Jianchuan Bai

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The Bai language (白语) is spoken by approximately 1.6 million people in northwest Yunnan Province, China. Of the 25 minority languages spoken in Yunnan, where 33% of the population are ethnic minorities and 67% are Han Chinese, the Bai ethnic minority is second in population only to the Yi (Wiersma 1990, 2003; 2010 census). Bai is classified as a Tibeto-Burman language (Xu & Zhao 1964, 1984), although arguments have been raised as to its possible early Sinitic origins (Starostin 1994, 1995). A summary in French reviews Chinese loanwords, ancient Bai, and comparative Bai dialects (Dell 1981). The historical influence of Chinese on Bai has been significant, but evidence is not compelling that Bai is Sinitic (Norman 2003: 73). There are three major dialects of Bái: Jiànchuān (剑川), Dàlǐ (大理), and Bìjiāng (碧江). The data in this illustration represent the variety of Jianchuan (jian1239, BCA). The third author (李绍尼), who was about 60 years old at the time of recording, is a male native of the Jianchuan region, originating from Qiáohǒu, a mountain village some 50 km southwest of Jianchuan city – a remote area known for salt mining and where the language has been less influenced by modern Chinese. These locations are indicated on the map of Yunnan (the southwesternmost province of China in an intensely minority-language-populated area) in Figure 1. The traditional geographical link from Qiaohou is to Jianchuan to the north rather than to Dali to the south, and many of the most distinctive characteristics of Jianchuan Bai described here are not found in Dali Bai.

    Jianchuan Bai possesses a set of pitch contrasts: 55, 33, 31, 21 and 35 in the Chao tone system (Xu & Zhao 1964). Perhaps the most telling characteristic of this variety is the contrast between two systematic tonal register series, lax and tense (Dai 1990), realized as contrasting phonation types depending on the pitch level – modal, breathy or degrees of harshness – demonstrating the essential relationship between laryngeal constriction, phonation type and pitch (see Edmondson & Li 1994, Esling et al. 2019). There is a great deal of variation across Bai dialects, and the same lax/tense (laryngeal constriction) contrast found in Jianchuan Bai is not generally present in other varieties such as Dali Bai. Even within the Jianchuan region, the forms described in this illustration will have altered with the generations along sociolinguistic lines over the past 60 years. The standard Bai inventory also includes a set of four
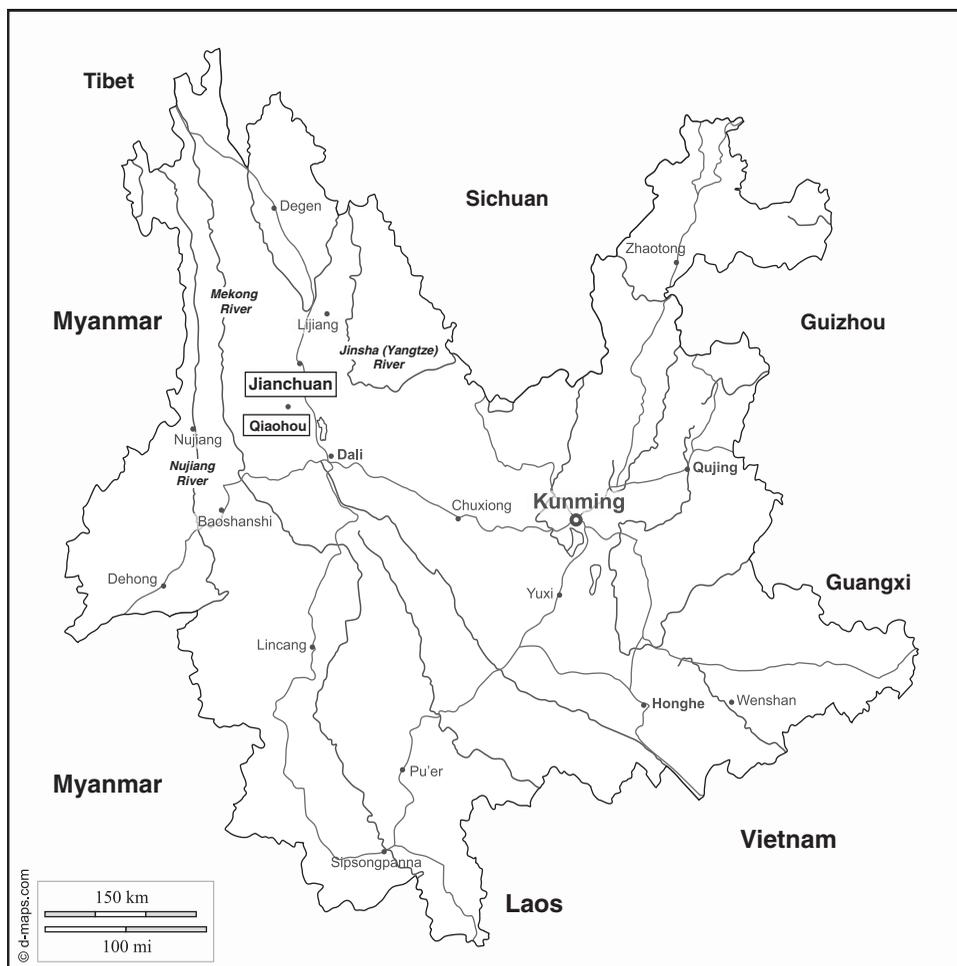
Figure 1 The Province of Yunnan in southwestern China. The county of Jianchuan is located in the northwest of the province, just south of the corridor where the three major rivers (Nujiang, Mekong, and Yangtze) flow out of Tibet. The city of Jianchuan and the town of Qiaohou are indicated with outlines. Map from d-maps.com.

retroflex (affricate and fricative) sounds to accommodate educated pronunciations of Beijing Mandarin loans, but these sounds have not been included here because they are not required by the local inventory, such loans popularly assuming a pronunciation that fits within the local parameters. In Jianchuan Bai, all rhymes (syllable codas), except /u/ and /ɑo/ (and /iɑo/ where attested), have nasalized as well as oral reflexes, although the distribution of such nasalized rhymes is limited. The presence of vowel nasalization is lexically distinctive in Jianchuan, while in Dali Bai, no nasalized rhymes are found. As observed by Starostin (1994), some Jianchuan nasalization appears to be secondary rather than historical. A treatment of Bai phonology and of contrasts across dialects may be found in Opper (2017). Relevant reports on voice quality in other related languages can be found in Maddieson & Ladefoged (1985) and Chen (1988). In the Consonant Chart below, sounds that occur phonetically in predictable phonological contexts are included in the inventory, between square brackets.

Consonants

	Bilabial	Labio-dental	Alveolar	Alveolo-palatal	Velar
Plosive	p^h p		t t^h		k^h k
Nasal	m		n	[ɲ]	ŋ
Trill	[ʙ̥]				
Fricative		f v	s	ç	x ɣ
Affricate			ts^h ts	$tɕ^h$ tɕ	
Approximant				j	
Lateral			l		

$p^hɑ^{33+}$	$p^hɑ̰^{33+}$	to pick teeth; kick off backwards
$pɑ^{33+}$	$pɑ̰^{33+}$	a bowl
$t^hɑ^{33+}$	$t^hɑ̰^{33+}$	to cover up (blanket)
$tɑ^{33+}$	$tɑ̰^{33+}$	with; and; hold
$k^hɑ^{33+}$	$k^hɑ̰^{33+}$	to cover up
$kɑ^{33+}$	$kɑ̰^{33+}$	granary; the handle of a rake
$mɑ^{33+}$	$mɑ̰^{33+}$	straw
$nɑ^{33+}$	$nɑ̰^{33+}$	to sew shoes
$ŋɑ^{33+}$	$ŋɑ̰^{33+}$	to bite off
$fɑ^{55}$	$fɑ̰^{55}$	to prosper
$vɑ^{31+}$	$vɑ̰^{31+}$	possessive marker (of)
$sɑ^{33+}$	$sɑ̰^{33+}$	forget it!
$çɑ^{33+}$	$çɑ̰^{33+}$	mane of horse; to kill (a person)
$xɑ^{33+}$	$xɑ̰^{33+}$	to rake into the mouth
$ɣɑ^{31+}$	$ɣɑ̰^{31+}$	to get together; to put together
$ts^hɑ^{33+}$	$ts^hɑ̰^{33+}$	to stab with a fork
$tsɑ^{33+}$	$tsɑ̰^{33+}$	to count
$tɕ^hɑ^{33+}$	$tɕ^hɑ̰^{33+}$	to paste together
$tɕɑ^{33+}$	$tɕɑ̰^{33+}$	to catch or to receive something
$jɑ^{33+}$	$jɑ̰^{33+}$	to turn around; to press down
$lɑ^{33+}$	$lɑ̰^{33+}$	to scold or verbally abuse

Vowels
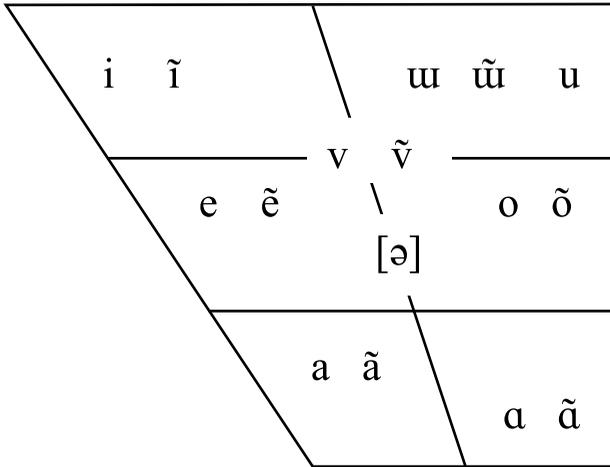
pi^{55}	pi̠^{55}	left (not right)
pĩ^{55}	pĩ̠^{55}	salt
pe^{55}	pe̠^{55}	to step
pẽ^{33}	pẽ̠^{33}	dinner; supper; to close up blinds
pa̠$^{33+}$	pa̠$^{33+}$	one hundred
pã̠$^{33+}$	pã̠$^{33+}$	to support or hold up with hands
pɑ̠$^{33+}$	pɑ̠$^{33+}$	a large bowl
pɑ̠̃$^{33+}$	pɑ̠̃$^{33+}$	a litre of dry measure
po̠$^{33+}$	po̠$^{33+}$	maternal aunt's husband
põ̠$^{33+}$	põ̠$^{33+}$	to lose money
pu̠$^{33+}$	ʙu̠$^{33+}$	to paint with hand or brush
pɯ̠$^{33+}$	pɣ̠$^{33+}$	cloth for pictures or head wraps
pɯ̃^{55}	pɣ̃^{55}	time (as in 'one time')
tʋ$^{33+}$	tʋ̠ø̠$^{33+}$	to dig with a hoe
tʋ̃$^{33+}$	tʋ̠̃ø̠̃$^{33+}$	a hole in the ground

All vowels except /u/ have an oral reflex and a corresponding nasal quality. Nasality can be viewed either as a property of the vowel set or of the syllable paradigm (as a function of the tonal register set). The /ʋ ʋ̃/ vowels are fricativized vowels (meaning that the syllable maintains the posture of labiodental [v]). The examples are primarily from the two highest tone categories, for comparative clarity, and because they have the most elaborated distribution of vowels. Most of the examples are also from the tense register series, where the vowel is marked with a retracted underscore, as the retracted quality is a function of the tonal register category (Esling & Edmondson 2002). It should be noted that tonal register (the combination

of pitch levels and phonatory laryngeal state) plays a major role in the Jianchuan Bai sound system and that the use of lax or of tense register may change the perception of vowel quality, particularly in the case of the close oral fricative stricture for /ɣ ɣ̃/. The open front vowel /a/ has also been described as /ɛ/ (Wiersma 1990, 2003).

The syllable nucleus (or rhyme) of each vowel at tone 55, 33, and 31 is produced with either what has been called 'lax' register or 'tense' register. Vowels at tone 21 and 35 only have tense register. The phonetic meaning of lax register is that the laryngeal constrictor mechanism in the lower vocal tract is not engaged, while the phonetic meaning of tense register is that the laryngeal constrictor mechanism in the lower vocal tract is actively engaged (see Esling et al. 2019). The articulatory and phonatory ramifications of this contrast are explained in detail for each tone in the section on Tonal Register. The lexical examples presented in the Consonant list above are all, save one, words with tense register, due to the ease of completing the paradigm with an open vowel. Words in the above Vowel list are also mostly from the tense series. The Vowel Chart displays the basic vowel quality contrast between oral and nasal vowels, without reference to the effects of register, but each vowel will have a lower-vocal-tract register component, differing in quality according to the tone.

Because of the interactive role of nasality and of tonal register, vowel quality may be spread unevenly phonotactically across the open vowels. In this data set, for example, there are no examples of oral /ɑ/ in the lax register – only in the tense register. This may reflect the inherent association of retracted vowels with constricted laryngeal quality (Esling 2005), but that relationship has yet to be evaluated systematically.

A clear example of the open-vowel phonemic contrast in the lax nasal series is

kã^{33} kạ̃^{33} copper
vs.

kɑ̃^{55} kɑ̣̃^{55} steel

although the tone differs. The oral open-vowel contrast in the tense series is shown by

xe^{55} mạ^{21} xẹ^{55} mạ^{21} thunder
tsạ^{21} kạ$^{33+}$ tsạ^{21} kạ$^{33+}$ at that time

and

nɑ̣^{21} nɑ̣̃^{21} south
tɑ̣^{21} tɑ̣^{21} peach

Tense /ạ̃/ does contrast with lax /ã/, although with phonatory registers that would be counterintuitive if only the vowels (and not the dominant register system) were taken into account, in

pạ̃^{21} tã^{31} pạ̃^{21} tɑ̣̃^{31} a flat area

Diphthongs: ɑo, ia, iã, iɑ, iɑ̃, iu, iũ, iɯ, iɯ̃, ui, ue, uẽ, ua, uã, uɑ, uɑ̃. Although /iɑu/ or /iou/ is sometimes reported for Bai (Wiersma 2003), a triphthong that is distinct from /iu/ does not occur in this speaker's inventory.

kɑo³¹	kɑo̰³¹	to make; to do
piḁ³³⁺	piḁ:³³⁺	to ask; a wall
piã̰³³⁺	piɛ̰̃:³³⁺	to box the ears
piɑ̰³¹⁺	piɑ̰³¹⁺	to bark
piɑ̰̃²¹	piɑ̰̃²¹	to eat with big mouthfuls
piɯ³³	piɯ̰³³	no!
piɯ̃⁵⁵	piɯ̰̃⁵⁵	to spill out onto a flat surface
pʰiɯ⁵⁵	pʰiɯ̰⁵⁵	to disappear or fade out
pʰiɯ̃⁵⁵	pʰiɯ̰̃⁵⁵	a flower vase
ɕui³³	ɕuḭ³³	water
kue̞³¹⁺	kue̞³¹⁺	to become bad or evil
kuẽ̞³¹⁺	kuẽ̞³¹⁺	to vanish
kuḁ³¹⁺	kuḁ³¹⁺	bad
kuã̰²¹	kuã̰:²¹	horizontal
kuɑ̰³¹⁺	kuɑ̰³¹⁺	a stick or prod
kuɑ̰̃³¹⁺	kuɑ̰̃³¹⁺	to control or manage something

Tonal register

The most characteristic aspect of the phonetics of Jianchuan Bai is its tonal register system. Pitch levels or contours differ depending on the register series: lax or tense. The phonatory quality of each tone category changes as pitch height changes. The lax series reflects an open or unconstricted laryngeal/pharyngeal space, while the tense series reflects a laryngeally constricted posture of the lower vocal tract (Edmondson et al. 2000, 2001; Edmondson & Esling 2006). The 55, 33, and 31 tones are slightly elevated in pitch when the syllable is tense (constricted). They are therefore marked with a plus as 55+, 33+, and 31+ in the tense series. Often, they are alternatively designated as 66, 44, and 42, respectively, to emphasize the pitch effect that accompanies laryngeal constriction in the language. Their phonatory quality is labelled as harsh voice, due to the constriction of the epilaryngeal space. The simultaneous longitudinal tension required for high pitch gives the 55+ tonal category a quality which approximates the isometric tightness referred to as 'pressed voice' in the speech science literature or the quality labelled 'high-pitched harsh voice' in descriptions of states of the larynx (Esling & Harris 2005), although the quality in Bai is moderate and not nearly as extreme as in canonical peripheral possibilities (especially in fluent running speech, which is probably true for spoken languages in general). Tones 33+ and 31+ differ in contour, but their phonatory quality and length also differ: 33+ has tighter constriction, while 31+ engages slight ventricular-coupled phonation (as in harsh voice or creaky voice) or aryepiglottic trilling with truncated duration. The lax 55 and 33 counterparts are relatively modal, while 31 is breathy voiced. The paradigm is asymmetrical at this point, as all pitch patterns can be tense (constricted), but breathiness is inherently lax (open/unconstricted) and cannot occur in the tense series, even though 31 and 31+ have the same pitch contour. Thus, at pitch contour 31, the

phonation type distinction is maximized. Tone 21 combines the targets of low pitch and harsh phonation, which both require degrees of laryngeal constriction. Tone 21 therefore has no lax counterpart, as its phonation takes on the multiple source characteristics of a constricted epilaryngeal tube rather than an open epilaryngeal space. It is a sustained pharyngeal trill, i.e. with ventricular-coupled or aryepiglottic-fold vibration in addition to glottal vocal fold vibration. It approximates the quality labelled 'low-pitched harsh voice' among canonical states of the larynx (Esling & Harris 2005). The supraglottic oscillation contributes a periodic component at about half the frequency of the fundamental. Tone 35 has a rising pitch contour, beginning with the same periodic trilling as tone 21 (and occurs predominantly on recent Chinese loan words). Tone 35 has a laryngeally constricted onset, justifying its placement in the tense series, although it ends with modal voice. Each tonal register syllabic category has a corresponding nasal counterpart, except for the 35 tone. Each of the 15 contrasting syllables is illustrated with a /tɕ-/ initial consonant, in a complete paradigm, as well as with a /pʰ-/ or /p-/ initial consonant. Each list presents successions of contrastive pairs: the lax oral variant first, followed by the tense oral variant, then the lax nasal variant, followed by the tense nasal variant (except for tones 21 and 35, which have no lax counterparts, and tone 35, which has no nasal reflex). The second list illustrates that some consonant manners, e.g. aspiration, may be more compatible with the higher tones (55, 33) than with the lower trilled tones (21, 35), e.g. where unaspirated onsets may be more common.

	Lax	Tense	Lax Nasal	Tense Nasal
High	55	55+	55	55+
Mid	33	33+	33	33+
Breathy or Harsh Falling	31	31+	31	31+
Low Harsh Falling		21		21
(Harsh) Rising		35		

tɕi ⁵⁵	tɕi̝ ⁵⁵	much
tɕi ⁵⁵⁺	tɕi̝ ⁵⁵⁺	to mail
tɕĩ ⁵⁵	tɕĩ̝ ⁵⁵	bear; gold
tɕĩ ⁵⁵⁺	tɕĩ̝ ⁵⁵⁺	sword; to perceive
tɕi ³³	tɕi̝ ³³	to pull
tɕi ³³⁺	tɕi̝ ³³⁺	leech; crowded
tɕĩ ³³	tɕĩ̝ ³³	near; sour plum
tɕĩ ³³⁺	tɕĩ̝ ³³⁺	naughty
tɕi ³¹	tɕi̝ ³¹	field; soil; earth
tɕi ³¹⁺	tɕi̝ ³¹⁺	to hurry; fast; chase; nephew
tɕĩ ³¹	tɕĩ̝ ³¹	alkaline; decrease
tɕĩ ³¹⁺	tɕĩ̝ ³¹⁺	arrow; to soak into the ground
tɕi ²¹	tɕi̝ ²¹	flag
tɕĩ ²¹	tɕĩ̝ ²¹	bracelet
tɕi ³⁵	tɕi̝ ³⁵	nervous; diligent (in work)

$p^h\mathrm{i}^{55}$	$p^h\mathrm{i}^{55}$	slow
$p^h\mathrm{i}^{55+}$	$p^h\mathrm{i}^{55+}$	to fart
$p\tilde{\mathrm{i}}^{55}$	$p\tilde{\mathrm{i}}^{55}$	salt
$p^h\tilde{\mathrm{i}}^{55+}$	$p^h\tilde{\mathrm{i}}^{55+}$	cheat
$p^h\mathrm{i}^{33}$	$p^h\mathrm{i}^{33}$	flattened grain from weather
$p\mathrm{i}^{33+}$	$p\mathrm{i}^{33+}$	vulva
$p^h\tilde{\mathrm{i}}^{33}$	$p^h\tilde{\mathrm{i}}^{33}$	to overflow
$p^h\tilde{\mathrm{i}}^{33+}$	$p^h\tilde{\mathrm{i}}^{33+}$	slice, sheet
$p^h\mathrm{i}^{31}$	$p^h\mathrm{i}^{31}$	worthless person
$p^h\mathrm{i}^{31+}$	$p^h\mathrm{i}^{31+}$	skin; slow and bad at work
$p^h\tilde{\mathrm{i}}^{31}$	$p^h\tilde{\mathrm{i}}^{31}$	round object classifier; rice cake
$p^h\tilde{\mathrm{i}}^{31+}$	$p^h\tilde{\mathrm{i}}^{31+}$	classifier for suns
$p\mathrm{i}^{21}$	$p\mathrm{i}^{21}$	nasal mucus
$p\tilde{\mathrm{i}}^{21}$	$p\tilde{\mathrm{i}}^{21}$	impatient
$p\mathrm{i}^{35}$	$p\mathrm{i}^{35}$	nose; a brush; must, have to

Laryngoscopic videos

The tonal register paradigm is illustrated with laryngoscopic video data. Nasendoscopic videos show the articulatory activity in the larynx in an [i]-vowel context for the /tɕ-/ and the /pʰ-, p-/ paradigms listed above. The [i] vowel allows the lower vocal tract to be visualized more clearly over the back of the tongue. The /tɕi, tɕĩ/ paradigm may be schematized as follows:

Tone (Register)	Lax	Tense	Lax Nasal	Tense Nasal
High Level (modal voice)	$t\varɕ\mathrm{i}^{55}$ 'much'	$t\varɕ\mathrm{i}^{55+}$ 'to mail'	$t\varɕ\tilde{\mathrm{i}}^{55}$ 'bear; gold'	$t\varɕ\tilde{\mathrm{i}}^{55+}$ 'sword; perceive'
Mid Level (modal voice)	$t\varɕ\mathrm{i}^{33}$ 'to pull'	$t\varɕ\mathrm{i}^{33+}$ 'leech; crowded'	$t\varɕ\tilde{\mathrm{i}}^{33}$ 'near; sour plum'	$t\varɕ\tilde{\mathrm{i}}^{33+}$ 'naughty'
Mid Falling (breathy/harsh)	$t\varɕ\mathrm{i}^{31}$ 'field; soil; earth'	$t\varɕ\mathrm{i}^{31+}$ 'to hurry; fast; nephew'	$t\varɕ\tilde{\mathrm{i}}^{31}$ 'alkaline; decrease'	$t\varɕ\tilde{\mathrm{i}}^{31+}$ 'arrow; soak into ground'
Low Falling (harsh trilled)		$t\varɕ\mathrm{i}^{21}$ 'flag'		$t\varɕ\tilde{\mathrm{i}}^{21}$ 'bracelet'
Rising (harsh to modal)		$t\varɕ\mathrm{i}^{35}$ 'nervous; diligent'		

Conventions

The palatal approximant /j/ can sometimes be realized as [ɲ] in the context of a nasal vowel:

jĩ^{33} pʰĩ^{31}	ɲĩ^{33} pʰĩ^{31}	the sun
jĩ$^{31+}$	ɲĩː$^{31+}$	silver
jõ̰^{21} ta̰^{21}	ɲõ̰^{21} tə̰^{21}	sheep

A reduced [ə] occurs morphophonemically in the second syllable of words where that syllable bears a particle relationship to the first syllable, as in 'sheep' or in the following:

tʰṵ^{33} si^{33}	tʰṵ^{33} sə̰^{33}	dry soil
lɑ̰^{35} tsi^{33}	lɑ̰^{35} tsə̰^{33}	chili pepper

The /u/ vowel following /t/ yields a bilabial trill [ʙ̥] that becomes voiced into the vowel:

tu^{55}	tʙ̥u^{55}	alone; mean person
tṵ$^{55+}$	tʙ̥ṵ$^{55+}$	belly
tu^{33}	tʙ̥u^{33}	penis
tṵ$^{33+}$	tʙ̥ṵ$^{33+}$	to stack up
tu^{31}	tʙ̥u^{31}	to gamble
tṵ$^{31+}$	tʙ̥ṵ$^{31+}$	child's anger (onomatopoeia)
tṵ^{21}	tʙ̥ṵ^{21}	to pout; horse's whinny
tṵ^{35}	tʙ̥ṵ^{35}	to read; study

The fricativized vowels (labiodental-fricative vowels) may be realized as a syllabic [ʋ], as an approximant [ʋʊ͡] with raised-back vowel quality especially in nasal contexts, or as a syllabic nasal, e.g. as [ɱ̍] especially when the rhyme is nasal with no consonant onset, or as [ŋ] when the initial consonant is nasal:

tṽ^{55}	tʋʊ͡^{55}	east
ʋ^{55}	ʋʊ͡ː^{55}	to drill into
tʋ$^{33+}$	tʋʊ͡ː$^{33+}$	to dig
tṽ^{33}	tʋ̰̃^{ə33}	high cave
ʋ$^{33+}$	ʋʊ͡ː$^{33+}$	to hatch an egg
ṽ^{55}	ɱ̍ː^{55}	fish
ṽ^{33}	ɱ̍ː^{33}	tail
ṽ$^{33+}$	ɱ̍ː$^{33+}$	to occupy
ṽ$^{31+}$	ɱ̍$^{ʊ31+}$	language or speech
kṽ^{55}	kʋ̰̃ː^{55}	river
sʋ$^{31+}$	sʋ$^{ə31+}$	mountain
ŋʋ^{21}	ŋ͡ʋ̰^{21}	cloud

tṽ²¹	tṽ̰ᵊ ²¹	copper
tuɯ²¹ ŋv⁵⁵	tuɯ²¹ ṵ̃ ⁵⁵	in front, before
ŋv³³ ŋuɑ³³⁺	ŋ̍ː³³ ⁿw̰ɑ³³⁺	May
pi⁵⁵ fv³³	pḭ⁵⁵ fv̰ᵊ³³	to the left
tsa³¹⁺ fv³³	tsa̰³¹⁺ fv̰ᵘ³³	to the right
tõ³³ fv³³ no³³	tõ̰³³ fv̰³³ no̰³³	above
ɣa³³ fv³³ no³³	ɣa̰³³ fv̰³³ no̰³³	below
tsʰṽ⁵⁵ tɕi³³⁺	tsʰṽ̰⁵⁵ tɕḭᵊ³³⁺	spring (season)
tṽ⁵⁵ tɕi³³⁺	tṽ̰⁵⁵ tɕḭ³³⁺	winter

The /ui/ diphthong can be realized with a fronted onset in the environment of alveolo-palatal consonants:

tɕʰui³³ tɕʰui³³	tɕʰʏ³³ tɕʰɥi³³	cricket
jɑ̃³¹⁺ jui³³⁺	jɑ̃³¹⁺ ɥḭ³³⁺	(western) potato

Transcription of recorded narrative passages

An example of a linguistically constructed utterance with words of only low falling (21 and 31+) tones in the tense register is:

A sheep's nostril is habitually running mucus.
/jõ²¹ ta²¹ pi²¹ vv³¹⁺ tsõ²¹ tsã²¹ ka³¹⁺ pi²¹ ɕi²¹/
[ɲõ̰²¹ tə̰²¹ pḭ²¹ vv̰³¹⁺ tsõ̰²¹ tsã̰²¹ ka̰³¹⁺ pḭ²¹ ɕḭ²¹]

An example of an utterance with words of only 31 tones with the lax-breathy register is:

On the ground are the vegetable stalks.
/tɕi³¹ pa³¹ xo³¹ pʰi³¹ tsʰɯ³¹/
[tɕi̤³¹ pa̤³¹ xo̤³¹ pʰi̤³¹ tsʰɯ̤³¹]

'The North Wind and the Sun' is presented in Bai pinyin orthography and in narrow phonemic representation. Tense nuclei are redundantly marked as laryngeally constricted: [◌̰], or trilled [◌̺] at 21 tone. Lax nuclei are unmarked, or marked as breathy voiced at 31 tone: [◌̤].

zex atbenl, be'bisil goul yin'pinppinp zenbzaib zenxnuib,
tsɯ³³ a̰³¹ pə̃⁵⁵, pə³³⁺ pi⁵⁵sɯ⁵⁵ kou⁵⁵ jḭ̃³³⁺ pʰḭ̃³¹⁺ pʰḭ̃³¹⁺ tsə̰̃⁵⁵ tsaḭ⁵⁵ tsə̰̃³³ nuḭ⁵⁵⁺ ,

atdout mel bentsi doup?   suakex suakex,
a̰³¹toṵ³¹ me⁵⁵ pə̰̃³¹ sɯ³³⁺ tou³¹⁺ ? sua̰³³⁺ kʰə³³ sua̰³³⁺ kʰə³³ ,

hheflap gublul nox yindgainl yind.
ɣə³⁵ lə³¹⁺ gṳ⁵⁵⁺lṳ⁵⁵⁺ no³³ jɪ̃²¹ kã̰⁵⁵ jɪ̰̃²¹

mot beit de weinlweinl-vv nox yondmal zeilbeit sei
mo̰³¹ pḛ³¹ tə³³⁺ uẽ⁵⁵ uẽ⁵⁵ v̰³³⁺v̰³³⁺ no³³ jõ̰²¹ ma⁵⁵ tse⁵⁵ pḛ³¹ sḛ³³⁺

mal gonxyind, sanllianlxoutsilap sua: atdot, gai'ded yain,
ma⁵⁵ kõ³³ jɪ̰̃²¹ , sẽ⁵⁵⁺ liã̰⁵⁵ ɕo̰u³¹ si⁵⁵ la̰³¹⁺ sua̰³³⁺ a̰³¹to̰³¹ ka̰³³⁺ tə²¹ jɪ̰̃²¹

yon guainxxanlyind, lua' tel mel yondmal zeilbeit sei zil
jõ̰³³⁺ kuã̰³³ ɕã⁵⁵ jɪ̰̃²¹ lua̰³³⁺ tʰɯ⁵⁵ mə⁵⁵ jõ̰²¹ ma⁵⁵ tse⁵⁵ pḛ³¹ sḛ³³⁺ tsɯ⁵⁵

cux, mot gait cuxzex, gainlyindgainl mot yind lap.
tsʰu³³ , mo̰³¹ ka̰³¹ tsʰu³³ tsɯ³³ kã̰⁵⁵ jɪ̰̃²¹ kã̰⁵⁵ mo̰³¹ jɪ̰̃²¹ la̰³¹⁺

laif, be' bilsil, laif cux, dapqi-daphhep nox pul bilsil,
la̰³⁵ , pə³³⁺pi⁵⁵sɯ⁵⁵ la̰³⁵ tsʰu³³ , ta̰³¹⁺tɕʰḭ³³⁺ ta̰³³⁺ɣɯ̰³¹⁺ no³³ pʰu⁵⁵ pi⁵⁵sɯ⁵⁵ ,

yainx, mot pul nox, le'le gainlyindgainl, guainxxanlyind.
jã̰³³ mo̰³¹ pʰu⁵⁵ no³³ , lə³³⁺ lə³³⁺ ka̰⁵⁵ jɪ̰̃²¹ ka̰⁵⁵ , kua̰³³ ɕã⁵⁵ jɪ̰̃²¹

le'le ga mel yondmal zeilbeitsei, gux nox le'le jent.
lə³³⁺ lə³³⁺ ka̰³³⁺ mə⁵⁵ jõ̰²¹ ma⁵⁵ tse⁵⁵ pḛ³¹ sḛ³³⁺ , ku³³ no³³ lə³³⁺ lə³³⁺ tɕɯ̰̃³¹.

be' bilsil, zonp sex yaf co lap. lathhex, yin'pinp pinp
pə³³⁺pi⁵⁵sɯ⁵⁵ , tsõ̰³¹⁺ sɯ³³ ja̰³⁵ tsʰo̰³³⁺la̰³¹⁺ , la̰³¹ ɣɯ³³ , jɪ̰̃³³⁺ pʰɪ̰̃³¹⁺ pʰɪ̰̃³¹⁺

laitcux, dapqi-daphhep nox zo yin'pinp, guainxxanlyind.
la̰³¹ tsʰu³³ , ta̰³¹⁺ tɕʰḭ³³⁺ ta̰³¹⁺ɣɯ̰³¹⁺ no³³ tso³³⁺ jɪ̰̃³³⁺ pʰɪ̰̃³¹⁺ , kua̰³³ ɕa⁵⁵ jɪ̰̃²¹

masan, ga mel yondmal zeilbeit sei saf, cainlgetneid
ma̰³¹ sã⁵⁵⁺ , ka̰³³⁺ mə⁵⁵ jõ̰²¹ ma⁵⁵ tse⁵⁵ pḛ³¹ sḛ³³⁺ sa̰³⁵ , tsʰɛ̃⁵⁵ ko̰³¹ nḛ²¹

nox, lua tel. lafcux, be' bilsil bufdaifbuf
no³³ , lua̰³³⁺ tʰə⁵⁵ . la̰³⁵ tsʰu³³ , pə³³⁺pi⁵⁵sɯ⁵⁵ pṳ³⁵ ta̰³⁵ pṳ³⁵

cenpssenb, yin'pinp pinp bit mot gainlyindgainl.
tsʰə̰³¹⁺ tsə⁵⁵⁺ , jɪ̰̃³³⁺ pʰɪ̰̃³¹⁺ pʰɪ̰̃³¹⁺ pḭ³¹ mo̰³¹ kã̰⁵⁵ jɪ̰̃²¹ kã̰⁵⁵

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Supplementary material

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