A Grammatical Description of Nyakyusa Phonology

JLLE
Vol 17(2) 136-167

DOI: 10.56279/jlle.v17i2.1

Nichodamus Robinson[*]
ORCID: 0009-0006-7185-4961

Abstract

This paper offers a grammatical description of the phonology of Nyakyusa (M31), as an integral part of grammar. The literature review suggests that, in many Bantu languages, phonological description has received little attention since many scholarly works in Bantu linguistics primarily focus on morphology. Data for this study were collected in Kyela District, where many native speakers of Nyakyusa reside. Data collection techniques included reviewing available written texts, recording narrative stories, observing speakers' conversations, and interviewing native speakers to assess the acceptability of certain constructions. The findings reveal that Nyakyusa has 14 pure consonants, 4 pre-nasalized stops, and seven vowels. Additionally, the study indicates that the contact between consonants and vowels gives rise to various phonological processes aimed at speech simplification. Such phonological processes are gliding, deletion, homorganic nasal assimilation, continuant stopping, consonant alternation, consonant mutation, voicing, vowel coalescence, and vowel harmony. In conclusion, the paper asserts that, despite some phonological aspects being common in Bantu languages according to the literature, the environments enabling them to occur to a large extent remain language-specific for Nyakyusa. Consequently, the paper recommends a systematic comparative phonological description across Bantu languages.

Keywords: *Grammar, language description, Nyakyusa, phonology*

Introduction

This paper describes the phonology of Nyakyusa i.e. consonants, vowels, and the phonological processes that shape the interaction between these sounds.

*** Corresponding author:**
Lecturer in the Department of Language Studies, Sokoine University of Agriculture, Morogoro, Tanzania. E-mail: obinson.nichodamus@sua.ac.tz

As a descriptive study, it contributes to language documentation, with a primary focus on preserving and revitalizing endangered languages, including the one under examination (see Lusekelo 2007; Robinson 2021). According to Austin (2006), the audience for language documentation is broad, encompassing not only linguists and researchers from various fields but also members of the community whose language is being documented. Additionally, it is crucial for interested individuals who seek to learn the language. Consequently, this paper serves as a reference material for linguistic analysis, exemplification, and language learning.

Felberg (1996) describes Nyakyusa as a language spoken by approximately one million people, stretching geographically from the north Rukuru River near Kalonga in Malawi to Mbeya town in Tanzania, with the majority of speakers residing in Tanzania. The language is classified as M31 in the list of Bantu languages (Maho 2009). According to LOT (2009), Nyakyusa is among the ten major languages in Tanzania with 740,020 speakers. The majority of these speakers, approximately 682,539, reside in Mbeya Region, particularly in three districts: Kyela (with 138,869 speakers), Rungwe (258,441), and Mbeya Urban (145,007). In comparison to other Bantu languages in Zone M or those forming the Nyasa-Tanganyika Corridor, Nyakyusa has relatively more publications. However, its linguistic description remains so sketchy (Persohn 2017), that a comprehensive documentation across all realms of grammar i.e. phonology, morphology, syntax, semantics, and pragmatics is necessary.

The literature review reveals that phonological description, a crucial component of the grammar of any language, has received little attention across Bantu languages as well as the language under study. Across various Bantu languages, numerous descriptive and theoretical works have primarily focused on morphological description (see Besha, 1989; Rugemalira, 1993; Mreta, 1998; Swilla 1998; Nurse and Philippson 2006; Nurse, 2008; Goodness, 2008; Botne, 2010). In the case of Nyakyusa, many publications gyrate around morphological aspects, specifically tense/aspect,

negation, verb forms (see Lusekelo 2007, 2013; Robinson 2015, 2021), inflection-derivation distinction (see Robinson 2016), and verb forms (see Persohn 2017). However, some of these studies indirectly touch upon certain phonological aspects of the respective languages.

The review of previous scholarly works on Bantu phonology and morphology reveals that certain phonological aspects are shared among many Bantu languages, while others are language-specific. This paper aims to elucidate how Bantu languages exhibit variations in their phonological descriptions. Beginning with the divergence in segmental phonology, specifically the vowel system, it is noteworthy that while Proto-Bantu (PB) had a seven-vowel system (7V), many Bantu languages have undergone a reduction in favor of a five-vowel system (Schadeberg, 1995; Hyman, 2003). According to these authors, languages that have transitioned from seven vowels to five underwent a merger process, historically combining the high front *i/*i and back vowels *u/*u into [i] and [u], respectively. The reduction and preservation of the number of vowels across Bantu languages have intriguing phonological implications. For example, scholars associate the historical development of consonant mutation (C-mutation) across Bantu with the 7-vowel (7V) to 5-vowel (5V) merger process.

Labrouiis (1999) observes that languages with a five-vowel system (5V) typically undergo full spirantization (C-mutation), while those with a seven-vowel system (7V) experience limited spirantization. For instance, in Rungu (M14) and Fipa (M13), both five-vowel languages, the vowel of the causative extension and the vowel of the past tense/perfect suffix (*-ile*) induce spirantization. However, in Nyakyusa, a seven-vowel language, the vowel of the past tense/perfect suffix (*-ile*) does not induce spirantization. Moreover, in Nyakyusa, a non-spirantizing tendency is observed in verbs where the agentive **i* would typically induce spirantization in other languages. Synchronic data for Nyakyusa presented by Robinson (2021) in (1) illustrate the prevalence of this non-spirantizing tendency after attaching an agentive vowel.

(1)	**Stem**		**Agentive**
a.	*-bhomb-a* 'work'	→	*umbomb-i* 'a worker'
b.	*-keet-a* 'see'	→	*unkeet-i* 'eye witness'
c.	*-poka* 'save'	→	*umpok-i* 'savior'

Contrary to the examples provided in (1), Labrouiis (1999) argues that in certain languages, the agentive is added to the verb stem, and subsequently, the resulting derived forms undergo spirantization. For instance, the word *bhomb-a* 'work' change into *umbomf-i*, 'a worker.' However, the literature review has identified evidence of spirantization in languages with a seven-vowel system. Notably, data presented by Robinson (2016) indicate that the vowels **-u* and and short causative **-i* induce C-mutation in Nyakyusa, a 7V language, as illustrated in (2).

(2) **Verbs**		***u**	**Noun**	**Gloss**
fujuka	'be insane,	/fujuf-u/	*u-mu-fujuf-u*	'inferior'
konyoka	'be broken'	/konyof-u/	*u-mu-konyof-u*	'a stupid one'
suuka	'be blunt'	/suuf-u/	*u-mu-suuf-u*	'a blunt object'
lulala	'be still'	/*lulaf-u*/	*u-mu-lulaf-u*	'a lazy one'
loga	'bewitch'	/los-i/	*u-ndosi*	*bewitcher*
jonga	*'get lost'*	/*jos-i-a*/	*josya*	*cause to get lost*

The examples in (2) have illustrated how the agentive vowels **-u* and **-i*, along with the short causative [i], induce C-mutation in Nyakyusa. This mutation, called spirantization as well, transforms obstruents and the liquid [l] into fricatives, impacting the manner of articulation. These vowels also influence the place of articulation, as seen in [k>f] and [l>f]. However, Nyakyusa exhibits limited spirantization, as our survey identified minimal data supporting this phenomenon. For instance, verbs like *goga* 'kill' and *tola* 'win' undergo noun derivation by an agentive *-i* to *-gogi* 'killer' and *-toli* 'winner', respectively, without spirantization. Additionally, the vowel of the tense and aspect marker, *-ile,* does not induce C-mutation in the language a contrast to other languages such as Nyiha, a sister language in the Nyasa-Tanganyika Corridor (see Robinson 2021), and Runyambo (see Rugemalira 2005).

To sum up, the review of previous scholarly works suggests that, in many Bantu languages, right-edged C-mutation is triggered by certain vowels, including the short causative *-*i*, the agentive *-*i, -u*, and the vowel of the perfective suffix -ide/-ite/-*ile* (Bugingo 1984; Muzale 1998; Labrouiis 1999; Hyman 2003; Rugemalira 2005; Robinson 2016). In terms of observed variation, while in some Bantu languages, the vowel of the tense/aspect suffix *-ile* induces C-mutation, in others, it does not. For instance, in Proto Rutara languages, the vowel of the suffix induces C-mutation, as seen in the transformation of the word *gura* 'buy' into *guzire* 'bought' (see Muzale 1998). In Kirundi, the perfect suffix *-ye* causes mutation, changing [t] into [z], as in *-hit-* 'to pass' becoming *hize* (Meeussen 1959). A similar case is reported in languages along the Nyasa-Tanganyika corridor, particularly in Nyiha (Robinson, 2021). In contrast, in other languages like Nyakyusa (Robinson 2015), the vowel of the suffix does not induce C-mutation.

Theory

As a descriptive study, it only refrained from adopting a strong theoretical stance. As Nurse (2008) contends, no study can truly be theory-neutral. In light of this perspective, the Theory of Utterance Selection served as a guiding framework for the collection, analysis, and generalization of data in this study. This Croft's (2000) theory of Utterence Selection posits that languages do not inherently change; rather, people alter the language through their actions. One of the maxims within the Utterance Selection theory, as articulated by Keller (1994), is to 'talk in such a way that you do not expend superfluous energy. In other words, speakers normally use as little energy as possible when talking. Akidah (2013) highlights that language change is instigated by speakers who frequently express words more economically, resulting in a reduction of speech. This perspective suggests that speakers unconsciously introduce innovations to languages, making utterances appear simpler than before. The innovations can be observed in phoneme reduction (e.g., from seven to five vowels in Bantu languages) and various structural simplifications.

The theory is pertinent to the analysis of phonological processes influencing the interaction between consonants and vowels. It is noteworthy that these phonological processes are prompted by the changes made by speakers to simplify speech. Hayes (2009) highlights that speakers, while conversing in their respective languages, introduce changes and generate rules, often interestingly and paradoxically, without necessarily being aware of these changes. To examine these changes and resulting rules, involving phonological processes, the data collection and analysis for this paper adhered to several procedures outlined by Carnie (2007). The procedures involved; firstly, data gathering and observation; secondly, formulating generalizations about patterns in the data; thirdly, developing hypotheses that explain these generalizations and testing them against additional data. Finally, the hypotheses were revised based on any new data and retested to refine optimal generalizations.

Methodology

The data for this paper were gathered in Kyela District, the residence of many native speakers. Data were collected through the triangulation of four data collection techniques. The techniques included reviewal of existing written texts by Robinson (2015), (2021), and Felberg's (1996) dictionary. Other techniques comprised observation of native speakers' conversations and the recording of narrative stories to facilitate natural data flow. With the researcher's introspective knowledge as a native speaker and using the aforementioned data collection techniques, a lot of data were collected and analyzed to describe various sounds of the language, including consonants and vowels, as well as the phonological processes influencing the interaction between these sounds. Additionally, interviews were only conducted to seek grammaticality judgments from other native speakers, ensuring the acceptability of various examples and constructions presented in this paper.

Results and Discussion

This section presents the phonology of Nyakyusa with a particular focus on segmental and supra-segmental aspects. To start with segmental phonology, common sounds, namely consonants and vowels, are presented, along with the phonological processes that impact the interaction between these sounds.

Segmental Phonology

Within the realm of segmental phonology, this section presents consonants and vowels of Nyakyusa as well as phonological processes shaping the contact between them.

Consonants

Nyakyusa has fourteen pure consonants and four pre-nasalized stops. The approximants in the language do not manifest as independent sounds; instead, they appear as glides through a phonological process known as gliding. Table 1 illustrates the consonants and their corresponding orthographic representation.

Table 1: Consonants and their Orthographic Representation

Consonant	Orthography	Example
P	P	*pela* 'create'
B	Bh	*bhala* 'count'
T	T	*tuula* 'help'
K	K	*kula* 'grow'
G	G	*gona* 'sleep'
M	M	*moga* 'dance'
N	N	*nega* 'fetch'
ŋ	ng'	*ing'osi, sheep*
ɲ	Ny	*nyumba* 'house'
S	S	*senga* 'slash'
F	F	*fuula* 'undress'
L	L	*loga* 'bewitch'

Consonant	Orthography	Example
H	H	*haha* 'seduce'
J	*y	-
W	*w	-
ɟ	J	*jonga*

Pre-nasalized stops [mb], [nd], [ɲɟ] and [ŋg] have not been included in Table 1 because it remains unclear whether they are single phonemes or sequences of two phonemes. Additionally, two consonants, the approximants, featured in the table, are marked with an asterisk to signify that they do not exist independently as consonants; rather, they emerge in the language through a process known as gliding, where the upper high front vowel [i] glides to [y] and the high back vowel [u] glides to [w] before another vowel. Table 2 provides an illustration of the formation of approximants in Nyakyusa.

Table 2: Formation of Approximants

Noun Class	Underlying Form	Gliding Process	Surface Form	Gloss
Class I	*mu-ana*	u>w	*ʉ-mwana*	child
Class 13	*tu-ana*	u>w	*ʉ-twana*	small children
Class 7	*ki-ula*	i>y	*ɨ-kyula*	frog
Class 8	*fi-ula*	i>y	*ɨ-fyula*	frogs

The examples presented in Table 2, illustrating the formation of approximants through gliding, are readily discernible within the morphology of nouns, as the sounds can be reconstructed by tracing the components of a noun in the language. However, in verbal morphology, we observed several instances of approximants in verbs such as fwima, twala, syala, syuka. It can be generalized that these are the result of gliding applied to the verbs *fuima, tuala, siala* and *siʉka*, respectively. The findings also indicate that the upper high vowels [i] and [u] undergo gliding, in contrast to the lower high vowels [ɨ] and [ʉ]

Pre-nasalized Stops

As mentioned earlier, pre-nasalized stops [mb], [nd], [ɲɟ] and [ŋg] were not included in Table 1 due to uncertainty about whether they are single phonemes or sequences of two phonemes. During data analysis, we formulated several hypotheses by examining certain features and behaviors of these sounds in Nyakyusa. Specifically, we initially focused on the voicing feature and observed that they function as single phonemes. In this voiced language, pre-nasalized stops such as [mb] in *i-**mb**ungo* 'sickness', [nd] in *i-**nd**umi* 'message', [ɲɟ] in *i-**ɲɟ**uni* 'a bird' and [ŋg] in *i-**ŋg**alamu* 'a lion' exhibit distinct characteristics from their voiceless counterparts, such as [ŋk] in *u-ŋkamu* 'his/her relative/brother or sister,' [nt] in *u-ntondo* 'name of a tree,' and [mp] in *u-mpaka* 'the border'. These voiceless pre-nasalized stops can be easily reconstructed through morpho-phonemic analysis. Examples in (3) demonstrate the reconstruction of voiceless pre-nasalized stops as a sequence of a nasal sound and voiceless stop in Nyakyusa.

(3) Prenasalized stops	**Examples**	**Reconstruction**
[ŋk]	*u-ŋkamu*	*u-mu-kamu*
[mp]	*u-mputi*	*u-mu-puti*
[nt]	*u-ntungulu*	*u-mu-tungulu*

The sounds depicted in (3) represent two distinct phonemes, with [ŋk] being a sequence of [m] and [k], as seen in u-mu-kamu. Over time, speakers tend to delete the vowel of the class prefix, leading to the assimilation of the alveolar nasal [ŋ] to the place feature of the voiceless velar [k].

The second indication is referred to as replacement, which is currently observed with the short causative [i]. When the short causative suffix [i] induces mutation in pre-nasalized stops, the entire segment is altered by being replaced with a single sound. For instance, in the Nyakyusa word *jonga* 'get lost,' the causative suffix [i] causes the pre-nasalized [ŋg] to mutate into [s], as from *jonga* to *jos-i-a* 'cause something to get lost.' Additionally, the upper high vowel [i] glides to [y], giving rise to the surface form *josya*. From this perspective, the voiced pre-nasalized stops are considered as

single phonemes. Example (4) illustrates the step-by-step mutation caused by the short causative, *-i.*

Mutation of the consonant of the word *jonga* 'get lost' when short causative [i] is added

Step 1:	/jong-i-a / stem + causative [i]	**=Underlying form**
Step 2:	/jos-i-a/	consonant mutation
Step 3:	/josya/	gliding
	[josya]	**Surface form**

In general, we have presented the consonants found in Nyakyusa. However, in comparison to other Bantu languages like Kiswahili, which is the lingua franca in Tanzania, Nyakyusa lacks several consonants, including [b], [d], [v], [z], [sh], [w], and [y]. When a word is borrowed from Kiswahili, the source language (SL), with these consonants that are absent in Nyakyusa, the target language (TL), typically TL replaces them with available sounds through a process technically called sound nativization. Table 3 provides examples to illustrate Nyakyusa nativization of consonants in words borrowed from Kiswahili.

Table 3: Nativization of Sounds in Words Borrowed from Kiswahili

G42				**M31**		
Cons	**Orthog-raphy**	**Example**	**Gloss**	**Cons**	**Orthog-raphy**	**Example**
		Yesu	Jesus			Jesu
y	*Y*	*Yohana*	John	ɟ	J	Johani
		Yosefu	Joseph			*Josefu*
		Mbeya	Mbeya			*Mbeje*
w	*W*	*Wimbo*	song	Lw	*lw*	*u-lwimbo*
d	*D*	*Yuda*	Jude	t		*Juta*
		Nikodemu	Nicodamus	t		*Nikotemu*
		Davidi/ daudi	David	Nd	*nd*	*ndabhiti*
b	*B*	*Baba*	father		*bh*	*bhabha*

z	*Z*	*Mzungu*	whiteman	s	*s*	*u-mu-sungu (unsungu)*
ʤ	*Dh*	*Dhambi*				*i-sambi*
ʃ	*Sh*	*Shamba*	farm	Sy	*sy*	*i-syamba*
		Chumba	room			*i-kyumba*
ʧ	*Ch*	*Chupi*	underpants	Ky	*ky*	*i-kyupi*
		Chura	frog			*i-kyula*
v	*V*	*Vumbi*	dust	f	*F*	*i-fumbi*

The data presented in Table 3 indicate that the borrowed words with strange consonants undergo nativization which involves substituting the consonants with other consonants available in the target language. However, through observation, we noted some strange sounds in the borrowed word penetrating in the Nyakyusa sound inventory. For instance, during data collection, I heard many Nyakyusa speakers uttering the sound [y] in a word like *Yanga* instead of *janga*. But this case of penetration of strange consonants in Nyakyusa is very rare.

Vowels

While the Proto-Bantu (PB) had a seven-vowel (7V) system, the majority of Bantu languages have reduced them to five vowels (Schadeberg 1995; Hyman 2003). According to these authors, languages that have reduced the seven vowels into five underwent a historical process of merging the highest front *i/*ɨ and back vowels *u/*ʉ into [i] and [u] respectively. Figure 1, symbolically, illustrates the merging of the high front and back vowels, the process that resulted in some Bantu languages adopting the 5-vowel system.

i	u
i	u
ɨ	ʉ

Figure 1: Merging of the High Vowels

Figure 1 has shown merger process that resulted in some Bantu

languages such as Swahili (see Mashauri 2021), Ndali and Nyiha (See Robinson, 2021). However, Nyakyusa is one of the Bantu languages that have maintained the PB seven-vowel system. Figure 2 shows the seven-vowel system maintained by Nyakyusa.

front	**back**	
i/ii	u/uu	upper high
~~i/ii~~	~~u/uu~~	lower high
e/ee	o/oo	mid
a/aa	low	

Figure1: Seven Vowel System in Nyakyusa

In Figure 2, the vowels shown on the right represent the long vowel, and across Bantu languages, they appear in a doubled form. As previously mentioned, to substantiate the claim that Nyakyusa has a seven-vowel system, minimal pairs have been employed. Table 4 provides examples of minimal pairs to illustrate the contrast between [u] and [~~u~~], and between [i] and [~~i~~].

Table 4: Seven Vowel System in Nyakyusa

Word	**Gloss**	**Word**	**Gloss**	**Vowel Contrast**
pinda	fold	*p~~i~~nda*	tighten	i versus ~~i~~
bhwila	every day	*bhw~~i~~la*	eat in a silly way	i versus ~~i~~
kula	blow	*k~~u~~la*	grow	u versus ~~u~~
tuka	dig the ground roughly	*t~~u~~ka*	insult	u versus ~~u~~
tula	become dwarf	*t~~u~~la*	become guilty	u versus ~~u~~
~~i~~kituli	piece of meat	*~~i~~kituli*	mortar	u versus ~~u~~
ifumbi	an egg	*ifumbi*	dust	i versus ~~i~~

Minimal pairs have been used to demonstrate the 7V system in Nyakyusa. Additionally, the findings suggest that the lower high vowels [i] and [u] constitute the pre-prefix of Nyakyusa nouns. Since Nyakyusa uses the 7V system, the introspective knowledge of the researcher, as a native speaker of the language, guided the presentation of examples that observes the seven-vowel system.

Table 5 shows the vowels and their orthographic realization.

Table 5: Vowels and Orthography

Vowel	Orthography
I	I
Ɨ	Ɨ
U	U
Ʉ	Ʉ
O	O
E	E
A	A

Also, the findings indicate that Nyakyusa has both short and long vowels which, in this paper, we choose to demonstrate their contrast using minimal pairs, as shown in Table 6.

Table 6: Short-Long Vowel Contrast

Short Vowel	pGloss	Long Vowel	Gloss
seka	laugh	*seeka*	shivering of teeth because of eating something bitter
fula	castrate	*fuula*	undress
bhola	decay	*bhoola*	slaughter
bhala	count	*bhaala*	increase
pela	create	*peela*	diarrhea
sala	choose, select	*saala*	be happy
kula	grow	*kuula*	uproot tooth
papa	coagulate	*paapa*	give birth
kupuka	overturn	*kuupuka*	be uprooted
tola	win	*toola*	get something unexpectedly
Pala	peel	*paala*	praise

The short vowels in Table 6, orthographically, appear single whereas the long vowels appear double.

Phonological Processes

This subsection presents phonological processes resulting from the contact between consonants and vowels. Typically, such contact in this language leads to various phonological processes. For this reason, therefore, it is necessary to demonstrate how the vowels shape consonants in the languages under investigation by way of triggering phonological processes. To accomplish this, it is important to exemplify these processes within the realm of nominal morphology, illustrating how distinct segments of a noun in these languages amalgamate to constitute the complete entity. In this language, a noun comprises three components: the pre-prefix, the prefix, and the stem. Nyakyusa features approximately eighteen (18) noun classes, as detailed by Robinson (2016). Through these noun classes, we have identified several phonological processes resulting from the interplay between consonants and vowels, as outlined in the subsequent subsections.

Gliding

This is one of the phonological processes observed in Nyakyusa as influenced by the contact between consonants and vowels. This process entails a transformation of the upper high vowels [i] and [u] into approximants [y] and [w], respectively.. The findings show that this phonological process occurs in different environments, namely within the noun and the verb. Starting with the former, the combination of the noun prefix with the stem causes a sequence of two vowels where the high vowel occurs after another dissimilar vowel and this combination causes gliding. Table 7 provides examples of gliding formation in Nyakyusa within the noun.

Table 7: Glide Formation

Noun Class	Prefix	Stem	Combination	Gliding	Gloss
1	*-mu-*	*-ana*	*-muana*	*umwana*	child
7	*-ki-*	*-alo*	*-ki-alo*	*~~i~~-kyalo*	field
8	*-fi-*	*-amba*	*-fiamba*	*i-fyamba*	hills

As examples in Table 7 indicate, the combination of the class 1 prefix *-mu-* with its stem *-ana* forms a sequence of two vowels, [ua] as in the word *mu-ana* 'child'. However, this vowel sequence in Nyakyusa is not possible and for this case, the high vowel [u] that precedes the low vowel [a] glides to [w] to break the impossible vowel sequence in the language.

Coming to the latter, within the verb, gliding occurs with other phonological processes, namely deletion of [l], and metathesis. When *-ile* suffix, the tense and/or aspect marker, is attached to some verbs triggers imbrication, a phonological change associated with a set of phonological processes. Examples (5 a-b) illustrate, step by step, the extent to which the addition of the *-ile* suffix to certain verbs, such as *putuka* and *gomoka,* causes a set of phonological processes including gliding.

(5a) **Verb** *putuka*

Step 1*: adding -ile suffix*	*/putuk-ile/*
Step 2*: deletion of [l]*	*/putukie/*
Step 3*: vowel metathesis*	*/putuike/*
Step 4 *gliding*	*/putwike/*
Surface form	*[putwike]*

(5b). verb *gomoka*

Step 1*: adding -ile suffix*	*/gomok-ile/*
Step 2*: deletion of [l]*	*/gomokie/*
Step 3*: vowel metathesis*	*/gomoike/*
Step 4 *gliding*	*/gomwike/*
Surface form	*[gomwike]*

It is worth noting that, in Nyakyusa, when *-ile* suffix is added to the word *pukuka* and *gomoka,* an opaque change occurs. The verbs *putukile* and *gomokile* change to *putwike* and *gomwike* after being shaped by a set of three phonological processes, as illustrated in (5a-b). The illustrations demonstrate that among the three phonological processes, gliding consistently emerges as the final step. Table 8 offers additional examples to substantiate the occurrence of this phonological change, shaped by three processes, and sheds light on the environment for gliding within the verb.

Table 8: More Examples to Unveil Gliding with the Verb in Nyakyusa

Verb	Gloss	*-ile* suffixation	Deletion	Metathesis	Gliding
sumuka	wake up,	*sumukile	*sumukie	*sumuike	*sumwike*
paguka	collapse, fall apart	*pagukile	*pagukie	*paguike	*pagwike*
sangula	contribute	*sangulile	*sangulile	*sanguile	*sangwile*
pangula	dismantle	*pangulile	*pangulie	*panguile	*pangwile*
sambuka	rebel	*sambulile	*sambulie	*sambuile	*sambwile*
pasula	split, operate	*pasulile	*pasulie	*pasuile	*paswile*
gasuka	gape	*gasukile	*gasukie	*gasuike	*gaswike*
sopola	miscarry	*sopokile	*sopokie	*sopoike	*sopwike*
pohola	beat with heavy strokes	*poholile	*poholie	*pohoile	*pohwile*
bhotoka	be in abundance	*bhotokile	*bhotokie	*bhotoike	*bhotwike*

In Table 8, we have systematically illustrated the process of gliding formation within the verb in Nyakyusa. This gliding is accompanied by two concurrent phonological processes, namely the deletion of the consonant [l] of the tense/aspect marker and metathesis. Upon reconstruction, these phonological processes adhere to a rule ordering where gliding occurs last, shaping the surface form, the word or form uttered by speakers of the language. The instances where deletion and metathesis take place have been marked with an asterisk, indicating the anticipated forms (words). However, these forms are subject to further phonological changes before reaching the surface forms, suitable for utterance by speakers of the language. Drawing from the examples in Tables 7 and 8, we can articulate the gliding rule using features, as depicted in Figure 3.

1 *2* *3*

$$\begin{bmatrix} +syllabic \\ +high \\ +mid \\ +back \end{bmatrix} \rightarrow \begin{bmatrix} +approximant \\ +labial \\ -syllabic \\ -consonantal \end{bmatrix} \quad \_\_\_\_ \quad [+syllabic],$$

Where 1≠≠3

Figure 3: Gliding Rule in Nyakyusa

The symbols used in Figure 3 follow the notation proposed by Hayes (2009) for a formal representation of features. The symbol '/- ' denotes the environment, the square brackets '[ ]' represent the container of feature(s), and '+' and '-' are used preceding feature names to signify whether a segment possesses or lacks the phonetic property designated by the feature. The articulated rule expresses that the high back vowel and the mid back vowels [o, u] become bilabial approximant [w] when positioned before another vowel, with the condition that the vowels are not identical. This rule can be further streamlined, as depicted in Figure 4(a-b).

1 2 3

$$[u/o] \longrightarrow [w] \; / \; \_\_\_\_\_ \; [vowel],$$

Where 1≠≠3

Figure 4a: Gliding involving [o/u]

1 2 3

$$[i] \longrightarrow [y] \; / \; \_\_\_\_\_ \; [vowel],$$

Where 1≠≠3

Figure 4b: Gliding Involving [i]

The two figures depict the glide of [o/u] to [w] and [i] to [y] when positioned before a dissimilar vowel. An intriguing aspect of gliding in Nyakyusa is the occurrence of gliding even with the mid vowel [o] when it precedes another dissimilar vowel, a phenomenon that differs from other Bantu languages like Kiswahili (refer to Mashauri, 2021).

Deletion

The results reveal that deletion is a significant phonological process contributing to speech simplification in Nyakyusa. This phenomenon occurs in two primary contexts: within nouns and verbs. In the case of verbs, deletion specifically targets the consonant [l] of the tense/aspect marker *-ile*. This can be traced back to historical changes associated with imbrication, where the consonant of the tense/aspect marker *-ile* is dropped when attached to certain verbs, typically those with stems longer than disyllabic. Additionally, the findings demonstrate that in spoken discourse, the consonant [l] of the tense/aspect marker *-ile* is omitted, resulting in transformations such as *mugonile* becoming mugonie and *mfikile* becoming *mfikie* (see Robinson 2021). This analysis aligns with Mreta's (1998) data, where the Bantu tense/aspect marker *-ile* is reduced to *-ie*. Moreover, deletion of the consonant [l] is evident in nouns, specifically with class 5 prefixes *-li-*. When positioned between similar vowels, as seen in *i-li-jabhu* 'the cassava' and *i-lisubha* 'the sun', the prefixes become *iijabhu* and *iisubha*, respectively. The absence of the consonant in the class 5 prefix results in a sequence of two similar vowels treated as a long vowel in the language. However, since initial long vowels are not permissible in Nyakyusa, vowel shortening occurs, yielding *ijabhu* and *isubha*, respectively.

The evidence indicates a gradual diminishment of the consonant [l] in the class 5 prefix within the language. This is evident in certain words, like *i-li-ino* 'a tooth', which still retains the consonant. Notably, some languages, including Swahili, have completely lost the class 5 prefix *-li-*(Kiango, 2000), which was once prevalent across various Bantu languages. The disappearance of the consonant [l] is a widespread phenomenon in Swahili, as observed in words like

somea 'read for' and *mboo* 'penis', where, in other Bantu languages closely related to Swahili, the words become *somela* and *mbolo* (see Felberg, 1996), respectively.

In the realm of nouns, the results reveal a prevalent phonological process involving the deletion of the vowel [u] in the language. This phenomenon particularly impacts the noun prefixes, specifically *-mu-,* associated with class 1 denoting human beings, and class 3 denoting trees, farms, crops, and the space vacuum of the universe. Examples illustrating this phonological process are presented in Table 9.

Table 9: Deletion of the Vowel of the Noun Prefix

Pre-fix	Prefix	Stem	Word	Gloss	Class
U	mu	piki	*umpiki*	tree	3
U	mu	pila	*Umpila*	ball	3
U	mu	paka	*Umpaka*	boundary	3
U	mu	punga	*umpunga*	rice	3
U	mu	gunda	*ungunda*	farm	3
U	mu	pando	*umpando*	stretcher chair	3
U	mu	fusi	*Umfusi*	pubic hair	3
U	mu	kino	*Uŋkino*	game	3
U	mu	mpingo	*umpingo*	first rains	3
U	mu	kamu	*Uŋkamu*	relative	1
U	mu	kikulu	*uŋkikulu*	woman	1
U	mu	nyambala	*unyambala*	man	1

As depicted in Table 9, the vowel [u] undergoes deletion when the prefix combines with its stem. Furthermore, the data presented in the table indicate that the removal of [u] is accompanied by the phonological process called homorganic nasal assimilation, which will be further elucidated in the following subsection.

Homorganic Nasal Assimilation and Consonant Alternation

This subsection presents two interconnected phonological processes, namely homorganic nasal assimilation and consonant alternation.

Starting with the former, the findings reveal that this phonological process entails the assimilation of place features between the nasal and the subsequent consonant. This occurs subsequent to the deletion of the vowel in the noun class prefix, particularly in classes 1 and 3. For istance, the class 3 noun prefix *-mu-* drops the vowel when it combines with the stem *-gunda* and the resulting word would be *u-mgunda* being regarded as the underlying form. However, the homorganic nasal assimilation occurs to shape the word to the surface form. In shaping the word, the bilabial nasal [m] assimilates its place feature to the following velar stop [g] to form the word *u-ŋgunda* 'farm'. Table 10 provides additional data to illustrate instances of homorganic nasal assimilation in Nyakyusa.

Table 10: More Data for Homorganic Nasal Assimilation in Nyakyusa

lClass	Prefix	Stem	Combination	Deletion	Assimilation	Gloss
1	*-mu-*	*-kamu*	*u-mu-kamu*	*umkamu*	*uŋkamu*	relative
		-kikulu	*u-mu-kikulu*	*umkikulu*	*uŋkikulu*	woman
		-kopo	*u-mu-kopo*	*umkopo*	*Uŋkopo*	debt
3	*-mu-*	*-tunda*	*u-mu-tunda*	*umtunda*	*Untunda*	tree name
		-tondo	*u-mu-tondo*	*umtondo*	*Untondo*	tree name
		-gunda	*u-mu-gunda*	*umgunda*	*Uŋgunda*	farm
		-lunda	*u-mu-lunda*	*umlunda*	*Undunda*	spear
		-lindwana	*u-mu-lindwana*	*umlindwaa*	*undindwana*	a girl
18	*mu-*	*-kyalo*	*mu-kyalo*	*mkyalo*	*Ɗkyalo*	on the farm

As presented in Table 10, the homorganic nasal assimilation occurs after the deletion of the vowel of the noun class prefix. The rule for homorganic nasal assimilation is presented in Figure 2 using features.

$$\begin{bmatrix} +nasal \\ +labio \end{bmatrix} \longrightarrow \begin{bmatrix} +nasal \\ \alpha\ place \end{bmatrix} \_\_\_\_ \begin{bmatrix} +Consonantal \\ \alpha\ place \end{bmatrix}$$

Figure 5: The Rule for Homorganic Nasal Assimilation in Nyakyusa

The rule for homorganic nasal assimilation, as depicted in Figure 3, can be expressed in words as follows: the nasal stop must share the same place of articulation as the subsequent stop.

Turning to the latter, the data in (6) illustrate sound alternation through the use of nouns in class 11 obtaining their plural forms in class 10.

(6) Class 11 (Singular)		**Class 10 (Plural)**
u-lu-lalo	'bridge'	*i-ndalo*
u-lu-lagilo	'law, rule or order'	*i-ndagilo*
u-lu-lefu	'beard'	*i-ndefu*
u-lu-tuulano	'helping each other'	*i-nduulano*
u-lu-tulo	'crime'	*i-ndulo*
u-lu-tete	'bot'	*i-ndete* 'reed'
u-lu-teefu	'plaited mat'	*i-ndeefu'*
u-lu-tungu	'testicle'	*i-ndungu*

The data presented in (6) demonstrate that sounds [l] and [t] alternate with [nd] in Nyakyusa. Because of this alternation, the foreign sound [d] is replaced in Nyakyusa by either [t] or [nd], as in seen in transformation of the word ***David*** (English word) to ***Ndabhiti*** (Nyakyusa).

Continuant Stopping and Voicing

This subsection introduces two interrelated phonological processes, namely continuant stopping and voicing. The former is prevalent in Nyakyusa, wherein a shift of noun class prefixes from class 11 to 10 (marked by a nasal) for singular and plural, respectively, results in the bilabial fricative occurring after a nasal and subsequently changing into a stop. This phenomenon is exemplified using nouns categorized under class 11 and their corresponding plural forms in class 10. Table 11 illustrates continuant stopping by juxtaposing the singular and plural forms of nouns in classes 11 and 10, respectively.

Table 11: Summary to Illustrate Continuant Stopping in Nyakyusa

Class 11	Class 10 (underlying)	Surface Form	Gloss
u-lu-βafu	i-m-βafu	*imbafu*	ribs
u-lu- βaβu	i-m-βaβu	*imbaβu*	firewood
u-lu-βeefu	i-m-βeefu	*imbeefu*	mist, fog
u-lu-βatiko	i-m-βatiko	*imbatiko*	systems/programs
u-lu-βosyo	i-m-βosyo	*imbosyo*	types of medicine that can neutralize other medicines

As demonstrated by the examples in Table 11, the voiced bilabial fricative *[β]*, as in the singular noun *uluβaβu*, transforms into a voiced bilabial stop [b] as in *imbaβu*, where it follows a nasal sound [m], marking the noun class 10. Figure 4 provides a pictorial representation of the rule for continuant stopping using features.

$$\begin{bmatrix} +consonantal \\ +continuant \\ +labio \end{bmatrix} \longrightarrow \begin{bmatrix} +consonantal \\ +obstruent \\ +labio \end{bmatrix} \text{———} [+nasal]$$

Figure 5: The Pictorial Representation of the Rule for a Continuant Stopping in Nyakyusa

The rule for continuant stopping, as depicted in Figure 4, can be articulated as follows: the bilabial fricative must transition into a bilabial stop after a nasal. Turning to the latter, the examination of data concerning noun class prefixes for classes 11 and 10 (marked by nasal) for singular and plural, respectively, reveals a voicing of consonants when they occur after a nasal sound. The data in (7) provide illustrations of this phonological process.

(7) Class 11 (Singular)		**Class 10 (Plural)**
*u-lu-**p**aso*	'bridge'	*i-m**b**aso*
*u-lu-**p**aka*	'law, rule or order'	*i-m**b**aka*
*u-lu-**p**ele*	'beard'	*i-m**b**ele*
*u-lu-**p**asyo*	'anxiety'	*i-m**b**asyo*
*u-lu-**p**eeloo*	'diarrhea'	*i-m**b**eelo*

*u-lu-**p**ufi*	'whistle'	*i-m**b**ufi*	
*u-lu-**p**osa*	'bot'	*i-m**b**osa* 'palm oil seeds'	
*u-lu-**p**apike*	'winnowing basket'	*i-m**b**apike'*	
*u-lu-**p**ange*	'bot'	*i-m**b**ange 'cajanus cajan'*	
*u-lu-**t**ete*	'bot'	*i-n**d**ete* 'reed'	
*u-lu-**t**eefu*	'plaited mat'	*i-n**d**eefu'*	
*u-lu-**t**ungu*	'testicle'	*i-n**d**ungu*	
*u-lu-**k**ungu*	'milk'	*i-ŋ**g**ama*	
*u-lu-**k**inya*		*i-ŋ**g**inya*	

As examples in (7) illustrate, the voiceless stops such as [p] and [t] became voiced stops [b] and [d] when occurring after a nasal sound. Figure 6 presents a pictorial representation of the voicing rule using features.

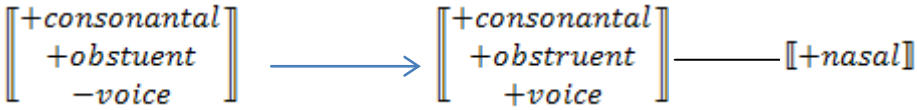

Figure 6: The Voicing Rule in Nyakyusa

With the voicing rule, as depicted in Figure 6, the voiceless bilabial [p] transforms into voiced bilabial [b], voiceless alveolar stop [t] becomes voiced alveolar stop [d], and voiceless velar stop [k] becomes voiced velar stop [g] after nasal.

Vowel Coalescence

Vowel coalescence is one of the phonological processes attested in Nyakyusa. The process involves the assimilation of two adjacent sound segments that affect each other making a juxtaposition of two vowels ([a]and [i]) to disappear and be replaced by newly compromised vowels [ee], (see Massamba, 2010). In this language, this phonological process is well expressed under verb morphology involving the suffixation of tense/aspect marker *-ile* to verbs extended with reciprocal suffixes. For instance when *-ile* suffix is added to the verb *kom-an-a* 'beat each other' (the verb *koma* 'beat' extended with reciprocal *-an-*) the expected form would be *komanile.* But the word *komanile* after being shaped by a set of phonological processes including vowel coalescence, it changes into *komeene,* as in the words/sentences *bha-komeene* 'they have fought' or *bha-a-komeene*

'they fought'. Example (8) illustrates vowel coalescence involving the suffixation of *-ile* to verbs (e.g. *koma*+ reciprocal *-an-* = *komana* + *-ile* = *komanile*) with a reciprocal suffix by showing stages involved in the change from the underlying form *komanile* to the surface form *komeene.*

(8) Underlying form	*/komanile/*
Stage 1: Deletion of [l]	*/komanie/*
Stage 2: CV metathesis	*/komaine/*
Stage 3: Vowel coalescence	*/komeene/*
Surface form	[komeene]

The change that involves *-ile* suffixation to verbs with reciprocal extension in Nyakyusa is shaped by a set of three phonological processes, namely deletion of [l]; the consonant of the suffix, consonant-vowel metathesis (between [n] and [i]), and vowel coalescence. Table 12 provides more examples of verbs with reciprocal suffixes as shaped by vowel coalescence.

Table 12: Vowel Coalescence Shaping Verbs with the Reciprocal Extension in Nyakyusa

Verb	Gloss	*-ile* suffixation	Surface
kom-an-a	beat each other	*komanile	*komeene*
many-an-a	know each other/be friends	*manyanile	*manyeene*
sek-an-a	laugh each other	*sekanile	*sekeene*
jabh-an-a	share	*jabhanile	*jabheene*
gut-an-a	push each other	*gutanile	*guteene*
tuul-ana	help each other	*tuulanile	*tuuleene*
tiil-ana	fear each other	*tiilanile	*tiileene*
eg-ana	marry each other	*eganile	*egeene*
imb-il-an-a	sing for each other	*imbilanile	*imbileene*
bhyal-il-an-a	plant for each other	*bhyalanile	*byalileene*

Also, the findings show that apart from verbs extended with reciprocal suffixes, vowel coalescence shapes other verbs, as shown in Table 13.

Table 13: Vowel Coalescence to Un-extended Verbs with a Reciprocal Suffix

Stem	Gloss	*-ile* suffixation	Surface form
gasama	gape	*gasamile	*gaseeme*
fugama	kneel down	*fugamile	*fugeeme*
lusama	gaze	*lusamile	*luseeme*
galama	lie on your back	*galamile	*galeeme*
kupama	lay on your stomach	*kupamile	*kupeeme*
kangala	become old	*kangalile	*kangeele*
tugala	sit down	*tugalile	*tugeele*
bhagala	carry using shoulders	*bhagalile	*bhageele*
bhugala	become big/recover	*bhugalile	*bhugeele*

The verbs presented in the Table 13 have the CVCVC-root structure and their nucleus of the penultimate syllable is a low vowel, [a].

Vowel Harmony

Vowel harmony is a very common phonological process in Nyakyusa. With this phonological process, the vowel of the root determines the vowel of the affix. In other words, the vowel of the stem/root harmonizes with the vowel of the affix. The findings indicate several environments where vowel harmony occurs. The first environment is when the stem of the verb is extended with an applicative suffix. In Nyakyusa, the applicative extension involves two *-il-* and *-el-* suffixes depending on the vowel of the stem. Table 14 provides data to illustrate vowel harmony involving the applicative extension.

Table 14: Vowel Harmony with Applicative Extension

Verb	Gloss	Applicative	Gloss
ɬima	cultivate	*lim-il-a*	cultivate for
kumba	dig	*kumb-il-a*	dig for
ɬuma	buy	*ul-il-a*	buy for
pala	scratch	*pal-il-a*	scratch for
kina	play	*kin-il-a*	play for
simba	write	*simb-il-a*	write for
fula	castrate	*ful-il-a*	castrate for
jenga	build	*jeng-el-a*	build for
moga	dance	*mog-el-a*	dance for
soma	read	*som-el-a*	read for

Verb	Gloss	Applicative	Gloss
nega	draw (e.g. water)	*neg-el-a*	draw for
koma	beat	*kom-el-a*	beat for

The data presented in Table 14 indicate that the applicative suffix *-ele* is applied when the verb root contains a mid-vowel, [e] or [o], however, the applicative suffix *-il-* applies elsewhere. Another phonological aspect observed in Nyakyusa, concerning the applicative extension, is that the applicative suffix, when applied elsewhere, takes on the upper high vowel [i], in contrast to the lower high vowel [ɨ], irrespective of the vowel in the verb root.

The second context where vowel harmony manifests in Nyakyusa is when the verb is extended with the causative. Typically, the causative extension in Nyakyusa involves two suffixes, *-isi-* and *-esi-*, determined by the vowel in the verb root. Table 15 furnishes data to exemplify vowel harmony with causative suffixes.

Table 15: Vowel Harmony in Causative Extension

Verb	Gloss	Causative	Gloss
bhopa	run	*bhop-esi-a (bhopesya)*	cause to run
kola	hold	*kol-esi-a*	cause to hold
moga	dance	*mog-esi-a*	cause to dance
bhomba	do someth.	*bhomb-esi-a*	cause to do someth.
kopa	owe somebody	*kop-esi-a*	cause somebody to we you
leka	stop doing someth.	*lek-esi-a*	cause to stop doing
kina	play	*kin-isya*	cause to play
imba	sing	*imb-isya*	cause to sing
lima	cultivate	*lim-isya*	cause to cultivate

The data presented in Table 15 indicate that the causative suffix *-esi-* is applied when the verb root contains a mid-vowel, [e] or [o], however, the causative suffix *-isi-* applies elsewhere. Also, the upper high front vowel [i] of the causative suffixes, in every examples presented in the third column glide to [y] as it occurs before the final vowel [a].

Additionally, vowel harmony is well described within the noun morphology, primarily involving the pre-prefix (augment) and the vowel of the noun prefix. It is noteworthy that, in Nyakyusa, a noun consists of the pre-prefix (a vowel), the prefix, and the stem (see Robinson, 2016). Table 16 presents data to illustrate vowel harmony with the pre-prefix and the vowel of the noun prefix.

Table 16: Vowel Harmony Involving Pre-prefix and the Vowel of the Noun Prefix

Pre-prefix	Prefix	Stem	Surface form	Gloss	Class
u-	*mu-*	*-ndu*	*u-mu-ndu*	person	1
a-	*bha-*	*-ndu*	*a-bha-ndu*	persons	2
u-	*mu-*	*-piki*	*u-mu-piki (umpiki)*	tree	3
i-	*-mi-*	*-piki*	*i-mi-piki*	trees	4
i-	*-ki-*	*-amba*	*i-ki-amba (ikyamba)*	hill/mountain	7
i-	*-fi-*	*-amba*	*i-fi-amba (ifyamba)*	hills/mountains	8
u-	*-lu-*	*-paso*	*i-lu-paso*	fence	11
i-	*N*	*-paso*	*i-mbaso*	fences	10
u-	*-lu-*	*-lalo*	*u-lu-lalo*	a bridge	11
i-	*N*	*-lalo*	*i-ndalo*	bridges	11

Based on the data shown in Table 16, it is evident that the pre-prefix replicates the vowel of the noun prefix. This serves as a simplification strategy within the domain of phonology, where speakers tend to conserve energy when pronouncing nouns in Nyakyusa. Notably, this phonological pattern differs from that observed in other Bantu languages. For example, Rugemarila's (2005) data reveals that in Runyambo, the pre-prefix vowel does not align with the vowel of the noun prefix.

Syllable Structure

Table 17 provides a summary of various syllable structures of unextended and extended in Nyakyusa.

Table 17: Summary of Verb Structures in Nyakyusa

Verb root [base]	example	Gloss
CV-	*fu-a (fwa)*	die
CVC-	*lim-a*	cultivate
CVCV(NC)-	*bheleng-a*	count
CVCVC-	*putuka*	bend
CVC+VC -(extended)	*kom-an-a*	beat each other
CVC+VCV- (extended)	*kom-igu-a*	be beaten
CV:C(G)-	*leefy-a*	cause trouble
CV:C-	*bhaala*	increase in number
C(G)VC-	*fwala*	dress

Supra-segmental Phonology

This section explores two phonological aspects, namely stress and tone. To begin with stress, the findings suggest that Nyakyusa speakers apply emphasis or intensity to the penultimate syllable (the second-to-last syllable), irrespective of the word type whether short, long, or compound. Unlike in English, where alterations in stress within certain phonological contexts can lead to changes in word class, stress in Nyakyusa does not influence the word class of words. Turning to tone, in Nyakyusa, it is rarely audible and lacks semantic and syntactic significance.

Conclusion

This paper has presented a phonological description of Nyakyusa, covering consonants, vowels, and the phonological processes influencing the interaction between these elements. The findings reveal that Nyakyusa has 14 pure consonants, 4 pre-nasalized stops, and seven vowels. Additionally, the contact between consonants and vowels in Nyakyusa gives rise to various phonological processes aiming at speech simplification. The processes include gliding, deletion, homorganic nasal assimilation, continuant stopping, consonant alternation, consonant mutation, voicing, vowel coalescence, and vowel harmony. Based on a literature review, the paper concludes that while some aspects of Nyakyusa phonology are shared with other Bantu languages, many are specific to Nyakyusa,

revolving around the conditions under which phonological processes occur.

This paper further recommends a systematic description of imbrication, a phonological aspect not thoroughly covered in this paper. Additionally, considering the language-dependent nature of many phonological aspects noted, this paper advocates for a systematic comparative phonological description in Bantu languages to enhance the understanding of Bantu phonology.

Declaration of conflicting interests
The author(s) declared no conflict of interest(s) with respect to the research, authorship and/or publication of this paper.

Funding
The author(s) declared that the research was privately funded.

References

Akidah M. A. (2013). Phonological and Semantic Change in Language: The Case of Arabic Borrowed into Kiswahili. *International Journal of Education and Research*, 1(4): 1–20.

Austin, P. K. (2006). Data and Language Documentation. In J. Gippert, N. P. Himmelmann & U. Mosel (eds.). *Essentials of Language Documentation.* Berlin: Mouton, pp. 88–112.

Besha, R. M. (1985). A Study of Tense and Aspect in Shambala. Ph.D. Dissertation, University of Dar es Salaam.

Botne, R. (2010). Perfectives and Perfects and Past, oh my! On the Semantics of -ILE in Bantu. *African Linguistica*, 16: 31–64.

Bugingo, T. M. B. (1984). Agglutination IA. and Bantu Morphology: The Case of Haya Language. *Journal of the Institute of Kiswahili Research,* 51(1): 88–100.

Carnie, A. (2007). *Syntax: A Generative Introduction* (2nd Ed.). Oxford: Wiley-Blackwell.

Croft, W. (2000). *Explaining Language Change: An Evolutionary*

Approach. London: Longman.

Goodness, D. (2008). Shinyiha Noun Morphology. Unpublished M.A. Dissertation, University of Dar es Salaam.

Felberg, K. (1996). *Nyakyusa-English-Swahili & English-Nyakyusa Dictionary*. Dar es Salaam: Mkuki na Nyota Publishers.

Hayes, B. (2009). *Introductory Phonology*. Oxford: Wiley-Blackwell.

Hyman, L. M. (2003). Segmental Phonology. In D. Nurse & G. Philippson (eds.). *The Bantu Languages*. London. Routeledge, 42–59.

Katamba, F. (1993). *Morphology*. London: The Macmillan Press Ltd.

Keller, R. (1994). *On Language Change: The Invisible Hand in Language*. London: Routledge.

Kiango, J. G. (2000). *Bantu Lexicography: A Critical Survey of the Principles and Process of Constructing Dictionary Entries*. Tokyo: ILCAA.

Labrouiis, C. (1999). Vowel System and Spirantization in South-West Tanzania. In J. M. Hombert & L. M. Hyman (eds.). *Bantu Historical Linguistics: Theoretical and Empirical Perspective*. Stanford, Calfonia: CSLI Publications.

Language of Tanzania Project. (2009). *Atlasi ya Lugha za Tanzania*. Dar es Salaam: Chuo Kikuu Cha Dar es Salaam.

Lusekelo, A. (2013). *Tense, Aspect, Modality and Negation in Kinyakyusa; A Bantu Language of Tanzania and Malawi*. Deutschland/ Germany: LAMBERT Academic Publishing.

Lusekelo, A. (2007). Tense and Aspect in Nyakyusa. Unpublished M.A. Dissertation, University of Dar es Salaam.

Mashauri, M. A. 2021. Upitiaji Upya wa Michakato ya Kifonolojia na Kanuni Zake katika Kiswahili Sanifu. *Kioo cha Lugha,* 19(1): 23–39.

Massamba, D. P. B. (2010). *Phonological Theory: History and Development* (Revised Edition). Dar es Salaam: Institute of Kiswahili studies.

Mould, M. (1972). One Reconstruction of the Modified Base of Bantu Verbs. *Studies in African Linguistics,* 3(1): 107–125.

Mreta, A. Y. (1998). *An Analysis of Tense and Aspect in Chasu: Their Forms and Meaning in the Affirmative Constructions.* Hamberg: LIT.

Muzale, H. R. T. (1998). A Reconstruction of the Proto-Rutara Tense -Aspect System. Ph.D. Thesis, St. John's Memorial University.

Nurse, D. & Philippson, G. (2006). Common Tense-aspect Markers in Bantu. *Journal of African Languages and Linguistics*, 27: 153–194. DOI: 10.1515/JALL.2006.009

Nurse, D. (2008). *Tense and Aspect in Bantu.* Oxford: OUP.

Persohn, B. (2017). *The Verb in Nyakyusa: A Focus on Tense, Aspect and Modality* (Contemporary African Linguistics 2). Berlin: Language Science Press.

Robinson, N. (2015). The *-ile* Suffix and the Distinction between Tense and Aspect in Nyakyusa. Unpublished M.A. Dissertation, University of Dar es Salaam.

Robinson, N. (2016). Word Formation: The Description of the Nyakyusa Derivation and Inflection. *International Journal of Language and Linguistics*, 3(5): 62– 72.

Robinson, N. (2021). Historical Evolution of *-ile* Suffix across Bantu Languages: The Case of Nyasa-Tanganyika Corridor. Unpublished Doctoral Thesis, University of Dar es Salaam.

Rugemalira, J. M. (2005). *A Grammar of Runyambo.* Dar es Salaam: Languages of Tanzania Project.

Rugemalira, J. M. (1993). Runyambo Verb Extensions and Constraints on Predicate Structure. Ph.D. Thesis, University of California at Berkeley.

Schadeberg, T. C. (1995). Spirantization and the 7-to-5 Vowel Merger in Bantu. In Dominicy, M. & Demolin, D. (eds.). *Sound Change.* Amsterdam: John Benjamins, 73–84.

Swilla, I. N. (1998). Tenses in Chindali. *AfricanistischeArbeitspapiere*, 54: 95–125

Author Biography

Nichodamus Robinson is a Lecturer in the Department of Language Studies, Sokoine University of Agriculture, Morogoro, Tanzania. His research areas of interest are Historical Linguistics, Morpho-Phonology, Morpho-Syntax, Language Documentation and Description, and Communicative Language Teaching (CLT). His recent publication is Historical Evolution of the *-ile* Suffix and Language Genetic Relationship in the Nyasa-Tanganyika Corridor (South African Journal of African Languages, 2023).