

Phonetics and Phonology of Dzolo dialect of Namuyi

Fuminobu NISHIDA

0. Introduction

Namuyi (Chinese 納木義, 納木依 or 納木茲, autonym [namuji] or [namuzi]) is a language spoken by approximately 5000 members of the Tibetan [藏] nationality. The speakers of the Namuyi language live in Mianning county, Liangshan Yi Autonomous Region [涼山彝族自治州冕寧縣], on the eastern edge of the Tibetan plateau in the southwest part of Sichuan Province [四川省], China. The Namuyi people mainly live in the counties of Mianning [冕寧], Jiulong [九龍], Xichang [西昌] and Muli [木里], all contiguous areas in the southwest of the Autonomous Region. Nowadays, most of the younger generation are not active speakers, but passive listeners of this language. The number of those who speak the language with fluency is decreasing year by year. Most teenagers never speak the language, and instead they use Chinese, more precisely, Sichuan dialect of Chinese, the official language of the country as well as Yi [彝], the dominant language of the area.

There does not exist any census on the population of the speaker of this language. Earlier literature, however, just show that the number of speaker is 5000. All of those who speak Namuyi are regarded as members of the Tibetan nationality, but not all of them speak Namuyi. All ages and sexes use Chinese, and most people can talk about common topic in Chinese, which is regarded as economically and politically advantageous.

Namuyi is one of Qiangic languages [羌語支] in Tibeto-Burman stock. Tibeto-Burman is the branch in Sino-Tibetan with the most numerous and highly differentiated individual languages. The genetic classification of Qiangic languages including Namuyi within the Tibeto-Burman family is still unclear, but it is usually classified in the Qiangic branch, which comprises languages such as Qiang [羌], rGyalrong [嘉戎], Prinmi [普米] and Tangut [西夏]. Some of the characteristics of the Qiangic branch include having a cognate set of direction marking prefixes; quite degenerate, though clearly cognate person marking paradigms; and radical loss of syllable final consonants, but preservation of complex initials and clusters. I assume it is lexically and grammatically closest to Ersu [爾蘇] within this group. These languages share many features, but it is still unknown whether these innovations are due to

chance resemblance, borrowing, language contact or genetic relationship. The investigation on subgrouping of Qiangic languages deserve further study.

Sun Hongkai [孫宏開] established Qiangic [羌語支] as a distinct subgroup of Tibeto-Burman [藏緬語族]. Until then, these languages were usually grouped together with Himalayaish [希瑪拉亞語支] or Lolish [彝語支]. The Qiangic subgroup of TB comprises approximately ten languages. At this moment, on the basis of historical development of certain phonological and grammatical features, the most likely classification is as follows, after Sun (2001:160):

[Xixia	西夏]	
Qiang	羌	
Minyaky=minyao=Muya	木雅	
Primi=Pumi	普米	
		北支
Ergong	爾龔	
rGyalrong=Jiarong	嘉戎	
Lavrung	拉塢戎	
Ersu	爾蘇	
Namuyi	納木義 (納木茲)	
Shixing	史興	南支
Guiqiong	貴瓊	
Choyo	卻隅	
Zhaba	紮巴	

1.

This chapter deals with the organisation of the sound system of Nàmùyì. Nàmùyì phonemes will be represented in the chosen phonological transcription throughout this book. In the wider Tibeto-Burman context, the phonological system of Nàmùyì is rather complex. Nàmùyì has a large number of consonants. There are 44 simple initial consonants and 25 initial clusters in the Miǎnníng dialect. Nàmùyì also has a series of voiced aspirate consonants. What follows here is a description of the consonant and vowel phonemes, syllable structure and tone. The vowel system is discussed in Section 2.1, the consonant system in Section 2.2,

the syllable canon in Section 2.3 and tone and intonation patterns in Sections 2.4 and 2.5 respectively. The intonation or prosody of this language is briefly touched upon in Section 2.6. Finally, the phonology of loan words will be explained in Section 2.7.

2.1 Vowels

2.1.1 Simple Vowels

Nàmùyì has ten phonemic vowels, basically /i/ for [i], /e/ for [e], /ɛ/ for [ɛ], /ɨ/ for [ɨ, ɨ̃, ɨ̄], /ɯ/ for [y], /ə/ for [ə], /a/ for [a], /u/ for [u], /o/ for [o], and /ɔ/ for [ɔ]. There is no phonological vowel length, although a vowel in the first syllable can be lengthened for an emphatic purpose, eg. ^Latsitsi 'small' vs. ^Lartsitsi 'extremely small.' The vowel phonemes are presented in Diagram 1, where their phonetic values are given between square brackets.

	front		back	
close	/i/	/ɨ/	/ɯ/	/u/
half-close	/e/			/o/
half-open	/ɛ/	/ə/	/ɔ/	
open		/a/		

Diagram 1: Nàmùyì vowel phonemes

The phoneme /i/ is an unrounded close front vowel [i], with allophones ranging to an unrounded close front lax vowel [ɨ]. For emphatic purpose, it can be realised as [i:] when it is in the first syllable of a polysyllabic word.

^H chi	[tʰhi]	'3sg (s/he)'
^F ikha	[i k ^h a]	'tea'
^R bi	[bi]	'peach'
^L tshi	[ts ^h ɨ]	'dog'
-di	[di]	'TOP (Topic marker)'

The phoneme /e/ is an unrounded half-close front vowel [e]. Occasionally it is realised as a lowered [ɛ].

^H he	[heʎ]	‘gold’
^R ntshe	[ntsʰeʎ]	‘deer’
^L ge	[ge.]	‘common yellow cattle’

The phoneme /e/ is an unrounded half-close front vowel [ɛ]. It may occasionally realised as a diphthong [äi] in careful speech, especially by the older generation. I suppose that the original diphthong [äi] developed into [ɛ] diachronically.

^H shole	[ʃollɛʎ]	‘introduce’
^R yɛkhukhumu	[jɛʎkhuʎkhuʎ mu.]	‘quickly’
^R miqe	[mi.ʎqɛʎ]	‘set (of the sun)’
^L tse	[tsɛ.]	‘ride’
-le	[lɛ]	‘COM (Commitative)’

The phoneme /a/ is an unrounded open front vowel [a], with allophones ranging to an unrounded back vowel [ɑ].

^H nga	[ŋaʎ]	‘1sg’
^R radu	[raʎdu.]	‘collar’
^R hala	[haʎlaʎ]	‘cat’
^L ani	[aʎni.]	‘all’
ma-	[ma]	‘NEG’

The phoneme /i/ is realised as a close central unrounded vowel [ɨ], especially after alveo-palatal initials. It is realised as an apical anterior vowel [ɿ] after alveolar fricatives and affricates, and as an apical posterior vowel [ɻ] after retroflex sounds, and as [ɯ] after bilabial and velar consonants. Both vowels of [ɿ] and [ɻ] are apical, the former one being with the tip of tongue approaching the alveolar region and the latter one being with tip of tongue approaching the postalveolar region. The vowel [ɻ] is pharyngealised, as the body of tongue in particular the posterodorsal portion is pulled backward toward the pharynx. The phoneme /i/ is realised as an unrounded close back vowel [ɯ] after velar and bilabial initial consonants. Thus,

/i/	→	[ɿ]	/	[-distributed, +anterior, -high]	_____
/i/	→	[ɻ]	/	[+distributed, -anterior, +high]	_____
/i/	→	[ɯ]	/	[-coronal]	_____

^H mudzi	[muɫdzɪ]	'barley'
^F namuzi	[naɫmuɪzɪ]	'Nàmùyì Tibetan'
^R zimi	[zɪɫmi]	'female/girl'
^L tshi	[tʃɪɫ]	'wash'
^H dutri	[duɫtʃɪɫ]	'wing'
^F sridri	[ʃɪɫ dzi]	'think'
^F diakhidri	[diaɫ kʰuɪ]	'far away'
^R sita	[suɫita]	'discover'

The phoneme /ɤ/ is realised as a rounded close mid vowel [ɤ], with allophones ranging to an rounded close front vowel [y].

^H uqa	[yɫqa]	'house'
^F uφio	[yɫ pʰio]	'handsome'
^R uχo	[yɫχo]	'others'
^L u	[y]	'sleep'
-nu	[ny]	'PERF(perfect)'

The phoneme /ə/ is an unrounded mid central vowel [ə]. After [-coronal] initials, It is realised as unrounded close mid back vowel [ɤ].

^R phətɛ	[phəɫtɛ]	'cut'
^L gədzɪ	[gəɫdzɪ]	'blue'
^L gətsə	[gəɫtsɤ]	'respect'

The phoneme /u/ is round close back vowel [u]. Like an unrounded close front vowel /i/, this vowel is usually slightly lower in closed syllables than in open ones, but the difference is not great.

^H vu	[vu]	'bear'
^F fu	[fu]	'blow'
^R ju	[dzu]	'come'
^L tu	[tu]	'thousand'

The phoneme /o/ is a rounded close-mid back vowel [ɔ]. It may occasionally realised as a diphthong [uɔ] in careful speech, especially by the older generation.

^H çolɛ	[^H çɔllɛ]	'introduce'
^R yotshi	[jɔtshɪ]	'goat'
^R yoqho	[jo.lq ^h ɔ]	'friend'
^L G'o	[ko]	'needle'

The phoneme /ɔ/ is a rounded mid-close back vowel [ɔ]. It may occasionally realised as a diphthong [uɔ] in careful speech, especially by the older generation. I supposed that the original diphthong [uɔ] developed into [ɔ] diachronically. More rounded[ɔ]

^R ɔ	[ɔ]	'addiction'
^L χɔ	[χɔ]	'ten'

Distinctive feature composition of Nàmùyi vowels is summarised in Table 2.1:

	i	e	ɛ	a	ɪ	u	ə	u	o	ɔ
Syllabic	+	+	+	+	+	+	+	+	+	+
Closed	+	-	-	-	+	+	-	+	-	-
Back	-	-	-	+	-	+	+	+	+	+
Open	-	-	-	+	-	-	-	-	-	+
Round	-	-	-	-	-	-	-	+	+	+
Tense	+	+	-	-	-	-	-	+	+	-

Table 2.1 Distinctive feature composition of Nàmùyi vowels

2.1.2 Retroflex vowels

There are two retroflex vowels in Nàmùyi: /ɔɾ/ [ɔ^ɾ] and /ɛɾ/ [ɛ^ɾ]. The rhotacised ending of some words is the prime way by which to distinguish speakers of Nàmùyi from other languages distributing southwestern Sichān.

Examples of mid dental unrounded vowel with rhoticity:

^F vartshi	[və'ts ^h ɿ]	'marry'
^H kuar	[kuə'tɿ]	'take back'

Examples of open mid front unrounded vowel with rhoticity:

^H her	[hɛ'ɿ]	'buy'
^F ber	[bɛ'ɿ]	'snake'

2.1.3 Nasalised vowels

There are two nasalised vowels in Nāmùyl: /ĩ/ and /ũ/. These phonemes occur after /h/ only. It was found that the origin of /hĩ/ is *gya- in Proto-Tibeto-Burman. The nasalisation in Nāmùyl may be due to rhinoglotophilia after the secondary h-

PTB	Nāmùyl		
*gyat	^H hĩ	[hĩʔ]	'eight'
*gya	^H hĩ	[hĩʔ]	'hundred'

cf.

*s-mul'	^L hũ	[hũʔ]	'fur/body hair'
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2.1.4 Diphthongs

There are nine diphthongs: /ai, au, uo, iu, ie, ie, ia, uə, ua/. There are both on-glide and off-glide diphthongs. All diphthongs are given below:

/ai, au, uo, iu, ie, ie, ia, uə, ua/

2.1.5 Triphthong

There is only one triphthong /iau/. It occurs only in loanwords from Mandarin.

^R phiau [p^hiau] ‘ticket’ ^L piau [piau] ‘tablaux’

2.1.6 Closed syllables

All of the syllable nasal endings occur in loanwords from Mandarin only.

/ɿn, in, yn, un, ən, an, aŋ, ian, uan, uaŋ/

2.2 Consonants

2.2.1 Simple consonant

The phonetic inventory of Nāmüyl consonants is listed in Diagram 2,

	labial	dental	retroflex	palatal	velar	uvular	glottal
voiceless stop	p	t			k	q	
voiceless aspirated stop	p ^h	t ^h			k ^h	q ^h	
voiced stop	b	d			g	g	
voiceless affricate		ts	tʂ	tɕ			
voiceless aspirated affricate		ts ^h	tʂ ^h	tɕ ^h			
voiced affricate		dz	dʐ	dʒ			
voiceless fricative	f	s	ʂ	ɕ	x	χ	h
voiced fricative	v~u	z	ʐ	ʒ	ɣ	ʁ	ɦ
Nasal	m	n		ɲ	ŋ		
voiceless			ɻ ~ ʀ ~ ʁ				
voiced			ɻ ~ ʀ ~ ʁ				
voiced lateral		l					
voiceless lateral		ɭ					
Approximant	(w)			j			

Table 1: The Nāmüyl phonetics Consonants

The phonemic inventory of Nāmüyl consonants is listed in Diagram 2,

	labial	dental	retroflex	palatal	velar	uvular	glottal
voiceless stop	p	t			k	q	
voiceless aspirated stop	ph	th			kh	qh	

voiced stop	b	d			g	g	
vcless affricate		ts	tr	c			
vcless aspirated affricate		tsh	trh	ch			
voiced affricate		dz	dr	j			
vcless fricative	f	s	sr	sh	x	x	h
voiced fricative	v	z	zr		g'	G'	H
Nasal	m	n		ny	ng		
vcless			r				
voiced			hr				
voiced lateral		l					
vcless lateral		hl					
Approximant	w			y			

Table 2: The Nàmùyi Phonological Consonants

The presence of a retroflex series entails the coexistence of dental and palatal series. (Matisoff 2003: 21). Very frequently, a glottal stop can be heard when there is no initial, e.g. [a] ~[ʔa] 'breast'. However, it is not a phoneme because it does not contrast with a vocalic onset. Note that all the consonants are palatalised when followed by an unrounded close front vowel /i/, and are accompanied by lip-rounding when followed by a round close back vowel /u/.

Followings are phonetic descriptions for each phoneme and distribution of allophones in Nàmùyi:

The phoneme /p/ is an unaspirated voiceless bilabial stop [p].

^F pu	[pu]	'porcupine'
^R pami	[pa.lmi]	'frog'

The phoneme /ph/ is an aspirated voiceless bilabial stop [p^h].

^R mopha	[mo.p ^h a]	'half'
^L phio	[p ^h io]	'good'

The phoneme /b/ is an unaspirated voiced bilabial stop [b]. Allophones are [b] and [β]. The allophone [β] tends to occur in fast speech intervocalically or between glides and vowels.

^H bu	[bu]	'insect'
^F bucər	[bu'ʔɛː]	'intestinal worm'
^R bojo	[bo.ɟzo]	'praying mantis'

The phoneme /t/ is an unaspirated voiceless apico-dental stop [t].

^L tu	[tu]	'thousand'
^R tani	[ta.ni]	'today'

The phoneme /tʰ/ is an aspirated voiceless apico-dental stop [tʰ].

^L tha	[tha]	'tower'
^L thobo	[tʰo.bo]	'pine'
^R hatha	[ha.tʰa]	'time'

The phoneme /d/ is an unaspirated voiced apico-dental stop [d]. It is pronounced with the tip of the tongue against the back of the teeth.

^H di	[di]	'then'
^L di	[di]	'sick'
-dia	[dia]	'DAT, BENE'

The phoneme /k/ is an unaspirated voiceless dorso-velar stop [k].

^R ki	[ki]	'frost'
^R kobo	[ko.bo]	'gate'
^R yoko	[jo.ko]	'to go into partnership'

The phoneme /kʰ/ is an aspirated voiceless dorso-velar stop [kʰ].

^F ikha	[i kʰa]	'tea'
^F khiza	[kʰi za]	'light'

The phoneme /g/ is an unaspirated voiced dorso-velar stop [g].

^L go	[go.]	'beat'
^R gohlu	[go.lu̯]	'breast'

The phoneme /q/ is an unaspirated voiceless uvular stop [q].

^R qa	[qaʌ]	'hork'
^F qε	[qεʋ]	'(sun) set'

The phoneme /qh/ is an aspirated voiceless uvular stop [q^h].

^R qhotso	[q ^h o.tso̯]	'mouth'
^R yoqho	[jo.lq ^h o̯]	'friend'

The phoneme /G/ is an voiced uvular stop [G].

^R Gε	[G εʌ]	'dig'
^R Go	[G o.]	'thrust'

The phoneme /ts/ is an unaspirated voiceless alveolar affricate [ts].

^R tsə	[tsə]	'goat'
^L tsolε	[ço.lε]	'introduce'

The phoneme /tsh/ is an aspirated voiceless alveolar affricate [tsh^h].

^L tshi	[tshi.]	'salt'
^L tsho	[tsh ^h o.]	'man'
^L tshi	[tsh ^h .]	'wash'

The phoneme /dz/ is a voiced alveolar affricate [dz].

^Hdzo [dzoʔ] 'exist'

^Rdza [dzaʔ] 'thin'

The phoneme /tr/ is an unaspirated voiceless retroflex stop [tʂ].

^Rtru [tʂuʔ] 'sour'

^Ltri [tʂiʔ] 'star'

The phoneme /trh/ is an aspirated voiceless retroflex stop [tʂ^h].

^Ftrhe [tʂ^heʔ] 'ghost'

^Ftrhu [tʂ^huʔ] 'smoke'

The phoneme /dr/ is an unaspirated voiced retroflex stop [dz].

^Ldru [dzuʔ] 'waist'

^Rdru [dzuʔ] 'origin'

The phoneme /c/ is an unaspirated voiceless lamino-palatal affricate [tʃ].

^Fce [tʃeʔ] 'ride (a horse)'

^Rce [tʃeʔ] 'pull'

The phoneme /ch/ is an aspirated voiceless lamino-palatal affricate [tʃ^h].

^Fcha [tʃ^haʔ] 'salt'

^Fche [tʃ^heʔ] 'lead (metal)'

The phoneme /j/ is an unaspirated voiced lamino-palatal affricate [dʒ].

^Fja [dʒaʔ] 'correct'

^Lja [dʒaʔ] 'rice, food'

The phoneme /f/ is a voiceless labiodental fricative [f].

^H fu [fu^h] ‘blow’

^R fu [fu^r] ‘incubate’

The phoneme /v/ is a voiced labiodental fricative [v]. It occurs freely varying with voiced labiodental approximant [ʋ].

The phoneme /s/ is a voiceless alveolar median fricative [s].

^H so [so^h] ‘three’

^L so [so^l] ‘teach, learn’

The phoneme /z/ is a voiced dental median fricative [z].

^H zu [zu^h] ‘use’

^F zu [zu^f] ‘nice’

The phoneme /sʁ/ is a voiceless retroflex median fricative [sʁ].

^H sro [sʁo^h] ‘say’

^F sru [sʁu^f] ‘iron’

The phoneme /zr/ is a voiced reoroflex median fricative [zr].

^F zru [zru^f] ‘grass’

^F zri [zri^f] ‘fertiliser’

The phoneme /ʃ/ is a voiceless alveo-palatal median laminal fricative [ʃ].

^L shi [ʃi^l] ‘tin’

^Rshiu [ɕ iu/] ‘rust’

The phoneme /x/ is a voiceless velar median fricative [ɕ].

^Rxi [xi/] ‘lake’

The phoneme /g/ is a voiced velar median fricative [ɣ].

^Lg’a [ɣa.] ‘crane (animal)’

^Lg’ər [ɣ ər.] ‘crane (animal)’

^Lg’ə [ɣ ə.] ‘clothe. wear’

^Lg’amu [ɣa|mu.] ‘help’

The phoneme /X/ is a voiceless uvular median fricative [χ].

XoXoXoXom [χo.χo.χo.χom] ‘a douns of noise’

Xo [χo] ‘plural marker’

The phoneme /G/ is a voiced uvular fricative [ɣ̣].

^Fɣoa ta [ɣoa] ta.] ‘in the past’

^Lɣo [ɣo.] ‘needle’

The phoneme /h/ is a voiceless glottal fricative [h].

^Fhĩ [hĩ] ‘rain’

^Fhε [hε] ‘gold’

^Rhala [ha|la.] ‘cat’

The phoneme /H/ is a voiced glottal fricative [ɦ] . This phoneme is frequently realised as a murmured sound.

The phoneme /m/ is a voiced bilabial nasal [m].

^H mo	[mo]	'tomb'
^R mo	[mo]	'horse'
ma-	[ma-]	'NEG'

the phoneme /m/ can be syllabic:

^F mna kha	[m̩ na t̩ kha]	'sky'
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The phoneme /n/ is a voiced apico-dental nasal [n].

^H na	[na]	'COM'
^R na	[na̠]	'bean (generic)'

The phoneme /ny/ is a voiced palatal nasal [ɲ]. Free variation with voiced reorflex nasal [ɲ̠].

^R nyu	[nyu]	'get (sick)'
^L nyi	[nyi̠]	'borrow/lend'

The phoneme /ŋ/ is a voiced dorso-velar nasal [ŋ].

^H ngu	'silver'
^L nga	'dare'

The phoneme /r/ is a voiced retroflex flap [ɽ]. Occasionally, it is realised as voiced alveolar approximant [ɹ], and especially intervocallically as a voiced apico-alveolar trill [r̥] with a heavy friction.

^F rapo	[ra]po]	'cock'
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The phoneme /r̥/ voiceless retroflex flap [ɽ̥]. Occasionally, it is realised as voiceless alveolar approximant [ɹ̥].

^F ahre	[a]r̥e]	'shaman'
^R hreci	[r̥e]tci]	'sand'

nasal	-	-	-	+	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-
strident	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
lateral	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
distributed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
affricate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
labial	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
round	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
coronal	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	+	+	+	+	+	+
anterior	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	-	-	-
back	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	-
low	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	f	v	s	z	ʒ	ʒ̣	ʒ̥	x	ɣ	χ	ɸ	h	fi	r	r	l	l	w	j
syllabic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
consonantal	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	+	+	-	-
sonorant	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+
voiced	-	+	-	+	-	+	-	-	+	-	+	-	+	-	+	-	+	+	+
aspirated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
continuant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
nasal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
strident	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-
lateral	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
distributed	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
affricate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
labial	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
round	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-
coronal	-	-	+	+	+	+	+	-	-	-	-	-	-	+	+	+	+	-	-
anterior	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-
high	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	-	+	+
back	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	-	-	+	-
low	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-

2.2.2 Cluster initials

There are 25 initial clusters exist: a homorganic nasal preinitial can precede both voiced and voiceless aspirated stops and affricates; a voiced or voiceless aspirated bilabial stop can occur with a dental or retroflexed spirant postinitial. A few three-place clusters also occur. There are three types of consonant clusters in Mianming Námtyl:

type I: /mph, mb, ntsh, ndz, nth, nd, ntsh, ndz, ntɛ, ntch, ndz, ŋkh, ŋg, ŋqh, ŋc/

type II: /ptch, phs, phʂ, bz, bz, mz/

type III: /mphs, mphʂ, mbz, mbz/

	ph	b	th	d	kh	g	qh	G	tsh	dz	tʂh	dʒ	tɕ	tɕh	dʒ	s	z	ʂ	ʒ	
m	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
n	-	-	+	+	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	
ŋ	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	
p	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
ph	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	
b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	

Table 2.2 Consonant clusters

It should be pointed out that co-articulation of dental sounds with a voiced labial trill [B] in clusters initials is observed in this language.

^Lmphipe [mp^hipe:]

^Rmbe [mbeʔ] 'boil (n), pus'

^Rmbuli [mbuliʔ] 'search for'

^Hndzu [udzuʔ] 'sit'

^Rntshe [nts^hɛʔ] 'deer'

^Rntshu phu [ntshuphuʔ] 'lungs'

2.4 Syllable canon

The syllable canon is given below:

$$(C) (C) (V) V (V) (C)$$

[glide] [glide]

The Nàm̀yì Syllable Canon

The minimum syllable type is a single vowel, such as on of the forms for the word for /a/ ‘interjection’. Although a glottal stop frequently appears at the beginning of a syllable beginning with no consonant, there is no phonemic contrast between vocalic onset and glottal onset.

The Nàm̀yì syllables are of the following 9 types (F: falling tone, R: rising tone, L: low tone):

V	^F a	‘already’
VC	^F an	‘duck’
VV	^R ai	‘sentence particle’
C	^L m dzi ^{ll}	‘barley’
CV	^F mo	‘horse’
CVV	^F dia	‘upward’
CCV	^F phs ₁	‘leaf’
CCCV	^L mbz ₁	‘cloth’
CVVV	^F diau	‘arise’

2.5 Tonality

Nàm̀yì is a tone language with different pitch variation on a syllable or phonological word to convey meaning. The basic acoustic correlate of pitch, which functions as the main dimension within which surface tonal contrasts are signaled, is F0 (fundamental frequency). Nàm̀yì speakers control the pitch of the voice (its relative highness or lowness) to effect a variation of F0, hence producing lexically contrastive tones.

2.5.1 Previous works on Nàm̀yì tones

So far 3 works on Nàm̀yì tones have been published and they provide original descriptions of phonological systems in some dialects, namely: a. Prof Sun’s description on Muli variety, b. Huang Bufan and

RenzengWangmu's description on Muli variety, c. Liu Huiqiang's description on Miǎnmíng variety.

2.5.1.1 Sun's description (Muli dialect) (Sun 1983 : 183)

The analysis of Nǎmùyl tone was firstly done by Prof. Sun. He dealt with tones of Muli dialect, and he had come to the conclusion that Nǎmùyl has a four-tone system.

- | | | | | |
|---------|--------------|------------------------------|-----------------------------|---|
| 1. [55] | high level | vu ⁵⁵ 'bear' | sɿ ⁵⁵ 'matter' | ni ⁵⁵ mi ⁵⁵ 'sum' |
| 2. [53] | high falling | vu ⁵³ 'liquor' | sɿ ⁵³ 'pea' | ni ⁵³ 'two' |
| 3. [33] | mid level | vu ³³ 'intestine' | sɿ ³³ 'amend' | ni ³³ 'to borrow' |
| 4. [35] | high rising | vu ³⁵ 'to burn' | sɿ ³⁵ 'firewood' | ni ³⁵ 'to steam' |

Note that the toneme [35] changes into [24] and the tonemes [33] can be changed into low falling [31] in some environments.

1.5.1.2 Huang and Renzengwangmu's description (Muli dialect) (Huang et al 1991 : 158)

Huang and Renzengwangmu's description differs from Sun's, though both of them deal with the same dialect.

- | | | | |
|---------|--------------|--|--------------------------------------|
| 1. [55] | high level | qa ⁵⁵ qa ⁵⁵ 'to mount' | su ⁵⁵ 'lice' |
| 2. [53] | high falling | qa ⁵³ 'to peel' | su ⁵³ 'steal' |
| 3. [35] | mid rising | qa ³⁵ 'a container' | su ³⁵ 'to feel depressed' |
| 4. [31] | mid falling | qa ³¹ 'stove' | su ³¹ 'wheat' |

Note that tonemes [55] and [53] are interchangeable, and tonemes [35] and [31] may change into [33] in syllable final positions.

1.5.1.3 Liu's description (Miǎnmíng dialect) (Liu 1996 : 186)

It is Liu that firstly investigated Miǎnmíng Nǎmùyl.

- | | | | | |
|---------|------------|---------------------------|--------------------------------|----------------------------|
| 1. [55] | high level | mi ⁵⁵ 'female' | bzuu ⁵⁵ 'honey bee' | va ⁵⁵ 'to take' |
|---------|------------|---------------------------|--------------------------------|----------------------------|

2. [53]	low falling	mi ⁵³ 'fire'	bzu ⁵³ 'sweet'	va ⁵³ 'Han Chinese'
3. [13]	high falling	mi ¹³ 'ripen'	bzu ¹³ 'to suspend'	va ¹³ 'to crawl'
4. [31]	low rising	mi ³¹ 'monkey'	bzu ³¹ 'to overflow'	va ³¹ 'pig'

Liu claims that the toneme [13] shows the lowest frequency among the all tonemes.

1.5.1.4 The author's description(Miǎnníng dialect)

1. high level	mi ⁵⁵ 'female,
2. high falling	mi ⁵³ 'fire'
3. low rising	mi ¹³ 'ripen'
4. low level	mi ¹¹ 'monkey'

On the basis of Liu's description, Miǎnníng Nǎmùyl is said to have four tonemes, contrasting among high level (toneme 1), high falling (toneme 2), low rising (toneme 3), and low level (toneme 4), but the present author's field data shows that the tonemes 1 and 2 are merged into the tonemes 2, resulting in a three-tone system, especially in the speech of younger generation. I will use this tonal system for the description of Miǎnníng Nǎmùyl throughout this paper.

Almost all of the basic words in Miǎnníng Nǎmùyl are polysyllabic, so it is somewhat difficult to find monosyllabic words. The present author's own field data from Miǎnníng Nǎmùyl suggest that its tonal system is fundamentally different from the one operating in Muli, but closer to those of some Tibeto-Burman languages of Nepal such as Tamang and Gurung.

In the following section, the procedure and results of the investigation of the Nǎmùyl tone system through a computer software-based acoustic analysis done by the present author will be presented.

2.5.2. Procedure for Acoustic Analysis

2.5.2.1 Subjects

Two male and two female speakers aged between 25 and 59 years produced these speech data for this study. The subjects were all native speakers of Miǎnníng Nǎmùyl who were born and raised in Miǎnníng village. They all were informally judged to exhibit normal articulation, fluency, voice and resonance at the time of recording. None reported any speech or hearing disorders.

1.5.2.2 Speech material and recording procedure

Audio recordings were made of subjects reading a word list which included the two sets of Nāmùyi words associated with the syllables respectively. The recordings were carried out at the governmental office of Lianhe district, using an AKG C451E microphone and a Panasonic SV3700 DAT recorder at 44.1kHz samples/sec.

All subjects were recorded individually. They were instructed to read the test words at a normal rate of speech. A pause of at least 3 seconds was allowed between speech items to ensure that the words were pronounced on a suitable position, hence avoiding list reading effects. Each subject was given sufficient practice to familiarise him/herself with the speech material and to ensure a suitable recording level. The distance between the microphone and the speaker's mouth was about 30cm in all recordings. This was to ensure a reliable and intense speech signal input during the recording. Three readings of the word list were recorded. During recording the subjects were monitored by the investigator. I judged the utterance for precise pronunciation, asking for repetitions if I was not satisfied. He was told to read the test word list at a normal speed of speech. All testing syllables were repeated 10 times. A total of 280 tokens were selected to be pitch tracked and a trace of fundamental frequency contour of each token was obtained.

2.5.2.3 Analysis

The acoustic analysis was done with the aid of KAY CSL 4300B (Computerised Speech Lab=CSL). CSL provides 16-bit input analog-to-digital converter and recordings were digitised at a sampling rate of 10kHz. For each token, the duration and fundamental frequency were measured. Measurement of the duration of the tones were made from the speech waveforms This is conducted at the Psychological Laboratory of Keio University.

For each test token the fundamental frequency and duration were measured. F0 values were taken from the vowel with the aid of the 75-point wide-band frame, frame length was determined by the F0 range of a particular speaker. A typical frame length was 25 to 30 ms. Because of the durational differences, correlated with the Nāmùyi tones, F0 contours were normalised by extracting four F0 values at a fixed percentage points, that is, 0%, 20%, 40%, 60%, 80% and 100%. So as to allow direct comparisons among various F0 contours. The duration of each test token was measured by simultaneously examining the digested waveform, formant trajectories, and its corresponding wide-band spectrogram.

2.5.2.4 Normalisation

Different speakers have different acoustic outputs for what is perceived to be the same linguistic form. In order to resolve inter-speaker or between-speaker differences and specify the invariant features of a language, acoustic studies typically normalise F0 values. The z-score normalisation was used in this study in order to convert the individual speakers' outputs into phonetic representations.

The z-score normalisation procedure is $F0_{nom} = (F0 - x) / SD$. This formula, where F0 is a sampling point, x is the mean F0 from all sampling points, and SD is the standard deviation around the mean of those points (cf. Rose (1996)).

2.5.2.5 Test words

The test words used here consist of four sets: monosyllables, disyllables, trisyllables and quadrisyllables. These words chosen for testing were real syllables in Nāmūyī, and are given below on your handout:

	monosyllables	disyllables	trisyllables	quadrisyllables
T1	mi 'female'	su-gu 'tomorrow'	ha-ta-ta 'how'	su-gu- su-gu 'tomorrow (emphasis)'
T2	mi 'fire'	δ- dzo 'Xichang(place)'	na-mu-zɪ 'Tibetan'	na-mu-zɪ-χo 'Tibetans'
T3	mi 'ripen'	bui -tsu 'cloth'	k ^h a-bo-k ^h a 'border'	k ^h a-bo-k ^h a-χo 'borders'
T4	mi 'monkey'	k ^h o-bo 'door'	zu-bu-mi 'granddaughter'	zu-Bu-mi-χo 'granddaughters' (χo: pl.)

Since these words are free morphemes, i.e. nouns or combinations of demonstrative plus nouns, we prepared another word set of verbs or verbal components for disyllables, trisyllables and quadrisyllables. Each set comprises, verb + perfective marker, and adjective + adverbialiser.

	disyllables	trisyllables	quadrisyllables
T1	to-to 'to reach'	to-to-ny 'taught'	zi-ga-ga-mu 'well'
T2	t ^h o-ko 'to cheat'	ts ^h o-ko-ny 'cheated'	a-za-za-mu 'slowly'
T3	si-ta	si-ta-ny	qe-lele-mu

	‘finish’	‘finished’	‘quietly’
T4	ʂo-qo	ʂo-qo-ny	χo-χo-χo-mu
	‘die’	‘died’	‘noisily’
			(also χo-χo-χo-m)

2.5.3 Results

2.5.3.1 Duration

Figure 1 below shows the mean duration of lexical tones in Miǎnnǐng Nǎnmùyì. I measured intrinsic vowel duration as well. It was found that a high vowel is longer than a low one in a CV\$ when both bear T2. High and low vowels are the same in duration in a CD\$ when bearing T3 and T4.

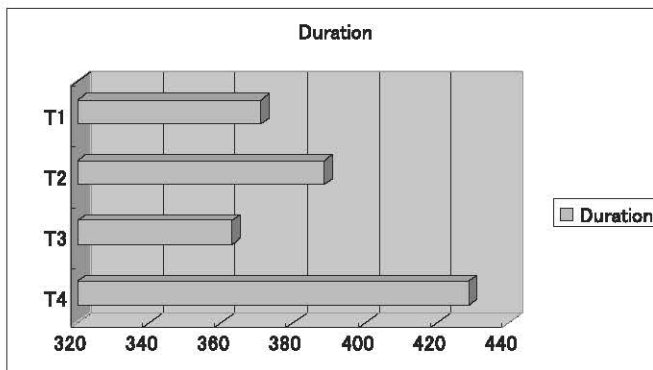


Figure 1. Mean duration (ms) of four tones on citation forms

2.5.3.2 Onsets and peaks

Onsets and peaks of Gurung tones are shown below:

Tone 1		Tone 2		Tone 3		Tone 4	
O	P	O	P	O	P	O	P
197.7	167.3	189.2	151.9	121.5	151.7	98.4	126.3

Table3. Onsets and peaks of Miǎnnǐng Nǎnmùyì tones (kHz)

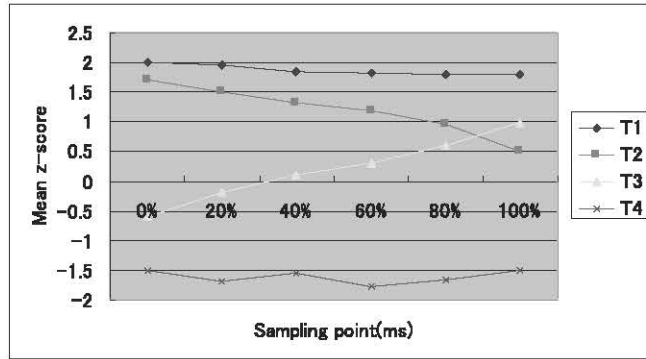


Figure 1. Mean z-score normalised F0 contours

T1: F0 curves show quite stable shape. Due to the effect of downdrift, it shows a little bit lower F0 at the endpoint

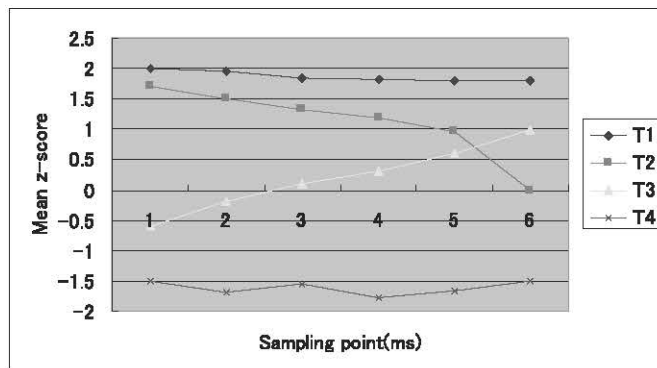


Figure 2. Mean z-score normalised F0 contours (disyllabic)

T2: F0 curves differ with respect to vowels: the /a/ curves is straightest while /u/ curve is the roundest. IF0=intrinsic vowel fundamental frequency is more salient for an old speaker than for a young one along the time course of this tone. However, speaker variations were also found.

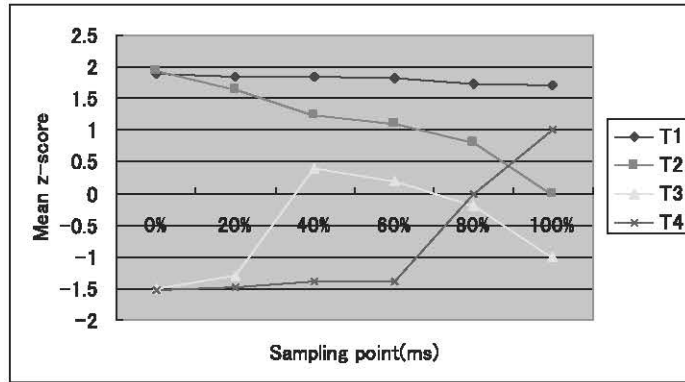


Figure 3. Mean z-score normalised F0 contours (trisyllabic)

T3: a larger F0 range and associated wider F0 distribution at onset were found in a young speaker than an old speaker, but it is assumed this reflects reading style difference.

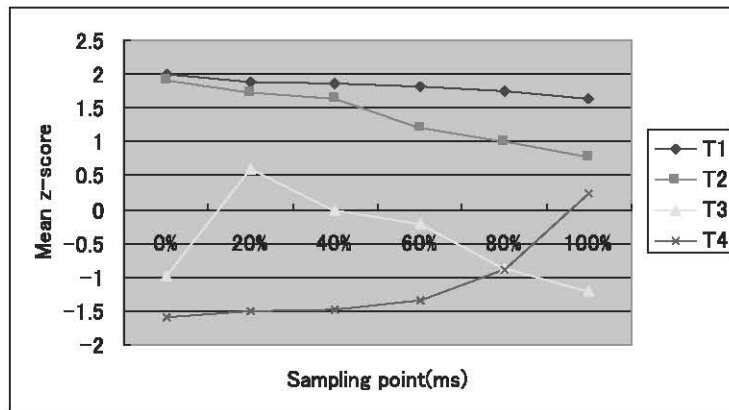


Figure 4. Mean z-score normalised F0 contours (quadrisyllabic)

T4: the young speaker's range is wider than that of a old speaker. Speakers reading in onset inflection and peak are highly correlated, but only the peak significantly correlated with the range. Speakers F0 value at onset, inflection, and peak are highly correlated. Again, only the peak significantly correlated with the range.

2.5.3.3 Tonal values

With the aid of acoustic experiment for identifying the tonal values for each tone in Syangja Gurung, we can

sum up them as follows:

Monosyllabic	Tonal Value in Polysyllabic Words		
	Initial Syllable	Medial Syllable	Final Syllable
55	55	55	55
54	55	33	22
24	11	55	22
11	11	11	33

Table 4. Syangja Gurung Pitch Patterns in Polysyllabic Words

Based on the phonetic data given above, we can summarise phonologically the F₀ contours for four tones in Nàmùyl as follows:

	monosyllabic	disyllabic	trisyllabic	quadrissyllable
1.	HH	HH	HHH	HHHH
2.	HM	HM	HML	HMML
3.	LH	LH	MHL	MHLL
4.	LL	LM	LLM	LLLM

As we can see from above data, the default tone of this language is L. In Nàmùyl, in compounding, the second component of the compound loses its original tonal identity; that is to say, its pitch profile is determined by the identity of the contour of the first component, or it takes some uniform tone. And in the domain of suffixation, suffixes cannot have any distinctive tonal features; i.e. their pitch profile is entirely determined by the pitch contour of the preceding stem, or all suffixes have some neutral and uniform pitch contour. In this sense, we can call Gurung a word tone language.

Analyzing the tone within the framework of autosegmental phonology, we would like to propose the following set of tone rules:

- a. Default tone is L
- b. Tone deletion/neutralisation
Delete tones from non-initial syllables.
- c. Tone association

Associate tone to syllables one-to-one, from left to right.

d. Optional tone association

If there are more syllables, spread the last tone to excess syllables.

e. Optional tone association

If there are more tones, link excess tones to the last syllables.

2.5.3.4 Distribution of tones

The distribution of tones is as follows:

Tone 1	105 sequences (4.0%)
Tone 2	768 sequences (26.6%)
Tone 3	1507 sequences (52.8%)
Tone 4	473 sequences (16.6%)

It should be said that Tone 3 is a customary tone or default tone in this language. Incidentally, one of the most well-known suprasegmental phenomena in Tibeto-Burman is Lhasa Tibetan compounding. Lhasa Tibetan has the following compounding rule in hat terms of pitch, which is more or less similar to that of Syangja Gurung. Note that the second syllable in Lhasa Tibetan is always high. (1)H or HM + H or LM → HH, (2)H or HM + HM or LML → HM, (3)L or LML + H or LM → LH, (4)L or L + HM or LML → LHM. In other words, the pitch pattern of compounding words in Lhasa Tibetan is determined by the first element of the pitch (High or Low) in the first syllable and the last element (falling or not) of the pitch in the second syllable. We can summarise the tonal feature and tonal behavior in compounding as follows: TONE 1 [+high][−falling], TONE 2 [+high][+falling], TONE 3 [−high][+falling], TONE 4 [−high][−falling].

Thus, we should set up accentual nucleus as follows:

	1S	2S	3S	4S	Toneme
1.	/o/	/oo/	/ooo/	/oooo/	High (H)
2.	/o/	/oo/	/ooo/	/oooo/	Falling (F)
3.	/o/	/o'o/	/o'oo/	/o'ooo/	Rising (R)
4.	/o/	/oo/	/ooo/	/oooo	Low (L)

2.6 Stress assignment in Gurung

In Nàmüyi polysyllabic words, a slightly heavier stress most often falls on the initial syllable of the root, regardless of the overall phonotactic structure of the phonological word. So for example, in bimorphemic words where the root word is monosyllabic, main stress falls on the root.

Perceptually speaking, native speakers of Nàmüyi agree that the most accented syllable is generally the first one. My phonetic analyses confirm this, but overall there is not a very noticeable difference in stress patterns on different syllables. Initial syllables typically show a somewhat longer vowel duration and a minimally higher amplitude of the vowel by about 3 decibels than do penultimate or final syllables.

I have noticed a certain number of words with phonetic evidence, through vowel duration and amplitude differences, of final stress. These words generally have a longer vowel duration on the second syllable, and the second-syllable vowels show amplitudes of between five and seven decibels higher than do the initial-syllable vowels. The final stress pattern in these words occurs in both isolation and frame-medial contexts, and in different repetitions of the same word. For now, I leave the topic of stress with just these observations.

2.6 Intonation pattern

Intonation is not an important part of Nàmüyi phonology. Being a tonal language, there is very little variation in pitch, even in excited speech. An extra high falling pitch is sometimes used for emphasis. However, this applies only to words with high tones. The way intonation affects a word depends on whether or not it is in a major word class. The greatest change in Gurung phonology has come in the change of tempo. A slow, deliberate pace used to be the norm.

2.6.1 Declarative Sentences

Nàmüyi has a declarative sentence pattern as well as an equal pattern with no explicit verb. According to my observation, OVS pattern is also seen as well as SOV order in declarative sentences. However, the SOV pattern the verb appears more basic than OVS. The normal pitch melody for these declarative sentence types is starting either low or mid, rising in the middle and falling to low at the end. Stress is realised primarily by a higher pitch and secondarily by an increase in volume.

2.6.2 Interrogative Sentences

The normal stress pattern for both yes-no and informational interrogative sentences is to start mid or low and end high. To form a yes-no question the question marker /-a/ is sometimes attached to the last word of the

sentence. It always carries high intonation, which it usually imparts to the entire word. This sentence breaks the normal pattern by not falling at the end. It starts low then ends mid. If the final word has two syllables, it would normally have dropped again, but since it had only one syllable it had to stay at mid because there can be only one pitch level per syllable.

The informational question is formed by using a question word in the place where the information requested would fit if the sentence were declarative. Sometimes this is at the end of the sentence, but often it is not. The question word receives whatever intonation is appropriate for the part of the sentence it occupies. It does not have a set intonation; rather the intonation pattern is a sentence-level phenomenon. In the following examples, the question word is underlined>.

2.7 Loanword phonology

At the end of this chapter, I would like to touch upon a bit about loanword phonology from Chinese.

2.7.1 Initial consonants

The correspondences of initial consonants between Mandarin and Chinese loanwords in Nàmùyì are summarised as follows:

Initial consonants		Examples	
Chinese	Nàmùyì	Chinese	Nàmùyì
p	p	巴 pa1	pa55
ph	ph	怕 pha4	pha13
m	m	马 ma3	ma53
f	f	烦 fan2	fan31
t	t	但 tan4	tan13
th	th	头 thəu2	thəu31
ts	ts	再 tsai4	tsai13
tsh	tsh	床 tshuaŋ2	tshuaŋ31
s	s	术 su4	su13
z	z	日 z12	zɿ31
tɕ	tɕ	脚 tɕyo2	tɕyo31
tɕh	tɕh	气 tɕhi4	tɕhi13
n	n	路 nu4	nu13

ɕ	ɕ	心 cin1	cin55
k	k	国 kue2	kue31
kh	kh	开 khai1	khai55
ŋ	ŋ	安 ŋan1	ŋan55
x	h	花 xua1	hua55
ɸ (i)	j	义 i4	ji13
ɸ (y)	y	雨 y3	y53
ɸ (w)	w	晚 uan3	uan53

2.7.2 Finals

The correspondences of finals between Mandarin and Chinese loanwords in Nàmùyì are summarised as follows:

Tone		Examples	
Mandarin	Nàmùyì	Mandarin	Nàmùyì
ɿ	u	资 tsɿ1	tsu55
i	I	比 pi3	pi53
u	U	佛 fu2 (~教)	fu31
y	Y	鼠 ɕ y3	ɕ y53
ə	ə	儿 ə2	ə31
a	A	巴 pa1 (pha2 俗)	pa55
ia	Ia	加 tɕia1	tɕia55
ua	Ua	耍 sua2	sua31
e	E	得 te2	te31
ie	Ie	灭 mie2	mie31
ue	ue	国 kue2	kue31
ye	ye~ie	月 ye2	ye31
o	O	乐 no2 (快~)	no31
yo	ʔə	略 nyo2	nʔə31
ai	Ai	街 kai1	kai55
ici	Jai	孩 ɕiei2	ɕjai31
uai	wai	坏 xuai4	xwai13
ci	Ai	贝 pei4	pai13

uei	wai	屨 nuei3	nwai53
au	Au	包 pau1	pau55
iau	Iau	刁 tiau1	tiau55
əu	Au	头 thəu2	thəu31
iəu	Iu	丢 tiəu1	tiu55
an	An	班 pan1	pan55
iæn	Iæn	边 piæn1	piæn55
uan	Uan	决 tuan4(决~)	tuan13
yæn	ÿön	员 yæn1	ÿön55
ən	ən	门 mən2	mən31
in	In	林 nin2	nin31
uən	uən	纯 suən2	suən31
yn	Yn	运 yn4	yn13
aŋ	aŋ	党 taŋ	taŋ
iaŋ	iaŋ	阳 iaŋ	iaŋ
uaŋ	uaŋ	床 tshuaŋ	tshuaŋ
oŋ	oŋ	贸 moŋ	moŋ
yoŋ	yoŋ	容 yoŋ	yoŋ

2.7.3 Tones

The tonal correspondences between Mandarin and Chinese loanwords in Nàmùyì are summarised as follows:

Tone		Examples	
Mandarin	Nàmùyì	Mandarin	Nàmùyì
阴平 35	第一調 55	西 (~方)	ci55
阳平 33	第四調 31	文 (~章)	wən31
上声 53	第二調 53	勇 (~敢)	joŋ53
去声 213	第三調 13	信 (~用)	ei13

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