Naruo: an endangered Ngwi language spoken in Yunnan, China

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1. Introduction

Naruo (纳若, autonym lɤ²¹lɤ³³) is a highly endangered Ngwi language spoken in northwestern Yunnan province in Southwestern China, with an estimated 4,500 speakers. Previously, there was little to no documentation done on Naruo, only mentions of the language's existence in various literature. Speakers of Naruo identify as belonging to the 'Shuitian' (水田) ethnic group, but are officially classified as Yi. Previous literature has Naruo grouped into both the Central and Northern Ngwi sub-branches of Ngwi, due to reports of the language being similar to Nasu (Northern Ngwi) and Talu (Central Ngwi). Fieldwork carried out in Yongsheng County in northwestern Yunnan province yields the first in-depth glimpse of Naruo. Application of the comparative method reveals Naruo shares a number of lexical innovations with Central Ngwi languages, such as Lisu and Talu, and has an overall similarity to Lisu and Tagu (also Central Ngwi). This paper will present these findings on Naruo, placing it in the context of nearby Central Ngwi languages, such as Lisu, Talu, and Tagu, as well as present a preliminary sketch of Naruo's phonemic inventory.

2. Previous Literature

Naruo has been previously mentioned in various literature, with it being grouped into certain sub-groups within Ngwi. Naruo was included in David Bradley's plenary address at ICSTLL 37, in which he shed light on 14 undocumented Central Ngwi language spoken in northwestern Yunnan (Bradley 2004). Bradley (2007), reiterates the details on Naruo highlighted in Bradley (2004), grouping it into Central Ngwi, but this time also states that Naruo is a *Nasoid* language, which would group it also into Northern Ngwi. This "double-grouping" is noted in Lama (2012). Naruo being grouped into both Central and Northern Ngwi was due to Naruo being reported to be similar to both Northern (Nasu) and Central Ngwi (Talu) languages. Bradley (2007) also notes that Naruo speakers identify as 'Shuitian' and is not to be confused with other language varieties spoken by 'Shuitian' peoples, such as Miuhisu. Yang, et al. (2017) group Naruo further into the Taloid cluster, which includes numerous Central Ngwi languages, based on short 50-word lists collected from Yongsheng County.

3. Methodology

Field work was carried out on Naruo in January of 2020 in the villages of Guangming and Yonghong, both located in Yongsheng County, which is located in northwestern Yunnan province of China. Wordlists of around 300 words were recorded from one elderly female native speaker in Guangming village and two middle-aged speakers (one female and one male) in Yonghong village. Speakers were prompted in Chinese and asked to respond with the Naruo equivalent and to repeat each word in isolation. Each word was repeated three times. The just

over 300-word list was taken from a 1,001-word list adopted by Pelkey (2008), which is specifically adapted for Ngwi languages. Approximate tones were determined by comparison to other Central Ngwi languages and Bradley's (1979) Proto-Ngwi tone categories. Acoustic analysis was carried out using Praat language software to measure formant frequencies measured in hertz (Hz). Minimal pairs available in the gathered data were used along with acoustic analysis to determine contrasting sounds in Naruo. Lastly, comparative lexical data was used to situate Naruo into its appropriate sub-branch within Ngwi.

4. Preliminary Phonological Sketch

Table 1 presents a preliminary inventory of Naruo initials. Fieldwork data reveals that Naruo has a syllable template of (C)(C/G)V(n) plus tone. Optional single consonants or consonant clusters can appear as onsets and single consonants can be followed by the glide /j/. Available data only reveals the presence of the final consonant /n/ and it has a limited distribution, appearing only once in the gathered word list. Naruo has 36 initial consonants, 12 monophthongs and 4 diphthongs.

		labial	dental/alveolar	retroflex	alveopalatal	palatal	velar	glottal
stops	voiceless	p	t				k	
	aspirated	pʰ	tʰ				kʰ	
	voiced	b	d				g	
affricate	voiceless		ts	tʂ	(tɕ)			
	aspirated		tsʰ	tʂʰ	(tɕʰ)			
	voiced		dz	dʐ	(dʑ)			
nasal		m	n			ɲ	ŋ	
fricative	voiceless	f	s	ʂ	(ɕ)		x	h̃
	voiced	v	z	ʐ	(ʑ)		ɣ	
approximant		w				j		
lateral	sonorant		l					

Table 1: Naruo initial consonants

Naruo distinguishes between alveolar, retroflex, and alveopalatal affricates. In available data, the alveopalatal affricates /tɕ tɕʰ/ occur before the vowels /i u a ɤ ɔ/ and there is a differentiation between retroflex and alveopalatal affricates before /a/. This is evidenced in such minimal pairs as *i⁵⁵dʑa³³* 'water' and *dʑa⁵⁵mi²¹* 'monkey' as well as *ja²¹tɕa²¹* 'vegetable' and *tʂʰa²¹pu³³mo²¹* 'rice powder'. In some cases /tɕ/ is an allophone of /tʂ tʂʰ/ when it is followed by the syllabic fricative [ʐ̩], e.g. *sʐ²¹tʂʐ⁵⁵* and *sʐ²¹tɕʰi⁵⁵* were both given for 'teeth'.

Similar to Lisu and Lawu the initial /f/ has a restricted distribution with /f/ only occurring before the unrounded closed-mid central vowel /ə/ in the available data (Bradley 2003, Yang 2012) . /ŋ/ occurs before the vowels /a o/ and also occurs in syllabic form as a negator, such as in *ŋ²¹dʑu⁵⁵* 'ugly' (lit. 'not beautiful) and *ŋ²¹ɕa³³* 'dirty' (lit. 'not clean'). Similar to other Ngwi languages, [w] is an allophone of /v/ before /u/, with *ma²¹vu³³ʂɘ²¹* and *ma²¹wu³³ʂɘ²¹* 'groom' being given by two different speakers.

The initial clusters that appear in Naruo are bilabial voiced plus /z/ and voiceless plus /s/ before /ɨ/ and bilabial and alveolar nasals plus /j/ before /a/. Early data suggests Naruo distinguishes nasal initial clusters from nasal plus diphtong /ia/, e.g. *mja³³* 'see' and *mia³³sɘ²¹* 'eyeball' (Figure

1). For both female speakers, the aspirated initial cluster plus close central unrounded vowel /psʰɨ/ acts as an allophone of /zɿ/, such as *zɿ³³* and *psʰɨ³³* being given for 'spicy'.

		front	central	back
close	rounded			u
	unrounded	i	ɨ	ɯ
close-mid	rounded			o
	unrounded	e	ɘ / ə	ɤ
open-mid	rounded			ɔ
	unrounded	ɛ		
open	rounded			
	unrounded	a		

Table 2. Naruo rhymes

Naruo also has the apical vowels [ɿ] and [ʅ] which occur after the homorganic affricates and fricatives: [tsɿ tsʰɿ dzɿ sɿ zɿ] and [tʂʅ tʂʰʅ dʐʅ ʐʅ ʂʅ]. The vowel [ɿ] only occurs after /ts tsʰ dz s z/, while the vowel [ʅ] only occurs after /tʂ tʂʰ dʐ ʐ ʂ/ . /i/ only occurs after alveopalatal obstruents and is an allophone of the syllablic fricatives [ɿ ʅ] before retroflex obstruents. Naruo also has the diphthongs /ia iu ua iɛ/. In some instances the diphthong /iɛ/ is given by the female speakers where the male speaker produces /ɛ/, suggesting /ɛ/ could be an allophone of /iɛ/ before bilabials. Following velar and glottal fricatives the vowels /i e iu ia/ are sometimes nasalized and nasalization also occurs with the vowel /i/ following /m/. Naruo distinguishes between the back vowels /ɤ o ɔ/(Figure 2), with clear differences in the minimal pairs *mɤ³³* 'blow' and *zɿ⁵⁵mo³³* 'river' and *nɔ³³* 'bean' and *no⁵⁵* 'listen'. From data gathered thus far, the only vowels which occur syllable initially are /i ɘ u a o/.

As mentioned previously, due to the lack of phonetic data on Naruo at this time, this paper will not attempt to analyze Naruo's tonal inventory in any detail. Available data suggests Naruo has at least four tones: high-level [55], mid-level [33], rising [24], and falling [21/31/52].
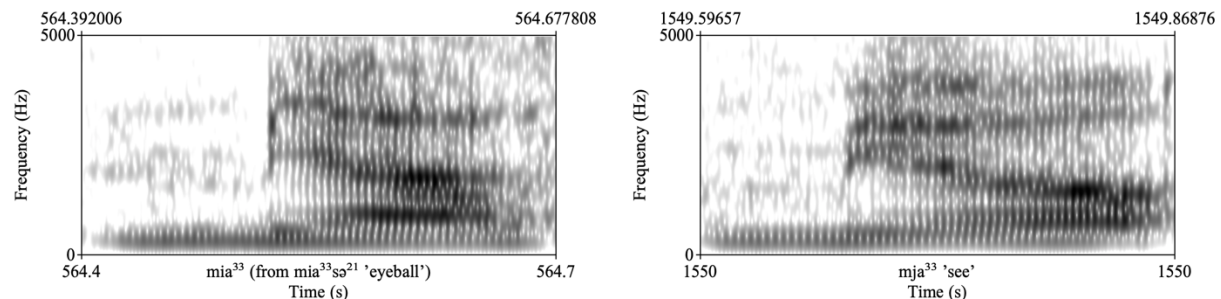

Figure 1. Spectrograms of *mia³³* (from *mia³³sɘ²¹* 'eyeball') and *mja³³* 'see'
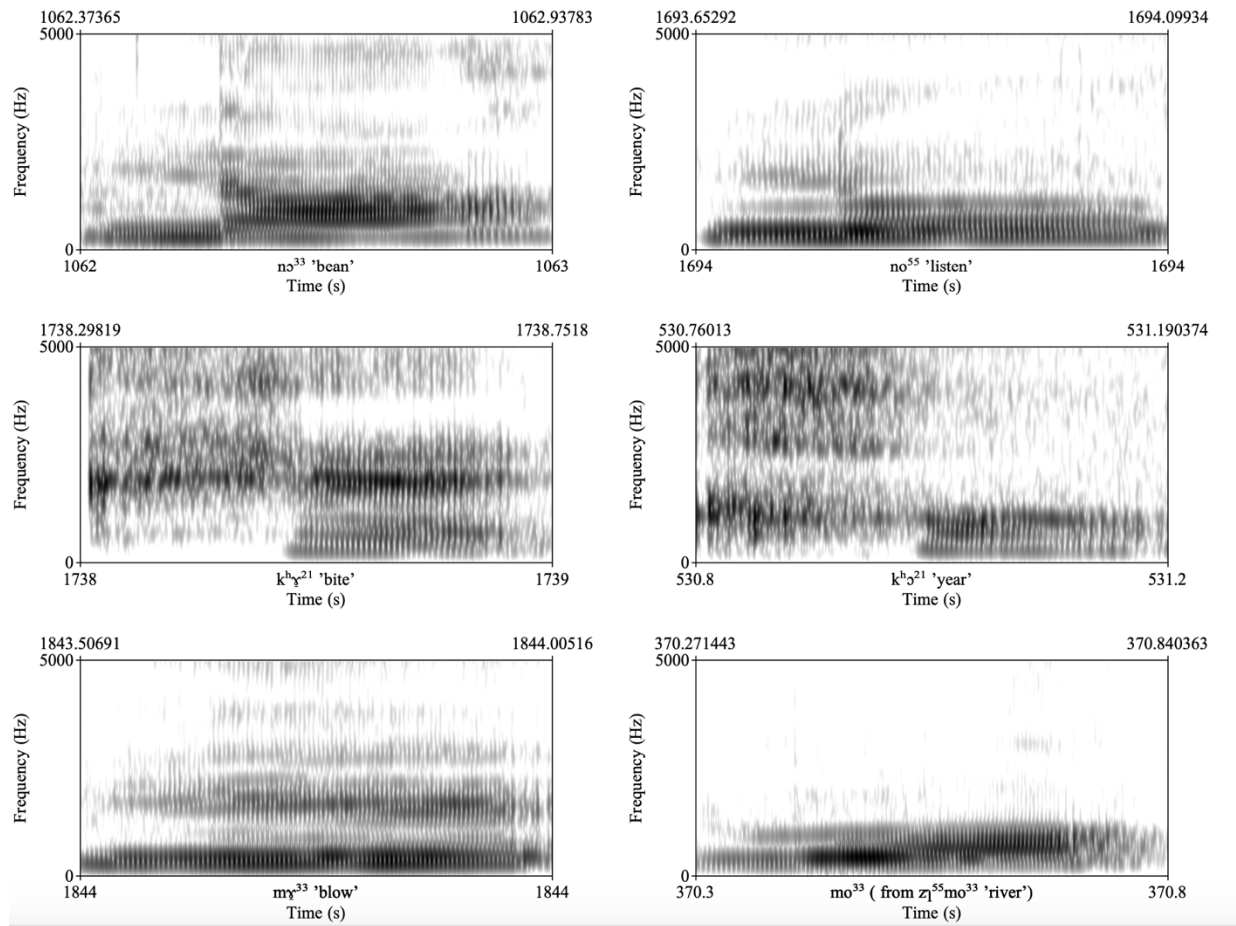
Figure 2. Spectrograms showing /o ɤ ɔ/ contrasts in Naruo

5. Classifying Naruo within Ngwi

The Ngwi branch of Tibeto-Burman is typically divided into four subgroups: Northern, Central, Southern, and Southeastern (Bradley 2002, Bradley 2007). Naruo clearly belongs to the Ngwi branch as it shares numerous cognates with other Ngwi languages and a preliminary phonetic documentation reveals clear correspondences to Proto-Ngwi tone categories. Due to Naruo being spoken in the very northwestern part of Yunnan, it is unlikely it belongs to either Southeastern Ngwi or Southern Ngwi, whose languages are spread across southern Yunnan and neighboring countries, such as Myanmar and Thailand. The two remaining candidates for classification then are Northern Ngwi and Central Ngwi. Geographically, Naruo is spoken in fairly close proximity to both Northern Ngwi languages, such as Nasu, and Central Ngwi languages, such as Lisu and Talu.

Previous research suggests numerous shared innovations for establishing either Northern or Central Ngwi membership (See Bradley 1979, Bradley 2004, Pelkey 2011, Lama 2012), with an emphasis often put on shared tonal or lexical innovations to determine classification. Innovations are based on comparison to Proto-Ngwi (Bradley 1979). Due to the lack of a sufficient evidence of Naruo's tonal system, the primary method for grouping Naruo will be based on shared lexical innovations. Bradley (2004) puts forth three lexical items used to establish preliminary Central

Ngwi membership, 'dog', 'fire', and 'tile'. From the three lexical items discussed in Bradley (2004), only 'fire' serves as evidence for grouping Naruo into Central Ngwi. Naruo does not share the Central Ngwi cognate for 'dog' and the Northern Ngwi language Nasu also shares the lexical innovation for 'tile'.

Lama (2012) is a detailed study of Nisoic (also Yi or Ngwi) subgroupings. In this study, a number of shared lexical innovations are used to group several Central and Northern languages into closely related clusters. From these clusters, a number of shared lexical innovations also exist in Naruo, providing further evidence for its classification. For the Lisoid cluster, which includes the Central Ngwi languages Lisu and Lavu, Lama (2012) suggests seven lexical innovations shared by most of the members. Among these, lexical innovations for 'foot' and 'bone' are shared between Naruo and other Central Ngwi languages. These shared lexical innovations and a number of other potential lexical innovations are sufficient to grant Naruo preliminary Central Ngwi membership (See Table 3)[1]. Further phonetic documentation and analysis is needed to assess if Naruo possesses phonological innovations (such as the splitting of Proto-Ngwi tones *1 and *2) common in Central Ngwi languages.

Gloss	Proto-Ngwi	Naruo	Talu (C)	Tagu (C)	Lisu (C)	Nosu (N)	Nasu (N)
fire	*C-mi²	a⁵⁵to²¹	a⁵⁵to̠³¹	a⁵⁵to̠²¹	ɑ⁵⁵to⁵⁵	mu²¹tu⁵⁵	mu³³tu̠⁵⁵
dog	*kwe²	tʂʰʅ²¹mɤ³³	a⁵⁵nu³¹	tʃʰʅ²¹	ɑ⁵⁵nɑ³¹, khɯ³¹	khɯ³³	tɕhi³³
tile	*ŋwa¹pi²	ŋa³³	-	ma²¹tɕʰou²¹	ŋa²¹pʰi²¹/bja³⁵	ŋgu³⁴lu̠³³	ŋɒ¹¹
foot	*kre¹	tɕhi⁵⁵pʰa³³	tɕhi⁵⁵phɛ³³	tɕhi⁵⁵pʰa̠³³	tɕhi̠³³ phɛ³⁵	tɕi³³ɕʅ³³	tɕhi³³
bone	*ʃə-ro²	o̠²¹to³³	ho³¹to³³	xu/o²¹tõ³³	o̠³¹to³³	u²¹du³³	xɯ¹¹ɣɯ³³

Table 3: Proposed lexical innovations in some Central Ngwi languages

6. Note on Usage of 'Shuitian' and '水田话' in Linguistics Research

It is worth noting that data on Naruo has shed light on potential issues regarding the usage of the terms 'Shuitian' and '水田话' in linguistics literature. As mentioned in Bradley (2007), 'Shuitian' (lit. 'irrigated field') is a name given to several different Ngwi groups. This is reiterated in You (2013) who states that 'Shuitian' is used as a cover term for various groups in regions such as Yongsheng County in Yunnan. Languages said to be spoken by peoples referred to as 'Shuitian' include Muhisu (Zhu & Zhang 2005), Laze (Michaud & Jacques 2012), Popei, and Naruo. In all cases the term 'Shuitian' is an exonym initially used by Han Chinese to refer to these various groups. In addition, various literature makes use of the term '水田话' to denote the language or dialect spoken by peoples referred to as 'Shuitian'. However, there exists no real linguistic or cultural link between these various groups.

The languages Naruo and Popei, despite their speakers living in close proximity and both being identified as 'Shuitian', are of limited mutual intelligibility and have distinctly different autonyms (*lɤ²¹lɤ³³* for Naruo and *pʰa³³pʰe⁵⁵* for Popei). In addition, from available data, Naruo

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[1] Talu data from Zhou (2004), Tagu data from Cathryn Yang, p.c., Lisu, Nosu, and Nasu data from Huang & Dai (1992).

and Popei should both be grouped into Central Ngwi. The 'Shuitian' described in Zhu & Zhang (2005) use the autonym *mu³³hi⁴⁴su³³* (lit. 'black wood people') and linguistic data tends to point towards their language being more similar to Nasu and Nosu, and thus should be grouped into Northern Ngwi. The Muhisu language also lacks the abovementioned lexical innovations. Michaud & Jacques (2012) is a phonological sketch of the language Laze (autonym: /lɑɬzeɬ/), which is also referred to as '木里水田话', and belongs to the Naish subgroup of Tibeto-Burman, and sub-branch proposed to even be outside of Lolo-Burmese (Jacques & Michaud 2011).

Harrell (2011) presents a brief analysis of 'Shuitian' in Panzhihua, Sichuan, and notes that their language belongs to the Western Branch of the Yi and "one of the two who are more closely related linguistically to Lahu and Lisu than to the other Yi branches" (based on Bradley 2001). Notes taken by Harrell on the language spoken by the 'Shuitian' of Futian village in Panzhihua reveal the language to clearly be a Ngwi language. Harrell further notes that the 'Shuitian' in Panzhihua affirm that they are distinct from the Yi and from the Han, however they lack clear cultural distinctions from the Yi. One initial factor distinguishing the 'Shuitian' from the Yi given is the Yi live in the mountains while the 'Shuitian' live in the lowlands. However, the 'Shuitian' in Yongsheng generally live in the mountains.

From a linguistic perspective, the languages said to be spoken by various 'Shuitian' groups across Sichuan and Yunnan originate from three different sub-branches of Tibeto-Burman: Central Ngwi, Northern Ngwi, and Naish. This alone makes the prospect of them being closely related highly unlikely. With this in mind, it can be concluded that the terms 'Shuitian' or '水田话' are ambiguous in the context of Sichuan and Yunnan and do not denote any specific group of people or language. It is thus recommended to avoid usage of these terms in linguistics literature and to instead use either the groups autonym, such as is relevant for Popei, Muhisu, and Laze, or the name used in literature that is unique to the relevant language, e.g. Naruo.

7. Conclusion

Preliminary lexical data on Naruo reveals the language most likely belongs to the Central Ngwi sub-branch of Ngwi, with the language demonstrating a close affinity to Lisu and Talu. Further documentation and analysis of Naruo's phonology, particularly of its tonal system, is needed to more accurately assess where Naruo should be classified within Ngwi. Due to Naruo being highly endangered, documentation of the language is urgent. This brief study provides a foundation for a more thorough investigation of the language.

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