

## Contact-Induced Tonogenesis in Southern Qiang\*

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In the Qiang language, the Southern dialects (SQ) exploit tones to make lexical distinctions, while the Northern dialects (NQ) lack tonal phenomena. There are also a few transitional dialects in which tones distinguish a few minimal pairs; each pair includes at least one borrowing from Chinese. Attempts have been made (e.g., Liu 1998a) to correlate the tones of SQ with certain phonetic features of NQ dialects (e.g., consonant cluster initials and vowel quantity/quality/rhotacization). This paper presents evidence that SQ was a pitch accent language which has undergone contact-induced tonogenesis; viz., after undergoing phonological simplifications that made SQ dialects tone-prone, lexical borrowings from a tonal language (Sichuanese Mandarin) caused the beginnings of tonal distinctions. Some dialects (Longxi, Taoping) have developed full-blown tonal systems, while others (Mianchi, Heihu) have layers of tonal strata over pitch accent systems. There appear to be phonetic motivations for some accented syllables and for certain minor tones, which are of relatively recent origin.

Key words: Qiang, tonogenesis, lexical stress, pitch accent, language contact

### 1. Introduction

This paper consists of six sections. In the following section I introduce the tonal systems of the key SQ dialects. In section 3 the argument is made that tone in Southern Qiang is an innovation, and not a retention which was lost in Northern Qiang. In the fourth section I propose a course of development for the genesis of tones in Southern Qiang, and in the fifth section I set forth evidence that the development of the SQ \*pitch-accent system was influenced by tonogenetic factors. I close the discussion with some suggestions for further research that would indicate whether SQ dialects are becoming more or less tonal.

The Qiangic branch of Tibeto-Burman consists of languages and dialects with

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phonemic tone (e.g., Southern Qiang, Pumi, Queyu, Zhaba, Muya, Guiqiong, Shixing, Namuyi), as well as those without it (e.g., Northern Qiang, dialects of rGyalrong, Daofu/Ergong). Most, if not all, Qiangic tone systems differ from prototypical syllabic tone systems, such as those found in Mandarin Chinese or Thai. Pumi has been analyzed as having pitch accent, or word tone, in which the entire word is the Tone-Bearing Unit (TBU) (Ding 1998, 1999). Likewise, Ergong/Daofu has pitches that are non-phonemic (H. Sun et al. 1991 (henceforth *ZYC*) p.218, Dai 1989), and rGyalrong appears to have a word-tone or pitch accent system (*ZYC*:209). According to Huang 1991, rGyalrong is a language in which syllables carry “customary pitch” rather than tone: among 3,000 commonly used words she found only one pair of monosyllables distinguished by tone, and ten disyllabic minimal pairs. Nagano (1984), while conceding that “every word has a somewhat fixed pitch pattern,” unequivocally claims that “tone is not distinctive at all.” J. Sun has observed that:

One complication is that glottalized and non-glottalized syllables are associated with different pitch patterns in rGyalrongic languages, and in some languages these pitch patterns may have taken on an independent life of their own and become true tonal contrasts. The Puxi variety of Shangzhai (personal research) appears to be a case in point, where tense/aspect conjugation involves intricate consonantal, tonal, as well as accentual alternations. [...] Lin Xiangrong also mentions tense-marking tonal alternations in the Ergali variety of Lavrung (Lin 1993:749-50) but fails to note similar phenomena in his lengthy descriptions of Mu’erzong and Caodeng sound systems (Lin 1993:489-509, 526-604). (J. Sun 2000:173n)

Following J. Sun and the major sources, I regard varieties of rGyalrong(ic) as either non-tonal, or as having newly developed tonal contrasts.<sup>1</sup>

Within Southern Qiang, tone serves different functions in different dialects, and not all dialects are tonal to the same extent. Before delving into the origins of SQ tone, I shall first present brief descriptions of the tones in the three SQ dialects that will be examined presently.

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<sup>1</sup> For an overview of Tibeto-Burman tone systems, cf. Matisoff 1998.

## 2. Descriptions and origins of Southern Qiang tones

In this paper I consider tones of Taoping, based on published data, and of Mianchi and Longxi, based on fieldwork I conducted in the spring of 1997. In addition to data on these three dialects, there is some information about tones in other SQ dialects that can be found in Wen 1943 (Wasi), 1945 (Hou'ergu), 1950 (Jiuziyang), and Wen and Fu 1943 (Lobuzhai). However, these sources contain insufficient data for systematic comparison, as only a few forms in each article are marked for tone, and hence are employed to a lesser extent.

### 2.1 Taoping (TP)

Of all varieties of Southern Qiang, this is the only dialect for which extensive tonal data have been published until this paper and Evans 2001 (e.g., H. Sun 1962, 1981,<sup>2</sup> ZYC, Liu 1998a, et al.). According to Liu 1998b:17 there were 4,900 speakers of Taoping (Li county) in 1990. Taoping has six tones (33, 55, 31, 241, 13, 51), which differ greatly in frequency and distribution. In the Taoping lexicon, they occur with the following frequencies, and with the given restrictions (1754 syllables in 1008 words):

a <sup>33</sup>	764 instances	43.6%	Occurs with all initials
a <sup>55</sup>	495 instances	28.2%	Occurs with all initials
a <sup>31</sup>	337 instances	19.2%	Occurs with all initials
a <sup>241</sup>	94 instances	5.4%	Occurs with voiced initials only
a <sup>13</sup>	43 instances	2.5%	Occurs in borrowings from Mandarin fourth tone, and in coalescence
a <sup>51</sup>	21 instances	1.2%	Occurs in borrowings from Mandarin third tone

Tones 33, 55, and 31 (the major tones) may all co-occur in any order, with 31-33 as the most common combination. The three minor tones of Taoping (241, 51, 13) occur in just 9% of its lexicon. The 241 tone has a shared origin with Longxi and Mianchi Low-rising tone (cf. 4.6).

The two remaining minor tones occur on borrowings from Mandarin. According to Yang 1984:901, Li County Mandarin has the following tones:

Yin-Ping	55
Yang-Ping	31

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<sup>2</sup> Henceforth *QYJZ*.

Shang	53
Qu	25 ~ 35
Ru	44

The TP 51 tone occurs exclusively in borrowings from Mandarin third tone, or *shang sheng*, which in Li County is pronounced 53:

<u>Gloss</u>	<u>Taoping</u>	<u>Mandarin</u>
well (n.)	tsij <sup>51</sup> nə <sup>33</sup>	<i>jǐng</i>
friend	phuŋ <sup>31</sup> iəu <sup>51</sup>	<i>péng yǒu</i>
wristwatch	ʂəu <sup>55</sup> piəu <sup>51</sup>	<i>shóu biǎo</i> (sandhi tones, from <i>shǒu biǎo</i> )
chair	i <sup>51</sup> tsɿ <sup>31</sup>	<i>yǐ zi</i>
harmonica	khəu <sup>51</sup> tchin <sup>31</sup>	<i>kǒu qín</i>
acre	mu <sup>51</sup>	<i>mǔ</i>

The 13 tone occurs on borrowings from Mandarin fourth tone, or *qu sheng* (pronounced 25 locally), with the exception of two dual pronouns, which appear to have coalesced from the phonological reduction of the morpheme *ni*<sup>55</sup> ‘two’ after the sandhi forms of the personal pronouns *qa*<sup>55</sup> ‘I’ and *kuə*<sup>55</sup> ‘you’:

<u>Gloss</u>	<u>Taoping</u>	<u>Mandarin</u>
mole	tʂɿ <sup>13</sup>	<i>zhì</i>
story/tale	ku <sup>13</sup> sɿ <sup>13</sup>	<i>gù shì</i>
mark	tɕi <sup>13</sup> χəu <sup>13</sup>	<i>jì hào</i>
change/transform	pian <sup>13</sup> tha <sup>33</sup>	<i>biàn</i>
clean (v.)	kan <sup>55</sup> tsin <sup>13</sup> pu <sup>33</sup>	<i>gān jìng</i>
eighth	ti <sup>13</sup> pa <sup>33</sup>	<i>dī bā</i>
we [dual]	qaŋ <sup>13</sup> tʂɿ <sup>33</sup>	(cf. <i>qa</i> <sup>31</sup> <i>thya</i> <sup>55</sup> ‘we’)
you [dual]	kuəŋ <sup>13</sup> tʂɿ <sup>33</sup>	(cf. <i>kuə</i> <sup>31</sup> <i>thya</i> <sup>55</sup> , ‘you [pl.]’)

## 2.2 Longxi (LX)

According to my own fieldwork, Longxi (Wenchuan county, 3,300 speakers in 1990 (Liu 1998b:17)) has two major tones (L, H), and three minor tones (R, M, F). 98.9% of Longxi syllables occur with a major tone. The phonetics, frequency, and distribution of Longxi tones are as follows (6150 syllables in 3247 entries):

à	Mid or Low-falling (L) (ma <sup>33</sup> ~ ma <sup>31</sup> )	63.61% (3912 instances)	all initials
á	High level tone (H) (ma <sup>55</sup> )	35.33% (2173 instances)	all initials
ǎ	Low (falling) rising (R) (ma <sup>13</sup> ~ ma <sup>213</sup> )	0.70% (43 instances)	voiced initials
a <sup>35</sup>	Mid-rising tone (M)	0.31% (19 instances)	borrowings, coalesced syllables
â	High-falling tone (F) (ma <sup>51</sup> )	0.05% (3 instances)	coalesced syllables, borrowing, syllabified pre-initial

Longxi major tones have the following distribution in 1452 native disyllables:

**Table 1. Distribution of major tones in native Longxi disyllables**

s1 \ s2	L	H
L	620	505
H	176	151

The development of the minor tones in Longxi (and in Mianchi) has been affected by Wenchuan County Mandarin, which has the following tones:

Yin-Ping	55
Yang-Ping	31
Shang	42
Qu	13
Ru	44

The three instances of Longxi High-falling tone have three separate origins, as given below:

alkali	tɕêN	borrowing: (Mandarin <i>jiǎn</i> (local tone = 42))
armpit	kâm	coalescence: (< /ká mù/)
stone	ɛ̀ò lù	*RC cluster: (PTB *r-luŋ <sup>3</sup> , Mawo (Northern Qiang) <i>ɛ̀lu pi</i> ) <sup>4</sup>

<sup>3</sup> All Tibeto-Burman reconstructions are from Benedict (1972), unless marked otherwise. Those marked STEDT are from the Sino-Tibetan Etymological Dictionary and Thesaurus project of James Matisoff. Proto-Qiang (PQ) and Proto-Qiangic (PQic) reconstructions are the author's, unless otherwise noted.

<sup>4</sup> The origin of the tone on this particular syllable is discussed in section 3.6.

Taken together, these three lexemes present a picture of an emerging tone. In this case, the tone has come into being through both external and native linguistic influences. Considering the increased rate of borrowing in Southern Qiang, this tone will probably increase in strength and number through the introduction of more Mandarin third tone syllables. This set, along with the other minor tone data, show how readily these languages create new tones, once the feature of pitch has been exploited to distinguish lexical items.

Almost all instances of the Longxi Mid-Rising tone are borrowings from Mandarin. The following words show that this tone cannot be correlated with any particular Mandarin tone, as tones 2, 3, 4 of standard Mandarin are all represented, with fourth tone being the most common (local tones are indicated following the *Hanyu Pinyin*. With the exception of full Sichuanese forms taken from my own field notes, Sichuanese tone marks are based on the analysis of Yang 1984):

<u>Gloss</u>	<u>Longxi</u>	<u>Mandarin</u>
deep fry	tsa <sup>35</sup> dà	zhá (42)
blame someone	kuai <sup>35</sup> -dà	guài (13)
taxes	suei <sup>35</sup>	shuì (13)
try, test	kao <sup>35</sup> dà	kǎo (53)

The above forms show that tone assignment on borrowings is often arbitrary. This may indicate that the forms were borrowed from Chinese before Longxi had developed tone (the hypothesis given in Liu 1998a). Alternatively, it may be a further indication of the instability of SQ tones; that is, that the tones on these borrowed forms have flip-flopped after entering Longxi. A third possibility is that when these forms were borrowed, Longxi speakers assigned them tones without regard for the pitches in Chinese. It may also be that ‘deep fry’ and ‘try, test’ reflect the influence of standard *Putonghua*. Longxi Mid-Rising tone cannot be completely correlated with local tones, as local Sichuanese forms with 35 tone may be borrowed into other Longxi tonal categories; e.g., *tshà tshà* ‘eraser, rubber’ (local Sichuanese *tsha*<sup>35</sup> *tsi*<sup>21</sup>).

Coalescence of syllables is the other demonstrable origin of this tone, as in *mó*<sup>35</sup> ‘disappear’, from *mò fíó* ‘there is not’ from *mì* + *íó* NEG + EXIST. (These morphemes also combine to form *mǒ* ‘without’). The Mid-Rising tones in the following ‘night’ words are probably due to coalescence, although I have not been able to discover what the underlying morphemes are (these words also have strange tonal properties in Mianchi, allowing two high tones):

<u>Gloss</u>	<u>Longxi</u>	<u>Mianchi</u>
tonight	pei <sup>35</sup> dʒì tsí	pè gié tsí
tomorrow night	tè pei <sup>35</sup> dʒì tsí	tè péi giè tsí
last night	nei <sup>35</sup> dʒì tsí	nè gié tsí

### 2.3 Mianchi (MC)

Tones in Mianchi (Wenchuan county, 15,700 speakers in 1990 (Liu 1998b:17)) are added onto a pitch accent system of high and low (-falling) pitch, in which native words may only have one high-pitched, or accented, syllable. Mianchi pitch accent is a simpler type of word tone than is found in Risiangku Tamang, in which there are four tones, each of which is spread over a phonological word (Mazaudon 1973). On the contrary, in Mianchi a phonological word (usually mono- or disyllabic, although longer forms also occur) may be accented or unaccented, and the accent may occur on any syllable, although there are some restrictions; e.g., accented DIR prefixes only occur with verbs with Low-rising tones. While unaccented and accented syllables account for 95% of the vocabulary, there are contour tones on the remaining five percent:

à	Unaccented (L) (ma <sup>31</sup> ).	67.3% (4288 instances)	all initials
á	Accented (H) (ma <sup>55</sup> ).	27.9% (1775 instances)	all initials
ǎ	Low (Falling) Rising (R) (ma <sup>13</sup> ~ ma <sup>213</sup> ).	3.5% (226 instances)	all initials
â	High-Falling tone (F) (ma <sup>51</sup> ).	1.2% (76 instances)	all initials
a <sup>35</sup>	Mid-Rising tone (M) (ma <sup>35</sup> ).	0.01% (4 instances)	borrowings and coalesced syllables

The two major pitches on native disyllables occur with the following distributions (1213 instances):

**Table 2. Distribution of major pitches in native Mianchi disyllables**

s1 \ s2	L	H
L	565	416
H	232	0

As might be expected for a pitch-accent language, only one accented syllable may occur per word. High-Falling and Mid-Rising tones do not co-occur with accented syllables, indicating that they are underlyingly accented (or ‘High’). Low-rising may co-occur with accented syllables, indicating that it is unaccented. Following Yip (1995)

the tones may be diagrammed as follows. Capitals denote register and lower case denotes pitch within register.

**Table 3. Autosegmental representation of Mianchi pitch phenomena**

Tone abbr's	L	R	H	F	M
	$\sigma$	$\sigma$	$\sigma$	$\sigma$	$\sigma$
	L	L	H	H	H
		∨		∨	∨
	l	lh	h	hl	lh
Surface pitch	31	(2)13	55	51	35

This notation captures the above-mentioned phonetic generalizations and restrictions. However, it does not reveal the historic fact that Mianchi is essentially a pitch accent language, nor does it predict the wide discrepancies in the distribution of tones. In order to accurately reflect historic and distributional realities, I will continue to refer to Mianchi L and H syllables as (un-)accented, and the other syllables as tonal.

As would be expected, accent sandhi occurs on compounds involving more than one accented syllable. However, Mianchi accent sandhi is complex and unpredictable, as shown in the following chart (the last instance in the chart shows interplay between accent and tone):

**Table 4. Accent sandhi in Mianchi compounds**

a. Disyllabic combinations:

Low + Low:

L + L → L-L	bzà + mù = bzà-mù	adult (big-person)
L + L → L-L	dè+bzà = dè-bzà	expand, inflate (pfx-big)
L + L → L-L	diò + bzà = diò-bzà	front gate, door (door-big)
L + L → L-L	lò + bzà = lò-bzà	stone, boulder (stone-big)
L + L → L-H	lò + bzà = lò-bzá	long month (calque) (month-big)
L + L → L-H	zì + bzà = zì-bzá	bull ox (bull-big)
L + L → H-L	tshè + mù = tshé-mù	wool (goat-fur)

Low + High:

L + H → H-L	sù + nó = sú-nò	gums (tooth-red)
L + H → H-L	lò + psí = ló-psì	flint (stone-white)



High + Low:

H + L → H-L	lá + bzà = lá-bzà	eagle (eagle-big)
H + L → H-L	mú + khuè = mú-khuè	warm self by fire (fire-put.near.fire)

High + High:

H + H → L-L	tí + pǝí = tì-pǝì	panda (bear-white)
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## b. Trisyllabic combinations:

High + High + Low:

H + H + L → H-L-L	nó + nó + tsì = nó-nè-tsì	bright red, glowing (red-red-sfx)
H + H + L → H-L-L	mú + phú + diò = mú-phù-diò	tube to blow on fire (fire-blow-door)

Low-High + Low:

LH + L → L-L-H	ɛà mú + phò = ɛà mù-phó	almond tree (almond-tree)
LH + L → L-L-L	bè liú + bzà = bè liù-bzà	bachelor (young.man-big)

Low + Low-High:

L + LH → L-L-H	phò + zà piá = phò-zà piá	bark of tree (tree-skin)
L + LH → L-L-R	dè + bzù bzǝ = dè-bzù bzǝ	become smaller (pfx-small)

There are a few borrowings from Chinese with more than one accented syllable (*tá pí fáj* ‘analyze’, *tán kuéi* ‘Chinese angelica’). There is also at least one object-verb close collocation that has two accented syllables: *zá tsí* ‘winnow’ (grain-winnow); this form is apparently treated by native speakers as two words, otherwise it would be the only native H-H form out of more than 1200 disyllables. Certain kinds of trisyllabic and longer words may have two H syllables, indicating that they contain more than one phonological word:

**Chinese borrowings:**

<i>tsú cén zèn</i>	‘ancestor’
<i>tíj tíj mǝ</i>	‘dragonfly’

**Phrasal words:**

<i>sú-dòu-pù-mú</i>	<i>qai qá -kì-zuè mé</i>
hide?-ghost-do-AGT	before-NOM-speech
‘poison cat’ (kind of witch)	‘story, tale’

**Conjoined words:***nə̀-śá-ŋà-à-qó*

two-ten-and-one-CL

‘twenty-one’

**New compounds (calques from Chinese):***zì qé-tsú*

tongue-small

‘uvula’

Among the other dialects of SQ, we note that in Lobuzhai (Wenchuan county), the major tones 55 and 31 can sometimes be pronounced 51, 33, but the variation is apparently not predictable (Wen and Fu 1943:24).

Other Qiangic languages are similarly capricious in the behavior of their pitches and tones. E.g., Pumi (Ding 1998, 1999, Matisoff 1997) has more tones that occur on poly-syllables than on mono-syllables, and tone sandhi cannot be predicted. Likewise, Huang (1991) notes that in Muya, the high tone can alternate with the rising tone in the second syllable of a disyllabic word. Zhaba 55, 33 tones are often pronounced with 53, 31 tones in monosyllables or in word-final position, with no apparent predictability (Dai, et al. 1992 (henceforth *TBL*), p.644).

The Mianchi Mid-Rising tone can be shown to be purely secondary, occurring only in instances of borrowing and coalescence, as in the following exhaustive list of Mianchi MR lexemes found in the data:

<u>Gloss</u>	<u>Mianchi</u>	<u>Mandarin</u>
freshwater clam	pæŋ <sup>35</sup> -khə̀	Sichuanese [phæŋ <sup>35</sup> khə̀ <sup>31</sup> ]
spine	pei <sup>35</sup> tɕí kù	bèi (13) jǐ gǔ
wild goose	ŋæ <sup>35</sup> uò	yě (53) é
afternoon	mzɛ <sup>35</sup> tsà	(see below)

In addition to the above forms, the initial syllable of *íŋ phì* ‘earthen jar’ is sometimes pronounced [iŋ<sup>35</sup>]. The development of contour on the first syllable is probably related to the devoicing of the rhyme of the second syllable. However, this is not a regular pattern, hence no rule can be written for this change. ‘Freshwater clam’, ‘spine’, and ‘wild goose’ are all borrowings from Sichuanese Mandarin. The first syllable of ‘afternoon’ is the only native Mianchi syllable with Mid-Rising tone; it clearly results from a combination of *mè ~ mù ~ mú* ‘weather morpheme’ with something like \*zɛ (unattested). In fact, the only other instance of /mzɛ-/ in Mianchi is also a case of syllabic coalescence involving this ubiquitous ‘weather morpheme’<sup>5</sup>: *mzì* ‘rain’ (cf. TP *má<sup>31</sup> zǐ<sup>55</sup>*). While there is no direct evidence for the reconstructed morpheme \*zɛ in

<sup>5</sup> This morpheme appears as the initial syllable in many words related to the sky and weather:

sky	mú pià	thunder	mù gó
sun	mè sí	rainbow	mè χóú
light, brightness	mè cà, mù cà	snow	mù pà

Mianchi, it has an apparent reflex in Longxi (PSQ<sup>6</sup> \*z<sub>l</sub> > Longxi /z/), and possibly in two other Qiangic words for parts of the day:

Longxi	<b>zà</b> mià	noon
Pumi (Taoba)	ŋe <sup>35</sup> rɿ <sup>55</sup>	morning
Shixing	ŋi <sup>33</sup> ri <sup>35</sup>	morning

The High-Falling (F) tone in Mianchi is the second-most common minor tone, with 76 instances in over three thousand words elicited. F only occurs on the final syllable of a verb or verb phrase; it cannot be followed by another syllable. In many cases F appears on suffixes such as CAUS (*zâ* ~ *zì* ~ *zǐ*):

knock down (wall)	ʂæ dzuà zâ
eliminate, die out	tè sǐ zâ
cause landslide	fà dzuà zâ

It may also occur on BOR (*thâ* ~ *thà* ~ *thá*), a suffix meaning ‘do’ which is appended to borrowed monosyllabic verbs):

cover (v.t.)	fà lòŋ thâ
live	χò thâ
surround	fà uì thâ

F also occurs on the first and second person agreement/future tense marker FUT:1,2 (*uâ* ~ *uá* ~ *uà*):

frighten (FUT:1,2)	sì uâ
embrace (FUT:1,2)	mì ɲà uâ
clear, obvious (FUT:1,2)	sì uâ

In many instances, High-Falling occurs in free variation with accent, after an unaccented syllable:

complete, finish	tè ɸô ~ tè ɸó
tingle	tshù tshû ~ tshù tshú
recall	tè bè dzɔú ~ tè bè dzɔú ɸà

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<sup>6</sup> Proto-Southern Qiang.

‘Recall’ demonstrates the fate of High-Falling tone in discourse, as High-Falling tone can only occur on the last syllable of a verb phrase. If a syllable with underlying High-Falling tone is followed by another morpheme, it loses its tone and has only accent (or following Yip it loses its contour and has only High register and high pitch). Because of this fragility, out of more than five hundred sentences elicited in Mianchi, only one sentence contains a High-Falling tone:

fà-í    ùkù    zǐê.  
3-s    has.just    slept  
S/He just slept.

The exact origin and meaning of this morphological tone are not clear. Nevertheless, it is clearly of recent origin, given that “[h]allmarks of diachronically young tones include *low lexical frequency* and *involvement in morphological alternations*.” (Matisoff 1998:18, emphasis his). The restriction of this tone to the final syllables of verb phrases indicates that it has arisen secondarily, and that it may come from either the suprasegmental remnant of a bygone suffix, or it may have an intonational (or other) origin. The Qiangic languages have a great tendency to innovate and re-order their verbal affixes (Evans 1998b), so there is as yet no principled manner to determine what erstwhile morphological component the Mianchi High-Falling tone may reflect.

## 2.4 Tone in other dialects

In addition to Mianchi, there are other SQ dialects in which tone plays a minimal phonological role. **Heihu** (Mao county), a SQ dialect that is near the NQ area, uses tone only to distinguish Chinese borrowings from native words and from other borrowings (Liu 1998a, cf 4.5, below).

According to Wen, **Jiuziying** is a pitch accent dialect:

The unpredictability of tones is also noticeable. Only when two or more syllables are in juxtaposition is a pitch-accent definitely required, especially for homophones... (Wen 1950:21)

He cites the following Jiuziying minimal pairs, for which I have included cognates from Taoping, Longxi, and Mianchi. I have changed Wen’s postvocalic tone marks to parallel those used in the Longxi and Mianchi data. There are apparently no monosyllabic minimal pairs. For the forms cited, there is no apparent regular correspondence among the tones.

**Table 5. Jiuziying tonal minimal pairs and Southern Qiang cognates**

Gloss	Jiuziying	Taoping	Longxi	Mianchi
last year	nɿ pɿ	ni <sup>31</sup> pə <sup>33</sup>	nó pù	né pù
two years	nɿ pɿ			
pheasant	í dzú	i <sup>31</sup> dzy <sup>241</sup>	ỳ-zó	
friend	ì dzù		ì zù ~ ỳ zù	ì dzòu
inside	kò kò	ko <sup>55</sup> ko <sup>33</sup>	kù kù	qò qó
elder brother	kó kò		à kò	qó qò
uncle	pà pá	pe <sup>33</sup> pe <sup>33</sup> (paternal, elder)	á pà	
father	pá pà	pa <sup>55</sup> pa <sup>33</sup>		

Unfortunately, these forms represent the total of the suprasegmental Jiuziying data that are given. Nevertheless, whatever the exact nature of Jiuziying pitch phenomena, it is clear from Wen's remarks and from the lack of monosyllabic minimal pairs that tone is a phonological feature of minimal significance, and that something closer to word tone or pitch accent is at work, rather than the standard syllabic tone of a language like Mandarin.

In **Hou'ergu** (Li county) tones are variable on monosyllables; e.g., *t'ie* 'eat' occurs with three different tones, depending on the directional prefix: *sɿ<sup>33</sup> t'ie<sup>53</sup>*, *sɿ<sup>33</sup> t'ie<sup>21</sup>*, *dæ<sup>5</sup> t'ie<sup>33</sup>*). However, tones are stable on polysyllables, pointing to a word tone system in this dialect. Unfortunately, Wen was not able to perform a comprehensive analysis of the tones of Hou'ergu, and wrote that further analysis is needed to distinguish tone from intonation (Wen 1945:134-7).

In contrast to the tonal and semi-tonal systems of Southern Qiang, NQ dialects have lexical stress; Liu has described stress in the Mawo dialect as predominantly occurring on the first syllable of polysyllables (Liu 1998a, 1998b), although there are a few minimal pairs that are distinguished by stress (examples and Mawo data from Liu 1998a:1):

**Table 6. Comparison of Mawo stressed syllables with Southern Qiang forms**

Gloss	Mawo	Taoping	Mianchi	Longxi
ear	'nəku	ɲi <sup>31</sup> kie <sup>33</sup>	nə ké	ɲì ká
pillow	nə 'ku	ko <sup>33</sup>	nè kò	ɲì kù
<i>pianniu</i> (yak-cow hybrid)	'khçi χu	khçi <sup>55</sup> (old spkr) tçi <sup>55</sup> (young spkr)		zì
paper	khçi 'χu			
cover (v.)	'a χu		fà qhué	qhú
a box (CL)	a 'χu		χò	χó

The above table clearly shows that stress in Mawo cannot be correlated in a direct way with any particular tone(s) of SQ dialects.

LaPolla describes the stress of the Yadu dialect of Northern Qiang as predominantly trochaic (LaPolla 1996:19). LaPolla and Liu's descriptions are equivalent for disyllables, which account for most of the polysyllabic lexical items in Qiang. Stress is placed irrespective of the semantics of the given syllable; e.g., prefixes are just as likely to carry stress as are free morphemes. The following examples (from LaPolla 1996:18-19) show that, despite trochaic tendencies, Yadu stress placement is not predictable (note that in 'short' there are vocalic changes that occur with stress placement):

<i>fia</i>	prefix	+	<i>tsha</i>	'deep'	>	<i>fíatshəz</i>	'cause to be deep' <sup>7</sup>
<i>tə</i>	prefix	+	<i>watsi</i>	'short'	>	<i>təwátsi</i>	'become short'
<i>tça</i>	prefix	+	<i>watsi</i>	'short'	>	<i>tçáwətsi</i>	'still short'

Full verb phrases are subject to the same type of stress placement as lexical items:

fá-mə-tçi-xtşápə-tç	fá-xtşəp-ɲike
DIR-NEG-yet-dark-GEN	DIR-dark-CLP
'before it got dark'	'after it got dark'

Unlike Yadu stress placement, and the placement of tones in Longxi and Taoping, Mianchi directional prefixes (DIR) may only be accented before verbs with Low-rising tone, with the lone exception of *ʃé ɲù* 'come out':

<sup>7</sup> This form also contains the causative suffix -z~ -əz.

lose, be defeated	ʂé tǐ	contract illness	té tiě
darken	fiá nǎ	to be in surplus	dé dzǔ

Before verbs of all other pitches/tones, DIR prefixes in Mianchi are unaccented and toneless.

### 3. Evidence that tone is an innovation in Southern Qiang

As mentioned above, each of the key dialects has minor tones that are clearly of secondary origin. The evidence and arguments presented below point to the relatively recent beginnings of tone as a phonemic distinction in SQ.

It has generally been accepted that the non-tonal NQ dialects more accurately reflect the suprasegmental state of Proto-Qiang, and that phonemic tones in Southern Qiang are an innovation. In this case, the burden of proof is upon those who assert that Northern Qiang did have tones and lost them, rather than on those who do not make this claim. Nevertheless, the following observations are offered to lend further support to the claim that Southern Qiang has introduced tone to an otherwise non-tonal language.

#### 3.1 Lack of inherited tone from earlier stages

There is at this point no evidence that proto-Qiangic was a tonal language. On the contrary, as mentioned above, the most phonologically conservative languages and dialects (e.g., rGyalrong, Daofu/Ergong), languages which preserve PTB initials and codas, either do not have phonemic tones, or have tone systems that are clearly secondary. Similar to the rGyalrongic situation mentioned earlier, it is probable that the pitch variations observed in Ergong (e.g., ZYC:218) are also secondary effects of a (non-transcribed) glottalic trait.<sup>8</sup>

With no evidence for tones at the time depth of Proto-Qiangic, the origin of SQ tones cannot reasonably be claimed to pre-date Proto-Qiang. In fact, like some dialects of rGyalrong and Ergong, Northern Qiang, the phonologically conservative sister to Southern Qiang, bears no evidence of ever having had tones. In NQ dialects, even borrowings from Mandarin are toneless (e.g., Yadu *jaŋ sə* ‘color’). The complete lack of tonal phenomena in Northern Qiang suggests that tones arose after the Northern and Southern dialects had diverged from each other.

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<sup>8</sup> Note that even in those analyses that posit suprasegmental phenomena, there are very few minimal pairs.

### 3.2 Weak role of tone in tonal dialects

As mentioned in section 1, SQ dialects that border the NQ area (e.g., Heihu) use tone to distinguish Mandarin Chinese borrowings; they are not used to distinguish native words from each other. This minimal degree of functionality runs contrary to expectations for a longstanding tonal system. Similarly, Wen observed that tones are not required on Jiuziyang monosyllables, hardly a trait of languages with established tonal systems (Wen 1950). Liu (1998a) claims that as one proceeds from North to South across the SQ dialects, the role played by tone in the phonology increases. Nevertheless, even Mianchi, perhaps the southernmost variety of Qiang, and one located far from the influence of the Northern dialects, has essentially a pitch accent system, with true tones occurring on less than five percent of its syllables.

In addition to the dialects in which tones play a minimal role, there is often variation in the tone(s) assigned to a lexeme within dialects that are unequivocally tonal. During at least one elicitation session I recorded the following Longxi ‘finger’ words:

finger	<i>lià çú</i>	ring finger	<i>liè-ná</i> <sup>9</sup>
index finger	<i>lié çú</i>	little finger	<i>liè-tsá, liè bé</i>
middle finger	<i>liè-sé</i>		

However, during another session the consultant pronounced all five of these forms with high tones on all syllables. These variations indicate that, while tones are phonemic in Longxi, they are much less stable than expected for an established syllabic tone system.

As mentioned above, Lobuzhai tones have variation in their pitch patterns. Wen (1950) cites such examples as *so*<sup>31</sup> *ji*<sup>31</sup> ~ *so*<sup>33</sup> *ji*<sup>33</sup> ‘thread’. However, not all forms participate in this variation (e.g., “among the mid-falling tones are those that can be pronounced mid-level” [p.24, translation mine]).

Further evidence for the weak role of tone in SQ dialects comes from the widely diverging frequency of occurrence of tones in each dialect, as given in sections. In Longxi and Mianchi Low tones/pitches are about twice as common as High tones/accented syllables, and minor tones occur on only a few percent of the vocabulary. By contrast, in Lolo-Burmese languages, whose tonality can be traced back to the first millennium, tones \*1 and \*2 occur with virtually identical frequency (Matisoff 1998:9).

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<sup>9</sup> Cf. Lahu làʔ-nɔ=dàʔ ‘finger=good’. The second syllable of the Longxi form also means ‘good’.



### 3.3 Correlation of tone with phonological simplicity

Liu (1998a) claims that the role of tones in the phonology of a given Qiang dialect is roughly inversely proportional to that dialect's consonantal complexity (e.g., presence and number of CC- initials, presence of codas, etc.). This relationship follows typological expectations, as has been frequently noted (Haudricourt 1954, Matisoff 1972, 1973, 1998, Mazaudon 1977, Thurgood 1997, etc.). Within Qiang, the Northern dialects have the most complex syllable canons, and have no trace of tone systems; that is, they are at one extreme end of Liu's spectrum. Northern Qiang, being in other respects phonologically more conservative than the SQ dialects, has apparently maintained a state that typologically does not give rise to tone systems. The SQ dialects on the other hand, which are phonologically more degenerate and which have simpler syllable canons, possess tones. That is, tonelessness appears to be a conservative trait and tonality an innovative trait within Qiang.

While this observation may hold for many SQ dialects, Taoping, the most oft-cited SQ dialect, does not fit this pattern. It is more phonologically complex than either Longxi or Mianchi, but has been presented as having a clear-cut six tone system. When Liu and H. Sun gathered data in the 1950's, elderly speakers of Taoping still maintained complex initial clusters, which, according to *QYJZ*, they pronounced with the same tones as did the younger speakers. Following are H. Sun's examples (*QYJZ*:10) of the differences between the speech of older and younger Taoping speakers. I have included data from two NQ dialects to show how similar the complexity of Old Taoping was to Northern Qiang, and data from Longxi and Mianchi to demonstrate the cluster simplification that has occurred in contemporary SQ dialects.

**Table 7. Fate of initial clusters in Taoping**

Gloss	Yadu	Mawo	Older TP speakers	Young TP speakers	Longxi	Mianchi
new	khsə	khsə	khsi <sup>55</sup>	tshi <sup>55</sup>	tɕhí	sí
comb (v.)	khue <sup>1</sup> xɔ <sup>1</sup>	kha <sup>1</sup> la	khɕua <sup>55</sup>	tɕhua <sup>55</sup>	ɕý	qà tó suí
<i>pianniu</i>	khɕe	—	khɕi <sup>55</sup>	tɕhi <sup>55</sup>	—	—
hot (spicy)	gzə	—	gzɿ <sup>241</sup>	dzɿ <sup>241</sup>	—	zè
plowshare	—	—	gzue <sup>33</sup>	dzue <sup>55</sup>	dzù	dzù
light (weight)	gu <sup>1</sup> tɕe	gzɔ <sup>1</sup> tsu	gzy <sup>33</sup>	dzy <sup>33</sup>	dzó	zóu
mountain	—	qhsəp	qhsua <sup>55</sup>	tshua <sup>55</sup>	—	sù

In accordance with this principle, note that Longxi has merged the PSQ retroflex and dental series (Evans 1998a), and that Longxi is much more tonal than is Mianchi. The merger was apparently recent, as obstruents in this series may be pronounced with either retroflex or dental articulation. In spite of the correlation that has been drawn, phonological simplicity does not by itself predict the role of tone in a given dialect; otherwise Mianchi, which has only three initial consonant clusters, would be more tonal than Taoping, with 24 initial clusters in the speech of its younger speakers.

Much like H. Sun's Old Taoping, the SQ dialect data of the 1940's is much more conservative than either of the dialects that I transcribed. Wen Yu's dialects all have more initial clusters than do Longxi and Mianchi. As an example, Lobuzhai has 22 initial clusters: /b<sub>l</sub>, b<sub>ɹ</sub>, p'ɿ, k'z, gz, ɿm, ɿɻ, ʃp, ʃt, ʃk, z<sub>ɹ</sub>b, z<sub>ɹ</sub>d, z<sub>ɹ</sub>g, ʃp, ʃp, ʃt, j<sub>ɹ</sub>b, j<sub>ɹ</sub>d, ʃtʃ, z<sub>ɹ</sub>dz, ʃcç, k'tʃ'/ (Wen and Fu 1943). Similar to Mianchi and Longxi, it has two major tones (55, 31) and two minor tones (15, 21/11). Hou'ergu (Li county) has at least 21 initial clusters, alongside four tones; however, because Wen and Fu did not present any monosyllabic minimal pairs, it is not clear how tonal Hou'ergu was at that time, or whether it had word tone rather than syllabic tone.

### 3.4 Correlation of tonality and borrowing

“The function of tones often stands in direct proportion to the amount of borrowing from Chinese [i.e., Sichuanese Mandarin—jpe]. The greater the proportion of Chinese borrowings in the lexicon, the greater the role of tones in the phonological system.” (Liu 1998a:2, translation mine)

The influence of Sichuanese Mandarin on Southern Qiang cannot be overstated. The Qiang villages that are within walking distance of Wenchuan City, the seat of the county of that same name, are all linguistically Sinicized, and there are no speakers of Qiang within them, with the possible exception of a few elderly semi-speakers. Likewise, there is a high ratio of Chinese borrowings in SQ dialects. Liu (1998a) claims that among the dialects that she recorded in the 1950's, about 30% of the words in the lexica of SQ dialects had been borrowed from Chinese (e.g., H. Sun 1988 claims that in Zengtou (in the Taoping dialect) 30.2% of 3406 vocabulary items were borrowed), while the figure for NQ dialects was about 10%. The 30% figure that Liu cites no doubt played a large role in the acquisition of tones by the phonologically conservative Taoping dialect. In the dialects for which I have personally gathered data, the rate is much lower; e.g., Mianchi has a rate of borrowing of about 16%, and Longxi about 9%, out of over 3,000 lexical items.

Given these arguments for the late origin of tone systems in Southern Qiang,

important questions remain regarding the mechanisms by which SQ dialects became tonal. The following section addresses these processes.

#### 4. Process of tonogenesis in Southern Qiang

“Standard” tonogenesis occurs with the loss of segmental information: segmental distinctions (usually in the initial or coda) are lost, and the distinction that these segments carried (e.g., by voicing) are transphonologized onto the pitch of the vowel. However, tones in Southern Qiang cannot be traced to the reduction of any particular contrasts; they do not correspond to contrasts in initial voicing in earlier stages of the language, nor to the presence or absence of voiced or voiceless proto-finals. Rather, tones in Southern Qiang apparently arose through a two-stage process: first the dialects became increasingly “tone-prone” (Matisoff 1998), and then became tonal (to varying degrees) through the influence of Mandarin.

SQ dialects have apparently undergone the following six stages in developing tones. Not all dialects appear to have progressed through all six stages; e.g., Heihu, which has not developed its own tones (4.6).

##### 4.1 Lexical stress

As discussed above, Proto-Qiang did not inherit a system of tones from Proto-Qiangic. NQ dialects have a system of (mostly) trochaic stress on disyllables (Yadu: LaPolla 1996, Mawo: Liu 1998a, b). Although most disyllabic words are stressed on the first syllable, there are a few minimal pairs distinguished by stress (cf. Table 6).

Southern Qiang still bears evidence of stressed syllables in the tone patterns of native disyllables. I maintain that the fact that the pattern LH is 1.8 to 2.8 times more common than HL in Longxi and Mianchi implies that Southern Qiang once had stressed syllables, apparently with an iambic pattern in disyllabic forms.<sup>10</sup> Of course, this piece of statistical data is merely suggestive. Even if the statistical evidence is discounted, given the fact that the phonologically conservative Northern dialects have word stress and lack tone and pitch accent, it appears that SQ dialects would also have had lexical stress at the time that they separated from Northern Qiang. The lone counterexample is a disyllabic word shared by Longxi and Taoping that is high on both syllables in both dialects: Taoping *qua*<sup>55</sup> *te*<sup>55</sup>, Longxi *qú tá* ‘wrap’.

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<sup>10</sup> This stress pattern would not have been as extreme as it is in Jingpho, in which initial syllables are often reduced to *Cə*. SQ initial syllables have all of the tones and vowels that are found in final syllables, with the exception of certain minor tones which only occur finally.

## 4.2 Development of pitch accent

The second phase in SQ suprasegmental development was the change from lexical stress to pitch accent. It is not clear what factors triggered this shift. Nevertheless, this phase is directly reflected by the prohibition against two accents in a Mianchi word, by the relative scarcity of HH disyllables in Longxi, by Wen's (1950) reference to Jiuziying as a pitch accent language, and possibly by the tones on native forms in Heihu.

In spite of this evidence for a \*pitch accent system, establishing exactly which syllables in PSQ were \*accented is a non-trivial problem. Within each dialect there is a fair amount of fluidity in the pitches or tones of certain words, as noted above. This fluidity leads to unpredictable changes, such as the fluctuations in Longxi 'finger' terms, and Mianchi accent sandhi. High tone/pitch does not correlate perfectly across dialects, as might be expected for a system of pitch accent turned tone. Dialects of pitch accent languages often differ in their accent rules, as seen by a comparison of the Nagoya and Tokyo dialects of Japanese (Haraguchi 1977:59):

<u>Gloss</u>	<u>Nagoya</u>	<u>Tokyo</u>
bamboo	tàké, tàkè-gá	tà ké, (-gá)
cherry	sàkùrá(-gá)	sàkùrá(-gá)
head	àtámá(-gà)	àtámá(-gà)
boots	nàgàgútú(-gá)	nàgàgútú(-gá)
to warm	àtátámérù	àtátámérù

To discern which syllables are in the \*accented class I selected sets with cognates of Taoping 55 in all three dialects. There were 139 High syllables in Taoping that had cognates in both Longxi and Mianchi. Of these 139 sets, the following 39 (28%) had High tones/accents in all three dialects (numbers following glosses identify the syllable under comparison).<sup>11</sup>

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<sup>11</sup> For a more extensive glossary of Proto-Southern Qiang, cf. Evans 2001, Appendix A.

Table 8. PSQ \*High syllables

Gloss	Longxi	Mianchi	Taoping	PSQ	PTB (et al.)
bird 2	ì tshá	ì tshé	i <sup>31</sup> tshie <sup>55</sup>	*tshV	Guiqiong <i>tshɿ</i> <sup>55</sup> <i>tshɿ</i> <sup>33</sup>
breast, milk	ɲà ɲá	ɲà ɲá	ɲy <sup>55</sup> ɲy <sup>55</sup>	*ɲa	*nəw (419)
bury	bé	(fià) bí	be <sup>55</sup>	*be	*bip ~ pip (376)
buy	pú	dè pó	po <sup>55</sup>	*pV	*par (p35)
cut (vegetable)	tsù tsuá	tshù tshuá	tshu <sup>55</sup>	*tshu(a)	*tswar (240)
divide	ɛ̀ò ɛ̀ó	zì zòú	zu <sup>33</sup> zu <sup>55</sup>	*Cro	Muya <i>ji</i> <sup>35</sup> <i>ru</i> <sup>35</sup>
dry	h̃ɔ̃, t̃ɔ̃	zì	zì <sup>55</sup> kua <sup>55</sup>	*ram	rGyalrong <i>kə ram</i>
flea 1	tsó ɲì	tsoú ñè	tsu <sup>55</sup> lu <sup>55</sup>	*tso	Ersu <i>ntsho</i> <sup>55</sup> <i>lɔ</i> <sup>55</sup>
folkdance 1	tshó tà-zè mù	soú tà	tshu <sup>55</sup> ta <sup>55</sup>	*tsho	Muya <i>tsho</i> <sup>55</sup> <i>la</i> <sup>55</sup>
frog 2	zò piá	dzò-piá	dzua <sup>31</sup> pu <sup>55</sup> ma <sup>33</sup>	*pia	*s-bal (p15)
gall	tsí	t̃ɛ́	χt̃ɕə <sup>55</sup>	*χt̃ɕə	*(m-) kri-t (412)
head 2 (sfx)	qè bá tsì	qà bz̃á tsì	qə <sup>33</sup> pə <sup>55</sup> t̃ɕɿ <sup>33</sup>	*pa	probably ‘round’
horn 2	.à kó	zè ké	zə <sup>33</sup> qə <sup>55</sup>	*kə ~ qə	*r-ki (STEDT, found in Qiangic and Chin)
hot 1	khú khuá	khué khuè	khye <sup>55</sup> le <sup>33</sup>	*khye	
house, home 1	t̃ɛ́ kù	t̃ɛ́	t̃ɛ́ <sup>55</sup> ko <sup>33</sup>	*t̃ɛ́	*k-y(i/u)m (53)
ice 2	tsù pá	tsuè pá	tsuə <sup>31</sup> pe <sup>55</sup>	*pa ~ pe	Queyu <i>pi</i> <sup>55</sup> <i>pã</i> <sup>33</sup>
language, speech 2	zè mú	zuè mé	zɿ <sup>31</sup> mə <sup>55</sup>	*mV	
lay (egg)	fià tshí	tshí	tshí <sup>55</sup>	*tshɿ	
learn, teach	só	soú	tə <sup>31</sup> sy <sup>55</sup>	*sy	Mawo <i>sy</i> , Ersu <i>sɔ</i> <sup>55</sup> <i>sɔ</i> <sup>55</sup>
name	zè mú	mè mé	χmə <sup>55</sup>	*χmV	*r-mij (83)
new	t̃ɛ́ hí	sí	tshí <sup>55</sup>	*khsi	Mawo <i>khsə</i>
open (eye)	t̃ɔ̃ phé	ph̃ɔ̃	phz̃a <sup>55</sup>	*phrV	Ersu <i>pa</i> <sup>7 55</sup>
rooster 2	ỳ qú	ì qóu	yi <sup>31</sup> qu <sup>55</sup>	*qu	rGyalrong <i>pkvi ko</i>
rot, spoil	t̃ɛ́ yá	tsuè qá	tsuə <sup>55</sup> qa <sup>55</sup>	*qa	Mawo <i>tsə qa</i>

Gloss	Longxi	Mianchi	Taoping	PSQ	PTB (et al.)
<b>shoulder 2</b>	liá χά	ì χέ	la <sup>31</sup> χa <sup>55</sup> pi <sup>33</sup>	*χα	KMR *k(r)oŋ/k (STEDT)
<b>silver</b>	ηύ	ηό	χηυ <sup>55</sup>	*χηυ	*(d-)ŋul (p15)
<b>skin (human) 2</b>	.à piá	zà piá	zà <sup>55</sup> pa <sup>55</sup>	*p(i)a	*pya ~ pra (STEDT)
<b>smell, sniff</b>	čí tà	mí	χmi <sup>55</sup>	*smi	Pumi (Jinghua) <i>xə<sup>13</sup> ni<sup>55</sup></i>
<b>smoke, tobacco 2</b>	mù khú, mú-qhú	mù qhué	mə <sup>31</sup> khuə <sup>55</sup>	*qhuə, *khuə	*kəw (256)
<b>sneeze (v.)</b>	á tshù-pù	á thiaò-pù	χα <sup>55</sup> tshye <sup>33</sup> pu <sup>33</sup>	*χα	E. rGy. <i>xa ts<sup>h</sup>iau</i>
<b>straight</b>	tí	tí	χtə <sup>55</sup>	*χtI	Ergong <i>lthø thu</i>
<b>sun 2</b>	mù cí	mè sí	ma <sup>33</sup> sɿ <sup>55</sup>	*si	? *s-nəy (Matisoff 1985)
<b>supper, dinner 2</b>	.à tí	zà té	zà <sup>55</sup> χte <sup>55</sup>	*χte	
<b>weigh</b>	tçhì tçhí	tçhé	tçhe <sup>55</sup>	*tçhe	*ki:n (369), Lahu chi
<b>what</b>	nó ì	ní lè	na <sup>55</sup>	*nV	Mawo <i>ni ka</i>
<b>white</b>	phé	pşí	phzi <sup>55</sup>	*phram	PQic *pram (Matisoff 1997a)
<b>who</b>	sí	şí lè	sɿ <sup>55</sup>	*şí	Ergong <i>sur</i>
<b>wild pig 2</b>	pià χó	pià χá	pa <sup>33</sup> χa <sup>55</sup>	*χα	Yadu <i>pie χu</i>
<b>yellow</b>	χά	χά, χά χà tsì	χα <sup>55</sup> χα <sup>33</sup>	*χα	? rGy <i>ksər po</i> < WT <i>ser po</i>

Such a low percentage of correlation does not present obvious evidence for a shared \*accent feature; it must be compared with the likelihood of chance correspondence of High/accents. High/accent occurs on 28.2% of TP syllables, 35.3% of LX syllables, and 27.9% of Mianchi syllables. Thus, the likelihood of High pitch occurring by chance on both Longxi and Mianchi cognates of a Taoping High syllable are 9.8% ( $0.35 \times 0.28 = .098$ ). The correspondence in the above chart is 28%, or 2.9 times the expected frequency from chance. Given the fact that the correspondence of High tones is about three times better than chance correspondence, it can be inferred that most of these sets reflect a PSQ \*High. Nevertheless, for a given member of this set it is remotely possible that it had a \*Low pitch in Proto-Southern Qiang, but then subsequently developed Highs in each dialect. The likelihood of this happening is just under 3% ( $0.28 \times 0.35 \times 0.28 = 0.027$ ).

### 4.3 Phonological reduction of syllable canons and segmental inventories

Even a casual perusal of wordlists from Northern and SQ dialects reveals that contemporary Southern Qiang has a much simpler syllable canon than does Northern (e.g., Table 7). The Yadu and Mawo syllable canons are as follows:

Yadu (plain vowels):	(C) (C <sub>i</sub> ) V (V) (C) (C <sub>f</sub> )
Yadu (long vowels):	(C <sub>i</sub> ) (V) V:
Yadu (rhotacized vowels):	(C) C <sub>i</sub> (V) (V) V <sup>r</sup> (C) (C <sub>f</sub> )
Yadu (long rhotacized vowels):	(C) C <sub>i</sub> (V) V: <sup>r</sup> (C <sub>f</sub> ) <sup>12</sup>
Ronghong Yadu:	(C) (C <sub>i</sub> ) (V) V (V) (C) (C <sub>f</sub> ) [fric] [glide] [glide] [fric]
Mawo (short vowels):	(C) (C <sub>i</sub> ) V (V) (ʔ) (C) (C <sub>f</sub> )
Mawo (long vowels):	(C) C <sub>i</sub> (V) V: (ʔ/q) <sup>13</sup>
Mandarin borrowings in Yadu and Mawo:	(C <sub>i</sub> ) V (V) (V) (N)

Yadu and Mawo syllables with rhotacized vowels all have initial consonants; this is due to the fact that NQ vowel rhotacization comes from PQ \*r-cluster initials, as seen in the following comparison of Mawo rhotacized syllables with cognates in other dialects (Mawo, Yadu -ɿ, -ʔ are allographs of the same phoneme (Evans 2001:chap. 2)):

**Table 9. Cognates of Mawo rhotacized syllables**

Gloss	Mawo	Yadu (Ekou)	Taoping	Mianchi	Longxi
<b>brother (elder)</b>	tə ba <sup>ʔ</sup>		tu <sup>55</sup> bzɑ <sup>31</sup>		
<b>big</b>	bɑɿ	b.ɿɛ	bzɑ <sup>33</sup>	bzɑ̀	b.ɿà
<b>dragon</b>	bə <sup>ʔ</sup> k	zβə	χbə <sup>241</sup>		
<b>high/tall</b>	bu <sup>ʔ</sup>	b.ɿɿ		bzú	

In contrast to NQ syllables with both initial and final clusters, and long and rhotacized vowels, the syllables of Southern Qiang are much simpler. Not only do SQ dialects lack all but nasal codas (which are of secondary origin), they have a significantly reduced inventory of initial clusters, and, aside from Heihu, make no distinctions of vowel quantity. While Mawo has 71 initial clusters and Yadu has 50;

<sup>12</sup> According to Dai 1992:636 (henceforth *TBL*), Yadu has native rhotacized triphthongs with long vowels /iə:ə<sup>ʔ</sup>, iɑ:ə<sup>ʔ</sup>, yɑ:ə<sup>ʔ</sup>, uə:ə<sup>ʔ</sup>/; however, these are not attested in the data.

<sup>13</sup> There is one instance of a coda following a Mawo long vowel: *ti:q* ‘top’.

Taoping has 24, Mianchi has three, and Longxi has only two:

Taoping (native):	T (C) (C <sub>i</sub> ) V (V)
Taoping (borrowed):	T (C <sub>i</sub> ) V (V) (V) (N)
Mianchi:	T/P (C) (R) (V <sub>i</sub> ) V (V <sub>f</sub> /N)

T = tone

P = pitch

R = /ʃ, z/

V<sub>i</sub> = /i, y, u/

V can be nasalized or voiceless

V<sub>f</sub> = /i, u/ in native words, and /a, æ, e, ε/ in borrowings.

N = /n, ŋ/

Longxi:	T (C) (R) (V <sub>i</sub> ) V (V <sub>f</sub> /N)
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R = /ɹ/

V<sub>i</sub> = /i, u/

V<sub>f</sub> = /a, i, u, e, o/

N = /n, (ŋ)/

All Qiang codas are of secondary origins. NQ final consonants come from initials of succeeding syllables whose rhymes have been devoiced (Mawo *pa' xə*, Yadu *pa χə'* 'claw') and then lost (Mawo *a* 'one', *ʃə* 'month', *aʃ* 'January'). SQ nasalized vowels and final nasals come in some cases from Chinese borrowings (e.g., Taoping *phiari*<sup>55</sup> *thə*<sup>33</sup> 'cheat, swindle', Mandarin *piàn*). Origins of other nasals are unclear; however, no final nasals are traceable to PSQ. In the history of Qiang, original PTB \*codas were lost, as seen in the following cognate sets:



Gloss	PTB	Mawo	Yadu	Taoping	Longxi	Mianchi
<b>pig</b>	*pwak	pi	piɛ	pa <sup>33</sup>	pià	pià
<b>eye</b>	*s-mik ~ *s-myak	—	mij	mi <sup>55</sup>	ŋí má tòu	mù tié ~ mè tié
<b>stone</b>	*rluŋ	ɤlu pi	dzua-ɤl (millstone)	ko <sup>241</sup>	ɤò lù	lò
<b>horse</b>	*s-raŋ ~ *m-raŋ	.lu	.lu	zu <sup>55</sup>	ɤò	zòu
<b>dream</b>	*r-maŋ	rmu ɤe	ku zmu	χmu <sup>55</sup>	mò zè	mò
<b>high/tall</b>	*m-raŋ	bu <sup>1</sup>	b.ɪ, ti w.ɪ	bu <sup>33</sup>	bó	bzú

At least two PTB finals were syllabified by the addition of a succeeding vowel before historic codas disappeared (Mawo, Yadu, Longxi ‘iron’; Yadu ‘black’<sup>14</sup>). In Northern Qiang, these final syllables could be reduced to codas again (Mawo ‘black’):

Gloss	PTB	Mawo	Yadu	Taoping	Longxi	Mianchi
<b>iron</b>	*śam	su <sup>1</sup> mu	su: <sup>1</sup> mu	ɕi <sup>55</sup>	ɕà mó	ɕì
<b>black</b>	*nak	ŋiq	ŋɤχ, ŋɤ xɔ <sup>1</sup>	ŋi <sup>55</sup> ŋi <sup>31</sup>	ŋí	nè

The preservation of PTB \*finals through syllabification is sporadic: the two sets above are the only instances discovered so far.

Aside from reattached historic codas, NQ codas are of a completely secondary origin, arising from the devoicing and loss of word-final rhymes, which are often still visible in Southern Qiang. The following table shows that NQ sonorant and obstruent finals alike have this origin. The range of vowels corresponding to Mawo final *-tɕ* (‘head’, ‘bedbug’, ‘bone’, ‘calf’) shows that it is Northern Qiang that has lost rhymes, and not Southern Qiang that has acquired them. In ‘July’, the final morphemes *ʂ/ʂɿ<sup>33</sup>/lɔ́/lə̀* are all reflexes of PTB \*s-la ‘moon’:

<sup>14</sup> It has been suggested that the *-q* final of Mawo ‘black’ is secondary. However, we note that PTB \*k > NQ *q, qh*: Mawo, Yadu *qa*, PTB \*ka, ‘I’ (STC p.93); Mawo *qha*, Yadu *qhaχ*, PTB \*ka (STC).

**Table 10. Secondary origins of Mawo syllable finals**

<u>Gloss</u>	<u>NQ:Mawo</u>	<u>SQ: Taoping</u>	<u>Longxi</u>	<u>Mianchi</u>
head	qə patʂ	qə <sup>33</sup> po <sup>55</sup> tʂɿ <sup>33</sup>	qə bá tsì	qà bzá tsì
bedbug	dzuxtʂ	dzu <sup>241</sup> χtʂi <sup>31</sup>	—	—
bone	ɿə pætsʂ	—	ɿà kó pà tsì	—
calf	dzi ʂputʂ	—	mà lià tsú	ɿò bò tsú
horn	ɿəq	zɑ <sup>33</sup> qə <sup>55</sup>	ɿà kó	zè ké
July	stəʂ	ɕiŋ <sup>31</sup> ʂɿ <sup>33</sup>	ɕí ló	nó là
meat	pis	—	pià-tshì	pià-tshè
flea	tsun	tsu <sup>55</sup> lu <sup>55</sup>	tsó nì	tsoú nò

Aside from some nasals, \*codas were never attached in Southern Qiang, greatly reducing the number of possible syllables. This shrinkage of the syllable canon has made Southern Qiang susceptible to the introduction of tones. In addition to the loss of finals, the inventory of initials has also been reduced. These reductions make finding cognates and establishing sound laws difficult, and may in part account for the low rates of cognacy observed between Southern Qiang and other Qiangic languages (cf. Table 12 below).

A further indication of how much the SQ dialects have changed since the 1930's and 40's is Wen Yu's statement that "[f]rom the forms of some words, the Ch'iang seems to be older than the Classical Tibetan." (Wen 1941:71)

Considering the complex initial clusters of Taoping's older speakers and of Wen's Lobuzhai and Hou'ergu data (all of which have tones), it appears that the loss of codas, rather than the simplification of initials, has played a greater role in making these dialects tone-prone. In SQ dialects there is no hard-and-fast correlation between simplicity of initials and the role of tones.

#### 4.4 Increased borrowing from Chinese

According to Qiang oral tradition, their ancestors migrated to the current Qiang areas about 2,000 years ago. During the Shu-Han period (221-263 A.D.) there was a Han Chinese garrison led by General Jiang Wei in Weizhou (modern Wenchuan), indicating that there has been contact between these two groups for more than 1700 years.

As transportation has improved, and as the influence of Han Chinese culture has increased, more and more borrowings from Sichuanese Mandarin have been introduced into the Qiang language. In the modern era, a major force for change has been that

beginning in the early years of primary school, all classroom instruction is in Mandarin. This influence often leads to lexical replacement; in the dialects of Mianchi, my consultant would quiz others on their knowledge of certain native words such as *tuà liò* ‘hammer’. There were no speakers who had the native form in their active lexicon, they could only produce the borrowed form *tʃhuèi tʃhuèi*. Similarly, my consultants’ children used Mandarin numerals even when they were speaking Qiang.

In addition to full borrowings, there are words that are half-borrowed and half-native. Borrowed disyllabic verbs are suffixed by *pù* (Mianchi, Longxi), *pu*<sup>33</sup> (Taoping); morphemes meaning ‘do’. Monosyllabic borrowed verbs are suffixed by *thà* ~ *thá* (Mianchi), *dà* ~ *dá* (Longxi), or *thá*<sup>33</sup> (Taoping), which also mean ‘do’. Suffixes used to mark borrowings are labeled ‘BOR’, ‘b’ indicates morphemes borrowed from Chinese.<sup>15</sup>

Longxi	<i>gù-dá</i> b-BOR ‘estimate’	Mianchi	<i>tʃuà-thá</i> b-BOR ‘dip into water’
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Borrowings can take native affixes (note the introduction into Mianchi of a word with two high/accented syllables):

Mianchi	<i>kóŋ sɿ-qà</i> b-LOC ‘store, shop’
---------	--

or be compounded with native lexemes:

Longxi	<i>qá-χò là-phàn tsì</i> face-wash-b ‘wash-basin’	Mianchi	<i>kai-phá tsì</i> front-b ‘apron’
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as well as being borrowed as full independent lexemes.

#### 4.5 Use of Chinese tones

The apparent next step in SQ tonogenesis was the use of Chinese tones to

<sup>15</sup> In addition to *ʔa* affixed to borrowed verbs, Hou’ergu appends *nə*<sup>5</sup> to borrowed nouns (*a*<sup>21</sup> *wts’ə*<sup>5</sup> *nə*<sup>5</sup> ‘one inch’, Mandarin *cùn*), and *ni* to borrowed adjectives (*p’i*<sup>53</sup> *ni*<sup>33</sup> ‘flat’, Mandarin *píng*). (Wen 1945:137-8)

distinguish borrowings. According to Liu's (1998a) description, Heihu is currently at this stage of tonal development. She presents the following examples in which tones distinguish Mandarin borrowings from each other:

<i>ɕæŋ</i> <sup>55</sup>	township	<i>ɕæŋ</i> <sup>35</sup>	elephant
<i>xo</i> <sup>31</sup> <i>xo</i> <sup>55</sup>	box	<i>xo</i> <sup>55</sup> <i>xo</i> <sup>55</sup>	cover
<i>ɕæŋ</i> <sup>55</sup> <i>tʃaŋ</i> <sup>53</sup>	township mayor	<i>ɕæŋ</i> <sup>35</sup> <i>tʃaŋ</i> <sup>53</sup>	county mayor
<i>miŋ</i> <sup>31</sup> <i>tsɿ</i> <sup>55</sup>	name	<i>miŋ</i> <sup>55</sup> <i>tsɿ</i> <sup>55</sup>	plastering trowel

Liu claims that tones also distinguish Mandarin borrowings from native vocabulary. From her examples it appears that the native "tones" are actually accented (High) and unaccented (Low) syllables, as in Mianchi, or that there is a two-tone system, as in Longxi. However, more data than the four native forms included in her paper are needed to establish with certainty whether Heihu has pitch accent on native vocabulary:

<u>Native</u>	<u>Gloss</u>	<u>Borrowed</u>	<u>Gloss</u>
<i>xui</i> <sup>55</sup>	above	<i>xui</i> <sup>35</sup>	meeting
<i>tʃu</i> <sup>55</sup>	cough	<i>tʃu</i> <sup>35</sup>	vinegar
<i>tʃi</i> <sup>55</sup>	narrow	<i>tʃi</i> <sup>31</sup>	chess
<i>pɑ</i> <sup>31</sup> <i>pɑ</i> <sup>55</sup>	old person	<i>pɑ</i> <sup>31</sup> <i>pɑ</i> <sup>35</sup>	handle

The use of tones to distinguish borrowings from each other and from native vocabulary is common among SQ dialects. The following sets of examples from Longxi and Mianchi show that the reflection of original Mandarin tones in SQ borrowings is not predictable.<sup>16</sup> Although many cases behave like Liu's Heihu examples, where the phonetics of the tone in Qiang approximate the local variety of Mandarin, there are numerous examples in which the SQ pitch differs from that of the donor language. In the first set of examples below, some tones are those which would be expected, given the local Mandarin tones. A notable exception is the pair 'milk' and 'crowd in', which are the same word in Mandarin. Note that in the pair 'rescue'/'wring' a tonal distinction is also made on the native BOR suffix:

<sup>16</sup> Likewise, Wen and Fu observe that in Lobuzhai the borrowed word *yo*<sup>31</sup> 'goose' can be pronounced on any tone (Wen and Fu 1943:24).

SQ dialect	Gloss 1	SQ form	Mandarin (local tone)	Gloss 2	SQ form	Mandarin (local tone)
Longxi	take notes	tɕì dà	jì (13)	milk (v)	tɕí (dà)	jǐ (42)
Longxi	rescue, save	tɕoũ dà	jiù (13)	wring (kerchief)	tɕoũ dá	jiū (31)
Mianchi	crowd in	ì tɕì thá	jǐ (42)	deposit, check	ì tɕì thà	jì (13)

In the following pair, Mandarin tonal distinctions are lost by Longxi:

Longxi	pear	lì tsí	lí zi (55)	plum	lì tsí	lǐ zi (42)
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For the following two pairs tones are used to make a distinction not made in Mandarin, as the initial syllables of ‘make analogy’ and ‘compete’ are the same Mandarin morpheme, as are ‘remember’ and ‘take notes’.

Longxi	make analogy	pì dà	dǎ bǐ (42) fāng	compete	pì dá	bǐ (42) sài
Longxi	remember	tɕì dà	jì (42)	take notes	tɕì dà	jì (42)

Another verb with the same pronunciation and tone in Mandarin as ‘remember’/‘take notes’ which Longxi has borrowed is *tɕí dà*, ‘avoid as taboo’.

In the following Mianchi pair, tone alone is used to distinguish a minimal pair that is both tonally and segmentally distinguished in Mandarin:

Mianchi	monk	χò càn	hé shang	fennel, anise	χò càn	huí xiāng
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Liu (1998a) presents borrowings in Taoping that differ in tone from their corresponding Mandarin words. Note that some forms differ from the way they are transcribed in ZYC. For these words both forms are given; Liu’s form appearing first. It appears that in the printing of Liu 1998a all instances of *a* were transcribed *a*. Sichuanese Mandarin tones are taken from Yang 1984:

cupboard	guə <sup>33</sup>	guì zi	(24)
character	dzɿ <sup>241</sup> dzɿ <sup>241</sup> , dzɿ <sup>33</sup> dzɿ <sup>241</sup>	zì	(24)

wolf	la <sup>33</sup> , la <sup>55</sup>	láng	(31) <sup>17</sup>
bean (kind)	də <sup>33</sup>	dòu zi	(24)
chisel	dzo <sup>241</sup>	záo zi	(44)

For these forms the tones are completely different from those of local Mandarin. To account for this discrepancy, Liu suggests that they were borrowed from Mandarin before Southern Qiang acquired tone. It is also possible that there were tones in Taoping at the time the words were borrowed, but that the tones have since shifted, as Liu (1998a:7) claims that “Qiang tones are in the midst of change.”

#### 4.6 Development of “home-grown” tones

As the syllable canon continued to simplify, and as the number of Mandarin borrowings increased, the role of tones in SQ dialects increased in significance. In Longxi and Taoping, the high pitch became a high tone, with multiple highs allowed in a single word (although still less common than other combinations). In addition, phonological changes led to the development of new minor tones, aside from those that already existed on borrowings. Taoping 241 tone only occurs with voiced initials, and Longxi Low-rising only occurs with voiced or  $\emptyset$ -initials on native words.<sup>18</sup> This restriction no doubt reflects the factors that conditioned the genesis of these two tones; hence, their origins must be relatively recent, and they may have arisen via similar processes. The fact that Taoping 241 must occur with voiced initial consonants (more than 90 instances, no borrowings) points to a genesis of this tone that involved voiced initials. Given the fact that SQ tones are unstable (“in the midst of change” (Liu 1998a:7)) and often unpredictable, it would be expected that if the 241/Low-Rising tone had a phonetic basis, that evidence for this origin would be imperfectly preserved. It appears that TP 241 and Mianchi and Longxi Low-Rising tones share a common origin (for the sake of convenience, I term this the \*Contour tone). Although the data are equivocal, they do suggest that these tones come from \*Low-toned or \*unaccented syllables with initial sonorant clusters. As these clusters simplified, their (hitherto

<sup>17</sup> Note the loss of nasal final in borrowings. Borrowed lexemes that preserve nasal codas or have nasalized vowels are presumed to be recent; e.g., Longxi *tshuǎN* ‘string (of pearls)’.

<sup>18</sup> Out of 27 native Longxi words with this tone, there are three exceptions to the voiced-initial rule: *l̥ʰ qhuǎ* ‘honeycomb (incomplete)’ (probably from PTB \*kwa:y ‘bee’ (STC 157)), *piǎ* ‘saliva’, *qei* ‘first’. The tone on ‘first’ is clearly the result of coalescence (cf. Taoping *qə<sup>31</sup> ə<sup>55</sup>*). ‘Saliva’ was pre-nasalized in Proto-Qiangic (cf. Ersu *nphs<sup>55</sup>*, Namuyi *mp<sup>h</sup>i<sup>33</sup>* ‘spit (v.)’), one of the sources of Low-rising tone (see below). The origin of the tone on ‘honeycomb’ is not clear.

segmental) distinction was maintained by a new contour tone. \*Low/\*unaccented syllables without sonorant pre-initials remained low/unaccented. The hypothesis may be written as follows ('R' represents sonorants):

PSQ      \*R C<sub>i</sub> V → C<sub>i</sub> V                      Contour tone rule (CTR)  
                  [- accent]    [+ contour]

Because application of the rule has removed direct evidence for these \*clusters from SQ dialects, support is taken from Northern Qiang, Qiangic, and PTB. Due to the inherent instability of tones in Southern Qiang, there are no examples of this tone that occur in all three dialects. Cross-linguistic comparison with tonogenetic processes in other language families shows that these clusters sometimes function differently than other voiced initials with regard to tonogenesis. Thurgood has observed:

The literature on registers and tones is full of examples in which voiced obstruents have a different tonal effect than do voiced sonorants. Among the Chamic register languages, both the voiced obstruents and the voiced sonorants result in breathy voice in Western Cham, but in Haroi only the voiced obstruents lead to breathy voice—the voiced sonorants retain a clear voice quality; among the Chamic tone systems Phan Rang Cham and Tsat, the voiced obstruents consistently produce a low tone (mediated through a breathy voice stage), while the voiced sonorants consistently have a higher-toned reflex.... In another part of the world, Maddieson (1984:13) notes that in several Chadic languages, the voiced obstruents have different tonal effects than do the voiced sonorants: Podoko (Anderson and Swackhamer 1981), Kera (Ebert 1977), and Lame. (Thurgood 1997:20)

Given these insights on Chamic, one is not surprised to find that voiced sonorant clusters in SQ exhibit different tonogenetic behavior than do other voiced initials. The similarities between the tonal developments in Chamic and Qiang are striking: not only do both Qiang and Cham have dialects with and without tone, but, like Qiang, tonal Cham dialects have acquired tone under heavy linguistic pressure. The following parallels may be drawn (cf. Matisoff 1998:26):

**Table 11. Parallels between Cham and Qiang**

<b>Vietnam Chamic</b>	<b>Hainan Chamic</b>	<b>Northern Qiang</b>	<b>Southern Qiang</b>
Sesquisyllabic	mono-syllabic	rich in consonant codas	no native codas (some nasal codas)
Phonational	tonal	syllabic stress	tonal (& semi-tonal)
Influenced by sesqui-syllabic, phonational Mon-Khmer languages.	Influenced by mono-syllabic, tonal languages (Chinese, Hlai, etc.)	Influenced by coda-rich, toneless Tibetan.	Influenced by tonal Chinese (nasals codas only)

Similarly, it appears that there may be a diffusional relationship between the tone systems of Karenic and Lolo-Burmese (Matisoff 1998:23, 1973:81).

The effect of sonorant pre-initial clusters on tones has also been observed in three Hmong-Mien languages (Zongdi, Liangzi, Lanjin), where prenasalized obstruent initials have produced complex pitch contours in B1 toned words (Wang and Mao 1995, cited in Ratliff 1999). In the Hmong-Mien complex contour tones Wang and Mao describe, the contour and the prenasalization that has provoked it still coexist. As in the Hmong-Mien data, most of the \*sonorants involved in the genesis of \*Low-Rising tone were nasals, and the reflexes of this tone are the only complex contour tones in all three dialects.

PSQ \*sonorant clusters may be further broken down into two types of clusters, \*NC, with a nasal pre-initial followed by an obstruent, and \*RN, with an oral sonorant followed by a nasal. In addition to these \*sonorant clusters, it appears that some Mianchi \*CR clusters may have undergone a similar tonogenetic process by phonetic analogy with the CTR. Establishing the existence of PSQ \*sonorant clusters is not simple, because in most cases direct evidence for the PSQ \*cluster must come from other Qiangic languages. Rates of cognacy between Qiangic languages tend to be in the teens, as shown in the following table from Huang 1991, based on the comparison of 1500 lexical items:

**Table 12. Rates of cognacy among Qiangic languages**

	<u>Qiang</u>	<u>rGyalrong</u>	<u>Queyu</u>
Queyu (Xinlong)	16	15	—
Muya	14	15	19



Zhaba	12	14	18
rGyalrong	12	—	15
Pumi (Jiulong)	16	15	22
Daofu	13	13	17
Ersu (Jiulong)	17	14	18
Guiqiong	10	10	12

These rates are so low that for many SQ \*low-rising sets, there are no outside supporting forms. In this paper, only those forms are given where outside support is attested.

#### \*NC- initials

PSQ \*NC- is the most common type of \*sonorant cluster, supported by ‘bark/yell’, ‘bear fruit’, ‘call/cry’, ‘urine’, ‘dragon’, ‘break’, ‘smallpox’, ‘saliva’, ‘pile up (earth)’, and ‘collapse’.

**‘bark, yell, grunt’**, etc. Taoping lacks the expected tone on ‘cry, weep’.<sup>19</sup>

Longxi	zǎ	bark, bleat, etc.
Mianchi	zě	bark, bleat, etc.
Taoping	zɑ <sup>33</sup>	cry, weep
rGyalrong	kə ŋø ndzok	bark (v.)
Namuyi	ndzɔ <sup>55</sup>	cry out/yell
PQic	*nzVk	
PTB	*zuk	(STEDT)

#### ‘bear fruit’

Mianchi	ʂè dzǎ	Muya	ndzɛ <sup>55</sup> bu <sup>53</sup>
Taoping	siɛ <sup>55</sup> mə <sup>55</sup> dzɑ <sup>241</sup>	rGyalrong	wu ʃi kə ndzok
Longxi	á zó		

The Longxi form may not be cognate: although Longxi /z/ is the reflex of PSQ \*dz̥, the tone and vowel do not correspond to the Mianchi and Taoping forms. If it is cognate, its High tone has prevented application of the CTR. Regardless of the status of Longxi, the Mianchi and Taoping forms are adequate to establish correspondence.

<sup>19</sup> There is also a Mawo form *ɤdzj* ‘bark (v.)’, which may be cognate, although the preinitial is not nasalized.

**‘cry out, call’**

Longxi	kuǎ	also ‘cluck’
Mianchi	kuǎ	
Taoping	kuə <sup>33</sup> zɔ <sup>33</sup>	
Mawo	ku kua	
Ergong	ŋgɛde	
Muya	ŋGɤ <sup>35</sup>	cry / weep
Namuyi	ŋgu <sup>55</sup> dzu <sup>55</sup>	cry / weep
NW rGyalrong	kaŋa mbri	cry / weep

Although the Qiangic correspondences for this set appear unusual, they are not without support: Ergong *ŋgɛ cin*, Taoping *kuə<sup>33</sup>*, ‘go through (a hole)’; rGyalrong *mbro*, Longxi *kuə*, PTB \*m-raŋ, ‘horse’. There is no explanation for the tone change in Taoping, although Longxi and Mianchi are consistent with the CTR.

In ‘urine’ Mianchi and Taoping have undergone the Contour Tone Rule; Longxi, because of its High tone, has not. Comparison with other Qiangic languages shows that Proto-Qiangic had an initial cluster, probably \*nb, with place assimilation of the pre-initial in Namuyi and Northern rGyalrong, and denasalization in Ergong:

**‘urine’**

Mianchi	biě	Ersu	nba <sup>55</sup>
Taoping	bie <sup>241</sup>	Namuyi	mbɛ <sup>33</sup>
Longxi	bí	N rGyalrong	təɾəmbi
Ergong	lbi	PQic	*nbi(*C-bi STEDT)

‘Dragon’ had an initial three-consonant cluster, as evidenced by Written Tibetan and Ergong. It is probable that this is an ancient borrowing from Tibetan. Written Tibetan /fi/ in ZYC represents ‘a-chung’, a Tibetan consonant which probably contained both nasal and glottal components, perhaps /ʔŋ-/ or /ʔʂ-/ (Matisoff 1972:16n). In this case, it was the loss of the nasal component that initiated the Contour tone rule in Taoping, while the rest of the cluster was maintained. High tone/pitch in Longxi and Mianchi blocked the application of the rule in those dialects:

**‘dragon’** <sup>20</sup>

Longxi	bú	Muya	ndzu <sup>35</sup>
Mianchi	bú	Namuyi	ə <sup>55</sup> dza <sup>33</sup>

<sup>20</sup> This is related to ‘snake’, below.

Taoping	χbə <sup>241</sup>	Pumi (Taoba)	bzə <sup>55</sup>
Mawo	bəˈk	Queyu	ndzɯ <sup>53</sup>
Yadu	zɔ̃ə (‘year of the dragon’)	Shixing	mɛ <sup>33</sup> dʒue <sup>55</sup>
Ergong	mbzɯ	rGyalrong	ta rmok
Ersu	rɿ <sup>33</sup> dze <sup>55</sup>	Written Tibetan	fibrug
Guiqiong	ndzɯ <sup>35</sup>		

‘Break’ is from PTB \*N-prat (STEDT project; attested in Burmish, Qiangic, Geman). The difference in voicing between Mianchi and Longxi /ph/ and Taoping /b/ is further evidence that the PTB \*nasal prefix and voiceless initial were maintained into PSQ, causing voicing of the initial in Taoping (as in Ergong, Muya, Taoba Pumi, rGyalrong), but not in Longxi or Mianchi (as in Namuyi, Jinghua Pumi).

**‘break (v.i. of rope, etc.)’**

Mianchi	ʂə phɔ̃	Namuyi	mɸsi <sup>35</sup> ŋge <sup>33</sup>
Longxi	phú phá	Pumi (Jinghua)	thə <sup>13</sup> pzɛ <sup>13</sup>
Taoping	bzɛ <sup>33</sup>	Pumi (Taoba)	tə <sup>35</sup> bzɛ <sup>35</sup>
Ergong	bzɛ	rGyalrong	kə mbɾət
Muya	ndzɯ <sup>ue</sup> <sup>53</sup>	PTB	*N-prat (STEDT)

‘Smallpox’ appears to be a borrowing from Tibetan that entered SQ before application of the CTR. All three Qiangic cognates support the reconstruction of an initial \*nasal and an \*r of some sort, rGyalrong is almost identical to the WT form.

**‘smallpox’**

Taoping	bo <sup>241</sup>	Pumi (Jinghua)	bzɔ̃ <sup>13</sup>
Mawo	buˈ	rGyalrong	tə mbɾəm
Guiqiong	sɿ <sup>55</sup> npə <sup>53</sup>	Written Tibetan	lha fibrum

**‘get, have’**. This set is reflected in Mianchi, and in other Qiangic languages.

Mianchi	té tiǎ	get, obtain
rGyalrong	ndo	have
Ergong	ntɕho	"
Muya	ndzɔ̃ <sup>35</sup>	"
PQic	*nto	

**‘spit, saliva’**

Longxi	piǎ	saliva	Pumi (Jinghua)	k <sup>h</sup> ə <sup>13</sup> p <sup>h</sup> ʒu <sup>13</sup>	spit (v.)
Ersu	nphsɿ <sup>55</sup>	spit (v.)	Written Tibetan	dbjugs	"
Namuyi	mp <sup>h</sup> i <sup>33</sup>	"	PQic	*nphiu	

Mianchi and Taoping do not have cognates for this root. These forms appear to be reflexes of PTB \*N-pat ‘vomit’, although some may be reflexes of PTB \*m-ts(y)il (STC 231) or \*m-twa (STC p.58), with the labial and dental positions metathesizing between the initial and the prefix, while the features of [nasal], [obstruent] remain unmoved. Aside from *lɔ̃ qhuǎ* ‘honeycomb (not yet completed)’, ‘saliva’ is the only Longxi native monomorphemic syllable with voiceless initial and Low-rising tone. Given the prenasalized cognates, this anomaly lends further support to the argument that the Low-rising tone emanates from the loss of a sonorant pre-initial.

**‘pile up (earth)’** PQic \*nbu. SQ evidence comes only from Taoping.

Taoping	bo <sup>241</sup>
Longxi	bù
Mianchi	bò
Guiqiong	nbu <sup>35</sup>
Shixing	bũ <sup>55</sup>

The following set appears to be an application of the CTR, although there is support from only one Qiangic language, and Longxi has not undergone CTR, or has since reverted to Low tone.

**‘collapse’**

Mianchi	fià dzuǎ
Longxi	(à) dzà
rGyalrong	kə mtʃət
PQic	*mtʃwat

**\*RN- initials**

PSQ ‘forget’ and ‘lend’ both had \*sonorant-nasal cluster initials. For the set ‘forget’, Taoping has preserved the conditioning environment, and has not undergone CTR, because of its High tone. It is not clear why Longxi lacks Low-rising tone for this form. It may have had a High tone (like Taoping) at the time of cluster simplification, and thus would have been impervious to the tone change.

**‘forget’**

Mianchi	dè mǔ	Ergong	lmu
Longxi	dà mù	Pumi (Jinghua)	thə <sup>13</sup> mə <sup>13</sup>
Taoping	χmi <sup>55</sup>	rGyalrong	kə jməs

There are two other cognate sets in which Ergong /lm/ corresponds to Taoping /χm/; both Taoping forms have high tones, and are thus prevented from undergoing CTR (note that ‘name’ has High cognates):

<u>Gloss</u>	<u>Ergong</u>	<u>Taoping</u>	<u>Longxi</u>	<u>Mianchi</u>	<u>PTB</u>
dream	ntshe lma	χmu <sup>55</sup>	mò zè	mò	*r-maŋ (STC 82)
name	lmu	χmə <sup>55</sup>	zè mú	mè mé	*r-miŋ (STC 83) <sup>21</sup>

In Taoping ‘lend’, which may be a borrowing from Tibetan, the contour tone has shifted to the directional prefix. For reasons not yet clear, Longxi lacks the contour tone.

**‘lend’**

Taoping	da <sup>241</sup> ŋi <sup>33</sup>	Ergong	zŋi
Mianchi	dè ŋě	PTB	*r-ŋya (STC 190)
Longxi	nì cá		

For borrowings from Tibetan that occurred after application of the CTR, \*RN clusters are maintained, and tones are unchanged, as in ‘stir-fry’ and ‘sunny’ (Mianchi ‘stir-fry’ is of questionable cognacy):

<u>Gloss</u>	<u>Tibetan</u>	<u>Taoping</u>	<u>Longxi</u>	<u>Mianchi</u>
stir-fry	rŋod (WT)	χŋa <sup>33</sup>	çì cá	(dzì dzá)
sunny	ynam taŋ (Amdo)	χŋa <sup>33</sup>		

**\*RC- initials**

‘Stone’, ‘open (door)’, ‘wheat/barley’ are the three instances discovered thus far of the Contour Tone Rule applying to forms with \*rC- initial. The Longxi form for ‘stone’ has an unusual tone. As presented in Section 1, Longxi High-falling is extremely rare, with only three instances on lexemes. For reasons not yet clear, the application of the CTR produced a High-falling tone in this instance. This is one of few Longxi forms I have come across to date in which the PSQ \*prefix has syllabified (cf. *zè mú* ‘name’

<sup>21</sup> Longxi has syllabified the pre-initial.

(Yadu *zmə*, Mawo *rmə*, PTB \*r-miŋ). It is not clear why the CTR did not apply to Mianchi, or if it did, why the tone has subsequently changed. Note the occurrence of the rare rising tone on the Lobuzhai form.

**‘stone’**

Taoping	ko <sup>241</sup>	Lobuzhai	yo <sup>15</sup> pi <sup>55</sup>
Longxi	κò lù	Mawo	ɿlu pi
Mianchi	lò	PTB	*r-luŋ (STC 88)

For ‘open (door)’ the CTR has applied in Taoping, even though the PSQ \*cluster has been retained. For Longxi, either the rule did not apply, or its tone has since changed.

**‘open (door)’**

Taoping	χgie <sup>241</sup>	Mawo	rga
Longxi	gà	PQ	*rga ~ rge
Yadu	zge		

‘Wheat, barley’ (Proto-Qiangic \*rIV) may be related to Written Tibetan *gro*. The differing initials of Taoping and Longxi versus Mianchi are additional indicators of the presence of \*rI- in the PSQ form. The Written Tibetan form may be a metathesis of PTB \*r-ga (James A. Matisoff, p.c.; cf. Lahu *ǰâ* ‘buckwheat’).

**‘wheat, barley’**

Taoping	ku <sup>241</sup>	wheat	Mawo	κlò	wheat
Longxi	κè	wheat, barley	Ergong	lau	wheat
Mianchi	lè	wheat, barley	Queyu	lai <sup>55</sup>	barley

In addition to the foregoing applications of the Contour Tone Rule, there is at least one instance of contour tone generation on a Mianchi word with \*CR- initial. Because this form has retained its \*r coloring, I posit that this rule is particular to Mianchi, and that it was applied to this form by analogy with \*RC clusters, as there is no loss of initial sonorant to condition the tone.

**‘snake’**

Mianchi	bz̥ <sup>22</sup>	Shixing	ba <sup>33</sup> ro <sup>55</sup>
Yadu	bɿɛ gɛ (‘year of the snake’)	rGyalrong	kha brɛ
Pumi (Jinghua)	bɐ <sup>13</sup> zɿ <sup>55</sup>	Ergong	mph̥ʂi
Pumi (Taoba)	bɐ <sup>35</sup> re <sup>53</sup>	PTB	*b-ru-l (STC 447)

An anonymous reviewer of this paper contested the inclusion of the allofams ‘dragon’ (above) and ‘snake’. S/he was apparently concerned that I might be inappropriately bolstering support for my analysis by using the same form twice. However, a comparison of ‘snake’ and ‘dragon’ in Qiangic languages and dialects makes it evident that these forms have not followed the same course of development, with the cultural artifact ‘dragon’ apparently a borrowing from Tibetan:

**Table 13. Reflexes of PTB \*b-ru-l**

Language/dialect	‘dragon’	‘snake’
<b>Mianchi</b>	bú	bz̥
<b>Yadu</b>	z̥bə	bɿɛ gɛ
<b>Ergong</b>	mbzu	mph̥ʂi
<b>Pumi (Taoba)</b>	bzo <sup>55</sup>	bɐ <sup>35</sup> re <sup>53</sup>
<b>Shixing</b>	mɛ <sup>33</sup> d̥zue <sup>55</sup>	ba <sup>33</sup> ro <sup>55</sup>
<b>rGyalrong</b>	ta rmok	kha brɛ
<b>Written Tibetan</b>	fibrug	sbrul

The case of Shixing is illustrative. It appears that ‘dragon’ entered Shixing after the stop and sonorant of ‘snake’ had already devoiced. Similar differences may be observed in all Qiangic languages where both allofams have been recorded.

Onto the autochthonous stock of \*Low-Rising forms whose suprasegmentals resulted from the CTR, Southern Qiang has grafted tones directly from Chinese words, and has added those that have arisen from native words through coalescence, disambiguation strategies, and in Taoping, tone sandhi. It appears that in Mianchi, intonation has also played a role in the expansion of this tone. The degrees to which these three sources of Low-rising tones have exerted influence vary by dialect. In the

<sup>22</sup> It appears that in Mianchi and Taoping, the semantics of ‘snake’ may have been extended to include ‘rope’, given the similarity of forms:

<u>Gloss</u>	<u>Mianchi</u>	<u>Taoping</u>	<u>PTB</u>
snake	bz̥	(bɔ <sup>31</sup> guə <sup>241</sup> )	*b-ru:l (447)
rope	bz̥ɛ	bzɛ <sup>33</sup>	

following discussion, I present these secondary origins for complex contour tones in Mianchi, Longxi, and Taoping, roughly in decreasing order of impact.

### Chinese borrowings

Out of all 228 instances of LR in the Mianchi data, at least 62 (27.2%) are borrowings or probable borrowings. In most cases of borrowing, the source syllable is in the Mandarin fourth tone, which in Standard Mandarin (*Putonghua*) is High-Falling [a<sup>51</sup>], but in Wenchuan Sichuanese has a low-rising contour [a<sup>13</sup>].

<u>Gloss</u>	<u>Mianchi</u>	<u>Mandarin</u>
frame	tɕǎ tsì	jìà zì
song (CL)	twǎn	duàn
again	tsǎi	zài
file (tool)	tshǒ	cuò

The tones on these borrowings are stable and are not in variation with major tones, even within utterances. Continued contact with Chinese reinforces the pitch of borrowings, keeping them from being absorbed into other tones.

In Longxi, 13 out of forty syllables (33%) with Low-rising tone are borrowings from Sichuanese fourth tone words:

<u>Gloss</u>	<u>Longxi</u>	<u>Mandarin</u>
chisel	tshǒ tsì	cuò zì
mole, wart	tsǐ	zhì
vinegar	tshǔ	cù
weld	hǎn dà	hàn

Among the Taoping forms with 241 tone, unlike all other Taoping tones (major and minor), and unlike the Low-Rising tone classes in Longxi and Mianchi, there are no borrowings from Mandarin. This lack is no doubt due to the fact that the phonetic shape of this tone is so different from any found in Sichuanese (or standard *Putonghua*). However, in the Taoping 13 tone, 39 out of 41 instances are borrowings from Chinese (95%), indicating that this tone is borrowed from Chinese (cf. 2.1).

### Coalescence of syllables

The following two Mianchi lexical items show the emergence of LR tone due to coalescence, which in the second case involved haplology (with the pitch contour changing from H-L to Low-rising).



ancient times      qé ì sǐ sǐ ~ qǎi sǐ sǐ  
 soak, immerse      fià tǎ ~ fiǎ té tǎ

In the following Mianchi sentence, the tone on *qǎ* ‘already’ is clearly secondary, resulting from the coalescence of the two syllables *qé ì* into one; these two syllables appear in free variation with *qǎ* [~ qǎi] in the phrase *qé ì sǐ sǐ ~ qǎi sǐ sǐ* ‘ancient times’.

ù    kǐ      qè-brì-tsǐ    tǎ    bǎ    qǎ      mǎ?  
 2s   POSS    child      UP    big    already    Q  
 Has your child grown up (already)?

In Longxi, there are also a few instances of Low-Rising that have resulted from the coalescence of two syllables:

without (v.i.)      mǎ (< mǎ fió ‘there is not’ < mǐ + fió    NEG + EXIST)  
 speak, tell      ǎ (< qǎ .ǎ)

Coalescence has not been observed in Taoping as a source of 241. This may be due to a lack of recording of variant forms.

### Disambiguation strategies

Another function of the contour tones is the disambiguation of native vocabulary in Longxi and Taoping. For the following Longxi verbs (an exhaustive list), the DOWN prefix /fià/ is pronounced with Low-Rising tone to disambiguate the Low-toned verbs to which it is attached from homophonous verbs which take the same directional prefix. This is surprising because directive prefixes are often chosen for their disambiguating properties; *viz.*, homophonous verbs often require orientational prefixes that differ from each other (Evans 1998b). It appears that in the case of the following pairs of Low-toned Longxi verbs, speakers sense that their semantics require all of them to take the DOWN prefix, which then shifts the disambiguating function from prefix *selection* to prefix *tone*. These are the only instances in the SQ data of a directive prefix occurring in a minor tone. In fact, the High tone on the prefix of ‘penetrate’ is also marked, as DIR prefixes almost always take the Low tone. It appears that Longxi speakers are employing both Low-Rising and High tones in this disambiguating function. The verbs are listed with their homophones, which in some cases (penetrate/sink, ripe/aged) appear to be cognate.

complete	fǎ̀ tù	reduce	fà̀ tù tú
penetrate	fǎ̀ tì ~ (fǎ̀) tí tí	sink (v)	fà̀ tì
reduce (swelling)	fǎ̀ gù	fall into trap	fà̀ gù
ripe	fǎ̀ peì	aged, elderly	(fà̀) peì

In Taoping, the following pairs of words are disambiguated by the opposition of 241 and a major tone whose register is also Low. As in the Longxi cases, the words in each pair are in the same syntactic class.

back of body	de <sup>241</sup>	hoop	de <sup>33</sup>
bowl	ku <sup>241</sup>	goose	ku <sup>31</sup>
rest	χba <sup>241</sup> ni <sup>31</sup>	think	χba <sup>33</sup> χdzu <sup>33</sup>
right (side)	χda <sup>241</sup>	deer; fat/oil	χda <sup>33</sup>
turbid/muddy	kuə <sup>241</sup>	late	kuə <sup>33</sup>

### Tone sandhi

Another source of 241 tone syllables in Taoping, not seen in the other dialects is tone sandhi. Taoping, like Mianchi and Longxi, has irregular and unpredictable tone sandhi. However, only Taoping makes regular use of a minor tone as a sandhi tone, as in the following names for months (the final syllable in each form means ‘month’, and is unchanged from its citation form):

kuə <sup>33</sup>	‘five’	+	ʃɿ <sup>33</sup>	‘month’	=	kuə <sup>241</sup> ʃɿ <sup>33</sup>	May
χguə <sup>33</sup>	‘nine’	+	ʃɿ <sup>33</sup>	‘month’	=	χguə <sup>241</sup> ʃɿ <sup>33</sup>	September
χa <sup>31</sup> dy <sup>33</sup>	‘ten’	+	ʃɿ <sup>33</sup>	‘month’	=	χa <sup>31</sup> dy <sup>241</sup> ʃɿ <sup>33</sup>	October

Like the tone sandhi phenomena observed in Mianchi, Taoping sandhi is far from regular, as Taoping has many instances of 33 toned syllables in sequence:

mi <sup>33</sup> tsie <sup>33</sup>	blunt (< mi <sup>33</sup> ‘not’ + tsie <sup>33</sup> ‘sharp’)
χgy <sup>33</sup> χgy <sup>33</sup>	round
zə <sup>33</sup> pu <sup>33</sup>	cave, hole
χde <sup>33</sup> le <sup>33</sup>	fog

### Intonation patterns

In Mianchi declarative sentences, final unaccented syllables are sometimes pronounced with Low-Rising tone. However, most unaccented morphemes do not have Low-Rising allomorphs, and among those that do there is no way to predict whether a

particular sentence will have a Low or Low-Rising final syllable:

fà-ŋá à-zí djù qè. 3-p 1-POST speak already. They already spoke to me.	fà-jí fià tɕí-thà qě. 3-s DOWN memorize-BOR already S/he memorized (it).
--	--

Because this phenomenon is restricted to sentence-final position, I have termed it an intonation pattern, although further study is needed to discern the exact nature of this pitch behavior.

## 5. Some possible tonogenetic influences on PSQ \*pitch accent

In Table 8 I have presented evidence for a PSQ category of \*High (or \*accented) which developed into Longxi and Taoping High tones, and which remained accented in Mianchi. Having thus correlated these Highs/accents with each other, the question remains whether there is some phonetic motivation for the SQ High category. Examining the initials of the sets yields the result that there is a statistically significant occurrence of voiceless initials. Setting aside PSQ clusters \*phr (‘open’, ‘white’), \*χm (‘name’), \*sm (‘smell’), and \*χŋ (‘silver’), where there may be a mix of voicing (it is not yet clear whether PSQ \*χ- assimilated to the voicing of the following nasal), there are 27 \*voiceless and 7 \*voiced initials in the set. This ratio of 3.9:1 is a much greater spread than is found in samples of the major tones of the extant dialects (note that even if the instances of the four excluded clusters are all counted as voiced, the resulting ratio is 27 to 12 or 2.3:1). The following chart, based on a sampling of each dialect, gives relative frequencies of voiced and voiceless initials for the major tones. For each tone in each dialect syllables were counted until there were 100 instances of a voicing type. For each major tone, voiceless initials significantly outnumber voiced initials:

**Table 14. Southern Qiang major tones and voicing of initials**

TP 55 tone	TP 31 tone	TP 33 tone	LX High tone	LX Low tone	MC High tone	MC Low tone
v1 - 100	v1 - 100	v1 - 100	v1 - 100	v1 - 100	v1 - 100	v1 - 100
vd - 51	vd - 95	vd - 83	vd - 66	vd - 78	vd - 76	vd - 85

The above table shows that for each of the three dialects, voiceless initials are more common than voiced in major tones. The observation does not hold for Longxi Low-Rising and Taoping 241, minor tones that only occur with voiced initials. In each

dialect the greatest discrepancy between voiced and voiceless initials occurs in the high tone; Taoping has the largest difference, with voiceless initials about twice as common as voiced on high-toned syllables. Nevertheless, even this discrepancy is smaller than the ratios of 2.3:1 or 3.9:1 observed in the PSQ \*High series. Thus it appears that at the time of PSQ, syllables with voiceless initials had a tendency to develop accent or high tone.

Superficially, this distribution could be used to argue that PSQ developed a phonemic high tone conditioned by voiceless initials. However, there are at least four arguments against this position. First, Southern Qiang would have undergone a shift away from tone and toward pitch accent in Mianchi and Jiuziying, and a complete disappearance of phonemic tone from native vocabulary in Heihu—all under the tonogenetic conditions of simplification of the syllable canon and increased borrowing from Mandarin. Second, the proposed SQ \*High tone would have been very unstable; e.g., 71% of high tone syllables in Taoping do not have highs on both cognates in the other two key dialects. This type of capricious tone change is highly uncharacteristic of syllabic tone systems. Third, there was no systematic loss of syllabic information from Proto-Qiangic that would have conditioned the evolution of this tone. That is, PSQ High does not correspond to any particular feature of PQic syllables. rGyalrong cognates of SQ \*High forms cited above are presented below to substantiate this claim. Note that cognate rGyalrong initials may contain sonorants or obstruents, single consonants or clusters, and that syllables may be open or checked:

**Table 15. rGyalrong cognates of PSQ \*High syllables**

Gloss	Longxi	Mianchi	Taoping	rGyalrong
breast, milk	ɲà ɲá	ɲà ɲá	ɲy <sup>55</sup> ɲy <sup>55</sup>	tə nu
cut (vegetable)	tsù tsuá	tʂhù tʂhuá	tʂhu <sup>55</sup>	ka ra ntsik
divide	ɛ̀ò ɛ̀ó	zì zóu	zu <sup>33</sup> zu <sup>55</sup>	ka kro
dry	ɦǝ	zǐ	zǐ <sup>55</sup> kua <sup>55</sup>	kə ram
frog 2	zò piá	dzò-piá	dzua <sup>31</sup> pu <sup>55</sup> ma <sup>33</sup>	kha ʃpa
gall	tsí	tɕí	χtʂə <sup>55</sup>	tə mdʒə kri
house, home 1	tɕé kù	tɕí	tɕí <sup>55</sup> ko <sup>33</sup>	tə tʃəm
name	zè mú	mè mé	χmə <sup>55</sup>	tə rme
rooster	ỳ qú	ì qóu	yí <sup>31</sup> qu <sup>55</sup>	pkɛi ko
silver	ɲú	ɲó	χɲu <sup>55</sup>	po ɲi
smoke, tobacco 2	mù khú, mú-qhú	mù qhué	mə <sup>31</sup> khuə <sup>55</sup>	tə khə
straight	tí	tí	χtə <sup>55</sup>	ka sto

That there is no correlation between these consonant types in rGyalrong and the evolution of PSQ \*High is evidenced by the many cases of rGyalrong sonorants and obstruents that correspond to PSQ \*Low, as in the following representative sets:

Gloss	Longxi	Mianchi	Taoping	rGyalrong
be/copula	ŋù	ŋuè	ŋuə <sup>33</sup>	ŋos
drum	bò	bù	χbu <sup>241</sup>	tə rbo

Fourth, given the fact that voiceless initials are also the most common phonation type of Low pitch syllables, voicelessness cannot be considered a determining feature for \*High. Nevertheless, it does seem that PSQ syllables with voiceless initials had a greater *tendency* toward High pitch than did those with voiced initials. The development of \*pitch accent in Southern Qiang was apparently influenced (but not determined) by the phonetic properties of tonogenesis.

## 6. Suggestions for further research

The next step in understanding the genesis of tones in Southern Qiang would be to re-survey the SQ villages where data were collected in the 1930's, 40's and 50's, and to discover how these dialects have fared under increased linguistic pressure from Mandarin. It is very likely that semi-tonal dialects (e.g., Jiuziying, Heihu) have reduced their inventories of initial clusters in the past few decades as a result of this influence, and have moved much closer to developing syllabic tone. In pitch accent villages like Mianchi, where the speech of younger generations includes an increased number of lexical replacements from Chinese, it would be insightful to survey older, middle-aged, and younger speakers to discover whether younger speakers have begun to allow two high pitches on native words, indicating a shift towards syllabic tone.

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