

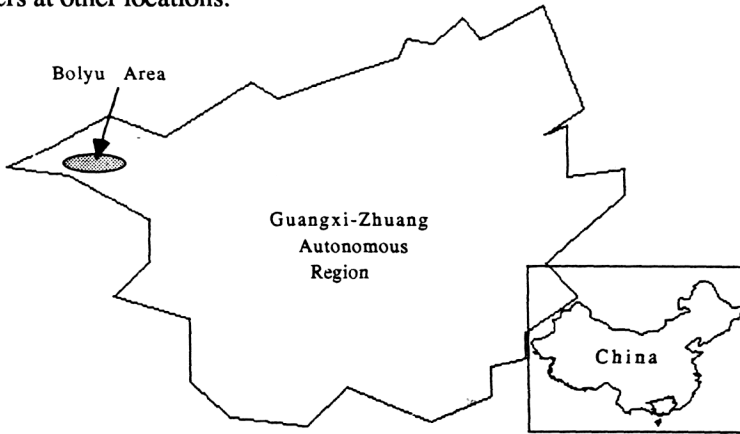
Bolyu tone in Vietic perspective

Jerold A. EDMONDSON
University of Texas at Arlington

Kenneth J. GREGERSON
SIL & University of Texas at Arlington

1. Introduction

One of the surprising languages of Guangxi-Zhuang Autonomous Region is Bolyu [pəɬɰju˧] (also referred to as Lai “).¹ The Bolyu live in mixed communities with Miao and others in Longlin Various Nationalities Autonomous County 隆林各民族自治县 in extreme western Guangxi quite distant from other Mon-Khmer groups. According to Hang (1989), there are also some Bolyu living just south of Longlin in Xilin County 西林 at a location called Guosha. Ni (1990:232) reports that there are 1006 Bolyu located in Wenshan Prefecture, Guangnan County of Yunnan Province, cf. the discussion of Bugan below. There are no known speakers at other locations.



Map 1: The Bolyu area

¹This research was supported by the Committee for Scholarly Communication with the People's Republic of China and the Nationality Endowment for the Humanities for Jan-Jun 1990. Many thanks also go to Mr. Lu, first name unfortunately unknown, of Changmo Village and also to friend and colleague Professor Yang Quan of Central Institute of Nationalities, Beijing, who both in April 1990 spent so many evenings by candlelight helping me with these word lists. The Bolyu data are available on disk from the authors.

The self-designation of the Bolyu at other locations is apparently [pəɬɰju˧] judging from the transcriptions of Liang Min (1984) and Ni Dabai (1990). See further Appendix 1: The Bolyu people.

The first widely available study of this language was conducted by Professor Liang Min of the Nationalities Research Institute, Beijing in 1984. There are also some data in Ni (1990). At first, Bolyu was thought by some to be a Kam-Tai (Kadai) language; others proposed that it might be a mixed language incorporating features of the Kadai and Miao groups; while still others viewed it as a form of Gelao. Liang suggested a Mon-Khmer connection and Paul K. Benedict (1990) was able to find considerable confirmation of that status. Still, the question deserves much more detailed study by specialists now that there is a larger body of data available (Edmondson, 1995). To be noted are several peculiar circumstances in connection with the Mon-Khmer heritage of Bolyu. First of all, the Bolyu are geographically quite distant from other major Mon-Khmer speaking groups. Secondly, the Bolyu language possesses many lexical items that do not seem closely cognate to items found in Mon-Khmer languages elsewhere. Thirdly, the gross linguistic features of the Bolyu language are those of Kadai languages, though it has, to be sure, some Mon-Khmer features as well.

Linguistically, Bolyu fits perfectly into the local linguistic landscape, in the sense that it demonstrates a rich inventory of tone contrasts with mostly monosyllabic roots, only /-p -t -k/ syllable codas, a consonant inventory resembling Zhuang (except for uvular stops and velarized initials), and vowel length contrasts in closed syllables (See Appendix 2:Notes on phonological segments). It doesn't possess many of the distinctive Mon-Khmer phonological traits such as sesquisyllabic word structure, a rich system of syllable codas, and voice quality (register) contrasts (see below, however, that the related Bagan language has a tense vs lax opposition). Indeed, on most typological tests it more closely resembles the surrounding Kadai languages (Bouyei and Gelao) than the geographically more distant Mon-Khmer group. These factors led Paul K. Benedict to speak of Bolyu as a breed apart, "a distinct branch of MK, on an equal footing with any of the others, rather than [belonging to] Palaungic, Khmuic, VM or some combination of these." (1990:21).

We are inclined to agree with Benedict as to the difficulty, considering our present state of knowledge, of definitively assigning Bolyu a clear position within any established Mon-Khmer subgrouping. At the same time we are struck by the well developed nature of the Bolyu tone system and see in it some points of similarity with patterns in perhaps the richest area of tone variety within Mon-Khmer, namely, Vietic. At this stage we are content merely to suggest that a Vietic typology offers a fruitful frame of reference for investigating tone processes in microcosm that may have implications further afield within Mon-Khmer and Austroasiatic.²

² In general discussion at the oral presentation of this paper (SEALS Conference, May 1994, Bangkok) G. Diffloth suggested that considering an affinity with Palaungic (rather say than Vietic) might make sense for Bolyu. While this may turn out ultimately to be a fruitful proposal, in an inspection, albeit a cursory one, of Proto-Wa, for example, one is not overwhelmed with evidence in this direction. This is not to say that there are no interesting forms in this regard, e.g.

B. ljiŋɬ	horse	Cf. P.Wa *mrəŋ
B. (maiɳ) jɔɬ	(one) hundred	Cf. P.Wa *ryah
B. qəɳpjɪnɬ	hail	Cf. P.Wa *mprel, Samtau ?a phel, Lawa pye

To add to the interest on Mon-Khmer languages in China, we have just received initial results from research in 1994 by Li Jinfang of the Central University of Nationalities of Beijing on Bugu, a language of Yunnan that appears to be rather closely related to Bolyu (See References and Ni 1990). Li also promises forthcoming studies of Bugu tone and its historical relationships. Suffice it to say here that Bugu is reported to have six live tones: two level (55, 33), two rising (35, 13), one falling (31), as well as one '0' (atonal) prosody appearing on some prefixes. Dead tones are recorded by Li as 55, 31, and a much less frequent 33. Apparently, tone variants are not uncommon for given lexical items, and tone sandhi is prevalent as well. Vowels are characterized as lax vs. tense (underlined), as in *kui*³³ 'fire smoke' vs. *kui*³³ 'to dry by smoke'. Some final stops in forms found in common with Bolyu are lost in Bugu as are some final nasals, which either become nasalized vowels or disappear completely. We reproduce here just a few examples that Li notes, reflecting both commonalities and differences between Bugu and Bolyu (transcription of the latter also Li's):

Bugu	Bolyu	
bɔ ⁵⁵ / mɔ ⁵⁵	mə ³³ / məi ³³	'one'
biɔ ³¹ / bi ³¹	mbi ⁵⁵	'two'
mse ³¹	pa:i ⁵⁵	'three'
pau ³³	pu:n ⁵³	'four'
mi ³³	me ³³	'five'
piɔ ³³	piu ⁵³	'six'
<u>pou</u> ³¹	pai ⁵⁵	'seven'
sā ³³	sa:m ⁵³	'eight'
ɕi ³³	ɕən ⁵³	'nine'
mā ³¹	ma:n ³³	'ten'
pə ⁰ lai ³³	lim ³¹	'tongue'
<u>ɣau</u> ¹³	zi ¹¹	'root'
<u>lou</u> ¹³	lɔ ¹¹	'leaf'
<u>tu</u> ³³	mau ¹¹	'stone, rock'
da ³⁵	nde ⁵³	'water'
mtsa ³¹	ɬet ⁵⁵	'die'

On the other hand, few of the numbers look promising between Bolyu and Waic languages, whereas they compare much more closely with Vietic and other MK language subgroupings. Likewise body parts seem not to connect Bolyu uniquely with Waic languages as opposed to other groups, including Vietic. In short, at this point Bolyu seems most reasonably designated as an independent group—unless or until the definitions of Palaungic, or for that matter Vietic are modified.

2. Bolyu Tones

Bolyu has six tones, which in various publications have appeared with the following representations: the numbering system by Benedict (1-6), pitch level values (55, 33, etc) by Liang and Ni, and the IPA/Chao tone symbols (1, 1̄, etc.) which will appear in our citations:

Benedict	Liang & Ni,	IPA	Gloss
1	55 1̄ e.g.	mbi1̄	'two'
2	33 1̄ e.g.	njo1̄	'house'
3	11 1̄ e.g.	yi1̄	'root'
4	53 1̄ e.g.	nde(k)1̄	'water'
5	31̄ 1̄ e.g.	mai1̄	'one'
6	13 1̄ e.g.	ma:n1̄	'ten'

Tone 3 is relatively the least frequent. A low tone often marked as 11, it actually begins with a falling contour from above a 2 level and drops to a low 2 or 1 level. One good example is *yi1̄* 'root'. Tone 53 is accompanied with glottal or other stop constriction at the end of the syllable. For example, *nde1̄* 'water' on several occasions still appears to retain a stop coda *ndek1̄*. In isolation the final *-k* was sometimes seen as closure or voicing at the extreme end of the syllable. In some words, however, the constriction must have come from another final, e.g. *pum1̄* 'four' reflects a possible prior glottalized final. Occasionally, Mr. Lu, who recorded all the forms in this study, exhibited a breathy voice in low (111̄) and low rising (13 1̄) tones. He would then repeat the word with and without this quality.

In order to provide quantitative information about the pitch trajectories in Bolyu, a number of the recorded utterances were subjected to instrumental analysis. In these plots a semitone scale, as opposed to the hertz scale, was used. The semitone scale is interval-preserving so that a drop of one semitone at 40 semitones is the same interval as a drop of one semitone at 30 semitones; the more popular hertz scale does not have this feature. More on this difference is found in Ross, Edmondson et al., (1986). Figure 1 and Figure 2 provide plots of the six tone trajectories which are relatively sure. The tone designated 11 by Liang Min and Ni Dabai is not strictly level in this plot but falls, perhaps as 21 ranging from about 34 to 30 semitones; whereas the 31 tone falls from 37 to 30 semitones. One must also consider that the initial portions of the 55 and 33 tones are subject to a potential F0-depressing influence from the initial consonant.

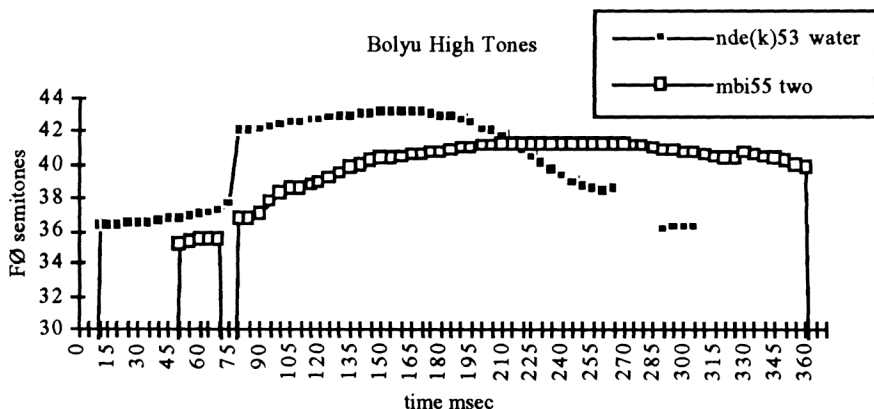


Figure 1: High Tone Pitch Trajectories 55 and 53

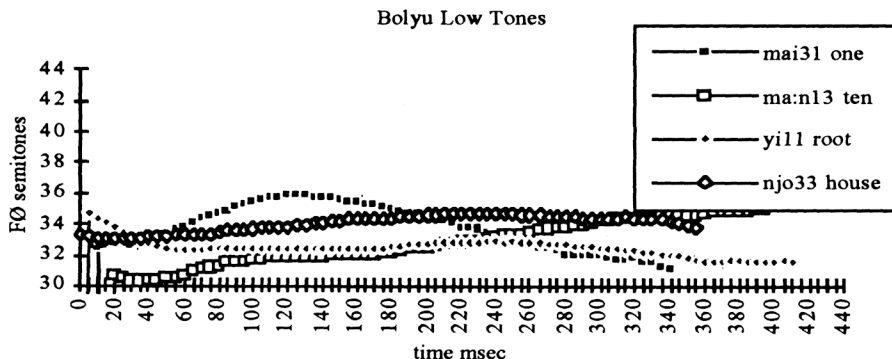


Figure 2: Low Tone Pitch Trajectories: 33, 31, 13, and 11 (21)

The following chart summarizes some of the main associations between consonant types and tones in Bolyu:

	DISTINCTIVE INITIALS		COMMON INITIALS	
High Tones: (1 丿)	mb, nd	ʈ, s	p, t, k, q	ts/ʈ, ʔj, j(ʈ), ʏ
Low Tones: (1 丿 丿 丿)	m, n, (ɲ), ŋ			
	ph, th, kh, qh, h	l, v	p, t, k, q	ts/ʈ, ʔj, j(ʈ), ʏ

Figure 3: Consonant types and tone sets

That is, as indicated in Figure 3 above:

1. /mb nd t s/ are found only in high tones (Benedict's tones 1, 4).
2. Vl. stops, affricates and /j ʔj(ʔ) and ɣ/ occur in both high and low tones.
3. /m n ɲ ŋ l v/ and /h/ occur predominantly in low tones (2, 3, 5, 6).
4. Aspirated consonants are found only in low tones.

3. Bolyu Tone and Vietic Categories

Bolyu is phonologically interesting as a Mon-Khmer language for, among other things, its well developed six-termed tonal system. Among the branches of Mon-Khmer, Vietic is, by comparison, also notable for its repertoire of languages possessing such full-blown pitch patterns.

Ferlus (1991:2) in *Vocalisme du Proto Viet-Muong* summarizes the tonal systems in a number of Vietic languages (Arem, Sach, etc.), which we schematize in the following comparative framework (with each tone category represented uniquely in its own descriptive box and symbolized with the vowel a, e.g. a¹, a²):

1. Arem

a plain syllables	a ¹ glotto-pharyngeal tension
-------------------	------------------------------------------

Devoicing of initials. Pitch height is imperceptible.

2. Sach

a ¹ high plain	a ³ high glottal + breathy, diphthongized open vowels
a ² low plain + breathy, diphthongized open vowels	a ⁴ low glottal

Devoicing of Initials. Final -h is preserved.

3. Ruc and Thavung

a ¹ high plain	a ³ high glottal
a ² low plain +breathy, diphthongized open vowels	a ⁴ low glottal +breathy, diphthongized open vowels

Devoicing of Initials. Final -s is preserved as -^h / -^h in Ruc and as -^h in Thavung.

4. Malieng and Pakatan

a ¹ high plain	a ³ high falling glottalized (Pakatan), rising (Malieng)
a ² low plain +breathy, diphthongized open vowels	a ⁴ low glottal +breathy, diphthongized open vowels

Devoicing of initials. Final -r ~-l is partially preserved in Pakatan and is reflected in -ur ~-l in Malieng.

5. Pong

a ¹ high plain	a ³ high glottal
a ² low plain	a ⁴ low glottal

Devoicing of initials. Final *-h* has been lost, but with no independent tonal reflexes (i.e. no *hỏi-ngã*-like tone development as in VN/Muong). Final *-s* is represented by *-c*.

6. Muong

a ¹	a ³	a ⁵
a ²	a ⁴ some dialects distinguish/some combine with a ⁶	

The ancient liquid finals occur as *-ə* in Hòa Bình, *-l* in Sơn La and *-n* in Thanh Hóa.

To which may be added the following tone schema to round out the picture:

7. Vietnamese

a ¹	a ³	a ⁵
a ²	a ⁴	a ⁶ distinct from a ⁵ in the North; elsewhere one tone

Ancient liquid finals occur as *-y* / *-i*; final *-s* / *-h* are lost, normally reflected in tones a⁵/a⁶

Figure 4: Vietic Tone Arrays (1-7 above)

The tonal picture for Vietic which emerges above ranges from the simplest pattern for Arem to the most complex for Northern Vietnamese, summarizable as follows:

1. Arem simply opposes glottally constricted/stopped syllables to all other syllable types, i.e. [S₊glot vs. S₋glot] with no significant pitch distinction.

2.-5. Sach, Ruc, Thavung, Malieng, Pakatan, and Pong further multiply the Arem pattern x2 via a High vs. Low Pitch parameter resulting in a four-termed system.

6.-7. Muong and Vietnamese expand the tone array further to a 5 or (in the case of Northern Vietnamese) to a 6-box system. As indicated above, Muong combines categories a⁴ and a⁶, while Central and Southern varieties of Vietnamese combine a⁵ and a⁶. This enlarged tonal system results from pitch contours that evolved in the (now lost) environments of **-h* and **-s*.

Taking the Vietic tone systems as a heuristic frame of reference, one may also categorize parallel Bolyu tone types in a four-box array, whose quadrants we shall refer to as I-IV as shown in Figure 5.

I		II		
Bol 1 : VN <i>ngang</i> Bol 1 : VN <i>hói</i>		Bol 1 : VN <i>săc</i>		
ti1	'arm'	pei1	'seven'	
(lɔ1)tɕa:i1	'ear'	ʔɔ1	'split'	
hən1 ni1	'today'	çi1	'select'	
pə:i1	'three'	çi1	'intelligent'	
qon1	'son'			
mɔ1 sɔŋ1	'pine tree'			
mbɔŋ1	'bamboo shoots'			
joŋ1	'foot'			
tɕəm1	'right side'			
Bol 1 : VN <i>ngang</i>				
nə:m1	'year'			
pə:u1	'dream'			
		ʔji1	'to die'	
		nde1	'water'	
		ʔut1	'drink'	
		ɕət1	'have fever'	
			sa:m1	'eight'
			sa:m1	'blood'
			jam1	'cry'
			lji:m1	'lick'
			qam1	'chaff'
			pu:n1	'four'
		qɔ1	'fish'	
		pju1	'six'	
		tsu1	'dog'	
		ʔai1	'fruit'	
			sən1	'navel'
			ɕən1	'nine'
			tɕən1	'ripe'
			tɕaŋ1	'bitter'
		but note tone in: sən1 'bird'		
III		IV		
Bol 1 : VN <i>huyền</i> Bol 1 : SV <i>huyền</i>		Bol 1 : VN <i>nặng</i> Bol 1 : VN <i>ngã</i>		
ma:n1	'ten'	tɕen1	'money'	
ma:i1	'you pl'	tə:ŋ1	'sugar'	
(mi1	'you sg')	lɔ1	'mule'	
		jo1	'house'	
		(but also note: lou1 'thigh')		
Bol 1 : VN <i>ngã</i>				
ji1	'root'			
		ma:i1	'one'	
		pu1	'penis'	
		ju1	'to fear'	
		ma1	'mother'	
		qhəp1	'arrive'	
		nak1	'lean meat'	
		ŋəm1	'hold in mouth'	
		but note unexpected tone in: (mɔ1) lja:ŋ1 'eagle'		

Figure 5. Bolyu-Vietic Tone comparisons

The Bolyu tone groupings in the four-box figure may be identified in preliminary fashion with the following apparently parallel forms in the Vietic languages :

Bol 1 : VN *ngang*

tiɿ	'arm'	VN tay, M thaj ² , saj ² , si ² Thv si ¹ ,
lɔɿ tɕa:iɿ	'ear'	VN tai, S-Ruc sa:j ¹
hənɿ niɿ	'today'	VN hôm nay, M hom ² ni ²
pa:iɿ	'three'	VN ba, M pa: ¹ ba: ¹ S-Ruc et al.pa: ¹
qonɿ	'son'	VN con, M,S-Ruc et al. kon ¹
mɔɿ sɔŋɿ	'pine tree'	VN thông
mbɔŋɿ	'bamboo shoots'	VN măng, M baŋ ¹ / vaŋ ¹ , Ar aɓaŋ, S-Ruc tɔbaŋ ¹
jɔŋɿ	'foot'	VN chân, Ar cɿŋ S-Ruc Thv ci:ŋ ²
tɕəmɿ	'right side'	VN đăm, M tam ¹ , dam ¹ , Ar tam, S-Ruc tɔəm ²

Bol 1 : VN *ngang*

nə:mɿ	'last year'	VN năm, M nam ¹ , Pk sənəm ¹ , Thv cəm ¹ , P cim ¹
pa:uɿ	'dream'	VN chiêm bao, Arem mɔ, S-Rc capo: ¹

Bol 1 : VN *hỏi*

peɿ	'seven'	VN bảy, M paj ⁴ , pac ³ Ar pah, Pk pal ^{h1} , Thv pih ¹
tɔɿ	'split firewood'	VN chẻ 'split' (Cf. R tɔhlah 'be split')
ɕiɿ	'select'	VN chỉ 'point, show'
ɕiɿ	'intelligent'	?VN giỏi

Bol 1 : VN *huyền*

ma:mɿ	'ten'	VN mười, M mư̄oi ²
miɿ	'you'	?VN m̄i, (cf. PP mi ³ 'thou')
ma:iɿ	'you pl'	?VN m̄ay, M mi ² 'thou', (Cf. Kharia 'ampe, Sora am'ben 'ye')

Bol 1 : SV *huyền*

tɕenɿ	'money'	VN tiền, M thiên, Ch qian
tə:ŋɿ	'sugar'	VN, M đườ̄ng < Ch tang
ŋɔɿ	'household'	VN nhà

But also note:

louɿ	'thigh'	S-Ruc palu: ¹ , Thv malu: ² , M blu: ¹
------	---------	-------------------------------------------------------------------------

Bol 1 : VN *sắc*

tɕitɿ	'to die'	VN chết, Ruc kəci:t ¹ , Pk ce:t ² , (Cf. R hlat, also ?Proto Wa *hlat, Sam. hlat 'fear')
nde(k)ɿ	'water'	VN nước M đak ³ S-Ruc, Ml da:k ¹ Pk da:k ²
?utɿ	'drink'	VN hút 'smoke', M hút 'suck'
ɕətɿ	'have fever'	VN sốt; M khôt ³

Bol ʎ : VN *sắc*

qɔʎ	‘fish’	VN <i>cá</i> , Ar akæ: ² , S-Ruc aka: ³ , Thv ka: ³
pjuʎ	‘six’	VN <i>sáu</i> , M phaw ⁵ , Ar pəraw ² , Pk p ^h law ³
tsuʎ	‘dog’	VN <i>cho</i> , Arem aca: ² , Thv cɔ: ³
ʎaiʎ	‘fruit’	MidVN <i>blái</i> , VN <i>trái</i> , Ar ulɛ ² , Ml ple: ³
sa:mʎ	‘blood’	Ar at ^h æ:m ² Sach, Ruc asa:m ³ , Pk sam ³
sa:mʎ	‘eight’	Ar t ^h æ:m ² , Pk sam ³ , M sam ⁵ , tham ⁵
ljimʎ	‘lick’	VN <i>liếm</i> , Thv hale:m ³
qamʎ	‘chaff’	VN <i>cám</i> , Ar kæ:m, Pk tkæ:m ³ ‘bran’
pu:nʎ	‘four’	VN <i>bốn</i> , M pon ³ , Arem puon ² , SR po:n ³
sənʎ	‘navel’	VN <i>rốn</i> , M.(Dô) son ¹ son ⁵
ɕənʎ	‘nine’	VN <i>chín</i> , Arem ci:n ² , Pk ci:n ³
tɕənʎ	‘ripe’	VN <i>chín</i> , Arem ci:n ² , Pk ci:n ³ , əci:n ¹
tɕaŋʎ	‘bitter’	VN <i>đắng</i> , S-Ruc taŋ ³ (Cf. Lwa sɔ:ŋ, Khr ɔ’sɔŋ)
sənʎ	‘bird’	VN <i>chim</i> , Ar ici:m, S-Rc ci:m ¹ (Cf. Nik ceco:n)

Bol ʎ : VN *nặng*

ma:iʎ	‘one’	VN <i>một</i> , M môch ² , Ml mu:c ² , Mon mwai, Gu mui
juʎ	‘to fear’	VN <i>sợ</i> (Cf. R yu?)
puʎ	‘penis’	M pu ⁴ ; po ³ kha ¹
maʎ	‘mother’	VN <i>mẹ</i> , M me ⁴ , S-Ruc miɛ ⁴ , Thv mə: ⁴ , P me: ⁴
qhəpʎ	‘arrive’	VN <i>gặp</i> ‘meet’
nakʎ	‘lean meat’	VN <i>nạc</i>
ŋəmʎ	‘hold in mouth’	VN <i>ngậm</i>

Bol ʎ : VN *ngã*

lɔʎ (tɕa:iʎ)	‘hole (ear)’	VN <i>lỗ</i> ‘hole’, cf. Kharia lat
lɔʎ (lji:mʎ)	‘tongue’	?VN <i>lưỡi</i> , Vinh dial. lại, M laj ⁵ , lan ⁵ , Ar liəh, Sach laal ^{h1} , Ruc laar ^{h1} , Thv laaj ^{h1} , Ml laaw ^{h1}

4. Some General features of Bolyu and Vietic tone

Our goal in this paper is a modest one. We do not propose here to reconstruct proto-systems at some specific level, but rather to observe some patterns and features of overlap that emerge when Bolyu and Vietic tone are viewed within a common Mon-Khmer typological grid.

To begin with, one may summarize Bolyu tone categories in terms of the following syllable (or phonological word) classes:

Tones I, II < *continuant rimes (oral, nasal, laryngeal)	Tones III, IV < *radical constriction rimes (oral and laryngeal)
*CV	*CV?
*CVN (-m,-n, [-ŋ-ŋ])	*CVN (-m,-n, [-ŋ]-ŋ)?
*CVH	*CVP (-p, -t, [-c],-k)

Figure 6: Syllable types and tones

That is, Bolyu forms in Tones I and II include historically open, nasal continuant, and laryngeal continuant rimes, while Tones III and IV involve historically more radically constricted rimes either oral or laryngeal of some kind (where ?=laryngeal component, whether prosodic or segmental).

Comparing the above patterns with other Vietic languages, one observes the following general outlines:

1. *CV and *CVN appear in categories I, II in Bolyu. Forms of this shape involve the quintessential *bǎng*-type tones in their Vietic and Sino-Vietnamese (SV) counterparts, e.g. in the high set:

tiɿ	‘arm’	VN tay, M thaɿ ² , saɿ ² , si ² , Thv si ¹
pa:iɿ	‘three’	VN ba, M pa: ¹ , ba: ¹ , S-Ruc et al. pa: ¹
qonɿ	‘son’	VN cɔn, M, S-Ruc et al. kɔn ¹
tɕəmɿ	‘right side’	VN đǎm, M tam ¹ , dam ¹ , Ar tam, S-Ruc tɕəm ²

The B. ɿ 13 tone is associated with VN *ngang* and *huyền*-type forms such as the following, the first pair matching Vietic high tones (I) and the second pair, Vietic low tones (II):

nə:mɿ	‘last year’	VN năm, Pk sanam ¹
pa:uɿ	‘dream’	VN chiêm bao, Arem mpɔ, S-Rc capo: ¹
ma:nɿ	‘ten’	VN mười, M mư̄i ²
ma:iɿ	‘you pl’	?VN mà̄y, M mi ² ‘thou’,

Note that the first pair above (nə:mɿ and pa:uɿ) are forms that historically involve a voiceless spirant in the pretonic syllable and nasal initials in the tonic syllable, while in the second pair (ma:nɿ and ma:iɿ) only initial nasals turn up historically.

Not surprisingly, Bolyu shares numerous forms with Vietnamese that are of Chinese provenience. In category II such forms as the following involve Bolyu tone ɿ33 and Vietnamese *huyền*:

tɕɛnɿ	‘money’	VN tiền, M thiền < Ch qian
tə:ŋɿ	‘sugar’	VN, M đường < Ch tang

However, a non-Han form also shows Bolyu ɬ with a I or II category tone in Vietic:

louɬ ‘thigh’ S-Ruc palu:¹ Thv malu:² M blu:¹

2. *CVH is retained in I, II for Bolyu. This feature is parallel to the pattern of a number of Vietic languages. Arem, for example, agrees and even retains the *-h in its conflated I-II slot, whereas Sach, Ruc, Pakatan, and Thavung having lost *-h, still reflect tones 1 or 2. In Pong, however, this syllable type migrates to box III (and IV?), apparently generalizing III-IV as an all-laryngeals (-ʔ and -h) category. In Mường *CVH generally breaks out of the four-box system, spawning a new tonal category V but only in the high set of tones, while retaining its status as a tone IV for the lower set. Vietnamese carries the expansion from the four-box system to a 5 or 6 box array in which *CVH receives its own category V-VI as a single tone in Southern and Central dialects and as two independent tones V vs. VI in the North. The form for ‘seven’ is diagnostic of some of these treatments of *CVH tones:

peɪɬ ‘seven’ VN bảy, M paj⁵, Ar pah, Pk pah^{h1}, Thv pih¹, P pal³

3. *CVP syllables occur in III, IV in Bolyu, where like Vietnamese and Mường the occurrence of final stops is restricted to a certain subset of tones in the system. For Vietnamese, these consonants may cooccur only with the sắc-nặng tone set. For Bolyu, the 53ɬ and 31ɬ tones function in parallel fashion, as exemplified in the following forms, respectively:

ʔutɬ ‘drink’ VN hút ‘smoke’, M hút ‘suck’
 qhəpɬ ‘arrive’ VN gặp ‘meet’

4. *CVʔ and *CVNʔ appear as III-IV class forms. The correlation of final stops with Vietnamese sắc-nặng has, of course, figured into historical observations on tone since the work of Maspero (1912) and the tonogenetic hypothesis of Haudricourt (1954). That the theory leaks a bit has also been pointed out from time to time (e.g., Gage, 1985; Diffloth, 1989), specifically regarding the motivation for certain forms with historical nasal-final or ‘open’ syllables to turn up in the sắc-nặng category. In this regard the Bolyu data are interesting, since they parallel the Vietic patterns and on many of the same etyma, for example:

Open Syllables with Bɬ and VN sắc tones

pjuɬ ‘six’ VN sáu M phaw⁵ Ar pəraw^ʔ, Pk phlaw³
 tsuɬ ‘dog’ VN chó Arem aca:^ʔ Thv co:³
 ʔaiɬ ‘fruit’ MidVN blái VN trái Ar ulə:^ʔ Ml ple:³

Nasal-final Syllables with Bɬ and VN sắc tones

sa:mɬ ‘blood’ Arem at'hæ:m^ʔ, Sach,Ruc asa:m³, Pk sam³

samɿ	‘eight’	VN tám, Arem t ^h æ:m ² , Pk sam ³ (but M sam ⁵ , tham ⁵ , where tone ⁵ usually =VN <i>nǎng/ngã</i>)
lɿimɿ	‘lick’	VN liếm, Thv halɿ:m ³
pu:nɿ	‘four’	VN bốn, M pon ³ , Arem puon ² , SR po:n ³
ɸænɿ	‘nine’	VN chín, Arem ci:n ² , Pk ci:n ³
tɸænɿ	‘ripe’	VN chín, Arem ci:n ² , Pk ci:n ³ , Thv ci:n ¹

The lower tone sets are less well represented, but a few examples have also turned up in which *săc* or *nǎng*-type tones appear on open or nasal final syllables.

‘Open’ Syllables with Bɿ and VN *nǎng* tones, e.g.:

juɿ	‘to fear’	VN sợ
puɿ	‘penis’	M pu ⁴ ; po ³ kha ¹
maɿ	‘mother’	VN mẹ, M me ⁴ , S-Ruc miɿ ⁴ , Thv mə: ⁴ , P me: ⁴

Nasal-final Syllables with B.ɿ and V *nǎng* tones, e.g.:

ŋəmɿ	‘hold in mouth’	VN ngậm
------	-----------------	---------

Predictably, there are also some flip-flops in which Bɿ correlates with VN *săc* (or other Vietic lgs. tone 3) and B.ɿ correlates with VN *nǎng* (or other Vietic tone 4), as in the following two cases, respectively:

(mɔɿ) lja:ŋɿ	‘eagle’	Ar kəlæ:ŋ ² , S kəla:ŋ ³ , SL kla:ŋ ³
jamɿ	‘cry’	Ar ajiem ² , Sach, Ruc jaam ⁴ , M jam ⁵ , (M tone 5 regularly corresponding with VN <i>nǎng/ngã</i>)

The distribution of B ɿ and ɿ tones in ‘open’ and nasal (as well as regular stopped) syllables invites the inevitable observation that the same laryngeal effects reported (e.g. Ferlus, 1991) for the Vietic languages, especially Arem as well as Sach, Ruc, etc. or the ‘creaky voice’ across Austroasiatic suggested by Diffloth (1989) may also stand behind the evolution of tone in Bolyu.

Of all the tone parallels between Bolyu and Vietic forms, box III above is the most consistent. Why should this be so? Some possibilities come to mind:

1. The high tone sets (I and III) tend perhaps to be statistically more common in general.

2. Arem, Sach, Ruc, etc., perhaps reflect a model in which category III-IV constitutes something like the first step towards differentiating certain laryngeal forms from all other word types. If we assume that category I-II in some evolutionary sense ‘feeds’ III-IV by ceding -h to its repertory, as in Pong (and Mưỡng in the low set) as well as exporting all voiceless stops to that category for Bolyu and Việt-Mưỡng, it is not surprising to be able to find a rather sizeable collection of items that share some kind of constrictive feature in their rimes. Put

another way, the radical laryngeal stricture of III-IV (as in Arem)—Pied Piper-like—attracted at various times and in various ways other rime types into its domain, where they were reinforced with (and sometimes replaced by) compatible prosodic trappings.

Tone in Bolyu and its implications for understanding prosodic developments more broadly in Mon-Khmer and Austroasiatic remains a tantalizing question. One which will continue to attract interest as research goes on.

REFERENCES

- Benedict, Paul K. 1990. "How to tell Lai: an exercise in classification." *LTBA* 13.2.1-26.
- Diffloth, Gérard. 1989. "Proto-Austroasiatic creaky voice." *MKS* 15:139-154.
- Edmondson, Jerold A. 1995. "English-Bolyu glossary." *MKS* 24:133-59.
- Ferlus, Michel. 1991. "Vocalisme du Proto Viet-Muong." Paper from the 24th International Conference on Sino-Tibetan Languages and Linguistics. Ramkhamhaeng University, Bangkok and Chiang Mai University.
- Gage, William. W. 1985. Glottal stops and Vietnamese tonogenesis. In *For Gordon Fairbanks*, eds. V. Z. Acson and R. L. Leed. Oceanic Linguistics Special Publication No. 20, Honolulu: University of Hawaii Press.
- Hang Weiguang, ed. 1989. *Longlin Gezu Zizhi Xian Minzu Zhi*. (Sketch of the ethnic nationalities of Longlin Various Nationalities Autonomous County.) Nanning: Guangxi People's Press.
- Li Jinfang. 1995. "Bugan—a new Mon-Khmer language in Yunnan, China." *MKS* 26:135-159.
- Liang Min. 1984. "A Brief Description of the Lai Language." *Minzu Yuwen* 1984.4.
- Ni Dabai. 1990. *Dong-Taiyu Gailun*. (An introduction to Kam-Tai languages.) Beijing: Central Institute of Nationalities Publishing House.
- Ross, Elliott D., Jerold A. Edmondson, and G. Burton Seibert. 1986. "The effect of affect on various acoustic measures of prosody in tone and non-tone languages: a comparison based on computer analysis of voice." *Journal of Phonetics* 14.2.283-302.
- Schotter, Aloys. 1909. Notes ethnographiques sur les tribus du Kouy-tcheou (Chine) *Anthropos* 4.318-53.

Bolyu abbreviations:

Ar	=	Arem
B, Bol	=	Bolyu
Ch	=	Chinese
GU	=	Gutob (Munda)
M	=	Muong
MK	=	Mon-Khmer
Ml	=	Malieng
P	=	Pong

P. Wa	=	Proto Wa
PK	=	Pakatan
R	=	Rengao
Sam	=	Samtao
SR, S-Ruc	=	Sach-Ruc
SV	=	Sino-Vietnamese
Thv	=	Thavung
V, VN	=	Vietnamese

Appendix 1: The Bolyu people

The population figures for the Bolyu of Longlin County are 486 (in 1964), 650 (in 1982), and 736 (in 1987). Ni (1990:232) gives the combined Bolyu populations as 845, including 80 in Xilin County. The Bolyu are called Buyang by the local Zhuang and Lai by the Han (Chinese) dwellers of Longlin. Lai is the name by which they have been known in published work up to now. We have, following their wishes, elected to use their autonym, Bolyu, in this work and hope that this practice will continue. According to the *Guangxi Tongzhi* (Gazeteer of Guangxi Province), there were about 70 years ago four nationalities found in Xilong (today split into two counties Longlin and Xilin): Zhuang, Nung, Bolyu (Lai), and Yi (Lolo). About 60% of the Bolyu have the surname Wei. Other family names are Wang, Guo, Lu, Zeng, and Hu. The Bolyu live in scattered settlements with other groups and have no separate villages. Local records indicate that they live principally at places called Xinha, Xinhua, Changmo, Shechang, and Zhelang.

The Bolyu (Lai) have long been recognized as one of the aboriginal peoples of China, as reflected in reports such as Schotter (1909:320):

Dans le parler populaire on dit que les Yao-jen ont été les premiers habitants sur Kouy-Tcheou; même souvent on dit que ce sont les Laï or Lai tse. Il y aurait eu autrefois un royaume de Laï-tse au Kouy-tcheou; un Laïtse-kouë. C'est sans doute le même mot par lequel sont indiqués les Ly nommés plus haut par P. Duhalde sous ce nom Laï on retrouve des aborigènes dans les autre provinces. Ainsi dans un article Kiao-tcheou (Revue française 1898) on lit "Les Laï dans Chantong est un peuple autochtone, non-chinois..."

The Bolyu live a rather marginal existence because—like the Gelao of Longlin—they must often marry members of other nationalities, since there are only a small number of surnames among the Bolyu and thus only a small pool of marriageable partners. The effect of this rule is to weaken further the language, since Bolyu like Gelao is often not transmitted to the next generation. The children of these marriages speak Han and perhaps another minority language, but not the language of the smaller group. Indeed, our two Moji Gelao assistants from Longlin said that their mother was a Bolyu, but that they themselves speak their father's language because there were several other Gelao speakers in their village and they received only limited knowledge of Bolyu from their mother.

Mr. Lu, the major source of information for this study, had no wife, since in the Miao village where he lived Miao women cannot marry outside their own ethnic group. These factors reveal the precarious social position of the Bolyu in this multi-ethnic and multi-lingual community on the eastern reaches of the Guizhou-Yunnan Plateau. As a consequence, the Bolyu language is in acute jeopardy of extinction.

Appendix 2: Notes on phonological segments

A preliminary overview of Bolyu consonant and vowel segments includes the following facts:

Initial consonants include the following:

p	t		k	q	ʔ
ph	th		kh	qh	
mb	nd				
m	n		ŋ		
	l				
w		ʔj j			
	s t	ɕ			h
v			ɣ		
	ts	tɕ			
	tsh	tɕh			
pj	tj		kj		
phj	thj				
mbj					
mj					
	tj				hj
vj	lj		ɣj		
		tɕɣ	kw		
			ky		
			khɣ		
vɣ				hɣ	

Final consonants are these:

p	t	k
m	n	ŋ

Our data include several examples of velarized initials, i.e. /hɣ khɣ ky vɣ tɕɣ/. The initial /j/ has a lot of friction and is often phonetically [ʃ]. Vocabulary borrowed from Han that have aspirated initial stops often have become voiced stops (mb- nd-) or unaspirated stops in Bolyu. The uvular series *q, qh* are also interesting as elements reflective more of Kadai than Mon-Khmer languages.

The basic vowels of Bolyu are the following:

i	u	
e	o	
a	ə	ɔ

In addition to the regular length vowels above, at least a:, ə:, and u: also appear as long varieties. Bolyu has even been reported to have a three-fold vowel length contrast (Liang Min, 1984). However, there seems to be only limited support for such. It is true that *mat*³¹ 'socks' is much longer than *mat*³¹ 'eye' and that *mat*³³ 'fire' appears to lie midway in length. That is, five repetitions of the word *mat*³¹ 'socks' had a mean value of 135 msec (see below). The contrasting vowel in multiple utterances of *mat*³³ 'fire' had a mean of 105 msec. The shortest vowel was in *mat*³¹ 'eye', five utterances of which had a mean length of only 70 msec. The item for 'eye' is also difficult to distinguish from 'face' *mat*⁵³, which has comparable length but a more level tone; also 'fire' *mat*³³ is difficult to distinguish from *mat*³¹ 'field' (and note in passing that *mat*³³ is unusual in permitting a final stop with a 33 tone). In any case, there are only very few vocabulary items with this degree of purported length difference. They usually involve Han loan words. In many disyllabic words the first vowel shows reduction to [ə]. All of which means that the matter of vowel length in Bolyu remains to be further documented and refined.

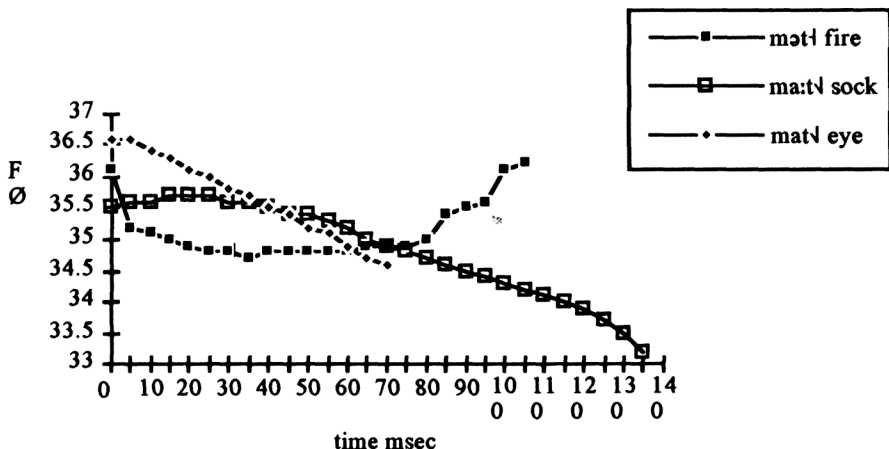


Figure 8: Bolyu vowel length

Received: November 1995

Jerold A. Edmondson
 University of Texas at Arlington
 Kenneth J. Gregerson
 SIL and University of Texas at Arlington