

Lizu and Proto–Tibeto-Burman

Dominic Yu

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Lizu is a Tibeto-Burman (TB) language spoken in southwestern Sichuan. It belongs to the Qiangic group of TB, specifically Ersuic, which includes the closely related languages Tosu and Ersu (Sūn 2001).

The goal of this paper is to find Lizu reflexes of TB roots, concentrating on the Mianning variety of Lizu, and to establish their cognacy by determining the sound changes that took place in the development of Lizu from Proto–Tibeto-Burman. By finding regular sound changes from PTB into Lizu, establishing regular correspondences across different dialects of Ersuic, and seeing to what extent Lizu participates in sound changes characteristic of the Qiangic subgroup (e.g. “brightening”), I hope to shed some light on how Lizu fits into Qiangic and PTB. This is but a preliminary foray into the vast amount of data that awaits us; where the evidence is inconclusive, I will point out what questions still need to be answered and in what direction future research needs to go.

1 Introduction

1.1 Background

Lizu is the westernmost of the Ersuic languages.¹ It is spoken in Miǎnníng 冕宁 (in Hé’ài 和爱乡 and Qīngnà 青纳乡), Mùlǐ 木里 (Kǎlā 卡拉乡 and Luǒbō 倮波乡), and Jiǔlóng 九龙 counties, specifically along the path of the Yǎlóng River 雅砻江.

All three counties are contiguous (see map). Administratively, Miǎnníng and Mùlǐ are in the Liángshān Yi Autonomous Prefecture 凉山彝族自治州, and Jiǔlóng is in the Garzê (Gānzī) Tibetan Autonomous Prefecture 甘孜藏族自治州/དགའ་མངའ་སྡེ་རྫོང་ཁུལ་. According to my language consultants, Jiǔlóng is the area with the most Lizu speakers. The Lizu there are surrounded by a large population of Khams Tibetans. The Miǎnníng

¹“Lizu”, written in Chinese as 栗苏 *Lìsū* (see e.g. Chirkova 2008) or 吕苏 *Lǚsū* (Huáng and Rénzēng 1991), is not to be confused with 傣傣 *Lìsù*, a Central Loloish language. Following Chirkova, I use the name *Lizu* to refer to the language, rather than a pinyinized Chinese transliteration which would unfortunately lack the voiced fricative [z].

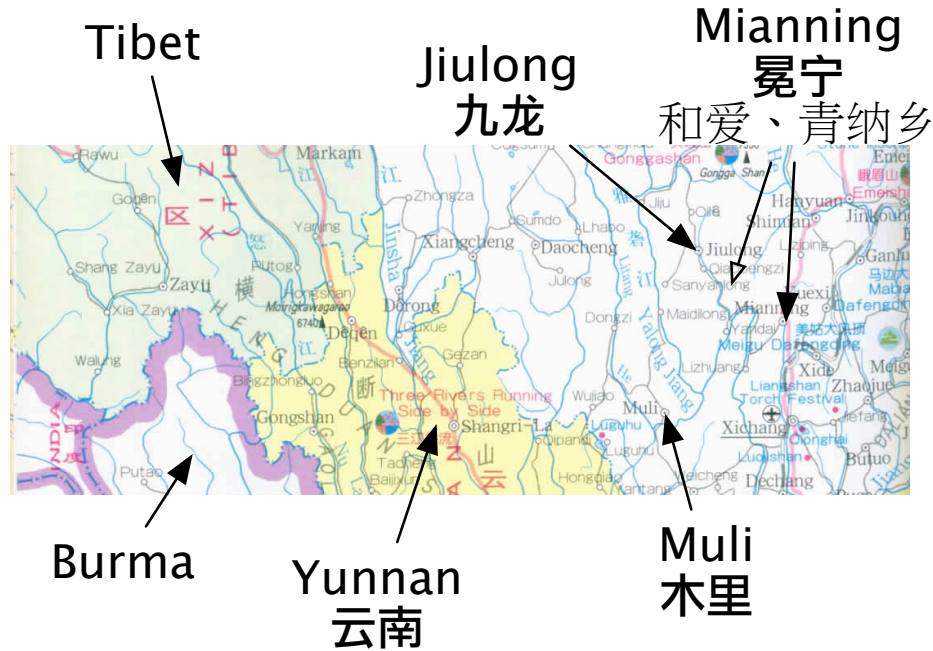


Figure 1: Map of Lizu-speaking areas

Lizu are surrounded by Yi and Han Chinese. According to Chirkova (2008), the Lizu in Mùlǐ reside among the Chinese and are also in close contact with the Prinmi (a.k.a. Pǔmǐ 普米) and have adopted religious practices and lexical material from the local varieties of Kami Tibetan. The Chinese spoken in this area are all dialects of Southwestern Mandarin.

Sūn (2001:159) gives the population of all Ersuic speakers as about 20,000. Chirkova's language consultants estimate the population of Lizu speakers specifically to be about 7,000.

1.2 Classification

Lizu is classified under the Qiangic branch of Tibeto-Burman. The Qiangic branch is characterized by the existence of directional verb prefixes and by complex consonant systems. According to Sūn (2001), Ersuic falls under the Southern branch of Qiangic (see Figure 2). However, this grouping is based on geography and impressionistic similarity, rather than on shared innovations. Chirkova (2008) has looked at the question of whether Ersuic, Namyi, and Shixing have an especially close historical relationship, and so far has not found evidence in favor of such a subgrouping.

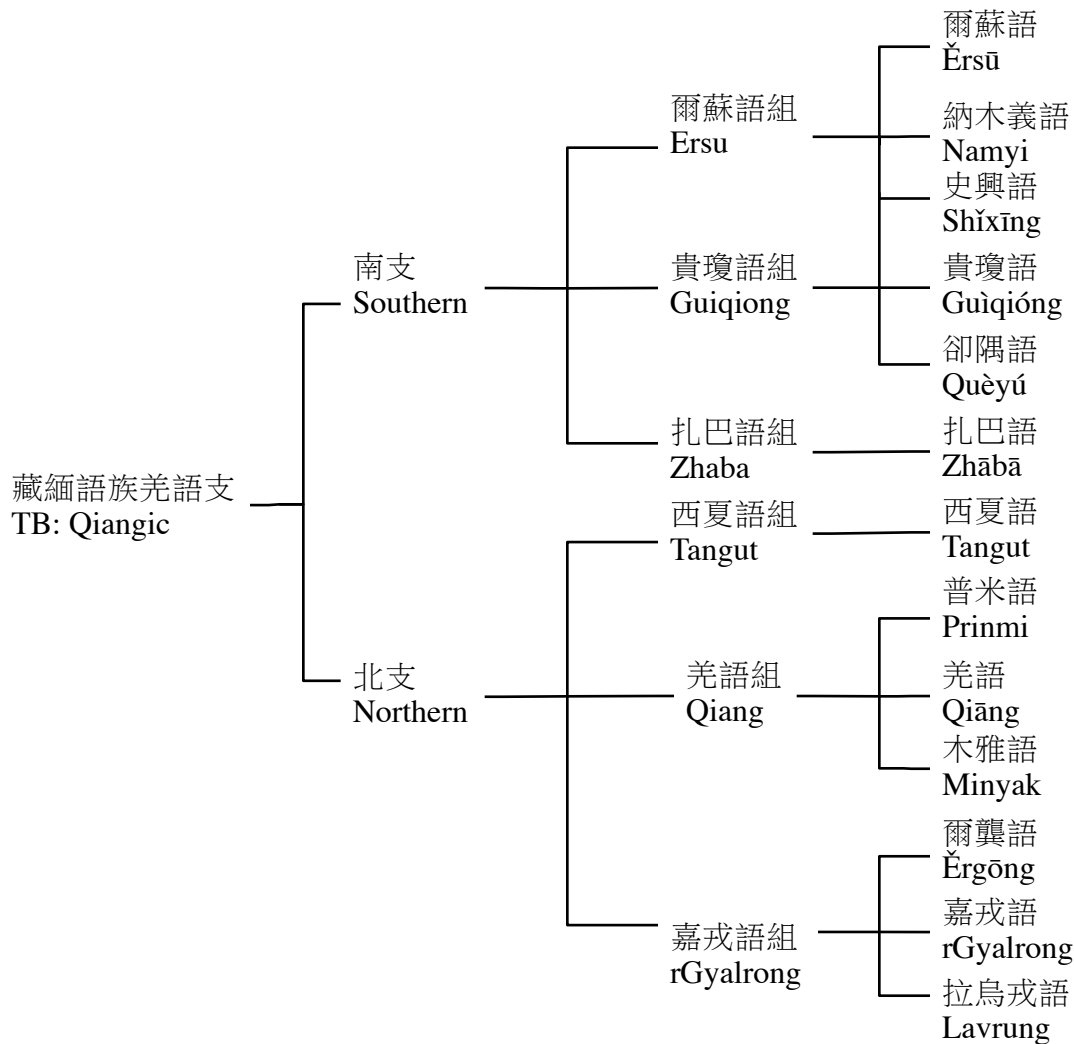


Figure 2: Subgrouping of Qiangic from Sūn (2001:160)

1.3 Methodology

The goal of this paper is to find out what the regular reflexes of PTB initial consonants and rhymes are in Mianning Lizu. Such information will be useful for identifying loanwords and making more detailed meso-level reconstructions in Ersuic and Qiangic in general, and hopefully some day will further our understanding of PTB itself.

Data from three dialects of Lizu are used. One is from Miǎnníng County, using data from my own fieldwork (abbreviated “MN”). Two are from Mùlí County, both from Kǎlā. One of these is described in Huáng and Rénzēng (1991) along with lexical data in Dài and Huáng (1992) (“Lǚsū”); a newer description of a slightly different variety based on recent fieldwork is in Chirkova (2008) (“KL”). Comparisons are also made with the more distantly related eastern dialect of Ersu from Gānlò County (甘洛县) described

in Sūn (1982) with lexical data in Sūn et al. (1991). I will focus on sound changes in Mianning Lizu, using the other dialects of Lizu and Ersu for comparison where appropriate.

The roots chosen for the cognate sets in this paper come from two sources. Most of the roots are a subset of the ones found in Matisoff (1999), and synonym sets were culled from the sources listed above; forms which were clearly not cognate were thrown out. Quite a few roots were found through the reverse process: making synonym sets for forms that I had collected in Mianning Lizu, inspecting the forms from the other dialects to see if they were cognate, and finally identifying a likely-looking root in Matisoff (2003), Matisoff (2008), etc. A handful of roots were stumbled upon serendipitously in the process of collecting the others. The additional roots included here that were not in Matisoff (1999) number twenty-eight: BEAN, BIG/ELDER, BOIL/BAKE, BONE, BRAIN, BREATH, CHOP, CONNECT, COVER, EGG, FAT, GET/HAVE, GRIND, HATCH, HOLE, HUMAN, JOINT, LUNG, MIDDLE, NAVEL, NECK, PHLEGM, RIDE A HORSE, RUN, SEED, TEN, THIS/THAT, and WATER. In all, 199 cognate sets are presented below.

The tables in the following sections present these supporting forms along with the PTB roots, which, for the sake of clarity, will exclude obviously irrelevant allofams. E.g. though SON is reconstructed as ***za** \approx ***tsa**, since all the modern Ersuic reflexes start with **z-**, the ***tsa** allofam is omitted. Proto-Lolo-Burmese (PLB) or Proto-Qiangic reconstructions are given where the root has not been reconstructed to the PTB level. Detailed reconstructions for all roots below can be found in Matisoff (2003) (“HPTB”) unless otherwise noted.

1.4 Phonology

Below are brief summaries of the phonological inventories and transcription systems of each of the dialects used in this study.

1.4.1 Mianning Lizu

The consonants of Mianning Lizu are as follows:

	bilabial	dental	palatal	retroflex	velar	glottal
stop	b p p ^h mb mp ^h	d t t ^h nd nt ^h			g k k ^h ŋg ŋk ^h	
affricate		dz ts ts ^h ndz nts ^h	dʒ tɕ tɕ ^h ndʒ ntɕ ^h	dʒ̣ tʂ̣ tʂ̣ ^h ndʒ̣ ntʂ̣ ^h		
nasal	m	n	ɲ		ŋ	
approximant	w	l ɭ	j			
fricative	f v	s z	ɕ ʒ	ʂ ʐ	x ɣ	[h]
clusters	hp	ʂt zt̚	ɕtɕ	ʂtʂ	xk	

In native words, **f-** and **v-** only appear before **-u**; **h-** is the allophone of **x-** before nasalized vowels.

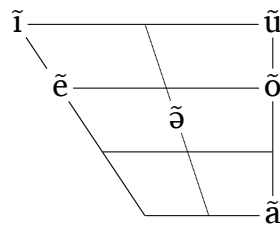
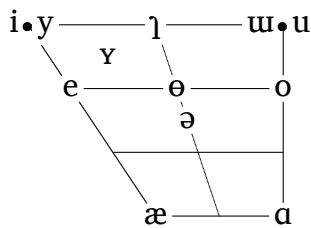
Notice that prenasalized stops and affricates only come in two varieties: voiced and voiceless aspirated.

All of the consonant clusters, with the exception of **z̥t-**, consist of a voiceless fricative followed by a voiceless unaspirated stop. The fricative can only be of one type, and thus is predictable based on the stop. For this reason one can think of these as pre-aspirated stops. In fact, there is variation among speakers with respect to the place of articulation of the fricative portion, and the **h** in **hp** clusters assimilates to the following vowel, e.g. **hpi**⁵ ‘medicine’ is realized as [çpi⁵].

The clusters appear to be conservative; the other two dialects of Lizu presented here have lost these clusters, but Mianning Lizu along with Ersu have preserved them.

In addition to the preaspirated clusters, there are also clusters of bilabial stops + fricatives: the retroflex clusters /**bz̥-**, **p^hʂ-**/ derive from bilabial + /**r**/ clusters, which may also be prenasalized; I have not found any instances of voiceless unaspirated /**pʂ**/ so far, though it may exist (and indeed it does in the Kala variety). The palatal clusters /**bz̥-**, **pç-**, **p^hç-**/ derive from bilabial + high front glides or vowels /**-j-**, **-i-**/; however, there are items (perhaps all loanwords) with bilabial initials and high vowels that have no frication, e.g. **pi**²² ‘pen’. On the other hand, the origin of bilabials with dental fricatives /**bz-**, **pz-**/ (with no corresponding aspirated version) is unclear.

The vowels are shown below, with nasalized vowels in the second chart:



In addition, there are three rhotic vowels, **-ə^r**, **-a^r**, **-æ^r**.

-u appears only after velars as an allophone of **-ə**. After dental stops and affricates, there is variation between **-e** and **-ə**.

-y appears only after bilabials; I have not found very many examples of this rhyme, and for now list this rhyme separately, though it seems possible to group this with either /**y**/ or /**ø**/.

-u is pronounced with frication after velar stops (i.e. [ɥ] with lip rounding), and with lip vibration after dental stops (i.e. [β]). After dental fricatives, **-u** is fronted to [ɸ].

Syllable shape is (C)V(N), with C and V as specified above, and N fairly rare (often in loanwords from Chinese).

On monosyllables, there are two tones. The high tone is transcribed as /⁵/, and the rising tone is transcribed as /²⁴/. The mid level tone occurs in multisyllabic forms, and is transcribed without any tone mark.

1.4.2 Kala Lizu

The transcription used here for Kala is the phonetic transcription used in Chirkova (2008), with the tone marks modified to match that for Mianning, above.

Kala consonants are largely similar to Mianning, with the addition of a set of uvular stops (plain and prenasalized) and a uvular fricative. The development of these is secondary, and seems to have been conditioned by the presence of some rhotic element in the rhyme.

	bilabial	dental	retroflex	palatal	velar	uvular	glottal
stop	b p p ^h nb np ^h	d t t ^h nd nt ^h			g k k ^h ng nk ^h	q q ^h nq ^h	
affricate		dz ts ts ^h ndz nts ^h	dẓ ṭʂ ṭʂ ^h ndẓ nṭʂ ^h	dʒ tɕ tɕ ^h ndʒ ntɕ ^h			
nasal	m	n		ɲ	ŋ		
approximant	w	r l ɬ		j			
fricative	f	s z	ʂ ẓ	ç ʒ	x ɣ	ɣ	h ɦ

In addition, Kala has the clusters /bʒ-, pʒ-, p^hʒ- ~ pç-, br-, pr-, p^hr- ~ pʂ-, mr-, fir-/. Note that for Kala, as well as Lūsū and Ersu below, prenasalized stops are all transcribed using **n-** regardless of the place of articulation.

The oral and nasal vowels in Kala are listed below.

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All of these vowels can constitute the rhyme of the syllable, as can the diphthongs /-je, -jæ, -rae, -wæ, -wɑ/, and syllabic nasal /ŋ/.

Note that Chirkova analyses [w] as the allophone of /e/ after velars.

-ɿ tends to be trilled after bilabial and dental stops and realized close to [ʙ]. After dental fricatives, -u is fronted to [ʊ].

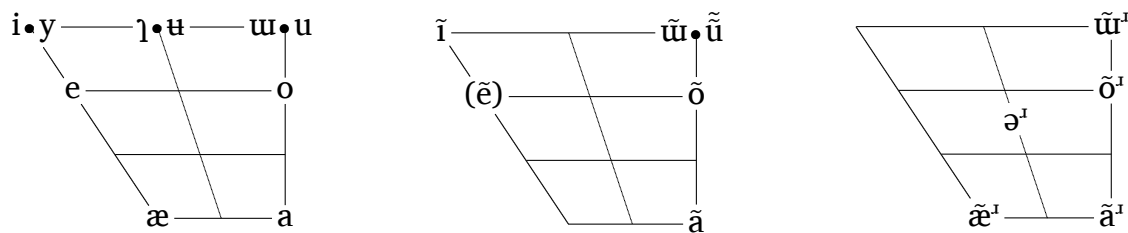
1.4.3 Lǔsū

Lǔsū is another variety of Lizu from Kala. It shares a similar consonant inventory to Mianning, but has more rhotic vowels.

Transcriptions for Lǔsū and Ersu are unmodified from their sources. The consonants of Lǔsū are as follows:

	bilabial	dental	retroflex	palatal	velar	glottal
stop	b p ph nb np	d t th nd nth			g k kh ng nk	
affricate		dz ts tsh ndz ntsh	dẓ ṭʂ ṭʂh ndẓ nṭʂh	dʒ tɕ tɕh ndʒ		
nasal	m	n		ɲ	ŋ	
approximant	w	l ɭ		j		
fricative	f v	s z	ʂ ʐ	ç ʒ	x ɣ	h ɦ
clusters	bʐ pʐ phʐ	ptsh	nbẓ (n)phẓ		sk	

Lǔsū rhymes are listed below. Rhymes found only in loanwords are listed in parentheses.



The diphthongs are /*(ie)*, *iu*, *iæ*, *iũ*, *iǎ*, *uæ*, *uo*, *ua*, *(uã)*, *(ei)*, *(uei)*, *(ai)*/; the nasal-final rhymes are /*(uŋ)*, *(oŋ)*, *(aŋ)*/.

-u appears after velars and retroflexes as syllabic [ɥ].

[əʰ] and [zə] are in free variation.

There are four surface tones transcribed for Lǔsū; however, just as for the two dialects of Lizu described above, there are only two basic contrastive tones: high, transcribed as /⁵³/ or /⁵⁵/, and rising, transcribed as /³⁵/.

The mid level tone /³³/ appears in multisyllabic words and phrases, approximately where one would expect the rising tone (the details are not immediately obvious; see Chirkova 2008 for further discussion). Finally, the low tone /³¹/ appears in phrase-final position and in obvious Chinese loanwords.

1.4.4 Ersu

Ersu consonants are listed below:

	bilabial	dental	retroflex	alveopalatal	palatal	velar	glottal
stop	b p ph nb nph	d t th nd nth				g k kh ng nkh	
affricate		dz ts tsh ndz ntsh	dẓ ṭʂ ṭʂh ndẓ nṭʂh	dʒ tʃ tʃh ndʒ ntʃ	dʒ tɕ tɕh ndʒ ntɕh		
nasal	m	n		ɲ		ŋ	
approximant	w	l ɭ r		j	j		
fricative	f v	s z	ʂ ʐ	ʃ ʒ	ç ʒ	x	h
clusters	hp hps bz ps phs nbz nphs	ht hts	hṭʂ bẓ p̣ʂ pḥʂ nbẓ npḥʂ	htʃ	htɕ	hk	

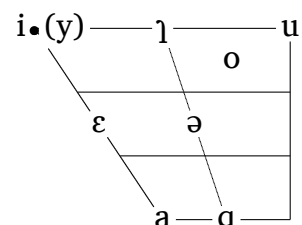
According to Sūn (1982), the retroflex affricates have a relatively prominent stop component, and are close to [ḍ, ṭ, ṭʰ].

The dental fricates and the alveopalatal fricates are in free variation when followed by **-u**.

r- and **z-** are in free variation in certain words.

Syllabic **ŋ** is pronounced with rounding.

Ersu vowels are as follows:



The nasal vowels, /ĩ, ÿ, ũ, õ, ã, ã̃/, are found mostly in Chinese loanwords.

There are two rhotic vowels, **a^r** and **ə^r**.

Diphthongs are /iɛ, iɑ, io, iã, iã̃, ui, uɛ, ua ~ ɔ, ua^r, uõ, uã, uã̃, ye, (yã), ei, əi, ai, əu, ou, au, (iəu), uai, (iaɯ)/.

-u after bilabials is pronounced with vibration of the lips; after velars, it is pronounced close to [ɥ]; after other consonants it is close to [ʉ].

In connected speech, the vowels in the syllables **mu**, **ɲu**, and **ɲi** are often dropped.

-ə is pronounced close to [ɯ] in isolation.

2 Rhymes

2.1 *-a-

Developments of rhymes containing **-a-** are as follows:

2.1.1 *-(y)a > -i

There are many solid examples of ***-a > i**, the best attested rhyme in PTB. This brightening is characteristic of the Qiangic languages (Matisoff 1999). After strident fricatives,² **i** has apicalized to **ɿ**.³

Note that ***-a > -i** represents a merger with ***-i**, which remains **-i** (see below).

The form for ‘meat’ shows a somewhat unusual vowel correspondence; this appears to be due to the influence of the initial consonant. As we will see below, **x-** is the regular reflex of the palatal ***sy-**, where other dialects have **ʃ-**. The rhyme **-u** only appears after velar consonants, so it appears that the development here was ***sya > ʃɿ > xu**.

	PTB	MN	KL	Lüsū	Ersu
(1) BEE	*bya	bi ⁵		bi ³⁵	bzɿ ³³
(2) EAT	*dzya	dzɿ ²⁴	dzɿ ²⁴	dzɿ ⁵³	dzɿ ³³
(3) ILL / SICK	*na-n/t	de ɲi ⁵		de ³³ ɲi ⁵³	ɲi ⁵⁵
(4) LAUGH	*r(y)a	zɿ ⁵	ə ⁵	əɿ ³⁵	rɿ ⁵⁵
(5) SON ⁴	*za	zɿ ⁵	zɿ ⁵	zɿ ⁵³	i ³³ zɑ ⁵⁵
(6) LISTEN	*r/g-na	bæ ɲi ⁵		bæ ³³ ɲi ⁵³	ba ³³ ɲi ⁵⁵
(7) MEAT, FLESH	*sya-n	xu ⁵		ʃɿ ⁵³	ʃɿ ⁵⁵
(8) NOSE	*s-na	ʃti ⁵ mbu ⁵		ki ³³ mu ⁵³	ʃɿ ⁵⁵ nbu ⁵⁵
(9) REST	*g-na-s	de bze ⁵ ɲi ⁵ sæ ⁵		bu ³³ ɲi ⁵³ , ɲe ³³ ɲi ⁵³	ba ¹⁵⁵ ɲi ⁵³
(10) SALT	*tsa	ts ^h ɿ ⁵		tshɿ ⁵³	tshɿ ³³
(11) TONGUE	*s-l(y)a	ʃti ⁵ , ti ⁵ pi ⁵		ti ⁵³ pi ⁵³	htsɿ ³³ psɿ ⁵⁵

2.1.2 *-al, *-at, *-an > -i

Similarly, ***-al**, ***-at**, and ***-an** are all exemplified by the following roots, which have undergone brightening as well:

²Following Matisoff (2003:27), I use the term *fricative* as a convenient cover term for fricatives and affricates.

³Ersu has taken this one step further and apicalized **i** after bilabials as well, e.g. ***bya > bzɿ³³** ‘bee’.

⁴The vowel in the Ersu form **zɑ⁵⁵** seems to be an exception to the brightening change.

	PTB	MN	KL	Lūsū	Ersu
(12) FROG	*s-bal	pi mæ ⁵			psɿ ⁵⁵ ma ⁵⁵ ŋi ⁵⁵ za ⁵⁵
(13) EIGHT	*b-r-gyat ɤ *b-g-ryat	dzɿ ²⁴		dzi ³⁵	ʒɿ ⁵⁵
(14) KILL	*g/b-sat	ntɕ ^h i ⁵		ntʂhɿ ⁵³ ‘kill (an animal)’	sɿ ⁵⁵
(15) LEECH	*k-r-p ^w at	mbi ²⁴		nbi ³⁵	
(16) PUT, PLACE	*s-ta-t, PLB *da ²	tɕi ²⁴		ne ³³ tɕi ⁵³ kæ ³¹ ‘put in order / tidy’	tsɿ ⁵⁵ ta ⁵⁵ ‘take back / put away’
(17) VOMIT	*m-pat	mp ^h ɕi ⁵		nphi ⁵³	nphsɿ ⁵⁵
(18) MEDICINE ⁵	*s-man	hpi ⁵	pje ⁵	pi ⁵³	ŋi ⁵⁵ htɕi ⁵⁵

2.1.3 Exceptions to brightening

Regular exceptions to this brightening tendency have roots with a velar or lateral initial, where for the most part *-a > -æ:

	PTB	MN	KL	Lūsū	Ersu
velar initials					
(19) BITTER ⁶	*b-ka	de k ^h æ ¹⁵		de ³³ kha ⁵³	tʂhi ⁵⁵
(20) ENEMY	*gra	ɣjæ wu ⁵		gæ ³³ wu ⁵³	
(21) FISH > STINK ⁷	*s-ŋ(y)a	de ŋæ ¹⁵ ‘to stink’		(næ ³⁵)	ŋua ¹⁵⁵ ‘stinky’
(22) FIVE	*l/b-ŋa	ŋæ ¹⁵	fĩ ²⁴	ŋa ⁵³	ŋua ¹³³
(23) LOVE	*r/N/d/s-ga	ɣjæ ²⁴		giæ ³⁵	ga ⁵⁵
lateral initials					
(24) COME	*la-y	læ ²⁴		læ ³⁵	la ⁵⁵
(25) GOD, DEITY	*m-hla	ɬæ ²⁴			ɬa ³³
(26) MOON ⁸	*s/g-la	ɬæ ⁵ p ^h ɣ ⁵		ɬæ ³³ phe ⁵³	ɬa ⁵⁵ phe ⁵⁵
(27) TIGER	*k-la	læ phæ ⁵		læ ³³ phæ ⁵³	la ⁵⁵

Note that in some cases, *-a after velars has developed into an r-colored -æ¹, and in others (‘enemy’, ‘love’) a palatal onglide has developed. I unfortunately can offer no explanation at this time.

⁵Readers who are used to seeing **hp-**, **ht-**, **hk-** representing aspirated stops [p^h, t^h, k^h], e.g. in Burmese, are reminded that **hp-** here represents a consonant cluster of **h** + **p**.

⁶The Ersu form seems to have undergone brightening and palatalization.

⁷The Lūsū form, with a palatal nasal, may be a Tibetan loan. The forms for ‘fish’ in Ersuic languages seem not to descend from PTB *ŋ(y)a. The Ersu form is **zu**⁵⁵; Mianning Lizu uses either a Chinese loanword **jy**²⁴ or a different word, **dzɿ bo**⁵**lo**⁵, where the first component means ‘water’ and the meaning of the second is presently unclear.

⁸This is a common binome in TB. The second element here is a masculine suffix; cf. Mianning æ¹⁵ **phy**⁵ ‘rooster’. For extra-Qiangic forms, cf. WT **zla-ba** and Lahu **ha-pa**.

The fact that laterals, in addition to velars, inhibit brightening may indicate that laterals in proto-Ersuic were phonetically velarized.

There is another group of exceptions consisting of grammatical particles:

		PTB	MN	KL	Lǔsū	Ersu
(28)	NEGATIVE	*ma-y	mæ			ma ³³
(29)	NEGATIVE IMPERATIVE	*da ɤ *ta	t ^h æ			tha ⁵⁵

Another class of apparent exceptions are the following, where the initials have palatalized:

		PTB	MN	KL	Lǔsū	Ersu
(30)	EARTH / GROUND ⁹	*tsa	tɕa ‘locative’			
(31)	TROUSERS, PANTS	*s-la	ʒa ²⁴		ʒæ ³³ tsh ¹ ₅₃	za ⁵⁵ tshe ⁵⁵
(32)	HUNDRED	*b-r-gya	ʒa ²⁴		ʒæ ⁵³	za ⁵⁵

Finally, there remain sundry exceptions, where the sound changes discussed above are expected but do not occur:

		PTB	MN	KL	Lǔsū	Ersu
(33)	CARRY ON BACK	*ba	de bæ ⁵		de ³³ bæ ⁵³	ba ⁵⁵
(34)	EAR	*r/g-na	æ ⁵ na ⁵ pi ⁵		na ⁵³ pi ⁵³	na ⁵⁵ ku ⁵⁵
(35)	HOT	*tsa-t	de ts ^h æ ⁵		tshæ ⁵³ tshæ ⁵³	tsha ⁵⁵
(36)	MOTHER	*ma	æ ⁵ mæ ⁵			a ⁵⁵ ma ⁵⁵
(37)	FULL, SATI- ATED	*k-wa	də wa ⁵			wa ⁵⁵
(38)	CROW	*ka	ka li ⁵		kua ³³ li ⁵³	ka ³³ ə ¹⁵⁵
(39)	FORGET ¹⁰	*ma-t	khur ⁵ -me ⁵ da ²⁴		the ³³ me ⁵³	the ³³ mɛ ⁵⁵

MOTHER may be explained as a linguistic universal/nursery word; Matisoff (2004:#68) notes that “no modern Qiangic language shows raising or fronting with this root.” Similarly, CROW may be explained as an onomatopoeic form. On the other hand, EAR seems inexplicable, especially given that this is presumably the same root as LISTEN (above).

HOT has also been noted to be an exception to the brightening rule across Qiangic. Matisoff (2004:#69) suggests that this may be due to a suffixal **-t**; in the case of Lizu, if

⁹HPTB reconstructs only *sa, not *tsa, which can be found in Matisoff (1999), along with comparanda from other Qiangic languages; on the PLB side, cf. Lahu **mì-châ** ‘ground’.

¹⁰See HPTB:334, where this root is glossed ‘exhausted/spent’.

such an explanation is to be appealed to, such a suffix must be kept separate from other roots ending in **-t**, which as shown above have regular reflexes in **-i**.

The forms for FULL and CROW are irregular in that they have **-ɑ** instead of **-æ**. As noted above, CROW may be onomatopoeic, but also note that the Lūsū form has a diphthong **-ua**; it is possible that a medial **-u-** inhibited the fronting to **-æ**, then disappeared. A similar explanation might also account for FULL, which has an initial labiovelar glide. Finally, note the development of FULL as **wɑ** where we might otherwise expect **-u** or **-we** from ***-wa**, since the **w-** here is the initial consonant, rather than a medial glide.

The form for FORGET, assuming it is descended from ***ma-t**, has a mid vowel instead of the expected high vowel. Absent more data, we might guess this is due to the influence of the initial **m-** (note that there are no other **m-** initials in the above data).

2.1.4 ***-wa, *-wal > -we/-u**

It seems ***-wa > -u** after labials, although the two examples of this are both in the first syllable of disyllables. (Note that the Lūsū form for ‘patch’ has **-e**.)

		PTB	MN	KL	Lūsū	Ersu
(40)	AXE	*r-p ^w a	bu-tʂ ^h ɑ ⁵		bu ³³ tʂa ⁵³	ba ³³ tʂɑ ⁵⁵
(41)	PATCH	*p ^w a, PLB *ba ¹	pu tæ ⁵		pe ⁵³ pe ⁵³	

Elsewhere (but note that most of the following forms begin with velars), ***-wa > -we**:

		PTB	MN	KL	Lūsū	Ersu
(42)	CATTLE	*ŋwa	ŋwe ⁵	ŋu ⁵	ŋu ⁵³	ŋua ¹³³
(43)	TOOTH ¹¹	*swa	xwe ⁵		fu ³⁵	ʂl ⁵⁵ ma ⁵⁵
(44)	WEAR / PUT ON ¹²	*gwa-n, *s-g-w(y)a-n/t	de we ⁵ /vu ⁵	khur ^{5v}	de ³³ vu ⁵³	

There are also cases where the nuclear vowel remains low:

		PTB	MN	KL	Lūsū	Ersu
(45)	HOOF	*kwa			ŋu ⁵⁵ khua ⁵³	nkhua ⁵⁵

¹¹The Mianning and Lūsū forms both reflect velar initials, presumably after a ***sw- > x-** change. Lūsū **f-** is the allophone of **x-** before **-u**.

¹²The variation between **w-** and **v-** here may be due to different sets of sound changes. After ***gwa > ywe**, one dialect may have lost the initial voiced velar fricative, giving **we**; a second dialect might have followed the path **ywe > yu > vu**, where **y > v** before **u**, just as **x > f** before **u**. The astute reader may object on the grounds that there exists a form in Mianning containing the syllable **yū**, namely **yū⁵ mā⁵** ‘body’ (see (62) below); however, this spirantization may be secondary, since the Lūsū form has a stop in **ge³³mā⁵³**.

(46)	RAIN	PTB *r-wa-s ɤ *s-wa ɤ *g-wa	MN ɣwæ ²⁴	KL ngwæ ²⁴	Lǔsū ɣuæ ³⁵	Ersu guɑ ³³
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The fact that RAIN is an exception may be related to the fact that there is a glottal stop for this root in Chepang and Lai (e.g. Falam Lai **ruaʔ**), which is reflected in the suffixal ***-s** in the reconstruction above.

Finally, we have a lone form demonstrating perhaps ***-wal** > **-e**.

(47)	ICE	PTB *s-p ^w al	MN mp ^h e ⁵ ka ⁵	KL p ^h je ⁵	Lǔsū (n)phi ³⁵	Ersu mphī ⁵⁵
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2.1.5 *-am > -e

The rhyme ***-am** > **-e**. Thus, in the case of ***-wam**, it appears to develop similarly to ***-wa(l)** (above), i.e. into **-we**.

(48)	BEAR (N.) ¹³	PTB *d/g-wam	MN ŋgwe ²⁴	KL ŋo ²⁴ /fiō ²⁴	Lǔsū	Ersu
(49)	BRIDGE	*m-dzam	dze ²⁴		dʒe ³⁵	dzi ⁵⁵
(50)	FLY (V.)	*byam	bzɿ bze ⁵		bʒe ³⁵	
(51)	GARDEN (VEG- ETABLE)	*kram			fu ³³ tʂhu ⁵³	fu ⁵⁵ tʂhe ⁵⁵
(52)	IRON	*syam	xje ²⁴	ʂe ⁵	ʂu ⁵³	ʂe ⁵⁵
(53)	OTTER	*sram		ʂe ⁵	ʂe ³⁵	ʂl ⁵⁵ ji ⁵⁵

An exception is the form for BELLY, where the round vowel may be due to the labial initial.

(54)	BELLY	PTB *p ^w am	MN mby ⁵	KL	Lǔsū	Ersu bu ⁵⁵ pha ⁵⁵
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2.1.6 *-aŋ > -o

There are many good examples of ***-aŋ** > **-o**:

¹³HPTB does not list an allofam with **g-**, but see Matisoff (1999) for other Qiangic forms which support this prefix.

		PTB	MN	KL	Lūsū	Ersu
(55)	DEAF PERSON ¹⁴	*l/m-baŋ	æ ⁵ na ⁵ /no ⁵ mbo ⁵		na ³³ nbo ³⁵	na ³³ nbo ⁵⁵
(56)	BIG/ELDER ¹⁵	*maŋ	ts ^h u mo ⁵ 'old man'		tshuo ⁵³ mo ⁵³ 'old man'	mo ⁵⁵ mo ⁵⁵ 'old person'
(57)	HORSE	*k-m-raŋ	mbzɔ ⁵	nbə ⁵	nbo ³⁵	nbo ³³
(58)	HUMAN	PLB *tsaŋ ¹	ts ^h o ²⁴		tshuo ⁵³	
(59)	PINE	*taŋ	tɕ ^h o ⁵		tɕhu ⁵³ pu ⁵³	
(60)	SHEEP	*yaŋ ɰ *g-yak	ŋo ²⁴		ŋu ³⁵	jo ⁵⁵
(61)	WAIT	*lyaŋ	lo ⁵		kho ³³ luo ⁵³	lo ⁵⁵

Two plausible exceptions have **-u** instead.

		PTB	MN	KL	Lūsū	Ersu
(62)	CHEST (BODY)	*b/g-raŋ	ɣu ⁵ mæ ⁵		ge ³³ mæ ⁵³	ga ⁵⁵ ma ⁵⁵
(63)	CLASSIFIER FOR TREES ¹⁶	PLB *baŋ ¹	sə pu ⁵ 'tree'	se pv ⁵ 'tree'	(te ³³) pu ³¹	pu ⁵⁵

2.1.7 *-ak > -ə/-a

It is difficult to figure out the regular reflex of ***-ak**. The largest number of forms have **-a**:

		PTB	MN	KL	Lūsū	Ersu
(64)	BLACK	*s-nak	de na ⁵		de ³³ nua ⁵³	nua ⁵⁵
(65)	DREAM ¹⁷	*mak ɰ *r/s-maŋ	ji ma ⁵		ji ³³ ma ⁵³	ji ⁵⁵ ma ⁵⁵
(66)	CHICKEN	*k-rak		rwæ ²⁴	ɣua ³⁵	ra ⁵⁵
(67)	DRIP / DROP (N.)	*m-dz(y)ak ɰ *m-tsak	də nt ^h a ²⁴ 'to drip'		(te ⁵⁵) nthua ⁵³	nthua ⁵⁵

¹⁴The first element in these forms is 'ear', which, as noted in (34) above, has an irregular rhyme development.

¹⁵The first element of this binome in the Mianning and Lūsū forms is the root for HUMAN. Note that the vowel of the first syllable in the Mianning form is not **-o**, as in the full form ts^ho²⁴ 'human', but has been raised to **-u**. Other forms exhibiting a similar phenomenon include wu⁵wo⁵ 'help', dzɿ⁵dzə⁵ 'raw', and bzɿ bze⁵ 'fly (v.)', where a vowel change seems to have occurred on the first syllable of a reduplicated disyllabic form.

¹⁶This root is not in HPTB, but note the similar forms and identical morphological structure for this root in 'tree': WB sac-paŋ, Mianning sə pu⁵, where the first element < PLB *sik (ɰ *siŋ, see (126) below); and also in 'one (+ clf.)': WB tə paŋ, Mianning tə⁵pu⁵.

¹⁷The relevant allofam here is *mak, not *maŋ, because *-aŋ > o (see above). This is interesting because the *mak variant has so far only been attested in Lolo-Burmese.

	PTB	MN	KL	Lüsū	Ersu
(68) EXPENSIVE ¹⁸	*kak	p ^h u k ^h wa ⁵		phe ³¹ khua ⁵³	phɛ ⁵⁵ khua ⁵⁵
(69) EYE	*s-mik ɰ *s-myak	mja ²⁴		miæ ³³ mu ⁵³ 'eyebrow'	miɑ ⁵⁵
(70) LEAF	*r-pak	sə p ^h ɕɑ ⁵		se ³³ phzæ ⁵³	le ⁵⁵ psɿ ⁵⁵ 'palm'
(71) PHLEGM	*ka:k	ts ^h ɿ k ^h ɑ ⁵			tshɛ ⁵⁵ ka ⁵⁵

An interesting form is GOOD, which does not have **-a**, but **-e**. Assuming a palatal medial, and a parallel development to ***myak** EYE, we might expect **lja** as reflex of ***lyak**. However, I have not found any examples of such a syllable in Mianning; **-ja** does not seem to occur after dental consonants. Thus, perhaps there was a change from **lja** > **lje** > **le** (note that the Kala form does have a medial glide).

	PTB	MN	KL	Lüsū	Ersu
(72) GOOD	*l(y)ak ɰ *l(y)aŋ	le ²⁴	lje ²⁴	li ³³ li ⁵³	ja ³³ li ⁵⁵

The following three forms have **-æ**, though JUMP is somewhat speculative because of the initial consonants:

	PTB	MN	KL	Lüsū	Ersu
(73) BOWL	*kwak	k ^h wæ læ ⁵		khuo ³³ la ⁵³	
(74) BRANCH	*s-ka:k			se ³³ kæ ⁵³ li ³¹	si ⁵⁵ ka ³³ le ⁵⁵
(75) JUMP ¹⁹	PQc *N/s-tsak	ʂtə ⁵ ʂtæ ⁵		tsuo ³⁵	hto ⁵⁵

The following forms have **-ə**, except NAVEL, which has **-ɿ**. The Mianning form for BOIL (RICE), with **-ə**, seems to fit, but its apparent cognates in Lüsū and Ersu, with back vowels, make its inclusion suspect.

	PTB	MN	KL	Lüsū	Ersu
(76) BREATH	*r-sak	sə ²⁴		se ³⁵	se ⁵⁵ dʒo ⁵⁵ tɛ ³³ 'alive'
(77) COOK, BOIL (RICE)	*s-glak ɰ *klak	tʂə ⁵		khe ³³ tʂu ⁵³	tʃo ⁵⁵
(78) DEEP ²⁰	*s-nak			nu ⁵³ nu ⁵³	ja ³³ nɛ ⁵⁵
(79) HAND	*g-lak	lə phe ⁵		le ³³ pi ⁵³	le ³³ phɛ ⁵⁵
(80) NAVEL ²¹	*kyak	tʂɿ pu ⁵		tʂua ³³ pu ⁵³	

¹⁸First element is PRICE, see (156).

¹⁹See Matisoff (1999) for this reconstruction.

²⁰Even though this root is undoubtedly the same as BLACK (see Matisoff 1972 #142 and #157), there seems to have been a divergence in Qiangic.

²¹HPTB has the PLB form ***ʔ-kyak^H**; see Matisoff (2008) for a more general discussion of this root.

(81)	PUSH ²²	PTB PLB *ʃ-cak ^L	MN ndzə ⁵	KL	Lūsū the ³³ dʒu ⁵³	Ersu
(82)	WEAVE	*tak ≈ *dak	nts ^h ɑ ²⁴ , də ²⁴		de ³¹	dɛ ⁵⁵

This last set with -ə includes many good roots, including HAND, BREATH, WEAVE, and possibly DEEP (in the Lūsū form). The difference between this set and the -ɑ set may have to do with the fact that many of forms in the -ɑ set have labial or palatal glide components, either in the Mianning form or its Ersuic cognates; the glide may have prevented the vowel from centralizing to -ə.

Finally, there is one example of *-wak > -o. Note that in this case, w- should be taken as the initial consonant, not a medial glide. I have placed MOUSE under PTB *yəw below, due to its homophony with LIQUOR; however, ʏo²⁴ ‘mouse’ < PTB *r-wak would also be consistent with the form for PIG here. Note also the form for BOWL, above, where the -w- apparently does not cause backing/rounding.

(83)	PIG	PTB *p ^w ak, PLB *wak ^L	MN wo ²⁴	KL wo ⁵ /ʏo ⁵	Lūsū ʏu ³⁵	Ersu vɛ ⁵⁵
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2.1.8 *-ap

Just as with *-ak above, the pattern for *-ap may be influenced by the presence of glides; notice the forms CHOP and NEEDLE with -ə and -u, vs. STAND, which has -ɑ after a palatal affricate.

(84)	CONNECT	PTB *tsyap	MN	KL	Lūsū khe ³³ tsu ⁵³	Ersu tɕe ³³ tɕe ⁵⁵
(85)	CHOP	*ts(y)ap	dzə ²⁴		dze ³⁵ ‘chop’, dʒɿ ³⁵ ‘chop down tree’	
(86)	FIREPLACE	*g-rap				mɛ ³³ dʒi ⁵⁵
(87)	NEEDLE	*k-rap	ʏu ²⁴	ɸɑ ⁵	ʏu ³⁵ , ʏa ³⁵	xa ¹⁵⁵
(88)	SNOT	*s-nap	ʃte dzæ ¹⁵	kŋ-ræ ²⁴	(ti ³³ nk hæ ⁵³)	su ⁵⁵ zɑ ⁵⁵ rɛ ⁵⁵
(89)	STAND	*g-r(y)ap	ndʒɑ ²⁴		khe ³³ ndzæ ⁵³	ndzɑ ⁵⁵

²²See Matisoff (1972) #33 for this root.

2.1.9 *-ar

The Mianning form for ‘chicken’, æ¹²⁴ < PTB *ʔar, is the lone example for this PTB rhyme. The other Ersuic forms for ‘chicken’ seem to be reflexes of PTB *k-rak (see (66) above).

2.1.10 *-ay

The forms listed here for *-ay show no clear pattern, though MIDDLE and DROP (if we take the *-ay allofam) suggest *-ay > -æ, with fronting perhaps inhibited by the lateral. (Compare with LADDER, listed under *-əy below.) I could not find cognates to ‘this’ in other languages, but if it descends from *day, the change would be *-ay > -e. STING agrees with neither of these, and has unexplained affrication besides.²³

		PTB	MN	KL	Lūsū	Ersu
(90)	DROP, FALL	*kla-k/y/t ɤ *gla-k/y/t	ne ⁵ dzæ ⁵		ne ³³ dzæ ³⁵	na ⁵⁵ dzɑ ⁵⁵
(91)	MIDDLE	*m/s-la:y	xo ⁵ læ ⁵		guo ³³ ɬa ⁵³	htsɿ ⁵⁵ ; gu ³³ ɬɑ ⁵⁵
(92)	STING (V.) ²⁴	*ta:y, PLB *n-day ²	bi ⁵ ndza ⁵		ndza ³⁵	ndza ⁵⁵
(93)	THIS/THAT	*day	de			

2.2 Front vowels: *-i-, *-əy, *-e-

2.2.1 *-i > -i

All these forms show -i < *-i.

		PTB	MN	KL	Lūsū	Ersu
(94)	CATCH	PLB *s/ʔ-mi ¹				mi ⁵⁵
(95)	RED	*r-ni	ni ⁵ fu ⁵ fu ⁵		de ³³ ni ⁵³	ni ⁵⁵
(96)	HEART	*s-ni-ŋ	ʂti mi ⁵		ti ⁵³ mi ⁵³	sɿ ⁵⁵ ni ⁵⁵
(97)	RIDE A HORSE	*dzyi	ndzɿ ⁵		dze ⁵³	ndzɛ ⁵⁵

²³On the other hand, the affricate initial may be cause to revise the reconstruction to *n-d(z)ay; however, the only form in HPTB to exhibit stop/affricate variation (as opposed to affricate/fricative variation) is MORTAR ((176) below), which has a high vowel to condition affrication of the initial t-.

²⁴See Matisoff (1985) #93 for this root.

2.2.2 *-əy > -i/-e

After retroflexes, *-əy > -ɿ. Note that Mianning has merged this final with apical vowels from other sources, whereas Lūsū has -u and Ersu has -o < -əy. Note that STAR does not follow this pattern across the dialects, nor do GALL and SKIN in Lūsū, where there is a rhotic vowel in the rhyme.

		PTB	MN	KL	Lūsū	Ersu
(98)	DIE	*səy	k ^h u ɣ ⁵		the ³³ ɣu ⁵³	ʂo ⁵⁵
(99)	EXCREMENT	*kləy	ɣtɣ ⁵	ɣe ²⁴	ɣu ³⁵	htʃo ⁵⁵
(100)	FOUR	*b-ləy	zɿ ⁵		zɿ ³⁵	zɿ ³³
(101)	GALL	*krəy ɰ *m-kri(y)-t-s	tɣ ⁵	tɣ ²⁴	kə ¹⁵³	tɣo ⁵⁵
(102)	SKIN	PLB *m-k-rəy ¹	ndzɿ ⁵ pi ⁵	ndzɿ ²⁴	nga ¹³³ pi ⁵³ , n-gə ¹³⁵	ndzo ⁵⁵ pi ⁵⁵
(103)	STAR	PLB *ʔgrəy ¹	tɣ ⁵ ts ^h e ⁵	tɣ ⁵	kə ¹³⁵	tɣ ⁵⁵
(104)	WATER	*m-t(w)əy	dzɿ ²⁴		(n)dzɿ ³⁵	dzo ⁵⁵

The two examples of *-wəy, BLOOD and DOG, both occur after retroflexes, and both show the same correspondences as *-əy.

		PTB	MN	KL	Lūsū	Ersu
(105)	BLOOD	*s-hywəy	ɣ ⁵	ɣe ⁵	ɣu ³⁵	ʂo ⁵⁵
(106)	DOG	*d-k ^w əy	tɣ ^h ⁵	tɣ ^h e ⁵	tɣhu ⁵³	tɣho ⁵⁵

After dental sibilants, we also find an apical vowel:

		PTB	MN	KL	Lūsū	Ersu
(107)	SEED ²⁵	*dzəy	ɣu ⁵ tsɿ ⁵		ɣu ¹³³ zɿ ⁵³	gɣe ⁵⁵
(108)	WASH (CLOTHES)	PLB *tsəy ²	ts ^h ⁵		ne ³³ tshe ⁵³	tshe ³³

Elsewhere, we have either -i in COUNT, SUN, and FLEA (which, interestingly, corresponds to -o in Ersu), or -e in the remaining roots. Because of its rhyme -e, I have included TEN here instead of under *-i where we might expect -i (see above), or under *-əy where we might expect a retroflex initial to have developed from the *palatal (see Consonants, below).

		PTB	MN	KL	Lūsū	Ersu
(109)	COUNT	*r-tsyəy	ɣti ⁵			hte ⁵⁵
(110)	FLEA	*s-ləy	nts ^h u ⁵ li ⁵		ɬe ³³	ntsho ⁵⁵ ɬo ⁵⁵

²⁵Note that the monosyllabic Ersu form corresponds to the first syllable of the Lizu forms. This suggests that the first syllable may be the actual root for ‘seed’ here, and the second syllable is suffixal. Furthermore, the second syllable of Lūsū form does not correspond exactly, since it is a fricative rather than an affricate.

(111)	SUN	PTB *nəy	MN ŋi ⁵ mæ ⁵	KL	Lūsū ŋi ³³ me ⁵³ , ŋi ³³ mi ⁵³	Ersu ŋo ⁵⁵ ma ⁵⁵
(112)	EARTH	*m-leŋ ɤ *m-ləy	me le ⁵			me ³³ li ⁵⁵
(113)	LADDER	*s-ləy ɤ *s-lay		ɬe ⁵ tɕi	ɬi ³³ ki ⁵³	ɬi ⁵⁵ tsɿ ⁵⁵
(114)	RUN	*b-ləy	pze ⁵		pze ³⁵	li ⁵⁵ ga ⁵⁵
(115)	TEN	*ts(y)i ɤ *ts(y)əy ɤ *tsyay	tɕ ^h e ⁵ tɕ ^h e ⁵		tɕhe ⁵³ tɕhe ⁵³	tshɛ ⁵⁵ tshɛ ⁵⁵
(116)	WIND ²⁶	*g-ləy	me ⁵ le ⁵	me lje ⁵	me ⁵⁵ le ⁵³	me ⁵⁵ ə ¹⁵⁵

Finally, there are two forms left over. The form for MELT seems to be a fused form of ɬe²⁴ + past tense -æ (note the same formation with le²⁴ ‘good’ and ljæ²⁴ ‘ready’). The inclusion of GRASS here is more speculative.

(117)	GRASS	PTB PLB *s-yəy ²	MN zu ²⁴	KL	Lūsū zu ³⁵	Ersu
(118)	MELT	*s/m-grəy	nə ɬjæ ²⁴			li ⁵⁵

2.2.3 *-ey > -i

Most of the forms for *-ey show -i, although FIRE has -e. TAIL is more unusual, with -u in some languages and -e/ɛ in others.

(119)	FIRE	PTB *mey	MN me ⁵	KL	Lūsū me ³⁵	Ersu me ⁵⁵
(120)	FRUIT	*sey			se ³³ sɿ ⁵³	si ⁵⁵ sɛ ⁵⁵
(121)	NEAR	*s-ney	ər ŋi ⁵		ə ¹³³ ŋi ⁵³	ŋi ⁵⁵
(122)	GET/HAVE	*r-ney-t	ŋi ⁵ ‘have, exist’	je ‘exist’		
(123)	TAIL	*r-may ɤ *r-mey ɤ *r-mi	mu kwər ⁵	me ⁵ ntɕ ^h o	mu ³³ kə ¹⁵³	me ³³ ntɕhɛ ⁵⁵

²⁶The first element in these forms is (157) SKY. See also the first element of (158) SMOKE. For similar collocations in a Lolo-Burmese language, cf. Lahu mŭ-hɔ ‘wind’, mŭ-qhɔ ‘smoke’, both perfect cognates to the forms given here.

2.2.4 *-iŋ, *-in, *-en > -a

In this section, the best looking roots are probably LONG and LIVER (below), which show *-iŋ, *-in > -a. First, I present the *-iŋ roots:

		PTB	MN	KL	Lǔsū	Ersu
(124)	FLUTE	*gliŋ	ɬa ²⁴		ɬa ⁵³	ɬa ⁵⁵
(125)	LONG	*s-riŋ	pæ ʂa ⁵		ʂa ⁵³ ʂa ⁵³	ja ³³ ʂe ⁵⁵
(126)	FIREWOOD ²⁷	*siŋ	sə ²⁴		se ³⁵	si ⁵⁵

More speculative are the following, where NECK may belong in this set if it had an *s- prefix. NAME, usually a solid TB root, does not show the same -a reflex as the other forms.

		PTB	MN	KL	Lǔsū	Ersu
(127)	NECK	*m-liŋ	ʂtæ ¹²⁴		ta ⁵³ ə ¹⁵³	htua ³³ ra ⁵⁵
(128)	NAME	*r/s-miŋ	mi ²⁴		mi ³⁵	mi ⁵⁵

LIVER is the one good root here for *-in; WEIGH is more speculative.

		PTB	MN	KL	Lǔsū	Ersu
(129)	LIVER	*m-sin	ntsha ²⁴		tsha ³⁵	ntsha ⁵⁵
(130)	WEIGH (V.T.)	*kyi:n	ndzə ²⁴		de ⁵³ ndzu ⁵³	tʂe ⁵⁵

Finally, for *-en, CLAW fits the pattern of *-in, *-iŋ > -a, whereas PUS does not.

		PTB	MN	KL	Lǔsū	Ersu
(131)	CLAW / FIN- GERNAIL	*m-tsyen	le ⁵ dza ⁵		dza ³³ dza ³³	dzi ⁵⁵ dzi ⁵⁵
(132)	PUS	*m-blen	py ²⁴		pu ³⁵	pɛ ⁵⁵ re ⁵⁵

2.2.5 *-im > -e

Cf. *-am > -e above. The difference here is that the high vowel seems to have palatalized the initial consonant (except for PILLOW), which did not happen with the *-am roots.

		PTB	MN	KL	Lǔsū	Ersu
(133)	CLOUD	*s-dim	tʂe ²⁴		tʂe ⁵³	tʂe ⁵⁵
(134)	HOUSE	*k-yim ɰ *k-yum	ŋe ²⁴		ŋi ³⁵	ji ⁵⁵

²⁷Unlike (65) DREAM above, the relevant allofam here seems to be the one with a nasal final, since *sik would develop into sɿ (see below).

		PTB	MN	KL	Lǔsū	Ersu
(135)	PILLOW	*m-kum ɤ *m-kim	ŋgi ⁵		ŋgi ³⁵	vu ³³ ndzi ⁵⁵
(136)	RAW	*dz(y)im	dzɿ ⁵ dzə ⁵		dze ³³ dze ⁵³	dzi ³³ dzi ⁵⁵
(137)	SET (OF THE SUN)	*g(l)im ɤ *g(l)um	nə tɕe ²⁴		ne ³³ tɕu ⁵³	tɕho ⁵⁵

The form for RAW has -ə instead of -e. This may reflect the synchronic variation between these two vowels; for example, the word for ‘pull/dredge up’ has two variants: tsə²⁴ and tɕe²⁴.

2.2.6 *-ik > -i

All these reflexes of *-ik are apical vowels appearing after sibilants, except for LOUSE, which has -ə. Note that I have chosen to place the forms for LOUSE under PTB *s-rik instead of the alternate root for LOUSE, *sar, because of the retroflex initial (see section on sr- below).

		PTB	MN	KL	Lǔsū	Ersu
(138)	ITCH	*m-tsik	də ⁵ tɕɿ ⁵ tɕɿ ⁵		de ³³ dɕɿ ⁵³	ntshua ⁵⁵
(139)	JOINT	*tsik			tshɿ ³³ tshɿ ⁵³ ta ³³ ta ³³	
(140)	LEOPARD	*g-zik	ndzɿ ²⁴		dzɿ ³³ mu ⁵³	ndzɿ ³³ nua ⁵⁵
(141)	LOUSE	*s-r(y)ik	ɕə mæ ⁵		ɕu ³³ mæ ⁵³	ɕe ³³
(142)	NEW	*g-sik, *g-sar	sɿ ⁵ sɿ ⁵			sɿ ⁵⁵

2.2.7 *-i:t

The three forms listed here have either -e or -ə.

		PTB	MN	KL	Lǔsū	Ersu
(143)	CLOSE (EYE)	*s-mi:t	mja ²⁴ de mu ⁵ me ⁵			
(144)	GOAT	*tsi:t	ts ^h e ²⁴		tsh ^e ³⁵	tsh ⁱ ⁵⁵
(145)	GRIND	*kri:t	dzə ²⁴		ə ^{ɿ33} tha ⁵³ dzɿ ³¹	dzɛ ⁵⁵

2.2.8 *-ip

The form for WEST is placed here instead of under *-up. Note the similarity in the development of the rhyme with the forms for SUN, which also have -i in Lǔsū and -o in Ersu.

(146)	WEST ²⁸	PTB *s-ni(:)p ɰ *r/s-nyap ɰ *s-nu(:)p	MN nə ²⁴	KL	Lūsū ŋi ³⁵	Ersu ŋo ⁵⁵ tɕho ⁵⁵
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2.2.9 *-is

There are not enough examples of the rare rhyme *-is to figure out regular sound changes.

(147)	SEVEN	PTB *s-nis	MN ɣtɲ ⁵	KL tɲ ⁵ , kɲ ⁵	Lūsū skɲ ⁵³	Ersu ʃl ⁵⁵ ŋ ⁵⁵
(148)	TWO	*g/s-nis	nə ²⁴		ne ³⁵	ne ⁵⁵

2.3 Back vowels: *-u-, *-əw, *-o

2.3.1 *-u

*-u > -u after labials (GRANDFATHER and HEAD). In other environments, there are not enough examples to make generalizations. The inclusion of SPIRIT here is speculative, both because of the retroflex initial and the low vowel.

(149)	EGG	PTB *dz(y)u	MN tɕo ⁵	KL	Lūsū ɣua ³³ tɕu ⁵³	Ersu tsɛ ⁵⁵
(150)	GRANDFATHER	*pu	æ ⁵ p ^h u ⁵		æ ³³ phu ⁵³ /æ ³³ pu ⁵³	a ³³ pu ⁵⁵
(151)	HEAD	*d-bu	wu ⁵ li ⁵		wu ³³ li ⁵³	vi ³³ li ⁵⁵
(152)	SOUL, SPIRIT ²⁹	*tsu	tɕ ^h æ ²⁴ 'ghost'		tɕhæ ⁵³	
(153)	WHITE	*plu	de lə ⁵	ly ²⁴	de ³³ lu ⁵³	ɕ ⁱ ⁵⁵
(154)	WHO	PLB *su ¹	sə ⁵ bwe ⁵		se ⁵³	se ⁵⁵

2.3.2 *-əw

The development of *-əw seems rather complex. In NINE and SMOKE, both with velar initials, we get **-u**; in WEEP, which has a velar nasal initial, we get **-u**. SWEET is the one example here with a retroflex initial; note that the vowel development for this root is identical to that for the rhyme *-əy, above.

²⁸This root is glossed 'sink/submerge' in HPTB.

²⁹See Matisoff (1974) #36 for this root.

	PTB	MN	KL	Lüsū	Ersu
(155) NINE	*d/s-kəw, PQc *s/r/n-gəw	ŋgɯ ²⁴		ŋgɯ ³⁵	ŋgɛ ³³
(156) PRICE	*pəw	p ^h u k ^h wa ⁵		phe ³¹ khuæ ⁵³ 'expensive'	phɛ ³³ htsɿ ⁵⁵
(157) SKY	*r-məw		me ⁵	muo ³⁵	mɛ ³³ tɕo ⁵⁵
(158) SMOKE	*kəw	me ⁵ nkhuɯ ⁵		me ³³ nkhuɯ ⁵³	mɛ ³³ ŋkhe ⁵⁵
(159) SWEET	*kyəw	de ⁵ tɕ ^h ɿ ⁵		de ³³ tɕhu ⁵³	tʃho ⁵⁵
(160) WEEP	*ŋəw	ŋu ²⁴	ŋu ⁵ /fiū ⁵	ŋu ³⁵	

The forms for LIQUOR and MOUSE, which have developed an **-o** final, are homophonous, so it is possible that both descend from ***yəw**. However, a separate root for MOUSE, PTB ***r-wak** (cf. PLB ***k-rwak^H**), would also be consistent with the **-o** final (see above).

	PTB	MN	KL	Lüsū	Ersu
(161) LIQUOR	*yəw	yo ²⁴		yuo ³⁵	vu ⁵⁵
(162) RAT, MOUSE	*yəw	yo ²⁴		yuo ³³ ju ⁵³	gu ⁵⁵ pha ⁵⁵

In the following instances, ***-əw** seems to have developed into a front rounded vowel:

	PTB	MN	KL	Lüsū	Ersu
(163) BREAST	*nəw	dzæ ŋy ⁵		dzæ ³³ nu ⁵³	ŋo ⁵⁵ ŋo ⁵⁵
(164) INSECT, WORM	*bəw	bɿ dzɿ ⁵		be ³³ dzi ⁵³	bɛ ³³ dzi ⁵⁵

Finally, I include some more speculative forms:

	PTB	MN	KL	Lüsū	Ersu
(165) MUSHROOM	*g/s-məw	hə̃ ²⁴	fiɾə̃ ²⁴	hū ⁵⁵	xə ⁵⁵
(166) STEAL	*r-kəw	mpɕu		nphzɯ ³⁵	npho ⁵⁵

2.3.3 ***-ow > -u**

The forms for FAT, NIT, and BOIL show ***-ow > -u**. THORN, with an apical vowel and unexplained retroflexion, seems less likely to belong in this set.

	PTB	MN	KL	Lüsū	Ersu
(167) FAT	*tsow	də ts ^h u ⁵		de ³³ tshu ⁵³	
(168) NIT	*s-row			ɕu ³³ pe ⁵³ tshe ³¹	ɕɛ ³³ tɕɛ ³³
(169) THORN	*tsow	ntɕ ^h ɿ ²⁴		tɕhɿ ³⁵	ntʃho ⁵⁵
(170) BOIL/BAKE	*tsyow	ntɕ ^h u ⁵ 'steam'		khe ³³ tɕu ⁵³	tʃo ⁵⁵ 'boil (rice)'

2.3.4 *-ur > -u

The one example of *-ur indicates *-ur > u.

	PTB	MN	KL	Lǔsū	Ersu
(171) SOUR	*s-kyur̥ *s-kwya:r			de ³³ tʂu ⁵³	tʂɛ ⁵⁵

2.3.5 *-ul > -we/-u

For the two forms following nasals, *-ul > -we, just like *-wa > -we, whereas the form for SWEAT has -u. The form for SNAKE is different from both of these probably because of the medial -r-.

	PTB	MN	KL	Lǔsū	Ersu
(172) HAIR/FUR	*s-mul	mwe ⁵ , mə ¹⁵⁵	mv ⁵	mu ⁵³	ma ¹⁵⁵
(173) SILVER	*d-ŋul	ər ŋwe ⁵	ŋu ²⁴	ŋu ³⁵	ŋua ¹⁵⁵
(174) SNAKE	*s-b-ru:l	bə ¹⁵	bə ⁵ ə	bu ³³ γu ¹³⁵	bɛ ³³ ŋ ⁵⁵
(175) SWEAT	*s-krul	tʂu ²⁴		tʂu ⁵³ ə ¹⁵³	tʂu ⁵⁵

2.3.6 *-um

Interestingly, THREE has developed a front vowel. PAIR and USE, which have -ə in Mianning, have Ersu reflexes with front vowels. This may reflect *-im̥ & *-um variation in the proto-language. This variation is discussed in HPTB pp. 270–276, where SET (OF THE SUN), PILLOW, and HOUSE are among the examples; I have placed these three roots in the *-im̥ section, above. The roots included in this section are not known to exhibit *-im̥ & *-um variation at the PTB level.

	PTB	MN	KL	Lǔsū	Ersu
(176) MORTAR	*tsum	tsu ⁵ mo ⁵		tsu ⁵³ mo ⁵³	tsu ³³ ŋ ⁵⁵
(177) PAIR	*dzum̥ & *tsum	dzə ⁵		(te ⁵³) dzu ⁵³	dzɛ ⁵⁵
(178) THREE	*g-sum	ɕe ⁵		ɕi ⁵³	si ⁵⁵
(179) USE	*zum̥ & *zuŋ	zə ²⁴		ɕe ³⁵ hũ ⁵³	zi ⁵⁵

2.3.7 *-uŋ

The forms for STONE and HOLE indicate *-uŋ > o, although there is the possibility that they do not belong in this set, but to *-uk and *-or, respectively.

		PTB	MN	KL	Lǔsū	Ersu
(180)	STONE, ROCK	*r-luŋ ɤ *k-luk	lo mæ ⁵		luo ³³ mæ ⁵³	ə ¹⁵⁵ khua ⁵⁵
(181)	HOLE	*guŋ ɤ *kuŋ, *kor	xko ⁵	qo ⁵ qo		pɛ ⁵⁵ hku ⁵⁵
(182)	HORN	*g-ruŋ	ə ¹⁵ bu ⁵		ə ¹³³ bu ⁵³	ru ⁵⁵
(183)	THOUSAND	*s-toŋ	ʂtuŋ ⁵		tu ⁵³	hpu ⁵⁵
(184)	WING	*duŋ	də lə ⁵ mæ ⁵	dv ⁵ 'plumage'	du ³³ ly ⁵³	

I have included the unlikely-looking form ə¹⁵ bu⁵ for HORN here since the the form for 'snake', bə¹⁵ < PTB *s-brul. If *-rul > -ə¹, it is plausible that -ruŋ > -ə¹. On the other hand, if the rhotacism comes not from the root-initial **-r-** in the proto-form, but from some suffix (note that the the other Ersuic forms listed under SNAKE above are disyllabic with some kind of rhotic second syllable), this argument becomes less convincing.

2.3.8 *-oŋ

There are not many examples of reflexes of PTB *mid vowels. For *-oŋ, ESCAPE is more plausible than HATCH.

		PTB	MN	KL	Lǔsū	Ersu
(185)	ESCAPE	*ploŋ			pho ³⁵	
(186)	HATCH	*s/r-go-ŋ	hə ⁵⁵		khe ³³ xŋ ³¹	xɛ ⁵⁵

2.3.9 *-uk > -o/-u

We now turn our attention to the stop finals, where we find many convincing examples of *-uk > o. SIX and WAIST show *-uk > u after retroflexes.

		PTB	MN	KL	Lǔsū	Ersu
(187)	BEAN	*s-nuk	no ⁵			
(188)	BRAIN	*s-nuk	ə ¹ no ⁵		nu ⁵³	ŋo ⁵⁵
(189)	CROOKED	*kuk	də kho kho ⁵		khuo ³³ khuo ⁵³	khu ⁵⁵ khu ⁵⁵
(190)	MAGGOT	*s-luk/ŋ	bu lo ⁵			bɛ ³³ ə ¹⁵⁵
(191)	SIX	*d-kruk	tɕ ^h u ⁵		tɕhu ⁵³	tɕhu ⁵⁵
(192)	WAIST	*gyuk, PLB *gyuk ^L ɤ *dʒuk ^L			dʒu ³⁵	dʒu ⁵⁵

I have put MAGGOT in this set since the *luŋ allofam is attested only in Lushai, whereas the *luk allofam is found throughout Lolo-Burmese.

MONKEY and POISON look like they have reflexes that belong in this set, but seem to have irregular vowel developments.

	PTB	MN	KL	Lǔsū	Ersu
(193) MONKEY	PLB *myuk ^L , *s-myuk ^H				mi ³³
(194) POISON	*duk ɰ *tuk	nə ndzy ⁵		dzy ³⁵	dzu ⁵⁵

2.3.10 *-ok

The lone example for ***-ok** is FEAR, whose development seems to be distinct from ***-uk**.

	PTB	MN	KL	Lǔsū	Ersu
(195) FEAR	*k/grok ɰ *k/grak	de ku ⁵		de ³³ ku ⁵³	

2.3.11 *-ut, *-up

There are only a few Lizu reflexes for the sparsely attested ***-ut** and ***-up** rhymes. LUNG is the sole example for ***-ut**, while COVER and SLEEP show developments into different back vowels.

	PTB	MN	KL	Lǔsū	Ersu
(196) LUNG	*tsut	nts ^h u ⁵ p ^x we ⁵		ntshu ⁵³	tshu ⁵⁵
(197) COVER	*gup, *klup	xu ⁵ xu ⁵		xu ⁵³ xu ⁵³	
(198) SLEEP	*s-yip ɰ *s-yup	khw jo ⁵		khe ³³ ju ⁵³	

Interestingly, it may be the case that both alloforms for SLEEP can be found in Lizu; note the first syllable of **ji ma⁵** ‘dream’, possibly < ***yip**.

2.3.12 *-us

There is one form for this rhyme, suggesting ***-us** > **-o**.

	PTB	MN	KL	Lǔsū	Ersu
(199) BONE	*s/m/g-rus	ə ¹ k ^h o ⁵		ə ¹³³ khuo ⁵³	r ¹ ³³ ku ⁵⁵

* * *

A summary of these rhyme developments, along with a chart of consonant and prefix developments, is given in section 4.

3 Consonants

In the following sections, I will repeat the data from above for the reader's convenience, and set numbers will be omitted to avoid confusion (thus, each set in this paper will be identified by a unique number).

3.1 Voiced stops

PTB *voiced stops develop rather straightforwardly: *b > b, *d > d, *g > γ. (Consonant + glide clusters will be discussed below.)

	PTB	MN	KL	Lūsū	Ersu
b					
BEE	*bya	bi ⁵		bi ³⁵	bʒi ³³
CARRY ON BACK	*ba	de bæ ⁵		de ³³ bæ ⁵³	ba ⁵⁵
FLY (V.)	*byam	bʒi bze ⁵		bʒe ³⁵	
INSECT, WORM	*bəw	by dʒi ⁵		be ³³ dʒi ⁵³	be ³³ dʒi ⁵⁵
SNAKE	*s-b-ru:l	bə ¹⁵	bə ⁵ ə	buu ³³ γu ¹³⁵	be ³³ rɿ ⁵⁵
d					
THIS/THAT	*day	de			
WEAVE	*tak ≈ *dak	nts ^h ɑ ²⁴ , də ²⁴		de ³¹	dɛ ⁵⁵
WING	*duŋ	də lə ⁵ mə ⁵	dv ⁵ 'plumage'	du ³³ ɿy ⁵³	
g					
CHEST (BODY)	*b/g-raŋ	γu ⁵ mə ⁵		ge ³³ mæ ⁵³	ga ⁵⁵ ma ⁵⁵
ENEMY	*gra	ɣjæ wu ⁵		gæ ³³ wu ⁵³	
LOVE	*r/N/d/s-ga	ɣjæ ²⁴		giæ ³⁵	ga ⁵⁵
RAIN	*r-wa-s ≈ *s-wa ≈ *g-wa	ɣwæ ²⁴	ngwæ ²⁴	γua ³⁵	gua ³³
WEAR / PUT ON	*gwa-n, *s-g-w(y)a-n/t	de we ⁵ /vu ⁵	khur ⁵ v	de ³³ vu ⁵³	
g + C					
WAIST	*gyuk, PLB *gyuk ^L ≈ *dʒuk ^L			dʒu ³⁵	dʒu ⁵⁵
DROP, FALL	*kla-k/y/t ≈ *gla-k/y/t	ne ⁵ dzæ ⁵		ne ³³ dzæ ³⁵	na ⁵⁵ dzɑ ⁵⁵

The form for WEAR / PUT ON is included here despite the fact that it has no γ -initial because I have tentatively placed it under the ***gwa** allofam and am assuming a hypothetical stage with a velar initial which yielded **we** and **vu** in different dialects, just as TOOTH ***swa** yields **xwe** and **fu** in different dialects. (See the footnote under (44), above, for more discussion.) The ***w(y)a** allofam is less likely because we expect ***wa** > **wa**; or if ***w(y)a** > **we**, the forms with **v**-initial would be unexplained, as would the development of a high back vowel, which is needed to condition the consonant development (**v**-only appears before **-u**).

The following forms have voiceless initials, but it is unclear why this is so. Interestingly, the first two forms have **bl**-clusters, though it is hard to see why such a cluster would devolve. BONE is unusual not only for its voiceless initial but also because the initial is aspirated; as discussed below, we would expect **ʃ**- if this form descended from the allofam with ***s-r**-, and **dz**- if the protoform had a ***g-r**-initial.

	PTB	MN	KL	Lǔsū	Ersu
b					
RUN	*b-ləy	pze ⁵		pze ³⁵	li ⁵⁵ ga ⁵⁵
PUS	*m-blen	pɣ ²⁴		pu ³⁵	pɛ ⁵⁵ rɛ ⁵⁵
CLASSIFIER FOR TREES	PLB *baŋ ¹	sə pu ⁵ ‘tree’	se pv ⁵ ‘tree’	(te ³³) pu ³¹	pu ⁵⁵
g					
BONE	*s/m/g-rus	ə ¹ k ^h o ⁵		ə ¹³³ khuo ⁵³	r ¹³³ ku ⁵⁵
SET (OF THE SUN)	*g(l)im ɰ *g(l)um	nə tɕe ²⁴		ne ³³ tɕu ⁵³	tɕho ⁵⁵

Next, we look at prenasalized stops. In this and in the sets below, I include both PTB roots with a nasal prefix and forms that exhibit prenasalization in the modern languages, which presumably reflect nasal prefixes at some stage between PTB and Proto-Ersuic. Here, all prenasalized voiced stops remain as such in Mianning, though in the other languages the prenasalization was lost in POISON. Conversely, the obstruent portion was lost in BEAR in Kala.

	PTB	MN	KL	Lǔsū	Ersu
DEAF PERSON	*l/m-baŋ	æ ⁵ na ⁵ /no ⁵ mbo ⁵		na ³³ nbo ³⁵	na ³³ nbo ⁵⁵
POISON	*duk ɰ *tuk	nə ndzy ⁵		dzy ³⁵	dzu ⁵⁵
BEAR (N.)	*d/g-wam	ŋgwe ²⁴	ŋo ²⁴ /fio ²⁴		

Roots with an ***s**- prefix have become voiceless unaspirated; furthermore, the prefix has disappeared:

	PTB	MN	KL	Lǔsū	Ersu
FROG	*s-bal	pi mæ ⁵			ps ¹ ⁵⁵ ma ⁵⁵ ŋi ⁵⁵ za ⁵⁵

	PTB	MN	KL	Lǔsū	Ersu
CLOUD	*s-dim	tɕe ²⁴		tɕe ⁵³	tsɛ ⁵⁵
COOK, BOIL (RICE)	*s-glak ɤ *klak	tɕə ⁵		khe ³³ tɕu ⁵³	tʃo ⁵⁵
STAR	PLB *ʔgrəy ¹	tɕɿ ⁵ ts ^h e ⁵	tɕɿ ⁵	kə ¹³⁵	tɕɿ ⁵⁵

The remaining roots suggest such sound changes as *d-b- > w-, *s-g- > x-, and *gr-, gl- > ʈ-. STING has an unexpected affricate.

	PTB	MN	KL	Lǔsū	Ersu
HEAD	*d-bu	wu ⁵¹ⁱ⁵		wu ³³ li ⁵³	vi ³³ li ⁵⁵
HATCH	*s/r-go-ŋ	hə ⁵⁵		khe ³³ xŋ ³¹	xɛ ⁵⁵
STING (V.)	PLB *n-day ²	bi ⁵ ndza ⁵		ndza ³⁵	ndza ⁵⁵
MELT	*s/m-grəy	nə ʈjə ²⁴			li ⁵⁵
FLUTE	*glinʃ	ʈa ²⁴		ʈa ⁵³	ʈa ⁵⁵

3.2 Voiceless stops

For the most part, the *voiceless stops become voiceless aspirated.

	PTB	MN	KL	Lǔsū	Ersu
p					
GRANDFATHER	*pu	æ ⁵ p ^h u ⁵		æ ³³ phu ⁵³ /æ ³³ pu ⁵³	a ³³ pu ⁵⁵
LEAF	*r-pak	sə p ^h ɕa ⁵		se ³³ phzæ ⁵³	lɛ ⁵⁵ psɿ ⁵⁵ 'palm'
PRICE + EX- PENSIVE ³⁰	*pəw + kak	p ^h u k ^h wa ⁵		phe ³¹ khuæ ⁵³	phe ³³ htsɿ ⁵⁵
t					
NEGATIVE IMPERATIVE	*da ɤ *ta	t ^h æ			thə ⁵⁵
PINE	*taŋ	tɕ ^h o ⁵		tɕhu ⁵³ pu ⁵³	
k					
BITTER	*b-ka	de k ^h æ ¹⁵		de ³³ kha ⁵³	tʃhi ⁵⁵
BOWL	*kwak	k ^h wæ lə ⁵		khuo ³³ la ⁵³	
CROOKED	*kuk	də kho kho ⁵		khuo ³³ khuo ⁵³	khu ⁵⁵ khu ⁵⁵
HOOF	*kwa			ŋu ⁵⁵ khua ⁵³	nkhua ⁵⁵
PHLEGM	*ka:k	ts ^h ɿ k ^h a ⁵			tshe ⁵⁵ ka ⁵⁵
k + C					
DOG	*d-k ^w əy	tɕ ^h ɿ ⁵	tɕ ^h e ⁵	tɕhu ⁵³	tɕho ⁵⁵

³⁰These two roots with voiceless initials are combined in one line here since they both become voiceless aspirated initials.

	PTB	MN	KL	Lǔsū	Ersu
GARDEN (VEGETABLE)	*kram			fu ³³ tʂhu ⁵³	fu ⁵⁵ tʂhɛ ⁵⁵
NAVEL	*kyak	tʂɿ pu ⁵		tʂua ³³ pu ⁵³	
SIX	*d-kruk	tʂ ^h u ⁵		tʂhu ⁵³	tʂhu ⁵⁵
SWEET	*kyəw	de ⁵ tʂ ^h ɿ ⁵		de ³³ tʂhu ⁵³	tʂho ⁵⁵

A smaller number have unaspirated initials. GRIND has an even more exceptional voiced initial.

	PTB	MN	KL	Lǔsū	Ersu
PATCH	*p ^w a, PLB *ba ¹	pu tæ ⁵		pe ⁵³ pe ⁵³	
CROW	*ka	ka li ⁵		kua ³³ li ⁵³	ka ³³ ə ¹⁵⁵
FEAR	*k/grok ≈ *k/grak	de ku ⁵		de ³³ ku ⁵³	
k + C					
GALL	*krəy ≈ *m-kri(y)-t-s	tʂɿ ⁵	tʂɿ ²⁴	kə ¹⁵³	tʂo ⁵⁵
GRIND	*kri:t	dzə ²⁴		ə ¹³³ tha ⁵³ dzu ³¹	dze ⁵⁵

The prenasalized forms in this set are not as neat as for the voiced initials. In some forms, the prenasalization has disappeared, leaving only voicing as a trace; other forms are prenasalized, but it seems unpredictable whether they are voiced or voiceless aspirated.

Interestingly, in several cases prenasalization seems to arise from the *r- prefix, a phenomenon also seen in Jingpho (Matisoff 2003:129).

	PTB	MN	KL	Lǔsū	Ersu
p					
AXE	*r-p ^w a	bu-tʂ ^h a ⁵		bu ³³ tsha ⁵³	ba ³³ tʂa ⁵⁵
BELLY	*p ^w am	mbɿ ⁵			bu ⁵⁵ pha ⁵⁵
ICE	*s-p ^w al	mp ^h e ⁵ ka ⁵	p ^h je ⁵	(n)phi ³⁵	mphi ⁵⁵
LEECH	*k-r-p ^w at	mbi ²⁴		nbi ³⁵	
VOMIT	*m-pat	mp ^h çi ⁵		nphi ⁵³	nphsɿ ⁵⁵
t					
WATER	*m-t(w)əy	dzɿ ²⁴		(n)dzu ³⁵	dzo ⁵⁵
k					
NINE	*d/s-kəw, PQc *s/r/n-gəw	ŋgu ²⁴		ngu ³⁵	ngɛ ³³
PILLOW	*m-kum ≈ *m-kim	ŋgi ⁵		ngi ³⁵	vu ³³ ndzi ⁵⁵
SMOKE	*kəw	me ⁵ nkhu ⁵		me ³³ nkhu ⁵³	me ³³ ŋkhe ⁵⁵

	PTB	MN	KL	Lüsū	Ersu
STEAL ³¹	*r-kəw	mpʂu		nphzɯ ³⁵	npho ⁵⁵
k + C					
SKIN	PLB *m-k-rəy ¹	ndzɯ ⁵ pi ⁵	ndzɯ ²⁴	nga ¹³³ pi ¹⁵³ , n-gə ¹³⁵	ndzɔ ⁵⁵ pi ⁵⁵
WEIGH (V.T.)	*kyi:n	ndzə ²⁴		de ⁵³ ndzɯ ⁵³	tʂɛ ⁵⁵

Just as for the voiceless stops above, prefixal *s- suppresses aspiration. In this set, the prefix seems to remain in several cases.

	PTB	MN	KL	Lüsū	Ersu
t					
PUT, PLACE	*s-ta-t, PLB *da ²	tʂi ²⁴		ne ³³ tʂi ⁵³ kə ³¹ 'put in order / tidy'	tʂɿ ⁵⁵ ta ⁵⁵ 'take back / put away'
THOUSAND	*s-toŋ	ʂtuŋ ⁵		tu ⁵³	hpu ⁵⁵
k					
BRANCH	*s-ka:k			se ³³ kə ⁵³ li ³¹	si ⁵⁵ ka ³³ lɛ ⁵⁵
HOLE	*guŋ ɰ *kuŋ, *kor	xko ⁵	qo ⁵ qo		pe ⁵⁵ hku ⁵⁵
k + C					
EXCREMENT	*kləy	ʂtʂɿ ⁵	ʂe ²⁴	ʂu ³⁵	htʂo ⁵⁵
SWEAT	*s-krul	tʂu ²⁴		tʂu ⁵³ ə ¹⁵³	tʂu ⁵⁵
SOUR	*s-kyu:r ɰ *s-kwyar:			de ³³ tʂu ⁵³	tʂɛ ⁵⁵

Two forms show *k-r- > y-.

	PTB	MN	KL	Lüsū	Ersu
CHICKEN	*k-rak		ɣwæ ²⁴	ɣua ³⁵	ra ⁵⁵
NEEDLE	*k-rap	ɣu ²⁴	ɛa ⁵	ɣu ³⁵ , ɣa ³⁵	xa ¹⁵⁵

Some voiceless stops with -l- medials have unique developments. In ESCAPE, the lateral disappears; this contrasts with WHITE (< PTB *plu, see section on l below), where the p has disappeared.

	PTB	MN	KL	Lüsū	Ersu
ESCAPE	*ploŋ			pho ³⁵	
COVER	*gup, *klup	xu ⁵ xu ⁵		xu ⁵³ xu ⁵³	

COVER has developed a velar fricative, which differs from the usual reflex of *velar + /l/,

³¹The prenasalization and the rhyme for this form are plausible developments, but the *r-k- > mpʂ- does not seem very likely on the whole.

which we turn to in the next section.

3.3 Retroflex consonants

So far, we have focused mainly on voicing and aspiration. We now make a brief digression to talk about place of articulation.

Retroflexes in Lizu come mostly from two sources: complex velar clusters, and ***sr-** clusters. All the examples of the velar clusters are listed here, along with three other retroflexes: FOUR derives from PTB ***b-l-**, and WATER from ***tw-**. The third non-velar example, GRASS, is more speculative.

Exceptions to **velar + l** are FLUTE (**ɬ**) and COVER (**x**); exceptions to **velar + r** are ENEMY and CHEST (**ɣ**), MELT (**ɬ**), FEAR (**k**), and BONE (**k^h**), all listed above.

	PTB	MN	KL	Lüsū	Ersu
GRASS	PLB *s-yəy ²	zu ²⁴		zu ³⁵	
FOUR	*b-ləy	zɿ ⁵		zu ³⁵	zɔ ³³
WATER	*m-t(w)əy	dzɿ ²⁴		(n)dzɿ ³⁵	dʒo ⁵⁵
DOG	*d-k ^w əy	tʂɿ ^h ⁵	tɕ ^h e ⁵	tɕhu ⁵³	tʂho ⁵⁵
velar + l					
COOK, BOIL (RICE)	*s-glak ɰ *klak	tʂə ⁵		khe ³³ tʂu ⁵³	tʂo ⁵⁵
DROP, FALL	*kla-k/y/t ɰ *gla-k/y/t	ne ⁵ dzæ ⁵		ne ³³ dzæ ³⁵	na ⁵⁵ dzɑ ⁵⁵
EXCREMENT	*kləy	ʂtʂɿ ⁵	ʂe ²⁴	ʂu ³⁵	htʂo ⁵⁵
velar + r					
GALL	*krəy ɰ *m-kri(y)-t-s	tʂɿ ⁵	tʂɿ ²⁴	kə ¹⁵³	tʂo ⁵⁵
GARDEN (VEGETABLE)	*kram			fu ³³ tʂhu ⁵³	fu ⁵⁵ tʂhe ⁵⁵
GRIND	*kri:t	dzə ²⁴		ə ¹³³ tha ⁵³ dzɿ ³¹	dʒe ⁵⁵
SIX	*d-kruk	tʂ ^h u ⁵		tʂhu ⁵³	tʂhu ⁵⁵
SKIN	PLB *m-k-rəy ¹	ndzɿ ⁵ pi ⁵	ndzɿ ²⁴	nga ¹³³ pi ⁵³ , n-gə ¹³⁵	ndʒo ⁵⁵ pi ⁵⁵
STAR	PLB *ʔgrəy ¹	tʂɿ ⁵ ts ^h e ⁵	tʂɿ ⁵	kə ¹³⁵	tʂɿ ⁵⁵
SWEAT	*s-krul	tʂu ²⁴		tʂu ⁵³ ə ¹⁵³	tʂu ⁵⁵
velar + y					
NAVEL	*kyak	tʂɿ pu ⁵		tʂua ³³ pu ⁵³	
SOUR	*s-kyu:r ɰ *s-kwya:r			de ³³ tʂu ⁵³	tʂe ⁵⁵
SWEET	*kyəw	de ⁵ tʂ ^h ɿ ⁵		de ³³ tʂhu ⁵³	tʂho ⁵⁵

WAIST	PTB *gyuk, PLB *gyuk ^L ≠ *džuk ^L	MN	KL	Lūsū dzɥ ³⁵	Ersu dʒu ⁵⁵
WEIGH (V.T.)	*kyi:n	ndzə ²⁴		de ⁵³ ndzɥ ⁵³	tʃe ⁵⁵

3.4 Palatals

There are several sources of palatals in Lizu, none of which include PTB *palatals.

Some *gy- and *g-r- clusters become voiced palatals. The sound changes involved here would look something like *gy- > ʒ- and *g-r- > dz-/dʒ-. (The following four forms were not listed above under voiced consonants.)

HUNDRED	PTB *b-r-gya	MN ʒa ²⁴	KL	Lūsū ʒæ ⁵³	Ersu za ⁵⁵
EIGHT	*b-r-gyat ≠ *b-g-ryat	dzɿ ²⁴		dʒi ³⁵	ʒɿ ⁵⁵
FIREPLACE	*g-rap				mɛ ³³ dʒi ⁵⁵
STAND	*g-r(y)ap	ndʒa ²⁴		khe ³³ ndʒæ ⁵³	ndza ⁵⁵

Other palatals come from a following high front vowel:

CLOUD	PTB *s-dim	MN tʃe ²⁴	KL	Lūsū tʃe ⁵³	Ersu tse ⁵⁵
KILL	*g/b-sat	ntʃi ^{hi5}		ntʃɥ ⁵³ ‘kill (an animal)’	ɣɿ ⁵⁵
PUT, PLACE	*s-ta-t, PLB *da ²	tʃi ²⁴		ne ³³ tʃi ⁵³ kæ ³¹ ‘put in order / tidy’	tsɿ ⁵⁵ ta ⁵⁵ ‘take back / put away’
SET (OF THE SUN)	*g(l)im ≠ *g(l)um	nə tʃe ²⁴		ne ³³ tʃu ⁵³	tʃho ⁵⁵
THREE	*g-sum	ʃe ⁵		ʃi ⁵³	si ⁵⁵

Palatal glides are sometimes inserted between a voiced velar and a low front vowel, although it is unclear why Lūsū has done this in one of these words (LOVE) but not the other (ENEMY).

ENEMY	PTB *gra	MN ɣjæ wu ⁵	KL	Lūsū gæ ³³ wu ⁵³	Ersu
LOVE	*r/N/d/s-ga	ɣjæ ²⁴		giæ ³⁵	ga ⁵⁵

Finally, there remain several cases of seemingly unconditioned, sporadic palatalization:

	PTB	MN	KL	Lǔsū	Ersu
EARTH / GROUND	*tsa	tɕa 'loca- tive'			
LEAF	*r-pak	sə p ^h ɕa ⁵		se ³³ phzæ ⁵³	le ⁵⁵ psɿ ⁵⁵ 'palm'
PINE	*taŋ	tɕho ⁵		tɕhu ⁵³ pu ⁵³	
POISON	*duk ɰ *tuk	nə ndzy ⁵		dzy ³⁵	dzu ⁵⁵

3.5 Uvulars

Although uvular consonants do not appear in Mianning, Chirkova (2008) notes that velars and uvulars are contrastive in Kala, and that uvulars seem to have developed from velars followed by /r/ in the same syllable, since many Kala words beginning with uvulars have cognates in Lǔsū with rhotic vowels. There are two forms in this paper whose Kala forms contain uvulars:

	PTB	MN	KL	Lǔsū	Ersu
HOLE	*guŋ ɰ *kuŋ, *kor	xko ⁵	qo ⁵ qo		pe ⁵⁵ hku ⁵⁵
NEEDLE	*k-rap	ɣu ²⁴	ɛa ⁵	ɣu ³⁵ , ɣa ³⁵	xa ¹⁵⁵

These forms are consistent with the hypothesis that uvulars developed from velar + /r/ tautosyllabically. In fact, this points to the form for HOLE as descending from *kor, not *guŋ ɰ *kuŋ.

This development is especially interesting in light of the fact that Lahu exhibits the opposite development: in Lahu, plain velars become uvulars, but velars in clusters containing /r/ and /l/ develop into velars Matisoff (2003:72).

3.6 Dental affricates: ts, dz

Just as for the stops, the *voiceless affricates have voiceless aspirated reflexes, and the *voiced affricates have voiced reflexes.

	PTB	MN	KL	Lǔsū	Ersu
ts					
FAT	*tsow	də ts ^h u ⁵		de ³³ tshu ⁵³	
GOAT	*tsi:t	ts ^h e ²⁴		tshē ³⁵	tshi ⁵⁵
HOT	*tsa-t	də ts ^h æ ⁵		tshæ ⁵³ tshæ ⁵³	tshɑ ⁵⁵
HUMAN	PLB *tsaŋ ¹	ts ^h o ²⁴		tshuo ⁵³	
JOINT	*tsik			tshɿ ³³ tshɿ ⁵³ ta ³³ ta ³³	
SALT	*tsa	ts ^h ɿ ⁵		tshɿ ⁵³	tshɿ ³³

	PTB	MN	KL	Lüsū	Ersu
SOUL, SPIRIT	*tsu	tʂ ^h æ ²⁴ 'ghost'		tʂhæ ⁵³	
TEN	*ts(y)i ɰ *ts(y)əy ɰ *tsyay	tɕ ^h e ⁵ tɕ ^h e ⁵		tɕhe ⁵³ tɕhe ⁵³	tʂhɛ ⁵⁵ tʂhɛ ⁵⁵
WASH (CLOTHES)	PLB *tsəy ²	tʂ ^h ɿ ⁵		ne ³³ tʂhe ⁵³	tʂhɛ ³³
dz					
BRIDGE	*m-dzam	dze ²⁴		dʒe ³⁵	dʒi ⁵⁵
PAIR	*dzum ɰ *tsum	dʒə ⁵		(te ⁵³) dʒu ⁵³	dʒɛ ⁵⁵
RAW	*dz(y)im	dʒɿ ⁵ dzə ⁵		dʒe ³³ dʒe ⁵³	dʒi ³³ dʒi ⁵⁵
SEED	*dzəy	ɣu ⁵ tsɿ ⁵		ɣu ³³ zɿ ⁵³	gɛ ⁵⁵

Exceptions are EGG, with unexpected voiceless initial; CHOP, with unexpected voiced initial; and EARTH/GROUND and MORTAR, with unaspirated initials.

	PTB	MN	KL	Lüsū	Ersu
CHOP	*ts(y)ap	dzə ²⁴		dʒe ³⁵ 'chop', dʒɿ ³⁵ 'chop down tree'	
EARTH / GROUND	*tsa	tɕɑ 'loca- tive'			
MORTAR	*tsum	tsu ⁵ mo ⁵		tsuo ⁵³ mo ⁵³	tsu ³³ ɿ ⁵⁵
EGG	*dz(y)u	tɕo ⁵		ɣua ³³ tɕu ⁵³	tʂɛ ⁵⁵

The prenasalized forms have unpredictable voicing and aspiration, just like for the stops.

	PTB	MN	KL	Lüsū	Ersu
DRIP / DROP (N.)	*m-dz(y)ak ɰ *m-tsak	də nt ^h ɑ ²⁴ 'to drip'		(te ⁵⁵) nthua ⁵³	nthua ⁵⁵
ITCH	*m-tsik	də ⁵ tʂɿ ⁵ tʂɿ ⁵		de ³³ dʒɿ ⁵³	ntshua ⁵⁵
LUNG	*tsut	nts ^h u ⁵ p ^x we ⁵		ntshu ⁵³	tshu ⁵⁵
THORN	*tsow	ntʂ ^h ɿ ²⁴		tʂɿ ³⁵	ntʃho ⁵⁵

The *s- prefixed forms have no aspiration, and seem to have lost their affrication as well.

	PTB	MN	KL	Lüsū	Ersu
COUNT	*r-tsyəy	ʂti ⁵			hte ⁵⁵
JUMP	PQc *N/s-tsak	ʂtə ⁵ ʂtæ ⁵		tsuo ³⁵	hto ⁵⁵

3.7 Palatal affricates: *tsy*, *dzy*

All of the palatal affricates seem to have merged with the dentals, with the exception of BOIL/BAKE and PUSH.

	PTB	MN	KL	Lǔsū	Ersu
CONNECT	*tsyap			khe ³³ tsu ⁵³	tse ³³ tse ⁵⁵
EAT	*dzya	dzɿ ²⁴	dzɿ ²⁴	dzɿ ⁵³	dzɿ ³³

CONNECT has an unaspirated initial where we expect *ts^h*.

Prenasalized forms:

	PTB	MN	KL	Lǔsū	Ersu
BOIL/BAKE	*tsyow	ntɕ ^h u ⁵ 'steam'		khe ³³ tɕu ⁵³	tʃo ⁵⁵ 'boil (rice)'
CLAW / FIN- GERNAIL	*m-tsyen	le ⁵ dza ⁵		dza ³³ dza ³³	dzɿ ⁵⁵ dzɿ ⁵⁵
RIDE A HORSE	*dzyi	ndzɿ ⁵		dze ⁵³	ndze ⁵⁵
PUSH	PLB *ʧ-cak ^L	ndzə ⁵		the ³³ dzu ⁵³	

3.8 Fricatives

In addition to the expected *s-* and *z-* reflexes, MEAT and IRON show **sy-* > *x-*. TOOTH, with initial **sw-* > *x-*, apparently shows the same development as **sy-*, and it seems that both the palatal and labiovelar glides have merged to condition the same consonant changes (just as both **k^w-* and **ky-* become retroflex affricates, above). Thus, we may be tempted to set up a relative chronology as follows:

1. **Cw*, **Cy* > **retroflex**
2. *ɕ* > **x**
3. **sr** > *ɕ* (see **r**, below)

where step (2) happened in Mianning but was skipped by the other dialects, so that in the other dialects **sr-* merged with **sy-*. Unfortunately, it turns out that we must treat **sw-* and **sy-* independently (i.e., we cannot collapse them into a single change as in (1) above), since Lǔsū also exhibits the **sw-* > *x* change in TOOTH, but not the **sy-* > *x* change in MEAT.

	PTB	MN	KL	Lǔsū	Ersu
s					
BREATH	*r-sak	sə ²⁴		se ³⁵	se ⁵⁵ dʒo ⁵⁵ te ³³ 'alive'

	PTB	MN	KL	Lūsū	Ersu
DIE	*səy	k ^h u ʃɿ ⁵		the ³³ ʃu ⁵³	ʃo ⁵⁵
FIREWOOD	*siŋ	sə ²⁴		se ³⁵	si ⁵⁵
FRUIT	*sey			se ³³ ʃɿ ⁵³	si ⁵⁵ ʃe ⁵⁵
NEW	*g-sik, *g-sar	ʃɿ ⁵ ʃɿ ⁵			ʃɿ ⁵⁵
THREE	*g-sum	ʃe ⁵		ʃi ⁵³	si ⁵⁵
TOOTH	*swa	xwe ⁵		fu ³⁵	ʃɿ ⁵⁵ ma ⁵⁵
WHO	PLB *su ¹	sə ⁵ bwe ⁵		se ⁵³	se ⁵⁵
z					
SON	*za	zɿ ⁵	zɿ ⁵	zɿ ⁵³	i ³³ za ⁵⁵
USE	*zum ʌ *zuŋ	zə ²⁴		ʃe ³⁵ hũ ⁵³	zi ⁵⁵
sy					
MEAT, FLESH	*sya-n	xu ⁵		ʃɿ ⁵³	ʃɿ ⁵⁵
IRON	*syam	xje ²⁴	ʃe ⁵	ʃu ⁵³	ʃe ⁵⁵

The prenasalized fricatives have developed into prenasalized affricates. An excrescent consonant is also found in the word for HORSE, where a **b** is inserted between **m** and **r**.³² Note that this change of prenasalized fricative into affricate also happened in Shekagalagari (Solé et al. In preparation). There is a phonetic explanation for this change: to go from a nasal stop to a (non-nasal) fricative, the velum must be raised simultaneously with the oral release into the fricative. If the velic gesture is early, causing the nasal passage to be prematurely blocked off, the effect is to create a stop consonant followed by a fricated release—in other words, an affricate.

	PTB	MN	KL	Lūsū	Ersu
KILL	*g/b-sat	ntɕ ^{hi} 5		ntʃhɿ ⁵³ ‘kill (an animal)’	ʃɿ ⁵⁵
LIVER	*m-sin	ntsha ²⁴		tsha ³⁵	ntsha ⁵⁵
LEOPARD	*g-zik	ndzɿ ²⁴		dzɿ ³³ mu ⁵³	ndzɿ ³³ nua ⁵⁵

Finally, the form for BLOOD shows ***s-hy-** > **ʃ-**, yet another source for retroflexes.

	PTB	MN	KL	Lūsū	Ersu
BLOOD	*s-hywəy	ʃɿ ⁵	ʃe ⁵	ʃu ³⁵	ʃo ⁵⁵

³²Textbook examples of excrescent consonants between nasal and oral stops include the **b** in *chamber* (cf. *camera*, from the same Latin root), and the **d** in *thunder* < OE **thunrian**.

3.8.1 Unexpected retroflexion

The following forms seem to have initials that descend from PTB dental fricates, but have become retroflex for mysterious reasons.

	PTB	MN	KL	Lǔsū	Ersu
DIE	*səy	k ^h u ɣ ⁵		the ³³ ɣu ⁵³	ʂo ⁵⁵
ITCH	*m-tsik	də ⁵ tɣ ⁵ tɣ ⁵		de ³³ dʒ ⁵³	ntshua ⁵⁵
PAIR	*dzum ɰ	dzə ⁵		(te ⁵³) dzu ⁵³	dʒe ⁵⁵
	*tsum				
SOUL, SPIRIT	*tsu	tɣ ^h æ ²⁴		tɣhæ ⁵³	
		‘ghost’			
THORN	*tsow	ntɣ ^h ²⁴		tɣh ³⁵	ntʃho ⁵⁵

3.9 Glides

Moving on to the sonorants, we find that *w- remains w- in Mianning, and becomes ɣ- or v- in other dialects:

	PTB	MN	KL	Lǔsū	Ersu
FULL, SATI- ATED	*k-wa	də wa ⁵			wɑ ⁵⁵
PIG	*p ^w ak, PLB *wak ^L	wo ²⁴	wo ⁵ /ɣo ⁵	ɣu ³⁵	vɛ ⁵⁵

The palatal glide, on the other hand, has developed into a palatal glide in SLEEP, a palatal nasal in HOUSE and SHEEP, a voiced velar fricative in LIQUOR and MOUSE, and a voiced retroflex fricative in GRASS, which seems parallel to the development in BLOOD.

	PTB	MN	KL	Lǔsū	Ersu
GRASS	PLB *s-yəy ²	zɯ ²⁴		zɯ ³⁵	
HOUSE	*k-yim ɰ	ɲe ²⁴		ɲi ³⁵	ji ⁵⁵
	*k-yum				
LIQUOR	*yəw	ɣo ²⁴		ɣuo ³⁵	vu ⁵⁵
RAT, MOUSE	*yəw	ɣo ²⁴		ɣuo ³³ jɯ ⁵³	gu ⁵⁵ pha ⁵⁵
SHEEP	*yaŋ ɰ	ɲo ²⁴		ɲu ³⁵	jo ⁵⁵
	*g-yak				
SLEEP	*s-yip ɰ	khɯ jo ⁵		khe ³³ ju ⁵³	
	*s-yup				

3.10 Liquids

There are three different reflexes of **sl-* clusters below. Most common is the voiceless lateral. Another possibility is for the lateral to become an obstruent, forming an *ʂt-* cluster; we will see this phenomenon again with the nasals, below. Finally, the form for PANTS seems to show **s-l- > ʒ*. We can try to explain this as a difference between prefixal vs. root *s-*. However, this can only account for two of the three reflexes, and we must endeavor to look elsewhere to explain the third.

	PTB	MN	KL	Lǔsū	Ersu
l > l					
COME	*la-y	læ ²⁴		læ ³⁵	la ⁵⁵
EARTH	*m-leŋ ʌ *m-ləy	me le ⁵			mɛ ³³ li ⁵⁵
GOOD	*l(y)ak ʌ *l(y)aŋ	le ²⁴	lje ²⁴	li ³³ li ⁵³	ja ³³ li ⁵⁵
HAND	*g-lak	lə phe ⁵		le ³³ pi ⁵³	ɛ ³³ phe ⁵⁵
MAGGOT	*s-luk/ŋ	bu lo ⁵			bɛ ³³ ə ¹⁵⁵
STONE, ROCK	*r-luŋ ʌ *k-luk	lo mæ ⁵		luo ³³ mæ ⁵³	ə ¹⁵⁵ khua ⁵⁵
TIGER	*k-la	læ phæ ⁵		læ ³³ phæ ⁵³	la ⁵⁵
WAIT	*lyan	lo ⁵		kho ³³ luo ⁵³	lo ⁵⁵
WHITE	*plu	de lə ⁵	ly ²⁴	de ³³ lu ⁵³	ə ¹⁵⁵
WIND	*g-ləy	me ⁵ le ⁵	me lje ⁵	me ⁵⁵ le ⁵³	mɛ ⁵⁵ ə ¹⁵⁵
sl,hl > t					
FLEA	*s-ləy	nts ^h u ⁵ li ⁵		tɛ ³³	ntsho ⁵⁵ to ⁵⁵
GOD, DEITY	*m-hla	tɛ ²⁴			tɛ ³³
LADDER	*s-ləy ʌ *s-lay		tɛ ⁵ tɕi	tɛ ³³ ki ⁵³	tɛ ⁵⁵ tsɿ ⁵⁵
MIDDLE	*m/s-la:y	xo ⁵ læ ⁵		guo ³³ ta ⁵³	htsɿ ⁵⁵ ; gu ³³ ta ⁵⁵
MOON	*s/g-la	tɛ ⁵ p ^h y ⁵		tɛ ³³ phe ⁵³	ta ⁵⁵ phe ⁵⁵
sl > st					
NECK	*m-liŋ	ʂtæ ¹²⁴		ta ⁵³ ə ¹⁵³	htua ³³ ra ⁵⁵
TONGUE	*s-l(y)a	ʂti ⁵ , ti ⁵ pi ⁵		ti ⁵³ pi ⁵³	htsɿ ³³ psɿ ⁵⁵
sl > ʒ					
TROUSERS, PANTS	*s-la	ʒa ²⁴		ʒæ ³³ tshɿ ⁵³	za ⁵⁵ tshɛ ⁵⁵

**r > ʒ* in general. Note the excrescent *-b-* in HORSE, which has shown up between the **r* and its nasal prefix (see the discussion on excrescent consonants under Fricatives, above). For HORN, see the discussion under **-uŋ*, above.

	PTB	MN	KL	Lǔsū	Ersu
HORN	*g-run	ə ¹⁵ bu ⁵		ə ¹³³ bu ⁵³	ru ⁵⁵

HORSE	PTB *k-m-raŋ	MN mbzɔ ⁵	KL nbə ⁵	Lǔsū nbo ¹³⁵	Ersu nbo ³³
LAUGH	*r(y)a	zɿ ⁵	ə ⁵	əɿ ³⁵	ɿ ⁵⁵

sr- clusters uniformly yield ʃ-.

LONG	PTB *s-riŋ	MN pæ ʃɑ ⁵	KL	Lǔsū ʃa ⁵³ ʃa ⁵³	Ersu ja ³³ ʃe ⁵⁵
LOUSE	*s-r(y)ik	ʃə mə ⁵		ʃu ³³ mæ ⁵³	ʃe ³³
NIT	*s-row			ʃu ³³ pe ⁵³ tshe ³¹	ʃe ³³ tse ³³
OTTER	*sram		ʃe ⁵	ʃe ³⁵	ʃɿ ⁵⁵ ji ⁵⁵

3.11 Nasals

The nasals are for the most part very straightforward:

	PTB	MN	KL	Lǔsū	Ersu
m					
BIG/ELDER	*maŋ	ts ^h u mo ⁵ 'old man'		tshuo ⁵³ mo ⁵³ 'old man'	mo ⁵⁵ mo ⁵⁵ 'old person'
CATCH	PLB *s/?-mi ¹				mi ⁵⁵
CLOSE (EYE)	*s-mi:t	mja ²⁴ de mu ⁵ me ⁵			
DREAM	*mak ʃ *r/s-maŋ	ji ma ⁵		ji ³³ ma ⁵³	ji ⁵⁵ ma ⁵⁵
EYE	*s-mik ʃ *s-myak	mja ²⁴		miæ ³³ mu ⁵³ 'eyebrow'	miæ ⁵⁵
FIRE	*mey	me ⁵		me ³⁵	mɛ ⁵⁵
FORGET	*ma-t	khu ⁵ -me ⁵ da ²⁴		the ³³ me ⁵³	the ³³ mɛ ⁵⁵
HAIR/FUR	*s-mul	mwe ⁵ , mə ¹⁵⁵	mv ⁵	mu ⁵³	ma ¹⁵⁵
MONKEY	PLB *myuk ^L , *s-myuk ^H				mi ³³
MOTHER	*ma	æ ⁵ mə ⁵			a ⁵⁵ ma ⁵⁵
NAME	*r/s-miŋ	mi ²⁴		mi ³⁵	mi ⁵⁵
NEGATIVE	*ma-y	mæ			ma ³³
SKY	*r-məw		me ⁵	muo ³⁵	mɛ ³³ tɕo ⁵⁵
TAIL	*r-may ʃ *r-mey ʃ *r-mi	mu kwər ⁵	me ⁵ ntɕ ^h o	mu ³³ kə ¹⁵³	mɛ ³³ ntʃhɛ ⁵⁵

	PTB	MN	KL	Lǔsū	Ersu
n					
BEAN	*s-nuk	no ⁵			
BLACK	*s-nak	de na ⁵		de ³³ nua ⁵³	nua ⁵⁵
BRAIN	*s-nuk	ə ¹ no ⁵		nu ⁵³	no ⁵⁵
BREAST	*nəw	dzæ ny ⁵		dzæ ³³ nu ⁵³	no ⁵⁵ no ⁵⁵
DEEP	*s-nak			nui ⁵³ nui ⁵³	ja ³³ ne ⁵⁵
EAR	*r/g-na	æ ⁵ na ⁵ pi ⁵		na ⁵³ pi ⁵³	na ⁵⁵ ku ⁵⁵
GET/HAVE	*r-ney-t	ni ⁵ ‘have, exist’	je ‘exist’		
ILL / SICK	*na-n/t	de ni ⁵		de ³³ ni ⁵³	ni ⁵⁵
LISTEN	*r/g-na	bæ ni ⁵		bæ ³³ ni ⁵³	ba ³³ ni ⁵⁵
NEAR	*s-ney	ər ni ⁵		ə ¹³³ ni ⁵³	ni ⁵⁵
RED	*r-ni	ni ⁵ fu ⁵ fu ⁵		de ³³ ni ⁵³	ni ⁵⁵
REST	*g-na-s	de bze ⁵ ni ⁵ sæ ⁵		bu ³³ ni ⁵³ , ɲe ³³ ni ⁵³	ba ⁵⁵ ni ⁵³
SUN	*nəy	ni ⁵ mæ ⁵		ni ³³ me ⁵³ , ni ³³ mi ⁵³	no ⁵⁵ ma ⁵⁵
TWO	*g/s-nis	nə ²⁴		ne ³⁵	ne ⁵⁵
WEST	*s-ni(:)p ɰ *r/s-nyap ɰ *s-nu(:)p	nə ²⁴		ni ³⁵	no ⁵⁵ tɰho ⁵⁵

	PTB	MN	KL	Lǔsū	Ersu
ŋ					
CATTLE	*ŋwa	ŋwe ⁵	ŋu ⁵	ŋu ⁵³	ŋua ¹³³
FISH > STINK	*s-ŋ(y)a	de ŋæ ¹⁵ ‘to stink’		(ŋæ ³⁵)	ŋua ¹⁵⁵ ‘stinky’
FIVE	*l/b-ŋa	ŋæ ¹⁵	fi ²⁴	ŋa ⁵³	ŋua ¹³³
SILVER	*d-ŋul	ər ŋwe ⁵	ŋu ²⁴	ŋu ³⁵	ŋua ¹⁵⁵
WEEP	*ŋəw	ŋu ²⁴	ŋu ⁵ /fi ⁵	ŋu ³⁵	

*s-prefixed nasals denasalize to fricative + stop clusters. Note that there are no *sŋ- initials that have developed into k-, for reasons unknown.

	PTB	MN	KL	Lǔsū	Ersu
MEDICINE	*s-man	hpi ⁵	pje ⁵	pi ⁵³	ni ⁵⁵ htɕi ⁵⁵
HEART	*s-ni-ŋ	ɕti mi ⁵		ti ⁵³ mi ⁵³	sɭ ⁵⁵ ni ⁵⁵
NOSE	*s-na	ɕti ⁵ mbu ⁵		ki ³³ mu ⁵³	sɭ ⁵⁵ nbu ⁵⁵
SEVEN	*s-nis	ɕtŋ ⁵	tŋ ⁵ , kŋ ⁵	skŋ ⁵³	ɕɭ ⁵⁵ n ⁵⁵
SNOT	*s-nap	ɕte dzæ ¹⁵	kŋ-ræ ²⁴	(ti ³³ nkhæ ⁵³)	su ⁵⁵ zɑ ⁵⁵ rɛ ⁵⁵

Finally, I include a form of a more speculative nature.

	PTB	MN	KL	Lǔsū	Ersu
MUSHROOM	*g/s-məw	hə ²⁴	fi ²⁴	hũ ⁵⁵	xə ⁵⁵

4 Summary of Sound Changes

The regular developments of PTB rhymes into Mianning are summarized below:

	*a	*i	*e	*u	*o
open	i	i		u/ø	
*-y	æ	i/e	i		
*-w				ɥ/ʉ/u	u
*-l	i			we	
*-r	æ ^r			u	
*-m	e	e		u/ə	
*-n	i	ɑ	ɑ		
*-ŋ	o	ɑ		o	
*-p	ə/ɑ	ə		o/ʉ	
*-t	i	e		u	
*-k	ə/ɑ	i		o/u	ʉ
*-s		?		o	

Table 1: Mianning reflexes of PTB rhymes

The presence of the medial glides /y/ and /w/ do not seem to affect rhyme developments very much, except for *-wa(l) > we/u.

Regular consonant developments are summarized in Table 2, with prefixal elements (none, s- prefix, or nasal prefix) as columns, and individual consonants or consonant clusters as rows.

5 Conclusion

Having figured out many of the regular sound changes from PTB into Lizu, we are now in a position to evaluate some of the irregular forms in our data. The following forms are irregular in both initial and rhyme and may need to be thrown out: STING (with unexpected affricate), SOUL/SPIRIT, and THORN.

Here are some of the problems that remain to be solved:

Origin of bz/pz clusters. In the data above, there are two forms with these initials: pze⁵ ‘run’ < *b-ləy, and bzɿ bze⁵ ‘fly (v.)’ < *byam. However, notice that two forms with the same *initials, PUS *m-blen and BEE *bya, do not develop the same way.

Prenasalized voiceless stops. When are the reflexes prenasalized voiceless vs. prenasalized voiced vs. plain voiced?

	*plain	*s-	*N-
*p	p ^h		(m)b/mp ^h
*t	t ^h	(ʃ)t	
*k	k ^h	xk	ŋg
*b	b	p	mb
*d	d	t	nd
*g	ɣ		ŋg
*tw, *k ^w	tʃ ^h		dz _ɹ
*gl, *kl	?	?	
*kr, *ky	tʃ ^h	tʃ	ndz
*gr, *gy	dz _ɹ	tʃ	
*s	s		nts ^h
*z	z		ndz
*sy	x		
*sr (= *s-r-)	ʃ		
*ts(y)	ts ^h	ʃt	dz/nts ^h
*dz(y)	dz		ndz
*w	w		
*y	j/ɲ/ɣ		
*r	ɹ	(= *sr-)	
*l	l	ɬ/ʃt/z	
*m	m	hp	
*n	n	ʃt	
*ŋ	ŋ		

Table 2: Mianning reflexes of PTB initial consonants and prefixes

Sporadic palatalization. What is the explanation for otherwise good-looking roots that have unexplained palatal initials (EARTH/GROUND, LEAF, PINE, and POISON)? Why do some velar-initial syllables have palatal medials while others do not (ENEMY vs. LOVE)?

Sporadic labialization. EXPENSIVE has an unexplained -w- medial in Mianning. Many forms have unexplained -w- medials in Lūsū, but not in Mianning: BLACK, CHICKEN, CROW, DRIP/DROP (N.), and NAVEL, and various forms with back vowels: CROOKED, PERSON, SKY, and STONE.

Clusters with sl-. When do we get ɬ- vs. ʃt- vs. z-?

Nasalization. There are only two examples of nasalized vowels in the data: HATCH and MUSHROOM, both of which have an initial h-, and both of which I have marked as ‘speculative’. Do these forms fit?

	PTB	MN	KL	Lǔsū	Ersu
HATCH	*s/r-go-ŋ	hǎ ⁵⁵		khe ³³ xŋ ³¹	xɛ ⁵⁵
MUSHROOM	*g/s-məw	hǎ ²⁴	fɪrǎ ²⁴	hũ ⁵⁵	xə ⁵⁵

Should less plausible-looking forms be included, such as the following?

	PTB	MN	KL	Lǔsū	Ersu
BAMBOO	?	hǐ ⁵	hē ⁵	ŋi ⁵³	xi ⁵⁵
BORROW/LEND	*r/s-ŋ(y)a	hē ²⁴		khe ³³ hǐ ³¹	
FRAGRANT	?		de ⁵ hỹ	de ³³ hũ ⁵³	he ⁵⁵
RIPE	*s-min	hǐ ²⁴		de ³³ hǐ ⁵³	dɛ ³³ xi ⁵⁵
SMELL	*s-nam			te ⁵³ hũ ⁵³ hũ ³¹	hǐ ⁵⁵ hǐ ⁵⁵

There are two ways to approach this problem. One is to take the nasalized vowels as secondary developments, and the change in the initial consonants from nasals to glottal fricatives an example of rhinoglottophilia (see Matisoff 1975). The nasalized vowels, then, could have been conditioned by either an initial glottal or an initial nasal. (In fact, this is exactly what happened as a later, independent development in Kala, where e.g. the form for ‘five’ is **fǎ²⁴**, corresponding to initial **ŋ-** in the other dialects.) Note that there are no examples of initial ***sŋ-** in the discussion of consonant developments above; whereas ***sm-** > **hp-** and ***sn-**, ***sl-** > **ɣt-**, we did not find examples of, e.g. ***sŋ-** > **xk-**. It is tempting to fill in this gap with a sound change like ***sŋ-** > **h-**, which would at least explain the form for BORROW/LEND.

Unfortunately, such an explanation fails to account for the fact that in all three Lizu dialects, [h] and [x] are in complementary distribution, with the glottal only appearing before nasalized vowels. Note that there are nasalized vowels that appear in other contexts in Lizu (i.e., not just after glottals); since all the PTB nasal-final rhymes discussed above appear to have developed into oral vowels, it is possible that forms with nasal vowels belong to a newer stratum of the lexicon. Further complicating matters is the fact that several of the cognate forms listed above for Ersu have initial **x-** with an oral vowel, while the form for FRAGRANT has an initial **h-** with no nasal vowel, whereas the form for SMELL has initial **h-** with a nasal vowel.

Another approach is to say that the nasalized vowels are primary, and that they conditioned a **x** > **h** change. The phonetic explanation for this would be as follows: when pronouncing a velar fricative followed by a nasal vowel, the velum may lower in anticipation of the vowel. This has the effect of reducing the air pressure behind the oral constriction, which is required for producing a strong frication noise. Without this noise, the velar fricative will be perceived as a glottal fricative instead.

Rhotacism. Some forms have developed rhotacized vowels in unexpected places, such as after velar stops. Some sets have developed retroflex affricates in most dialects where Lǔsū retains velar initial + rhotic vowel. Also, Ersu has ə^r in some words correspond-

ing to lateral initials in Lizu. What is the exact environment for these changes, and how do they relate to PTB?

	PTB	MN	KL	Lūsū	Ersu
near [r]					
SNAKE	*s-b-ru:l	bə ¹⁵	bə ⁵ ə	bu ³³ γu ¹³⁵	bɛ ³³ r ¹ ⁵⁵
HORSE	*k-m-raŋ	mbzɔ ⁵	nbə ⁵	nbo ¹³⁵	nbo ³³
HORN	*g-ruŋ	ə ¹⁵ bu ⁵		ə ¹³³ bu ⁵³	ru ⁵⁵
LAUGH	*r(y)a	ʒu ⁵	ə ⁵	əɹ ³⁵	r ¹ ⁵⁵
velar					
BITTER	*b-ka	de k ^h æ ¹⁵		de ³³ kha ⁵³	tʃhi ⁵⁵
FISH > STINK	*s-ŋ(y)a	de ŋæ ¹⁵ ‘to stink’		(næ ³⁵)	ŋua ¹⁵⁵ ‘stinky’
FIVE	*l/b-ŋa	ŋæ ¹⁵	fiã ²⁴	ŋa ⁵³	ŋua ¹³³
other					
NECK	*m-liŋ	ɣtæ ¹²⁴		ta ⁵³ ə ¹⁵³	htua ³³ ra ⁵⁵
HAIR/FUR	*s-mul	mwe ⁵ , mə ¹⁵⁵	mv ⁵	mu ⁵³	ma ¹⁵⁵
LS					
STAR	PLB *ʔgrəy ¹	tʃɿ ⁵ ts ^{he} ⁵	tʃɿ ⁵	kə ¹³⁵	tʃɿ ⁵⁵
GALL	*krəy ɰ *m-kri(y)-t-s	tʃɿ ⁵	tʃɿ ²⁴	kə ¹⁵³	tʃo ⁵⁵
SKIN	PLB *m-k-rəy ¹	ndzɿ ⁵ pi ⁵	ndzɿ ²⁴	nga ¹³³ pi ⁵³ , n-gə ¹³⁵	ndzɔ ⁵⁵ pi ⁵⁵
Ersuic					
MAGGOT	*s-luk/ŋ	bu lo ⁵			bɛ ³³ ə ¹⁵⁵
STONE, ROCK	*r-luŋ ɰ *k-luk	lo mə ⁵		luo ³³ mæ ⁵³	ə ¹⁵⁵ khua ⁵⁵
WIND	*g-ləy	me ⁵ le ⁵	me lje ⁵	me ⁵⁵ le ⁵³	mɛ ⁵⁵ ə ¹⁵⁵
WHITE	*plu	de lə ⁵	ly ²⁴	de ³³ lu ⁵³	ə ¹⁵⁵

Tones. One important area of future exploration is tone. Eyeballing the forms above, it seems the Lizu tones seem to match across dialects for the most part. Where there are discrepancies, are these due to regular sound changes or to transcription error? How do these tones match up with Ersu tones? Are tones reconstructible for proto-Lizu, proto-Ersuic, or higher taxonomic levels, and if not, what were the mechanisms of tonogenesis?

Subgrouping. We have seen that although Lizu and Ersu participate in the “brightening” change that is characteristic of Qiangic, there are notable classes of exceptions: although velars are expected to inhibit brightening, laterals have not been noted to do so in other Qiangic languages. It remains to be seen what the exact relationships are between Lizu and other Qiangic languages, and more broadly (since we have pointed out

some proto-forms that Ersuic seems to share with Lolo-Burmese) between Qiangic and Lolo-Burmese.

The answers to these questions will rely on reconstructing at the meso-level, figuring out more sound changes and finding more cognate sets within Ersuic and Qiangic. In a similar vein, though I have made no attempt to revise current reconstructions of PTB in this paper, my hope is that ultimately such efforts will shed light on Tibeto-Burman and the larger Sino-Tibetan language family.

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Index by English Gloss

Protogloss	Protoform	Set #	Pages
AXE	*r-p ^w a	(40)	12, 30
BEAN	*s-nuk	(187)	25, 41
BEAR (N.)	*d/g-wam	(48)	13, 29
BEE	*bya	(1)	9, 27
BELLY	*p ^w am	(54)	13, 30
BITTER	*b-ka	(19)	10, 30, 45
BLACK	*s-nak	(64)	14, 41
BLOOD	*s-hywəy	(105)	18, 38
BOIL/BAKE	*tsyow	(170)	23, 36
BONE	*s/m/g-rus	(199)	26, 28
BOWL	*kwak	(73)	15, 30
BRAIN	*s-nuk	(188)	25, 41
BRANCH	*s-ka:k	(74)	15, 31
BREAST	*nəw	(163)	23, 41
BREATH	*r-sak	(76)	15, 37
BRIDGE	*m-dzam	(49)	13, 35
CARRY ON BACK	*ba	(33)	11, 27
CATCH	PLB *s/?-mi ¹	(94)	17, 40
CATTLE	*ŋwa	(42)	12, 41
CHEST (BODY)	*b/g-raŋ	(62)	14, 27
CHICKEN	*k-rak	(66)	14, 31
CHOP	*ts(y)ap	(85)	16, 35
CLAW / FINGERNAIL	*m-tsyen	(131)	20, 36
CLASSIFIER FOR TREES	PLB *baŋ ¹	(63)	14, 28
CLOSE (EYE)	*s-mi:t	(143)	21, 40

Protogloss	Protoform	Set #	Pages
CLOUD	*s-dim	(133)	20, 29, 33
COME	*la-y	(24)	10, 39
CONNECT	*tsyap	(84)	16, 36
COOK, BOIL (RICE)	*s-glak ⌘ *klak	(77)	15, 29, 32
COUNT	*r-tsyəy	(109)	18, 36
COVER	*gup, *klup	(197)	26, 32
CROOKED	*kuk	(189)	25, 30
CROW	*ka	(38)	11, 30
DEAF PERSON	*l/m-baŋ	(55)	14, 28
DEEP	*s-nak	(78)	15, 41
DIE	*səy	(98)	18, 37, 38
DOG	*d-k ^w əy	(106)	18, 30, 32
DREAM	*mak ⌘ *r/s-maŋ	(65)	14, 40
DRIP / DROP (N.)	*m-dz(y)ak ⌘ *m-tsak	(67)	14, 35
DROP, FALL	*kla-k/y/t ⌘ *gla-k/y/t	(90)	17, 28, 32
EAR	*r/g-na	(34)	11, 41
EARTH	*m-ley ⌘ *m-ləy	(112)	19, 39
EARTH / GROUND	*tsa	(30)	11, 34, 35
EAT	*dzya	(2)	9, 36
EGG	*dz(y)u	(149)	22, 35
EIGHT	*b-r-gyat ⌘ *b-g-ryat	(13)	10, 33
BIG/ELDER	*maŋ	(56)	14, 40
ENEMY	*gra	(20)	10, 27, 34
ESCAPE	*ploŋ	(185)	25, 32
EXCREMENT	*kləy	(99)	18, 31, 32
EXPENSIVE	*kak	(68)	15, 29
EYE	*s-mik ⌘ *s-myak	(69)	15, 40
FAT	*tsow	(167)	23, 35
FEAR	*k/grok ⌘ *k/grak	(195)	26, 30
FIRE	*mey	(119)	19, 40
FIREPLACE	*g-rap	(86)	16, 33
FIREWOOD	*siŋ	(126)	20, 37
FISH > STINK	*s-ŋ(y)a	(21)	10, 41, 45
FIVE	*l/b-ŋa	(22)	10, 41, 45
FLEA	*s-ləy	(110)	18, 39
FLUTE	*gliŋ	(124)	20, 29

Protogloss	Protoform	Set #	Pages
FLY (V.)	*byam	(50)	13, 27
FORGET	*ma-t	(39)	11, 40
FOUR	*b-ləy	(100)	18, 32
FROG	*s-bal	(12)	10, 29
FRUIT	*sey	(120)	19, 37
GALL	*krəy ɤ *m-kri(y)-t-s	(101)	18, 30, 32, 45
GARDEN (VEG- ETABLE)	*kram	(51)	13, 30, 32
GET/HAVE	*r-ney-t	(122)	19, 41
GOAT	*tsi:t	(144)	21, 35
GOD, DEITY	*m-hla	(25)	10, 39
GOOD	*l(y)ak ɤ *l(y)aŋ	(72)	15, 39
GRANDFATHER	*pu	(150)	22, 29
GRASS	PLB *s-yəy ²	(117)	19, 32, 38
GRIND	*kri:t	(145)	21, 30, 32
HAIR/FUR	*s-mul	(172)	24, 40, 45
HAND	*g-lak	(79)	15, 39
HATCH	*s/r-go-ŋ	(186)	25, 29, 44
HEAD	*d-bu	(151)	22, 29
HEART	*s-ni-ŋ	(96)	17, 41
HOLE	*guŋ ɤ *kuŋ, *kor	(181)	25, 31, 34
HOOF	*kwa	(45)	12, 30
HORN	*g-ruŋ	(182)	25, 39, 45
HORSE	*k-m-raŋ	(57)	14, 40, 45
HOT	*tsa-t	(35)	11, 35
HOUSE	*k-yim ɤ *k-yum	(134)	20, 38
HUMAN	PLB *tsaŋ ¹	(58)	14, 35
HUNDRED	*b-r-gya	(32)	11, 33
ICE	*s-p ^w al	(47)	13, 30
ILL / SICK	*na-n/t	(3)	9, 41
INSECT, WORM	*bəw	(164)	23, 27
IRON	*syam	(52)	13, 37
ITCH	*m-tsik	(138)	21, 35, 38
JOINT	*tsik	(139)	21, 35
JUMP	PQc *N/s-tsak	(75)	15, 36
KILL	*g/b-sat	(14)	10, 33, 37
LADDER	*s-ləy ɤ *s-lay	(113)	19, 39
LAUGH	*r(y)a	(4)	9, 40, 45
LEAF	*r-pak	(70)	15, 29, 34
LEECH	*k-r-p ^w at	(15)	10, 30

Protogloss	Protoform	Set #	Pages
LEOPARD	*g-zik	(140)	21, 37
LIQUOR	*yəw	(161)	23, 38
LISTEN	*r/g-na	(6)	9, 41
LIVER	*m-sin	(129)	20, 37
LONG	*s-riŋ	(125)	20, 40
LOUSE	*s-r(y)ik	(141)	21, 40
LOVE	*r/N/d/s-ga	(23)	10, 27, 34
LUNG	*tsut	(196)	26, 35
MAGGOT	*s-luk/ŋ	(190)	25, 39, 45
MEAT, FLESH	*sya-n	(7)	9, 37
MEDICINE	*s-man	(18)	10, 41
MELT	*s/m-grəy	(118)	19, 29
MIDDLE	*m/s-la:y	(91)	17, 39
MONKEY	PLB *myuk ^L , *s-myuk ^H	(193)	26, 40
MOON	*s/g-la	(26)	10, 39
MORTAR	*tsum	(176)	24, 35
MOTHER	*ma	(36)	11, 40
MUSHROOM	*g/s-məw	(165)	23, 41, 44
NAME	*r/s-miŋ	(128)	20, 40
NAVEL	*kyak	(80)	15, 30, 33
NEAR	*s-ney	(121)	19, 41
NECK	*m-liŋ	(127)	20, 39, 45
NEEDLE	*k-rap	(87)	16, 31, 34
NEGATIVE	*ma-y	(28)	11, 40
NEGATIVE IMPERATIVE	*da ≈ *ta	(29)	11, 29
NEW	*g-sik, *g-sar	(142)	21, 37
NINE	*d/s-kəw, PQc *s/r/n-gəw	(155)	23, 31
NIT	*s-row	(168)	23, 40
NOSE	*s-na	(8)	9, 41
OTTER	*sram	(53)	13, 40
PAIR	*dzum ≈ *tsum	(177)	24, 35, 38
PATCH	*p ^w a, PLB *ba ¹	(41)	12, 30
PHLEGM	*ka:k	(71)	15, 30
PIG	*p ^w ak, PLB *wak ^L	(83)	16, 38
PILLOW	*m-kum ≈ *m-kim	(135)	21, 31
PINE	*taŋ	(59)	14, 29, 34
POISON	*duk ≈ *tuk	(194)	26, 29, 34
PRICE	*pəw	(156)	23, 29

Protogloss	Protoform	Set #	Pages
PUS	*m-blen	(132)	20, 28
PUSH	PLB *ʕ-cak ^L	(81)	16, 36
PUT, PLACE	*s-ta-t, PLB *da ²	(16)	10, 31, 33
RAIN	*r-wa-s ∞ *s-wa ∞ *g-wa	(46)	13, 27
RAT, MOUSE	*yəw	(162)	23, 38
RAW	*dz(y)im	(136)	21, 35
RED	*r-ni	(95)	17, 41
REST	*g-na-s	(9)	9, 41
RIDE A HORSE	*dzyi	(97)	17, 36
RUN	*b-ləy	(114)	19, 28
SALT	*tsa	(10)	9, 35
FULL, SATIATED	*k-wa	(37)	11, 38
SEED	*dzəy	(107)	18, 35
SET (OF THE SUN)	*g(l)im ∞ *g(l)um	(137)	21, 28, 33
SEVEN	*s-nis	(147)	22, 41
SHEEP	*yaŋ ∞ *g-yak	(60)	14, 38
SILVER	*d-ŋul	(173)	24, 41
SIX	*d-kruk	(191)	25, 30, 32
SKIN	PLB *m-k-rəy ¹	(102)	18, 31, 32, 45
SKY	*r-məw	(157)	23, 40
SLEEP	*s-yip ∞ *s- yup	(198)	26, 38
SMOKE	*kəw	(158)	23, 31
SNAKE	*s-b-ru:l	(174)	24, 27, 45
SNOT	*s-nap	(88)	16, 41
SON	*za	(5)	9, 37
SOUL, SPIRIT	*tsu	(152)	22, 35, 38
SOUR	*s-kyu:r ∞ *s-kwya:r	(171)	24, 31, 33
STAND	*g-r(y)ap	(89)	16, 33
STAR	PLB *ʔgrəy ¹	(103)	18, 29, 33, 45
STEAL	*r-kəw	(166)	23, 31
STING (V.)	*ta:y, PLB *n-day ²	(92)	17, 29
STONE, ROCK	*r-luŋ *k-luk	(180)	25, 39, 45
SUN	*nəy	(111)	19, 41
SWEAT	*s-krul	(175)	24, 31, 33
SWEET	*kyəw	(159)	23, 30, 33
TAIL	*r-may ∞ *r-mey ∞ *r-mi	(123)	19, 40

Protogloss	Protoform	Set #	Pages
TEN	*ts(y)i ɤ *ts(y)əy ɤ *tsyay	(115)	19, 35
THIS/THAT	*day	(93)	17, 27
THORN	*tsow	(169)	23, 35, 38
THOUSAND	*s-toŋ	(183)	25, 31
THREE	*g-sum	(178)	24, 33, 37
TIGER	*k-la	(27)	10, 39
TONGUE	*s-l(y)a	(11)	9, 39
TOOTH	*swa	(43)	12, 37
TROUSERS, PANTS	*s-la	(31)	11, 39
TWO	*g/s-nis	(148)	22, 41
USE	*zum ɤ *zuŋ	(179)	24, 37
VOMIT	*m-pat	(17)	10, 30
WAIST	*gyuk, PLB *gyuk ^L ɤ *dʒuk ^L	(192)	25, 28, 33
WAIT	*lyaŋ	(61)	14, 39
WASH (CLOTHES)	PLB *tsəy ²	(108)	18, 35
WATER	*m-t(w)əy	(104)	18, 31, 32
WEAR / PUT ON	*gwa-n, *s-g-w(y)a-n/t	(44)	12, 27
WEAVE	*tak ɤ *dak	(82)	16, 27
WEEP	*ŋəw	(160)	23, 41
WEIGH (V.T.)	*kyi:n	(130)	20, 31, 33
WEST	*s-ni(:)p ɤ *r/s-nyap ɤ *s-nu(:)p	(146)	22, 41
WHITE	*plu	(153)	22, 39, 45
WHO	PLB *su ¹	(154)	22, 37
WIND	*g-ləy	(116)	19, 39, 45
WING	*duŋ	(184)	25, 27