

Analysis of Rime-Groups in Northern-Burmish ¹

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Within the large Yipo-Burmic (= Lolo-Burmese) branch of Tibeto-Burman, the Burmese language itself has received the most study. Old Burmese inscriptions, most of which date from the twelfth century, are in volume and antiquity no way comparable to Tibetan, let alone Chinese records, but they still remain the third-most useful set of early documentation for Sino-Tibetan languages, and the reconstruction of Burmese has served as both a model and tool for tracking the early development of many languages in East Asia.

Linguistic reconstruction is most useful when we can compare related languages or dialects. It is therefore unfortunate that even present-day, not-to-mention earlier stages of Burmese dialects have been so poorly recorded. This lacking, the small group of Achang dialects and the four languages of the Zaiwa-group (Zaiwa, Langsu [=Maru, Longwo], Bola, Letsi), collectively known as Northern Burmish (nBsh), must figure most importantly in a reconstruction of Old Burmese (oBrm) since these languages are the closest living relatives of Burmese. The nBsh languages have received scant attention because their speakers are few in numbers and live in remote border-regions of Burma and China (Yun-nan province). In recent years the material available has greatly increased, so that it is now possible to attempt a historical phonology of these languages and thus a more accurate reconstruction of the whole Burmish (nBsh + Brm) sub-group. This being the first time such a large-

scale reconstructive effort has been applied to the nBsh group, I have been unable, except for a few instances, to compare my ideas with other published reports. Several scholars have presented phonological reconstructions for Old Burmese, but with the emphasis on its correspondences with distantly related languages such as Tibetan or Chinese. I believe that the comparative method is more reliable when applied to closely-related languages, thus my own views on Old Burmese (q.v. LTBA 24.2) are largely based on the evidence from the nBsh group, Hpun, the Burmese dialects themselves, and early Burmese inscriptions.

About 520 sets of correspondences were collected (from Fu 1991, Huang 1992 plus other sources mentioned) and divided up into about 40 groups within which similar patterns of correspondences are found. Such groups should represent the major proto-rimes of Common North Burmish (cnBsh). When the same set of correspondences appears in several or more matched words from a group of languages, that set must represent a cnBsh proto-rime common to all those languages, unless loan-words are involved (q.v. below). At the top of each table is a suggested reconstruction for the proto-rime as well as the number of examples found. Below each table are comments on the development of the proto-rime within the various languages, as well as details concerning specific words.

The reconstructions of these rime-groups have been reasoned out in a way which hopefully explains all observed data while at the same time avoiding contradictions in logic. For example, in Tables 20 and 22 the reflex in wBrm (and sBrm) is *-i* for both sets, but the distinct reflexes in nBsh indicate that the proto-vowels in

these two groups must have also been distinct, with Rime 20 being a higher vowel than Rime 22, since no other factors can be found to explain the difference in reflexes. This would then mean that Burmese *-i* is the product of a merger since it must go back to the same Burmish source as the nBsh rimes. Reconstructing mid-vowels for Rimes 20 and 22 but a high rime for Rimes 16-18 ('heavy', 'die' etc.) not only accounts more simply for the reflexes in nBsh and sBsh (i.e. Burmese) but also is more compatible with the reflexes seen in most other TB language-groups, q.v. Dempsey 2001.

The rightmost column in the tables represents Nusu unless a form is preceded by some other language (X) plus colon. For reconstructing the Burmish rimes, the group of Nusu dialects plays an important role; if we divide Yipo-Burmish into Yipoish and Burmish, then Nusu seems rather more on the Burmish side, but the exact lineage is still unclear. References are to the Central dialect unless otherwise marked. Other forms in this column are mostly from the Yipoish branch, or from the Qiangic branch, with occasional other languages.

The last part of the paper includes a discussion about the mechanisms of certain sound-changes, issues in phonemicisation, and the general significance of this investigation's findings as well as what related tasks remain.

Abbreviations used: **Brm:** Burmese, **Bsh:** Burmish, **Dr:** Drung, **e:** east, **Gj:** Gjarung, **Ha:** Lüchun Hani, **Jn:** Jino, **JP:** Jingpo, **La:** Lahu, **LC-A:** Long-Chuan Achang, **LH-A:** Liang-He Achang, **Li:** Lisu, **LX-A:** Lu-Xi Achang, **Mik:** Mikir, **n:** north, **Ph:** Phun, **Pr:** P'rami (Pumi), **Q:** Qiang, **s:** spoken, **St:** Stau (Ergong), **Tib:** Tibetan, **w:** written, **XD-A:** Xian-Dao Achang, **Y:** Liang-shan Yipo, **YB:** Yipo-Burmish, **YY:** *Zàng-miǎn-yǔ yǔ-yīn hé cí-huì*, **YZ:** *Zàng-miǎn yǔ-zú yǔ-yán cí-huì*.

Segmental / diacritical transcriptions:

x- in the Zaiwa Group denotes tense vocalisation.

-^r, -h : tone marks, cf. next section.

-q = final glottal stop.

= any high central vowel (as a *phoneme*), i.e. [+HI] but not *i* or *u* .

wBrm ə = written vowel-complex often transcribed (inadvisably) as *ui* .

ʔC- = homorganic prenasalisation of the stop *C*.

ʒ- = dz- , ǯ- = dž- .

ḡ = nasalising of vowel; ḡ = comparatively lower vowel; -ḡ = raised vowel.

My Lahu *e/o* (the unmarked mid vowels) are often transcribed by others as *ɛ/ɔ* .

Tonal retranscriptions:

As a step away from depicting raw, surface-form data, I have first replaced numerical values with the following accent-marks:

1) Achang dialects: 55 → *ā* , 35 → *á* , 31 → *à* , 51 → *â* .

2) Zaiwa: 51 → *â* , 55 → *ā* , 21 → *à* .

3) Langsu: 55 → *ā* , 35 → *á* , 31 → *à* .

4) Bola: 55 → *ā* , 35 → *á* , 31 → *à* , 51 → *â* .

5) Leqi: 55 → *á* , 33 → *ā* , 31 → *à* , 53 → *â* .

6) Nusu ('92/'86): 33 → *ā* / 35 → *á* , 55 → *â* , 31 → *à* .

7) sBrm: 22 → *a* (plain), 55 → *a^r*, 53 → *ah* (-*a^h* in wBrm).

Next, in the interest of more easily comparing tonal categories among the various languages here, I have regularised the tone transcriptions as follows:

TABLE 1. Conversion of tone-marks into phonological categories

XD-A, LC-A	LX-A	LH-A	Zaiwa	Langsu	Bola	Leqi	Nusu (‘92/’86)
$\bar{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\bar{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\bar{a} \rightarrow a$	$\bar{a} \rightarrow a$	$\bar{a} / \hat{a} \rightarrow a$
$\bar{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\bar{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\bar{a} \rightarrow a$	$\hat{a} \rightarrow a$	$\bar{a} / \hat{a} \rightarrow a$
$\hat{a} \rightarrow a^r$	$\bar{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$
$\hat{a} \rightarrow a^r$	$\bar{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$	$\bar{a} \rightarrow a^r$	$\hat{a} \rightarrow a^r$
$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\bar{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$
$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\bar{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$	$\hat{a} \rightarrow ah$
$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\bar{a}' \rightarrow aq$	$\hat{a} \rightarrow aq$
$\bar{a}' \rightarrow aq$	$\hat{a}' \rightarrow aq$	$\hat{a} \rightarrow aq$	$\hat{a}' \rightarrow aq$	$\hat{a}' \rightarrow aq$	$\hat{a}' \rightarrow aq$	$\hat{a}' \rightarrow aq$	$\hat{a} \rightarrow aq$

Table 1 shows the four tonal categories of cnBsh, each with an upper and lower row. One can see that Leqi has the most complex tone-system. Assignment to the more abstract categories on the right side of each arrow is usually only possible by comparing the tone values of at least one other Burmish cognate. The top two rows are the category with the most common tonal pattern, thus left unmarked in the transcription. The next two rows have *r* as the sign of second-most common tone category, etc. For the least-common non-stopped tone-category, an *-h* is added after vowels, or the final nasal is doubled; in reconstructed forms an apostrophe is appended to the syllable.

In the tables below, those pairs within each of the four tonal categories (e.g. first row plus second row = the first, unmarked category) which show two different tones (e.g. all categories for Leqi,

but only two categories for Bola) are distinguished by spelling with voiceless initial-stops (*p - t - k* etc.) for words with a tonal pattern in the first row and with voiced stops (*b - d - g* etc.) for the second row, which taken as literal phonemes also happen to be the reconstructed values of said initials. This kind of transcription is called historical spelling. An example would be 'nine' in Table 2, where Leqi *gou* is without a tone mark; since it has no tone-mark, it belongs in the top two rows of Table 1, where we see that the Leqi column shows two different tone-values (\bar{a} and \hat{a}) in this unmarked category. The initial *g-* in Leqi *gou* indicates that the word has the tone-value of the second row, so the surface form is [kòu]. That Leqi has no overt *g*-phoneme is known to any native speaker or investigator, but that is not of immediate consequence when consulting the tables below since the aim is to show contrasts and similarities within a wider comparative framework. The tables still register the actual pronunciation in each language, but in a more indirect, abstract way.

I. Vowel finals

TABLE 2. **-u* (26+ examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
nine	kə̌	koǔ	kaǔ	kaǔ	k'jâu	---
smoke	·k'ə̌	·k'oǔ	·xaǔ	·xaǔ	·k'aǔ	·k'aǔ
inside			·xau	·xau	·k'au	·k'aǔ
steal-	k'ə̌	k'oǔ	xaǔ	·xaǔ		
weep-	ŋə̌	ŋoǔ	ŋaǔ	ŋaǔ		
old			ç'aǔ	ç'aǔ		
breast	nə̌h·	noǔh·	·nâǔ	naǔh·		
poke-	t'ə̌	t'oǔ		t'aǔ		
sky	mə̌	moǔ	maǔ	maǔ	maǔ	maǔ

TABLE 3. *-u (26+ examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
nine	kau(ʳ)	kùk	kau	gou	g#
smoke	·k'auʳ	k'úk	---	·k'ouʳ	·k'hʳ
inside	·k'au	·k'ùk	·k'au-	·k'ou	k# Y: k'ū
steal-	k'auʳ	k'úk	k'auʳ	k'auʳ	k'hʳ
weep	ηau	ηùk	ηau	ηau	η# Li: ηu
old	c'auʳ	c'úk	č'auʳ	c'auʳ	c'hʳ
breast	nauh	núk	nauh	nouh	·n#h
poke-	t'auʳ	t'úk	t'auʳ	t'auʳ	JP: t'ú
sky	mauʳ	múk	mauʳ	mouʳ	m# Li: moʳ

***-u** movements: a) Complete diphthongisation: -u > -aw; almost universal in nBsh.

b) Limited diphthongisation: -u > əw > ow/o ; in Brm and Lahu.

c) Fronting: -u > ü; in all Nusu dialects. d) Excrescent -k : unusual addition of this high consonant after final high vowels in Langsu, cf. the ***-ji** rime (Table 18).

1) Voiced Leqi *g-* indicates a voiceless initial belonging to an historically voiced separate tonal category. Nusu *g-* is true voicing.

2) In Leqi we see -ou in nouns but -au in verbs/adjectives.

TABLE 4. *-ju / -ru (15 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
break-	k'jəʳ	č'ouʳ	k'rauʳ	k'rauʳ	---	---
sweet	k'jə	č'ou	---	---	·č'au	č'au
flow-	jə	jou	jau	jau	jau	jau
shrivel-			hnjauʳ	hnjauʳ		
widow	·c'əʳ	·s'ouʳ	(sauh·)			
green	ñə	ñou	ñau	ñau	ñau	·ñau

TABLE 4. *-ju / -ru (15 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
seed	mjəʔ	mjouʔ	·njauʔ	·njauʔ	---	---
horn	kʲə	č'ou	·k'rau	k'rau	k'jau	·č'au

TABLE 5. *-ju / -ru (15 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
break-	k'juiʔ	k'júk	k'juʔ	k'jauʔ	k'r#
sweet	č'ui(ʔ)	č'úk	č'u	č'au	č' Ha: č'u
flow	jui	júk	ju	jau	j#
shrivel	xnjuʔ	---	xnjuʔ	xnjauʔ	Ha: njʊʔ
widow	č'uiʔ	č'úk	č'uʔ	č'ouʔ	·č'ɥʔ
green	ɲui	ɲúk	ɲuŋ	ɲau	ñ#
seed	·mjɿʔ	mjúk	·mjuŋ	·mjouʔ	vjuʔ
horn	k'jui	k'júk	k'ju	k'jou	k'r# Ha: k'ø

Reflexes in other nBsh and Nusu are the same as for ***-u** , except for no diphthongisation in Zaiwa and Bola. Palatal elements (*j* , *r*) before *-u* prevented movement; Zaiwa *-ju* > *-jui* may be due to forward spread of the palatal features [+hi , -back] , perhaps characterisable as an echo of *-j-* on the other side of the *-u* .

1) 'seed' (and 'swallow-') : Zaiwa's forward palatal spread seems to have provoked a backward labiovelar absorption of the *-u-* into the *m-* . Bola's *-ŋ* may be another kind of echo effect from the nasal initial, also seen in 'finger' *laq·xnjuʔŋ* < **lak·xñuʔ* .

2) Frank aspiration in Achang *hnj-* is transformed into quasi-aspirated, tense *xnj-* in the Zaiwa group.

3) In 'horn' and other words, nBsh **k'r-* > Zaiwa group *k'j-* (and Brm too, thence č').

TABLE 6. *-ɔ (-ɔ) / *-o (12 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
span	t'wa	t'wa	t'o	t'o		
walk-	swaʳ	θwaʳ	soʳ	soʳ	swaʳ	soʳ
rain(-)	rwa	jwa	ro	ro	wa	wa
cattle	nwaʳ	nwaʳ	noʳ	hnoʳ	nwaʳ	noʳ

TABLE 7. *-ɔ (-ɔ) / *-o (12 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
span	t'o	t'u	t'o	t'o	t'wa Tib: mt'o
walk-	soʳ	suʳ	soʳ	soʳ	s'waʳ - soʳ - s'aʳ
rain(-)	vo	vu	ɣo	wo	rwa-ro-rwa
cattle	noʳ	nuʳŋ	noʳ	noʳ	nɔʳ - nōʳ - nwaʳ

***-ɔ** movements: a) Breaking: -ɔ > -wa ; in Brm and Nusu (not all dialects); also sometimes in Achang. b) Slight raising: in most of nBsh and part of Nusu; in Langsu there was then a further raising to -u. This breaking and/or raising are common processes that easily compatible with other phonological changes in this group. Benedict's analysis would require a change from his *-wa to -u in Langsu which would be a rather unusual sound-shift. For details of this new treatment of Burmish -wa , see Dempsey 2001.

1) 'span': I take YZ's Leqi t'ɔ to be a misprint for t'o .

2) 'tooth' wBrm swaʳ , Tib so may belong in this group, but absence of nBsh cognates leaves the issue moot in this context.

3) 'rain' Bsh *rɔ , Luśei ruaq < *roq :: Chinese 雨 yy (yǔ) < *roʳ , cf. the phonetic in 漏 low (lòu) < *ró' :: 潦 lao < *réwʳ

‘rain’, 淪 *lyy* ‘continuous rain’ and • *lyy* ‘rain’, both < **roʳ*. For 潦 I am merely following Baxterian categories to reconstruct the OC vowel; allowing for possible dialectal variation it may actually have been **ruʳ* / *rjuʳ* or even **roʳ*. As for **r-* > MC 喻_三, Baxter 1992:794 has OC (*w*)*rjəps* for 位, which I would emend to **g.rəps*.

TABLE 8. **-o* / **-ow* (17 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
thorn	cuʳ	suʳ	čʉʳ	čoʳ	ʒuʳ	čʉʳ
cross-	kuʳ	kuʳ	---	---	(kó)	(kó)
thick-	tʰu	tʰu	---	---	---	---
fat	cʰu	sʰu	---	čʰo	-cʰü	-čʰü

TABLE 9. **-o* / **-ow* (17 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
thorn	cuʳ	cauʳ	duʳ	ʒuʳ	ʒuʳ / ɕuq
cross-	kuʳ	kauʳ	guʳ	guʳ	guʳ Li: xgoʳ
thick-	tʰu	tʰau	tʰu	tʰu	tʰu Li: tʰü
fat	cʰu	cʰau	cʰu	cʰu	cʰu Li: cʰü

**-o* movements: a) Raising: *-o* > *-u*; in all Bsh except LC-A (and there only in some words); also in Nusu. b) Further movement of raised *-u* to *-au* in Langsu.

Drag chain in Langsu: *-u* > *-uk*, then *-o* > *-u* > *-au*, then *-o* > *-o* > *-u*, then *-a* > *-o*.

1) ‘thorn’ sBrm *s-* < *c-* < *ʒ-*. In LX-A, Bola and Leqi the voiced initials indicate voiceless initials belonging to an historically voiced separate tonal category. Nusu *ʒ-* is true voicing.

2) Bola ʒ- > d- is a regular change in that language.

TABLE 10. **-jə* /-*rə* (11 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
white	p'ru	p'ju	p'ru	p'ro	p'u	·p'u
take-	ju	ju	ñūq	ñu	ju	ju
watch-			ruh			
bell				č'u		

TABLE 11. **-jə* /-*rə* (11 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
white	p'ju	p'ju	p'ju	p'ju	Jn: ·p'ro
take-	ju	ju	ju·	ju	ju St: zu
watch-	vuh	vuh	wuh	joh	ruh JP: ju
bell	xčü	xčü	xčü	xčü	Ha: ·č'u

**-jə* movements: a) Raising: results similar to **-ə*, except that in Langsu the final step in the process *-ə* > *-u* > *-au* was blocked, or rendered unnecessary, by the medial **-j* /-*r*.

TABLE 12. **-au* (> **-ou* in pZaiwa group ??) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
sinew	·kroʳ	·čɔʳ	kʰʳ	·krəʳ		
shout-	kro	čɔ	xə	krə	gʱ	kʱ
raise-	koʳ	(kɔʳ)	kəʳ	kəʳ		
sticky			hnəʳ	hnəʳ		
fry-	hlo	hlɔ	hlə	hlə	ˈləj	hle
row-	hlo	hlɔ				
call-	k'o	k'ɔ				

TABLE 13. **-au* (> **-ou* in pZaiwa group ??) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
sinew					gru ^h
shout-	(k·ru ^h)	(xčau)	(k·ru ^h)	(k·ro ^h)	nPr: kō-rô
raise-					ku
sticky					ñu ^h Li: ño ^h
fry-	xne	xlaɟ	xlaɟ	xne	hlu Li: lu
row-	xlu				
call-					k'uh Li: k'u

This group is rather problematic; the Achang reflexes are sometimes found with high front values in the related languages, but the Brm and Yipoish reflexes mostly indicate high or mid-high back vowels. A good example is 'float-', wBrm *po* , sBrm *pɔ* , Hani *bu* and the four Yipo cognates in YZ : *bu - bu - bv - pv* .

Its status as a separate group depends mainly on the correspondence between sBrm ɔ and Achang ə / # , vowels otherwise rare in those languages. The paucity of clear cognates in the Zaiwa-group is the main source of ambiguity. Further data is obviously needed, but we also need to answer the question: Why is this vowel so rare in the basic vocabulary of Burmish?

1) 'sinew': Ha: gu^h , Li: žu^h , Dr: grû ; 'shout-': JP: k·ru^h ; 'sticky': Jn: ñə^h.

2) 'fry-': Yipoish: *hlu ; also cf. Table 26 below.

TABLE 14. **-a* (15 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
I	ŋa	ŋa	ŋɔ	ŋɔ	ŋa	ŋa
many	mja ^h	mja ^h	njɔ ^h	njɔ ^h	nja ^h	nja ^h
bitter	k'a ^h	k'a ^h	xɔ ^h	xɔ ^h	k'a ^h	k'a ^h

TABLE 14. *-a (15 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
be ill-	na	na	ṇṇ	ṇṇ	na	na
eat-	caʳ	saʳ	čṇʳ	čṇʳ	ʒaʳ	čaʳ

TABLE 15. *-a (15 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
l	ṇo	ṇo	ṇa	ṇo	ṇa
many	mjoʳ	mjoʳ	mjaʳ	mjoʳ	mjaʳ
bitter	k'oʳ	k'oʳ	k'aʳ	k'oʳ	k'aʳ
be ill-	no	no	na	no	na
eat-	coʳ	coʳ	daʳ	ʒoʳ	ʒaʳ Ha: ʒaʳ

***-a** movements: a) Slight backing: -a > -ṇ; found in XD-A and LC-A. b) Further backing and raising: -a > -o: found in all Zaiwa group except Bola.

TABLE 16. *-i (10 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
heavy	leʳ	leiʳ	laiʳ	liʳ	lɰʳ	laiʳ
wind	le	lei	lai	hli	lɰ	lai
flea	hleʳ	hleʳ	·laiʳ	hliʳ	·lɰʳ	·laiʳ
bow	leʳ	leiʳ	·hlaih	---	(lɰʳ)	---
be, exist-	ne	nei	nai	ni	ñi	nai
speak-						

TABLE 17. *-i (10 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
heavy	laiʳ	laʳ	liʳ	laiʳ	liʳ
wind	lai	la	li, lei	lei	·hli Jn: hli·
flea	·xlaiʳ	·xlaʳ	·xluʳ	·xleiʳ	hliʳ
bow	laiʳ	laʳ	liʳ	leiʳ	liʳ

TABLE 17. **-i* (10 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
be, exist-	ŋi < *ñi	na	ŋji	ŋjei	ñi
speak-	taĩ	xtah	xtih	xtaih	

The restricted set of initials in this set of reflexes suggests that *l-* *n-* and *t-/d-* comprised a distinct phonological class in cnBsh, with the common feature [+ant], yet excluding *s-* which became susceptible to palatalisation at an early stage.

**-i* movements: a) Complete diphthongisation: *-i* > *-ai*; found in 4 of the 8 nBsh dialects. b) Limited diphthongisation: *-i* > *əj* (> *ej*); in sBrm, Bola and Leqi. c) Backing: *-i* > *-u*; in LX-Achang. d) Truncating diphthongisation: *-i* > *-ai* > *-a*; in Langsu.

1) In Leqi we generally see *-ei* in nouns and *-ai* in verbs/adjectives.

2) 'bow': LX-A = 'arrow'.

TABLE 18. **-ji* / **-ri* (27 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
foot	k're-	č'ei-	č'i	č'i	k'ʰ	k'ʰ
before	hreh	šeih	(saih-)	(-sìq)	---	---
water	re	jei	---	---	---	---
die	se	θei	ʃɿ	ʃɿ	ši	ʃɿ
grandson	mreʳ	mj(e)ĩʳ	mĩʳ	mĩʳ	mʰĩʳ	meʳ
story						
ask-	meʳ	meĩʳ	niʳ	ñĩʳ	mĩʳ	mjiĩʳ
give-	peʳ	peĩʳ	ciʳ	ciʳ	bjiĩʳ	čĩʳ

TABLE 19. **-ji / *-ri* (27 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
foot	k'i	k'jik	k'ji	k'jei	k'ri
before	xeh	xák	xeih	sei·	xreh - xrih
water	vui	ɣək	ɣei	gjei	ri·
die-	ši	šik	šɿ	sei	ši Ha: si
grandson	mĩʳ	mjik	meĩʳ	meĩʳ	vrĩʳ sPr: hmi
story	·mĩʳ	·mjik	·meĩʳ	·mjeĩʳ	·mih JP: mjiʳ
ask-	mĩʳ	mjik	meĩʳ	mjeĩʳ	mĩʳ
give-	pĩʳ	pjik	bĩʳ	bjeĩʳ	bih 界 *pi'

The initials found here are those left out of the previous table. The variations seen can mostly be attributed to differences in the type of initial: ***r-** caused a retraction of the following vowel in all nBsh except Leqi, although in certain cases (e.g. 'grandson', 'foot') the **-*r-** changed into a palatal glide before it could trigger a vowel-retraction. The consonant-types preceding ***i** in this table are in complementary distribution with those seen in the previous table.

1) Excrecent **-k** : unusual addition of this high consonant after final high vowels in Langsu.

2) If we compare 'water' above with 'laugh' below, we see some rime-mixture, even in the same word in sBrm 'laugh'. In many cases ***ej** has room to shift upward to **i** because original ***i** has already broken or diphthongized into other values. In Langsu we can assume 'water' **ri* > *rik* > *ɣik* > *ɣək*, but in 'laugh' we have **rej* > *ri* > *ɣi* > *ɣə*. The results are different because by the (later) time that 'laugh' attained its **i** value, the phonological process of adding excrecent **-k** was no longer operative.

3) The Achang reflexes for ‘grandson’ and ‘ask’ are different: the latter exhibits forms which are more palatalised (as seen in Leqi also). XD-A / LC-A $ni^r / \tilde{n}i^r < *mj i^r$ (XD-A $ni^r < \tilde{n}i^r$).

The -r- in the protoform of ‘grandson’ must have been responsible for the lack of palatalisation in XD-A and LC-A and for the backed or lowered vowels in LX-A and LH-A.

4) ‘water’: Lolopo $\check{z}i$, Sani z , Jino ji ; ‘laugh’: Lolop’o $\check{z}e$, Sani $j\check{x}$, Jino $\gamma\#$.

In these Yipoid languages the first two (Yipo) reflect the relationship between the original values, but in Jino it is not clear why $*r-$ became $\gamma-$ (a common enough change in Jino) but not in ‘water’. Since the other cases of Jino $\gamma- < *r-$ that I have noted (‘snake’ and ‘bone’) both had back vowels in TB, it may be that only $*ri-$ palatalises to ji in Jino, with $*rej$ following the other pattern.

TABLE 20. $*-e / *-ej$ (16 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
fruit	si^r	θi^r	$\text{ʃ}\#$	$\text{ʃ}\text{ə}^r$	$\text{ʃ}i^r$	$\text{ʃ}i^r$
penis	li^r	li^r	hni^r	$h\tilde{n}i^r$		
fire	mi^r	mi^r	$\cdot\text{pui}^r$	poj^r	mi^r	mi^r
tail	$\cdot\text{mri}^r$	$\cdot\text{nji}^r$	hni^r	---	$\cdot\text{mi}^r$	---
tears	---	---	$\cdot\text{pi}$	$\cdot\text{pi}$	$b\#$	pei
laugh-	raj	ji / jei	$r\#$	$r\text{ə}$	\tilde{n}	\tilde{n}
star	kraj	$\check{c}e$	$c'i$	$k'r\text{ə}$	$k\#$	$\cdot k\#$
big	kri^r	$\check{c}i^r$	$k\#$	$kr\text{ə}^r$	$g\#$	$k\#$

TABLE 21. $*-e / *-ej$ (16 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
fruit	$\check{s}i^r$	$\check{s}i^r$	$\check{s}i$	$\check{s}i^r$	$\check{s}i^r$ Lolopo: $\check{s}\text{ə}$
penis	$x\eta i^r$	$x\eta j i^r$	$x\eta j i^r$	$x\eta j i^r$	La: xni^r JP: $\eta j e^r$

TABLE 21. **-e / *-ej* (16 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
fire	mĩʳ	mjiʳ	mĩʳ	mjiʳ	mĩʳ Tib: me
tail	·mĩʳ	mji	·mĩʳ	·mjiʳ	hmĩ· Mik: ·rmeʳ
tears	·piʳ	·pik	·bi	·bi	·bri Ha: ·bi
laugh-	vui	ʏə	ʏei	ji	re Ha: ʏ
star	xki	xkji	xkji	xkji	krè - ɕə - krʏ
big	---	(ʏəʳ)	---	giʳ	riʳ

Reflexes in this group exhibit partial merger with the *-(j)i* group, but still with sufficient differences to show that this must be a separate proto-rime: Langsu mostly lacks the *-k* found in the above **-ji* group; the Zaiwa-group in this rime shows a more uniform *-i* reflex indicative of a more recent change from **-ej*, whereas the older **-ji* and **-i* from the above two groups have had more time to develop more varied and different reflexes.

***-ej** movements: Raising: in most Burmish languages, with subsequent backing or retro-flexion in words with **-r-* in most of Achang. For ‘fruit’ most of Achang shows the initial developing as follows: *s-* > *š-* > *ʂ-*.

1) ‘tears’ in the Nusu dialects is *bri-bri-brʏ* vs. *krè-ɕə-krʏ* for ‘star’.

2) ‘penis’: cf. pKiranti: **lè* (Starostin).

3) ‘tears’: Stau: *ble*. Langsu *·pik* reflects an early merger with **-i*.

4) ‘laugh’ in wBrm has the unusual *-aj* spelling, but its modern sBrm forms as well as the rest of Burmish reflect a mixture of **-i* and **-ej*. Perhaps the *-aj* spellings are remnants of a minority oBrm dialect poorly represented in modern speech; sBrm ‘star’ has the

“typical” *ε* reflex for the *-aj* spelling, and this lower value is also reflected in Central Nusu *krè*, but nBsh reflexes indicate the same proto-rime as in ‘penis’ or ‘fire’. The Zaiwa and Langsu reflexes for ‘laugh’ show different vowels, apparently due to the typical [+back] influence of the **-r-* as also seen in Achang. But in ‘star’ the **-r-* seems to have palatalised earlier.

TABLE 22. **-ε (-ε)* (10 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
red	ni	ni	na	na	ne	ñe
know-	sih	θih	sah	sah	šeh	šeh
lead-			ša	ša	sə	se
comb(-)	bhiʳ	piʳ	pʰeʳ	pʰraʳ	pjeʳ	pʰjeʳ
woman	riʳ	jiʳ	jiʳ	iʳ	---	---

TABLE 23. **-ε (-ε)* (10 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
red	ne	ne	ne	ne	hñe Ph: k·ne
know-	seh	seh	seh	seh	(sŭ) La: xšĩʳ
lead-	še	še	še	še	La: se
comb(-)	xpjeʳ	xpjeʳ	xpjeʳ	---	preʳ La: xpəʳ
woman	·veʳ	·yeʳ	·yeʳ	·jiʳ	·ri·-ri·-rú

***-ε** movements: a) Raising: in sBrm (and occasionally in such Yipoish languages as Lahu). b) Lowering: in XD-A and LC-A, where **-a* had already gone to *-ɔ*. c) Backing: after *s-* in LX-A and Zaiwa, in which latter and probably also former language the change is a more recent non-contrastive variant.

1) sBrm shows a merger of the **-ej* and **-e* rimes, both being raised, but the Phun dialect of Burmese retains the mid-vowel for ‘red’.

2) YZ lists ϵ and e as separate phonemes in Leqi, but I have found no evidence for anything other than allophonic variation; I use the simple symbol e to represent the phoneme.

3) ‘woman’: It could be said that the high vowels seen in Achang and Leqi suggest $*rej^f$ whereas the Zaiwa-Langsu-Bola reflexes suggest $*re^f$.

TABLE 24. $*-?$ (4 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
far	we ^f	wej ^f	ve ^f	ve ^f	we ^f	wai ^f
ignite-				hñeq		hneh
rely on-	ŋajh ?		hŋa			
measure-						

TABLE 25. $*-?$ (4 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
far	ve ^f	va ^f	ve ^f	ve ^f	we ^f
ignite-	·xñjeh	·xñah	ñjeh	xñeh	
rely on-	‘ñe	‘ña	‘ñe	xñe	hñe La: ‘ñe
measure-	xkeh	xkah	xkeh	xkeh	

The reflexes are in some cases similar to those in Table 36, but only partly so.

1) Langsu *-a* probably from earlier *-aj*, but the ultimate history is obscure.

2) The mark before the nasal in words such as *‘ñe* indicates that it belongs to the tone category characteristic of voiceless initials.

3) ‘rely on’ wTib has *sñe-*, a very good match, but is it cognate? The Burmese word is glossed as ‘tilt, lean to one side’ and is only put here only as a possibility.

TABLE 26. **-aj* ? (8 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
man	(·kjaʳ)	(·čaʳ)	·če	·či		·keʳ ?
small	ŋaj	ŋe	ñê	ñi	ŋəj	ŋe
press-	najʳ ?					
fry-	hlo	hɓ	hlə	hlə	‘ləj	hle
good			če	či	gəj	ke
heal-			če	či		
gnaw-	k’ajʳ				k’əjʳ	k’eʳ
duck	·b’ajʳ	·beʳ		piʳ	bəjʳ	peʳ

TABLE 27. **-aj* ? (8 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
man	·ke	·kaj	·kaj	·ge	
small	---	ŋaj	ŋaj	ŋe	Ha: ñi
press-	xneh	xnajh	xnajh	xneh	Li: *xñiq
fry-	xne	xlaj	xlaj	xne	hlɐ Li: lu
good	ke	kaj	kaj	ge	ge
heal-	ke	kaj	kaj	ge	ge
gnaw-	k’eʳ	k’ajʳ	k’ajʳ	k’eʳ	
duck	(xpjet)				La: ‘a-be·xloq

This group most consistently shows wBrm *-aj* rimes, but it contains none of the “classic” words associated with TB **-aj* such as ‘navel’, ‘trade/move’, ‘left’ or ‘near’.

We have forms such as Nusu *hleʳ* and Sani *hlæʳ* ‘trade’, which are like their reflexes for the **-ej* group, but the wBrm is *hlajʳ*, now with *-e* in sBrm; for ‘near’ Sani has the same rime: *·nə̃*, but Nusu

has $\hat{n}i^r$. For wBrm, XD-A, LX-A the pattern here is $ni^r - ne^r - ne^r$, but for 'sand' it is $sa\cdot laj - sa\cdot le - sa\cdot le^r$. In general, the available nBsh cognates for these and other common TB **-aj* words are so few in number that at present the evolution of this TB proto-rime cannot be traced within the Bsh group. The groupings given for this and other TB rimes on pages 62-65 of Benedict's STC may need some revision, but I must postpone that discussion until a future paper.

Since we are already assuming **-i* > *-aj* > *-a* for [+ant] syllables in Langsu, it may be that all the nBsh words in this group are more recent loans from Burmese or some other source.

1) 'man': LH-A: 'paternal uncle': $n\bar{a}j\cdot k\bar{e}$, 'paternal aunt': $n\bar{a}j\cdot t'uj$.

2) 'small': Jino $\cdot n\acute{i}$, Gazhuo $\hat{n}\check{e}$, E.Yipo (Wu-ding) : $\hat{n}\bar{5}$ (< $\hat{n}a$ < $\hat{n}aj$?).

3) 'press': wBrm *naj* 'knead with hands/trample with feet'.

4) I cannot explain the marked inconsistency in vowels in the reflexes for 'fry-'.

TABLE 28. **-oj* (10 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
buffalo	kjwai ^r	čwe ^r	·lui ^r		·lui ^r	·lui ^r
easy	lwaj	lwe				
tooth	cwaj	swe	cuj	čoj	ɜuj	cuj
lean on-	cwai ^r	swe ^r				
rope(-)	twai ^r	twe ^r	tuj ^r	toj ^r	tuj ^r	tu ^r
pulsate-						
wind-						
chaff	p'wai ^r	p'we ^r		·p'oj ^r		

TABLE 28. *-oj (10 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
whet-	sweʔ	θweɪʔ	sujʔ	sojʔ	sujʔ	suʔ
turn-	kweh	kweih		xojh		

TABLE 29. *-oj (10 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
buffalo	·luiʔ	·lojʔ	·luiʔ	·ləʔ	
easy	luj	loj	luj	lə	JP: lojʔ
tooth	cuj	coj	tuj	ʒɿ	La: ʒi
lean on-	cujʔ	cojʔ	dujʔ	---	
rope(-)	xtujʔ	xtojʔ	xtujʔ	xtəʔ	
pulsate-	tuj	toj	tuj	də	Li: tɰ < xtɰq
wind-	tʰüi	tʰojʔ	---	tʰəʔ	nPr: ·tuē·
chaff	pʰujʔ	·pʰojʔ	·pʰujʔ	·pʰəʔ	pʰeʔ Ha: pʰuʔ
whet-	sujʔ	sojʔ	sujʔ	sɿʔ	sujʔ Li: xsɰʔ
turn-	kojh	xkoj	xkuj	kojh	

***-oj** movements: a) Breaking and diphthong-smoothing (-oj > -waj > -we) : Brm, cf. Table 6; b) Raising: most of Achang plus Zaiwa and Bola, sometimes exhibiting subsequent loss of the -j in LH-A; c) Diphthong-smoothing and unrounding (-oj > -øj > -ø > -ə) : Leqi.

1) ‘buffalo’: oBrm *glojʔ, cf. Jili *ŋa·luj*, Khoibu *ra·loj*, Rongmei *sa·loj*, Paku Karen *glɔʔ*.

2) ‘whet-’: YZ’s Langsu *sui*³⁵ must be a misprint, cf. YY and Clerk. This and the following word reflect a confusion between *-oj and *-uj in early Burmish.

TABLE 30. *-we ? (10 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
arrive-			teh	teh	čweh	čeh
spit-						
sweat	k'jweʳ	č'wejʳ				
charcoal						
peck-						
sound				·t'e		
sickle						
warm	nweʳ·	nwejʳ·			nweʳ	ñweʳ

TABLE 31. *-we ? (10 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
arrive-	čeh	čøh	čøh	žyh	
spit-	pjé	p'ø	p'ø	pȳ	p'iʉʳ ?
sweat		·kjøʳ	·xkjøʳ	·kyʳ	
charcoal	(·xeʳ)	·kjøʳ	·gjøʳ	·gyʳ	
peck-	t'eʳ	t'øʳ	t'øʳ	t'əʳ	(Li: t'oq)
sound	t'e	t'ø	t'ø	t'uj	Ha: ·t'e
sickle	---	·xηjøʳ	·xηjøʳ	·xηujʳ	(Tib rŋa ?)
warm	ηjeʳ	ηjøʳ	---	ηyʳ	Bai: ηwé·

I first conceived of this group as roughly in complementary distribution with the previous group, and probably the palatalised version of the former, thus **-joj*, yet given the *t*- and *t'*- initials here, it is difficult to conceive of any clear-cut division in initial-classes which would explain the different reflexes. Based on an examination of the large YZ source, there is very little evidence to suggest a

contrast between *Cø-* and *Cjø-* in Langsu or Bola, therefore we may think of words such as ‘sweat’ in Langsu as *·køʳ*. We could then explain most of the reflexes found in this group as diphthong-smoothing (*-we > -wø > -ø*) with subsequent raising or unrounding in Leqi. In this case, the difference between the Leqi reflexes in ‘sickle’ and ‘warm’ may be due to a slight modification in the rime for ‘sickle’: *xŋujʳ < *xŋwiʳ < *xŋweʳ*. The altered form may be a loanword from Brm. In most of Achang and in Zaiwa, the *-w-* was simply lost, but a few precious cognates from LX-A and LH-A shows the original pattern. Brm assimilated **-we* to **-wi*.

1) ‘arrive-’: in Qiangic, nPr. *tá* and sQ *tí* are possible cognates.

2) ‘spit’: In the Zaiwa-group, the implied sources seem to be: **bweh - *pʷweʳ - *pʷweʳ - *bweʳ*.

3) ‘peck-’: Leqi’s tone is not indicated in YZ; I assume a regular match with the others.

4) ‘sound’: Southern Yipoish includes Jn: *·tʰə⁴⁴*, Mian *tjê*.

TABLE 32. **-uj* (6 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
snake	mrwe	mwei	mruj	mruj	muj	(hmi-)
hair	mweʳ	mweiʳ	·mujʳ	·mujʳ	·mujʳ	·muʳ
silver	ŋwe	ŋwei	ŋuj	ŋuj	ŋoj	ŋu
vine	·nwai	·nwe	·nuj	nuj		
turn-	kweh	kweih		xojh		

TABLE 33. **-uj* (6 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
snake	·muj	·moj	·mø	·mju	vri
hair	·mujʳ	·mojʳ	·møʳ	·mæʳ	hmujʳ

TABLE 33. *-uj (6 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
silver	ɲuɲ	ɲoj	ɲø	ɲə	ɲuj
vine	nuj	noj	nø	nə	nue
turn-	kojh	xkoj	xkuj	kojh	

***-uj** movements: a) Stress-shift and subsequent diphthongisation (-uj > -wi > -wej) : Brm; b) Lowering: in most of the Zaiwa-group, with subsequent diphthong-smoothing in Bola and Leqi and then unrounding in Leqi. The reflexes in Nusu show no regularity at all.

1) 'silver': Chinese Langsu sources show ɲoi, but ɲø for 'money'; both are ɲoi in Clerk.

2) 'hair': Zaiwa group additionally has ·mauh - ·múk - ·mauh - ·mouh (as in 'beard') which shows the earlier movement *-uj > *-u or perhaps *-ul > *-u.

TABLE 34. *-juj (4 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
rinse-			ɕujʳ	ɕujʳ		
rear						
ride-	ciʳ	siʳ	ciʳ	ciʳ	ʒiʳ	čiʳ

TABLE 35. *-juj (4 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
rinse-	ɕujʳ	ɕujʳ	ʒujʳ	ʒyʳ	cujʳ
rear	ʂujʳ	xɕujʳ	xɕujʳ	ʂyʳ	ʂujʳ Ha: səʳ
ride-	čiʳ	ɕujʳ	ʒujʳ	ʒyʳ	ʒʰh La: čiʳ

This group may be viewed as simply a continuation of the previous one, but having words with palatal initials which led to different reflexes in some cases.

1) 'ride-': wBrm *siʳ* < **ziʳ* < ***ʒwiʳ* < ***ʒujʳ*. It is unclear whether the loss of **-w-* in Brm is regular or not.

TABLE 36. **-wi* ? (6 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
dog	k'weʳ	k'weiʳ	fujʳ	xujʳ	k'ujʳ	k'ujʳ
blood	sweʳ	θweiʳ	sujʳ	sujʳ	sujʳ	sujʳ
sun				puj	pūi·	pei·
grey						

TABLE 37. **-wi* ? (6 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
dog	k'ujʳ	·k'aʳ	k'ujʳ	k'ujʳ	k'ujʳ Li: k'ʰ
blood	sujʳ	saʳ	sujʳ	sujʳ	sujʳ Li: siʳ
sun	puj	pa	puj	bei	
grey	mujh	mah	mujh	mojh	mʷih

Although the Brm and Achang reflexes are essentially the same as in Table 32 (**-uj*), the Zaiwa-group shows clear differences. For Bola and Leqi, we can imagine a shift from rising to falling diphthong (*-wi* > *-uj*), sometimes with some later adjustments. This shift must have occurred only after original **-uj* had already gone on to newer values in these languages. In Langsu, the movements seem to have been: **-wi* > **-i* > **-ai* > *-a*, with the last shift being the same as in Table 16 for **-i*. The restriction to [+ant] initials which applied to the formation of **-aj* in nBsh then no longer applied in Langsu as **-aj* began to undergo further changes.

1) 'grey': JP *mut* seems perhaps related in some way to these Zaiwa-group forms.

II. Nasal finals

TABLE 38. *-uŋ (30 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
pound-	t'oŋ	t'əuŋ	t'uŋ	t'uŋ		
wing	ton	taŋ	·tuŋ	·tuŋ	·don	·tuŋ
guard-	con	səuŋ	čon	čon		
sell-	(roŋ)	jəuŋ	uŋ	uŋ		
steam-	poŋ	pəuŋ		poŋ		
valley						
throat	k'roŋ	č'əuŋ	k'roŋ	k'rəŋ	k'oŋ	k'uŋ
dragon			·čuŋ	·čuŋ	·žuŋ	

TABLE 39. *-uŋ (30 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
pound-	t'uŋ	t'auŋ	t'auŋ	t'uŋ	t'oŋ
wing	tuŋ	tauŋ	tauŋ	duŋ	·don
guard-	cun	caun	---	ɟun	Gj: ·psron
sell-	uŋ	auŋ	auŋ	oŋ	
steam-	puŋ	pauŋ	baŋ	boŋ ?	
valley	·k'uŋ	·k'auŋ	·k'auŋ	---	k'wa ⁵ Li: k'o ⁵
throat	k'juŋ	k'jauŋ	k'jauŋ	k'juŋ	k'roŋ
dragon	·cuŋ	·čauŋ	·žuŋ	·žuŋ	

***-uŋ** movements: a) Diphthongisation: *-uŋ > -auŋ ; in sBrm, Langsu and Bola. b) Lowering: seen in some words in Nusu, most of Achang and in Leqi. In Achang this appears to often coincide with palatal medials, but the pattern, if there is one, is not clear. In Nusu the lowering is more regular.

The normal pattern for LX-A and LH-A, the less-well-documented Achang dialects, is not very clear here; there is a common association between LX-A -oŋ and LH-A -uŋ, but the other Achang

dialects are not so consistent, although LC-A *-uŋ* often goes with LX-A *-oŋ*.

1) Langsu and Bola drag-chain: first *-uŋ* > *-auŋ*, then *-oŋ* > *-uŋ*, then *-aŋ* > *-oŋ*, then *-eŋ* > *-aŋ*.

2) ‘guard’: wBrm *c-*, XD-A *č-*, LC-A *č-* all < *c-* < **ʒ-*. Lhasa Tib. *ʈuŋ*’ and *suŋ*’ reflect Central and Eastern Tib. developments of oTib. *p.sruŋ*; probably loans from these two strains are reflected in Tsangla *ʈuŋ* and Drung *sûŋ*. The Burmish and Tibetan forms seem too similar for coincidence, but how the initials developed is not at all clear.

3) ‘sell-’ wBrm *roŋ*; the nBsh reflexes are those of a voiceless initial: **uŋ* < *ʔuŋ* ?

4) ‘steam’: Bola clearly indicates an original voiced initial in the secondary “ʔ” tone-category, but the Leqi tone is out of pattern, perhaps by reporting-error, otherwise indicating **buŋ*.

TABLE 40. **-oŋ* (9 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
open-	pʼwanʼ	pʼwɨh	pʼɔŋŋ	pʼɔŋŋ	pʼwanŋ	pʼɨŋŋ
hole	twaʼŋ	twɨʼ	(tʰoʼŋ)	tɔʼŋ	dwaʼŋ	tuʼŋ
board						
necklace	kwaʼŋ	kwɨʼ	xoŋ	xaʼŋ		

TABLE 41. **-oŋ* (9 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
open-	pʼoŋŋ	pʼuŋŋ	pʼuŋŋ	pʼaŋŋ	pʼɔh La: pʼo
hole	tɔʼŋ	tuʼŋ	duʼŋ	dwaʼŋ	dɔʼŋ St: doŋ
board	·lɔʼŋ	·luʼŋ	·luʼŋ	·lwaʼŋ	
necklace	koŋ	kʼoŋ	kʼuŋ		La: xleq:go

***-oŋ** movements: a) Breaking: -oŋ > -waŋ ; in Brm, LX-A and Leqi; b) Raising: in Langsu, Bola, and apparently LH-A. It is no coincidence that raising occurs in Langsu and Bola, since this shift is part of a drag-chain, q.v. section below table 39.

For fronted raising in Brm, see the comments following the next table.

The central vowel in LH-A must be from an earlier **-əŋ* < **-oŋ* since its **-uŋ* did not front.

In general, it is difficult to account for this -*hŋ* in LH-A: in *m^hŋ* 'dragon' it corresponds to LX-A -*uŋ*, but in *l^hŋ* 'collapse' and *s^hŋ* 'pine' it matches LX-A -*oŋ*. The latter must be a loan-word from Chinese; LC-A 'collapse' a misprint for *l^əŋ* (cf. Table 44). Although LX-A *p'waŋŋ* :: LH-A *p^hŋŋ* 'open-', in 'clear,bright' we see LX-A *p'waŋŋ* :: LH-A *p'uŋŋ*.

1) 'open': Ha: *p'ɔh*, La: *p'o* < *p'oh*, Dr: *p^uŋ*, Anong: *p^uŋ*. In what seems likely to be a reporting error, YZ lists the transitive form in XD-A as *p'ɔŋŋ* but the intransitive as *poŋŋ*. LC-A has ɔ in both cases.

TABLE 42. **-əŋ* (14 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
pine	t'aŋ	t'i ^ɛ	t'ɔŋ	t'waŋ		
step on-	naŋ	ni ^ɛ		nwaŋ		
warm-	kaŋ	kɿ		kwaŋ		
tall	mraŋ	mji ^h	hmraŋ	hmraŋ	'mjaŋ	hmjaŋ
wait-	laŋŋ	li ^h	lɔŋŋ	lwaŋŋ	laŋŋ	laŋŋ

TABLE 43. **-aŋ* (14 examples) (first set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
pine	t'aŋ	t'ɔ̃	t'ɔ̃	t'aŋ	t'ɔ̃
step on-	naŋ	nɔ̃	nɔ̃	naŋ	Ha: nɔ̃
warm-	kaŋ	kɔ̃	kɔ̃	gaŋ	
tall	xmjaŋ	mjɔ̃	xmjɔ̃	xmjaŋ	hmɾɿ(h)
wait-	laŋɿ	lɔ̃h	lɔ̃h	laŋɿ	lonŋ

***-aŋ** movements: a) Raising/Backing: **-aŋ* > *-oŋ*; in XD-A, Langsu and Bola. The latter two later changed *-oŋ* to *-ɔ̃*, although it is not at all clear what the phonological status of the nasalised vowel is: there are rare reports of *-oŋ* also existing in Bola, e.g. 'necklace' in Table 41, and *t'oŋŋ* 'prison'; the latter is very likely a loan-word, perhaps originally from oBrm **t'uŋ*, cf. sBrm *t'au*, JP *t'òŋ*, La. *t'õ*, W.Bwe *t'õ*. The aspiration with low-tone in Lahu marks it as a loan-word there too.

b) XD-A and LC-A preserve ***-aŋ** in words with a palatal glide, which includes *-r-*. I have found four cases where words with the unusual *-waŋ* reflex in LC-A have cognates in XD-A, and in each case the XD-A reflex is *-ɔŋ*. Otherwise, XD-A shows either *-oŋ* or *-aŋ* (the latter with palatal medials). I would explain this as XD-A showing a slightly older stage of vowel development.

The parallel developments in LC-A would then be:

**-uŋ* > *-uŋ* > *-oŋ* / *-uŋ* / *-ɔŋ*

**-oŋ* > *-oŋ* > *-ɔŋ*

**-aŋ* > *-ɔŋ* > *-waŋ*

The development to *-waŋ* in LC-A should be viewed in the context of a similar process in other words, e.g. 'weave-': LC-A *rwaq*,

XD-A *rɔq* , Bola *ɣaq* < **rak* ; ‘listen-’: LC-A *krwaʳ* , XD-A *krɔʳ* , Bola *gjaʳ* < **graʳ* , also cf. ‘wait-’ in the table.

There appears to have been some overlap at certain stages, or borrowing, which would explain the multiple reflexes seen, particularly for the **-uŋ* rime.

c) Brm shows raising and fronting: **-aŋ* > **-eŋ* *-iŋ* (> *i*).

TABLE 44. **-eŋ* (28 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
long	hrañ	ʃei	səŋ	səŋ	əŋ	sʰŋ
neck	lañ	le	ləŋ	laŋ	lən	liŋ
overturn-		(leʳ)	hlən	hlin	(lən)	(lin)
nail	·sañ	·θeʳ	·ʃʰŋ	·ʃəŋ	·səŋ	·ʃʰŋ
drum	cañ	si	---	čən	ʒən	çʰŋ
thread	kʲañ	čʲi		kʲrən	kʲən	kʲʰŋ
full	praññ	pjeih	pʰŋŋ	prənŋ	pənŋ	pʰŋŋ

TABLE 45. **-eŋ* (28 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
long	xeŋ	xaŋ	xaŋ	ʃəŋ	xrʰ
neck	lin	lan	lan	lən	lè
overturn-	xleŋ	xlaŋ	xlaŋ	xlaŋ	
nail	·seŋ	saŋ	saŋ	səŋ	·sə Li: seʳ
drum	ʒən	caŋ	taŋ	ʒən	zəh· La: ʒe
thread	kʲin	kʲjan	kʲjan	kʲən	kʲrʰ
full	pjenŋ	pjanŋ	pjanŋ	bjanŋ	brəh

Evidence from nBsh here does not support the received theory that the proto-rime was **-iŋ* .

**-eŋ* movements: a) Lowering: in Langsu and Bola. b) Raising: occasionally in Zaiwa (cf. comments below Table 19). c) Backing: in

Leqi, Nusu, and throughout Achang. Sporadic raising or lowering also seen in Achang and sBrm. Most of the reflexes in this table are regular, but Zaiwa and LC-A show some exceptions which I cannot yet explain. As under Table 40, I would derive LH-A *-ɲŋ* from an earlier **-əŋ* and that in turn from **-eŋ*.

It can be seen that the sBrm reflexes are varied, and a thorough explanation of this matter is not yet available.

There is some peculiar behavior among the initials that I plan to discuss in a later paper on consonant-evolution in this group.

1) ‘drum’: JP *čŋ* < **ʒeŋ*, cf. Chang *sen*; N.Pr. *ʒé*, S.Pr. *ʒá*, Mikir *čeŋ*.

2) ‘long’: the missing *s-* in LX-A could be a misprint since the tone (*éŋ*) indicates a voiceless initial, but the source-book reports it as *éŋ* in two different places, and in any case the *s-* seen in the other Achang dialects is not from **s-* but rather from **hr-*, cf. ‘gold’. A “missing *s-*” is also seen, or rather not seen, in LX-A ‘two’.

In the Bodic group, this **-eŋ* is maintained in Tamang and Monpa, but raised to *-iŋ* in Central Tibetan (thus also wTib) and lowered to *-aŋ* in North-Eastern Tibetan, but *-ɛ* in Rgyalthang Tibetan (cf. Yun-nan-sheng-zhi).

3) ‘overturn-’: Data in parentheses is from the intransitive form. LX-A is reported as *l̥ŋ*; I am assuming a misprint of “ɔ” for “ə”.

TABLE 46. **-un* (6 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
shake-	(hnan')	(hnaŋ)	nunn	hñonn	'nunn	hnunn
broom			·pu'n	·pūn	·pu'n	·pén

TABLE 46. *-un (6 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
fungus			čûn	ku'n		
thunder-			pun'	pun'		

TABLE 47. *-un (6 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
shake-	nunn	nann	hnonn	nunn	·hñwəh
broom	(puj ^ɛ)	pa'n·	bo'n·	bo'n·	
fungus	·kjo'n	·kjìŋ	gjo'n	gju'n	
thunder-	pun'	---	pon'	bun'	

***-un** movements: Lowering in Bola and occasionally other Zaiwa-group, further lowering in Langsu.

1) 'shake-': JP *nòn*. The reason for palatalisation in LC-A and Nusu is not clear.

2) 'fungus': Bwe Karen *gjà*, Pwo Karen *xrə̌* < **grun*, OC 菌 **gru'n* > *gyyn* (jùn), Langsu *·kjìŋ* < **gja'n* < < **gru'n*, cf. Table 50. In the case of Langsu, the development from *-run* to *-jan* must have taken place early enough to allow *-jan* to then undergo the changes seen in Table 50.

TABLE 48. *-on (16 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
push-	twa'n	tɥ'	tu'n	tu'n	du'n	tu'n
crow-	twan	tɥ	t'un	t'un	tun	t'un
sentence	k'wa'n	k'ɥ'	xo'n	xu'n		
hawk	cwan	sɥ	čûn·	cun	zun	

TABLE 49. **-on* (16 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
push-	xč'u'n	xč'u'm	xč'o'n	du'n	tuq
crow-	xtun	xtum	xton	xtun	two
sentence	k'u'n	k'u'm	k'o'n	k'wa'n	k'wɔʔ
hawk	cun	cum	con	zon	ʒwɔ

This proto-rime and that in the previous table show many signs of having merged in Bsh, but the Langsu reflex is definitely different, and sBrm apparently also, although I could not find the expected *-ɔɥ* from wBrm *-un* in the set of words in Table 46 that have nBsh cognates.

With the exception of **-un*, Langsu has lost all **-n* finals; they have become either *-m* or *-ŋ*.

TABLE 50. **-jan* (12 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
louse	sa'n	ʈaʔ	ʃa'n	ʃa'n	sə'n	ʃe'n
rice	·c'an	·s'a	c'en	c'en	c'an	č'in
scratch-			k'ran	k'rən		
tonight						

TABLE 51. **-jan* (12 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
louse	šɿ'n	šɿ'ŋ	šo'n	še'n	ʃəʔ
rice	č'in	č'in	č'on	č'en	Ha: c'e
scratch-	xkin	xkjɿŋ	xkjon	xgjin	kraq
tonight	·min	·mji	·mjon	·mjen	nQ: mjə

**-jan* movements: a) Backing: *-jan* > *-jon*, as in Bola. b) Raising: LX-A. c) Fronting and raising: LH-A and Leqi, then with fur-

ther raising in Zaiwa and Langsu. Fronting and/or raising also seen sometimes in XD-A and LC-A.

This group also includes words with **-an* that had some kind of palatal initial, e.g. ‘louse’ for which I would reconstruct YB **šaʔr*.

1) ‘scratch-’: I wonder if the Leqi form’s tone 31 may be a misprint for 33; not only is the implied **g-* of tone 31 out of pattern, but also it is quite unusual to see tense voicing with historically voiced initial stops. Among the few examples I have found in Zaiwa, at least some clearly are loan-words from JP. The otherwise regular reflexes of this word in the other nBsh languages should rule out the possibility of Leqi *xgjin* being a recent loan.

TABLE 52. **-an* (14 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
astringent	p'an	p'a	p'an	p'an		
frost	hna'ŋ	hnj'ɪ	hŋan	hŋan	'ŋan	xan
scatter-			sa'n	sa'n	sa'n	səʔ
flower	(·pwan')	(·pwɪh)	pan·		(·pān)	(·pān)

TABLE 53. **-an* (14 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
astringent	xpan	xpəŋ	xpɛ	xpan	Ha: p'e
frost	xŋan	xŋəŋ	xŋɛ	xŋan	xə Gj: sŋar
scatter-	sa'n	sə'ŋ	sɛ'	sa'n	Ha: se'
flower	pa'n	pə'ŋ	bɛ'	ba'n	JP: ·paŋ

**-an* movements: a) Raising, loss of final's [+ant] feature: Langsu. b) Fronted raising: Bola.

1) ‘frost’: wBrm shows a slight modification in both tone and final; since I derive the *-n* here from **-r* (cf. Gjarung *snar*), wBrm *-ŋ* must be an innovation.

2) ‘scatter-’: It is tempting to see take this as a loan from Chinese, but if so it would have been borrowed back when nBsh itself was forming, otherwise we would not see such completely regular tonal correspondences.

TABLE 54. **-um* ([32-?] examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
heart	·lu ^h m	·lɔ ^h ʔ	·lu ^h m	·lu ^h m	·'lom	·luŋ
warm	lum	lɔ ^h ʔ	lum	lum	---	---
three	su ^h m	θɔ ^h ʔ	su ^h m	su ^h m	som	su ^h ŋ
pair	cum	sɔ ^h ʔ	č ^h u ^h m	č ^h ɔ ^h m	ʒo ^h m	č ^h u ^h ŋ
hill			pum	pum		

TABLE 55. **-um* ([32-?] examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
heart	·xlu ^h m	·la ^h m	·la ^h m	·lo ^h m	·lɔ ^h
warm	lu ^h m	lam	lam	luŋ	lɔ
three	su ^h m	sam	sam	so ^h m	sɔ
pair	cum'	cam'	cam'	ʒom'	Dr: ʒu ^h m
hill	pum	pam	pam	bom	JP: pu ^h m

***-um** movements: a) Lowering: found in many of these languages, being most pronounced in Langsu, Bola; Nusu shows not only severe lowering but also complete loss of the nasal.

1) 'warm': Zaiwa is from Yabu 1982, Langsu is from Clerk (tone thus unknown).

TABLE 56. *-im ([?] examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
house	im	ɛ̃	in	in	ʔjin	jin
raw	ci'm	·sẽɲ̃	ci'n	ci'n	ʔə'n	·čiŋ
cloud	tim	tɛ̃	·č'i'n	·č'i'n	---	---

TABLE 57. *-im ([?] examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
house	ʔjum	ʔjam	ʔjam	ʔjom	jɔ
raw	·č'u'm	č'a'm·	ʒ'a'm·	·ʒ'o'm	ʒɔʔ Langsu: ·ʒiʔ
cloud	---	xčām·	xčām	xcóm·	Gj: zdem

There is virtually no evidence from the Zaiwa-group for separate *-um and *-im rimes, but the Achang group indicates such a distinction, also found in Brm. In many cases this latter evidence is lacking, but *-um seems more frequent. Since in some cases the only cognates are from the Zaiwa-group, it is impossible to determine the exact number of *-um vs. *-im found.

1) 'house': Because of the tense-voicing seen in all the Zaiwa-group reflexes, we must assume the pre-existence of some vanished initial segment which caused the tenseness.

2) ‘cloud’: Zaiwa group does not have a clear tone-pattern; based on voicing evidence from wBrm and Gj, we can posit Langsu-Bola-Leqi as *xčam*· - *xčam* - *xʒom*’.

TABLE 58. **-am* (14 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
span	lam	lɔ	lam	lam	---	---
smell-	naʼm	naʼ	naʼm	naʼm	naʼm	naʼŋ
swell-	raʼm	jɔʼ	raʼm	raʼm	jaʼm	---
bear	wam	wɔ	om	ɔm	---	
bridge			čam	čam		

TABLE 59. **-am* (14 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
span	lam	lɛ	lɛ	lam	la La: lɔ
smell-	nam	nɛ	nɛ	nam	nɔ La: nu
swell-	vaʼm	ɣɛh	ɣɛh	jaʼm	ɣaʼ
bear	vam	vɛ	vɛ	wom	wa
bridge	cam	cɛ	cɛ	ɜam	·ɜa La: ʒɔ

***-am** movements: a) Fronted raising: in Langsu and Bola; b) Backed raising: sporadically in Nusu. As we can see, ***-am** and ***-an** have merged in Bola. Tables 54-59 show that LH-A has completely lost the labial feature of these endings, with a velar feature emerging instead. This is equally true of the corresponding rimes with a stop final, thus: *-m* / *-p* > *-ŋ* / *-k*.

1) ‘bear’: The sBrm form does not reflect an analysis of wBrm *wam* as *w* + *am* but rather as *wa* + *m*, and this later form deriving from **om*. This then explains the Achang reflexes. It is not clear whether the *-o-* seen in Leqi is predictable or not.

2) 'swell-': for my LX-A *j-*, Dai/Cui 1985 has a symbol similar to *ž-*. Since in this language-group this initial shows affinity to other glides and resonants, it can be described here as the sub-type of *j-* which has strong friction, cf. Spanish < *y* > and < *ll* >.

III. Stop finals

TABLE 60. **-uk* (22 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
six	k'rok	č'auq	č'uq	xroq	c'û	---
brains	·hnok	·hnauq	·ñúq	·nùq		
drink-	sok	θauq	ʃuq	ʃoq	suq	ʃuq
monkey	mjok	mjauq	ñuq	ñuq	---	---
lean on-	t'ok	t'auq	---	t'uq		

TABLE 61. **-uk* (22 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
six	k'juq	k'jauk	k'jauq	k'juk	k'ruq
brains	·núq	·nauk	·náuk	·nuq	·hñuq
drink-	ʃuq	šauk	šauq	šuk	ʃuq
monkey	mjuk	mjauk	mjauq	mjuk	mjuq La: mòq
lean on-	t'uq	t'auk	t'auq	---	tuq La: t'óq

***-uk** movements: a) Diphthongisation: in sBrm, Langsu and Bola; b) Lowering: seen in LC-A when the pre-vowel segment is retroflex. The conditions for a minority of ***-uk** words showing *-uq* in Leqi are not clear, but could be a (leveling?) conversion to the ***-ok** group.

1) 'brains' has codas slightly out of pattern both in Bola and Leqi; this may be related to a confusion between ***-uk** and ***-ok** which is evident for example when we compare 'bean' with

'brains': Lisu has $\cdot n\hat{h} < xnuk$ for 'brains' but $n\acute{o} < \cdot nok$ for 'bean', and this is mirrored in JP $n\acute{u}q$, Drung $\cdot n\#q < nuk$ for the former vs. JP $noq\cdot$, Drung $\cdot noq$ for the latter, and the same higher vs. lower vowels are also seen in Northern P'rami, but in Liang-shan Yipo and apparently also in LC Hani the contrast is reversed, and in the Burmish group both have merged into $\ast\text{-}uk$, although the rime in LH-A $n\acute{o}\cdot$ 'bean' looks more like the $\ast\text{-}ok$ type.

TABLE 62. $\ast\text{-}ok$ (8 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
exit-	t'wak	t'weq	t'oq	t'oq	t'waq	t'oq
bowl	k'wak	k'weq	xoq	\cdot xoq	k'waq	k'waq
rat	krwak	\check{c}weq	kroq	kroq	gwaq	gwaq
ant	\cdot rwak	\cdot jweq	---	---	---	---

TABLE 63. $\ast\text{-}ok$ (8 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
exit-	t'oq	t'uk	t'oq	t'uq	t'waq La: t\acute{o}q
bowl	k'oq	k'uk	k'oq	k'uq	
rat	---	\gamma uk\cdot	\gamma oq\cdot	gjuq	rwaq
ant	\cdot v\acute{o}q	\cdot \gamma uk	\cdot \gamma oq	---	rwaq La: \gamma \acute{o}q

$\ast\text{-}ok$ movements: a) Breaking: in LX-A, wBrm, North/Central Nusu, and partly in LH-A. These are the changes from oBrm to sBrm: $\ast\text{-}ok > \ast\text{-}wak > \ast\text{-}wek > \text{-}weq$. The latter part of the process is the same as in Table 64 below. b) Raising: in Langsu, Leqi

and partly in Southern Nusu. Merger with ***-uk** has taken place to a limited extent in LC-A and Leqi.

TABLE 64. ***-ak** (22 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
black	nak	neq	noq	ɬk	·nâ	·nà
sharp	t'ak	t'eq		t'oq	t'aq	t'à
weave-	jak	jeq	roq	rwaq	jaq	jà
hand	lak	leq	loq	loq	laq	là
chicken	krak	čeq	krɔq	krwaq	gjaq	žà

TABLE 65. ***-ak** (22 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
black	noq	noq	naq	noq	naq La: náq
sharp	t'oq	t'oq	t'aq	t'oq	La: t'áq
weave-	voq	yoq	yaq	joq	raq Ha: yàq
hand	loq	loq	laq	loq	laq La: làq
chicken	voq	yoq	yaq	gjoq	raq La: yáq

***-ak** movements: a) Backed raising: in XD-A, LC-A, and all the Zaiwa-group except Bola. In LC-A we also see the results of the same process discussed under Table 42: ***-ak** > -ɔq > -waq, this happening as a rule only after retroflex consonants. b) Fronted raising: in sBrm.

We see that in nBsh the common reflex for ***-k** is -q, so that the -k reflex needs to be connected with special circumstances, e.g. high vowels, palatalised vowels, etc. The Bola -k found in the above tables instead of -q must be part of the same process that led to excrement -k in Table 2.

1) 'weave' ***rak** has identical reflexes with 'chicken' ***k-rak/**
***g-rak** in most of the Zaiwa-group and some other YB languages;

this can be attributed to an early loss of the prefix. Before it was lost in Lahu and Hani, it had already brought ‘chicken’ into the voiceless upper tone register, exactly paralleling the development of prefix + resonant in Lhasa Tibetan.

TABLE 66. *-ec < *-ek / *-et (17 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
tree	sac	θiq·	ʃnək	ʃək	sək	ʃnək
shoot-	pac	piq	·pək	pək	pək	pək
year	hnac	hniq	hnək	hnək	---	·nək
braid-			hnək	(nét)	---	---
peppery			ç'ək	c'ek		
bamboo	hmjac	hmjiq		njek	·mjit	mjè

TABLE 67. *-ec < *-ek / *-et (17 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
tree	sek	sak	sak	sək	siq· La: siq
shoot-	·bek	·bak	·bak	·bək	beq Ha: 'pəq
year	·xnək	·xnək	·xnək	·xnək	hñiq
braid-	nik	nak	nak	nək	
peppery	p'ik	p'jak	p'jak	p'jək	
bamboo	mik	mak			

***-ec** movements: a) Backing (to ə) : in much of Achang, in Leqi and allophonically in Zaiwa.

b) Lowering: in Langsu and Bola. c) Raising: in sBrm and in Zaiwa (after -j-), and partly in Nusu.

The evidence here is against the commonly supposed ****-ik**, cf. Table 44. For further evidence against ****-ik** in light of early Burmese linguistic contacts with Pali, Chinese, and various Chin languages (Western Burma), cf. Dempsey 2001.

Due to the contrast in Bola: **-ak* > *-aq* but **-ec* > *-ak*, we can associate the **-k* ending in this rime group with a [-back] feature.

The *-ek* in Zaiwa is pronounced allophonically as [ək] in this rime-group.

Note the contrast between ‘shoot’ **bek* (< **pek*) and ‘peppery’ **pjek*.

‘bamboo’ LH-A *mjè*: In its lower tone, LH-A sometimes loses the final stop,

e.g. ‘false’ LC-A *pruāq*, LH-A *·pjà*, ‘slow’ LX-A *mjàq*, LH-A *mjà*.

TABLE 68. **-ut* (16 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
mouth	hnut	hnouq	hnut	hñot	‘nut	hnut
blow-	hmut	hmouq	hmut	hmut	mut	(met)
wipe-	sut	θouq	sut	sut		
lung	c’ut	s’ouq	·c’ut	·č’ot		

TABLE 69. **-ut* (16 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
mouth	hnut	hnat	hnot	hnwat	
blow-	mut	mat	mot	mut	moq La: mēq
wipe-	sut	sat	sot	sut	swəq
lung	xcut	xcat	xcot	xcot	c’wə

The nBsh vowel-patterns in this group are very similar to what we saw in the **-un* group.

TABLE 70. **-ot* (4 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
be done-			tùt	tut		
be like-			tut	tu		
hunger-	mwat	muq	mūt			
wear-	wat	wuq	xut	ut	ùt	ût

TABLE 71. **-ot* (4 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
be done-	dut	tò	døq	dut	
be like-	dut	døq	tu	du	du Ha: du
hunger-	mūt	mòq	·mòq	mút	mwɔɾ/mɔq
wear-	vut	veq	veq	wut	wɔq

**-ot* movements: a) Raising in sBrm, Achang, Zaiwa and Leqi.
 b) Rounding: in Langsu and Bola. The motivation for this rounding is not clear. In the case of Bola it may have been due to the pressure from **-ut* which was lowering to the *-ot* position.

1) ‘wear-’: Langsu, Bola and Nusu show the analysis *w + at*, but the others imply **ot*.

TABLE 72. **-at* (8 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
deer	c’at	s’aq	t’et	č’et		
chase-						
kill-	sat	θaq	sat	sat	sat	sà
put in-	k’at	k’aq	xat			

TABLE 73. *-at (8 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
deer	c'at	c'eq	č'et	c'at	Ha: ·ceq
chase-	k'at	k'eq	k'eq	k'at	eYi: ʔk'áq
kill-	sat	seq	seq	sat	səq
put in-	xkat	xkeq	xkeq	xkat	k'ɔq

***-at** movements: a) Reduction of *-t* to *-q* : in Brm, Langsu, Bola and Nusu. b) Vowel-fronting: in Langsu and Bola, and sometimes in XD-A, LC-A. c) The reflex is often *-əq* in Nusu, but not with any great regularity.

1) 'chase': The eYi form ʔk'áq implies *gaq.

TABLE 74. *-jat / *-rat (13 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
break-	prat	pjaq	pet	prat	pət	pet
be drunk-	jac	jiq	et	et		
be blind-			cet	cet	·cət	·čit
remain-				hmrat		

TABLE 75. *-jat / *-rat (13 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
break-	bit	bjik	bjot	bjit	bjò Gj: ʔbrat
be drunk-	vut	jik	jot	jit	jəq Ha: jəq
be blind-	ʒit	ʒit	ʒot	ʒet	ʒəq
remain-	mit	mjik	(x)mjot	mjit	

***-jat** movements: essentially the same pattern seen in Table 50 (***-jan**).

1) 'remain-': Bola *xmjot* is the causative form.

2) 'drunk' in Brm reflects an early movement of **-jat* to **-jet* , cf. Table 66; Hpun *zeq* seems to reflect the earlier **-at* , cf. Hpun *·weq* 'leech'.

TABLE 76. **- ap* (17 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
stand-	rap	jaq	jap	jap	liap	j ^h k
dry-			hlap	hlap	'lap	hlak
mucus	hnap	hnaq	hnap	hnap	'nap	hnak
repay-	c'ap	s'aq	č'ap	č'ap		

TABLE 77. **- ap* (17 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
stand-	jap	jeq	jéq	jap	Gj: ·rjap
dry-	xlap	xleq	xleq	xlap	hlaq
mucus	xnap	xneq	xneq	xnap	hnaq
repay-	c'ap	c'eq	č'eq	c'ap	

***- ap** movements: a) Reduction of *-p* to *-q* : in Brm, Langsu, Bola and Nusu. b) Vowel-fronting: in Langsu and Bola.

In LH-A all the *-p* endings have changed to velar *-k* , just like the change **-m > -ŋ* .

1) In LX-A 'dry' and 'mucus', the resonant initial is marked to indicate that the tone is in the upper register, unusual for resonant initials and indicative of an earlier voiceless initial.

2) 'stand-': the LH-A *-#k* reflex is again seen in 'tomorrow': LX-A *k'ä·náp·* , LH-A *k'a·núk* .

The addition of a palatal glide in LX-A is similarly seen in ‘spike (of grain)’: LC-A *·hnam*, LH-A *·hnaŋ*, but LX-A *·’ñam*.

TABLE 78. **-up* (14 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
rot-	pup	pouq		pup	pòp	
hatch-	wap	wuq	xup	xup	xop	xok
sew-	k’jup	č’ouq	k’jup	xrop	c’op	šòk
suck-			(suq)	çəp		

TABLE 79. **-up* (14 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
rot-	bup·	bap	bap	púp	bɔq Ha: buq
hatch-	xup	‘ap	˦ap	˦up	ɣɔq Ha: uq
sew-	k’jup	k’jap	k’jap	k’jup	k’rɔq Ha: guq
suck-	xčup	xčap	xčap	xčup	(ç’əq) Ha: cuq

The same problems and reservations discussed in Tables 54 and 56 (**-um* , **-im*) apply here as well. The vowel movements are roughly the same, except that we see a lower vowel here in LH-A, and a higher one retained in Leqi. In ‘fist’, ‘hat’, ‘puttee’, ‘tomb’ and ‘handful’ we see *-op* instead of *-up* in Leqi. I cannot explain why, except that, with the exception of ‘hat’ which may be a borrowing from Jingpo, the other words all have non-palatalised apical initials.

1) ‘hatch’: Langsu is upper tone-register; Bola and Leqi are tense-voiced even though lacking any initial consonant.

TABLE 80. **-ip* (2 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
sleep-	ip	eiq	it·	it·	jít	jik
shadow	·rip	·jeiq	·rnt	·rit		

TABLE 81. **-ip* (2 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
sleep	ʰjup·	jap	ʰjap	ʰjup	jɔq
shadow	vup·	ɣap·	ɣap·	---	

From the few examples available, the vowel movements appear the same as in Table 56 (**-im*).

‘sleep’: YZ has Langsu ʰjap· in #0699, but *jap* in #1242 and #1646. YZ #1646 and Yabu 1982 both have Zaiwa ʰjup, whereas #0699 and #1242 have *júp*. I follow the authoritative Xu 1992.

TABLE 82. **-op* (5 examples) (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
break-	krwap	kruq	krop	krop	kòp	
cover-						
stroke-	(sap)	(θaq)				

TABLE 83. **-op* (5 examples) (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu (or X:)
break-	gʲop	gʲøq	gʲøq	gʲup	Gj: ʹgʲop
cover-	xŋop	xŋøq	xŋøq	xŋup	
stroke-	sop	sø	søq	sup	La: ʃøq

Developments in the ZW-group are similar to Table 70 (**-ot*) ; the differences seen in Achang for 'break-' may reflect a more recent borrowing from JP *krop*.

'stroke-': Is YZ's Langsu perhaps an error: ($s\phi^{55} \rightarrow s\phi^{755}$) ? It is not clear why the Brm forms represent a different rime-group than the nBsh forms.

1) 'break': the Brm cognate means 'brittle'. 2) 'stroke': the missing glottal stop may be a misprint.

IV. Discussion

Drag-chains as a mechanism in sound-change :

A language's phonemes naturally pattern into arrays wherein each member stands clear of its neighbors by means of its distinctive features. Drift is an inherent feature of natural languages; at any given time a phoneme which has more space to drift in will be more likely to do so. If it drifts far enough out of its earlier position, that position is likely to again become occupied by a neighboring phoneme which shares some of its features. If that second phoneme shifts, then a third may start to shift to fill the second phoneme's earlier place, and so on, until a new stability is reached. This sort of orchestrated shift is called a *drag-chain* . Because we can observe examples of this behavior in the history of nBsh, we have not only a rationale for such proposed changes but also a detailed record of just how they must have happened. For example, all the non-front vowels in Langsu show shifted values: **-a* was able to change to *-o* because **-ɔ* had already risen all the way to *-u* , and on its way to *-u* it did not merge with the higher **-ɔ* because that had already shifted from its new position at *-u* to an even newer position at *-au* . And

throughout all these changes, the original **-u* never lost its integrity because it had long since changed to *-uk*. This **-u* > *-uk* was the first change which enabled all the following ones to take place. After all these shifts had occurred, a new set of words arose in Langsu with an *-a* vowel, cf. Tables 24 and 36.

In the case of the Langsu / Bola drag-chain, we see **-uŋ* > *-auŋ* then **-oŋ* > *-uŋ*, then **-aŋ* > *-oŋ*, then **-eŋ* > *-aŋ*; Bola still has only these four non-front vowels with the *-ŋ* final, but Langsu has developed a new set of *-ŋ* rimes: *-iŋ -əŋ -eŋ*, the first two deriving from former dental finals and the last one apparently from new loan-words. The empty slots left by the drag-chain have been filled by Langsu but have simply remained empty in Bola.

In Tables 16 through 23 the relexes for these front vowels are quite complex; we can gain a foothold towards analysis by hypothesizing proto-vowels similar to those in the available cognates from other branches of TB. This approach receives confirmation in that we can then posit a logical sequence of events to account not only for the present variety but also for how the present reflexes came about. In the case of Langsu, the palatalised **-ji* first acquired its excrescent *-k* coda, and was thereafter out of the loop in terms of vowel-movements. After that, unpalatalised **-i* then diphthongised to *-aj*, which was then lowered to *-a*, apparently in reaction to a new set of *-aj* words from loan-sources (cf. Table 26). The empty *-i* slot was then filled by a raised **-ej* / *-e*, and this left nBsh languages with a new structure that only had a single mid-front vowel.

It is hoped that in describing the history of a phonological system, this kind of increased attention to the interrelationships among

its components will render the account more convincing to the critical reader.

Borrowing in the Zaiwa-group :

Borrowings can be discerned when the tones in a set of cognates do not fit into the categories illustrated in Table 1, and also when the rime-patterns do not fit any of the other tables above. For example, the words for 'tile' in the Zaiwa-group are *vâ - vâ - vâ - wā* ; there is no such vowel-pattern listed above, and the tone-pattern does not fit into Table 1; even the initials are not as a regular set going back to Common Northern Burmish (cnBsh), so this word must have been borrowed later (< Chinese). 'Sulphur' is *kân - xkân - xkân - xkân*, which does not fit in for the same reasons: it is a loan from JP. Some words, such as 'eight', seem to be loans too but the source is not clear. Searching through YZ one can find quite a few examples of loan-words from JP into the Zaiwa-group; in most cases the latter languages have a tone as part of the loan-word which is a close approximation to the JP tone, or at least the best that the particular Zaiwa-group language can do given its tonal possibilities. In cases such as 'wheel', with JP *lên* , Zaiwa *xlên* , Langsu *xlên* , Leqi *xlján* , the Zaiwa-group shows a chaotic variation in tones, the preservation of a voiceless initial missing in JP, and a vowel-breaking in Leqi, all of which argues for a less recent loan, if indeed, against the rule, it is not JP which has done the borrowing. In a case like 'tomb', the Zaiwa-group's *lup - lap - lap - lop* appear to have been borrowed from JP's *lup* long enough ago to have had time to undergo the regular vowel-changes associated with the native nBsh proto-rime (if

the JP form is not rather a borrowing from Burmish), while Nusu's *luq* looks rather irregular and suggests more recent borrowing.

Rime-arrays of individual modern languages :

As an example, the total rime-set for Zaiwa is very regular, consisting of the cardinal five vowels *i - e - a - o - u*, all of which also occur in combination with the endings *-m -n -ŋ -p -t -k -q* (also there are the diphthongs *-aj -oj -uj -aw*). To take the labial endings for example, we have:

<i>-im</i>	<i>-um</i>	<i>-ip</i>	<i>-up</i>
<i>-em</i>	<i>-om</i>	<i>-ep</i>	<i>-op</i>
<i>-am</i>		<i>-ap</i>	

but in both sets the rimes with front-vowels do not occur in our tables above, so they must be developments within Zaiwa which are more recent than Common Northern Burmish; new loan-words is the likely source. Such contrasts between old and new rimes are found in all languages I have examined in the nBsh group. In XD-A for example there are, according to YZ, eight different rimes with the *-t* final: *-ut -ot -ɔt -at -et -it -ɰt -ət*, yet only three of them, *-ut -at -et*, appear in the above collection of nBsh proto-rimes. The others must be new additions from loan-sources or internal analogical developments.

Modifications to received phonemicisations :

Having determined that the occurrences of [ə] and [ɤ] in Zaiwa, supposedly allophones of *e* and *i* respectively, are themselves in complementary distribution ², these centralised variants

have therefore all been assigned to **e** since: a) **e** is closer to [ə]/[ɜ] than is **i**, and b) **e** is also closer to the corresponding vowels in cognates of other nBsh languages. After this adjustment, in the combination "grave initial + *ji*" the *j*-glide was then removed since it was now predictable. This revision is based on analysis of the nBsh group and is without reference to high vowel allophony in Jingpo since the latter has a quite different pattern.

The Bola phonological system is said to include the vowel phoneme **ə**, but its most frequent occurrence is in the combination **əi**, which is actually pronounced [ej] and I transcribe as such above; otherwise, the only two general monographs on Bola (q.v. sources below) list just six examples with **-ə-**: one is an unaltered Chinese loanword (分), one is č'ə 'this', which may be a back-formation from the normally unstressed form, and the only other two for which comparative material is available belong in the ***-ek** pattern above, thus suggesting that these rare cases of [ək] may perhaps actually be [ak], in which case there is really no need for this **ə** phoneme in Bola, at least not for the inherited TB component.

YZ describes XD-A as having two different central vowels **ɜ** and **u** (= ə and # in my transcription) with a whole set of finals for each one, i.e. **-ɜ ≠ -u**, **-ɜm ≠ -um**, **-ɜn ≠ -un**, **-ɜŋ ≠ -uŋ**, **-ɜp ≠ -up**, **-ɜt ≠ -ut**, **-ɜk ≠ -uk**. After looking over the material I had collected for these tables, I began to wonder about the reality of this contrast. Upon examining the first 500 entries in the noun section and the first 500 in the verb section of YZ, I found approximately 27 different morphemes listed with XD-A **ɜ** and about 32 with **u**. Of the latter type, over half had a retroflex initial; of the nine cases with **u** which

had grave initials and LC-A cognates, all but one had an *-r-* medial in LC-A. The only exception was *hlēp pūk* ‘to lightening’, which may simply be a mishearing, since the meaning and sound are suspiciously like *pšk* ‘to shoot’. There was one other anomaly: *tūŋ* ‘to gather, amass’ which is not unlike *tšŋ* ‘to block up’. The collection of words with *ɣ* had on the other hand eleven cases of non-retroflexed coronal initials, in addition to one exception: *çšk* ‘to owe’. As for the remaining cases, i.e. words with grave initials, only two had LC-A cognates with an *-r-* medial, and one of them, *pšŋ* ‘full’ is reported elsewhere in YZ as *púŋ* ‘to be full’ ! This evidence, particularly the last item, would seem to point to a complementary distribution, with *u* occurring after retroflexion, and *ɣ* occurring elsewhere, but further consideration reminds us that the best evidence for this complementarity is in a historical or comparative context. In a simple, straightforward synchronic description we cannot abandon this contrast unless we were to posit underlying retroflexion in those words with *u* where it is no longer apparent in the surface form. This is certainly an option, but rules such as “*krə* is realized as *kʰ*” or “whenever you hear [*pʰ*], transcribe as *prə*” seem too awkward. And then there are cases such as ‘call out’ (YZ #1367, 1437) where LC-A *krə* :: XD-A *xə* directly contradict such rules. Given the above-noted inconsistencies in reporting as well as the other possible mis-hearings mentioned, it may well be that the preponderant evidence is most reliable and that the few exceptions may be discounted, but the remaining uncertainty in this matter as well as the ungainly manner required to express such complementarity suggest

that for now it is best to retain both phonemes for XD-A even though one of them has a very limited distribution.

Implications for reconstruction of Yipo-Burmish :

If we look at the rime-patterns of the nBsh languages, and particularly at the implied drag-chain shifts in their histories, we can suggest some revisions or refinements in the reconstruction of early Burmese and in turn of Yipo-Burmish. For example, wBrm *-wa* should derive from the *-o* still found in nBsh; ‘fire’ and ‘red’ both have *-i* in wBrm, but belong to different rime-groups in nBsh, so Brm *-i* must represent a merger of a higher and lower mid front vowel. There are quite a few words in wBrm with the *-ai* rime, but this finds no regular correspondence in nBsh, which makes one wonder about its historical status.

In the stop-final syllables we see a clear differentiation between the **-ok* and **-uk* groups; currently popular theories reconstruct **-iŋ* / **-ik* for Tables 44 and 66, but here **-eŋ* and **-ek* (plus **-et*) are proposed instead due to empty slots left after drag-chains (cf. Table 38 note 1), in addition, of course, to other evidence.

The evidence and arguments presented here could be further refined but that would require additional source-material not presently available to this researcher. An example of an unsolved mystery are the reflexes seen in Langsu and Bola in the words ‘earthworm’ (in historical spelling) and ‘greet’:

Table 84: (first set of languages)

gloss	wBrm	sBrm	XD-A	LC-A	LX-A	LH-A
worm	di	di	da	da	dje·	dje·
greet-			tə	tə		

Table 85: (second set of languages)

gloss	Zaiwa	Langsu	Bola	Leqi	Nusu
worm		·doj	·daj	·di	·di
greet-	xte	xtoj	xtaj		(ydQ: də)

The Burmese and Achang reflexes for ‘earthworm’ look much like those for ‘comb’ in Table 22 (*-ɛ), but the reflexes in the Zaiwa-group show no pattern found in the above tables. The cognates in other eTB languages (YB and Qiangic) mostly suggest **-i* , although LC Hani has *bu^hde* . The word for such a humble, everyday creature does not seem likely to need borrowing, but if not borrowed, it would require a rather complex set of irregular, analogical changes in rime to explain these reflexes. With ‘greet’ we see slightly different reflexes in the two Achang dialects attested; what could be the proto-rime here? JP has *təu* with tense voicing like the Zaiwa-group, and there is a possible reflex of Bola *-aj* for **-au* as seen in Table 12, but there is not enough additional evidence here to reach any clear conclusion. In this paper I can only hope that I have established some of the major features of this group’s reconstruction; there are still many details which are unresolved.

The temptation in writing this paper is to go the whole route and thoroughly discuss all topics related to nBsh phonological history. For the sake of practicality I will leave a more systematic discussion of initial consonant patterns and tonology to later papers.

Footnotes:

1. A preliminary version of this paper was presented at the 30th International Conference of Sino-Tibetan Languages and Linguistics

in Beijing (1997), and I am grateful for some helpful comments from James Matisoff, David Bradley and other scholars.

The original A4-size manuscript contains many data-tables too wide for LTBA's format, so the editor generously spent considerable time converting them to this double-table, more legible format; for sake of simplicity I refer to each paired table by its first number.

This paper already assumes the arguments presented in "Remarks on the Vowel-System of Old Burmese", published in LTBA 24.2. For the benefit of the reader who does not have access to that paper, I list below a summary of its main points relevant to this paper:

- 1] **-u* and **-i* as the source of wBrm *-ei* and *-ə* (> sBrm *-ou*) confirmed by the *-u* and *-i* vowels found in most such cognates in TB and Chinese.
- 2] Brm vocalism was in an unstable period when the language first began to be inscribed. A chain reaction involved **-e* > **-i* with **-i* > *-əj* (> *-ei*), balanced by **-o* > **-u* with **-u* > *-əw* (> *-ou*). Even if **-e* and **-o* still existed then (unraised), Mon writing did not provide a good model for transcribing them. This **-e* (Benedict's **-i*) matches *-i* only in those TB languages which shared a similar raising of **-e* to **-i*. Most languages kept *-e*, thus this correspondence set (**-e* :: **-i*) is smaller. The situation with back vowels is analogous.
- 4] Extensive evidence from cognates, loans and transcriptions (involving TB languages, Chinese, Indic and Burmese dialects) supports deriving Brm *-ac*/*-aŋ* from **-ek*/*-eŋ*. The ST/TB dental source for *-ac* was not **(j)it*, which merged with **(j)ik* > *-eiq*, but rather *-jat*.
- 5] Evidence from early inscriptions and TB cognates also indicate wBrm *-wak* < **-ok*, wBrm *-ok* < **uk*.

2. The following presents a summary, in abstract symbols, of the environments in which *i*, *e*, *u*, and *ə* occur in Zaiwa:

a) *i* - ČiK - TiK - *e* - Če - Čeq - Te - Ten - TeK

b) K_u - K_uK - r_u - S_uK - S_um - P_uK - Kə(q) - Kən - rə(ŋ/m) - Cə
- Pə.

Capital letters represent any member in the same class, e.g. $K = xk, k', g, \eta, x, '.$ “Dental” sibilants apparently do not belong to the [+ant] class seen in a), cf. remarks below Table 16.

Since we are assuming a basic contrast between i and e , the first row in itself contains no problems. The second row contains both $r\hat{u}$ and $r\hat{a}$, but these are actually the same word (‘also’) attested by different sources. We also see a potential contrast between the $K\#$ -type and the $K\bar{a}$ -type, but the only examples I could find for the former are various compounds with the morpheme $x\bar{i}$ ‘before’, e.g. $x\bar{i}\cdot p\bar{j}\bar{a}\bar{n}$, $x\bar{i}\cdot v\bar{a}$, $x\bar{i}\cdot x\bar{n}\bar{i}k$, $x\bar{i}\cdot m\bar{a}$ (in a modification of Xu 1992’s orthography), and I assume the lack of stress on the first syllable makes the exact height of the centralised vowel rather moot. The morpheme $x\hat{u}$ ‘coal’ is also given as $x\hat{a}$ depending on the source, and in general the $K\bar{a}$ -type has many more solid examples. In conclusion, there is simply no compelling evidence for a phonemic contrast between two different centralised vowels ($\#$ vs. \bar{a} here but \bar{x} vs. \bar{a} in the Chinese sources), nor between $\#/\bar{a}$ and e . Therefore, for reasons outlined above, e , $\#$ and \bar{a} are all written as / e / here.

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