it is voiced.

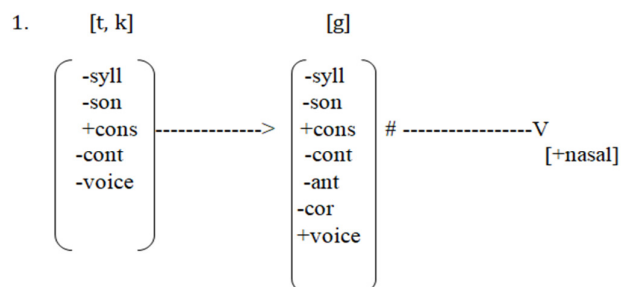
##### 4.2.1.1. Determining the Underlying Form

The data analysis above could not be achieved without determining and paying close attention to underlying representations. The concept of the underlying form involves abstract forms of morphemes or words that words are believed to contain before any phonological process has taken place. What is considered the underlying form of words? The base of a word is termed 'the underlying form.' However, this does not apply across all the linguistic data. The underlying form is enclosed in diagonal bars or slashes (/ /) because it entails phonemes. The existence of pre-nasalized stops is the most interesting manifestation in the Kikuyu language. A nasal coalesces with a stop and forms the aforementioned stops. From the data provided above, the base of the words is provided on the left-hand side before an archetypal nasal /n/ is prefixed to them. These are *kora*, *kūgeria*, *toca*, *tema*, *tahika*, *tinia*, *toma*, *tūra*, *kūhīa* and *kera*. The prefixation involves a nasal [n] which is attached to the base words like in data 1 above e.g. /n+tema/. It is notable that even after the addition of the nasal, it does not change the underlying form; therefore, the base is considered the underlying form. The phonemes in the underlying form always have the widest distribution and are not influenced by many sounds.

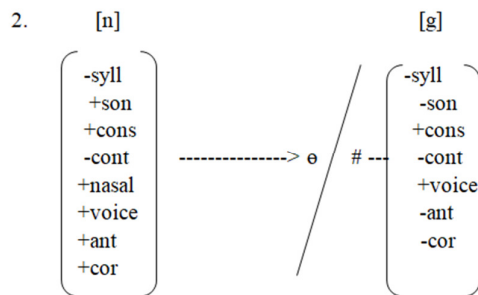
##### 4.2.1.1.1. Rules Statement

- The voiceless alveolar /t/ and voiceless velar /k/ change to voiced velar /g/ before vowels
- The archetypal nasal /n/ is deleted before the voiced velar fricative /g/

##### 4.2.1.1.2. Phonological Rules







#### 4.3. Assimilation

When segments take on features from neighbouring segments, the assimilation process is said to have occurred. Nasal consonants are near to vowels, as evidenced in the data below. Therefore, these vowels are nasalized by the virtue that they are neighbouring nasal consonants, and as a result, they obtain nasalization (a process that involves lowering the velum so that the air can escape through the nose when producing sounds through the mouth).

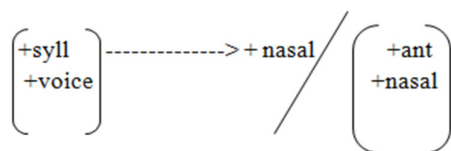
Base word	Meaning	underlying	word	Phonetic transcription	meaning
tēga	'trap'	/mũ +tega/	mũtego	[mũtego]	'A trap'
cama	'taste'	/mũ+cama/	mũcamo	[mũcamo]	'A taste'
rega	'deny'	/mũ+rega/	mũrega	[mũrega]	'One who denies'
gũrũka	'go mad'	/mũ+ gũrũka/	mũgũrũki	[mũgũrũki]	'A mad person'
gamba	'sound'	/mũ+gamba/	mũgambo	[mũgambo]	'voice'
Theca	'stab'	/mũ+theca/	mũtheci	[mũðeci]	'stabber'
gonyoka	'bend'	/mũ+gonyoka/	mũgonyoku	[mũgoŋoku]	'one that is bent'
hĩnja	'slim'	/mũ+hĩnja/	mũhĩnju	[mũhĩ ʰdʒu]	'one who is thin'

From the data above, tega, cama, rega, gũrũka, gamba, theca, gonyoka, and hĩnja are the base forms of the words. The underlying form mũ is added to the base word. This is because it has the widest distribution from the data provided above.

##### 4.3.1. Rule Statement

The vowels are nasalized when neighboring nasal consonant sounds [n, m]

##### 4.3.1.1. Phonological Rule



#### 4.4. Vowel Deletion

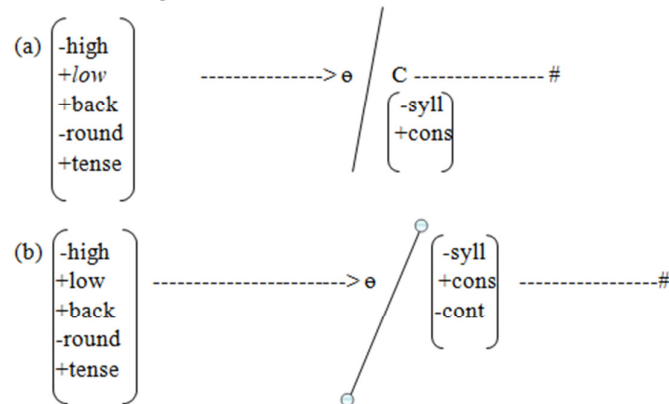
The loss of a segment or segments in words is called deletion. In the data below, in the base form of the verbs provided, the low back unrounded vowel /a/ occurring between voiced and voiceless sounds is deleted in the perfect form and is replaced with an open-mid vowel /ɛ/

Gloss	Base	Perfect
Finish	[nina]	[ninĩtɛ]
Come	[ũka]	[ũkĩtɛ]
Cook	[ruga]	[ʳdugĩtɛ]
Cut	[tɛma]	[ʳdɛmetɛ]
Laugh	[ðeka]	[ðɛketɛ]
Hold	[ɲita]	[ɲititɛ]
Study	[ðoma]	[ðometɛ]
Jump	[rũga]	[ʳdũgĩtɛ]

#### 4.4.1. Rule Statement

- The low back unrounded vowel /a/ is deleted when it occurs before voiceless and voiced consonants at the final position OR
- The low back unrounded vowel /a/ is deleted when it comes before [n, k, g, m, t] sounds.

#### 4.4.2. Phonological Rules



#### 4.5. Coalescence

Coalescence refers to the combination of two segments with distinctive features into one. coalescence involves both assimilation and reduction. However, no proof has been put across to show that coalescence and its various kinds should be seen as assimilation followed by reduction.

##### 4.5.1. Consonant Coalescence

In the data below, the alveolar consonant sounds /r/ and /t/ coalesce with the archetypal nasal /n/ to form a pre-nasalized stop /<sup>n</sup>d/. Phonological rules are given as well as the rule statements as discussed below.

Gloss	Base	Perfect
Give	[ruta]	[ <sup>n</sup> duṭiṭe]
Cut	[təma]	[ <sup>n</sup> dəmeṭe]
Nurture	[rəra]	[ <sup>n</sup> dəreṭe]
Run	[teŋera]	[ <sup>n</sup> dəŋereṭe]
Dream	[rəta]	[ <sup>n</sup> dəteṭe]
Cry	[rīra]	[ <sup>n</sup> dīriṭe]
Penetrate	[təpa]	[ <sup>n</sup> dəpeṭe]
Disturb	[taŋa]	[ <sup>n</sup> daŋiṭe]

The distinctive features of /t/	$\left[ \begin{array}{c} -\text{syll} \\ +\text{cons} \\ -\text{son} \\ +\text{cor} \\ +\text{ant} \\ -\text{voice} \\ -\text{cont} \end{array} \right]$	and /r/	$\left[ \begin{array}{c} -\text{syll} \\ +\text{cons} \\ +\text{cor} \\ -\text{ant} \\ +\text{cont} \\ +\text{son} \\ +\text{voice} \end{array} \right]$
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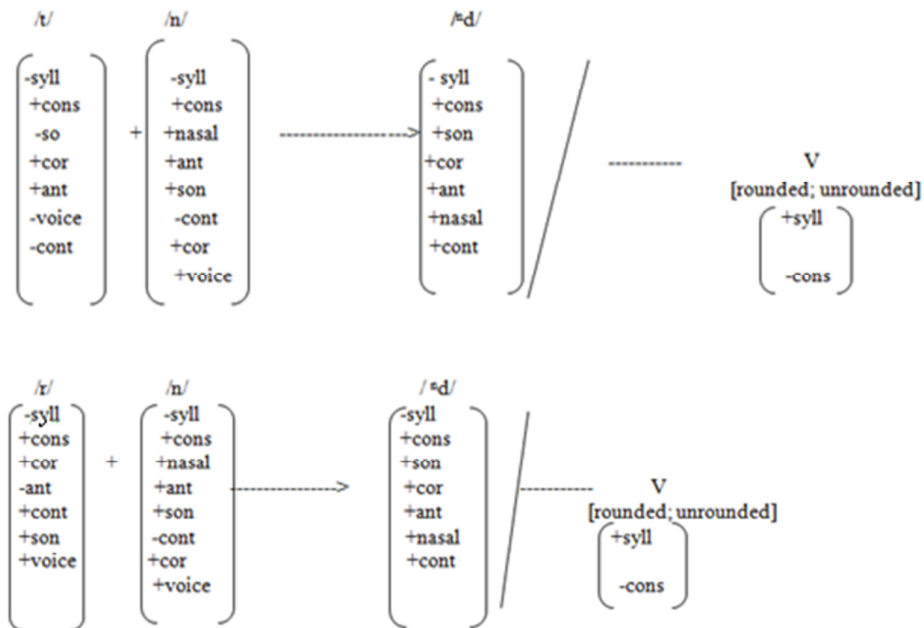
These sounds coalesce with nasal /n/ to form a pre-nasalized stop /<sup>n</sup>d/, which has the following distinctive features -syll, +cons, +son, +cor, +ant, +nasal, +cont

Moreover, this process involves a change in the manner of articulation because /<sup>n</sup>d/ is the resultant sound after coalescence is voiced, and therefore, when it is being produced, there is closure in the oral tract while producing it.

#### 4.5.1.1. Rule Statement

The alveolar /t/ and /r/ coalesce with archetypal nasal /n/ to form a pre-nasalized stop /<sup>n</sup>d/ before rounded and unrounded vowels.

##### 4.5.1.1.1. Phonological rules



#### 4.5.2. Nasal Coalescence

There are three sounds that are of main concern in the data provided below. The nasal [n], the post-alveolar fricative [ʃ] and the post-alveolar affricate [ʎ<sup>n</sup>dʒ].

Word	meaning	underlying	word	phonetic transcription	meaning
Cuha	'swing'	/n+ʃuha/	njuhe	[ <sup>n</sup> dʒuhe]	'I swing'
Coka	'come back'	/n+ʃoka/	njoke	[ <sup>n</sup> dʒoke]	'I come back'
Cuhia	'hang'	/n+ʃuhia/	njuhie	[ <sup>n</sup> dʒuhie]	'hanged'
Ciūria	'questions'	/n+ʃiūria/	njūria	[ <sup>n</sup> dʒuria]	'ask me'
Cunga	'sort'	/n+ʃuŋa/	njunge	[ <sup>n</sup> dʒuŋe]	'sorted'
Caria	'search'	/n+ʃaria/	njarie	[ <sup>n</sup> dʒarie]	'search for'
Cera	'visit'	/n+ʃera/	njere	[ <sup>n</sup> dʒere]	'I visit'
Ciira	'case'	/n+ʃiira/	njiire	[ <sup>n</sup> dʒiire]	'I case'
Cina	'burn'	/n+ʃina/	njine	[ <sup>n</sup> dʒine]	'burnt'

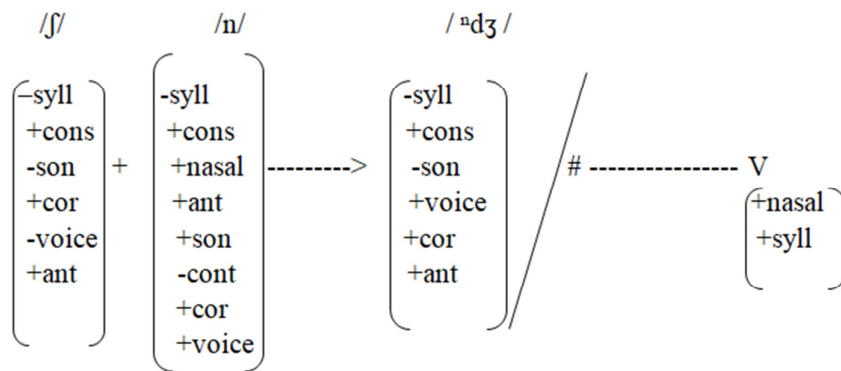
There are two changes experienced in the data provided above: the manner of articulation and the voicing state. The manner of articulation is manifested when the post-alveolar fricative [ʃ] changes to a post-alveolar affricate [ʎ<sup>n</sup>dʒ]. The voicing state changes when the voiceless fricative sound [ʃ] changes to a voiced post-alveolar affricate [ʎ<sup>n</sup>dʒ].

#### 4.5.2.1. Rule Statement

The voiceless post-alveolar fricative [ʃ] coalesce with an archetypal nasal /n/ to form a voiced post-alveolar affricate /<sup>n</sup>dʒ/ (which is a continuant) before vowels



## 4.5.2.1.1. Phonological Rules



## 4.6. Insertion

When we add segments or a segment in words, insertion is said to have taken place.

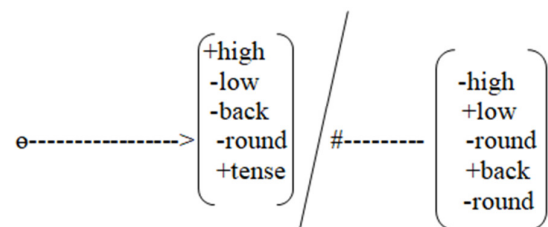
Base	Phonetic transcription	meaning	word	Phonetic transcription	meaning
Hitha	[hiða]	'hide'	hithia	[hiðia]	'To hide'
Hītūka	[hītūka]	'pass'	hītūkia	[hītūkia]	'pass something'
Nyita	[ɲita]	'hold'	nyitia	[ɲitia]	'tighten'
Rūma	[rūma]	'bite'	rūmia	[rūmia]	'make someone bite'
Hora	[hora]	'cool'	horia	[horia]	'make something cool'
Rakara	[rakara]	'get angry'	rakaria	[rakaria]	'anger someone'
Thera	[ðera]	'be clean'	theria	[ðeria]	'clean-up'
Nyiha	[ɲiha]	'reduce'	nyihia	[ɲihia]	'reduce'
Uma	[uma]	'get out'	umia	[umia]	'take something out'

Kikuyu language undergoes insertion as a phonological process. If you pay close attention to the data provided, the high front rounded vowel [i] is inserted between voiced/voiceless consonants [ð, k, t, m, r, h] and the low back vowel [a]. The base in the data above represents verbs in the Kikuyu language. Therefore, it is agreeable to say that insertion can occur in verbs in the Kikuyu language. When the vowel [i] is added, it brings newer meanings and retains the same meanings in some words. After the addition of the vowel [i], there is the formation of a vowel cluster that is not identical. For example, in the base word 'hitha' in the data above, a vowel [i] is inserted between [ð] and [a] and therefore forms a two different letter vowel cluster of [ia].

## 4.6.1. Rule Statement

The high front rounded vowel [i] is inserted before the low back rounded vowel [a] and appears after the voiced/voiceless consonants [ð, k, t, m, r, h].

## 4.6.1.1. Phonological Rule



## 4.7. Formation of Glide

The glides include [w, y]. They are categorized under the approximants together with liquids /l/ because the articulators are in close contact. Glides are semi-vowels because they are produced with a stricture of open approximation. They also have vowel-like characteristics. They combine with vowels and are often followed by a vowel. However, despite having vowel-like qualities, glides cannot take the nucleus position in a syllable structure.

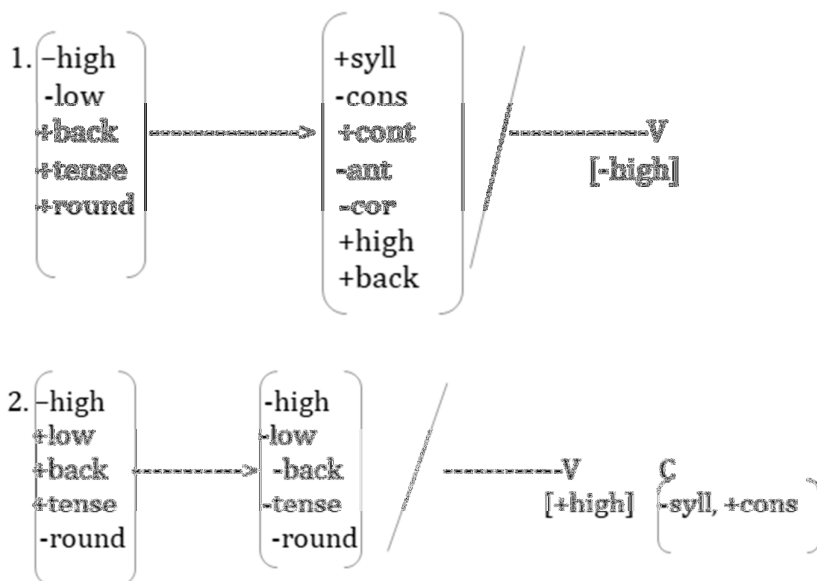
Base word	Meaning	underlying	word transcription	Phonetic	meaning
ona	'see'	/mo+ona/	mwonere	[mwonere]	'a way of looking at things'
ania	'moo'	/mo+ania/	mwaniŋrie	[mwaniŋrie]	'a way of mooing'
etha	'search'	/mo+eða/	mwethere	[mweðere]	'a way of searching'
etia	'ask'	/mo+etia/	mwitīrie	[mwitīrie]	'a way of asking'
enja	'shave'	/mo+e <sup>n</sup> dʒa/	mwenjere	[mwe <sup>n</sup> dʒere]	'a way of shaving'
ota	'bask'	/mo+ota/	mwotere	[mwotere]	'a way of basking'
endia	'sell'	/mo+e <sup>n</sup> dia/	mwenderie	[mwe <sup>n</sup> derie]	'a way of selling' or 'sell to'
anika	'hang'	/mo+anika/	mwaniŋkire	[mwaniŋkire]	'a way of hanging'
andama	'follow'	/mo+a <sup>n</sup> dama/	mwandame	[mwa <sup>n</sup> dame]	'keep a follow up'

The formation of new words from the base words from the data above in the Kikuyu language is achieved through prefixation. The Kikuyu verbs: *ona*, *ania*, *etha*, *etia*, *enja*, *ota*, *endia*, *anika*, and *andama* take the prefix 'mo-'. The final vowel /o/ in 'mo-' changes to the glide /w/. This shows that the glide is realized at the morpheme boundary. Whenever the close-mid, rounded, back vowel /o/ comes before another vowel at the start of the root word, a glide is formed. It is also notable that low back unrounded vowel /a/ in the root words changes into an open-mid lax vowel /ɛ/ in the new words formed.

#### 4.7.1. Rule Statement

- /o/, a back, round, tense vowel in the prefix 'mo-' changes into the semi-vowel /w/ before low vowels. However, /o/ is exempted from the underlying forms.
- The low back unrounded vowel /a/ in the root words changes into an open-mid lax vowel /ɛ/ before high vowels and consonants.

##### 4.7.1.1. Phonological Rules



Base word	Meaning	underlying	word	Phonetic transcription	meaning
'temenga'	'chop'	/mo+temeŋa/	mwitemengeri	[mwitemeŋeri]	'one who chops for him/herself'
'nora'	'sharpen'	/mo+nora/	mwinoreri	[mwinoreri]	'one who sharpens for himself'
'rīra'	'cry'	/mo+rīra/	mwirīriri	[mwirīriri]	'one who only cares for him/herself'
'teta'	'complain'	/mo+teta/	mwiteteri	[mwiteteri]	'one who defends him/herself'
'anīrīra'	'shout'	/mo+anīrīra/	mwaniŋriri	[mwaniŋriri]	'one who shouts'
'thondeka'	'repair'	/mo+ðo <sup>n</sup> deka/	mwithondekeri	[mwīðo <sup>n</sup> dekeri]	'one who repairs for him/herself'
'anganga'	'restless'	/mo+aŋaŋa/	mwangangi	[mwaŋaŋi]	'one who is restless'
'ananga'	'destroy'	/mo+ananga/	mwīyanangi	[mwīyanangi]	'one who destroys himself'
'etha'	'search'	/mo+eða/	mwīyetheri	[mwīyeðeri]	'one who searches for him/herself'
'hotha'	'tithe'	/mo+hoða/	mwīhotheri	[mwīhoðeri]	'one who tithes'

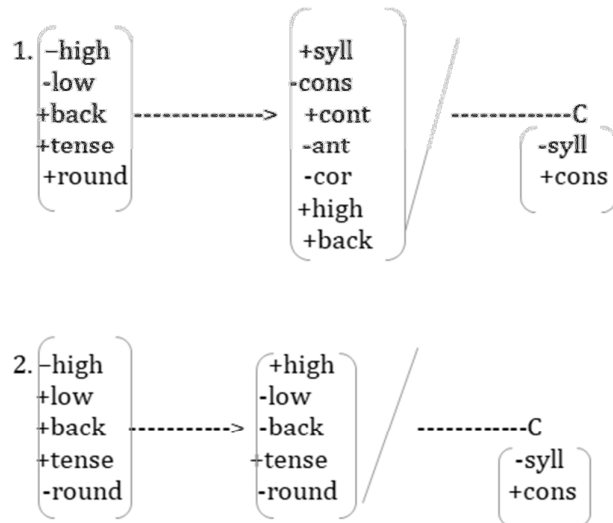
From the data provided above, the addition of the prefix 'mo' is realized to the verbs *temenga*, *nora*, *rīra*, *teta*, *anīrīra*, *thondeka*, *ananga*, *etha*, and *hotha*. Just like the previous data on glide formation provided above, /o/ in 'mo'

changes to a glide /w/ as illustrated in the data above. Furthermore, the data above show that the low back unrounded vowel /a/ in the root words changes into /i/ in the new words formations.

#### 4.7.1.2. Rule Statement

- /o/, which is a back round tense vowel in the prefix 'mo', results in a semi-vowel /w/, which is a glide before consonants in the new words formed.
- The low back unrounded vowel /a/ in the root words changes into a high front unrounded tense vowel /i/ before consonants.

#### 4.7.1.3. Phonological Rules



## 5. Conclusion

This study uses distinctive features theory to explain the data and write the rule statements, including the phonological rules. These features make it possible to analyze the phonological data correctly. Kikuyu dialectical words are subject to phonological processes, as seen from the data provided above. Therefore, Linguists should not dwell much on orthography while tackling phonology but on the sounds made by different words to achieve the desired objectives. Glide formation frequently occurs in the Kikuyu dialectical words. Its manifestation is deep-rooted in the Kikuyu language, as discussed above. According to this study, the use of distinctive features theory proves that it is an adequate theory in the explanation of the phonological processes in the Kikuyu language. The manner and place of articulation, voicing state, and place of articulation are expounded using the distinctive features theory. Also, the parameters of describing vowels, like the height of the tongue, position of the tongue, lip rounding, and tenseness, are well elaborated in this research paper. The use of prefixes is a common thing in the Kikuyu dialectical words. This is evident in the formation of glides where the prefix 'mo-' is added to the base words and changes to /w/ to form new words with different meanings. The prefixes contribute to the sound changes.

Pre-nasalized stops exist in the Kikuyu language, formed from a nasal /n/ and stops. Assimilation was realized when vowels were nasalized when they neighbored nasal consonants. Consonant strengthening from the data provided above shows that voicing was involved. Deletion explanation and analysis showed that it was achieved through the loss of the final low back vowel /a/ in words provided in the discussed data, which was replaced with the open-mid vowel /ɛ/. Furthermore, consonant coalescence discussion showed that sounds /t/ and /r/ coalesced with a nasal /n/ to form a pre-nasalized stop /<sup>h</sup>d/ while nasal coalescence showed sound /j/ coalescing with a nasal /n/ to form a post-alveolar affricate /<sup>h</sup>dʒ/. The explanation above showed that insertion was achieved when the vowel /i/ was inserted between voiced/voiceless consonants and low back vowel /a/. Glide formation is manifested when the prefix 'mo-' is added to the root words, and later on, the vowel /o/ in 'mo-' is replaced with the glide /w/ in the formation of the new words.

Some of the Kikuyu dialectical words with consonants are distinct from the other Bantu languages because of the existence of pre-nasalized consonants, and it is also evident that vowels can be nasalized. Also, adding the two vowel sounds with a tilde /ĩ/ and /ũ/ makes it different from the English Alphabet. There are 25 contrasting speech sounds. This means that we have 18 consonant sounds and 7 vowel sounds. Just like in Spanish, the tilde in the two Kikuyu vowels is used to indicate nasalization. The dialectical words in the Kikuyu language share a lot of lexical similarities and semantic correlations.

The existence of minimal pairs in the Kikuyu language helps us to differentiate different phonological elements. It is worth noting that phone, tone, and phoneme are elements exhibited in the Kikuyu language. Kikuyu language has minimal pairs, which involve mostly the variety of vowel sounds as the phonological elements, although consonants are also involved. The seven Kikuyu vowels constitute different phonemes.

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