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RESEARCH ARTICLE

ANALYSIS OF TONE CONTRAST PATTERNS IN NAMBYA LANGUAGE OF HWANGE DISTRICT IN MATABELELAND NORTH PROVINCE OF ZIMBABWE

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ABSTRACT

Nambya is a Bantu language spoken in Hwange in Western Zimbabwe. As a Bantu language, it shares several characteristics of Bantu languages. This paper gives a non-exhaustive analysis of the tone patterns and how they affect lexical and grammatical meaning. The study identified various factors that influence tone namely noun stems,their prefixes, verbal stems and the role of Obligatory Contour Principle and High Tone Spread. Nambya, a previously marginalised language is spoken by an estimated 117 000 inhabitants (https://joshuaproject.net/people_groups / -retrieved 16 June 2022.). This research aimed to establish tonal patterns and general tonal rules in Nambya. The target population were mother tongue speakers who had either learnt the language at formal setups or were natural speakers of the language. Expert and homogeneous purposive sampling (judgmental) techniques were applied to select participants, and the sample size was ten. A qualitative methodology using descriptive survey was used in this study focusing on phonological analysis of tone using the auto segmental theory. Data was generated through elicitation of words in isolation and in different environments. In the tonal analysis, Nambya, like many other Bantu languages has two basic tones—High (H) and Low (L). These tones could combine into HH, HL, LL and LH patterns with results showing that tone significantly influences both vowel pitch and consonant articulation. These tones are crucial for distinguishing meanings between otherwise similar words. Thus,tone performs grammatical and lexical functions in Nambya language with vowels and nasals being tone bearing units. Tone is contrastive in the language, affecting both verbs and nouns. Deverbal nouns and prenasalised consonants influence tonal realisation, with a tendency toward low-toned stems. Different noun classes prefer specific tonal patterns possibly due to morphological constraints. Disyllabic nouns exhibit structured tonal distributions reflecting underlying phonological rules. Tone thus plays a crucial role in understanding Nambya. Overall, the findings offer significant contributions to the documentation and analysis of Nambya's phonological system, provide a base for further Bantu language studies, aid in language preservation and serve educational purposes. The study highlighted the importance of thorough linguistic research in safeguarding and valuing the phonological richness of lesser-documented languages.

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INTRODUCTION

Tone analysis is an important component of making a language to be understandable by speakers and listeners. Tone has a function of distinguishing two identical words that have similar segments. Lexical and grammatical tone are important in conveying the meaning of words and sentences (Chongowe and Hokororo 2022:16). The Nambya language, spoken primarily in Zimbabwe and Botswana, is a Bantu language with a complex phonological system that includes tone as a key component of meaning. However, there is limited linguistic research on the systematic analysis of tone patterns and phonetic symbols in Nambya. This gap makes it challenging for linguists, educators and language preservationists to develop accurate orthographic and phonetic representations of the language.This study sought to analyse the tonal structure of Nambya and identifying the role of tone in distinguishing lexical and grammatical meaning. By conducting an in-depth tonal analysis, this study contributes to the broader understanding of Nambya's phonology and provides valuable insights for language preservation, teaching and linguistic comparison with other Bantu languages. Elicitating words without observing tone can misrepresent meaning. For example, /nda/ with high pitch means 'go' while /nda/ with low pitch means 'lice'. Thus, tone plays a critical role in understanding a language (Lojenga, 2018). Improper pronunciation of words can lead to communication barriers. In that regard grammatical and lexical tone need to be properly documented so that miscommunication can be minimised.

MATERIAL AND METHODS

The participants were selected using homogenous sampling techniques. Purposive sampling also known as "judgmental sampling"(Neuman 2014) ,was used as it asserts that the procedure involves building a sample based on cases, individuals or communities judged as being appropriate for the study that is underway. The sampling techniques allowed the researcher to select participants who had practical experience and were involved in productive conversations, teaching or writing of some material in Nambya. Nikolopoulou (2022) states that in convenience sampling, participants are selected because they are accessible and therefore relatively easy for the researcher to recruit. Participants were selected because they met criteria that had been predetermined by the researcher as relevant to addressing the research question. This study followed an interpretivist paradigm. Epistemology, a core area of philosophy, according to Sol and Heng (2022:82) is concerned with the theory of knowledge. Epistemology examines the relationship between the researcher and knowledge during the discovery process.Ten mother tongue speakers of Nambya living in areas where it was believed that original and 'undiluted' Nambya existed were targeted namely Cross Dete, Makwandara, St Mary's, Nejambezi rural areas and Hwange urban. Four participantswere located in Hwange town, the justification for choosing them is that they are involved in teaching Nambya language at primary, secondary and tertiary levels. Five members of the Nambya Cultural Association were interviewed to establish places where the prestige dialect was still in existence. Focused group discussion was employed involving Diploma in Bible Translation students during a Phonetic lecture and Alphabet Design Workshop (ADW) interaction. Data for this study was gathered from the Nambya corpus as well as from the Swadesh list. Curry and Mcenery (2025) define corpus as representative collections of language in use. Elicitation is another method that was used to extract data on tone. Faitaki and Murphy (2020:360) define language elicitation as a task that requires a participant to produce some form of language, in either oral (speaking) or written form. It was a key method of obtaining reliable linguistic data from speakers either actual utterances or judgments about utterances (for example, their acceptability). In one of the exercises participants were provided with a set of verb forms that required them to put extensions on.
For example:/labuka/ [laβuka]'run'

For example:/labuka/ [laβuka] 'run'

(1)Word	Applicative	Reciprocal	Causative
(a)lab-u´k-a	(b)lab-u´k-i´l-a	(c)lab-uk-i´l-a´na	(d)lab-u´k-i´s-a
run- FV-a	run-APPL-FV-a	run-RECIP-FV-a	run-CAUS-FV-a
V.Root + FV	V.Root + EXT-APPL	VRoot- EXT-RECIP	VRoot- EXT-CAUS.

Adatabase of 100 nouns and 100 verbs was created using Fieldworks (FLEx). Flex allows both production of a word list and making the collection of texts a searchable corpus (Bernander (2017:41). The words were grouped into their grammatical categories namely: Nouns and verbs. Nouns were put according to noun classes (NC) and according to the syllable profile-monosyllabic, disyllabic, trisyllabic, quadrisyllabic or poly syllabic and identification of the morpheme type-root or stem was done. The same was done for the verb base. The stem types were categorised into simple, compound or complex type (Snider 2018). The syllable profiles of each stem were identified. For example, CV; CV.CV; or CVN. The researcher went on to listing the number of nouns from all noun classes with stem shape: CV or CV.CV or CVN.

(2). For example:

Word	Syllable profile	IPA	Gloss
/bala/	CV.CV	[βala]	'read'
/tya/	is CCV	[tja]	'be afraid'
/kangila/	CV.NV.CV	[kaŋgila]	'fry for'

In order to listen to pitch levels and assign the pitch to each word elicited, a computer software called AZT was used. FLEx was used to put the words into the identified frames. Participants read aloud the words in isolation as well as in different environments: sentential or phrasal. Using the AZT application, pitch was determined and the level of tone marked or indicated on a particular word.

RESULT AND DISCUSSION

Nambya, (Koroma 2024) as in many other Bantu languages, has an underlying two-tonesystem, that is High and Low tone. Several words are found inwhich the only contrastive element between two words is tone. Nambya is a tone language. Gunnink (2018:71) states that the relative pitch at which a vowel is articulated is phonologically contrastive. This can be seen from tonal minimal pairs, words that are identical on the segmental level but have different tones and a different meaning as shown below.

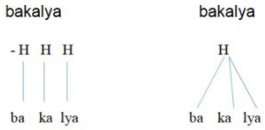
Data gathering: The analysis included both fieldwork for data collection and linguistic analysis using established phonetic frameworks. Like other forms of qualitative research, a descriptive survey seeks to understand social phenomena, with the researcher serving as the primary instrument of data collection and analysis.

Table1. tonal minimal pairs

	Syllable pattern	Word	Gloss	Word	Gloss
1	CV.CV	-tfeka (H-H)	'cut'	-tfeka (L-L)	'havediarrhoea'
2	CV.CV	-βuja (H-H)	'come back	-βuja (L-L)	'good, right'
3	CV.CV	-βala (HH))	'complexion'	-βala (LH)	'read'
4	CV.CV	-seka (H-H)	'laugh'	-seka (L-L)	'ring'
5	CV.CV	-kuβa (H-H)	'become bare'	-kuβa- (L-L)	'to be'
6	CV.CV	- kudʒa (LH)	'to dawn'	-kudʒa (H-L)	'praise'
7	CV.CV	-fuka (HH)	'cover with blankets'	-fuka (LL)	'of chicken brooding on eggs'
8	CV.CV	-tʃaba (HH)	'gather firewood'	-tʃaba (LL)	'country'

Autosegmental representation: In autosegmental representation of tone, tones are represented on a different level ('tier') from segments, connected to the segments via 'association lines'. Autosegmental Phonology seeks to explain the main characteristics of tone: mobility and stability. It goes on and argues that tones are autonomous units (autosegments) which can be associated to segments but are not part of the segment, (Katamba,1993:158 in Uwaezuoke and Eme (2017).Tones reside on a separate tier (tonal tier) parallel to consonants and vowels on the segmental tier. The two tiers are linked together by association lines that follow Well-formedness conditions (Chongowe and Hokororo 2022:16) originally presented as:

(i) all vowels are associated with at least one tone;
(ii) all tones are associated with at least one vowel;
(iii) association lines do not cross.
(3).a[ba´-ka´-lya´] 'they ate'



3.3 (a)Tonal patterns in nouns: The tone system in nouns combine to form four combinations HH, LL, LH and HL as demonstrated by the following examples:

Table 2. Disyllabic nouns-with L.L. tone pattern

	Syllable patterns	Tone pattern	Noun class	Word	IPA	Gloss
1	NV.CV	L.L.	CL1/2	u-nduki	u-ⁿduki	'sewer'
2	NV.CV	L.L.	CL1/2	u-ndimi	u-ⁿdimi.	'farmer'
3	NV.CV	L.L.	CL1/2	u-ndanda	u-ⁿdaⁿda	'slave'
4	NV.CV	L.L.	CL1/2	u-ndindi	u-ⁿdiⁿdi.	'sentry'
5	NV.CV	L.L.	CL1/2	u-ndingi	u-ⁿdiᵑgi.	'viewer'
6	NV.CV	L.L.	CL1/2	u-ndaji	u-ⁿdadʒi	'counsellor'
7	NV.CV	L.L.	CL1/2	u-ndondi	u-ⁿdoⁿdi.	'undondi'
8	NV.CV	L.L.	CL1/2	u-ndongo	u-ⁿdoᵑgo.	'servant'
9	NV.CV	L.L.	CL1/2	u-ndoteli	u-ⁿdoteli.	'fortune teller'
10	NV.CV	L.L.	CL1/2	u-ndoti	u-ⁿdoti.	'dreamer'
11	NV.CV	L.L	CL1/2	u-ndowi	u-ⁿdowi.	'wizard'
12	CV.CV	L.L	Cl5/6	i-guyo	i-guʲo	'grinding stone'
13	CV.NV	L.L	Cl5/6	i-gombo	i-goᵐbo	'big stick

Deverbal nouns have an effect on the tone of a noun stem. From the above words we can conclude that deverbal nouns that are disyllabic beginning with prenasalshave an effect on the vowel of the first syllable by lowering the tone. Consequently, the disyllabic word ends with L- tone. All the 11 words in the database that had deverbal nouns that are prenasalised at the stem are L-tone.

Table 3.Disyllabic nouns with L.H. tone pattern

	Syllable pattern	Tone pattern	Noun class	Word	IPA	Gloss
1	CV.CV	L-H	Cl5/6	i-gosha´	i-goʃa´	'disabled person'
2	CV.CV	L-H	Cl5/6	i-dete´	i-dete´	'reed'
3	CV.CV	L-H	Cl5/6	i-dizwa´	i-dizʷa´	'hole'
4	CV.CV	L-H	Cl5/6	i-zhuba´	i-ʒuβa´	'day'
5	CV.CV	L-H	Cl5/6	i-gole´	i-gole´	'year, cloud'

The presence of a depressor consonant on the initial syllable triggers lowering of the stem tone. From the above words we can conclude that disyllabic nouns beginning with depressor consonant have an effect on the vowel of the first syllable by lowering the tone.

Table 4 disyllabic nouns with H.H. tone pattern.

	Syllable pattern	Tone pattern	Noun class	Word	IPA	Gloss
1	CV.CV	H.H.	Cl5/6	-fu´pa´	-fu´pa´	'bone'
2	CV.CV	H.H.	Cl7/8	-chi´to´	-tʃi´to´	'habour'
3	CV.NV	H.H.	Cl5/6	i-go´mbo´	i-go´ᵐbo´	'navel'
4	NV.CV	H.H.	Cl9/10	i-mbi´la´	i-ᵐbi´la´	'rock rabbit'
5	NV.NV	H.H.	Cl9/10	i-ngu´mba´	i-ᵑu´mba´	'house'
6	CV.CV	H.H.	Cl9/10	i-sha´sha´	i-ʃa´ʃa´	'door made of sticks

Table 5.Disyllabic nouns with H.L.tone pattern

	Syllable pattern	Tone pattern	Noun class	Word	IPA	Gloss
1	CV.CV	H.L	Cl5/6	i-du´li	i-du´li	'piece of meat'
2	CV.CV	H.L	Cl5/6	i-bha´to	i-ba´to	'buttock'
3	CV.NV	H.L	Cl5/6	i-bha´nti	i-ba´ⁿti	'belt'
4	CV.CV	H.L	Cl5/6	i-bha´sa	i-ba´sa	'type of dance'
5	CV.CV	H.L	Cl5/6	i-bha´pu	i-ba´pu	'lung'

Table 6. Disyllabic nouns with H.L tone pattern

	Syllable pattern	Tone pattern	Noun class	Word	IPA	Gloss
1	CV.CV	H-H	Cl7/8	chi-po′lo′	ʧi-po´lo´	'rail line'
2	CV.NV	H-H	Cl7/8	chi-pu′nu´	ʧi-pu´nu´	' non Nambya tribe'
3	CV.NV	H-L	Cl7/8	chi-pu′nu	ʧi-pu´nu-	'spoon'
4	CV.NV	H-L	Cl7/8	chi-kwa′ma	ʧi-kʷa´ma	'bag'
5	CV.CV	H-L	Cl7/8	chi-kwata	ʧi-kʷa´ta	'group'
6	CV.CV	H-L	Cl7/8	chi-kwa′ti	ʧi-kʷa´ti	'match box'
7	CV.CV	H-L	Cl7/8	chi-le′lwa	ʧi-le´lʷa	'domestic animal'
8	CV.CV	L.H.	Cl9/10	i-huyu	i-huju´	'fig fruit'
9	CV.CV	L.H.	Cl9/10	i-bhizha	i-biʒa´	'pumpkin leaves
10	CV.CV	L.H.	Cl9/10	i-vula	i-vula´	'water'
11	CV.CV	L.H.	Cl9/10	i-hali	i-hali´	'clay pot'
12	CV.CV	L.H.	Cl9/10	i-huku	i-huku´	'chicken'
13	CV.CV	L.H.	Cl9/10	i-zhizha	i-ʒiʒa´	'rainy season'

The noun class for these words is 7/8 denoted by *chi-* sg and *zwi*-pl. The noun prefix is underlyingly low-L. The first syllable of the stem is H tone.

The tone distribution in disyllabic nouns is realised by L-H-L where the prefix is L, the stem initial is High (H), and the final syllable is Low (L).This phenomenon is predominantly exhibited inCl 7/8 (*chi-* for singular, *zwi-* for plural). In this analysis wecan observe that theH tone is realised on the penultimate syllable of the stem, suggesting asystematic tonal assignment rule.

3.3(b)Tonal patterns in nouns

When we analyse the tonal patterns of nouns in Nambya we realise that they follow a particular defined pattern. There are four major tonal classes in disyllabic nouns. The 42 nouns in the dataset fall into four main tonal categories namely:

(4)Low-Low (LL)
Low-High (LH)
High-High (HH)
High-Low (HL)

Each tonal pattern corresponds with specific noun classes and phonological structures. It can be noted that deverbal nouns that have prenasalised consonants and depressor consonants have an effect on tone. In the data set there are 11deverbalised nouns with prenasalised consonants and 7 with depressor consonant nouns tend to have L tone on the first syllable. Of these 11 fall in the L.L. patterns. It can be generalised that most deverbal nouns prenasalised nouns (11) and (5) with a depressor consonant have a final L tone. Those in Cl9/10 which start with prenasalisation have a final H tone and do not have a plural marker. They consistently follow an H-H contour. Similarly nouns in Cl5/6 (I/MA) Table 3 follow the LH pattern.

This suggests that prenasalised deverbal nouns and depressor consonants influence tonal realisation, likely due to historical or phonetic factors. When we analyse the distribution of tone by Noun Class it can be noted that certain noun classes show strong preferences for specific tonal patterns.

- Class 1/2 (deverbal nouns)with prenasalised and depressor consonants initial syllables (Human nouns) follow mostly L.L.
- Class 5/6 (Objects, tools, body parts): Found in all four tonal patterns.
- Class 9/10 (Animals, inanimates): Mostly L.H. or H.H.

This indicates that noun class morphology interacts with tone, possibly due to historical processes. There is an interesting phenomenon on tone and morphological structure of nouns where nouns with CV.CV structures appear in all tonal categories and NV.CV nouns, particularly those with deverbal nouns (prenasalised initial syllables), tend to follow L.L. or L.H. tone patterns. This suggests a phonological constraint where deverbal nouns /nasal-consonant sequences favour low tones.

3.4 Tonal patterns in verbs

Analysis of monosyllabic and disyllabic verbs in Nambya based on tone patterns examines the tone patterns of these verbs in Nambya, focusing on their interaction with consonantal features, particularly depressor and non-depressor consonants. Crystal (2008:45) defines an autosegmentin auto segmental phonology as an independent segment represented on its own tier, on the

upper tier. Their super imposition onto the lower (segmental) tier is called association. This concept is particularly relevant to tones, which are treated as distinct segments separate from consonant and vowel segments on the skeletal tier.

Nambya words like /bashe/ [βaʃe] 'chief' and /umbula/ [u^{m}bula] 'sweet potatoes' could be rendered autosegmentally as:

5 a.Tonal Tier H H

Association lines | |

Segmental tier b-a sh e [báʃé]

b.Tonal Tier L L H

Association lines | | |

Segmental tier u mb u l a [u mbulá]

In the above examples, tones (HH) and (LLH) are indicated at tonal tier, the association lines link the tonal tier and segmental tier and at the segmental tier, 'bashe' and 'umbula'' are shown. Thus, the above two words can be marked as [báʃé] and [u mbulá]]. The transcription explains what is represented at tonal tier.

Table 8. Monosyllabic Verbs

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV	H	-tya′	-tʲa´	'fear'
2	CV	H	-zha′	-ʒha´	'come'
3	CV	H	-lya′	-lʲa´	'eat'
4	CV	H	-nwa′	-n^{w}a´	'drink'
5	CV	H	-pa′	-pa´	'give'

We observe that all (5words) monosyllabic verbs gathered exhibit underlying High (H) tone. The possible explanation of this phenomenon could be that monosyllabic verbs likelycarry an inherent High tone**.** And since they lack additional syllables fortone spreading, the H tone remains fixed**.** The presence of High tone in all monosyllabic verbs suggests a fundamental tonal featureofthis verb type.

Table 9. Disyllabic verbs with L.Ltone syllable patterns

	Syllable pattern	Tone pattern	word	IPA	Gloss
1	CV.CV	L.L	-kuya	-kuʲ-a	'grind'
2	CV.CV	L.L	-laba	-laβ-a	'read'
3	CV.CV	L.L	-fuka	-fuk-a	'brooding of chickens'
4	CV.CV	L.L	-buya	-βuʲa	'good, right'
5	CV.CV	L.L	-cheka	-tʃek-a	'have diarrhoea'
6	CV.NV	L.L	-fema	-fem-a	'breathe'

In the above data set we observe that these verbs have Low tone on both syllables (L.L) and the initial consonant is not a depressor consonant / It is a raiser/unvoiced consonant**.** The p**o**ssible explanation for this phenomenon could be that the lack of a depressor consonant allows a stable Low tone patternand the L.L pattern suggests no tonal interaction between syllables**.**

Table 10 Disyllabic verbs with L.H. tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV	L.H	-bhaya´	-baʲ-a´	'pierce'
2	CV.CV	L.H	-viya´	- viʲ-a´	'skin,'
3	CV.CV	L.H	-daba´	-daβ-a´	'respond'
4	CV.CV	L.H	-gala´	-gal-a´	'sit, stay'
5	CV.CV	L.H	-bhuza´	-buz-a´	'ask'
6	CV.CV	L.H	-dila´	-dil-a´	'pour'

These verbs begin with a depressor consonant. The depressor consonants identified are /b.g.d.v./ Analysis of the C.V. disyllabic verbs reveal that this pattern L.H is found in disyllabic verbs whose initial consonant is a depressor consonant. The depressor consonant forces the initial syllable to be Low (L)**.** The final syllable compensates by acquiring High (H) tone**.** This L.H alternation is fully predictable based on the presence of depressor consonants**.** If the word begins with a depressor consonant, the surface melody will be realised as LH. Only depressor consonants produce a LH melody leaving the raiser/unvoiced/no depressor consonants to produce a high tone melody (HH).

Table 11 Disyllabic verbs with HH tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV.	H.H	-fu´ka´	-fu´k-a´	'cover'
2	CV.CV.	H.H	-che´ka´	-tʃe´k-a´	'cut'
3	CV.CV.	H.H	-bu´ya´	-βu´ʲ-a´	'come back'
4	CV.CV.	H.H	-ba´la´	-βa´l-a´	'spot'
5	CV.CV.	H.H	-cha´ba´	-tʃa´β-a´	'collect firewood'
6	CV.NV.	H.H	-ba´nda´	-ba´^{n}d-a´	'hide, take refuge'
7	CV.NV.	H.H	-be´nga´	-be´^{ŋ}g-a´	'hate'
8	CV.NV.	H.H	-minya´	-mi´ɲ-a´	'be stingy'

The above verbs have both syllables carrying a High (H) tone**.** The initial consonant is not a depressor consonant**.** The possible explanation could be that since the first consonant is not a depressor, the default High tone pattern is maintained**.** There is no Low tone lowering effect that occurs**.** The H.H tone pattern is expected when no depressor consonants are present.

Table 12.Disyllabic verbs with H.L.tone pattern

	Syllable pattern	Tone pattern	word	IPA	Gloss
1	CV.CV.	H.L	-bu´ya	-βu´ʲ-a	'come back'
2	CV.CV.	H-L	-to´la	-to´l-a	'take
3	CV.CNV.	H-L	-ku´nga	-ku´ᵑg-a	'flow'
4	CV.NV.	H-L	-li´nga	-li´ŋga	'look at'

We observe that disyllabic verbs with H.L pattern indicate tone lowering on the final syllabledue to possibly a historical tone reduction rule or finality effects, where a word-final syllable naturally lowers in pitch**.** Disyllabic verbs are realised with the following surface melodies-HL,HH, LH,LL. Once the consonants are known the melodies are completely predictable. Depressor consonants have L on the initial syllable of the verb stem giving a LH melody. We can predict that the pattern**:**

LH-first consonant only is a depressor consonant.
LL-first consonant is not a depressor.
HL-first consonant is a non-depressor followed by a non-depressor or a nasal.
HH-first consonant is a non-depressor followed by either a non-depressor consonant or a nasal.

3. 5 Analysis principles: For C.V words that begin with voiceless obstruents, one finds only three contrastive pitch patterns: level, rising, and falling. Similarly, for CV words that begin with voiced obstruents or sonorants, one finds these same three patterns but realised on the lower yang-register (lower register).

Table 13 Trisyllabic verbs with L.L.L tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV.CV	L.L.L.	-shalula	-ʃalul-a	'discriminate'
2	CV.CV.NV	L.L.L.	-sheshema	-ʃeʃem-a	'nauseate'
3	CV.CV.NV	L.L.L.	-kulunga	-uluᵑg-a	'stir'
4	CV.CV.NV	L.L.L.	-kulunta	-kuluⁿt-a	'drag'

We can observe that trisyllabic verbs with L.L.L Tone Pattern have Low tone (L) on all three syllables**.** The initial consonant does not affect the tone pattern**.** The lack of a High tone suggests a default or neutral verb tone pattern**.** No depressor consonant effect is seen because all syllables remain Low (L). Trisyllabic verbs with this pattern likely follow an unmarked tonal assignment. These verbs might not undergo any tonal shift due to grammatical or phonological rules**.**

Table 14.Trisyllabic verbs with H.H.L tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV.CV	H.H.L	-ku´baja	-ku´βa´dʒa	'hurt'
2	CV.CV.CV	H.H.L	-ku´bila	-ku´βi´la	'eatpowderly food'
3	CV.CV.CV	H.H.L	-kubuka	-ku´βu´ka	'grow up'
4	CV.CV.CV	H.H.L	-kutula	-ku´tu´la	'pour out'
5	CV.NV.CV	H.H.L	-kunika	-ku´ni´ka	'lean downwards'

3. 6 Unvoiced consonants initial is H tone: In trisyllabic verbs with H.H.L Tone Pattern we observe that the first two syllables carry High (H) tone, while the final syllable is Low (L)**.**This pattern occurs inboth CV.CV.CV and CV.NV.CV structures**.** Verbs that begin with an unvoiced consonant can have an initial High tone (H). The High tone (H) on the first two syllables suggests tonal spreading**.** Thus unvoiced consonants in initial position result in High tone. Autosegmental phonology provides a way to describe multiple instances of a phonological feature as reflecting single instances underlyingly: the surface instances are linked together to a common tone in the underlying form. So for instance, the auto segmental representation of trisyllabic words are as follows:

6 Autosegments

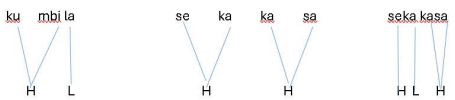


Table 15. Trisyllabic verbs with L.H.L tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV.CV	L.H.L	-bhab´hula	-babu´la	'uncover a hard surface'
2	CV.CV.CV	L.H.L	-bhabhi´sa	-babi´sa	'mother to carry child'
3	CV.V.CV	L.H.L	-bheu´ka	-beu´ka	'over turn'
4	CV.CV.CV	L.H.L	-bhaka´la	-baka´la	'kick, hit'
5	CV.CV.CV	L.H. L	-bhaku´la	-baku´la	'of the heart, palpitate'
6	CV.CV.CV	L.H.L	-dabi´la	-daβi´la	'answer, reply'

Verbs with initial depressor consonants have L tone on the initial which is also realised on the FV-*a*.

Table 16 Quadrisyllabic verbs with L.H.H.L tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss'
1	CV.CV.NV.CV	L.H.H.L.	kulu´mbu´ka	-kulu´^{m}bu´ka	'besheded off'
2	CV.CV.NV.CV	L.H.H.L.	kulu´mbu´la	-kulu´^{m}bu´la	'shed off tree leaves'
3	CV.NV.CV.CV	L.H.H.L.	kungu´li´ka	-ku^{ŋ}gu´li´ka	'roll'
4	CV.CV.NV.CV	L.H.H.L.	kulu´mpa´la	-kulu´^{m}pa´la	'be old, worn out'
5	CV.CV.NV.CV	L.H.H.L.	kulu´mu´ka	-kulu´mu´ka	'rush together'
6	CV.NV.CV.CV	L.H.H.L.	kumbu´lu´ja	-ku^{m}bu´lu´dʒa	'remind'
7	CV.NV.CV.CV	L.H.H.L.	kungu´bu´la	-ku^{ŋ}gu´βu´la	'clear'

The unvoiced initial consonant of the verb stem is toneless/L tone. From the list of the verbs with three syllables, the second syllable which is nasalised has H spread. And Low tone (L) on the final syllable may be due to finality effects, where phrase-final syllables tend to have lowered tone.

Table 17 Quadrisyllabic verbs with L.H.H.L. tone pattern

	Syllable pattern	Tone pattern	Word	IPA	Gloss
1	CV.CV.CV.CV	L.H.H.L.	-vulubata	-vulu´βa´ta	'sleep drowsily'
2	CV.CV.CV.CV	L.H.H.L.	-vuvulija	-vuvu´li´dʒa	'interrupt'
3	CV.CV.NV.CV	L.H.H.L.	-vulumisa	-vulu´mi´sa	'drive hastily'
4	CV.CV.CV.CV	L.H.H.L.	-vumisisa	-vumi´si´sa	'agree' extensively
5	CV.CV.NV.CV	L.H.H.L.	-zakunula	-zaku´nu´la	'undo'
6	CV.NV.NV.CV	L.H.H.L.	-vwinyunguka	-v^{w}i^{ɲ}u´^{ŋ}gu´ka	'move as a snake'

In this analysis it should be noted that the pattern L-H-L is only found in quadsyllabic verb stems in which the initial consonant is a depressor consonant, as exemplified in the Tables15-17.A key observation on trisyllabic and quadrisyllabic verbs is that they always end in an L tone.

(7) Autosegmentally this can be rendered as follows:

-tier

b.Tonal Tier	L	H	H	L	
Association lines	|	|	|	|	
Segmental tier	z a	k u	n u	l a	[zakunula]
	L	H		L	

Nambya as shown in (8), shows a predictable penultimate lengthening realised on different morphemes as causative and applicative suffixes are added:

(8) ku-se:k-a 'to laugh' (se´ka´)

ku-sek-e:s-a 'to cause to laugh'

ku-sek-e:l-a 'to laugh at'

ku-sek-el-e:l-a 'to cause to laugh at'

sek-a

HTS 1Nambya verb roots are either underlyingly toneless or have an underlying H tone. (9) and (10) give some examples of toneless and H tone verbs respectively preceded bythe low tone infinitive prefix ku-.

All these examples are given as they occur in an intonational phrase withpenultimate vowel length.

9. Toneless verbs

ku-liim-a	'to cultivate'
ku-palaadʒ-a	'to disperse'
ku-ʃaluul-a	'to choose'
ku-pamhiija	'to add, extra'
-lima	
-ku-tʃi-li´ma	

-lima
-ku-tʃi-li´ma

When the object prefix is followed by toneless verb stems, the H tone of the object prefix spreads twice onto the following vowels of the verb stem,

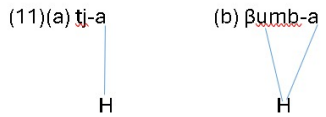
L-L

-ku-fem-a	'breathe
-ku-kuja	'grind'
-ku-laβa	'read'
-ku-kumba	'scratch feet'
-ku-βanda	'mention'
-ku-βeŋga	'cut meat into stripes'
-ku-tʃeka	'have diarrhoea'
-ku-fuka-	'brooding of chicken's

10. High Tone verbs

ku-tʲ-a´	"to fear"
ku-βu´mb-a´	"to build"
ku-pu´βu´l-a	"to pierce"
ku-si´pu´l-a	"to uproot"

The lexically toneless verbs in (9) are assigned a Low tone by default. The lexical H in the verbs in (10) links to the first vowel in the verb stem. HTS1 then applies at the stem level, spreading this H tone rightwards to all the visible vowels.



The final vowel in the monosyllabic stem in (11a) and in the disyllabic stem in (11b), however, are not extrametrical because, like in a number of Bantu languages, Nambya language also invokes a disyllabic minimum (see Myers, 1987,on Shona). In cases where these H tone verbs are followed by another word within an intonational phrase, HTS3 also applies to these verbs. (12) restates these verbs from (11) above followed by βu´-si´iku´ 'at night'.

12. High Tone verbs

ku-tɬ-a′	ku-ty-a′ βu′-si′iku′	"to fear night"
ku-βu′mb-a′	ku-βu′mb-a′ βu′-si′iku′	"to build at night"
ku-pu′βu′l-a	ku-pu′βu′l-a′ βu′-si′iku′	"to pierce at night"
ku-si′pu′l-a	ku-si′pu′l-a′ βu′-si′iku′	"to uproot at night"

We observe in the case of the monosyllabic and disyllabic verb stems that the stem H tone spreads by HTS3 onto the vowel of the class 14 prefix of the following word βu-siiku "at night." But in the case of the longer verb stems, when the word βu-siiku follows, we observe a H tone on the final vowel -a which was not there before when these verbs occurred in isolation. This means that after the application of HTS1 and with the addition of another word, the extrametricality is removed. This H tone then spreads by HTS3 onto the final vowel. This shows that as a postlexical rule, HTS3 can spread both within and across words. Some common tonal processes take place in Bantu languages. Marlo and Odden (2019:153, 155,158,160) state that during the analysis of tone, there are common Bantu tonal processes that take place. Martena and Kula (2009) describe that Meeussen's Rule is a dissimilation process that changes the second high tone in a series of two into a low tone. Yip (2009) states, "if two H tones become adjacent, the second one deletes and if two L tones become adjacent, the first one changes to LH rise. Both of these can be seen as caused by the Obligatory Contour Principle (OCP) as stated in Leben (1973).At the melodic level of the grammar any two adjacent tones must be distinct. The OCP captures the intuition that two adjacent TBUs with the same tone need not each be specified separately for the same tone.

(13)In Nambya this process is exhibited as follows:

téŋg-és-á →	tʃǎ -	tèŋgèsà	'it has sold'
	ká -	tèŋgèsà	'it has sold' dim.
	wá -	tèŋgèsà	'he/she has sold'
	βá -	tèŋgèsà	'they have sold'Cl.5/6)
	ta′ -	laβuka	' we have run'
	ba -	laβuka	'they have run'
	-lya′ -	wa′ lya`	'he has eaten'
	-lya′ -	walya	'he/she who has eaten'
	-ba′ -	lya`	'they have eaten'
	-twa′ -	lya`	'they have eaten'(Cl.13)
	-dʒa -	lya`	'they have eaten'(Cl9/10)
	-zwa′ -	lya′	'they have eaten'(Cl.7/8)
	-zwa -	lya	'they that have eaten' (Cl.7/8)

The SM in Cl 9/10 and 7/8 have initial depressor consonant which has a H tone, spreads to the verb root to make it H tone.
Yip, following Myers (1997), explains that the doubly linked H is deleted. She suggests that the H tone deletion in the sentence is due to the H specified on the copula prefix, i, 'is', (infinitive -ku-)and that the elision of the doubly-linked H tone is triggered by the OCP to avoid its violation.

(14)Word	prefix -ku-
Se′βa′	ku′se`ba`
-ka′ŋg-a′	ku′ka`ŋga`
'fry'	'to fry'
-ku′m-a′	ku′ku`ma`
'praise'	'to praise'
-βu′j-a′	ku′βu`ja`
'come back'	'to come back'
-mi′ɲ-a′	ku′mi`ɲa`
'be stingy'	'be stingy'

3. 7 H- spreading/shifting

H tone is very mobile in Bantu languages, meaning it frequently spreads or shifts. This movement can be unbounded within a constituent, or bounded, in this latter case, being limited to a distance of one or two syllables (or moras) and can operate either to the left or right.
Nambya example: H. [a´-to-lyà] 'he/she does not eat'.
Meeussen's Rule is a dissimilation process that changes the second high tone in a series of two into a low tone. For example, in Nambya:
prefix + stem

(15)	'la´bu´ka	'run'	wa´-la´bùkà 'he/she has run'
	'ka´-la´βùkà	'it (dimunitive) has run' 'it ' animal) has run'	
	'tʃa´-la´βùka´	'it (augmentative)has run'	
	'ɬa´-la´βùkà	'it (augmentative)has run	

CONCLUSION AND RECOMMENDATIONS

Tone analysis in this study was done using the autosegmental phonology theory. Nambya is a two tone language- High and Low tonethat combine to make HH; HL; LL, LH patterns which are crucial for distinguishing meanings between otherwise similar words. Tone is contrastive in the language, affecting both verbs and nouns. Deverbal nouns influence tonal realisation, with a tendency toward low-toned stems. Different noun classes prefer specific tonal patterns, possibly due to morphological constraints. Disyllabic nouns exhibit structured tonal distributions, reflecting underlying phonological rules. It is hoped that this study will put Nambya at a comparable level with other Bantu languages.

Compliance and standards

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Glossary of abbreviations

AP	AUTOSEGMENTAL PHONOLOGY
APPL	APPLICATIVE EXTENSION
CAUS	CAUSATIVE EXTENSION
CL	CLASS NOUN
CV	CONSONANT VOWEL
CVN	CONSONANT VOWEL NASAL
EXT	EXTENSION
FV-	FINAL VOWEL
HL	HIGH LOW TONE PATTERN
HH	HIGH HIGH TONE
HL	HIGH LOW TONE
HTS	HIGH TONE SPREAD
IPA	INTERNATIONAL PHONETIC ALPHABET
LH	LOW HIGH TONE
LL	LOW LOW TONE
NV	NASAL VOWEL
NC	NOUN CLASS
RECIP	RECIPROCAL EXTENTION
VROOT	VERB ROOT

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