

Nchane Phonology Sketch

Richard L. Boutwell

Katrina L. Boutwell

SIL

B.P. 1299, Yaoundé

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This paper concerns the Nchane language spoken in Misaje Subdivision,
Nkambe Division, in the North West Region of Cameroon.

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Abbreviations

vl	voiceless
vd	voiced
C	consonant
G	glide
V	vowel
N	nasal
c#	class number
(n)	noun
(v)	verb
H	high tone
M	mid tone
L	low tone
N-	homorganic nasal
//	underlying form
[]	surface or phonetic form
→	'becomes' (in phonological rules)
~	in free variation with
.	syllable boundary
+	morpheme boundary

1. Introduction

Nchane is an Eastern Beboïd (Wide-Bantu) language spoken in the Misaje Subdivision, Donga-Mantung Division, North West Region of Cameroon, West Africa. Dieu and Renaud (1983) in the *Atlas Linguistique du Cameroun (ALCAM)* list the language as: Nchane [873]. The *Ethnologue* (Lewis, Simons, and Fennig 2013) lists the following language name variations: Ncane, Nchanti, Ntshanti, Cane (ISO 639-3 language code: ncr).

The language is spoken predominately in five villages: Nkanchi, Nfume, Chunghe, Bem, Kibbo. Bem and Kibbo are known to have slight dialect variations from the other three villages. There are about 22,000 speakers of the language, although the exact number is unknown as there are sizeable clusters of people living outside the area, particularly in the South West Region.

1.1. Previous Research

A phonology sketch of Nchane was done by Russell Richards (1991), mainly from a wordlist collection, as part of a cross-linguistic study involving neighbouring languages Sari and Noni. Jean-Marie Hombert (1980) studied the noun classes of the Beboïd languages, of which Nchane was included. The authors have also prepared a working orthography guide (Boutwell and Boutwell 2008) and a sketch grammar (Boutwell 2010). Outside of this published research, the authors are not aware of any other linguistic research that has been conducted in Nchane.

Data for this particular document was prepared with the assistance of several Nchane language informants, notably Shey Tamfu Ephraim, Emmanuel Chambang, Nji Enock and Bridget Kideyah, collected primarily between 2005 and 2007 while the researchers were residing in the village of Nfume. The data is transcribed using the international phonetic alphabet and tone transcriptions represent surface tone unless otherwise noted.

2. Basic Phonology

2.1. Overview

The Nchane language has three main syllable types: V, CV, and CVC. The V syllable type occurs in the initial syllable of the word and can either be a vowel or syllabic nasal. In the CVC syllable type, the coda is restricted to the velar nasal /ŋ/, with relatively rare occurrences of the alveolar /n/.

The basic phonological features of Nchane, most notably the consonants, vowels and tone, are each described in turn below.

2.2. Consonants

2.2.1. Inventory of Unmodified Consonants

The unmodified consonant phonemes of Nchane are displayed in the following chart. Note that all unvoiced plosives are aspirated in all environments. This feature is not contrastive and, thus, not treated in this paper. While all consonants occur word initially, only nasals are found in the coda position. Furthermore, as noted above, only the velar nasal is found in word final position.

		Labial	Alveolar	Palatal	Velar
Plosives	vl		t		k
	vd	b	d		g
Affricates	vl			tʃ	
	vd			dʒ	
Fricatives	vl	f	s	ʃ	
Nasals		m	n	ɲ	ŋ
Approximants			l	j	w

2.2.1.1. Contrast

Contrasts for the unmodified consonants are given below.

[b]:[m]	bī	‘follow’
	mí	‘swallow’
[b]:[w]	bū	‘escape’
	wú	‘whistle (v)’
[t]:[d]	tāŋ	‘count’
	dāŋ	‘jump’
[t]:[s]	tūŋ	‘shoot’
	sūŋ	‘beat’
[t]:[tʃ]	tū	‘hit’
	tʃū	‘give back’
[d]:[n]	dā	‘testicle’
	nà	‘cow’
[d]:[dʒ]	dāŋ	‘jump’
	dʒāŋ	‘announce’
[d]:[l]	dā	‘testicle’
	lā	‘compound’
[k]:[g]	kũ	‘play an instrument’
	gũ	‘play (intransitive)’
[g]:[ŋ]	sāgé	‘rule over’
	sāŋé	‘chop into pieces’
[g]:[w]	gā	‘divide’
	wā	‘quarrel (v)’
[tʃ]:[dʒ]	tʃù	‘excrement’
	dʒù	‘penis’
[tʃ]:[ʃ]	tʃõ	‘hollow out (log)’
	ʃõ	‘wipe off’

[dʒ]:[ɲ]	dʒàŋ	‘grave’
	ɲàŋ	‘animal’
[f]:[s]	fāŋ	‘deny’
	sāŋ	‘draw (picture)’
[s]:[ʃ]	būsē	‘take out (from container)’
	bùʃē	‘castrate’
[ʃ]:[j]	ʃǎ	‘pot’
	jǎ	‘suck’
[m]:[ɲ]	mā	‘(facial) incision(s)’
	nà	‘cow’
[n]:[ɲ]	nà	‘insult (v)’
	ɲā	‘give’
[ɲ]:[ŋ]	tāɲē	‘tear (tr)’
	tāŋè	‘call (someone)’
[ɲ]:[j]	ɲā	‘give’
	jā	‘defeat’

2.2.2. Modified Consonants

Only ambiguous vowel sequences V_1V_2 where V_1 is high are attested in Nchane and occur only after certain consonants. It is proper then to interpret V_1 as an approximant consonant, either /w/ or /j/, and to discuss the resulting consonant combinations as labialized or palatalised consonant varieties, respectively.

2.2.2.1. Labialized Consonants

Consonant clusters C_1C_2 , where C_2 is a labial-velar approximant [w] are attested when C_1 is a plosive, fricative, affricate or nasal. The result is realised phonetically as a labialized consonant. The labialized velar phonemes are the most common. The labialization process occurs across morphological boundaries as well as within basic words. Thus we may postulate the following labialization rule:

/Cw/ → [C^w] / all environments

2.2.2.2. Palatalised Consonants

Consonant clusters C_1C_2 , where C_2 is a palatal approximant [j] are realised as palatalised consonants [Cʲ] and are attested in a small number of monomorphemic words when C_1 is a bilabial plosive [b], bilabial nasal [m] or the coronal fricatives [f] and [ʃ]. We may describe this process by the following labialization rule:

/Cj/ → [Cʲ] / all environments

2.2.3. Phonetic Description

2.2.3.1. Free Variation

The [j] and [ɟ] are in free variation in all environments. The speakers themselves tend to perceive the phoneme as /j/.

1. /jè/ [jè] ~ [ɟè] ‘house’
2. /bɨ̀j̀d̀i/ [bɨ̀j̀d̀i] ~ [bɨ̀ɟ̀d̀i] ‘red’

This alternation may be described by the following phonetic rule.

/j/ → [j] ~ [ɟ] / all environments

The [d] and [ɾ] are in free variation intervocalically.

3. /fēNtédé/ [fēntédé] ~ [fēntéré] ‘story’
4. /kēNbédē/ [kēmbédē] ~ [kēmbérē] ‘mudfish’

This alternation may be described by the following phonetic rule.

/d/ → [d] ~ [ɾ] / V_V

2.2.3.2. Nasal assimilation

When NC combinations occur in roots, there is a general tendency for the nasal to assimilate the place of articulation of the following consonant. One particular exception is the alveolar approximant [l], which is normally preceded by the velar nasal. Words from the corpus with an Nl sequence are shown below¹.

5. [ŋlō] ‘poison’
 [kēŋlà] ‘kingfisher’
 [kēŋgólè] ‘millipede’
 [sāŋlè] ‘okra’
 [tāŋlò] ‘perhaps’

In conclusion, it appears that nasal assimilation is a relatively strong process in Nchane, occurring with almost all consonants. It is possible that there is some free variation between [ŋ] and at least [n]. Nasal assimilation therefore may at times be violated. It appears that nasal assimilation may be limited to root internal NC combinations and does not apply, at least regularly, at morpheme boundaries.

[m]	[ŋ]	[n]	[ɲ]	[ŋ]
[m̄bà] ‘soup’	[ŋfá] ‘eagle’	[n̄tòŋ] ‘cane rat’	[ɲt̄ŷūŋ] ‘insult (n)’	[ŋkà] ‘flea’
		[n̄dùŋ] ‘hawk’	[ɲdzū] ‘cloth’	[ŋgú] ‘fire’
		[n̄sú] ‘pepper’	[ɲfáŋ] ‘soil’	[ŋlō] ‘poison (n)’

¹ It is possible that the [ŋl] sequence in the words above represent a morpheme boundary. Therefore, it could be argued that nasal assimilation is restricted to word internal NC sequences. However, as can be seen, this particular combination is rare in the data. Therefore, any analysis must be considered preliminary.

2.2.3.3. Labio-dental Fricative Offglides

Nchane exhibits a small class of consonant modifications referred to as labio-dental fricative offglides. This occurs only with the bilabial and velar plosives: [b], [k], and [g]². When these consonants are labialized before [u], the labialization is realized as a labio-dental fricative intervening between the consonant and the vowel. The offglide shares the same voicing as the preceding consonant. Therefore, when a labialized voiced consonant is followed by a [u], then a [v] intervenes. In the same way, a labialized voiceless consonant is followed by an [f]. In all other environments, labialization of labialized consonants is realized by [w].

[bv]	[kf]	[gv]
[bv̥u] <i>dog</i>	[kf̥us̥è] <i>cotton</i>	[gv̥un̥à] <i>respect (v)</i>
[bābv̥ul̥è] <i>lions</i>	[b̥ik̥f̥un̥è] <i>rats</i>	[k̥iŋgv̥ù] <i>duck</i>

The labio-dental fricative offglide process may be summarized by the following rules.

$$[b^w] \rightarrow [b^v]/_ [u] \quad [k^w] \rightarrow [k^f]/_ [u] \quad [g^w] \rightarrow [g^v]/_ [u]$$

² Note that while this modification is not observed with other consonants in the inventory, the data does not include examples of /Cwu/ with any of the other consonants. This suggests that this modification would be expected to apply to other consonants as well. Noni for example observes the same modification in no fewer than 12 consonants.

2.3. Vowels

2.3.1. Vowel Inventory

Nchane has a seven vowel system, which is in contrast to the neighbouring Grassfields languages which most often have nine vowel systems. However, within the Eastern Beboid group, Sari and Noni also have seven vowel systems (Richards 1991). The basic vowel phonemes of Nchane are displayed in the chart below.

High	i		u
Close-mid	e		o
Open-mid	ɛ		ɔ
Low		a	

2.3.1.1. Contrast

Contrasts for the vowel phonemes are provided below.

dʒì	‘hoe (n)’
dʒè	‘hide (of animal)’
dʒɛ	‘word’
dʒá	‘stand’
dʒú	‘day’
dʒò	‘water’
tʃū	‘light (fire) (v)’
tʃō	‘shrew’
tʃó	‘carve’

2.3.2. Vowel Nasalization

Nasalized vowels occur in Nchane and in fact, all vowels that are adjacent to nasal consonants have the quality of nasalization. However, there is a variety of nasalized vowel which occurs outside of the environment of a nasal consonant. These nasalized vowels are most often observed in monosyllabic words and are always word final. It is most likely that the nasalized vowel represents a loss of a word final nasal consonant with the feature [+ nasal] being acquired by the preceding vowel. This hypothesis is supported by the presence of cognates with

neighbouring languages in which the nasal consonant is present. All vowels in the inventory may be nasalized with the exception of the close-mid front nasal vowel.

High	ĩ		ũ
Close-mid			õ
Open-mid	ẽ		õ̃
Low		ã	

2.3.2.1. Contrast

Contrasts between oral and nasal vowels are given below.

[i]:[ĩ]	ʃĩ	‘be seated’
	ʃĩ̃	‘be silent’
[ɛ]:[ẽ]	jẽ	‘see’
	jẽ̃	‘lean against’
[a]:[ã]	jã	‘conquer’
	jã̃	‘suck’
[u]:[ũ]	gũ	‘buy’
	gũ̃	‘play (child)’
[o]:[õ]	tʃõ	‘shrew’
	tʃõ̃	‘vine’
[ɔ]:[ɔ̃]	tɔ̃	‘copulate’
	tɔ̃̃	‘blow (horn)’

2.3.3. Vowel length

Contrastive vowel length is observed in a small number of words, most of which have monosyllabic roots. Long vowels are only observed in five of the seven oral vowels, and some of the examples are dubious due to possible tonal influence

(i.e., presence of contour tones) or morphophonological effects. Therefore, this analysis should be considered preliminary.³

High	i:		
Close-mid			o:
Open-mid	ɛ:		ɔ:
Low		a:	

2.3.3.1. Contrast

Examples of contrast for long vowels are given below.

[i]:[i:]	fɪ	‘kidney’
	fɪ:	‘breath’
[ɛ]:[ɛ:]	fɛ̃	‘prepare (food to cook)’
	fɛ́:	‘two’
[a]:[a:]	wà	‘quarrel (v)’
	wā:	‘market’
[o]:[o:]	sōŋō	‘oil palm’
	sō:gə̀	‘soldier’
[ɔ]:[ɔ:]	wɔ̀	‘you (sg)’
	wɔ́:	‘village’

2.3.4. Vowel Sequences

No unambiguous vowel-vowel sequences occur in Nchane. Vowel-vowel sequences, where V_1 is a high vowel, are treated in section 2.2.2 above.

³ Note that Richards (1991) postulates that [æ] may be the surface realisation of long vowel /aa/. However, this analysis seems to lack motivation and is not adopted in this paper.

2.3.5. Phonetic Description

2.3.5.1. Free Variation

The vowels [e] and [i] are in free variation and often vary with the same speaker.

6. /āgḗ/ [āgḗ]~[āgí] ‘sole’
7. /dʒḗ/ [dʒḗ]~[dʒí] ‘shoe’

This variation is illustrated by the following phonetic rule:

/e/ → [e] ~ [i] / all environments

2.3.5.2. The Open-Mid Front Vowel

The vowel /ɛ/ is subject to two phonological processes, both of which result in the surface realization of the mid central vowel [ə]. The first process may be described as “backing” and occurs when /ɛ/ is adjacent to a velar consonant.

8. /kwḗŋ/ [kwḗŋ] ‘firewood’
9. /fḗká/ [fḗká] ‘palm (of hand)’
10. /gḗlé/ [gḗlé] ‘keep’

The second process may be described as “laxing” and occurs when /ɛ/ is word final.

11. /lḗmḗ/ [lḗmḗ] ‘tongue’
12. /kīNfánḗ/[kḗŋfánḗ] ‘nasal mucus’
13. /lḗfḗ/ [lḗfḗ] ‘sleep’

It should be noted that there are many words which contain [ɛ] in the environment of a velar consonant and likewise many words which end with [ɛ]. Therefore, it is best to consider [ɛ] and [ə] in free variation in these environments.

These two processes are illustrated in the rules below.

/ɛ/ → [ɛ]~[ə] / C_[+velar]

/ɛ/ → [ɛ]~[ə] / __ #

2.3.5.3. The High Back Vowel

The high back vowel /u/ is subject to laxing when following the labial approximant [w]⁴ or a labio-dental fricative offglide, which is underlyingly labialization (see section 2.2.3.3). This laxing results in the surface realization of the vowel as the near-high back vowel [ʊ].

14. /wūbé/ [wūbé] ‘shell (groundnuts)(v)’

15. /gwū/ [gvū] ‘chest’

16. /kwūdā/ [kfūdā] ‘hyena’

This process is illustrated in the following rule.

$$\begin{array}{l} /u/ \rightarrow [ʊ] / C^w _ \\ \quad \quad \quad / w _ \end{array}$$

2.4. Tone

This section gives a brief explanation and analysis of tone found in Nchane. The following notation is utilised:

		Tone	Notation	Representation
Level		High	H	ˈ
		Mid	M	ˉ
		Low	L	ˋ
Contour	Falling	High-Mid	HM	ˆ
		Mid-Low	ML	˘
	Rising	Mid-High	MH	ˊ
		Low-Mid	LM	ˊ

⁴ Note that laxing of the /u/ when following the labial glide may be limited to non-word final position. Lack of examples of this environment prevents a clear conclusion.

2.4.1. Level and Contour Tones

Nchane has three contrastive level tones: High (H), Mid (M) and Low (L). It also utilizes minimal contour tone in various falling and rising patterns.⁵ The degree to which the contour tones are truly contrastive, and therefore phonologically significant, needs further analysis. Note that the example of LM below is the sole token for this contour observed in the data and does not appear to follow the normal phonological pattern for basic words in the language; therefore, it should be considered with caution.

H	/dʒí/	[dʒí]	<i>harvest, collect</i>
M	/dʒī/	[dʒī]	<i>eat</i>
L	/dʒì/	[dʒì]	<i>path, road</i>
HM	/mũ̃/	[mũ̃]	<i>razor</i>
ML	/mê/	[mê]	<i>self</i>
MH	/tʃwé/	[tʃwé]	<i>witch</i>
LM	/aijè/	[ájjè]	<i>no</i>

2.4.2. Vowel Length and Tone

Vowels may be affected by tone. One possible effect of tone on a vowel is a general lengthening of that vowel. This is particularly true of contour tones. Further research will need to be carried out to address this possibility.

2.4.3. Function of Tone

Tone in Nchane serves to distinguish a number of nouns and verbs (lexical tone) as well as to mark the plural form in certain nouns (grammatical tone). This section will provide a brief overview of some of the functional load of tone, but further research is needed.

⁵ Richards (1991) attests to three level tones (H, M, L) and five contour tones (HM, HL, ML, LM and LH) on monosyllabic words. The frequency of contour tones (both in this data and in that of Richards) is relatively low. The prevalence of rising and falling contour tones in short words, particularly in monosyllables, and their absence (except syllable final) in longer words suggest that, as in many African languages, they are to be analysed as a sequence of level tones.

Tone has both lexical and grammatical functions⁶ in Nchane. Examples of each are give below with the phonetic form of tone marking.

Lexical Tone

17. [lēmē] ‘tongue’
[lémē] ‘work (n)’
[lēmè] ‘to cultivate, farm (v)’
18. [dzù] ‘penis’
[dzú] ‘sun’

Grammatical Tone

19. [ñdzū] ‘cloth’
[ñdzú] ‘clothes’
20. [gwē] ‘guinea fowl’
[gwé] ‘guinea fowls’

⁶ Crystal (1985:309) defines lexical tone as “an essential feature of the meaning of that word” and grammatical tone as that which determines “grammatical categories (such as tense)” in a language.

2.5. Syllable Types

In Nchane, the unambiguous syllable types found are V, CV and CVN. A glide may be observed following non-word final consonants resulting in the additional syllable types CGV and CGVN. The CV syllable type is by far the most prevalent and is observed involving all consonants and vowels. Note that the V syllable type is found exclusively in prefixes and in morphemes that could be considered clitics. This syllable type also includes the syllabic nasals.

V	/ā/	‘to, in’
	/ā.dā/	‘testicles’
CV	/dā/	‘testicle’
	/tí/	‘abdomen (external)’
	/fī/	‘kidney’
	/jū/	‘hear’
CGV	/bwē/	‘dew’
	/gwō/	‘cut down (tree)’
	/kwī/	‘moon’
	/bjā/	‘regime (of bananas)’
	/fjò/	‘debt’
	/bjū/	‘raffia palm’
	/mjō/	‘squeeze’
CVN	/jəŋ/	‘thigh’
	/dáj/	‘jump (v)’
	/bēŋ/	‘frighten’
	/N̄.tfēN.dā/	‘messenger’
CGVN	/kwəŋ/	‘firewood’
	/ŋwāŋ/	‘granary’
	/bjèŋ/	‘fish (n)’
	/ā.fjəŋ/	‘stomach (internal)’

3. Phonological Structure

3.1. Nouns

Nchane shows a slight preference for monosyllabic noun roots. The phonological structure of roots is dominated by CV and CV.CV structures, although other combinations are not uncommon. Noun roots with more than two syllables are relatively rare.

CV	/bī/	‘goat’
	/tʃō/	‘shrew’
	/nà/	‘cow’
CGV	/bwā/	‘mother’
	/fjò/	‘debt’
	/kwù/	‘rope’
CVC	/dʒìŋ/	‘back’
	/ɲàŋ/	‘animal’
	/kùŋ/	‘python’
CV.CV	/gā.nè/	‘grass’
	/kō.mè/	‘harp’
	/sō.ŋō/	‘oil palm’
CVC.CV	/sāŋ.lè/	‘okra’
	/dʒōN.sé/	‘man’
	/wāN.gà/	‘hare’
CGV.CV	/kwē.sé/	‘woman’
	/gwū.nè/	‘feather’
	/kwū.dā/	‘hyena’
V.CV	/N̄.fá/	‘eagle’
	/N̄.gú/	‘fire’
	/ā.gí/	‘sole’
V.CV.CV	/N̄.tʃó.ŋō/	‘praying mantis’
	/N̄.bū.ʃā/	‘cat’
	/N̄.gā.mù/	‘elder’
CV.CV.CV	/kū.ná.mā/	‘scorpion’

3.2. Verbs

The majority of Nchane verbs have monosyllabic roots with the shape CV. Disyllabic roots most often have the shape CV.CV. Other syllable types, such as CVC and CGV, are relatively uncommon in verb root structures.

CV	/bū/	‘come out’
	/tʃē/	‘pierce’
	/wā/	‘quarrel’
CVC	/sūŋ/	‘beat’
	/jōŋ/	‘roast’
	/bēŋ/	‘frighten’
CGV	/bwū/	‘bark’
	/gwī/	‘fall’
	/gwō/	‘cut down’
CV.CV	/dʒī.ŋé/	‘look at’
	/kā.gé/	‘hatch’
	/lē.gē/	‘run’
CGV.CV	/bwē.dē/	‘break (tr)’
	/gwē.ŋé/	‘open (tr)’
	/kwā.dʒé/	‘think’

4. Morphophonemic Processes and Alternations

4.1. Noun Class Markers for 7, 8 and 19

The underlying phonemic forms of the class markers for classes 7, 8 and 19 are /ki-/ , /bi-/ and /fi-/ respectively. When the following noun root begins with a nasal, the high vowel [i] laxes to [e].⁷

/ki-/ + /Nta/ → [kèntà] ‘chair’
/bi-/ + /Ntʃo/ → [bēntʃō] ‘horns’
/fi-/ + /Ntudu/ → [fēntúdū] ‘ant’

This process is illustrated in the rule below.

/Ci-/ → [Ce-] / _ + N

4.2. Noun Class Concord Affixes

4.2.1. In the Numeral System

When Nchane numbers are used in counting objects, the digits ‘one’ through ‘five’ are prefixed with a corresponding noun class concord marker. Some of these digits are observed to undergo vowel harmony when prefixed by certain concord markers. The class 10 concord marker is observed to affect a palatalization process. Due to the complexity of these processes, they are presented here in three groups: the digit ‘one’; class 6 and the digits ‘two’, ‘three’ and ‘four’; class 10 and the digits ‘two’, ‘three’, ‘four’ and ‘five’.

4.2.1.1. The Digit One

The underlying phonemic form of the digit ‘one’ is /mémà/.⁸ When it is prefixed with a corresponding noun class concord marker, it almost always undergoes vowel harmony. When the prefix contains the high back vowel [u], the initial vowel of the number root changes to [u] and the labial glide [w] is inserted between the final consonant and the final vowel. When the prefix contains the high

⁷ This alternation is variable for class 27 nouns, for which the class marker is underlyingly /tʃi-/. As the number of tokens for this class with nasal initial roots is relatively small (n=8), the analysis is inconclusive regarding class 27. It is possible there is free variation between [i] and [e] in this case.

⁸ The examples in section 4.2.1 are given without tone marking because of the observation that the tone may change depending on the particular noun being counted.

front vowel [i], the initial vowel of the number root changes to [i] and the palatal glide [j] is inserted between the final consonant and the final vowel.⁹

/u-/ + /mema/	→	[umum ^w a]	‘one (c1)’
/bu-/ + /mema/	→	[bumum ^w a]	‘one (c14)’
/tʃi-/ + /mema/	→	[tʃimim ^j a]	‘one (c5)’
/i-/ + /mema/	→	[imim ^j a]	‘one (c9)’
/fi-/ + /mema/	→	[fimim ^j a]	‘one (c19)’

The vowel harmony process spreads left to right and extends beyond the second consonant /m/, but is then halted by the final vowel /a/. The result is the insertion of a second vowel before the /a/, which is then reanalyzed as the labial glide [w] or palatal glide [j] respectively. This process is illustrated by the rules below.

/mema/	→	[mum ^w a] / (C)u- + __
	→	[mim ^j a] / (C)i- + __

4.2.1.2. Class 6 and the Digits Two, Three and Four

The noun class concord marker for class 6 has the phonemic form /a-/. When it is prefixed to the digits two, three and four, it produces vowel harmony that spreads left to right over one syllable.

/a-/ + /fɛ/	→	[afa]	‘two (c6)’
/a-/ + /tɛde/	→	[atade]	‘three (c6)’
/a-/ + /nɛ/	→	[ana]	‘four (c6)’

The vowel harmony is not observed in the digit five /tɛŋ/. It may be that the process is blocked by the consonant in the coda position. This process is illustrated in the following rule.

/Cɛ(CV)/	→	[Ca(CV)] / a- + __
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⁹ Class 7 is an exception to this process, with the surface form [kimumwa] resulting.

4.2.1.3. Class 10

The noun class concord marker for class 10 has the phonemic form /i-/. When it is prefixed to the digits two, three, four and five, the initial consonant of the number root is palatalised.¹⁰

/i-/ + /fɛ/	→	[ifjɛ]	‘two (c10)’
/i-/ + /tɛde/	→	[iʃɛde]	‘three (c10)’
/i-/ + /nɛ/	→	[injɛ]	‘four (c10)’
/i-/ + /tɛŋ/	→	[iʃəŋ]	‘five (c10)’

This process is illustrated by the rule below.

/CV(CV)/ → [CjV(CV)] / i- + __

4.2.2. Glide Formation in Classes 14, 26, 8 and 19

The underlying phonemic forms of the concord markers for classes 14 and 26 are /bu-/ and /mu-/ respectively. When these prefixes are added to vowel initial roots, the /u/ is realised as the labial glide [w].¹¹

/bu-/ + /aŋ/	→	[bwāŋ]	‘1sPoss(c14)’
/mu-/ + /e/	→	[mwè]	‘3sPoss(c26)’

Similarly, the vowel /i/ of the concord prefixes for classes 8 and 19, which have the underlying phonemic forms of /bi-/ and /fi-/ respectively, is realized as the palatal glide [j] when added to vowel initial roots.

/bi-/ + /uŋ/	→	[bjūŋ]	‘2sPoss(c8)’
/fi-/ + /e/	→	[fjè]	‘3sPoss(c19)’

This process is illustrated in the rule below.

/CV[+high]-/ → [CG-] / __ + V

¹⁰ Note that palatalized [t] undergoes a second process resulting in the fricative [ʃ].

¹¹ Vowel initial roots are somewhat rare in the data, thus to date, this particular process has only been observed in the possessive pronoun system. However, the expectation is that this process would apply to any vowel initial root, regardless of word class.

4.2.3. Vowel Harmony in Classes 2 and 6

The underlying phonemic forms of the concord markers for determiners for classes 2 and 6 are /ba-/ and /ka-/ respectively. When these prefixes are added to the distal determiner root /ge/, the [e] harmonises with the preceding vowel of the prefix. Note that the concord markers for the other classes do not elicit such harmonisation.

/ba-/ + /ge/ → [bāgā] ‘those(c2)’
/ka-/ + /ge/ → [kāgā] ‘those(c6)’

This process is illustrated in the rule below.

/ge/ → [ga] / Ca- + __

5. Conclusion

The Nchane language offers a mix of phonological simplicity and complexity. On the surface, there are relatively few phonological processes observed which apply broadly to the language. Rather, most phonological processes appear to be limited in scope to certain domains such as the numeral and noun class concord systems. There is a relatively small vowel inventory, particularly when compared with the neighboring Grassfield languages, and even when compared with other members of Eastern Beoid, some of which exhibit nine vowel systems. On the other hand, the tone system presents a relatively large inventory of three level tones and no fewer than four combinations of these level tones.

The interaction of tone with long vowels should be investigated in depth and a more thorough look at verbal morphology will likely reveal more about the nature of Nchane morphophonemic processes. Another area for future research is the tone system. In particular, contour tones need to be assessed as to their importance in the language. It is possible that Nchane tone may be best analysed from a word-level tone perspective. In spite of the many remaining questions, this paper should serve as a good starting point for future research of this interesting language.

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