

# Investigation into the Phonemic Status of Vowel Length in Nyakyusa

By  
**Dr. Ancyfrida Prosper (PhD)**

Department of Linguistics and Literary Studies, the Open University of Tanzania.

P. O. Box 2495, Mwanza, Tanzania.

ORCID ID: <https://orcid.org/0000-0001-7506-9238>

Email: [ancyfrida.prosper@out.ac.za](mailto:ancyfrida.prosper@out.ac.za)

&

**Alto Barnabas**

Department of Linguistics and Literary Studies, the Open University of Tanzania.

P. O. Box 1458, Iringa, Tanzania.

ORCID ID: <https://orcid.org/0009-0009-4297-3568>

Email: [altobarnabas92@gmail.com](mailto:altobarnabas92@gmail.com)

## Abstract

*This study aimed to determine whether vowel length functions as a phonemic feature in Nyakyusa, focusing on examining whether vowel length is a meaning-changing feature in Nyakyusa and analysing whether vowel length distinguishes parts of speech in Nyakyusa. The study was informed by the Distinctive Features Theory, which suggests that phonemes are distinguished by their distinctive phonological attributes. This descriptive study was conducted in Ikombe and Matema villages in Kyela District where Nyakyusa is predominant. About 8 native Nyakyusa speakers were purposively selected for this study whose data were collected through document reviews, observation, and interviews, and analysed thematically. The findings revealed that vowel length is a key phonemic feature in Nyakyusa, playing a crucial role in differentiating parts of speech. It is concluded that the phonemic status of vowel length is shaped by each language's unique phonological structure and history. Therefore, the study recommends to conduct systematic comparative studies across other Bantu and African languages such as Afro-Asiatic languages to determine whether similar phonemic patterns exist.*

**Keywords:** Distinctive features, vowel length, phonemic status, Nyakyusa language

## Introduction

Vowel length plays a crucial role in shaping the pronunciation and meaning of words across languages (Crystal, 1997; Hock & Joseph, 2009). It refers to the duration for which a vowel sound is held during speech, with two primary types: tense vowels, which are pronounced for longer durations, and lax vowels, which are shorter (Crystal, 1997; Hock & Joseph, 2009). In certain languages, vowel length is phonemic, meaning it can entirely alter the meaning of words. This phenomenon is especially prominent in many African languages, where vowel length can differentiate lexical items or word categories (Hock & Joseph, 2009; Lukatela, Eaton, Sabadini & Turvey, 2004; Wright, Local, Ogden & Temple, 2004). For instance, languages such as Lamba

(Doke, 1938), Luvale (Horton, 1949), and Chichewa (Downing & Mtenje, 2017) have been identified as having distinct vowel lengths that are vital for meaning distinction. Conversely, other African languages like Tonga (Zivenge, 2009), Cinsenga (Miti, 2001), and Bungu (Cahill, 2019) do not exhibit such distinctions.

Nyakyusa language, spoken in the southwestern part of Tanzania, particularly in the Mbeya Region and parts of the Njombe Region, features seven vowel sounds—/a/, /e/, /i/, /i/, /o/, /o/, and /u/—which can appear in both tense and lax forms (Felberg, 1996; Persohn, 2020; Robinson, 2024). Commonly, in many African languages, vowel length in Nyakyusa is often indicated by doubling the vowels (Felberg, 1996; Persohn, 2020; Robinson, 2024). However, the phonemic status of vowel length in Nyakyusa remains unclear, restricting a comprehensive linguistic understanding of the language in its authentic form. Therefore, this study aims to determine whether vowel length functions as a phonemic feature in Nyakyusa, specifically addressing two research objectives: (i) to examine whether vowel length is a meaning-changing feature in Nyakyusa; and (ii) to analyse whether vowel length distinguishes parts of speech in Nyakyusa. The study intended to clarify the role of vowel length in Nyakyusa, thereby making a meaningful contribution to the linguistic understanding of Nyakyusa and related Bantu languages.

### **Theoretical Framework**

The study was guided by the Distinctive Features (DF) Theory introduced by Roman Jakobson, Gunnar Fant, and Morris Halle in 1952. The DF theory posits that phonemes are composed of the smallest phonological units, known as distinctive features. These features differentiate one phoneme from another and reflect the articulatory properties of sounds, such as the point and manner of articulation, vocal fold vibration, and the position of the soft palate for consonants. For vowels, distinctive features include tongue position, height, lip shape, vowel duration, and quality changes. This framework is relevant for languages like Nyakyusa, where vowel length is a potentially phonemic feature, as it may serve to distinguish words or word categories.

In the case of Nyakyusa, where vowel length may alter word meaning or parts of speech, the DF theory provides a valuable lens for examining how vowel length functions as a distinctive feature. According to Chomsky and Halle (1968), these features are often represented in binary terms, such as [+voice] vs. [-voice] or [+length] vs. [-length]. For example, the distinction between /k/ and /g/ can be explained by their voicing feature: /k/ is [-voice], while /g/ is [+voice].

Similarly, vowel length could be represented as [+length] vs. [-length], distinguishing words that differ only in vowel duration, as seen in other African languages.

The DF theory is pertinent to this study, as it provides a framework for analysing vowel length as a distinctive phonemic feature that can impact meaning in Nyakyusa. By applying this theory, the study seeks to explore how vowel length serves as a meaningful phonological contrast, thereby contributing to the understanding of its role in Nyakyusa and similar languages.

## **Methodology**

This study adopted a descriptive design using qualitative methods to investigate the impact of vowel length in Nyakyusa in its authentic contexts (Creswell, 2013). A descriptive design was deemed suitable for systematically observing, documenting, and analysing words that exhibit variation in vowel length (Ary, Jacobs, Razavieh, & Sorensen, 1972). The study was conducted in Matema and Ikombe villages in the Kyela District, where Nyakyusa is predominantly spoken. About eight native Nyakyusa speakers were purposively selected basing on their language use in usual communication, assumed to possess a high level of proficiency and familiarity with a broad range of Nyakyusa vocabulary, including words differentiated by vowel length.

The data were collected through document review, observation, and interviews. Researchers initially examined the *Nyakyusa-English-Swahili and English-Nyakyusa Dictionary* by Felberg (1996) to identify Nyakyusa words distinguished by vowel length. As a native speaker of Nyakyusa, the co-researcher subsequently engaged in conversations with other native speakers to identify words that appeared to be differentiated by vowel length. Finally, face-to-face interviews were conducted with the eight participants to further identify words distinguished by vowel length. The use of data triangulation enhanced the robustness of the findings by cross-validating results, offering a deeper understanding, reducing bias, and increasing the trustworthiness of the research findings (Denzin, 1978).

Thematic analysis was used to identify patterns and themes related to vowel length distinctions. The analysis process involved reviewing the data to identify words differentiated by vowel length, followed by defining and labelling emerging themes, as well as interpreting and presenting in accordance with the principles of DF theory. Finally, the analysed data were presented using descriptive accounts, explanations, and tables to clearly illustrate the role of vowel length in Nyakyusa and its potential phonemic significance. Participants were ensured

informed consent, voluntary participation, and protection from physical or emotional harm, as proposed by Nelson and Resnik (1999).

## Results and Discussion

This study aimed to investigate the role of vowel length as a phonemic feature in Nyakyusa. Specifically, the research sought to: (i) examine whether vowel length functions as a meaning-changing feature in Nyakyusa, potentially altering the meaning of words; and (ii) analyse whether vowel length serves to distinguish parts of speech in Nyakyusa, contributing to the grammatical structure of the language.

### i) Vowel length as a meaning-changing feature in Nyakyusa

The collected data through document review, observation, and interviews, provided evidence that vowel length functions as a phonemic feature in Nyakyusa, contributing to meaning differentiation. The phonemic status of the seven vowels in Nyakyusa was evaluated using minimal pairs, which revealed that all seven vowels—/a/, /e/, /i/, /i/, /o/, /u/, and /u/—can distinguish word meanings based on their length. Specifically, the distinction between lax vowels, which are pronounced for shorter durations (e.g., /a/, /e/, /i/, /i/, /o/, /u/, and /u/) and their tense counterparts, which are longer (e.g., /aa/, /ee/, /ii/, /ii/, /oo/, /uu/, and /uu/) was found to significantly impact the meaning of words. The specific contrasts for each vowel are summarised in Tables 1-7 below.

#### a) /a/ vs. /aa/

**Table 1 showing Nyakyusa words distinguished by the short /a/ and long /aa/ vowel contrast**

Word with short /a/	Meaning	Word with long /aa/	Meaning
amenye	s/he knows	aamenye	s/he knows me <b>or</b> S/he knew
asya	turn on	aasya	destroy
bhala	count	bhaala	increase
batika	calm somebody down	bhaatika	Arrange
kana	child of someone	kaana	deny
kipala	scarce	kipaala	baldness
kyala	God	kyaala	nail
labhasya	pretend	labhaasya	talk unintelligibly
labhila	go in a certain direction	laabhila	get up early
lambika	oppress	laambika	subdue
pala	peel	paala	invite/ praise
panja	outside	paanja	operate
papa	coagulate	paapa	give birth

sala	pick/choose	saala	be happy
tata	gripe	taata	father

The data in Table 1 above indicate that some of the Nyakyusa words that are different in meaning based on the distinction between the short /a/ and long /aa/ vowel contrast, suggesting that vowel length is a phonemic feature in Nyakyusa.

**b) /e/ vs. /ee/**

**Table 2 showing Nyakyusa words distinguished by short /e/ and long /ee/ vowel contrast**

Word with short /e/	Meaning	Word with long /ee/	Meaning
endelela	progress	endeelela	hurry up
ghesya	test	gheesya	transfer
ikimele	type of fish	ikimeele	type of song
imbeta	type of bird	imbeeta	bamboo-ware
ingelwa	ash from dried banana peels used to prepare tobacco snuff	ingeelwa	type of fish
iseke	seed	iseeke	vegetable
kema	bark	keema	digestive body push
kenya	feel shy	keenya	insult
kyela	metal	kyeela	believe
meta	shave	meeta	bleat
obhela	disrespect	obheela	rumble
Pela	create	peela	get diarrhea
Seka	laugh	seeka	be excited
Teta	gossip	teeta	stumble

The data presented in Table 2 above are some of the Nyakyusa words differing in meaning based on the length of the vowel sound /e/, signifying that vowel length plays a phonemic feature in Nyakyusa.

**c) /i/ vs. /ii/**

**Table 3 showing Nyakyusa words distinguished by the short /i/ and long /ii/ vowel contrast**

Word with short /i/	Meaning	Word with long /ii/	Meaning
ambikile	has reserved	ambiikile	s/he has boycotted

<b>lila</b>	cry	<b>liila</b>	use for eating
<b>lisya</b>	make somebody cry	<b>liisya</b>	feed
<b>pinga</b>	obstruct/ oppose	<b>piinga</b>	raining after a long dry season
<b>tinguka</b>	defy	<b>tiinguka</b>	despise

In Table 3 above, the data show some Nyakyusa words that vary in meaning depending on the length of the vowel sound /i/. These data imply that in Nyakyusa, vowel length is a significant phonemic feature.

**d) /i/ vs. /ii/**

**Table 4 showing Nyakyusa words distinguished by the short /i/ and long /ii/ vowel contrast**

<b>Word with short /i/</b>	<b>Meaning</b>	<b>Word with long /ii/</b>	<b>Meaning</b>
akomile	being matured	akomiile	s/he has beaten using something
anganile	s/he loves me	anganiile	s/he has denied me
endile	s/he has walked	endiile	s/he has used something to walk
ibhile	s/he has stolen	ibhiile	s/he has sank
Kina	play	kiina	width
mbombile	i have worked	mbombiile	i have used something to work
ngabhile	i have got	ngabhiile	i am late
Sinde	the last born twin	siinde	terraces
Tima	rain/ get water	tiima	graze

Table 4 above presents the data regarding certain Nyakyusa words distinguished by the vowel length, whether short /i/ and long /ii/ vowel contrast. This suggest that vowel length serves a phonemic feature in Nyakyusa.

**e) /o/ vs. /oo/**

**Table 5 showing Nyakyusa words distinguished by the short /o/ and long /oo/ vowel contrast**

<b>Word with short /o/</b>	<b>Meaning</b>	<b>Word with long /oo/</b>	<b>Meaning</b>
Bhola	rot/ decay	bhoola	slaughter
Ibhole	rotten	ibhoole	leopard
imbopo	packed lunch	imboopo	small axe
ingolo	louse	ingoolo	scream
Kolela	hold for somebody	koolela	call
Konga	follow	koonga	suck
Kopa	borrow	koopa	gesticulate
Kosya	burn	koosya	bath someone
kotoka	stop working	kootoka	slim
mogha	dance	moogha	fearful

ndolile	i have won	ndoolile	i have picked
posola	pay for one's adultery	poosola	spade something
Posya	cool	poosya	kidding
Soka	advice/ recommend	sooka	come out
Tola	win	toola	pick
Tosa	farm	toosa	everything/ all
ulobhe	fish	uloobhe	nail
elubhosyo	ant-poison	elubhoosyo	joke
eləsoko	an advice	eləsooko	river
emposi	sauce	empoosi	blacksmith

The data presented in Table 5 above indicate some Nyakyusa words that are differentiated by short /o/ and long /oo/ vowel contrast, denoting the phonemic status of vowel length in Nyakyusa.

f) /e/ vs. /ee/

**Table 6 showing Nyakyusa words distinguished by the short /e/ and long /ee/ vowel contrast**

Word with short /e/	Meaning	Word with long /ee/	Meaning
kɛbha	drum	kɛɛbha	peel
kɛla	grow	kɛɛla	uproot
kɛsya	enlarge	kɛɛsya	pour
mbɛngo	disease	mbɛɛngo	mucus
ɛlɛtɛlo	crime	ɛlɛtɛɛlo	lifting off one's load
ɛnkɛlɛ	elder sibling	ɛnkɛɛlu	somebody/ something ancient

The data listed in Table 6 above show that some Nyakyusa words vary in meaning depending on the length of the vowel sound /e/. These data enlightens that vowel length functions as a phonemic feature in Nyakyusa.

g) /u/ vs. /uu/

**Table 7 showing Nyakyusa words distinguished by the short /u/ and long /uu/ vowel contrast**

Word with short /u/	Meaning	Word with long /uu/	Meaning
Fula	rainfall/ castrate	fuula	undress
Ghula	sharpen	ghuula	wait
inguna	curse	inguuna	wind
inguto	angle	inguuto	cry
Kunda	less hot of the sun	kuunda	drink
kupuka	overturn	kuupuka	be uprooted

kupula	gulp	kuupula	uproot
munda	step on	muunda	inside the stomach

The data in Table 7 above are some Nyakyusa words distinguished by the short /u/ and long /uu/ vowel contrast, implying that vowel length is a significant phonemic feature in Nyakyusa.

The findings presented in Tables 1-7 above provide compelling evidence that vowel length is a phonemic feature in Nyakyusa, contributing to meaning differentiation. It has been shown that the seven vowels in Nyakyusa—/a/, /e/, /i/, /i/, /o/, /o/, and /u/—distinguish word meanings based on their length. This vowel length contrast significantly alters the meaning of words in the language. These findings are consistent with previous research that has demonstrated the phonemic nature of vowel length in other African languages, including Lamba (Doke, 1938), Luvale (Horton, 1949), Ghanaian Hausa (Sadat, 2016), Kunda (Zemba, 2016), Chichewa (Downing & Mtenje, 2017), Senga (Nkhata, 2019), and Mbunda (Kalyata, 2020).

The consistency in findings across diverse languages such as Nyakyusa, Lamba, Luvale, Ghanaian Hausa, Kunda, Chichewa, Senga, and Mbunda suggest that vowel length is crucial for distinguishing word meanings and may be a widespread phonemic feature in many African languages. Such consistency indicates that vowel length functions as an important phonological mechanism for semantic differentiation, likely due to its distinctiveness and perceptual clarity. The shared patterns observed across these languages may reflect either a common ancestral linguistic heritage or a broader typological trend, suggesting that vowel length is a stable and significant feature in the phonological systems of Bantu and other African languages including the Afro-Asiatic languages.

On the other hand, the findings are inconsistent with previous research that has demonstrated the phonetic nature of vowel length, meaning it cannot change the meaning of words, in some African languages, such as Tonga (Zivenge, 2009; Nichols, 2021), Cinsenga (Miti, 2001), and Bungu (Cahill, 2019). These variations in results highlight the distinction in phonological systems across languages, even within the same language family. The study suggests that while vowel length may be a phonemic feature in many African languages, its role is not universal and may be shaped by each language's unique phonological structure and historical development.

## **ii) Vowel length in distinguishing parts of speech in Nyakyusa**

The data collected in this study through document review, observation, and interviews provide compelling evidence that vowel length plays a crucial role in differentiating word categories in



Nyakyusa. The findings indicate that certain Nyakyusa words, which vary in meaning depending on vowel length, also exhibit distinctions in their syntactic categories. Specifically, it was observed that vowel length serves as a distinguishing feature that separates nouns from verbs and adjectives; and verbs from adjectives and pronouns, as detailed in the subsequent sections:

#### a) Nouns vs. Verbs

The data indicate that in the Nyakyusa language, vowel length plays a significant role in distinguishing between nouns and verbs. Specifically, it was observed that certain words, which vary in meaning depending on vowel length, function as nouns when they contain short vowels and as verbs when they contain long vowels, and vice versa. This distinction is illustrated by the examples provided in Table 8 below:

**Table 8 Nyakyusa Nouns distinguished from Verbs based on vowel length**

Word with short vowel	Word class	Meaning	Word with long vowel	Word class	Meaning
Fula	N	rainfall	fuula	V	undress
Ibhole	N	leopard	ibhoole	V	cut oneself
Kana	N	child	kaana	V	deny
Kyela	N	metal	kyeela	V	believe
Panja	N	outside	paanja	V	operate
Kina	V	play	kiina	N	width
Tata	V	gripe	taata	N	father
ulobhe	V	fish	uloobhe	N	nail

#### b) Nouns vs. Adjectives

The data show that in Nyakyusa, vowel length is crucial for differentiating between nouns and adjectives. More specifically, it was noted that some words, which change meaning based on vowel length, act as adjectives when they have short vowels and as nouns when they have long vowels. This distinction is demonstrated by the examples in Table 9 below:

**Table 9 Nyakyusa Nouns distinguished from Adjectives based on vowel length**

Word with short vowel	Word class	Meaning	Word with long vowel	Word class	Meaning
kipala	Adj	scarce	kipaala	N	baldness
Ibhole	Adj	rotten	ibhoole	N	leopard

#### c) Verbs vs. Adjective

The data suggest that in the Nyakyusa language, vowel length is important for distinguishing between verbs and adjectives. Specifically, it was observed that some words, which change meaning based on vowel length, serve as verbs when they have short vowels and as adjectives when they have long vowels. This distinction is shown in the examples provided in Table 10 below:

**Table 10 showing Nyakyusa Verbs distinguished from Adjectives based on vowel length**

Word with short vowel	Word class	Meaning	Word with long vowel	Word class	Meaning
mogha	V	dance	moogha	Adj	fearful
tosa	V	farm	toosa	Adj	all

#### **d) Verbs vs. Pronouns**

The data suggest that in Nyakyusa language, vowel length is a critical feature in differentiating between verbs and pronouns. More specifically, it was noted that certain words, whose meanings shift according to vowel length, function as verbs when they contain short vowels and as pronouns when they contain long vowels. This distinction is exemplified by the data presented in Table 11 below:

**Table 11: Nyakyusa Verbs distinguished from Pronouns based on vowel length**

Word with short vowel	Word class	Meaning	Word with long vowel	Word class	Meaning
tosa	V	farm	toosa	Pron	all
gala	V	get drunk	gaala	Pron	all

The findings presented in Tables 8-11 above indicate that vowel length plays a substantial role in distinguishing word categories in the Nyakyusa language, with certain words exhibiting both meaning variation and syntactic category distinctions based on vowel length. These results support the findings of Lukatela *et al.* (2004) and Wright *et al.* (2004), suggesting that vowel length is significant, possibly universal, phonological feature used to distinguish word categories across languages.

#### **Conclusion**

Supported with the findings, the study concludes that vowel length is a crucial phonemic feature in Nyakyusa, distinguishing word meanings and serving as a key mechanism for differentiating word categories. These findings show the significance of vowel length in the phonological and syntactic structure of Nyakyusa, suggesting its essential role in meaning differentiation and

category distinction within the language. Consequently, further research should explore the phonemic status of vowel length in other Bantu and African languages such as Afro-Asiatic languages to assess whether similar phonemic patterns exist across these languages.

## References

- Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (1972). *Introduction to research in education*. Holt, Rinehart and Winston.
- Cahill, M. (2019). Tone, orthographies, and phonological depth in African languages. In S. Lotven, S. Bongiovanni, P. Weirich, R. Botne, & S. G. Obeng (Eds.), *African linguistics across the disciplines: Selected papers from the 48<sup>th</sup> Annual Conference on African Linguistics* (pp. 103–123). Language Science Press. <https://doi.org/10.5281/zenodo.3520575>
- Chomsky, N., & Halle, M. (1968). *The sound pattern of English*. Harper & Row.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4<sup>th</sup> Ed.). Sage Publications.
- Crystal, D. (1997). *A dictionary of linguistics and phonetics* (4<sup>th</sup> Ed.). Blackwell Publishers.
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. McGraw-Hill.
- Doke, C. M. (1938). *Text book of Lamba grammar*. Witwatersrand University Press.
- Downing, L. J., & Mtenje, A. (2017). *The phonology of Chichewa*. Oxford University Press.
- Felberg, K. (1996). *Nyakyusa-English-Swahili and English-Nyakyusa dictionary*. Mkuki na Nyota Publishers.
- Hock, H. H., & Joseph, B. D. (2009). *Language history, language change, and language relationship: An introduction to historical and comparative linguistics* (2<sup>nd</sup> rev. Ed.). Walter de Gruyter GmbH & Co. KG.
- Horton, A. E. (1949). *A grammar of Luvale*. Witwatersrand University Press.
- Jakobson, R., Gunnar, C., Fant, M., & Halle, M. (1952). *Preliminaries to speech analysis: The distinctive features and their correlates*. MIT Press.
- Kalyata, K. (2020). *A linguistic analysis of Mbunda* (Unpublished master's dissertation). University of Zambia, Zambia.
- Lukatela, G., Eaton, T. A., Sabadini, L., & Turvey, M. T. (2004). Vowel duration affects visual word identification: Evidence that the mediating phonology is phonetically informed. *Journal of Experimental Psychology: Human Perception and Performance*, 30(1), 151–162. <https://doi.org/10.1037/0096-1523.30.1.151>
- Miti, L. M. (2001). *A linguistic analysis of Cinsenga: A Bantu language spoken in Zambia and Malawi*. CASAS.
- Nelson, J. K., & Resnik, D. B. (1999). *Research ethics: A philosophical guide*. Routledge.

- Nichols, S. (2021). Explorations in the phonology, typology and grounding of height harmony in five-vowel Bantu languages. (Unpublished doctoral thesis). University of Manchester, England.
- Nkhata, M. (2019). Some aspects of Senga phonology and morphology. (Unpublished master's dissertation). University of Zambia, Zambia.
- Persohn, B. (2020). *The verb in Nyakyusa: A focus on tense, aspect, and modality* (2<sup>nd</sup> Ed.). Language Science Press.
- Robinson, N. (2024). A grammatical description of Nyakyusa phonology. *Journal of Linguistics and Language in Education*, 17(2), 136–167. <https://doi.org/10.56279/jlle.v17i2.1>
- Sadat, M. (2016). *Some aspects of the phonology and morphology of Ghanaian Hausa*. LAP LAMBERT Academic Publishing.
- Wright, R., Local, J., Ogden, R., & Temple, R. (2004). Factors of lexical competition in vowel articulation. In *Papers in laboratory phonology VI* (pp. 75–87).
- Zemba, M. (2016). A grammatical sketch of Kunda language. (Unpublished master's thesis). University of Zambia, Zambia.
- Zivenge, W. (2009). Phonological and morphological nativisation of English loans in Tonga. (Unpublished doctoral thesis). University of South Africa, South Africa.