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<Phonology> Notes on the Phonological Development of Menglun Akeu

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Summary

This paper attempts to investigate the phonological development of Menglun Akeu, a lesser-known Tibeto-Burman language spoken in Mengla County of Yunnan Province of China. Using the author's firsthand data of Menglun Akeu and two related languages (Akha Buli and Youle Jino), both segments and suprasegments of the language are compared with those of written Burmese and the proto languages reconstructed by David Bradley and James A. Matisoff.

The stop and affricate onsets in Menglun Akeu mostly preserve the VOT system of the Proto-Loloish or the Proto-Lolo-Burmese, whereas the fricative in Menglun Akeu corresponds to Lolo-Burmese languages in a complicated manner. The medial /-j-/ can be preceded by the velar onsets (/k-, g-/) in Menglun Akeu, which in some cases ('to steal' and 'nine') corresponds only to Youle Jino in the dataset of this paper. Syllabic nasal /n̩/ can be found in Menglun Akeu, which is the outcome of deleting the rime.

The rime correspondence between Menglun Akeu and other Lolo-Burmese is complex, although there are a few corresponding rules [Menglun Akeu: Proto-Loloish = -i: *-ey/ *-i, -ɛ: -*am, -a: *-a, -u: *-u, etc.].

As a result of the tonal comparison between Menglun Akeu and Lolo-Burmese languages, it is arguable that the tonal correspondence between Menglun Akeu and Akha Buli is quite clear, which follows the general principles of tonal merge proposed by Bradley (1977) [Proto-Loloish > Menglun Akeu/ Akha Buli = *1> 55, *2/*L > 21, *3/*H >33].

**Key words**: Akeu, Southern Loloish, Yunnan, Phonological Development

1. Introduction

The Akeu language [Glottocode: akeu1235, ISO 639-3: aeu] is a member of the Southern Loloish (Yipho) branch of the Tibeto-Burman linguistic family (Bradley 1997, 2002, see Figure) and is spoken in four different countries: China, Myanmar/ Burma, Laos, and Thailand (see Map). The Menglun variety of Akeu (henceforth Menglun Akeu) is a dialect of the Akeu language spoken in the town of Menglun, located in Mengla County in Yunnan Province, China. This paper presents an exploration of the phonological development of Menglun Akeu through a comparison of firsthand data[1] for this language with data from other Tibeto-Burman (henceforth TB) languages.

Several studies have been conducted on other varieties of the Akeu language. Gong
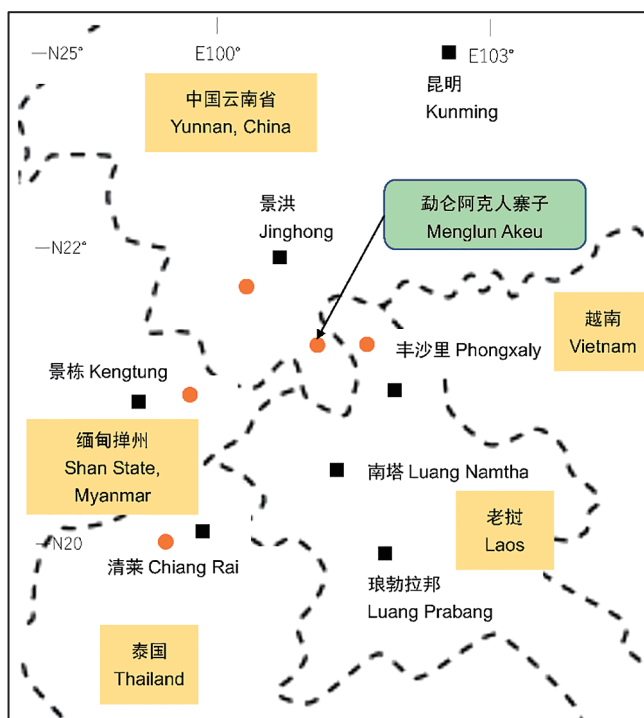
Map   The villages of Akeu (●)
[Adapted from Hayashi and Gao 2019]
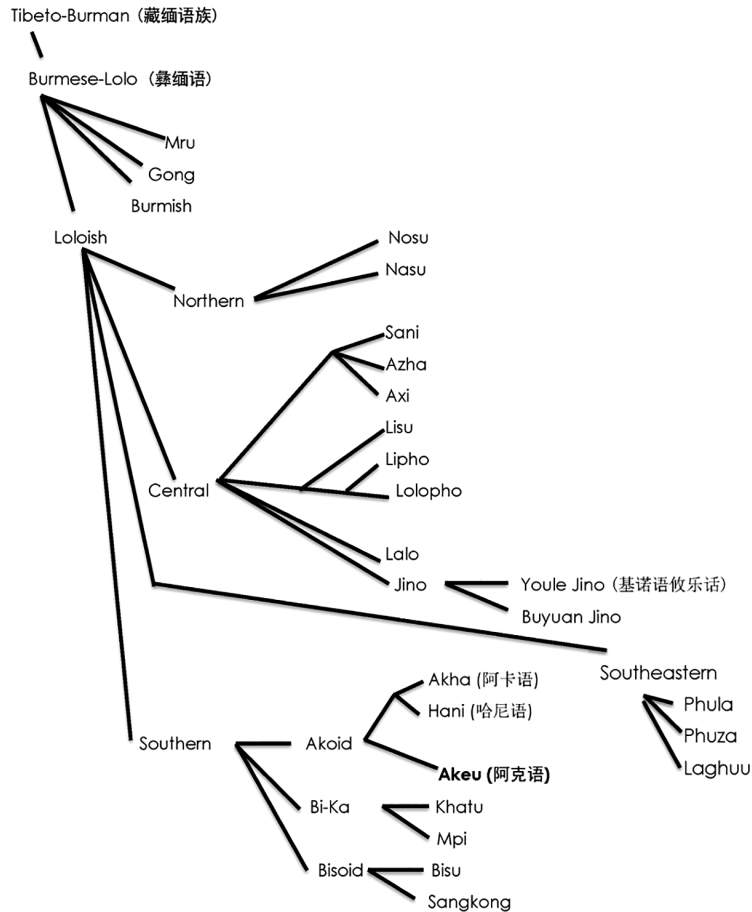
Figure   Genealogy of Akeu and Lolo-Burmese (Bradley 1997, 2002)[2]

(1982) introduced the Kengtung dialect of Akeu, which is spoken in Shan State, Myanmar, and compared it with Akha. Hansson (1988, 1997 [1992]) illustrated the Chiang Rai dialect of Akeu (she utilizes the autonym 'Gokhy' in her papers) by comparing it with Akha, which is the surrounding language. Shintani (2017) compiled the lexicon of the Kengtung dialect of Akeu. Shi et al. (2017) conducted a sociolinguistic study of the Akeu language of Menghai County in Yunnan, China. These varieties of Akeu and the analyses of their phonology in these previous works differ from those in this paper, in regard to which several points will be mentioned in the footnotes of the later sections.

The organization of this paper is as follows. Before moving toward the historical comparison, the synchronic aspect of the phonological inventories should be noted. The

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[2] This figure is adapted from Hayashi and Gao (2019).

Table 1   Segmental Chart of Menglun Akeu Phonology

[Consonants]				[Plain Vowels]			[Creaky Vowels]		
p b	t d		k g	i y	ɯ	u	i̠ y̠	ɯ̠	u̠
	ts dz			e	ɤ	o	e̠	ɤ̠	o̠
m	n	ɳ	ŋ	ɛ	a	ɔ	ɛ̠	a̠	ɔ̠
	s		x ɣ						
w	l	j							

segmental and suprasegmental units are thus summarized in Section 2. Each segment of the syllable structure, such as onsets, medials, rimes, and tones, are compared with those of other TB languages in Section 3. Section 4 concludes this paper.

The Menglun Akeu data are all extracted from the author's fieldnotes, and the data sources of other languages including proto-languages are summarized in the **Data Sources** section.

2. Synchronic Phonology

This section summarizes the synchronic phonological inventories of Menglun Akeu based on the description provided by Hayashi and Gao (2019). The syllable structure of this language is $C_1C_2VC_3/T$. C_1, C_2, V, C_3, and T represent onset, medial, vowel, ending, and tone, respectively. This paper calls the combination of V + C_3 'rime.' The consonantal and vowel charts are given in Table 1.

As seen in Table 1, there are 18 consonants and 20 vowels. The vowels have two phonation types, namely plain vs. creaky, which is quite typical in Southern Loloish languages (For Akha, see Hansson 2003, Hayashi 2016).

As for the consonants, the plosives and affricates have voicing contrasts, namely voiceless vs. voiced, like /p/ vs/ /b/, the former of which is phonetically aspirated when it is followed by plain vowels, e.g., /pa/ [pʰɐ].[3] The affricates /ts/ and /dz/ both have allophones such as [tɕ/ tɕʰ] and [dʑ] when they are followed by front vowels. /n/ can be syllabic in some words. /j/ can be slotted as medial, which co-occurs with velar onsets. The ending is slotted by /n/ and /ŋ/, the former of which is seen only in loanwords.

Regarding the suprasegmentals, Menglun Akeu has a syllabic tonal system. There are three tonemes: 55, 33, and 21.

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[3] This type of complementary distribution can be also found in Akha Puli, spoken in Kengtung, Shan State, Myanmar (Lewis 1968). Gong (1982) and Hansson (1997 [1992]) recognize that there are three-way contrasts in plosives, namely voiceless unaspirated vs. voiceless aspirated vs. voiced unaspirated in Kengtung Akeu and Thailand Akeu.

Table 2 Correspondence sets of Menglun Akeu stop onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'sugar cane'	**pɔ**²¹tsi⁵⁵a²¹lɤ³³	**phɔ**²¹tɕhø⁵⁵	**pho**³³tʃhi⁴⁴	**bh**awa:	---
'to roast'	**pø̠**³³	**pɯ**³³	**ph**ju⁵⁵	**ph**ut	PL ***p**ut^H
'moon'	**ba**³³la³³	**ba**³³la³³	pu⁵⁵lɔ̠⁴⁴	la	PLB *s/ʔ-la³, PL ***b**ə la³
'to give'	**bi̠**²¹	**bi̠**²¹	**p**i⁵⁵	**p**ei:	PTB *s-**b**əy-n/k, PLB ***b**əy²
'thick'	a²¹**tu**⁵⁵	jɔ³³**th**u⁵⁵	a³³**th**u⁵⁵	**th**uu	PL ***t**u¹
'above'	pu̠³³**ta̠**²¹	a²¹**ta**³³	a³³**th**a⁵⁵pɔ⁴⁴	a-**th**ak	PL ***t**ak^H
'to dig'	**d**u²¹	**d**u²¹	**t**u⁵⁵	**t**u:	PTB *s/m-**d**u, PLB *n-**d**u²
'to go out'	**d**o̠³³	**d**o̠³³	**t**o³³	**th**wak	PTB *s-**t**wak, PLB *ʔ-**t**wak^H
'bitter'	a²¹**ka**²¹	**x**a²¹	a⁵⁵**kh**ɔ⁵⁵	**kh**a:	PTB *b-**k**a-n/m/ŋ, PLB ***k**a²
'year'	a²¹**ko̠**²¹	a⁵⁵**x**o̠²¹	[a³³m̠jɔ⁵⁵]	[hnac]	PLB *C-**k**ok^L
'bone'	xa²¹**g**u²¹	ɕa²¹**g**u̠²¹	a⁵⁵**k**ju⁵⁵	a-**k**rɔ	PTB *d/s-**k**əw, PL *(ʃ)-**g**ru²
'to pick up'	**g**o̠³³	[ju³³ma³³]	**k**o⁴²	**k**ɔk	PTB *s-**g**-ruk, PLB ***k**-ruk^H

3. Phonological Development of Menglun Akeu

This section explores the phonological development of Menglun Akeu. The development of onset, rime and tones are discussed in the Section 3.1, 3.2, and 3.3, respectively.

3.1 Onset
3.1.1 Stops/Plosives
The stops/plosives of Menglun Akeu have voicing dichotomy such as /p/ vs. /b/, /t/ vs. /d/, and /k/ vs. /g/. The basic correspondence sets of the stop onset in Menglun Akeu are illustrated in Table 2.

Table 2 shows relatively clear correspondence sets for the stops, but note that the words for 'to go out' and 'to pick up' have voiced onsets in Menglun Akeu, and these voiced onsets correspond to voiceless onsets in Proto-Lolo-Burmese. This may indicate that the onsets in these Menglun Akeu words became voiced after divergence from related languages, though this needs to be investigated further.

If we use "T," "Th," and "D" to indicate unaspirated voiceless, aspirated voiceless, and unaspirated voiced stops, respectively, we can summarize the correspondence sets of Menglun Akeu stops and those of other Lolo-Burmese language as in Table 3.

Menglun Akeu is very similar to Akha Buli in many aspects, but we should note that the velar stop /k-/ in Menglun Akeu corresponds to /x-/ in Akha Buli.

Table 3   Corresponding Chart of Stops in Menglun Akeu and LB

Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
TV	**ThV/ xV**	**ThV**	**D(h)**V	PLB/ PL: *T
TV̰	**TV̰/ xV̰**	**ThV**	**ThV**	PLB/ PL: *T
DV	**DV**	**TV**	**TV**	PLB/ PL: *D
DV̰	**DV̰**	**TV**	**ThV**	PLB/ PL: *T (/ *D)

Table 4   Correspondence sets of Menglun Akeu affricate onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'ten'	**tsɤ**^{55}	**tshɛ**^{55}	**tshɤ**^{42}	**ch**ay	PTB***ts**(y)i(y) ⋇ *****ts**yay PLB ***ts**ay^1
'earth'	mi^{33}**tsa**^{21}	mi^{55}**tsha**^{21}	mi^{33}**tshə**^{55}	[mrei]	PTB ***ts**(y)a, PL ***ts**a^2
'cold'	a^{21}**tsy̰**^{21}	[jɔ^{33}ŋɛ^{55}]	a^{33}**tʃho**^{55}	**khy**am:	PLB *s-**kr**ak ⋇ s-**kr**ok
'salt'	**tsa̰**^{21}dɤ^{21}	**tsha**^{21}dɤ^{21}	**tshə**^{55}khə^{42}	**ch**aa:	PTB ***ts**a, PL ***(t)s**a^2
'to eat'	**dza**^{21}	**dza**^{21}	**tsɔ**^{55}	**c**aa:	PTB *m-**dz**(y)a-k/n/t/s, PLB ***dž**a^2
'cicada'	bø^{21}**dzɛ**^{21}	a̰^{21}**dʐɛ**^{21}	pu^{55}**tɕe**^{55}	pu **c**aň: krii:	---

It is arguable that Menglun Akeu relatively retains the VOT system of the proto-language, though the voiced stop in Menglun Akeu is often problematic.

3.1.2   Affricates

As with stops, affricates in Menglun Akeu also have voicing dichotomy such as /ts/ vs. /dz/. The basic correspondence sets of the affricate onsets in Menglun Akeu are shown in Table 4.

As seen in Table 4, the basic correspondence of the onset /ts/ in Menglun Akeu can be summarized as follows: MA: AB: YJ: WB: PTB/ PLB= ts-: tsh-: tsh-: ch-: ts-. Menglun Akeu /ts/ seems to have retained the PTB/ PLB *ts,[4] though it is articulated as voiceless aspirated [tsʰ] when followed by plain vowels.

As for /dz/ in Menglun Akeu ('to eat' and 'cicada'), this affricate corresponds to Akha Buli /dz/ or /dʐ/.[5] At present, there are scant examples of /dz/ with creaky vowels in Menglun Akeu, for example, /ga̰^{21}dzɤ^{33}/ 'story,' etc., and no clear correspondence has been identified for this affricate in other Lolo-Burmese languages.

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[4] The word for 'cold' in Menglun Akeu violates this rule. It is arguable that the consonant cluster of PLB *kr- underwent the affrication process, to which Menglun Akeu /ts/ corresponds.

[5] Note that the word for 'to eat' in Menglun Akeu retains PTB *dz-.

Table 5 Corresponding chart of affricates in Menglun Akeu and LB[6]

Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
TSV	**TSh**V	**TSh**V	**TSh**V	PLB/ PL: *TS
TSV̱	**TS(h)**V̱	**TSh**V	**TSh**V	PLB/ PL: *TS/ gr
DZV	**DZ**V	**TS**V	**TS**V	PLB/ PL: *DZ

Table 6 Correspondence sets of Menglun Akeu nasal onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'fire'	**m**i^{21}dza^{21}	**m**i^{21}dza^{21}	**m**i^{55}	**m**ii:	PTB ***m**ey, PLB *s/ʔ-**m**ey^2
'body hair'	a^{21}**m**ɤ^{21}	tɕa^{21}**x̱m**^{33}	a^{55}**m̥ɯ**^{55}	a-**m**wei	PTB *g-**m**ul, PLB *ʔ-**m**əw^1
'spirit'	**n**e̱^{21}	**n**e̱^{21}	**n**e	**n**at	PTB ***n**a-n ≍ ***n**a-t, PL *C-**n**at^L [LTSR]
'deep'	a^{21}**n**a̱^{21}	jɤ^{33}**n**a̱^{21}	a^{33}**ŋ**a^{55}	**n**ak	PTB *s-**n**ak, PLB *ʔ-**n**ak^L
'cattle'	**ȵ**y^{21}n**ɤ**^{55}	mo^{33}**n**e^{33}	mɛ^{33}**ȵ**u^{55}	**n**waa:	PTB ***ŋ**wa, PLB ***n**wa^2
'green'	a^{21}**ȵ**y^{55}	jɔ^{33}**ȵ**ø^{55}	a^{33}**ȵ**u^{55}	**n**yo	PTB *s-**ŋ**ow, PLB *ʔ-**ɲ**o^1
'short'	da^{21}**ȵ**i^{55}	jɔ^{33}**ȵ**m^{55}	[a^{33}tso^{55}]	**n**im.	PL *ʔ/s-**n**-yum^1
'five'	**ŋ**a^{21}	**ŋ**a^{21}	**ŋ**ɔ^{55}	**ŋ**aa	PTB *l/b-**ŋ**a, PLB ***ŋ**a^2
'1SG'	**ŋ**a^{55}	**ŋ**a^{55}	**ŋ**ɔ^{42}	**ŋ**aa:	PTB ***ŋ**a, PL *C-**ŋ**a^1

The basic correspondence is summarized in Table 5. 'TS,' 'TSh,' and 'DZ' represent voiceless unaspirated affricates, voiceless aspirate affricates, and voiced unaspirated affricates, respectively.

3.1.3 Nasals

There are four Menglun Akeu nasals, /m, n, ȵ, ŋ/, all of which are voiced. These are exemplified in Table 6.

As seen in Table 6, the corresponding rules for nasals in Akeu and Lolo-Burmese languages are quite clear; MA: AB: YJ: WB = m-: m-: m-/ m̥-: m-, n-: n-: n-/ ɲ-: n-, ȵ-: ȵ-: ȵ-/ ȵ-: n-/ ȵ-, ŋ-: ŋ-: ŋ-[7]: ŋ-. Consonant clusters such as *ʔ-N and *s-N correspond to Youle Jino voiceless nasals (e.g., /m̥-/, /n̥-/, etc.; see Hayashi 2002), while in Menglun Akeu and Akha Buli, they are reflected as voiced nasals, as can be seen in the words for 'body hair' and 'deep.'

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[6] Only one word can be found with {/dz/ + creaky vowel}, /a^{21}**dzy̱**^{33}tsu^{33}/ 'fat,' which phonemes in other related Loloish languages generally correspond to in the final syllable; thus, Tables 4 and 5 do not include this word.

[7] Youle Jino has /ŋ̊/, which occurs only in the word for 'to pick off' /ŋ̊a^{55}/ (Hayashi 2009a). The author has not yet determined the corresponding set for this word.

Table 7 Correspondence sets of Menglun Akeu fricative onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'blood'	a²¹**si**²¹	**ɕi**²¹	a⁵⁵**ʃi**⁵⁵	**s**wei:	PTB ***s**-hywəy, PLB *swəy²
'seven'	**si**²¹	**ɕi̠**²¹	**ʃi**⁵⁵	[khu-nac]	PTB ***s**-ni-s, PLB *ʔ-nit ⋊ *ši²
'clean'	a²¹**sɔ**³³ ⁸	jɤ³³**ɕɔ**⁵⁵	[a⁵⁵kri⁵⁵]	**s**an.	PTB *(t)**s**(y)aŋ
'three'	**xɛ**³³	**sm**⁵⁵	**sø**⁵⁵	**s**um̐:	PTB *g-**s**um, PLB **s**um²
'to kill'	**xe̠**²¹	**se̠**²¹	**se**⁵⁵	**s**at	PL *C-**s**atᴸ
'fruit'	a²¹**xɤ**²¹	a⁵⁵**ɕi**²¹	a⁵⁵**sɯ**⁵⁵	a-**s**ii:	PL ***s**i²
'gold'	**xɤ**⁵⁵	**ɕɯ**⁵⁵	**ʃɯ**⁵⁵	**hr**wei	PLB *s-**r**wəy¹
'dry'	a²¹**ɣɯ**³³	jɔ⁵⁵**gɯ**³³	a³³**kɯ**⁵⁵	[khrɔk]	PTB *(k/**g**)aːŋ, PLB *ʔ-**g**aŋ¹
'to win'	**ɣa**²¹lɛ̠³³	**ɣa**²¹ma³³	**kɔ**⁵⁵	[nong]	PTB *k-**r**a

3.1.4 Fricatives

The fricative corresponding sets are exemplified in Table 7.

Menglun Akeu has only three fricatives, /s, x, ɣ/. The words beginning with /s/ in Menglun Akeu, such as 'blood,' 'seven,' and 'clean' in Table 7, have a relatively clear correspondence: MA: AB: YJ: WB = s-: ɕ-: ʃ-: s-, which can be reconstructed as PTB *s-.

The words beginning with /x/ in Menglun Akeu seem to have multiple origins.[9] The words for 'three,' 'to kill,' and 'fruit' in Menglun Akeu are /xɛ³³/, /xe̠²¹/, and /a²¹xɤ²¹/, respectively, with onsets corresponding to Akha Buli /s/ or /ɕ/, Youle Jino /s/, and Written Burmese /s/. This suggests that /s/ and /x/ in Menglun Akeu derived from *s- in the proto-language, but the conditioning factor of the split into these two phonemes may relate to the difference of rime mutation from the proto-language. Matisoff (2003) reconstructed *-y- or *-i- at the Proto-Tibeto-Burman stage for 'blood,' 'seven,' and 'clean,' which may have remained /s-/ in the modern Menglun Akeu.[10] On the contrary, the proto language *s-, which was not followed by *-y- or *-i-, has changed into /x-/ in the Menglun Akeu.[11] The problem with the word for 'gold' is discussed later in this section.

The correspondence of /ɣ/ in Menglun Akeu is also complicated. The word for 'dry'

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[8] Note that Hansson (1997 [1992]: 471) described this word as /hɔ́/ in Thailand Akeu, corresponding to her Akha data /shɔ́/.

[9] Fricatives of the Jino language also have complex and multiple origins, which is discussed in Hayashi (2015).

[10] As may be noticed, the word for 'fruit' in Table 7 violates this rule, which is an exceptional case.

[11] Hansson (1997 [1992]: 471) stated that "[s]ome of the s-initialed words in Gɔkhy may be loanwords, like "Werewolf, Lahu, Lisu, Carbon, Ruler", but some very common words, like "Seven, Die, Blood, Urine" should be checked again," as at this time the author thinks they are cognates in Menglun Akeu because they can be clearly understood from regular correspondence with other Tibeto-Burman languages.

Table 8 Correspondence sets of Menglun Akeu semivowel onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'elephant'	ja³³ma³³	ja̱³³ma̱³³	jɔ⁴⁴	[chang]	PTB *s-ya, PL *ʔ-ya³
'hundred'	ja⁵⁵	ja⁵⁵	çɔ⁵⁵	**r**aa	PTB *b-r-gya, PL *C-**r**a¹
'chicken'	ja³³tsḭ³³	ɣa³³tɕi̱³³	ja⁴²	k**r**ak	PTB *k-**r**ak, PL *k-**r**ak^H
'to go'	je³³	i⁵⁵	je⁵⁵	[swaa:]	PTB *ʔay, PL *ay¹
'pig'	wa̱²¹	a̱²¹ɣa̱²¹	va⁵⁵	**w**ak	PTB *pʷak, PLB ***w**ak^L

has /ɣ/ in Menglun Akeu, which corresponds to Akha Buli words with /g/, Youle Jino words with /k/ and Written Burmese words with /k/. This type of /ɣ/ is a result of spirantization *g > ɣ.

The words for 'gold' and 'to win' in Menglun Akeu can be analyzed in terms of the change of *r-. The onsets (cluster) of the words for 'gold' and 'to win' are reconstructed as *s-r- and *k-r- by Matisoff (2003); these onsets caused voiceless and voiced sounds, respectively.[12]

3.1.5 Semivowels and lateral

The semivowel corresponding sets are illustrated in Table 8.

Words beginning with /j-/ in Menglun Akeu are often found in basic lexicons, some of which are exemplified here. The Menglun Akeu word for 'elephant' is morphologically similar to that in Akha Buli, both of which seem to retain *y- from the Proto-Tibeto-Burman and Proto-Loloish languages. /j-/ in the Menglun Akeu words for 'hundred' and 'chicken' can be traced back to *-r- in the proto-languages, though the reflex in Akha Buli and Youle Jino is relatively complicated.[13] The word for 'to go' in Menglun Akeu is an interesting example corresponding with Youle Jino /j-/, though it might have undergone a rime mutation, *ay > je, after the divergence from Proto-Loloish.

The word for 'pig' is the only word with onset /w-/ in Menglun Akeu, corresponding with Akha Buli /ɣ-/, Youle Jino /v-/, and Written Burmese /w-/, which can be reconstructed as PLB. *w-.

Another point to be made regards laterals. There is one lateral in Menglun Akeu, namely /l/, the basic corresponding sets of which are shown in Table 9.

Table 9 shows the basic corresponding sets of laterals between Menglun Akeu and other

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[12] Matisoff (2003: 170f) noted that PTB *k-ra is related to Written Burmese ʔaa: 'strength' and Lahu ɣâ 'strength; to win' and Lalo ɣâ 'to win.'

[13] As for the problems with the development of the words for 'hundred' and 'chicken' in Youle Jino, see Hayashi (2015).

Table 9 Correspondence sets of Menglun Akeu lateral onsets with those of other Lolo-Burmese languages

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'moon'	ba³³**la**³³	ba³³**la**³³	pu⁵⁵**lɔ**⁴⁴	**la**	PTB*s/g-**la**, PL *bə **la**³
'stone'	**lo**³³ma³³	xa²¹**lo**³³	**lo**³³mɔ⁵⁵	kyɔk	PTB*r-luŋ ⋉ k-**luk**, PL *k-**lok**ᴸ
'hand'	a̱²¹**la̱**²¹	a̱²¹**la̱**²¹	**la**⁵⁵pu⁴⁴	**l**ak	PTB*g-**lak**, PL ***lak**ᴸ
'to undress'	**lø**³³	**lɛ**³³	**l̥ø**⁴²	[khywat]	------
'four'	**li**²¹	**ø**²¹	**li**⁵⁵	**l**ei	PTB *b-**lə**y, PL b-**le**²

Table 10 Combinations with medials in Menglun Akeu

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'throat'	**kjø**²¹ma³³	**khɤŋ**²¹bjɤŋ²¹	**khju**⁵⁵pɛ⁵⁵	**khy**ɔng:	PL *ʔ-**kroŋ**²
'to steal'	**kjy**²¹	**xø**²¹	**khju**⁵⁵	**kh**o:	PTB *r-**kə**w, PLB ***kə**w²
'comb'	u²¹**kje̱**³³	u²¹**ka̱**³³	**khja**⁴²	[bhi:]	PTB *kʷi-s, PLB *ʔ-**gʷə**y²
'to bite'	**kje̱**²¹	**kɔ̱**²¹	**khe**⁵⁵	**k**ok	PTB *g-wa-t, PLB *m-**g**wapᴸ ⋉ *C-**kr**apᴸ
'nine'	**gjy**²¹	**ɣø**²¹	**kju**⁵⁵	**k**o:	PLB ***gə**w²
'waist'	a²¹**gjy**²¹	**dzɔ**²¹	a³³**tʃo**⁵⁵	[khaa:]	PLB ***gy**ukᴸ ⋉ *džukᴸ
'to hear'	**gja**²¹	**ga**²¹ma³³	**kjɔ**⁵⁵	**kr**aa:	PLB ***gl**a²

Lolo-Burmese languages. Menglun Akeu /l-/ basically corresponds to Akha Buli /l-/, which can be traced back to PTB or PL *l- onsets.[14] The last example in Table 9 is the word for 'four,' which is /li²¹/ in Menglun Akeu, inheriting onset l- from the Proto-form *b-**lə**y or *b-**le**², though interestingly, the corresponding phoneme in Akha Buli is /ø²¹/, as is mentioned in the comparison of Thailand Akeu and Akha by Hansson (1997 [1992]).

3.1.6   Miscellaneous problems
3.1.6.1   Combinations with medial
Menglun Akeu allows only the velar to be followed by medial (Hayashi and Gao 2019), which are exemplified in comparison to other Lolo-Burmese languages in Table 10.

The words for 'throat,' 'to bite,' 'waist,' and 'to hear' can be dated back to *velar + medial (-l-, -r-, -y-) at the proto-language stage, which merged into {velar + -j-} in Menglun Akeu. The remaining examples are explained below one by one.

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[14] The onset of the words for 'moon' and 'to undress' in Youle Jino is /l̥-/, which is another problem in historical linguistics. Youle Jino has both voiceless and voiced laterals, the former of which are partly derived from the onset cluster *sl- at the proto-language (Hayashi 2002).

Table 11 Syllabic nasal in Menglun Akeu

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'two'	**n̩**^{21}	**n̩i**^{21}	**ŋ̩**^{55}	**hn**ac	PL *$\textbf{s-ni}$(k)$^{2/L}$
'sun'	**n̩**^{55}ma^{33}	**nɤ**^{33}ma^{33}	[mi^{55}tshɔ^{55}]	**n**ei	PTB *$\textbf{nəy}$, PL *ʔ-**ne**^{1}
'to do/ to make'	**n̩**^{55}	**m̩**^{55}	**m̩**^{33}	**m**u	PTB *$\textbf{day}$, PL *ʔum^1

The words for 'to steal' and 'nine' in Menglun Akeu both have /-j-/, which is also attested in Youle Jino. The Proto-Tibeto-Burman and Proto-Lolo-Burmese forms for these are generally reconstructed without medials, as in Table 10, because most Lolo-Burmese languages including Written Burmese do not attest medials in these two words. It is safe to say that the rime mutation *$əw$ > Menglun Akeu y induced the emergence of medials in Menglun Akeu.[15]

The word for 'comb' is also an idiosyncratic example with /-j-/ in Menglun Akeu, which is reconstructed without medials at the proto-language stage. It can be speculated that this is also caused by the rime mutation *-^wəy > $je̩$.[16]

3.1.6.2   Syllabic nasal

/n̩/ can be syllabic in Menglun Akeu (Hayashi and Gao 2019).[17] Some examples compared to other Lolo-Burmese languages are illustrated in Table 11 below.[18]

Table 11 suggests that Menglun Akeu underwent deletion of the rime leading to the existence of the syllabic nasal /n̩/. As for the words for 'two' and 'sun,' most of the cases in Lolo-Burmese do not have syllabic nasals, thus the proto-forms are reconstructed with a vowel. The word for 'to do/ to make' is an interesting example. The Proto-Loloish form of this word is reconstructed as *$ʔum^1$, which became Akha Buli /m̩^{55}/ and Youle Jino /m̩^{33}/. It can be speculated that in the case of Menglun Akeu it changed into /m̩/ and then developed as /n̩^{55}/ because this language forbade /m/ to be syllabic.[19]

3.2   Rime

This section describes the corresponding sets of Menglun Akeu rimes.

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[15] The same kind of medial emergence is also attested in Youle Jino, as discussed in Hayashi (2009b, 2017).

[16] Another motivation for the emergence of medials in Menglun Akeu is fusion. The author's fieldnotes describe the word for 'bird' as /kja̩^{21}/, while Hansson's (1997 [1992]: 515) data describes two forms, *kiaq* and *kjaq*. This word may have developed from the fusion of two syllables, */ki/ + /a/, at the proto-stage and corresponds to /khi̩-jà/ in the Sida language of Luang Namtha in Laos (Badenoch 2019: 72).

[17] Hayashi and Gao (2019: 44) explained that /m/ can be syllabic in Menglun Akeu, which should be corrected.

[18] There are more examples with syllabic nasal /n̩/ in Menglun Akeu, such as /kɔ^{55}n̩^{21}/ 'chair,' /pu̩^{33}n̩^{21}/ 'below,' etc., which rarely correspond to other related languages.

[19] Gong (1982) and Hansson (1997 [1992]) describe /ŋ/ as a syllabic nasal in Kengtung Akeu and Thailand Akeu, respectively, which is, interestingly, different from Menglun Akeu.

3.2.1 Plain vowels

First, the corresponding sets of rimes with plain vowels in Menglun Akeu are discussed. See Table 12.

Table 12 Corresponding sets of plain vowels in Menglun Akeu and Lolo-Burmese

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'fire'	mi²¹dza²¹	mi²¹dza²¹	mi⁵⁵	**mii:**	PLB *s/ʔ-me**y**²
'heavy'	a²¹l**i**²¹	[jɔ³³khɔŋ³³]	a⁵⁵l̥**i**⁵⁵	**lei:**	PL *C-l**i**²
'tail'	dɔ²¹m**i**²¹	dɔ²¹m**i**²¹	to⁵⁵m̥**i**⁵⁵	a-mr**ii:**	PL *ʔ-mr**i**²
'foot/ leg'	a²¹k**i**⁵⁵	a̠²¹khɯ⁵⁵	ʃɔ⁵⁵kh**i**⁵⁵	---	PL *kr**e**¹
'to take'	**y**⁵⁵	ju³³ 'to have'	ju⁴² 'to buy'	**yuu**	PLB***yu**¹
'nine'	gj**y**²¹	ɣø²¹	kju⁵⁵	k**o:**	PLB *gə**w**²
'to wear'	d**y**³³	d**m**³³	tø⁵⁵	[wat]	PL *m-d**um**¹
'green'	a²¹ɲ**y**⁵⁵	jɔ³³ɲ̥ø⁵⁵	a³³ɲ̥**u**⁵⁵	**ɲo** 'brown'	PL *ʔ-ɲ**o**¹
'to go'	j**e**³³	**i**⁵⁵	j**e**⁵⁵	[swaa:]	PTB *ʔ**ay**, PL *a**y**¹
'seed'	a²¹ji²¹a²¹m**e**³³	[a⁵⁵nɣŋ³³]	[a³³tsɯ⁵⁵]	[a-sei.]	PTB *(m/b)r**əw**
'mouth'	m**ø**³³tɔ²¹	xa²¹m**ɛ**³³	m̥**ø**⁵⁵m̥**ø**⁵⁵	hmut ²⁰	PL *Cme²/ mokᴸ
'finger'	la̠²¹n**ø**⁵⁵	la̠²¹n**ø**⁵⁵	la³³n**u**⁵⁵	[lak-khyoŋ:]	PL *s-ɲ**o**¹
'to push'	d**ø**²¹	thɤŋ²¹i⁵⁵	[zu⁵⁵]	tw**an:**	------
'to fly'	b**ɛ**³³	[ɣɔ³³]	pr**ɛ**⁴²	py**aṁ**	PLB *by**am**¹
'hair'	u²¹xu²¹ts**ɛ**³³kɤ³³	u²¹du²¹tsh**ɛ**⁵⁵khɤŋ⁵⁵	tsh**ɛ**⁵⁵khɯ⁵⁵	ch**aṁ**	PL *ʔ-ts**am**¹
'three'	x**ɛ**³³	s**m**⁵⁵	s**ø**⁵⁵	s**uṁ:**	PTB *g-s**um**, PLB s**um**²
'five'	ŋ**a**²¹	ŋ**a**²¹	ŋ**ɔ**⁵⁵	ng**aa:**	PLB *ŋ**a**²
'to eat'	dz**a**²¹	dz**a**²¹	ts**ɔ**⁵⁵	c**aa:**-	PLB *dž**a**²
'red'	a²¹ɲ**ɤ**⁵⁵	jɔ³³ɲ**ɛ**³³	a³³ɲ**ɤ**⁵⁵	n**ii**-, a-n**ii**	PLB *ʔ-n**i**¹
'yellow'	a²¹x**ɤ**⁵⁵	jɔ³³ɕ**ɯ**⁵⁵	a³³ʃ**ɯ**⁵⁵	[waa]	PL *s-rw**e**¹
'to drink'	d**ɔ**⁵⁵	d**ɔ**⁵⁵	t**ə**⁴²	[sok]	PL *m-d**aŋ**¹
'hot'	a²¹l**ɔ**⁵⁵	jɔ³³l**ɔŋ**⁵⁵	a³³l**o**⁵⁵	[puu]	PL *ʔ-l**oŋ**¹
'mouse'	**o**³³tsa²¹	x**o**³³tɕa̠²¹	x**o**³³tʃha⁵⁵	kr**wak**	PL *(k)-r**wak**ᴴ
'to enter'	**o**³³	**u**⁵⁵	**o**⁴²	w**ang**-	PL *w**aŋ**¹
'dog'	k**ɯ**²¹	a̠²¹kh**ɯ**²¹	kh**ɯ**³³ɲi⁵⁵	khw**ei:**	PLB *kʷ**əy**²
'oil'	o²¹ts**ɯ**²¹	ɣa̠²¹tsh**i**⁵⁵	a³³tsh**ɯ**⁵⁵	ch**ii**	PTB *ts**il**
'father'	a⁵⁵b**u**³³	[a²¹da̠³³]	a⁵⁵p**u**⁵⁵	a-ph**ei**	PTB *p**u**, PL *ʔəp**a**³
'belly'	bo⁵⁵p**u**²¹	[m²¹ma³³]	o⁵⁵ph**u**⁴⁴	[wam:]	PTB *pʷ**u**, PL *w**am**²
'soft'	a²¹n**u**²¹	[jɔ³³bje̠³³]	[a⁵⁵prø⁵⁵]	[pjo.]	PL *C-n**u**²
'to call'	k**u**⁵⁵	kh**u**⁵⁵	kh**u**⁴²	kh**ɔ**	PTB *g**aw**, PL *k**u**/kaw¹

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²⁰ This Burmese word means 'to blow with the mouth.'

Table 13 Stable corresponding rules for plain vowels in Menglun Akeu and Lolo-Burmese

No.	Akeu	Akha Buli	Youle Jino	WB	PTB/ PL
[1]	-i	-i	-i	-ii/ -ei	*-ey/ -i
[2]	-ɛ	-ɛ	-ɛ	-am	*-am
[3]	-a	-a	-ɔ	-aa	*-a
[4]	-u	-u	-u	-o	*-u

As can be seen in Table 12, the corresponding rules for plain vowels in Menglun Akeu with many parallel examples is too complicated to set up,[21] but some stabler sets can be seen (see Table 13).

The corresponding rule [1] in Table 13 is attested by the words for 'fire,' 'heavy,' and 'tail' in Table 12. Rule [2] is exemplified by the words for 'to fly' and 'hair,' Rule [3] by the words for 'five' and 'to eat,' and Rule [4] by the words for 'father,' 'belly,' 'soft,' and 'to call.' This is a brief summary of the plain vowel correspondence, indicating that /-i, -a, -u/ in Menglun Akeu as well as in Akha Buli generally retain the vowel quality of the proto-languages.

In principle, the checked syllables in Proto-Tibeto-Burman and/or Proto-Loloish are reflected as creaky vowels in Menglun Akeu, but in some cases, they became plain vowels. For example, the word for 'mouse' in Table 13, /o³³tsạ²¹/, derived from Proto-Loloish *(k)-rwak^H.

There are a small number of the words with nasal endings the /-n/ and /-ŋ/, the former of which can only occur in loanwords from the local dialect of Mandarin Chinese or Tai Lue [Tai-Kadai],[22] such as /jen⁵³/ 'eel' from Tai Lue *jen²* ဧၵ6 (Hanna 2012: 118). The words with /-ŋ/ can be seen among the cognates, for example /tsaŋ⁵⁵bɤ³³lɤ³³/ 'bow for arrow' and /xɔŋ³³/ 'perfective marker', though the correspondence with the related languages has not yet been clarified. They can be considered to have originally developed through compounding or fusion after the change of PL *aŋ* > MA -ɔ.

3.2.2   Creaky vowels

In this subsection, the corresponding sets of rimes with creaky vowels in Menglun Akeu are discussed. See Table 14.

The creaky vowels in Menglun Akeu are more problematic than the plain ones. Notably fewer examples exist to show stable correspondences with Lolo-Burmese languages, some of which are summarized in Table 15.

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[21] For example, the words for 'to wear' and 'three' in Table 12 both have the reconstructed rime *-um*, but they have developed a different vowel the conditioning factor of which has not yet been discovered.

[22] In the Menglun area, the dominant languages have been the local dialect of Mandarin Chinese [Sinitic, Sino-Tibetan] and Tai Lue [Southwestern Tai, Tai-Kadai].

Table 14 Corresponding sets of creaky vowels in Menglun Akeu and Lolo-Burmese

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'new'	a²¹ɕi̤²¹	jɔ³³ɕɯ̤²¹	a³³ʃi⁵⁵	**sac**	PTB *g-**sik**, PL *C-**ʃik**ᴸ
'to give'	bi̤²¹	bi̤²¹	pi⁵⁵	**pei**	PTB *bəy-k, PLB *bəy²
'waist'	a²¹gjɣ̤²¹	dʐo̤²¹	a³³tʃo⁵⁵	[khaa:]	PLB *g**yuk**ᴸ ⋊ *dž**uk**ᴸ
'cold'	a²¹tsɣ̤²¹	[jɔ³³ŋɛ⁵⁵]	a³³tʃho⁵⁵	khy**am:**	PLB *s-kr**ak** ⋊ s-kr**ok**
'spirit'	ne̤²¹	ne̤²¹	ne³³	**nat**	PL *C-**nat**ᴸ
'to kill'	xe̤²¹	se̤²¹	se⁵⁵	**sat**	PL *C-**sat**ᴸ
'eight'	e̤²¹	jɛ̤²¹	xɛ⁵⁵	hr**ac**	PTB *b-r-g**yat** ⋊ *(b-)g-r**yat**, PLB *ʔ-**rit**ᴸ
'monkey'	a⁵⁵mø̤²¹	a̤³³mjo²¹	xo³³mɔ⁵⁵	my**ok**	PTB *m-r**uk**, PLB *my**uk**ᴸ
'tall/ high'	da²¹mø̤³³	[jɤ³³gɔ⁵⁵]	la⁵⁵m̤jɔ⁴²	mr**aŋ.**	PTB * m-r**aŋ**, PLB *ʔ-mr**aŋ**³
'to undress'	lø̤³³	lɛ̤³³	l̥ø⁴²	[khywat]	------
'bean'	a²¹bɛ̤³³	a⁵⁵bɛ̤³³	no³³pjə⁴⁴	p**ay**	PTB *be, PL *ʔ-**bay²**/**at**ᴴ
'pumpkin'	ma⁵⁵dɛ̤³³	ma⁵⁵dɛ̤³³	[tho⁵⁵khɔ⁵⁵]	[pha-ruṁ]	PTB *ma:y, PLB *pu²
'leaf'	a²¹pa̤²¹	a⁵⁵pa̤²¹	a³³pha⁵⁵	ph**ak**	PTB *r-**pak**, PL *C-**pak**ᴸ
'black'	a²¹na̤³³	jɔ³³na̤³³	a³³na⁵⁵	n**ak**	PTB *s-**nak**, PLB *s-**nak**ᴴ
'pig'	wa̤²¹	a̤²¹ɣa̤²¹	va⁵⁵	w**ak**	PTB *pʷ**ak**, PLB *w**ak**ᴸ
'back'	xɔ²¹nɔ̤³³	na⁵⁵xɤŋ³³	a⁵⁵n̤o⁴²	n**ɔk**	PTB *s-n**uŋ** ⋊ *s-n**uk**, PLB *ʔ-n**uk**ᴸ
'knee'	pɔ̤²¹tsɯ²¹	phɔ²¹tsɯ²¹	phɯ⁵⁵tshɯ⁵⁵	pu-ch**ac**	PTB *p**ut**-s
'to shoot'	bɣ̤³³	bɣ³³	pə³³	p**ac**	PTB *m-p**uk**, PLB *m-p**ök**
'one'	tɣ̤²¹	ti̤²¹	thi⁵⁵	t**ac**	PTB *ty**ak** ⋊ *g-t(y)**ik**, PLB *ʔ-d**ik**ᴸ
'to pick up'	go̤³³	[ju³³ma³³]	ko⁴²	k**ɔk**	PTB *s-g-r**uk**, PLB *k-r**uk**ᴴ
'to go out'	do̤³³	do̤³³	to³³	thw**ak**	PTB *s-tw**ak**, PLB *ʔ-tw**ak**ᴴ
'to sew'	gṳ²¹	gṳ²¹	kju⁵⁵	khy**up**	PTB *d/g-r**up**, PL *gy**up**ᴸ
'shoulder'	ba²¹pṳ³³	ba²¹phṳ³³	pa³³phu⁵⁵	[pa-khuṁ:]	PL *b**ak**ᴸ
'elbow'	la²¹tsɯ²¹ ²³	la̤²¹tsɯ²¹	la⁵⁵tshə⁵⁵	taṁ-tɔng:-ch**ac**	PL *C-dz**ik**ᴸ

The corresponding rule [1] in Table 15 is attested by the words for 'spirit' and 'to kill' in Table 14. Rule [2] is exemplified by the words for 'leaf,' 'black,' and 'pig.' As Hansson (1997 [1992]) found in an investigation of the rime correspondence in Thailand Akeu and Lolo-Burmese,²⁴ Menglun Akeu also shows very complicated correspondences, some

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²³ At present, corresponding sets with Menglun Akeu /ɯ/ are extremely rare.
²⁴ Hansson (1997 [1992]: 472–473) also presented multiple correspondences for a single reconstructed rime for the checked syllable, which differ from the ones in this paper.

Table 15   Stable corresponding rules for creaky vowels in Menglun Akeu and Lolo-Burmese

No.	Akeu	Akha Buli	Youle Jino	WB	PTB/ PL
[1]	-ḛ/-ɛ̰	-ḛ/-ɛ̰	-e/-ɛ	-at/ -ac	*-at
[2]	-a̰	-a̰	-a	-ak	*-ak

Table 16   Examples of complicated correspondences between PLB and Menglun Akeu

PLB	*-it	*-at	*-ut		*up		*-ik	*-ak		*-uk	*-wak

| MA | -ḭ | -ḛ | -ɛ̰ | -y̰ | -ø̰ | -a̰ | -ɔ̰ | -ɤ̰ | -o̰ | -ṵ | -ɯ̰ |

of which are exemplified in Table 16.

In the Loloish languages, the creaky vowels usually occur due to the apocope of stops in the Proto-Loloish stage, which should be a kind of compensation (Dai 1990, Matisoff 2003, among others). For example, Menglun Akeu /-ḛ/ has obtained creaky phonation due to the loss of the stop *-t from the Proto-Loloish *-at, which is seen in the words for 'spirit' and 'to kill' in Table 14.

There are, however, some exceptions in the development of creaky vowels in Menglun Akeu. For instance, the words for 'to give' /bḭ²¹/ and 'tall' /da²¹mø³³/ correspond to Proto-Loloish *bəy² and *ʔ-mraŋ³, respectively, both of which have no stop endings.[25]

The word for 'to give' in Menglun Akeu is an idiosyncratic case that shares the creakiness quality with Akha dialects, though the other Loloish languages show no traces of the stop coda at the proto-language stage. Hansson (1997 [1992]) analyzed this word as a reflex of Proto-Lolo-Burmese *bek, a reconstructed form with a stop ending. Matisoff (2003) reconstructed *bəy-k for its PTB form,[26] the ending of which can be seen as related to the creakiness of this word in Menglun Akeu and Akha Buli.

On the other hand, the Proto-Loloish word for 'tall' is not reconstructed with a stop ending, though it has a *ʔ-prefix, which may have caused the creakiness in the modern Loloish languages.[27]

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[25] The word for 'salt' in Menglun Akeu is /tsa̰²¹dɤ²¹/, the first syllable of which corresponds to PL *(t)sa². This case requires further and finer analysis.

[26] It is arguable that this Proto-Tibeto-Burman form is also reconstructed from Kuki-Chin languages (STEDT database [beta]).

[27] Interestingly, there are some loanwords with creaky vowels such as /tṵ³³lḭ³³/ 'peanuts,' /ma³³mḭ³³/ 'jack-fruits,' etc., that have no creaky phonation in the donor language (tʰoo²din¹ ၆ၵၣၧၥၖ 'peanuts,' maak²mii⁶ ၵၣၥၬၡၣၜe 'durian, jackfruit'; Tai Lue; Hanna 2012).

3.3 Tone

Though the tonality of the Proto-Tibeto-Burman language has been the subject of many discussions (Benedict 1972, Benedict 1973, Matisoff 1973, Dai 1991, Matisoff 2003, among others), the proto-languages seen at the Proto-Lolo-Burmese and Proto-Loloish stages can be recognized as tonal languages (Matisoff 1972, Bradley 1979, Matisoff 2003, among others). The tone group has two types, namely "unchecked" and "checked," which are based on the syllable structure at the Proto-Lolo-Burmese stage. "Unchecked" tone can occur at the open syllable and the closed syllable with nasal endings, and "checked" tone at the closed syllable with stop endings. This section describes the tonal correspondences between Menglun Akeu and other Lolo-Burmese languages based on these categories. Note that the tone of Proto-Lolo-Burmese and Proto-Loloish is marked in the same manner.

3.3.1 Unchecked tone

It is widely noted that there are three unchecked tones observed at the Proto-Lolo-Burmese and Proto-Loloish stages, Tones 1, 2 and 3, which are based on their correspondence with Written Burmese Tone 1 (Level), Tone 2 (Heavy), and Tone 3 (Creaky) [Tonal descriptions follow Okell (1969)]. Each corresponding set is exemplified in Tables 17, 18, and 19, respectively.

3.3.1.1 Tone 1

Table 17 shows the Tone 1 corresponding set. The words for 'iron,' '1SG,' 'ten,' 'to do,' 'to take,' and 'to cry' are monosyllabic; this collection of words can be recognized as the basic corresponding group with PLB/ PL Tone 1. The tone of Menglun Akeu in this group is /55/, corresponding to Akha Buli /55/ (or /33/), Youle Jino /42/ (/55/ or /33/ in some cases), and Written Burmese Tone 1.

   This basically holds true for the disyllabic words with the prefix /a-/ or other elements, as can be seen in the following columns. The Menglun Akeu words for 'sweet,' 'green,' 'thick,' 'bear (animal),' 'foot,' 'red,' 'white,' and 'name' are all /a-/ prefixed forms, the roots of which are placed at the second syllable with /55/, showing more complex correspondences than the monosyllabic pattern. The roots of these words in Menglun Akeu basically correspond to those in Akha Buli /55/ (or /33/), but they correspond to those in Youle Jino /55/ that undergo the synchronic tonal alternation characteristic of this language (Hayashi 2009b).

   The words for 'water,' 'nose,' 'long,' and 'to look for' in Menglun Akeu are also disyllabic, and the corresponding elements are located at the first syllable, the tones of which are realized as /55/ as well. The other Lolo-Burmese languages in the Table 17 show complicated patterns partly because there are examples that include the synchronic tonal alternation.[28]

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[28] Youle Jino makes /33/ correspond to Menglun Akeu /55/ here in the case of the words for 'water' and 'nose.' In Youle Jino, the /33-55/ tonal combination of the disyllabic words is found frequently, and its stress pattern is usually iambic (Hayashi 2009a).

Table 17   Tonal correspondence between Menglun Akeu and Lolo-Burmese for the Tone 1 group

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'iron'	xɛ⁵⁵	çoŋ⁵⁵	ʃɛ⁴²	saṁ	PL *xam¹
'1SG'	ŋa⁵⁵	ŋa⁵⁵	ŋɔ⁴²	ngaa	PL *C-ŋa¹
'ten'	tsɤ⁵⁵	tshɛ⁵⁵	tshɤ⁴²	chay	PLB *tsay¹
'to do'	n̩⁵⁵	m̩⁵⁵	m̩³³	[lup]	PL *ʔum¹
'to take'	y⁵⁵	ju³³ 'to have'	ju⁴² 'to buy'	yuu	PLB *yu¹
'to cry'	n̠y⁵⁵	ŋø³³	[me³³]	ngo	PL *ŋo¹
'sweet'	a²¹tsi⁵⁵	jɔ³³tɕhø⁵⁵	a³³tʃhi⁵⁵	khyo	PLB *kyəw¹
'green'	a²¹n̠y⁵⁵	jɔ³³n̠ø⁵⁵	a³³n̠u⁵⁵	ňo	PL *ʔ-n̠o¹
'thick'	a²¹tu⁵⁵	jɔ³³thu⁵⁵	a³³thu⁵⁵	thuu	PL *tu¹
'bear (animal)'	a²¹ø⁵⁵	xa²¹xm⁵⁵	a³³ø⁵⁵	waṁ	PLB *d-wam¹ᐟ²
'foot'	a²¹ki⁵⁵	a̠²¹khɯ⁵⁵ ['leg']	ʃɔ⁵⁵khi⁵⁵	khrei	PL *kre¹
'red'	a²¹n̠ɤ⁵⁵	jɔ³³nɛ³³	a³³n̠ɤ⁵⁵	nii, a-nii	PLB *ʔ-ni¹
'white'	a²¹pu⁵⁵	jɔ³³ba̠³³	a³³phru⁵⁵	phruu	PLB *plu¹
'name'	a²¹mi⁵⁵	tshɔ³³mjɤŋ³³	a³³m̠e⁵⁵	maň	PLB *ʔ-miŋ¹ᐟ³
'water'	u⁵⁵tsu̠²¹	ɤ³³tɕu̠²¹	ji³³tʃho⁵⁵	rei	PLB *rəy¹
'nose'	na⁵⁵bɔ²¹	na̠³³bɤŋ²¹	nɔ³³to⁵⁵	hnaa-khɔng:	PL *s-na¹
'long'	xɤ⁵⁵ma³³	[jɔ³³mɤŋ⁵⁵]	jɔ⁵⁵ʃɯ⁵⁵	hraň	PL *s/m-riŋ¹
'to look for'	xa⁵⁵pɔ̠³³	[tɕha⁵⁵tɕhɔ³³]	ʃɔ⁴²	hra	PL *x-ra¹
'to die'	si³³	çi³³	ʃi⁴²	sei	PTB *ts(y)i(y) ⪥ *tsyay PLB *tsay¹
'to enter'	o³³	u⁵⁵	o⁴²	wang	PL *waŋ¹
'to come'	la³³	la⁵⁵	lɔ⁴²	laa	PL *la¹
'to fly'	bɛ³³	[ɤɔ³³]	prɛ⁴²	pyaṁ	PLB *byam¹
'to rain'	ɔ³³	jɛ⁵⁵	xo⁴²	ywaa	PL *r-ywa/we¹

The words for 'to die,' 'to enter,' 'to fly,' 'to come,' and 'to rain,' all of which have /33/, are also monosyllabic. The tone in this group of Menglun Akeu words generally corresponds to Youle Jino /42/ and Written Burmese Tone 1 as seen in the case of 'iron,' but this may have changed due to factors not yet discovered.

3.3.1.2   Tone 2

Table 18 illustrates the Tone 2 corresponding sets. Contrary to the Tone 1 group, the Tone 2 group shows a clear and stable correspondence between Menglun Akeu and other Lolo-Burmese languages: Menglun Akeu /21/: Akha Buli /21/: Youle Jino /55/: Written Burmese Tone 2. In other tonal correspondence, some Loloish languages such as Youle

Table 18   Tonal correspondence between Menglun Akeu and Lolo-Burmese for the Tone 2 group

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'to wash'	$lɛ^{21}tsi^{21}$	$lɛ^{21}tshi^{21}$	$tshi^{55}$	chei:	PTB *krəw-t, PLB *tsəy^2
'to walk'	$jɔ^{21}$	$[tɕʰɤŋ^{33}]$	zo^{55}	swaa:	PL *m-ju/oŋ^2
'to eat'	dza^{21}	dza^{21}	$tsɔ^{55}$	caa:	PLB *dža^2
'to steal'	kjy^{21}	$xø^{21}$	$khju^{55}$	kho:	PLB *kəw^2
'to hear'	gja^{21}	$ga^{21}ma^{33}$	$kjɔ^{55}$	kraa:	PLB *gla^2
'to give'	$bi̤^{21}$	$bi̤^{21}$	pi^{55}	pei:	PLB *bəy^2
'expensive'	$a^{21}pø^{21}$	$jɔ^{33}phø^{21}$	phu^{55}	a-pho:['price']	PLB *pəw^2 ['price']
'heavy'	$a^{21}li^{21}$	$[jɔ^{33}khɔŋ^{33}]$	$a^{55}li̤^{55}$	lei:	PL *C-li^2
'horse'	$mø^{21}pa^{21}$	$mɤŋ^{21}$	mjo^{55}	mrang:	PLB *mraŋ^2
'fire'	$mi^{21}dza^{21}$	$mi^{21}dza^{21}$	mi^{55}	mii:	PLB *s/ʔ-mey^2
'five'	$ŋa^{21}$	$ŋa^{21}$	$ŋɔ^{55}$	ngaa:	PLB *ŋa^2
'nine'	gjy^{21}	$ɣø^{21}$	kju^{55}	ko:	PLB *gəw^2
'bitter'	$a^{21}ka^{21}$	(xa^{21})	$a^{55}khɔ^{55}$	khaa:	PL *ka^2
'salt'	$tsa̠^{21}dɤ^{21}$	$tsha^{21}dɤ^{21}$	$tshə^{55}khə^{42}$	chaa:	PL *(t)sa^2
'tail'	$dɔ^{21}mi^{21}$	$dɔ^{21}mi^{21}$	$to^{55}m̩i^{55}$	a-mrii:	PL *ʔ-mri^2
'frog'	$pa^{21}ja^{21}$	$xa^{21}pha^{21}$	$phɔ^{55}thɛ^{55}$	phaa:	PLB *ʔ-ba^2
'bee'	$bɛ^{21}$	$ɣa^{21}bja^{21}bja^{21}ma̠^{33}$	$pjə^{55}jə^{55}$	pyaa:	PLB *bya^2
'fruit'	$a^{21}xɤ^{21}$	$a^{55}ɕi^{21}$	$a^{55}sɯ^{55}$	a-sii:	PL *si^2
'dog'	$kɯ^{21}$	$a̠^{21}khɯ^{21}$	$khɯ^{33}n̠i^{55}$	khwei:	PLB *kʷəy^2
'tiger'	$dza^{21}la^{21}$	$xa^{21}la^{21}$	$lɔ^{55}mɯ^{44}$	kya:	PTB *k-la, PLB *(k)-la^2
'three'	$xɛ^{33}$	sm^{55}	$sø^{55}$	suṁ:	PTB *g-sum, PLB sum^2

Jino have complex correspondences due to their tone alternation systems, as seen in Table 17, but the Tone 2 corresponding set is fairly clear for both monosyllabic and disyllabic words.

There are several examples in Menglun Akeu that violate this corresponding rule. The word for 'three' in Menglun Akeu has /33/. The reason for this is not certain.

3.3.1.3   Tone 3

The Tone 3 group has relatively fewer examples in the Lolo-Burmese languages, but as can be seen in Table 19, the tonal correspondence between Menglun Akeu and its related languages is fairly stable: Menglun Akeu /33/: Akha Buli /33/: Youle Jino /44/ (or /55/, /42/): Written Burmese Tone 3.

The tonal correspondence of unchecked syllables in Menglun Akeu and other Lolo-Burmese languages is generally summarized as shown in Table 20. It is important to note

Table 19   Tonal correspondence between Menglun Akeu and Lolo-Burmese for the Tone 3 group

gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
'to fall'	$ga^{33}ka^{33}$	$ga^{33}kha^{33}$	$kr\mathfrak{d}^{44}$	kya	PL *(sə)-gla³
'full'	$b\gamma^{33}$	$bj\gamma\eta^{33}la^{55}$	$a^{55}pr\mu^{44}$	praň.	PLB *ʔ-bliŋ³
'moon'	$ba^{33}la^{33}$	$ba^{33}la^{33}$	$pu^{55}l\mathfrak{o}^{44}$	la	PLB *s/ʔ-la³
'to open'	$l\mathfrak{d}^{33}p\mathfrak{d}^{33}$	$ph\gamma\eta^{33}$	$ph\mathfrak{d}^{55}$	phwang.	PLB *pwaŋ³
'day'	n^{33}	$n\gamma\eta^{33}$	$\mathring{\eta}^{44}$	nei.	PL *(ʔ)ne³
'tall'	$da^{21}m\emptyset^{33}$	$[j\gamma^{33}g\mathfrak{o}^{55}]$	$la^{55}\mathring{m}j\mathfrak{o}^{42}$	mrang.	PLB *ʔ-mraŋ³

Table 20   Tonal correspondence of unchecked syllables in Menglun Akeu and Lolo-Burmese

Akeu	Akha Buli	Youle Jino	WB	PLB/ PL
55	55	42	1	*1
21	21	55	2	*2
33	33	44	3	*3

that Menglun Akeu seems to have the same tone value as Akha Buli in Laos, while it has different tone values from those of Youle Jino despite that the speech areas of Menglun Akeu and Youle Jino are geographically quite close to each other.

3.3.2 Checked tone

The checked syllable consists of the stop endings, which relates to the tonal development of the Asian languages. Matisoff (1972) examined Lolo-Burmese checked syllables and found that they have two types of tones, namely the HIGH group and the LOW group, which Bradley (1979) reconstructed as Tone *H and *L in the proto-language. In the modern Lolo-Burmese languages, the lower tone values generally correspond to Proto-Tone *L and the higher tone values to Proto-Tone *H, as Matisoff (1972) noted.

The following table summarizes the correspondence between checked tone in Menglun Akeu and that in Lolo-Burmese languages.

Table 21 clearly illustrates that the tonal correspondence between Menglun Akeu and Lolo-Burmese in checked syllables is fairly stable. As for the Proto-Tone *L, Menglun Akeu and Akha Buli both correspond as /21/, whereas Youle Jino is /55/. On the other hand, for the Proto-Tone *H, Menglun Akeu and Akha Buli both correspond as /33/,[29] while Youle Jino is /42/ (and as /33/ or /44/ occasionally).

There are, of course, some exceptional cases in Table 21. The tone of the word for 'back'

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[29] The Akha Buli words for 'to sweep' and 'fear' correspond as /21/, which violates the rule.

Table 21   Tonal correspondence between checked syllables in Menglun Akeu and those in Lolo-Burmese

	gloss	Akeu	Akha Buli	Youle Jino	WB	PTB/ PLB/ PL
[L]	'to kill'	xḙ²¹	sḙ²¹	se⁵⁵	sat	PL *C-satᴸ
	'to sew'	gṳ²¹	gṳ²¹	kju⁵⁵	khyup	PTB *d/g-rup, PL *gyupᴸ
	'pig'	wa̤²¹	a̤²¹ɣa̤²¹	va⁵⁵	wak	PTB *pʷak, PLB *wakᴸ
	'to sleep'	i²¹tɛ²¹	ju²¹xa³³	ji⁵⁵	ip	PL *yipᴸ
	'two'	n̩²¹	n̩i̤²¹	n̥⁵⁵	hnac	PL *s-ni(k)²/ᴸ
	'six'	kọ²¹	kọ²¹	khjo⁵⁵	khrɔk	PL *C-krokᴸ
	'eight'	ḙ²¹	jḛ²¹	xɛ⁵⁵	hrac	PTB *b-r-gyat ⋊ *(b-)g-ryat, PLB *ʔ-ritᴸ
	'deep'	a²¹na̤²¹	jɤ³³n̥a̤²¹	a³³n̥a⁵⁵	nak	PTB *s-nak, PLB *ʔ-nakᴸ
	'new'	a²¹sḭ²¹	jɔ³³ɕɯ̤²¹	a³³ʃi⁵⁵	sac	PTB *g-sik, PL *C-ʃikᴸ
	'leaf'	a²¹pa̤²¹	a⁵⁵pa̤²¹	a³³pha⁵⁵	phak	PTB *r-pak, PL *C-pakᴸ
	'goat'	tsḭ²¹mḙ³³	tɕḭ²¹mɛ²¹	tɕhi⁵⁵prɛ⁴⁴	chit	PL *k-citᴸ
	'hand'	a̤²¹la̤²¹	a̤²¹la̤²¹	la⁵⁵pu⁴⁴	lak	PL *lakᴸ
	'back'	xɔ²¹nɔ³³	na⁵⁵xɣŋ³³	a⁵⁵n̥o⁴²	nɔk	PTB *s-nuŋ ⋊ *s-nuk, PLB *ʔ-nukᴸ
[H]	'chicken'	ja̤³³tsi³³	ɣa³³tɕḭ³³	ja⁴²	krak	PL *k-rakᴴ
	'pick up'	gọ³³	o³³	ko⁴²	kɔk	PLB *k-rukᴴ
	'sharp'	a²¹ta̤³³	jɤ³³ta̤³³	tha⁴²	thak	PL *takᴴ
	'to shoot'	bɤ³³	bɤ³³	pə³³	pac	PTB *m-puk, PLB *m-pökᴴ
	'to sweep'	ja̤³³	ja³³	ja⁴²	[hlaň:]	PTB *p(y)wak
	'bean'	a²¹bɛ³³	a⁵⁵bɛ³³	no³³pjə⁴⁴	pay	PTB *be, PL *ʔ-bay²/atᴴ
	'black'	a²¹na̤³³	jɔ³³na̤³³	a³³na⁵⁵˙³⁰	nak	PTB *s-nak, PLB *s-nakᴴ
	'fear'	gɤ³³si⁵⁵	gu²¹na̤²¹	khø⁴⁴	krɔk	PL *(sə)-grokᴴ
	'eye'	mɛ⁵⁵nɤ⁵⁵	mja³³nɤŋ³³	mja³³tsi⁴⁴	myak-ci	PL *(C)-myakᴴ

corresponds to Proto-Lolo-Burmese Tone *L, which violates the rule above, MA: AB: YJ = 33: 55: 42. This is partially similar to the set for Tone *H.

In Menglun Akeu, the creaky vowels generally correspond to the checked syllables in Lolo-Burmese, as is attested in most words in Table 21. There are, however, some exceptional cases, such as the words for 'to sleep' /i²¹tɛ²¹/, 'two' /n̩²¹/, and 'eye' /mɛ⁵⁵nɤ⁵⁵/, all of which have no creaky vowels. These examples need more extensive analyses.[31]

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[30] The word for 'black' in Youle Jino has /55/ tone in its root, but its tone alternates to /42/ in the negative form: /ma³³-na⁴²/ (NEG-black) 'not black.' For Youle Jino adjective tonal alternation, see Hayashi (2009a).

[31] The words for 'to sleep' /i²¹tɛ²¹/ and 'two' /n̩²¹/ both retain the tonal correspondence even though their rimes have no creaky vowels, while the tone of the word for 'eye' /mɛ⁵⁵nɤ⁵⁵/ is higher than expected.

Table 22 Tonal correspondence of checked syllables in Menglun Akeu and Lolo-Burmese

Akeu	Akha Buli	Youle Jino	WB	PLB/ PL
21	21	55	---	*L
33	33	42	---	*H

Table 23 Tonal development in Menglun Akeu and Akha Buli

PL Unchecked Tone		Menglun Akeu & Akha Buli		PL Checked Tone
*1	>	55	---	---
*2	>	21	<	*L
*3	>	33	<	*H

Table 22 summarizes the tonal correspondence of checked syllables in Menglun Akeu and Lolo-Burmese, which shows Menglun Akeu and Akha Buli has the same path in the development of checked tones.[32]

Table 23 merged Table 20 and Table 22 into one. As a result of analyses of Menglun Akeu tonal development, the general rule of correspondence and merging process follow the Akha tonal reflex system presented by Bradley (1977), which leads us to think that in terms of tonal development Menglun Akeu has a conservative feature of Southern Loloish.

4. Conclusion

This paper explored the phonological development of Menglun Akeu, a lesser-known Tibeto-Burman language spoken in Sipsongpanna (Xishuangbanna), Yunnan Province, China. Though there are many problems to be solved through future analysis, I have elucidated the basic correspondences between Menglun Akeu and the neighboring Lolo-Burmese languages. Velar stops, fricatives, and some rimes in Menglun Akeu have rather complicated correspondences, whereas the other onset, rime, and tonal correspondences are quite clear, especially in Menglun Akeu and Akha Buli.

The relative chronology of the changes that occurred in the evolution from Proto-Loloish to Menglun Akeu and the historical development regarding borrowing from Akha dialects and some neighboring languages (Tai Lue and Yunnan Mandarin Chinese) have not, at this point, been well investigated and should be analyzed using comprehensive data in the near future.

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[32] From a synchronic viewpoint, Menglun Akeu and Akha Buli show very few examples of tone sandhi, whereas Youle Jino shows many (Hayashi 2009a).

Abbreviations

AB	Akha Buli	PLB	Proto-Lolo-Burmese
LTSR	Matisoff (1972)	PTB	Proto-Tibeto-Burman
MA	Menglun Akeu	YJ	Youle Jino
PL	Proto-Loloish	WB	Written Burmese

Data Sources

Akha Buli: the author's fieldnotes; Menglun Akeu: the author's fieldnotes; Proto-Loloish: Bradley (1979); Proto-Lolo-Burmese: STEDT Database [beta], Matisoff (2003); Proto-Tibeto-Burman: STEDT Database [beta], Matisoff (2003); Tai Lue: Hanna (2012); Youle Jino: the author's fieldnotes, Hayashi (2009a, b); Written Burmese: Harada and Ohno (1979), Ohno (2000)

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