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The historical phonology of Monsang (Northwestern South-Central/"Kuki-Chin"): A case of reduction in phonological complexity

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ABSTRACT

There have been recent advances in the phonological reconstruction of the South-Central ("Kuki-Chin") branch of Trans-Himalayan (Tibeto-Burman), in particular by VanBik (2009). However, the Northwestern ("Old Kuki") subgroup, generally considered to be conservative, is not represented in this work as reliable data have not been available. The present study provides a comprehensive documentation of the historical phonology of one Northwestern language, Monsang. The unexpected finding is that Monsang cannot be considered conservative in its phonological development. A large number of sound changes have occurred across all phonological domains. The majority of sound changes are mergers, and with small exceptions, no unusual sound changes are found. As a result, the diachronic development of Monsang can be considered a case of reduction in phonological complexity.

KEYWORDS

Historical phonology; Trans-Himalayan; Tibeto-Burman; South-Central; Kuki-Chin; Proto-Kuki-Chin; sound changes; phonological complexity

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The historical phonology of Monsang (Northwestern South-Central/"Kuki-Chin"): A case of reduction in phonological complexity[1]

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1 Introduction

Among the South-Central ("Kuki-Chin")[2] branch of Trans-Himalayan (Tibeto-Burman), the Northwestern languages (also called by the highly controversial label "Old Kuki")[3] is commonly considered a particularly archaic subgroup. Shafer (1966) states that this subgroup "very nearly represents Proto-Kukish." Similarly, Benedict (1972:10) writes that these languages "represent a somewhat archaic variety of a fundamental Kuki type which has given rise to the Central and Northern Kuki languages."

[1] The collection of the Monsang data presented here occurred in close collaboration with Koninglee Wanglar of Liwachangning. His deep knowledge and understanding of his native language has greatly facilitated this and ongoing research on Monsang; none of this would have been possible without him. This research has been funded by grant # BCS-1360632 of the National Science Foundation of the United States, to Scott DeLancey (PI), University of Oregon, and more recently been made possible by the Martin Buber Society of Fellows, The Hebrew University of Jerusalem.

[2] What I refer to here as the 'South-Central' branch of Trans-Himalayan is usually called "Kuki-Chin". The term "Kuki-Chin" is not acceptable to speakers of many languages thus labeled, such as Monsang, Moyon, Anal, Lamkang, Chothe, Tarao, Aimol, Kom, Purum, Chiru, or Koireng. "Kuki" primarily is an ethnic label, and the communities of a number of "Kuki-Chin" languages of the Northwestern ("Old Kuki") subgroup self-identify as Nagas. Since ethnic clashes between Nagas and Kukis have occurred as recently as the 1990s, communities that consider themselves Nagas understandably reject the "Kuki" label, even if in a linguistic sense. At the cost of discontinuity of the "Kuki-Chin" label in the linguistic sense, I use the label "South-Central" in this paper (a suggestion first brought into the name change discussion by Scott DeLancey). Certainly, this is a preliminary term. It is currently not meant to presuppose the existence of a Central branch in DeLancey's (2015a) sense (although future research may well produce more and more evidence in this direction). There is even a good chance that this branch needs to be renamed again in the near future. However, having spoken with many language activists among the speakers of languages of the South-Central branch has made it clear to me that using the "Kuki-Chin" label is very insensitive. It creates opposition to linguistic research among communities, which is counterproductive to the effort of collaborative documentation projects.

[3] For the same reasons that are outlined in footnote 2, and even more strongly so, "Old Kuki" is not tenable as a label for the languages that are classified as such. I follow DeLancey in referring to these languages as the "Northwestern" subgroup (cf. DeLancey 2014a, 2014b, among others).

Both Shafer and Benedict arrived at this assessment based on data from the Linguistic Survey of India (Grierson 1904). Needless to say, these data are not phonemically accurate, and with the exception of Lamkang (Thounaojam and Chelliah 2007), we still lack a published, fully analyzed phonological data from a Northwestern language. More generally, we know almost nothing about these languages: which languages should be included (cf. the study on Sorbung by Mortensen and Keogh (2011)); which of these languages may be mutually intelligible; basic facts about the languages (except for an overview of those spoken in Manipur by Haokip (2011)); or what phonological or morphosyntactic innovations these languages may share.

The goal of this study is to provide the first documentation of the historical phonology of a Northwestern language of the South-Central (SC) branch. By examining the sound changes that have occurred in the development of Monsang from Proto-SC (as reconstructed by VanBik (2009)), we will be able to see that Monsang actually does not have a conservative phonology. Instead, many mergers have occurred that have led to a reduction in the inventory of phonemic contrasts across the board.

In addition to examining the phonological development of Monsang and the degree of innovation found in it, the present study also establishes the sound correspondences between Proto-South-Central (PSC) and Monsang, and hence also the sound correspondences with other South-Central languages. The present documentation of the historical phonology of Monsang therefore also lays the foundation for all future comparative study of diachronic morphosyntax necessary to understand the history of the South-Central branch. Containing some four to five dozen languages across all of the southern half of Northeast India as well as adjacent regions in Bangladesh and Burma, some of which are known to preserve archaic traits (cf. Matisoff 2003; DeLancey 2010, 2011, 2013a, 2013b, 2014a, 2015a), South-Central is a major branch we need to know more about to understand the history of the Trans-Himalayan (Tibeto-Burman) language family.

1.1 VanBik's (2009) reconstruction of Proto-South-Central ("Proto-Kuki-Chin")

VanBik's (2009) reconstruction of Proto-South-Central ("Proto-Kuki-Chin") represents a tremendous advancement in historical research of the South-Central branch. Yet, a concern is the set of languages that VanBik has relied on for his study,[4] which do not include any representatives of the Northwestern group.

Proto-South-Central as reconstructed by VanBik has a substantial inventory of consonants. Table 1 shows all 27 consonants plus 8 consonant clusters that occur as syllable onsets. Furthermore, the expectedly much smaller set of 11 consonants that are additionally found in coda position are **bolded**. (Note that VanBik also reconstructs glottalized nasal and liquid coda syllables; however, these only occur in particular types of verb stem alternations and may not actually reconstruct back to PSC and are therefore not considered here.)

[4] There are twelve languages in this set: three Central languages (Mizo, Hakha Lai, and Falam Lai); four Southern languages (Mindat Cho, Daai, Asho, and Khumi); four Northern languages (Tedim, Paite, Thado Kuki, and Sizang); as well as the Maraic language Mara.

	Bilabial	Interdent.	Dental	Palat.	Velar	Glott.
Stops	ɓ, **p**, ph		ɗ, **t**, th		**k**, kh	**ʔ**
Affricates			ts, tsh			
Fricatives		θ	s, s^h			h
Nasals	**m**, hm		**n**, hn		**ŋ**, hŋ	
Laterals			**l**, hl			
Rhotics			**r**, hr			
Glides	**w**			**y [j]**		
Lat. clusters	pl, (phl)				kl, khl	
Rhot. clusters	pr, phr				kr, khr	

Table 1. PSC consonant inventory according to VanBik (2009)

The reconstructed vowel system of PSC involves five basic vowels with length distinctions as well as two diphthongs, see Figure 1. Vowel length is only phonemic in closed syllables, all open syllables are reconstructed with long vowels.

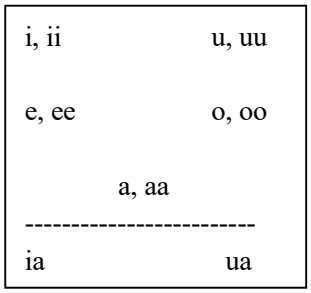

Figure 1. PSC vowel space as reconstructed by VanBik (2009)

Finally, in the domain of suprasegmental phonology, VanBik reconstructs four different tones for smooth (non-stopped) nominal syllables.

1.2 Hill's (2014) critique of VanBik's reconstruction of PSC onsets

Hill (2014) reviews the state of the art of PSC onset reconstruction based on a comparison of VanBik's and Ohno's (1965) reconstruction, with consultation of other sources. As a result, he proposes a number of modifications to VanBik's (2009) reconstruction of PSC. First, Hill rejects the reconstructions of the onset cluster *phl-, which VanBik includes despite the absence of any sample etyma. Second, the proposed onset clusters *pr- or *phr- are also rejected by Hill, who calls the evidence "unsatisfactory" but "provocative". This is partially in line with Button's (2011) rejection of the reconstruction of any of the bilabial clusters, *p(h)r- and *p(h)l-.

In addition to these adjustments to the phonemic inventory, Hill also suggests changes to the phonetic values of certain phonemes reconstructed by VanBik. He sides with Button (2011) to prefer the plain voiced stops *b-, *d- over the typologically much more marked implosives

*ɓ-, *ɗ-. Following Ohno (1965), he reconstructs *ʃ- rather than *s^h-. And finally, Hill argues in favor of reconstructing *dz- rather than *θ- (cf. Benedict 1940; 1972).

1.3 The Northwestern (formerly "Old Kuki") subgroup and Monsang

The Northwestern ("Old Kuki") subgroup was first mentioned in the Linguistic Survey of India (LSI) (Grierson 1904), but there is until today still no proposal for any phonological and/or morphosyntactic criteria that could properly establish this group as a phylogenetic unit. The LSI mentions "Old Kuki" as a single language with various dialects but it is clear that we are dealing with different languages that are largely mutually unintelligible. The list of varieties given in the LSI includes languages such as Aimol, Anal, Biate, Chiru, Chothe, Hallam, Hrangkhol, Koireng, Kom, Lamkang, Purum, and Langrong (or Ranglong). Languages that would need to be added to this list include Monsang and Moyon (which are mutually intelligible), Saihriem, Sakachep, Tarao, and probably Mongmi Maring.

Monsang is spoken by around 2,000 people in Chandel District, Manipur. In the vicinity, there are a number of other languages that Monsang has been in prolonged contact with. Most of these languages also belong to the NWSC subgroup, such as Moyon, Anal, Aimol, Lamkang, Tarao, or Kom. Other languages belong to other phylogenetic groups, such as Maring or the lingua franca Manipuri or Meitei. The data presented in this study was elicited from Monsang speakers of Liwachangning village near Pallel, primarily with Koninglee Wanglar, who has a linguistics background.

As expected from a NWSC language, Monsang has preserved a number of morphosyntactic archaisms. For example, in the domain of verbal person indexation or 'verb agreement', we find reflexes of PTH first person #-ŋ[5] (Bauman 1974; DeLancey 1989; Driem 1993); second person #tV- (Bauman 1975; DeLancey 2011, 2014a, 2015b); first person inclusive #i- (Bauman 1975; Driem 1993) and plural #m- (which also is a first person inclusive form in Monsang) (DeLancey 2015a); and a reflex of PSC #u 'plural' (DeLancey 2013: 144). Furthermore, the copulas #k and #ni as well as #s- 'change of state', which are argued to predate PSC by DeLancey (2015a), are found in Monsang.

1.4 Monsang phonology

Table 2 gives an overview of consonants that occur in onset position in Monsang. The coda inventory is much more limited and consists of the glottal stop /ʔ/, the three voiced nasals /m,n,ŋ/, as well as /r/.

[5] Following a convention used by Bauman (1975) and adopted by DeLancey in various articles, the use of # indicates a preliminary reconstruction based not on phonological comparison but resemblances of apparent cognate morphemes across many languages.

	Bilabial			Alveolar			Retroflex		Velar		Glottal
Stops	b	p	p^h	d	t	t^h	ʈ	$ʈ^h$	k	k^h	
Affricates				dʒ~dʑ		tʃ~tɕ~ts					
Fricatives	v~w			~dz~z		s~s^h~ɕ~ʃ					h
Nasals	m		m̥	n		n̥			ŋ		
Laterals				l		l̥					
Rhotics				r~ɽ							
				r̥~ɽ̥							

Table 2. Monsang onset consonants

The retroflex consonants /ʈ, ʈʰ/ are not true stops but somewhat resemble affricates. Among (post-)alveolar fricatives and affricates, there is a considerable degree of allophony. Partly this is free variation found among different speakers. In addition, some speakers produce conditioned allophony, such that a more (front) alveolar pronunciation ([z], [ts], and [s]) is found preceding the central vowels /ɔ/ and /ʷu/, whereas a more postalveolar and alveopalatal pronunciation ([dʒ, dʑ], [tʃ, tɕ], and [ɕ, ʃ]) occurs elsewhere. Allophony is also found between [v] and [w]; apparently some speakers produce [w] before long vowels and elsewhere [v], although this needs to be checked more systematically.

The vowel inventory of Monsang is shown in Figure 2. The high and low vowels /i,u,a/ distinguish length phonemically in sonorant coda syllables. There are two vowels that are phonologically best treated as central vowels: /ɔ/ and /ʷu/. The latter vowel /ʷu/ is a slightly centralized vowel [ʊ], which occurs in conjunction with labialization (and varying degrees of fricativization) of the preceding consonant. Thus, phonetically, this labialization is part of both the onset and the nucleus, while it is phonemically best treated as constituting another vowel phoneme.

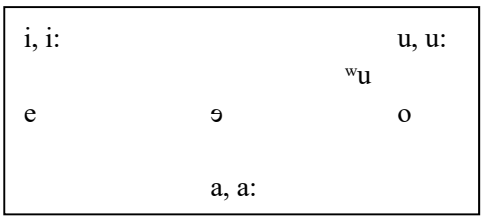

Figure 2. Monsang vowels

As for tones, Monsang has a low and a high tone, which are generally a property of the syllable. Both tones occur in every syllable type.

Based on a synchronic comparison of the relative sizes of phonological inventories of Monsang and PSC given in Table 3, it is already possible to see the overall reduction in phonemic distinctions that occurred in the development of Monsang. In terms of consonantal onsets, we see a reduction from 32 (following Hill's (2014) count) or 35 (following VanBik's original reconstructed inventory) to 24 phonemic distinctions. Within the vowel space, only two distinctions were lost in the development of Monsang, going down from 12 to 10. In coda position, we find a reduction of phonemic contrasts from 11 to 5. Among tones, we find a decrease from a 4-tone inventory (in smooth or non-stopped nominal syllables) of PSC to a 2-tone inventory in Monsang.

	PSC	Monsang
Onset	32/35	24
Nucleus	12	10
Coda	11	5
Tone	4	2

Table 3. Numbers of phonemic oppositions in onset, nucleus, and coda position in PSC and Monsang

2 Sound changes from VanBik's Proto-South-Central ("Proto-Kuki-Chin") to Monsang

We can now move to the main part of this study, the sound changes that explain the development of the phonology of Monsang from VanBik's reconstructed PSC. For purposes of presentation, this is divided into the following five sections. In §2.1, the changes in the onset inventory are discussed, and §2.2 considers the changes in the inventory of codas. Section §2.3 examines the vowel changes that were not triggered by particular coda consonants, while §2.4 examines those that are linked to particular coda (or onset) consonants. Finally, §2.5 investigates the tone correspondences in smooth (non-stopped) nominal syllables.

2.1 Initial changes

2.1.1 'Phonetic' changes

A small number of PSC onset phonemes have phonetic realizations in Monsang that are different from what VanBik reconstructs, as shown in Table 4. The two voiced stops that VanBik reconstructs as implosives are regular /b/ and /d/ in Monsang.[6] Also, among alveolar and palatal affricates and fricatives as well as the bilabial glide, we find allophony which VanBik does not reconstruct for PSC (although it is certainly plausible that allophony along similar lines was present in the proto-language, too).

	PSC	Monsang
Different phonetics	*ɓ-	b-
	*ɗ-	d-
Development of allophony	*s	s~sʰ~ɕ~ʃ
	*ts-	tʃ~tɕ~ts
	*y-	dʒ-~dʑ-~dz-~z-
	*w-	w-~v-

Table 4. Differences in phonetic realization in Monsang of PSC phonemes

[6] Remember, however, that Button (2011) and Hill (2014) suggest to reconstruct plain *b and *d for PSC, rather than the implosives (cf. §1.2).

2.1.2 Merger of fricatives and affricate

The three PSC fricatives *θ, *s, *sʰ/*ʃ[7] and the affricate *tsh have merged to the single phoneme /s/ in Monsang. Evidence for *θ- > s- is given in (1) through (4); for *s- remaining Monsang s- in (5) through (8); for *sʰ/*ʃ- > s- in (9) through (12); and finally, for *tsh- > s- in (13) through (19).

	Gloss	PSC	Monsang
(1)	'paddy'	*θaaŋ	sà:ŋ
(2)	'go'	*θeʔ	sí[8]
(3)	'child, daughter'	*θaa	**sá-**nʷú 'daughter'[9]
(4)	'rainy season, monsoon'	*θuur	**sʷúr-**kʰʷù
		*θ-	s-

	Gloss	PSC	Monsang
(5)	'ten'	*soom	sù:m
(6)	'cow'	*sial 'mithun'	sə̀r
(7)	'hot'	*saa-I, *sat-II	ǹ-**sà**
(8)	'seven'	*sa-riʔ	sárə̀
		*s-	s-

	Gloss	PSC	Monsang
(9)	'animal'	*sʰaa	sá
(10)	'deer'	*sʰa-khii	sákʰə̀
(11)	'head hair'	*sʰam	sám
(12)	'be long'	*sʰay	sə̀
		*sʰ-	s-

	Gloss	PSC	Monsang
(13)	'thick, dense'	*tshaʔ	ńsá
(14)	'inside'	*tshuŋ	sùŋ
(15)	'appear, come out'	***tshuak**-I, *tshuaʔ-II	sʷúʔ 'emerge'
(16)	'cook'	***tshuaŋ**-I, *tshuan-II	sʷùŋ
(17)	'confiscate'	***tshut**-I, tshuʔ-II	sìʔ
(18)	'stab, prick, pierce'	***tshun**-I, *tshunʔ-II	sín 'poke'
(19)	'bad, broken'	*tshia-I, ***tshiat-II**	sə́ʔ 'be.bad:II'
		*tsh-	s-

[7] Hill (2014) argues to reconstruct *ʃ rather than VanBik's *sʰ.

[8] All Monsang verb roots are presented in their underlying form, in which some are low tone and others are high tone. In actual phonemic realization of a bare verb stem, the tone on verb roots is always neutralized to low tone. The underlying tone of a verb root can be identified by attaching affixes.

[9] Here and elsewhere, the corresponding morpheme is in **bold** print.

Similar mergers among fricatives and affricates towards /s-/ have occurred elsewhere in the South-Central branch. In the Central languages Falam Lai and Bawm, we find a merger of *s-, *sʰ-, *tsh- > s- but without *θ- joining in (VanBik 2009: 46-7). In addition, in the Southern sub-branch, Mindat Cho and Daai also merged *tsh-, *s- > s- (VanBik 2009: 48).

2.1.3 Cluster simplification

VanBik (2009) reconstructs four sets of initial clusters: both aspirated and unaspirated combinations of bilabial and velar stops with the rhotic or lateral, respectively: *pr, *phr; *kr, *khr; *pl, *phl; and *kl, *khl.

Hill (2014) rejects the reconstruction of three of the four bilabial stop clusters: *phl-, *pr-, *phr- at the present state of research; Button rejects all of them (cf. §1.2). Indeed, the evidence in particular for *phl-, *pr-, *phr- is not strong. For *phl-, VanBik does not actually reconstruct any etyma. For *pr-, only two etyma are proposed: *(p)raŋ 'uncle (father's sister's husband)' and *pran 'begin, start'. While there does not appear to be a reflex of the latter in Monsang, the former is reflected by àbə̀ráŋ 'uncle (father's sister's husband)' in Monsang.[10] Thus, the /p/ was apparently treated as a prefixal element rather than as part of a rhotic cluster. As for *phr-, VanBik reconstructs only four etyma but at least three of them occur in Monsang (see below).

Three of VanBik's rhotic clusters *kr-, *khr-, and *phr- have reflexes in Monsang affricate-like retroflex stops: *ʈ(ʰ)-*. This sound change of P-SC to P-Northwestern-SC *k(h)r- > *ʈ(h)- was previously noted by Shafer (1966) and by Ohno (1965). The same sound change leading to the genesis of retroflex stops has also occurred in the development of P-Central-SC, as also noted by both Shafer and Ohno.[11] This sound change also has parallels elsewhere in Trans-Himalayan, as Dayang Pumi developed retroflex stops from clusters of a velar stop plus liquid (Matisoff 2003:75). There is more robust evidence for *kr- > ʈ-, which is given in (20) through (23).

	Gloss	PSC	Monsang
(20)	'cry, weep'	*krap-I	ʈàʔ
(21)	'fear'	*kriʔ	ʈə̀
(22)	'half, midway'	*krim	-ʈím
(23)	'fall (leaves, fruits, hair)'	*kril	ʈə́r
		*kr-	ʈ-

The weaker evidence for the merging changes of *khr-, *phr- > ʈʰ- is presented in (24) through (27).

[10] Note also the reflex *araŋ* 'id.' in Aimol, another Northwestern language (personal fieldnotes).

[11] This sound change is identified as a case of homorganic assimilation by Solnit (1979), and has been further discussed and researched by VanBik (2009: 39-40) and Maddieson and VanBik (2005).

	Gloss	PSC	Monsang
(24)	'miss, fail, mistake'	*kh(r)ial-I, *kh(r)ialʔ-II	tʰɔ́r
(25)	'needle'	*phrim	**ʈʰìm-**pʰɔ̀
(26)	'be good'	*phraa-I	ʈʰá
(27)	'be brave, fearless'	*raal-**phraa**	pè-**ʈʰà**
		*khr-, *phr-	ʈʰ-

VanBik reconstructs one further etymon with *phr- in addition to what is given in (25) through (27): *sʰa-pʰruu 'ant-eater, pangolin'. However, this is irregular in Mizo where the reflex is *sà-phú*, that is with /pʰ/ corresponding to *phr-, rather than the retroflex stop (the expected reflex in the Central-SC branch, to which Mizo belongs). It turns out that Monsang likewise has a bilabial reflex here: *sá-pʷú* 'pangolin'.

Moving on to the stop plus lateral clusters, all of them merge to a simple alveolar stop onset in Monsang, preserving aspiration. Reflexes of clusters with the velar stop, i.e., *k(h)l-, are shown in (28) through (34).

	Gloss	PSC	Monsang
(28)	'arrive'	*klung	túŋ
(29)	'redeem, ransom'	*klan	**ítín**
(30)	'moon'	*khlaa	tʰá
(31)	'wind' (n)	*khlii	tʰɔ̀
(32)	'wing'	*khlaa	bétʰà
(33)	'sweet'	*khlum	**ítʰùm**
(34)	'brain'	*khluak	rʷú**tʰʷú?**
		*k(h)l-	t(ʰ)-

Reflexes of clusters with the unaspirated bilabial stop *pl- are offered in (35) through (37). For the aspirated bilabial cluster *phl-, VanBik does not provide any reconstructed etyma.

	Gloss	PSC	Monsang
(35)	'anthill'	*pluŋ	ǹ**tùŋ** 'mound'
(36)	'boil (v)'	*plok	mìn**tò?** 'boil (until food is soft), tr.'
(37)	'visit, move'	*plooŋ-I, *ploon-II	tú:ŋ 'ride (a horse, bus, etc.)'
		*pl-	t-

2.1.4 Merger of voiceless velar nasal

While both the voiceless bilabial and alveolar nasals *m̥ and *n̥ are preserved in Monsang, the voiceless velar nasal does not occur. A merger of the voiceless with the voiced nasal is suggested by (38). Also, in word-medial position, *hŋ- appears to generally merge with *ŋ-, e.g., *ŋal ⋋ *hŋal

'wild boar' > míŋŋár or *sʰa-hŋar 'wild cat' > sáŋŋàr.[12] The correspondence in (39), on the other hand, suggests that *hŋ- may also be reflected by /h/. Certainly, more evidence will be needed to understand what happened to the voiceless velar nasals in Monsang.

	Gloss	PSC	Monsang
(38)	'fish'	*ŋaa ≍ *hŋaa	ŋá
(39)	'wait'	*hŋaak-I, hŋaʔ-II	háʔ
		*hŋ-	?

2.1.5 Summary: Initial changes

Table 5 lists the changes in the inventory of syllable-initial consonants, which were discussed in this section. All of the changes represent mergers and thus reduce the overall inventory. Only the change of *k(h)r-, *phr- > ʈ- has created a new phoneme. All the other changes have resulted in mergers with an already existing initial.

PSC	Monsang
*tsh-, *sʰ-, *θ-	s-
*k(h)l-, *pl-	t(h)-
*k(h)r-, *phr-	ʈ(h)-
*hŋ-	?

Table 5. Summary of changes in the syllable-initial consonant inventory

2.2 Coda changes

*2.2.1 Merger of liquid codas: *-l > -r*

Proto-SC final *-l regularly changes to, and merges with, final /r/ in Monsang. This can be seen in the following correspondence set of (40) through (45).

	Gloss	PSC	Monsang
(40)	'taro'	*ɓaa(l)	bá:r
(41)	'intestines'	*ril, *rul	árə̀r~érə̀r
(42)	'snake'	*ruul	bérʷùr
(43)	'go, pace, walk'	*kal	kár 'climb'
(44)	'goat'	*keel	kí:r
(45)	'hair (body)'	*(h)mul	m̥ʷúr
		*-l	-r

[12] However, this may not be specific to the velar nasal: Similarly, the reflex of *hram 'otter' in Monsang combines with *sʰa- 'animal' and loses its voicelessness to become *sárám*.

Note that the Monsang reflex of *(h)mul 'body hair' is irregular as it has to derive from a long /u:/ vowel in order to explain the presence of labialization (see §2.3.1). This kind of minor irregularity in the correspondence is indicated by gray shading here and elsewhere in this article.

*2.2.2 Loss of glottal stop: *-ʔ > ø*

Glottal stop codas of Proto-SC are lost in Monsang. This is shown in the correspondence set of (46) through (52). Note that in the case of the high vowels /i/ and /u/, i.e., (46)-(48), centralization of the vowels (cf. §2.3.1) occurs in addition to the loss of the glottal stop.

	Gloss	PSC	Monsang
(46)	'two'	*niʔ, *hniʔ	ń-n̥ə́
(47)	'seven'	*sa-riʔ	sárə̀
(48)	'bone'	*ruʔ	rʷú
(49)	'bite'	*seʔ	sí
(50)	'go'	*θeʔ	sí
(51)	'fruit'	*raʔ	ńrá 'bear fruit'
(52)	'leaf, foliage'	*hnaʔ	n̥á
		*-ʔ	ø

*2.2.3 Merger of final stops to glottal stop: *-p, *-t, *-k > -ʔ*

The loss of the glottal stop, which was shown in the previous section, has to have occurred prior to the merger of all three final stops *-p, *-t, and *-k > -ʔ. This change is shown in (53) through (61).

	Gloss	PSC	Monsang
(53)	'louse'	*hrik	r̥əʔ
(54)	'eye'	*mik	m̥íʔ
(55)	'soft'	*hnip ⨯ *hŋip	n̥**nìʔ**
(56)	'enter'	*luut	l̥ʷùʔ
(57)	'brain'	*khluak	rʷú**tʰʷúʔ**
(58)	'pig'	*wok	vóʔ
(59)	'cry, weep'	*krap-I, *kraʔ-II	ʈàʔ
(60)	'shoot'	*kaap	káʔ
(61)	'one'	*khat	ŋ̀**kʰèʔ**
		*-p/t/k	-ʔ

2.2.4 Summary: Coda changes

The three coda changes that were discussed in the previous sections are summarized in Table 6. The loss of the glottal stop has to have occurred prior to the merger of all oral final stops into the 'new' glottal stop. The same two ordered sound changes among stop codas are also found in other SC languages. The exact same changes have occurred in the development of Mara, which

belongs to the Maraic sub-branch of SC (VanBik 2009: 51). A partially overlapping sequence of changes is found in Thadou, where *-ʔ > Ø, followed by only *-k > -ʔ (VanBik 2009: 380).

PSC	Monsang
*-l	-r
1) *-ʔ	Ø
2) *-p, *-t, *-k	-ʔ

Table 6. Changes in the coda consonant inventory

In addition to what is listed in Table 6, the two PSC glide codas *-w and *-y also disappeared. However, this change is discussed in §2.4.1 below since the glide codas are better considered to be components of rhymes that changed as a whole.

2.3 Vowel changes

2.3.1 Centralization (/monophthongization)

In the front part of the vowel space, centralization refers to the changes of (almost) all instances of long /ii/ and certain instances of short /i/ as well as of the diphthong /ia/ to the central vowel /ə/.

As shown in the following correspondence set (62)-(81), a number of rhymes with the high front vowel generally participate in centralization: *-ii; *-iʔ; *-i(i)t/*-ik; *-i(i)m/*-iiŋ/*-il/ *-ilʔ.

	Gloss	PSC	Monsang
(62)	'salt'	*tsii	bítʃə́
(63)	'wind' (n)	*khlii	tʰə̀
(64)	'horn'	*kii	rə́kə̀
(65)	'blood'	*thii	tʰə́
(66)	'two'	*niʔ, ***hniʔ**	ńn̥ə́
(67)	'seven'	*sa-riʔ	sárə̀
(68)	'fear'	*kriʔ	ʈə̀
(69)	'louse'	*hrik	r̥ə́ʔ
(70)	'be heavy'	*rik-I, *riʔ-II	r̥ə̀ʔ
(71)	'cold'	*sʰik	ìsə̀ʔ 'cold (weather) (n)'
(72)	'drill, bore'	*wut-I, *wuʔ-II; ***wit**-I, *wiʔ-II	və́ʔ
(73)	'powdered, fine'	*dip	mìn**də̀ʔ** 'pulverize, break into small pieces'
(74)	'bind'	*khit-I, *khiʔ-II	kʰə́ʔ 'attach'
(75)	'blow nose'	*hniit	n̥ə̀ʔ
(76)	'untie, undo'	*hliit	l̥ə̀ʔ 'temporarily remove part of clothing'
(77)	'shadow'	*hli(i)m	də̀l̥ə́m
(78)	'(early) morning'	*yiiŋ	dʒə̀ŋ
(79)	'intestines'	***ril**, *rul	árə̀r~érə̀r
(80)	'fall (leaves, fruits, hair)'	*kril	ʈə́r
(81)	'explain, teach'	*hrilʔ	r̥ə̀r 'say'
		*-i(i)(-)	-ə(-)

The change of *-ik > -əʔ has also occurred in the adaptation of at least one borrowing from the surrounding dominant Trans-Himalayan language Meitei. The Meitei word *layrik* 'book' was borrowed into Monsang as *lèrə́ʔ*. Nonetheless, there are at least three reconstructed PSC etyma with this rhyme that in Monsang kept the /i/ rather than centralizing to /ə/, as shown in (82)-(84). There is no clear conditioning factor for these instances. Similarly, (85) and (86) are exceptions with no obvious explanation, aside from 'grandmother' and 'person' presumably being high frequency words that can easily have their own histories. Finally, (87)-(90) show that short *-i- with a nasal coda is preserved as /i/ in Monsang, suggesting that (77) above should originate in a long *-ii- vowel, analogous to (78).

	Gloss	PSC	Monsang
(82)	'eye'	*mik	m̥íʔ
(83)	'pinch'	*sik-I, *siʔ-II	bìsìʔ~bìsì
(84)	'add (to fire)'	*tik-I, *tiʔ-II	(í-)tíʔ
(85)	'grandmother'	*pii	àpí
(86)	'person'	*mii	mí
(87)	'ripe'	*hmin	m̥ìn
(88)	'name'	*miŋ ⨯ ***hmiŋ**; *min ⨯ *hmin	róm̥ìŋ
(89)	'tree'	*thiŋ	tʰíŋ
(90)	'alive'	***hriŋ**-I, hrin-II	(í-)r̥ìŋ
		*-i-	-i-

The PSC diphthong *-ia(-) likewise turned into the central vowel /ə/ in Monsang. Evidence is offered in (91) to (97), although (97) is more speculative.

	Gloss	PSC	Monsang
(91)	'spend the night'	***riak**-I, *riaʔ-II	rə́ʔ
(92)	'lick'	***liak**-I, *liaʔ-II	bélə́ʔ
(93)	'eight'	*riat	írə́ʔ
(94)	'bad, broken'	*tshia-I, ***tshiat-II**	sə́ʔ 'be.bad:II'
(95)	'mithun'	*sial	sə̀r 'cow'
(96)	'wound, injure (v)'	*hliam	lə̀m 'be hurt'
(97)	? 'manner, habit, method'	*yia	ádʒə́ 'what'
		*-ia(-)	-ə(-)

Analogous to the high front side of the vowel space with *-i(i)(-) and *-ia, also the high back vowel *-uu(-) and diphthong *-ua(-) underwent centralization to /ʷu/. Correspondences (98) to (105) illustrate the change of *-uu(-) > -ʷu.

	Gloss	PSC	Monsang
(98)	'female'	*nuu	-n^{w}ú
(99)	'mouse'	*yuu	bídʒ^{w}ú
(100)	'head'	*luu	l^{w}ù
(101)	'stink'	*thuu	t^{hw}ú 'be rotten'
(102)	'snake'	*ruul	bér^{w}ùr
(103)	'bury, cover, immerge'	*phuum	p^{hw}ùm
(104)	'knee'	*kuup ⩙ ***khuup*** ⩙ ***khuuk***	k^{h}ír^{w}úk^{hw}ú?~k^{h}ìr^{w}ùk^{hw}ù?
(105)	'enter'	*luut	l̥^{w}ú?
		*-uu(-)	-^{w}u(-)

Short *-u- only centralized to -^{w}u in combination with a glottal stop coda, as in (106) through (111).

	Gloss	PSC	Monsang
(106)	'bone'	*ru?	r^{w}ú
(107)	rice (cooked)'	*ɓu?	b^{w}ú
(108)	'want, crave, lack'	*ɗu?	béd^{w}ú 'crave'
(109)	'cough'	*khu?	ŋk^{hw}ù
(110)	'porcupine'	*s^{h}a-ku?	sàr^{w}ùk^{w}ú
(111)	'sow, plant (v)'	*tu?	ít^{w}ú 'small hole'
		*-u?	-^{w}u

Short *-u- with other coda consonants remained -u- in Monsang, as in (112)-(119) (or underwent fronting to -i-, see §2.4.2).

	Gloss	PSC	Monsang
(112)	'six'	*ruk	kùrù?
(113)	'male deer, antler'	*s^{h}a-yuk	ìdʒù? 'deer sp.'
(114)	'stump, base'	*ɓul	-búr
(115)	'cave'	P-Northern-SC *khul	k^{h}ùr
(116)	'three'	*thum	ńt^{h}ùm
(117)	'sweet'	*khlum	ít^{h}ùm
(118)	'heart'	*luŋ	bélùŋ 'chest'
(119)	'come'	*huŋ	húŋ
		*-u-	-u-

Like long *-uu(-) and glottal stop coda *-u?, the diphthong *-ua(-) also underwent centralization/labialization to the monophthong -^{w}u(-). This is shown in (120) to (129).

	Gloss	PSC	Monsang
(120)	'leave, spare'	***zuat**-I, *zuaʔ-II	ǹdʒʷùʔ 'escape'
(121)	'brain'	*khluak	rʷútʰʷúʔ
(122)	'burst'	***puak**-I, *puaʔ-II	pʷùʔ
(123)	'scoop'	***shuak**-I, *shuaʔ-II	sʷúʔ
(124)	'appear, come out'	***tshuak**-I, *tshuaʔ-II	sʷúʔ 'emerge'
(125)	'village'	*khua	kʰʷù
(126)	'nine'	*kua	íkʷú
(127)	'crow (rooster)'	*khuaŋ-I	à:r**kʰʷú:ŋ**
(128)	'cook'	***tshuaŋ**-I, *tshuan-II	sʷùŋ
(129)	'sell'	*yuar	dʒʷùr
		*-ua(-)	-ʷu(-)

2.3.2 Raising

Chronologically following the centralization of the high vowels, discussed in the previous section, another change led to the further reorganization of the Monsang vowel space: Mid-high vowels were raised to become the new high vowels. This can be seen for the case of *-e(e)(-) > -i(:)(-) in the correspondences (130) to (142).

	Gloss	PSC	Monsang
(130)	'red'	*sʰen, *sʰan	ísìn
(131)	'knife'	*tsem	tʃìm
(132)	'many, much'	*hnem	n̥ím 'be plenty'
(133)	'look'	*ʔen	ìn
(134)	'go'	*θeʔ	sí
(135)	'bite'	*seʔ	sí
(136)	'peel'	*khok-I, *khoʔ-II; ***khek-I**, *kheʔ-II	kʰíʔ
(137)	'foot'	*kee, ***khee**	kʰí
(138)	'bean'	*ɓee	bí
(139)	'feces'	*ʔeek	íʔ
(140)	'big pot'	*ɓeel	**bì:r**pʷú
(141)	'goat'	*keel	kí:r
(142)	'slap'	***ɓeeŋ**-I, *ɓeŋʔ ⩙ *ɓen-II	íbí:ŋ
		*-e(e)	-i(:)-

While (136) suggests that velar stop coda syllables may also have participated in this change, syllables with bilabial or alveolar stop codas apparently have not, as shown in (143) to (148).

	Gloss	PSC	Monsang
(143)	'insert'	*yep-I. *yeʔ-II	dʒèʔ
(144)	'knead, press'	*hmet-I, *hmeʔ-II	ím̥éʔ
(145)	'fold'	*khlep	tʰèʔ
(146)	'grip'	*tsep-I, *tseʔ-II	ìtʃèʔ
(147)	'turn over/around'	*let-I, *leʔ-II 'flip over'	béléʔ, ńléʔ
(148)	'butterfly'	*pha-lep	pʰéléʔ~pʰléʔ
		-ep/-et	-eʔ

Although it is surprising that, and unclear why, the *-ep/*-et rhymes did not undergo the vowel raising to -i-, there still is at least an articulatory motivation for why final *-k would rather motivate vowel raising than final *-p or *-t. Since the velar articulation, but neither the alveolar or bilabial articulations, requires the raising of the body of the tongue, progressive assimilation is likely to raise the *-e- > -i-. Again, this is still a surprising split since the vowel raising illustrated in (130) to (142) above occurred with no conditioning environment.

Analogous to *-e(e)(-) > -i(:)(-), in the back side of the vowel space, long *-oo- became -u:-. Correspondences (149) to (154) illustrate this. Since there is no vowel length distinction in syllables with a glottal stop coda in Monsang, *-ook becomes short -uʔ in (155). In addition, there are two cases in (156) and (157) where *-oo- > short -u-. There is currently no explanation for these cases. Furthermore, there are two cases where it looks as if *-oo(-) > -o(-), given in (158) and (159). More cognates are needed to determine whether these have idiosyncratic histories or require a more systematic explanation.

	Gloss	PSC	Monsang
(149)	'waist'	*kooŋ	kú:ŋ
(150)	'ten'	*soom	sù:m
(151)	'assemble, gather'	*khoom	kʰù:m
(152)	'drive, chase'	P-Northern-SC *hool	hù:r
(153)	'monkey'	*yooŋ	dʒù:ŋ
(154)	'strike, bang, thresh, hit, beat'	*khooŋ	kʰù:ŋ 'weave'
(155)	'be trapped, hang'	***ʔook**-I, *ʔoʔ-II	úʔ
(156)	help'	*ɓoom	búm
(157)	wrap'	*hloom	íl̥úm
(158)	'scatter, throw'	*woor-I, *worʔ-II	vór 'broadcast'
(159)	'INTERROGATIVE PARTICLE'	*maa ≍ *moo	mo
		*-oo-	*-u(:)-

Short *-o- did not change, as seen in (160) to (166).

	Gloss	PSC	Monsang
(160)	'seek/search'	*yoŋ-I, *yon-II	dʒòŋ
(161)	'language'	PCC *troŋ	ʈóŋ
(162)	'adhere, stick to'	*kop	kòʔ
(163)	'decay, rot'	*rop	ròʔ
(164)	'pig'	*wok	vóʔ
(165)	'meddle, pick at, touch'	*tok	tòʔ 'rummage'
(166)	'boil (v)'	*plok	mìn-**tòʔ** 'boil (until food is soft), tr'
		*-o-	-o-

2.3.3 Summary: Vowel changes

The vowel changes that have occurred in Monsang can be summarized under two types. One is the centralization and monophthongization of both high vowels and diphthongs. The other is the raising of the mid-high vowels to high vowels. These vowel changes are summarized in Table 7 and Figure 3.

.

Type and order	Front vowels	Back vowels
1. Centralization / (monophthongization)	*-i(i)(-), *-ia- > -ɘ-	*-u(u)(-), *-ua- > -^{w}u-
2. Raising	*-e(e)- > -i(:)-	*-oo- > -u:-

Table 7. Two types of vowel changes: Centralization/monophthongization and raising

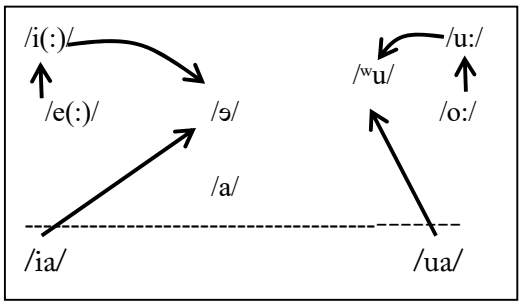

Figure 3. Illustration of vowel changes inside the vowel space

The first type (centralization/monophthongization), which affects the high vowels, has to have occurred before the second type (raising) since the second type would otherwise feed into the first type and there would be no high vowels in the language.

This type of reorganization of the vowel space with resulting central vowels has not been reported for other SC languages as far as I am aware. Nonetheless, somewhat resembling the changes in the back portion of the vowel space are the first two parts of a chain shift in Mara

(Maraic), where *-uu > -ɯ; followed by *-oo > -u; and finally, *-aa > -ɔ (VanBik 2009: 340). In the front portion of the vowel space, Mara also raised *-ee > -i but this is not part of a chain shift (VanBik 2009: 333). The same isolated instance of vowel raising from *-ee > -i also occurred in the Southern SC language Asho (VanBik 2009: 333).

Therefore, several parallels in other SC languages can be found to some parts of the reorganization of the Monsang vowel space. At the same time, however, the centralization changes that resulted in the two new vowels /ə/ and /ʷu/ are noteworthy in that the original rhymes that fed into these changes are quite heterogeneous. In the back portion of the vowel space, this is less problematic. The three sources of Monsang /ʷu/ are PSC *-uu(-)/*-uʔ/*-ua(-). It is plausible that both *-uʔ and *-ua(-) first merged to long, pre-Monsang *-uu(-) via compensatory lengthening. Later on, the second change could have occurred that centralized all instances of *-uu(-) to /ʷu/. In the front portion of the vowel space, however, a diverse set of rhymes ended up with the central vowel /ə/: *-ii/*-iʔ/*-i(i)t/*-ik; *-i(i)m/*-iiŋ/*-il/ *-ilʔ/*-ia(-). That is, we not only find rhymes that are analogous to the ones that underwent centralization in the back part of the vowel space: *-ii(-)/*-iʔ;/*-ia(-), of which the latter two could have initially merged with the first analogous to *-uʔ/*-ua(-) > *-uu(-). In addition to these rhymes, also *-it/*-ik /*-il/ *-ilʔ underwent centralization to /ə/. This participation of short rhymes is surprising and remains unexplained.

2.4 Rhyme changes

2.4.1 Loss of glide codas

There are no glide codas in modern Monsang. The PSC glide coda syllables all reduced to open monophthong syllables. Both *-ay and *-aw reduced to -ə, as seen in (167) to (176) and (181) to (186), respectively. The change of *-ay > -ə has several exceptions given in (177)-(180), all of which curiously are reconstructed with either voiced or voiceless bilabial nasal onset, *(h)may. It is not clear why all of these cases changed to -i rather than -ə.

	Gloss	PSC	Monsang
(167)	'buy, exchange'	***lay** ≍ *hlay	ílə́
(168)	'1sg'	*kay	kə́
(169)	'lance, spear'	*θay	ísə̀
(170)	'be long'	*sʰay	ísə̀
(171)	'pour'	***lay**-I, *layʔ-II	l̥ə̀
(172)	'hear'	*thay	tʰə̀
(173)	'paddy field'	*lay	l̥ə́
(174)	'axe'	*hray	r̥ə́
(175)	'exceed, surplus'	*lay ≍ ***hlay**	l̥ə̀ 'remain'
(176)	'tongue'	*lay	bélə̀
(177)	'tail'	*may	rúmì
(178)	'fog, cloud'	*may	rúmì 'mist'
(179)	'widow/-er'	*hmay	m̥íkʰʷúpà/-nʷù
(180)	'fire'	*may	m̥í
		*-ay	-ə

	Gloss	PSC	Monsang
(181)	'rise, get up, stand up'	***thaw**-I, *thoʔ-II	bétʰɔ́ 'wake up (tr)'
(182)	'dig'	***tsaw**-I, *tsoʔ-II	tʃɔ̃
(183)	'boil, heat up'	*saw	bé**sɔ́**
(184)	'disappear, lose'	***law**-I, *lawʔ-II; *hlaw-I, *hlawʔ-II	mìnlɔ̀ 'remove stain'
(185)	'pick (fruit)'	***law**-I, *loʔ-II	lɔ́ 'take'
(186)	'plow (v)'	***khlaw**-I, *khloʔ-II	tʰɔ́
		*-aw	-ɔ

The more complex rhyme *-uay also became the central vowel /ɔ/ in Monsang, see (187) to (189). Therefore, *-uay patterns with *-ay rather than with *-ua(-), which instead turned into -ʷu (see §2.3.1).

	Gloss	PSC	Monsang
(187)	'bee'	*khuay	kʰɔ̀
(188)	'bamboo shoot'	*tuay	ín**tɔ̀**
(189)	'lead, guide'	P-Central-SC *hruay	r̥ɔ̀ 'take along'
		*-uay	-ɔ

The PSC rhymes *-u(u)y are interesting in that the available evidence suggests that a split occurred resulting in one of the two central vowels or /u/. On the one hand, with initial *p-/*b- and *(h)r-, the outcome is -ʷu, see (190)-(194). On the other hand, with initial *n- and *y-, the outcome is -ɔ, as in (195) and (196). The first hypothesis can thus be that the coronal initials *n- and *y- further fronted the vowel and hence resulted in -ɔ rather than -ʷu. Why *(h)r- does not pattern as a coronal initial is unclear. Perhaps it always was more retroflex than alveolar. Interestingly, a very similar split of *-uy > -ii/-uy occurred in three languages of Central-SC, Hakha Lai, Falam Lai, and Zahau. The fronting of *-uy > -ii occurred following coronal onsets, whereas the rhyme remained -uy elsewhere (VanBik 2009: 44-5; Button 2011: 21-22). However, in the Lai languages, initial (h)r- does pattern as a coronal consonant, unlike in Monsang. Finally, (197) suggests that in syllable-initial position (disregarding the reconstructed glottal stop onset), *-uy simply monophthongized to -u.[13]

[13] Note that generally, labialized /ʷu/ cannot occur syllable-initially in Monsang. There are two other correspondences where in syllable-initial position, labialization did not occur: From *ʔuu 'elder sibling', we find *úpà~ú:pá* 'elder brother; elders' (where the variant with open long /u:/ is irregular for Monsang phonology); and from *ʔuu 'frog, toad', we find *ó̰tó?* 'frog', where apparently the initial /o/ assimilated to the /o/ of the second syllable.

	Gloss	PSC	Monsang
(190)	'AUGMENTATIVE'	*puy	-p^{w}ú
(191)	'drunk, intoxicated'	*ruuy	ńr^{w}ú
(192)	'mole'	***ɓuy** ≍ *puy	ív^{w}ù~íb^{w}ù
(193)	'vein, artery'	***tha-hruy** ≍ *-ruy	rót^{h}á$\underset{\circ}{\text{r}}^{w}$ú~ròt^{h}à$\underset{\circ}{\text{r}}^{w}$ú
(194)	'rope, cord'	*ruy ≍ ***hruy**	$\underset{\circ}{\text{r}}^{w}$ú
(195)	'laugh'	***nuy**-I, *nuyʔ-II ≍ *hnuy-I, *hnuyʔ-II	ńnə̀
(196)	'follow'	*yuul-I, *yuul-II; ***yuuy**-I, *yuuy-II	dʒə́
(197)	'dog'	*ʔuy	**ú**-tì
		*-u(u)y	-^{w}u/-ə/u

The two glide coda syllables with long /aa/ were raised and merged to open -e. This is illustrated with correspondences (198)-(206).

	Gloss	PSC	Monsang
(198)	'navel'	*laay	bélè
(199)	'face'	*hmaay	m̥é
(200)	'valley'	*phaay	p^{h}è
(201)	'crab'	*ʔaay	é
(202)	'mango'	*haay	**hè**nóʔ
(203)	'like, love'	*ŋaay	ŋé
(204)	'child/baby'	*naaw(-paŋ)	**nè**dú:ŋ
(205)	grasshopper'	*khaaw	**k^{h}è**tèʔ
(206)	fat'	*thaaw	át^{h}é
		-aay/-aaw	-e

2.4.2 Fronting before alveolar codas

Another type of sound change occurred across a number of different rhymes in Monsang. Rhymes with /u/ or /a/ as nucleus and with alveolar coda underwent fronting (and raising, in the case of /a/). In (207) to (213), *-u- before an alveolar coda turns into -i- in Monsang.

	Gloss	PSC	Monsang
(207)	'hand'	*kut	kíʔ
(208)	'confiscate'	***tshut**-I, tshuʔ-II	sìʔ
(209)	'erect, pitch, plant, post'	*phun	p^{h}ín 'plant'
(210)	'stab, prick, pierce'	***tshun**-I, *tshunʔ-II	sín 'poke'
(211)	'place, site'	P-Central-SC *hmun	-m̥ín
(212)	'skin, leather'	*wun	ávín
(213)	'infuse, pour in, put in'	*thun ≍ *than	t^{h}ìn 'put inside'
		*-u(t/n)	-i(ʔ/n)

The diphthong *-ua- regularly results in labialized -ʷu- in Monsang as shown in §2.3.1 above. However, before alveolar *-t or *-n, we instead find the central vowel -ɘ-, as seen in (214)-(217).

	Gloss	PSC	Monsang
(214)	'love, dote, tend'	*ɗua-I, ***ɗuat-II**	ìdɘ̀ʔ 'love:II'
(215)	'scratch'	*khuat ⩙ *huat	í-hɘ́ʔ
(216)	'blanket'	*puan	pɘ̀n
(217)	'wrestle'	*ɓuan	m̀bɘ̀n
		*-ua(t/n)	-ɘ(ʔ/n)

Further, both short and long *-a(a)- with alveolar stop *-t coda became raised and fronted to -eʔ, as seen in (218) to (222). The same type of correspondence is found with a long vowel in the case of the alveolar nasal *-n coda, see (223) to (225). Parallels of fronting /a/ before alveolar /t,n/ have occurred elsewhere in Trans-Himalayan, such as Dayang Pumi *-at > -ɛ (Matisoff 2003: 463) or Lahu *-at > -eʔ and *-an > -e (Matisoff 2003: 161).

	Gloss	PSC	Monsang
(218)	'kill'	*that-I, (*thaʔ-II)	tʰéʔ
(219)	'leech (land)'	***wat** ⩙ *wot ⩙ *wut	mìm**vèʔ**
(220)	'one'	*khat	ŋ̀**kʰèʔ**
(221)	'cut (vegetables)'	*ʔaat	éʔ
(222)	'rub, sharpen'	*taat	**ítéʔ**
(223)	'arm'	*ɓaan	bè:n
(224)	'night'	*yaan	ʤè:n
(225)	'run'	PCC *tlaan	té:n
		-a(a)t/-aan	-eʔ/-e:n

Short *-a- with final *-n did not develop analogously but instead turned into -i-, as demonstrated by the robust number of instances in (226) to (232).

	Gloss	PSC	Monsang
(226)	'vegetables, plant'	*ʔan	ín 'curry'
(227)	'cost, price'	*man	mín 'price'
(228)	'capture, arrest, catch'	*man	mìn 'catch'
(229)	'redeem, ransom'	*klan	í**tín**
(230)	'amputate, cut, cross'	*tan	tín 'cut'
(231)	'red'	*sʰen, *sʰan	sìn
(232)	'infuse, pour in, put in'	*thun ⩙ *than	tʰìn 'put inside'
		*-an	-in

This correspondence of *-an > -in is puzzling. It may be best considered to reflect two subsequent changes of *-an > *-en > -in. The first change would thus be regular fronting (as in the above cases of (218) to (225)). Following this, raising from *-en > -in would have occurred, which is

also attested with other cases (see §2.3.2). However, this account requires us to posit an ordering of sound changes that splits up natural classes, as discussed in the summary below.

2.4.3 Summary: Rhyme changes

Both the PSC glide codas *-y/*-w (which disappeared) and the PSC alveolar codas *-t/*-n caused their preceding vowels to change. The summary of the vowel changes in PSC glide coda syllables in Table 8 shows that there are three resulting monophthongs: the two central vowels /ɘ/ and /ʷu/ as well as front mid vowel /e/. This table includes a column with the diphthongs *-ia(-) and *-ua(-), which parallel the development of the glide coda syllables to central vowels. This evidence suggests that at least from the perspective of Monsang, it is possible to consider the glide coda syllables another type of diphthongs.

	*-y	*-w	Diphthongs	Resulting monophthong
Resulting central vowel	*-ay	*-aw	*-ia(-)	-ɘ-
	*-uay			
	[*-u(u)y]			
	*-u(u)y		*-ua(-)	-ʷu-
Resulting non-central vowel	*-aay	*-aaw		-e

Table 8. Overview of vowel changes in PSC glide coda syllables

The other class of rhyme changes resulted in fronted vowels preceding alveolar codas. Table 9 provides a summary of these changes. Comparing Table 8 and Table 9, we see that both *-aa- and *-ua- change in the same way with either glide or alveolar codas: *-aa- > -e(:)- and *-ua- > -ɘ-. However, short *-a- changes differently (either to -ɘ- in the case of final glides, or to -e-/-i- in the case of final alveolars), and *-u(u)- also changes differently (either to -ɘ-/-ʷu- with final *-y, or to -i- with final alveolars). Therefore, the vowel change triggered by glide codas only partially overlaps with the fronting change triggered by alveolar codas – these are two different, although similar, pathways of rhyme changes.

Coda / PSC vowel	*-t	*-n	Resulting vowel
*-u-	*-ut > -iʔ	*-un > -in	-i-
*-ua-	*-uat > -ɘʔ	*-uan > -ɘn	-ɘ-
*-a:-	*-a(a)t > -eʔ	*-aan > -e:n	-e-
*-a-		*-an > -in	-i-

Table 9. Overview of vowel changes in PSC alveolar coda syllables

Considering the diachronic development of the Monsang vowel space, both pathways of rhyme changes represent splits with subsequent mergers. That is, for example, PSC *-u- > Monsang -u- as shown in (112)-(119) above, but before *-t or *-n, PSC *-u- > -i-, as shown in (207)-(213) above. This is a split. However, where *-u- > -i-, these 'new' instances of -i- merge with Monsang -i- derived from other PSC rhymes, such as *-an, or *-i- before nasal codas.

We need to take one more look at the fronting changes summarized in Table 9. Most of these changes are well-motivated. Progressive assimilation fronts the vowel before a front, i.e., alveolar, coda consonant. However, in the case of *-an > -in, two changes must have occurred. First, there must have been fronting from *-an > -en; and second, raising from -en > -in. Since *-an > -in can only be explained as a sequence of two also otherwise attested sound changes, what should follow is that these two sound changes need to have occurred in a particular order, namely first fronting and then raising. However, if we generalize this order to all instances of the fronting and raising changes, we cannot predict what actually happened in the development of Monsang. This is illustrated with the contrasting cases of how PSC short *-an and long *-aan changed in Monsang in Table 10: the order of first fronting and then raising accounts for the attested reflex of *-an but not for the attested reflex of *-aan because *-aan only underwent fronting but not raising.

	*-an	*-aan
1. Fronting	-en	-e:n
2. Raising	-in	-i:n
Attested Monsang rhyme	-in	-e:n

Table 10. Simple order of fronting and raising changes

One way to explain the different outcomes of, for example, *-an and *-aan is to assume that fronting occurred in two waves. First it would have only affected rhymes with short nuclei and would have been followed by the raising change. And second, it would have affected the rhymes with long nuclei, without being following by raising. This model is illustrated in Table 11.

	*-an	*-aan	*-een
1. Fronting (short nuclei)	-en	-----	-----
2. Raising	-in	-----	-i:n
3. Fronting (long nuclei)	-----	-e:n	-----
Attested Monsang rhyme	-in	-e:n	-i:n

Table 11. Order of fronting and raising changes with two episodes of fronting

While it is not an economical explanation to assume two episodes of fronting, it does predict the correct development. Since PSC *-an is the only problematic rhyme that requires the fronting changes to feed into the raising change, future research may produce a better explanation that specifically explains the development of this rhyme.

2.5 Tone changes

The original proposal for the reconstruction of PSC tones by Luce (1959; 1985) distinguishes three main tone categories but does not take syllable type into consideration. VanBik reconstructs four (nominal) tones for smooth syllables, leaving their realization unspecified. Tones 1 to 3 correspond regularly to the Monsang high tone, while Tone 4 corresponds to the Monsang low tone. Examples (233) to (245) illustrate the regular correspondence of the PSC *Tone 1 and the Monsang high tone.

	Gloss	PSC	Monsang
(233)	'mushroom'	*paa^{1}	pá
(234)	'iron'	*thiir^{1}	t^{h}ɔ́r
(235)	'taro'	*ɓaa(l) ^{1}	bá:r
(236)	'hair (head)'	*s^{h}am^{1}	sám
(237)	'crab'	*ʔaay^{1}	é
(238)	'blood'	*thii^{1}	t^{h}ɔ́
(239)	'1sg'	*kay^{1}	kɔ́
(240)	'face'	*hmaay^{1}	m̥é
(241)	'vegetables, plant'	*ʔan^{1}	ín 'curry'
(242)	'tree'	*thiŋ^{1}	t^{h}íŋ
(243)	'nine'	*kua^{1}	**íkʷú**
(244)	'star'	*ʔaar^{4}-θii^{1} ⩙ *-sii^{1}	à:r**sɔ́**
(245)	'2sg'	*naŋ^{1}	náŋ
(246)	'lance, spear'	*θay^{1}	**ísɔ̀**
(247)	'dream'	*maŋ^{1}	ró**m̥àŋ**
(248)	'blanket, cover, garment'	*puan^{1}	pɔ̀n
		*Tone 1	High tone

Examples (246) to (248) do not follow the regular pattern. Whereas (248) has to be considered an exception without explanation for the time being, the two cases of (246) and (247) suggest that the presence of some type of 'prefixal' (in the sense of Matisoff (2003) element may result in a high-low pattern on the corresponding disyllable in Monsang even if this is not the case for 'nine' in (243). Note that the two segmental 'mismatches' in the Monsang reflex of 'dream', the /r-/ initial prefixal element and the voicelessness of the nasal, have plausible explanations if we consider cognates outside of the South-Central branch. Matisoff (2003) finds cognates of this etymon that have *r- or *s- prefixal elements and thus reconstructs *r/s-maŋ 'dream', see also (Benedict 1972: 31). Therefore, the *ro-* element in Monsang is likely to be a reflex of the *r- 'prefix', while even the *s- 'prefix' may also be preserved in the voicelessness of the bilabial nasal.

Moving on to PSC *Tone 2, (249) to (255) show the regular correspondence to high tone in Monsang. The case of 'mouse' in (256) may be considered irregular if the regular pattern in disyllables with prefixal elements is taken to be high-low as in (257) to (230) below (as well as in (246) and (247) above. Note that (260) is irregular with a low-low tone on the disyllable.

	Gloss	PSC	Monsang
(249)	'animal, flesh, meat'	*sʰaa^{2}	sá
(250)	'waist'	*kooŋ^{2}	kú:ŋ
(251)	'bean'	*ɓee^{2}	bí
(252)	'language'	P-Central-SC *troŋ^{2}	ʈóŋ
(253)	'fish'	*ŋaa^{2} ≍ *hŋaa^{2}	ŋá
(254)	'seed'	*muu^{2}	m̥^{w}ú
(255)	'deer'	***s^{h}a^{2}**-khii^{4}	**sá**k^{h}ə̀
(256)	'mouse'	*yuu^{2}	bí**dʒ^{w}ú**
(257)	'nest'	*ɓuu^{2}	r^{w}ú**v^{w}ù**~r^{w}ú**b^{w}ù**
(258)	'chin'	*kaa^{2} ≍ *khaa^{2}	bé**k^{h}à**
(259)	'horn'	*kii^{2}	rə́**kə̀**
(260)	'anthill'	*pluŋ^{2}	ǹ**tùŋ** 'mound'
		*Tone 2	High tone

PSC *Tone 3 also corresponds to high tone in Monsang, as illustrated with (261) to (273). There are two more disyllables that involve a prefixal element and display a high-low tonal pattern in (276) and (277), following parallel cases with *Tone 1 and *Tone 2. However, we also find two cases of disyllables with prefixal elements that instead display a high-high pattern in (274) and (275). The tone patterns on these types of disyllables with prefixal elements are not consistent and thus require more research. Finally, we find a low-low disyllable, probably a compound, in (278), as well as a monosyllabic root that does not match in (279).

	Gloss	PSC	Monsang
(261)	'age, year'	*kum^{3}	kúm
(262)	'half, midway'	*krim^{3}	-ʈím
(263)	'moon'	*khlaa^{3}	tʰá
(264)	'axe'	*hray^{3}	ɻ̊ɔ́
(265)	'place, site'	P-Central-SC *hmun^{3}	-m̥ín
(266)	'female'	*nuu^{3}	-nʷú
(267)	'cost, price'	*man^{3}	mín 'price'
(268)	'rainy season, monsoon'	*θuur^{3}	**sʷúr**kʰʷù
(269)	'fat'	*thaaw^{3}	átʰé
(270)	'goat'	*keel^{3}	kí:r
(271)	foot'	*kee^{3}, ***khee**^{3}	kʰí
(272)	'shadow'	*hli(i)m^{3}	dè**l̥ɔ́m**[14]
(273)	'winter'	P-Northern-SC *phal^{3}-bii^{3}	pʰárbɔ́
(274)	'hundred'	*yaa^{3}	ró**dʒá**
(275)	'salt'	*tsii^{3}	bí**tʃɔ́**
(276)	'forehead'	*tsal^{3}	bé**tʃàr**
(277)	'wing'	*khlaa^{3}	bétʰà
(278)	'grasshopper'	*khaaw^{3}	kʰètèʔ
(279)	'night'	*yaan^{3}	dʒè:n
		*Tone 3	High tone

Lastly, *Tone 4 robustly corresponds to low tone in Monsang, as shown in (280) through (299). Two exceptions include a high-high disyllable (with the 'animal' root preceding) in (300) as well as a monosyllabic bound root in (301). Both exceptions may be due to being borrowings (see Button 2011: 69, 81, and references therein), as noted by one of the reviewers.

[14] The first syllable may reflect PSC *ɗay 'light, daylight', however in order to regularly correspond, the PSC form would need to have a long nucleus because the regular changes are *-aay > -e, but *-ay > -ɔ.

	Gloss	PSC	Monsang
(280)	'land'	*ram^{4}	ràm
(281)	'valley, plains'	*phaay^{4}	pʰè
(282)	'cave'	PNC *khul^{4}	kʰùr
(283)	'liquor'	*yuu^{4}	dʒʷù
(284)	'big pot'	*ɓeel^{4}	**bì:r**pʷú
(285)	'arm'	*ɓaan^{4}	bè:n
(286)	'wind' (n)	*khlii^{4}	tʰə̀
(287)	'mithun'	*sial^{4}	sə̀r 'cow'
(288)	'village'	*khua^{4}	kʰʷù
(289)	'brass, bell'	*ɗaar^{4}	dà:r 'gong'
(290)	'drum (n)'	*khuaŋ^{4}	kʰʷùŋ
(291)	'rice paddy'	*θaaŋ^{4}	sà:ŋ
(292)	'mango'	*haay^{4}	**hè**nó?
(293)	'star'	***ʔaar^{4}**-θii^{1} ≍ *-sii^{1}	**à:r**sə́
(294)	'pool, lake, pond'	*lii^{4}	lə̀ 'deep water'
(295)	'monkey'	*yooŋ^{4}	dʒù:ŋ
(296)	'navel'	*laay^{4}	bé**lè**
(297)	'five'	*ŋaa^{4}	ró**ŋà**
(298)	'wild cat'	*sʰa^{2}-**hŋar^{4}**	sáŋ**ŋàr**
(299)	'bamboo'	*rua^{4}	rʷù
(300)	'otter'	*hram^{4}	sá**rám**
(301)	'stump, base'	*ɓul^{4}	-búr
		*Tone 4	Low tone

The regular correspondences between VanBik's reconstructed PSC tones of smooth syllables in nominal roots are summarized in Table 12. If the reconstruction is indeed correct, then we are dealing with a three-way merger of *Tones 1-3 > high tone in Monsang. The opposite hypothesis would say that the Monsang 2-tone system is original and that VanBik's 4-way system is innovative and represents a three-way split from a single proto-tone to his *Tones 1-3. For this counter-hypothesis there is currently no evidence. It is not the case that all reconstructed forms of each particular tonal category *Tone 1-3 contains natural classes of phonological properties not found in any of the other tonal categories of *Tones 1-3 that would be able to motivate the splits.

PSC	Monsang
*Tone 1	High
*Tone 2	High
*Tone 3	High
*Tone 4	Low

Table 12. Tone correspondences in smooth syllables of nominal roots between VanBik's PSC and Monsang

3 Summary and discussion

To summarize the findings of this study, we can begin with the very initial observation from §1.4. The comparison of synchronic phonological systems of PSC and Monsang showed a systematic reduction in the Monsang phonemic inventory across all domains: syllable onsets, nuclei, codas, and tones. Consequently, the majority of sound changes that occurred in the development of Monsang represent mergers. Only a total of four new segments that are not present in the reconstructed PSC language came into being along the way: two retroflex onset consonants /ʈ, ʈʰ/, and two central vowels /ə/ and labialized /ʷu/. Of these, labialized /ʷu/ is clearly typologically uncommon ("marked"), and so are, although to a lesser degree, the retroflex consonants. Otherwise, among the sound changes that this study has found there are no particularly unusual developments with the exception of the vowel centralization changes as well as the development of *-an > -in. Other than those, many of the sound changes have also occurred in other SC or else in other Trans-Himalayan languages.

This outcome of the study is unexpected. From what the previous literature tells us, the Northwestern SC languages are conservative. Yet, Monsang clearly does not have a conservative phonology. How can we explain this discrepancy?

First, the Northwestern SC languages that were examined in the early literature do not include Monsang. It could therefore be that other NWSC languages are conservative and Monsang is an outlier. However, a comparative study of nine NWSC languages including Monsang suggests this is not exactly the case (Konnerth 2017).[15] The other NWSC languages in that study are also quite innovative, however they underwent different sound changes – and preserved phonemic contrasts that were merged in Monsang. Monsang, on the other hand, also does its part in preserving archaic contrasts lost in other NWSC languages, in particular in the domain of voiceless sonorants. The emerging picture suggests that proto-NWSC (and hence NWSC as a group) does have a conservative phonological system. However, the modern languages have been innovative to varying degrees, in a number of different ways.

Second, as mentioned at the outset (§1.3), looking at morphosyntax Monsang is in fact quite conservative in preserving a considerable number of grammatical morphemes. Therefore, we see in the history of Monsang an interesting difference in the degree of innovation between phonology and morphosyntax.

4 Complexity and degree of innovation in phonology and morphosyntax

The development of Monsang phonology can be considered a reduction in phonological complexity. Many merging sound changes have led to an overall decrease in the size of the phonemic inventory of the language compared to PSC. Also, other aspects of the absence of phonological complexity following Trudgill's (2011: 145) sociolinguistic typology apply in the case of Monsang: no unusual sound changes have occurred, and the synchronic vowel system is also rather typical in maintaining contrasts that can be argued to accord to the principle of maximum

[15] The languages in that study are Monsang, Moyon, Lamkang, Anal, Kom, Chothe, Mongmi Maring, Tarao, and Aimol.

dispersion (five places of articulation around the edges of the natural vowel space as well as two central vowels).

That is, following Trudgill's criteria, Monsang does not display much phonological complexity. Recall that this is despite the fact that Monsang is a language of some 2,000 speakers, located in an area of high linguistic diversity and long-term contact. Therefore, Monsang does fit criteria of a sociolinguistic profile that could very well motivate complexification, rather than the opposite.

What is more interesting, however, is a look at the broader picture by taking morphosyntax into consideration as well. As briefly stated in §1.3, we find a number of archaic morphemes in the verbal person indexation system of Monsang, which are reconstructed not just to the level of PSC but to the level of Proto-Trans-Himalayan by most current scholars. This conservatism in morphosyntax is in peculiar opposition to the high degree of innovation in the phonology of the language that this study has found.

To add to this peculiarity, we can compare Monsang to the Central-SC language Mizo (also known as Lushai or Lusei) to obtain the mirror image. Mizo is the largest South-Central language, with the longest history of documentation. The Northeast Indian state of Mizoram is predominantly Mizo in all aspects of language and culture. There are well above a half million Mizo speakers.[16] In short, Mizo has an opposite sociolinguistic profile of Monsang. And what we find in Mizo is the opposite of Monsang: a conservative phonological system, paired with a rather innovative system in the morphosyntax of verbal person indexation. The conservative phonology of Mizo has repeatedly been mentioned and utilized in reconstructions, from Shafer (1966) and Benedict (1972) to Matisoff (2003) and VanBik (2009). Most recently, Hill (2014:23) has made it a point to consider Mizo "a useful representative of the Kuki-Chin family as a whole". On the morphosyntactic side, however, the innovative character of the verbal person indexation system of the Central-SC subgroup is described by DeLancey (2014b). To compare with Monsang (§1.3), in Mizo there is no reflex of first person #-ŋ or the plural #m-; there are only traces of the second person #tV-; first person inclusive #i- is present but has become a second person marker (DeLancey in press). In a preliminary way, we see opposite developments in Monsang and Mizo that deserve further research.

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[16] The 2001 census of India reports 671,911 Mizo speakers (http://www.censusindia.gov.in/Census_Data_2001/Census_Data_Online/Language/Statement1.aspx; date of access 5/9/2017).

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