A Phonological Reconstruction of Proto-Plang

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1. Introduction

1.1 *Purpose*

The purpose of this paper is to reconstruct the phonemic system of Proto-Plang using the comparative method to examine three related languages. The languages used in this study are the Kontoi and Shinman dialects of Plang, both from Yunnan province in southwestern China, and Samtao from the neighboring border area of Burma.[1] The reconstruction will then be a basis for identifying the interrelatedness of the three languages.

1.2 *Geographical Setting*

The Plang people (in China written as Blang or Bulang) come from the Sip Song Panna area of Yunnan province. They have mostly settled between the Burma border and the Mekhong River (known as the Lancangjiang in China).

During the time of the Cultural Revolution in China (1966-1976), the Plang people started migrating out of Yunnan. They initially settled just across the Burma border around the city of Kengtung and gradually moved down into northern Thailand where the economic opportunities were greater. Most of those in Thailand have settled in a village called Baan Huay Nam Khun, 20 kilometers from the northern Thai border. Plang people from different villages and dialects in China have settled in this village, which is half comprised of Shan (Thai Yai) people as well.

[1]I am very grateful to Pateng and Yanang for sharing their language with me. And many thanks to Ronald Werth, Kenneth Gregerson and Paulette Hopple for their helpful participation in this project.

After spending several months in this village in Thailand, the author learned that there are several varieties of Plang in Yunnan province. The dialects were referred to by the Plang people by their village names; thus some of these "dialects" are merely village distinctions of linguistically identical situations, but others, possibly as many as ten varieties, are distant enough to be completely unintelligible. This appears to be the case with Kontoi and Shinman.

The *Ethnologue* (Grimes 1984) lists the Plang population as 58,476. Rough estimates by the Plang put the population of the Kontoi variety at approximately 6,000 in China, 1,000 in Burma and around 800 in Thailand. There is no census information for Shinman.

Samtao is a language spoken in the Shan state of eastern Burma in an area north of Kengtung known as the Samtao mountains. This area is heavily inhabited by people speaking various kinds of Wa and, in fact, the Samtao also refer to themselves as Wa. The Plang migrated through this area en route from China to Thailand, and a few Samtao have followed the Plang to Thailand.

No demographic statistics were available on the Samtao due to their remote location within Burma.

1.3 *Previous Studies*

For the last ten years Chinese scholars have been conducting research on Mon-Khmer languages such as Wa, Plang, Ta-ang, Mang, Hu, Kammu and Khbit (Li et al. 1988). The first knowledge of Plang outside of China was in 1976 when Jimmy Harris and Jerry Gainey recorded about a 1,000 word list from a woman in the village Baan Huay Nam Khun in northern Thailand. Gerard Diffloth (1980) used the data from this tape. He refers to the language as Samtao but the author has since met the woman who made the recording and discovered that the language she speaks is actually a variety of Plang called Man Beek. She previously lived in the region of the Samtao people but she identifies herself with the other Plangs. Thus the Samtao that Diffloth refers to is different from the Samtao treated in this study.

Some have thought that Plang and Samtao are the same language (Diffloth 1982, Grimes 1984) but that is only due to the above-mentioned confusion. They are definitely distinct languages such that speakers of one do not understand speakers of the other. The only work done previously on any of the languages used here is a phonology of Kontoi Plang (Phijitra 1986) and a brief phonological and grammatical description of Shinman Plang by Li et al. (1986). There are only slight differences between Phijitra's analysis and the one used in this study.

1.3.1 *Classification*

Plang fits into the Waic group along with Lawa, K'ala, P'uman, La and the many Wa languages. Diffloth (1980) makes Samtao (which is actually Man Beek Plang) a direct offshoot of Proto-Wa with the other Waic languages more closely related to each other, roughly diagrammed as in Fig.1.

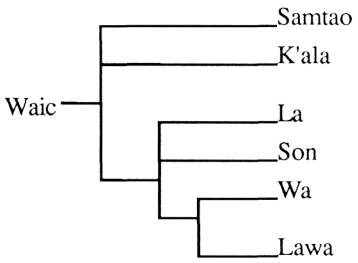

Figure 1. The Waic Languages (after Diffloth 1980)

This study will attempt to discover the relationship between Kontoi, Shinman, and Samtao, but the three languages together would fit into Fig.1 where Samtao is placed. After briefly comparing the three languages in this study with the forms that Diffloth (1980) proposes for Proto-Wa it appears that Kontoi Plang is the most similar and therefore least innovative of the three.

1.4 *Data Sources*

The data for Shinman, both the word list and the phonemic analysis, come from Li et al. (1986).

Data for the other two languages, Kontoi and Samtao, were collected by Paulette Hopple and the author in Baan Huay Nam Khun, in northern Thailand, in 1986-1987. The informants for both of these languages were approximately 45-50 years of age. The Kontoi woman had lived in a Kontoi speaking village in China until she was in her late 20's. She then lived in villages in Thailand and Burma with other Kontoi speakers, but the surrounding area for the most part consisted of Tai or Tibeto-Burman speakers. The Samtao woman lived in the area of the Samtao people until about a year and a half before the data were gathered. At that time she was living among the Plang and beginning to learn the Kontoi Plang language.

The phonemic analyses of these two languages were done by Hopple and Paulsen (1988).

2. Synchronic view of Kontoi, Shinman and Samtao

2.1 *Kontoi Plang*

2.1.1 *Kontoi Consonants*

The consonants of Kontoi are shown in Fig.2.

		labial	alveolar	palatal	velar	glottal
stops,	vl. unasp.	p	t	c	k	ʔ
	vl. asp.	p^h	t^h	c^h	k^h	
	vd.	b				
fricatives,	vl.	f	s			h
	vd.	v				
nasals,	vd.	m	n	ɲ	ŋ	
	vl.	m̥	n̥	ɲ̥		
liquids,	vd.		l			
	vl.		l^h			
	vd.		r			
semivowels,	vd.	w		y		
	vl.			y̥		

Figure 2. Kontoi Plang Consonants

/b/, /f/ and /y̥/ have a very low rate of occurrence. In Kontoi the /c/ and /c^h/ are grooved alveopalatal affricates in syllable initial position, with the /c/ having an unreleased alveopalatal stop allophone in syllable final position. The alveolar fricative has an aspirated allophone /s^h/ when initial in breathy syllables. The symbol /l^h/ represents an aspirated lateral articulated with voicing initially followed by a voiceless articulation with a greater puff of air. By auditory impression it seems that the voicing is turned off halfway through the articulation of the sound. There are no vowel-initial words in Kontoi. Words written with an initial vowel are actually articulated with an initial glottal.

Initial consonant clusters include /pl/, /kl/, /p^hr/, /k^hr/ and the nasals with /h/.

In syllable final position only /p, t, c, k, ʔ, m, n, ɲ, ŋ, l, w, y, h/ occur, with the stops being unreleased.

2.1.2 *Kontoi vowels and register*

The vowels of Kontoi are as follows:

	Front	Central	Back Unrd	Back Rd
High	i		ɯ	u
Mid	e			o
Low		a		ɔ

Figure 3. Kontoi Plang Vowels

Though they are few in number for a Mon-Khmer language, the vowels manifest much variation phonetically. The front vowels, especially in the breathy register, fluctuate in tenseness as well as in vowel height. The high front vowel has

the greatest degree of variation, with [aⁱ] freely fluctuating with [ɛ] before /k/. Generally the front vowels can be much laxer in breathy syllables.

The low central vowel /a/ has the allophone [ʌ] in a breathy syllable.

In the back rounded vowels there is again some free variation, with /u/ being realized as [o] in many environments. The [o] has an offglide[oᵊ] before /l/. In the breathy register there is only a two-way contrast in back rounded vowels between /u/ and /o/, with /o/ becoming /ɔ/ before velars.

The only contrastive glides contain a final /y/ and /w/ .

One other vowel not shown in the inventory, namely schwa [ə], only occurs in presyllables, which will be discussed later.

There are two contrastive voice qualities in Kontoi, breathy and clear. Clear voice is unmarked here, while breathy voice is symbolized with a /̰/ under the vowel, e.g. /a̰/. As has been seen in the discussion of the vowels, one of the manifestations of register is a variation in the quality of the vowels. The characteristics of the register phenomenon in Kontoi will not be discussed at length here, as a discussion of it by Paulette Hopple should be appearing soon.

2.1.3 *Kontoi Presyllables*

Words in Kontoi, as well as Shinman and Samtao, are monosyllabic, compounds of monosyllables, or single syllables with presyllables. There are two types of presyllables in Kontoi. One type generally consists of a single consonant /p, t, k, s/ and a reduced vowel /a/, phonetically [ə] . Other consonants do occur in the presyllable but very rarely. Likewise, a few other vowels can occur, but very rarely and only following /s/. The other type of presyllable is a syllabic nasal. All voiced nasals can occur as presyllables.

Presyllables are much less stable than main syllables. For example, occasional fluctuations such as /p/ ~ /k/ are only found in presyllables. The reduction of vowels to [ə] in presyllables also demonstrates this instability.

2.1.4 *Kontoi Tone*

There are two tones, high and low. The high tone is level with non-sonorant finals (˥) and rising with sonorant finals (˦). The low tone likewise is level with non-sonorant finals (˩) but falling with sonorant closure (˩̰). There also exists a high falling tone (˥̂), marked ˥˄ which only occurs with sonorant finals. It is much less frequently found and mostly in loan words.

2.2 *Shinman Plang*

2.2.1 *Shinman Consonants*

The phonology of Shinman as shown in Fig.4. is taken from Li et al. (1986).

	labial	alveolar	palatal	velar	uvular	glottal
stops, vl. unasp.	p	t	c	k		ʔ
asp.	ph	th	ch	kh	qh	
prenasal. stops, unasp.	np	nt	nc	nk		
asp.	nph	nth	nch	nkh	nqh	
fricatives, vl.	f	s			x	h
vd.	v		ʑ			
nasals, vd.	m	n	ɲ	ŋ		
vl.	m̥	n̥	ɲ̥	ŋ̊		
laterals, vd.		l				
vl.		l̥				

Figure 4. Shinman Plang Consonants

All consonants can occur syllable-initially. The palatal series is written by Li et al. as /tɕ, tɕh, ntɕ, ntɕh/. Prenasalization assimilates to the point of articulation of the following stop so that /np, nt, nc, nk/ are realized as [mp, nt, ɲc, ŋk]. The initial /l̥/ is realized as a lateral fricative [ɬ]. As in Kontoi, words written with initial vowels are articulated with an initial glottal stop. Initial consonant clusters include /pl, kl, phl, khl, npl, nkl, nphl, nkhl/.

There are ten final consonants, which are /p, t, k, m, n, ŋ, h, ʔ, l, l̥ /. The stops are unreleased. When /k/ follows the diphthongs /ei, ɛi, ai, ɔi, oi, ui, ɤi, ɯi/ or the vowel /i/ it is pronounced as a [t] , as in [veɪt^2] /veik^2/ 'intestines' The same is true of the velar nasal /ŋ/. Following the above-mentioned vowels it has the value of [ɲ] as in /paiŋ^2/ 'white' realized as [paiɲ^2].

2.2.2 *Shinman Vowels and Register*

The nine simple vowels and sixteen complex vowels of Shinman are shown in Figs. 5 and 6. All of the simple vowels can occur with each of the ten final consonants. The complex vowel nuclei have limited cooccurrence with the finals as shown in Fig. 7.

	Front	Central	Back	
			Unrd	Rd
High	i		ɯ	u
Mid	e		ɤ	o
Low	ɛ	a		ɔ

Figure 5. Shinman Plang Simple Vowels

ie	ei	ɯi	ui	ua	uai
ia	ɛi	ɤi	oi	ɤu	iau
iu		ai	ɔi	au	

Figure 6. Shinman Plang Complex Vowels

	iet			ien		ie?	iel	iel̥
iap	iat		iam	ian	ian	ia?		
						iu?		
		eik		ein	ein			
		ɛik		ɛin	ɛin			
		aik			ain			
						au?		
	uat			uan			ual	ual̥
		ɔik						
		oik						

Figure 7. Shinman Plang Complex Vowels With Finals

According to Li et al. the vowel /u/ in the combinations /ua, uat, uan, ual, ual̥/ has a lower tongue height close to [ɔ] such that /ŋual^2/ 'fire' and /puan^1/ 'meat' are pronounced [ŋɔal^2] and [pɔan^1] respectively. Similarly, the vowel /a/ in the final rhymes /iap, iat, iam, ian/ has a higher tongue height close to [ɛ]. Therefore /tiap^1/ 'flea' and /kian^3/ 'heavy' are pronounced [tiɛp^1] and [kiɛn^3].

The vowel /i/ is sometimes actually closer to [ɪ] as in [pɪu?^{3}] /piu?^{3}/ 'clothes pocket'.

In the sequences /o?/ and /ɔŋ/ the vowels are followed by a glide [^{u}]. Thus /pho?^{1}/ 'shirt' and /plɔŋ^1/ 'thatching grass' are pronounced [pho^u?^{1}] and [plɔ^{u}ŋ^1] respectively.

Li et al. do not mention any voice quality distinctions in Shinman.

2.2.3 *Shinman Presyllables*

Presyllables in Shinman are very similar to those in Kontoi. According to Li et al. the only vowel which appears in the presyllable is /a/. By far the most frequently occurring presyllables in Shinman are /ka?^{1}/ and the syllabic nasal /n/ (which is realized as a nasal at the same point of articulation as the following stop).

2.2.4 *Shinman Tone*

There are four tones in Shinman, which Li et al. describe as follows:

Tone 1	⊬	35	/taŋ^1/	'to support'
Tone 2	⊢	33	/taŋ^2/	'to carry on the back'
Tone 3	⊦	331	/taŋ^3/	'to step over'
Tone 4	⊥	21	/taŋ^4 ɤik^1/	'completely'

Tone 1 becomes a tone 4 when it occurs on the first syllable of a compound of two morphemes. Except for these compounds there are relatively few occurrences of tone 4.

2.3 *Samtao*

2.3.1 *Samtao Consonants*

The consonants occurring syllable-initially in Samtao are shown in Fig.8.

	labial	alveolar	palatal	velar	glottal
stops, vl. unasp.	p	t	c	k	ʔ
vl. asp.	p^h	t^h	c^h	k^h	
fricatives, vl.	f	s			h
asp.		s^h			
vd.	v				
nasals, vd.	m	n	ɲ	ŋ	
vl.	m^h	n^h	$ɲ^h$	$ŋ^h$	
liquids, vd.		l			
asp.		l^h			
vd.		r			
asp.		r^h			
semivowels, vd.			y		
vl.			y̥		

Figure 8. Samtao Initial Consonants

The unaspirated stop series can become voiced following a syllabic nasal. The sounds represented here by the symbols /s^h, m^h, n^h, $ɲ^h$, $ŋ^h$, l^h, r^h/ are aspirated, as in Kontoi, such that the articulation is initially voiced, then voiceless with a greater puff of air. In the voiced sounds it appears that the voicing is turned off halfway through the articulation of the consonant. The /c, c^h/ in Samtao are alveopalatal affricates.

Initial consonant clusters in Samtao consist of /pr, kr, k^h r, pl, kl, k^h l/.

Syllable-finally only /p, t, c, k, ʔ, h, m, n, ɲ, ŋ/ occur, with the stops being unreleased.

2.3.2 *Samtao Vowels and Register*

The simple vowels of Samtao are shown in Fig.9. The front vowels exhibit a transitional schwa offglide [iᵊ] before bilabials and alveolars. Also, the mid front vowel becomes open before everything but palatals. The vowel /ɪ/ only occurs in loan words from Thai. The back unrounded vowel /ɤ/ acts like the front vowels in having a transitional schwa glide before bilabials and alveolars as well as becoming the central vowel [ʌ] in low tone syllables. The back rounded vowels display the

schwa transition only before alveolar finals. Also, [u] and [o] freely fluctuate before alveolars.

		Front	Central	Back Unrd	Back Rd
High	close	i			u
	open	(ɪ)			
Mid		e		ɤ	o
Low			a		ɔ

Figure 9. Samtao Simple Vowels

The complex vowels of Samtao are shown in Fig.10. They can all occur in open syllables. Only /ai/ and /ao/ occur in syllables closed with a glottal /ʔ/. The vowels with an [a] offglide also occur before an /h/.

ia	ɤa	ua	eo	ɤi	ui
		oa	ao	ai	oi

Figure 10. Samtao Complex Vowels

Nasalization can occur with vowels following an /m/.

Samtao has two contrastive phonation types, breathy and clear. As in Kontoi, clear register is unmarked and breathy register is marked by /̤/ under the vowel, as in /a̤/. A third phonation type, which we have termed "creaky", was also found, but its relative frequency was very low, being found mainly in a limited number of phrase-final particles.[2] Thus it was determined to be non-contrastive and is therefore not marked in this data.

2.3.3 *Samtao Presyllables*

The presyllables in Samtao are very similar to those in the other languages. They consist mostly of /p, t, k, s/ with [ə], /ʔa/ and /sɪ/. A few other combinations occur as well but rarely. As with the others, syllabic nasals can also be presyllables.

2.3.4 *Samtao Tone*

There are two tones in Samtao, high and low. Rising and falling do not appear to be significant in Samtao.

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[2]Words with creaky phonation in Samtao include nos. 182, 198, 199, 230, 296, 353, 432, 469, and a final particle, *teʔ*

3. Reconstructed Consonants

3.1 *Consonant System of Proto-Plang*

The reconstructed consonant system of Proto-Plang is shown in Fig.11. All consonants occur in initial position. Word-final position can be occupied by the unaspirated stops, simple voiced nasals, *h, l, lh, r,* and *y*.

	labial	alveolar	palatal	velar	glottal
stops, vl. unasp.	p	t	c	k	ʔ
vl. asp.	p^h	t^h	c^h	k^h	
fricatives, vl.	(f)	s			h
asp.		s^h			
vd.	v				
nasals, vd.	m	n	ɲ	ŋ	
vl.	mh	nh		(ŋh)	
liquids, vd.		l			
vl.		lh			
vd.		r			
semivowels, vd.			y		
vl.			(yh)		

Figure 11. Reconstructed Proto-Plang Consonants

Table 1 shows the correspondences and correspondence sets extracted from the data. Included is a frequency count of the number of times each correspondence occurs. The frequency count includes some correspondences in which only two of the three languages have cognate items. Correspondences which are exceptions to the better attested sets or are from borrowings are not included in the chart but will be presented in the discussion that follows.

TABLE 1

REFLEXES OF PROTO-PLANG CONSONANTS

PP	Environment	Kontoi	Shinman	Samtao	no. of occurrences
*p	initial	p	p	p	49
	initial / _*l	p	p	p	3
	_*r	p^h	p^h	p	10
	final	p	p	p	23
*p^h	intial	p^h	p^h	p^h	10
*t	initial	t	t	t	59
	final	t	t	t	32
*t^h	initial	t^h	t^h	t^h	3
*c	initial	c	c	c	17
	final / back vowels _	c	k	c	21

TABLE 1 Cont.

PP	Environment	Kontoi	Shinman	Samtao	no. of occurrences
	front vowels _	c	ʔ	ʔ	3
*c^h	initial	c^h	c^h	c	2
		c^h	c		1
*k	initial / _back vowels	k	k	k	48
	_ front vowels	c	k	c	8
	_*r	k^h	q^h	k	9
		k^h	q^h	Ø	2
	_*l	k	k	k	7
	final / back vowels _	k	k	k	48
	front vowels _	k	k	c	6
*k^h	initial / _back vowels	k^h	k^h	k^h	6
	_front vowels	c^h	k^h	c^h	3
*ʔ	final	ʔ	ʔ	ʔ	86
		ʔ	Ø	Ø	6
*f	initial	f		f	1
*v	initial	v	v	v	15
	final	w	u	o	4
*s	initial	s	s	s	32
*s^h	initial	s	s	s^h	13
*h	initial	h	h	h	19
	final	h	h	h	25
*m	initial	m	m	m	47
	final	m	m	m	58
*mh	initial	m̥	m̥	m	5
		m̥	m	m	3
		m̥		m^h	1
*n	initial	n̥	n	n	13
	final	n	n	n	27
*nh	initial	n̥	n̥	n^h	2
		n̥	n̥	n	1
		n̥	n	n	1
		n̥h	n̥	n^h	1
*ɲ	initial	ɲ	ɲ	ɲ	9
	final / back vowels _	ɲ	ŋ	ɲ	11
	front vowels _	ɲ		ɲ	1
*ŋ	initial /_ back vowels	ŋ	ŋ	ŋ	15
	_front vowels	ɲ	ŋ	ɲ	3
	final / back vowels _	ŋ	ŋ	ŋ	71
	front vowels _	ŋ	ŋ	ɲ	15
*ŋh	initial /_back vowels	ŋh		$ŋ^h$	2
	_front vowels	ɲ̥	ŋ	$ɲ^h$	1
*l	initial	l̥	l	l	26
	cluster with *p, k*	l	l	l	16
	final	l	l	Ø	29
*lh	initial	l^h	l̥	l^h	9
	final	h	l̥	h	21

TABLE 1 Cont.

PP	*Environment*	*Kontoi*	*Shinman*	*Samtao*	*no. of occurrences*
*r	initial / tone 2	r	x	r	7
	tone 1	r	x	r^h	2
	cluster with *p, k*	r	∅	r	7
		r	∅	∅	3
	final	l	h	∅	11
*y	initial	y	ʑ	y	10
	final	y	i	i	35
*yh	initial	y̥	ʑ̊	y̥	1

3.1.1 *Stops*

Since the majority of the reconstructed consonants are well attested in the data, only a few examples of each correspondence will be listed. Exceptions will be explained where possible. "Initial" position means main syllable initial, with or without the presence of a presyllable.

/p/ Initial

*/p/ is found to be unchanged in each of the three languages word-initially.

*p > K p, Sh p, S p

	Kontoi	Shinman	Samtao
200. person	puɯy^2	pɤi^3	pǫi^2
298. to blow	pa̱ŋ^2	pɤŋ^2	pɤŋ^1
346. to forget	pe̱l^2	pil^2	pe̱^{2}
Exceptions to this are:			
236. bucket	poŋ^2	t^hoŋ^3	pǫŋ^2
289. window	kəvapɔŋ^1	pha?^{4} moŋ^2	pətupɔŋ^1
307. to carry child on back	----	pɔ?^{2}	kɔ?^{1}
328. to dance	hɔn^2	----	pɔn^2
422. to sweep	pe̱h^1	phil̥^{1}	piah^1

In 'window', Samtao uses the Thai word for 'door' *(prətuu)* as the first syllable of this compound. Kontoi uses the Plang form for 'door' *(kəva?)*. The word in Shinman appears to be noncognate. Shinman shows the expected unaspirated *p* in *npih* [1]'broom', an affixed form of 'sweep'.

*Initial before */l/*

*p > K p, Sh p, S p

77. thatching grass	plɔŋ^1	plɔŋ^1	ploŋ^1

257. liquor	play^{1}	plai^{1}	plai^{1}
381. to open (eyes)	plaŋ^{1}	----	plẹn^{2}

Two items do not follow this pattern:

114. land leech	aplẹŋ^{1}	kliŋ^{1}	piɲ^{1}
421. to swallow	nnɯt^{2}	plɯt^{2}	plon^{1}

'land leech', is a borrowing from Thai /pliŋ/. For 'to swallow', Diffloth (1980) reconstructs*$ntɔt$ for Proto-Waic, a form similar to Kontoi Plang, but he says there is very little evidence for it yet. Given this Proto-Wa form, Kontoi, as is true in most cases, is the most conservative in respect to the parent language, and the Samtao form may not even be cognate.

Initial before */r/*

Before */r/, the unaspirated *p* becomes aspirated in Kontoi and Shinman. This is a common phenomenon in Mon-Khmer languages. It is seen in South Wa and in BoLuang and Phae Lawa, to name a few in the Waic branch (Diffloth 1980).

*p > K p^{h} , Sh ph, S p

130. wing	p^{h} rɯc^{1}	phɤik^{1}	pruc^{1}
509. spicy	səp^{h} rịc^{2}	kaʔ^{4} phɛiʔ^{1}	səpraiʔ^{1}
275. shirt	p^{h} rọʔ^{2}	phoʔ^{1}	----
491. old (object)	p^{h} rẹm^{1}	----	prim^{1}

In Kontoi the */r/ has caused aspiration and remains intact itself, while in Shinman aspiration has developed and the */r/ has been absorbed as well.

A rule summarizing this phenomenon of aspiration in Kontoi and Shinman can be written:

$$(1) \quad \begin{bmatrix} \text{-cont} \\ \text{-nas} \end{bmatrix} \rightarrow [\text{+asp}] \; /\_\text{r}$$

The */r/ deletion rule will be discussed later.

Final

*p > K p, Sh p, S p

60. grass	arẹp^{2}	xep^{2}	rɤp^{2}
105. flea	atep^{1}	tiap^{1}	tip^{1}
276. shoes	c^{h} ep^{1}	khiap^{2}	c^{h} ep^{1}

Again there is no change in the stop from the parent language to the daughter forms.

One exception to the above occurs in :

378. to meet	k^{h}rɯp^{1}	qhɤp^{1}	k^{h}ɤt^{1}

/pʰ / Initial

*pʰ > K pʰ , Sh pʰ , S pʰ			
284. table	pʰɯn¹	phɯn²	pʰʏn¹
414. to split	pʰaʔ¹	pha²	pʰa¹

The aspirated bilabial stop is thus retained in all three languages.

There is a slight tendency for Shinman to lose aspiration which is seen throughout the series of stops, as is, for example, found in items 345 and 395.

345. to fly	pʰ ɯl¹	pʏh¹	pua¹
395. to ride	pʰ ɔk²	pɔk²	po̤k²

Irregular correspondences include:

290. wok	pəcʰiŋ¹	phaʔ⁴ chɛiŋ²	m̥pa¹
192. male in-law	apu̥ʔ¹	konphau¹	----
499. sharp pointed	səpɯc¹	kaʔ⁴ pɛik²	m̥pʰoc¹
88. bee	apʰel¹	phɛh¹	hia²

The first example is most likely irregular due to the unstable nature of presyllables. There are only four items which contain a /b/ (116, 235, 256, 407), these occurring in Kontoi, and three of these follow a syllabic nasal. The asymmetry of such isolated *b* 's, no other voiced stops being found, would justify not reconstructing a proto-voiced bilabial stop at the Proto-Plang level. There is no doubt that voiced stops did exist at an older stage of the language. Diffloth (1980) reconstructs them at the Proto-Wa level but they appear to be all but gone by the time of Proto-Plang.

/t/ Initial

*t > K t, Sh t, S t			
31. smoke	to̤ʔ¹	tuʔ¹	taoʔ¹
65. mushroom	ta̤h¹	tɯl̥¹	tiah¹
96. crab	kətam¹	kaʔ⁴ tam¹	tam¹

There are only two exceptions to this set:

49. bud	tom¹	----	alom¹
524. here	teʔ²	manniʔ¹	kətiŋ¹

In the word for 'here' in Shinman there appears to be a morphophonological alternation, where the */t/ becomes an /n/ following /n/ in the previous syllable.

Final

*t > K t, Sh t, S t			
78. thorn	kat¹	kat¹	kat¹
243. comb	n̥sat¹	nsat¹	sot¹
296. to bite	cet²	kɛt²	cet²

As with the bilabial stop, the alveolar stop remains the same for each of the languages. There are two nonuniform correspondences for */t/.

100. duck	ɛlkat^{1}	ɛh^{1} kap^{2}	ia^{2} kla?^{1}
387. to point	səcit^{1}	----	cẹ^{2}

Both of these show a weakening of the final consonant in Samtao, to a final ? in 'duck', and complete deletion in 'to point'.

**/t^{h}/ Initial*

*t^{h} > K t^{h} , Sh th, S t^{h}

314. to clap	t^{h}ɔp^{2}	nthop^{2}	ṇt^{h}ap^{2}
2. cave	t^{h}am^{2}	----	təth^{h}am^{1}
301. to breathe	t^{h}ɔ̣y^{1} p^{h}ọm^{1}	----	t^{h}ui^{1}p^{h}om^{1}

There is a tendency toward deaspiration of these stops in Shinman and Samtao, as in the bilabial stops.

91. butterfly	t^{h}aŋl^{h} ak^{1}	taŋ^{1} klau^{3}	taŋŋalak^{2}
233. rice bowl	t^{h}al^{h} ɯy^{1}	----	təl^{h} ai^{1}
286. tray	t^{h}aleph an^{1}	----	təlaiteŋ^{1}
288. wall	ṇt^{h}al^{2}	ntal^{2}	ta?^{1}

The first three items may be accounted for by the instability of presyllables. It appears that the first syllable of each of these is in the process of shortening in moving from Kontoi to Shinman to Samtao.

**/c/ Initial*

*c > K c, Sh c, S c

154. foot	coŋ^{2}	cuŋ^{3}	coŋ^{2}
416. to stand	cɔŋ^{2}	cuŋ^{3}	cọŋ^{2}
98. sambhar deer	kɔncak^{1}	----	kɔncak^{1}
531. side/end	----	man^{4} cɛiŋ^{2}	kəceŋ^{2}

Three exceptions to this are:

402. to sew	cẹŋ^{2}	ciŋ^{3}	keŋ^{2}
291. able	caŋ^{2}	ɀoŋ^{3}	----
330. to do	yuh^{2}	----	co?^{1}

The first item probably belongs to the above set of c/c/c. The /k/ in Samtao is very fronted and at times sounds palatal. This slight shifting in position before a front vowel is easily allowed as there is no contrast between /c/ and /k/ before front vowels in Samtao.

The third item may not be cognate. Diffloth (1980) has the proto-form of 'to do' as **yɒh* , with none of his languages showing a /c/ initial or a /ʔ/ final. This makes the Samtao form seem an unlikely cognate.

Final

The first correspondence set occurs after back vowels in Kontoi.

*c > K c, Sh k, S c

159. intestines	vɯc^2	veik^2	vec^2
336. to enter	lɯc^2	lɛik^2	lec^2
439. to wash dishes (Samtao-wash face)	kʰo̤c^1	khoik^1	kʰoc^1

As was mentioned in the Shinman phonology, the final /k/ in the environment of /i/ is actually a pre-palatal stop, so no rule is needed to account for any change in Shinman.

Another correspondence set for */c/ occurs following high front vowels in Kontoi.

5. day	nɯmɲi̤c^2	ka?^{4} ŋi?^{2}	ŋɔnsiŋɲe?^{2}
19. moon	raŋkʰi̤c^2	khaŋ^4 khi?^{1}	raŋkʰi?^{1}
509.spicy	səpʰri̤c^2	ka?^{4} phɛi?^{1}	səprai?^{1}

Again Kontoi is the most conservative, while in both Shinman and Samtao /c/ weakens to a glottal stop /ʔ/ following a proto-front vowel. This weakening is expressed in the following rule:

(2) $\begin{bmatrix} -\text{cont} \\ -\text{nas} \\ -\text{ant} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{glottal} \\ -\text{cor} \end{bmatrix} / \begin{bmatrix} +\text{syl} \\ -\text{back} \end{bmatrix} \_\#$

Two irregular correspondences also exist, each with just one example:

389. to pull	yac^2	ʑat^2	----
392. to reap rice	vạc^2	vuik^2	vɔk^2

/cʰ/ Initial

There are so few occurrences of /cʰ/ that a reconstruction, though plausible, is very tentative.

*cʰ > K cʰ , Sh ch, S c

440. to wear	cʰo̤p^1	chup^2	cɪp^1
290. wok	pəcʰiŋ^1	pʰ a?^{4}chɛiŋ^2	ṃpa^1

*cʰ > K cʰ, Sh c

364. to kick	ṇcʰah^1	cal^1	----

As with **p* and **t*, there is a tendency toward deaspiration in Shinman.

There is one occurrence of the aspirate /cʰ / in Samtao:

445. to whistle	soc^1	----	ṇcʰoc^1

And a similar occurrence in Shinman:

488. new	so̤?^{1}	chu?^{1}	----

Diffloth (1980) gives a proto-form for 'new' as **croʔ*. Evidence from Wa and Lawa shows there was an /r/ cluster in the proto-form which would explain the aspirate found in Proto-Plang. Due to the lack of sufficient data no rule will be proposed for the /c^h/ correspondence set.

/k/ Initial

The first set of reflexes for */k/ occurs before back vowels:

*k > K k, Sh k, S k

78. thorn	kat^1	kat^1	kat^1
121. rat	kɔnkaŋ^2	kaŋ^3	kɔnkaŋ^2
231. bottle	kuŋ^1	kaŋ^4 kiauʔ^1	koŋ^1

And before front vowels is the set:

*k > K c, Sh k, S c

28. salt	cẹh^2	kiḷ^2	cịah^2
59. ginger	səcẹŋ^1	saʔ^4 kiŋ^1	səciŋ^1
296. to bite	cet^2	kɛt^2	cet^2

This change can be captured with a rule of palatalization:

$$(3) \qquad [\text{-cont}] \rightarrow \begin{bmatrix} +\text{high} \\ -\text{back} \end{bmatrix} \; / \; \_\_[\text{-back}]$$

This rule applies to both Kontoi and Samtao.

The following is irregular:

518. wet	səkuʔ^1	----	cɤʔ^2

*Initial before */l/*

*k > K k, Sh k, S k

101. eagle	klaŋ^1	klaŋ^1	klaŋ^1
309. to carry on shoulder	klɔm^1	klɔm^1	klɔm^1
470. fat	kluŋ^1	klɤiŋ^1	kluŋ^1

There is one curious exception to this where the /k/ disappears in Shinman:

132. armpit	cokklik^1	nlɛk^1	kɤm^2 klec^1

*Initial before */r/*

In clusters with */r/ the most common correspondence set is:

*k > K k^h , Sh qh, S k

87. bear	k^hṛih^1	qhiḷ^1	krɤh^1
90. buffalo	ak^{h}rak^1	qhak^1	krak^1
174. throat	k^hrọŋ^2	qhoŋ^1	kraŋ^1

This development is similar to what happens with the bilabial stop. The */r/ creates aspiration in both Kontoi and Shinman and is itself retained in Kontoi but absorbed in Shinman. The presence of the */r/ has also created a uvular stop /qh/ in Shinman. The quality of */r/ will be discussed in the section 3.1.4 under */r/. The rule of aspiration is the same as for */p/ in Rule (1).

A second rule in Shinman lowers back consonants subject to the above rule.

(4) $\begin{bmatrix} \text{-cont} \\ \text{-nas} \\ \text{+back} \end{bmatrix} \rightarrow$ [+low] / __r

There are two other instances of this same type of correspondence except that the /k/ is lost in Samtao:

493. red	səkʰrak¹	kaʔ⁴ qhak¹	sərak¹
122. snail	səkʰroc¹	----	səroc¹

There are a few cases where the */r/ has produced aspiration in Samtao as well:

378. to meet	kʰrɯp¹	qhɤp¹	kʰɤt¹
337. to fall	----	qhɯik¹	kʰɤc¹
279. sieve	akʰrɯŋ¹	----	kʰrɤŋ¹

The */r/ is still seen in Kontoi and its effects are evident in Shinman, but it does not occur in Samtao in the first two words.

There are two other irregularities. One is the word for 'hug', which is a borrowing from Thai /kɔ̀ɔt/.

360. to hug	kʰɔt²	----	kɔt² ŋŋɔk²
398. to scratch	hac¹	----	krac²

Final

*k > K k, Sh k, S k

This set occurs following back vowels as seen in these examples:

107. frog	arọk²	xɔk²	rok¹
156. hair	hạk¹	hɯk¹	hɤk¹
165. neck	ŋuk²	ŋɔk²	ŋɔk²

Then following front vowels there is:

*k > K k, Sh k, S c

118. pig	kɔnlịk¹	lik²	kɔnlẹc²
132. armpit	cokklik¹	nlɛk¹	kɤm² klec¹
429. to throw out	tik²	----	tic¹

Palatalization in Samtao is expressed by the following rule:

(5) [-cont] $\rightarrow \begin{bmatrix} \text{+high} \\ \text{-back} \end{bmatrix}$ / [-back]__

There are two exceptions to the final */k/ correspondences:

91. butterfly	tʰaŋlʰak¹	taŋ⁴ klau³	taŋŋalak²
408. to dry in sun	hɔk¹	qhah¹	hok¹

The form for 'to dry in sun' in Shinman appears to be non-cognate.

/kʰ/ Initial

Before back vowels the following correspondence is found:

*kʰ > K kʰ, Sh kh, S kʰ

79. tree	kəlɯm	kʰ ụʔ¹khuʔ¹	nom² kʰ aoʔ¹

439. to wash dishes	kʰo̤c¹	khoik¹	kʰoc¹

And before front vowels the correspondence is:
*kʰ > K cʰ , Sh kh, S cʰ

10. firewood	cʰi̤ʔ¹	khiʔ¹	cʰiʔ¹
276. shoes	cʰep¹	khiap²	cʰep¹

This is the same process which occurs in the unaspirated velar stop and is accounted for by Rule (3).

One exception occurs in number 277, a borrowing from Thai /kʰěm/ 'needle, syringe'.

277. shot of medicine	tiŋkʰem¹	----	tʰocʰɪm¹

/ʔ/ Final

*ʔ > K ʔ, Sh ʔ, S ʔ

10. firewood	cʰi̤ʔ¹	khiʔ¹	cʰiʔ¹
109. goat	apeʔ²	pɛʔ⁴	peʔ¹
191. husband	kəmiʔ²	kaʔ⁴ meʔ²	ameʔ¹
214. I	uʔ²	ɯʔ¹	ɤʔ¹

Glottal closure seems to be disappearing in both Samtao and Shinman, as demonstrated by the following items:

39. wet rice field	ti̤ʔ naʔ¹	naʔ⁴	na²
148. face	----	n̥aʔ⁴	nʰ a¹
229. boat	vayrɯʔ¹	x̥ɤʔ⁴	rɤ²
264. pair	təkṳʔ²	kuʔ⁴	təkọ²
533. spatial/front	lak² n̥n̥aʔ¹	kha² n̥aʔ²	kraʔnʰa¹
1. ashes	pɯyṳʔ¹	kaʔ⁴ ʑu²	ɲoʔ²
51. corn	sɛlẹʔ¹	saʔ⁴le²	sılẹ²
355. to grind	m̥m̥ɔʔ¹	mɔ²	mɔ²
414. to split	pʰ a̤ʔ¹	pha²	pʰa¹
526. left side	avi̤ʔ¹	kha² kaʔ⁴ ve²	kraʔveʔ¹
532. space behind	----	kha² qhɯʔ²	kraʔkri¹
553. where	naŋnɔʔ¹	man⁴ muʔ⁴	təmɔ²

The first five words have similar forms in Thai, but without glottal closure. All but 'pair' are similar enough that they may have been relatively recent borrowings.[3] Thus the lack of glottal in Samtao in these words may be due to borrowing at a time when Plang had almost all closed syllables but Samtao allowed open syllables.

There is one exception to the glottal correspondences:

536. with	may¹	----	meʔ

This word is never found in isolation and is never stressed. Thus in rapid speech the vowel and final semivowel of Kontoi are probably coalesced into /e/ with very slight glottal closure.

---

[3]Though rice is a staple of the Plang, they grow mountain rice, not wet rice. So it is very likely that 'wet rice field' is a borrowing.

3.1.2 *Fricatives*

**/f/*

Although /f/ occurs in each language, there is only one cognate set in the data involving an /f/.

108. gibbon	faʔ^{1}	----	kɔnfaʔ^{1}

It seems likely that there was an infrequently occurring /f/ at the Proto-Plang stage (just as it is infrequent in the modern languages), but its reconstruction is very tentative on the basis of one word.

/v/ **Initial*

*v > K v, Sh v, S v			
128. tiger	kɔnvay^{2}	kaʔ^{4} vai^{3}	avai^{2}
159. intestines	vɯc^{2}	veik^{2}	vec^{2}
173. thigh	kəvaŋ^{2}	kaʔ^{4} vaŋ^{1}	avaŋ^{2}

There are two other occurrences of /v/:

181. female in-law	avɔy^{1}	oi^{1}	oɪ^{1}
432. to twist/wring	vet^{2}	miet^{4}	yot^{2} yet^{2}

The phonetic value of the /v/, at least in Kontoi and Samtao, is very similar to a [w] and thus understandably lost before a back rounded vowel with semivowel or no closure. The cause of variation in initial position in 'twist' is not clear.

Final

*v > K w, Sh u, S o			
467. drunk	mawrəplay^{1}	mau^{3}	mao^{2} kəplai^{1}
16. moment	kʰraw^{2}	----	təkrao^{1}
50. coconut	makpaw$^{1\grave{}}$	----	makpao^{2}

Since both the first and third forms are suspected borrowings from Thai, the final *v is not well attested. (See also 83, 167, 447 and 457.) Remnants remain of a final [w], but further evidence is needed to support positing it in Proto-Plang.

/s/ **Initial*

*s > K s, Sh s, S s			
262. mosquito net	sụt^{1}	sut^{2}	ŋkaŋsut^{1}
335. to eat (rice)	som^{1}	som^{1}	som^{1}
385. to plant	n̥sɯm^{1}	nsɤm^{1}	sum^{1}

*/s/ remains unchanged.

103. elephant	kaʔ^{4} saŋ^{1}	sʰaŋ^{1}	

/sʰ/ Initial

*sʰ > K s, Sh s, S sʰ

89. bird	sẹm^{1}	sim^{1}	sʰim^{1}
99. dog	su?^{1}	so?^{1}	sʰo?^{1}
103. elephant	kəsaŋ^{1}	ka?^{4} saŋ^{1}	sʰaŋ^{1}

*/s/ and */sʰ/ have merged in Kontoi and Shinman. This merger is expressed in the following rule of sibilant deaspiration:

$$(6) \quad \begin{bmatrix} +\text{cont} \\ -\text{son} \\ +\text{cor} \end{bmatrix} \rightarrow \quad [\text{-asp}] \ / \ \$\_\_$$

/h/ Initial

*h > K h, Sh h, S h

156. hair	hạk^{1}	hɯk^{1}	hɤk^{1}
294. to bathe	hạm^{1}	hɯm^{1}	hɤm^{1}
351. to go	hɯl^{1}	hɤl^{1}	hu^{1}
459. clever	hiŋ^{1}	----	heɲ^{1}

The following are irregular correspondences with /h/.

188. friend	ay^{1}	----	səhai^{1}
334. to dry in sun	hɔk^{1}	qhah^{1}	hok^{1}
411. to smell good	hum^{1}	xɔm^{2}	hom^{1}

The second item was mentioned previously (under final */k/) as having a non-cognate form in Shinman. The third word is a borrowing from the Thai /hɔ̌ɔm/, 'to smell good'.

Final

*h > K h, Sh h, S h

352. to go down	lẹh^{2}	lih^{2}	lẹh^{2}
433. to untie	kah^{1}	kah^{1}	kah^{1}
468. dry	sə?uh^{1}	ka?^{4} oh^{1}	kroh^{1}

Unique correspondences are:

137. body	iktoh^{2}	nɤ?^{4} tu?^{1}	to^{1} meɲ^{2}
330. to do	yuh^{2}	----	co?^{1}
350. to give	kah^{2}	ka?^{2}	----
427. to tell	lah^{2}	la?^{1}	----

The second item 'do' does not appear to be cognate. The others show */h/ becoming a glottal stop /ʔ/.

3.1.3 *Nasals*

/m/ Initial

*m > K m, Sh m, S m			
30. silver	mạl^2	kaʔ^4 mɯl^2	mɤ^2
194. mother	amaʔ^2	maʔ^2	maʔ^2
210. wife	mạɲ^2	kaʔ^4 muiŋ^3	amɤɲ^2

The only exceptions involve the question words, which show some unusual correspondences.

553. where	naŋnɔʔ^1	man^4 muʔ^4	təmɔ^2
550. who	anɔʔ^1	----	mo^1 mɔ^2
552. when	nɯmnɔʔ^1	----	ɲammɔ^2
551. what	kənɔʔ^1	kaʔ^4 ṇa^2	miʔmɔ^2

Final

*m > K m, Sh m, S m			
38. water	um^1	um^1	rom^1
41. year	nɯm^2	nɤm^3	nom^2
72. rice husk	kam^1	kam^1	ŋkam^1

*/m/ did not undergo any systematic sound changes in the daughter languages.

/mh/ Initial

Several languages within the Waic sub-branch have sonorant with /h/ clusters (Diffloth 1980). In Bo Luang and Kawa this cluster is analyzed as *h + sonorant*, while North Lawa has *sonorant + h* clusters. Also Palaung and Khmu outside of Waic have *h + sonorant* clusters. These clusters correspond to voiceless nasals and liquids in Plang. Samtao shows a more linear relation of *sonorant + h* similar to North Lawa, though there seems to be a voicing process active in Samtao causing the voiceless component of this cluster to be lost. In reconstructing a series of sonorants with a voiceless component, the question arises as to whether the proto-segments consisted of a linear sequence of *sonorant + voicelessness* or a simultaneous coarticulation of these two features. Since both Samtao and Kontoi show evidence of a linear cluster in the order *sonorant + h* (items 71, 86, 136, 448, *nasal + h* in Samtao and *l^h* in both Samtao and Kontoi), this combination will be proposed for Proto-Plang.

The most common correspondence for */mh/ is:

*mh > K m̥, Sh m̥, S m			
311. to catch	m̥m̥ɯt^1	m̥ɯt^1	mut^1
158. heart	m̥m̥ɯlp^{h}om^1	m̥ul^1	----
185. doctor	m̥ɔʔ^1	m̥ɔʔ^2 ʑaʔ^1	----
340. to feel	m̥ɔŋ^1	----	moŋ^1

These show that the *voiceless + nasal* */mh/ is losing its voiceless feature in Samtao and thus merging with */m/. Though occurring less frequently, the same process of voicing is going on in Shinman.

271. mtn.rice field	m̥al^{1}	mah^{1}	ma^{1}
273. rope	m̥u?^{1}	mu?^{1}	mao?^{1}
355. to grind	m̥m̥ɔ?^{1}	mɔ^{2}	mɔ^{2}

This tendency toward nasal voicing in Samtao and Shinman may be expressed in the following rule:

$$(7) \quad \begin{bmatrix} +\text{cons} \\ +\text{son} \end{bmatrix} \rightarrow [+\text{voice}] \ / \ \#\_\_$$

/n/ Initial

*n > K n, Sh n, S n

41. year	nɯm^{2}	nɤm^{3}	nom^{2}
508. sour	n̥na?^{2}	na?^{2}	na?^{2}
529. outside	lak^{2} nɔk^{2}	kha^{2} nok^{2}	nɔk^{2}

There are a few exceptions:

18. first month	nɯncin^{1}	nɤn^{1} ciŋ^{1}	lɤnceɲ^{1}
506. smooth	kənul^{1}	----	ɲo^{1}
552. when	nɯmnɔ?^{1}	----	ɲammɔ^{2}

The first word is a borrowing, in fact the whole calendar system is borrowed from Tai. In central Thai 'month' is [dɯᵊn] and in Shan (Thai Yai), the variety of Tai which is Plang's closest neighbor geographically, it is [lɯᵊn].

The morpheme being compared in 'when' means 'year' in Plang and is used in many time-related words, e.g. /nɯmkn̥?^{1}/ 'yesterday'. But the equivalent form for 'year' in Samtao is /nom^{2}/, so the form /ɲam/ in Samtao 'when' is not derived from /nom^{2}/ 'year'.

Final

*n > K n, Sh n, S n

211. woman	m̥pɯn^{1}	ka?^{4} pɤn^{1}	kɔnpun^{1}
348. to get	pn̥^{2}	pon^{2}	pun^{2}
384. to place/put	an^{1}	ɯn^{1}	ɤn^{1}

Two exceptions to this involve final /t/:

421. to swallow	n̥nɯt^{2}	plɯt^{2}	plon^{1}
415. to squeeze	----	miet^{1}	men^{1}

The questionable status of the first word was already discussed in the section on */p/ before */l/. In the second word the */n/ has become a final voiceless stop in Shinman following a common trend in Asian and other languages for final nasals to become voiceless stops and for voiceless stops to weaken to a glottal stop. The finals in Burmese exhibit a similar process (Paulette Hopple, personal communication).

**/nh/ Initial*

The alveolar *nasal + h* acts in a way similar to the bilabial. There is an increase in voicing from Kontoi to Shinman to Samtao. The following correspondences reflect this.

*nh > K n̥, Sh n̥, S n^h			
533. spatial/front	lak^2 n̥n̥a?^{1}	kha^2 n̥a?^{2}	kra?n^ha^1
*nh > K n̥, Sh n̥, S n			
178. urine (Kontoi-'to urinate')	n̥a̤m^1	n̥ɯm^1	nɤm^2
*nh > K nh, Sh n̥, S n^h			
136. blood	nham^1	n̥am^1	n^ham^1
*nh > K n̥, Sh n, S n			
265. paper/poster	kənn̥at^1	ka?^{4} nat^2	kənat^1

This change would best be described by saying that Samtao and, to a lesser degree, Shinman have a tendency toward losing the voiceless component of *nasal + h* clusters. Rule (7) thus applies to the alveolars as well.

There is one other correspondence which may belong to the set of */nh/.

322. to count	nhi̤n^1	sin^2	amɛ̤n^2

It seems possible that the voiceless friction of the */nh/ became an alveolar fricative in Shinman while the process of nasal voicing occurred in Samtao. The cause of the change in point of articulation is not immediately apparent.

**/ɲ/ Initial*

*ɲ > K ɲ, Sh ɲ, S ɲ			
253. house	ɲa?^{2}	ɲa?^{2}	ɲa?^{2}
420. to stretch	ɲat^1	ɲat^1	ɲat^1
397. to rub	ɲɯlɲal^1	----	ɲɤ̤^{2}

For the majority of cases there is no change from the parent form, but there is a weakening process going on which significantly affects both Shinman and Samtao.

*ɲ > K ɲ, Sh ʑ, S y			
366. to know	ɲɔŋ^2	ʑoŋ^3	yɔ̤ŋ^2
399. to see	ɲṳ?^{2}	ʑu?^{1}	yo?^{2}
94. cock's comb	ɲat^2	ka?^{4} ʑat^1	----
555. if	ɲṳ?^{2}	----	yu

This weakening process in Shinman and Samtao would be expressed as:

$$(8) \quad \begin{bmatrix} +\text{son} \\ +\text{high} \\ -\text{back} \end{bmatrix} \rightarrow [\text{-nas}] \; / \; \$$$

There is one other correspondence belonging to */ɲ/.

263. needle	pəɲi?[1]	ka?[4] ɲe?[1]	ane?[1]

Final

Final */ɲ/ acts just like the palatal stop. Following back vowels it is:

*ɲ > K ɲ, Sh ŋ, S ɲ

33. star	səmɯɲ[1]	ka?[4] mɤiŋ[1]	səmuɲ[1]
186. father	akạɲ[1]	kɯiŋ[1]	kɤɲ[1]
404. to shoot	pɯɲ[1]	pɤiŋ[1]	puɲ[1]

Just as in the oral stops there is no need to devise a rule for the alternate form in Shinman, as /ŋ/ following a glide /Vi/ is realized as a palatal nasal [ɲ].

One would expect a reflex of ɲ/ɲ/ɲ following front vowels as with the stops. The only evidence of this rule is in an incomplete correspondence:

369. to lean	səciɲ[1`]	----	səceɲ[2]

A similar process of weakening happens in final position. It takes on two different forms:

523. far	səŋaɲ[1`]	ka?[4] ŋai[3]	sɪŋai[2]
36. today	səɲeɲ[1]	----	iɲe?[2]

The second example is parallel to what happens with the oral palatal stop. For */c/ in final position we had the correspondence c/ʔ/ʔ. Again Kontoi is the most conservative in retaining the older form.

One other correspondence could be a variation of this weakening process:

162. mouth	----	ntuiŋ[3]	n̥tut[1]

/ɲʰ/

Although the voiceless palatal nasal (or its counterpart /ɲʰ/ in Samtao) occurs in the sound inventory of each of the three languages, there are no cognate sets showing voiceless palatal nasal reflexes in our data. Thus a proto-segment */ɲh/ cannot be reconstructed here.

/ŋ/ Initial

Just as with the velar stop */k/, the velar nasal */ŋ/ has two reflexes, one before back vowels and the other before front vowels.

*ŋ > K ŋ, Sh ŋ, S ŋ

Velar nasals occur before back vowels in each language.

9. fire	ŋol[2]	ŋual[2]	ŋ̥ʔ[2]
74. sesame	kəŋaʔ[2]	l̥aʔ[4] ŋaʔ[2]	aŋaʔ[2]
145. eye	ŋay[1]	ŋai[1]	ŋai[2]

Before front vowels the following correspondence is found:

*ŋ > K ɲ, Sh ŋ, S ɲ

5. day	nɯmɲic^{2}	kaʔ^{4} ŋiʔ^{2}	ŋɔnsiɲɲeʔ^{2}

This palatalization in Kontoi and Samtao has already been expressed in Rule (3) for */k/.

There are three irregular correspondences.

160. knee	ŋay^{1} ŋoŋ^{1}	ŋai^{1}kaʔ^{4}qhoŋ^{2}	ŋʏiŋɔŋ^{2}
453. beautiful	ŋam^{2}	ŋom^{1}	----
501. short (length)	nɯŋ^{1}	ŋeiŋ^{1}	ɲeɲ^{1}

Final

In final position */ŋ/ likewise has two reflexes. After back vowels:

*ŋ > K ŋ, Sh ŋ, S ŋ

21. mountain	ŋkoŋ^{2}	nkɔŋ^{3}	ŋkɔŋ^{2}
77. thatching grass	plɔŋ^{1}	plɔŋ^{1}	ploŋ^{1}
112. hornet	aʔuŋ^{1}	ɔŋ^{1}	ɔŋ^{1}

After front vowels:

*ŋ > K ŋ, Sh ŋ, S ɲ

59. ginger	səcɕŋ^{1}	saʔ^{4} kiŋ^{1}	səciŋ^{1}
394. to return	ɕŋ^{1}	iŋ^{1}	iŋ^{1}
402. to sew	*cɕŋ^{2}*	*ciŋ^{3}*	*keɲ^{2}*

The palatalization in Samtao is covered by Rule (5).

There is also an example of weakening:

515. tired	sətɯŋ^{1}	kaʔ^{4} tʏŋ^{1}	tʏʔ^{2}

and one case of nasal assimilation:

152. index-thumb	tɯŋtaʔ^{2}	----	tentaʔ^{2}

Number 226 is an example of syllable shortening to form a presyllable:

226. axe	taŋmet^{1}	----	təmet^{1}

Other irregular correspondences are:

18. first month	nɯncin^{1}	nʏn^{1} ciŋ^{1}	lʏnceɲ^{1}
259. mat	ŋriŋ^{2}	----	ŋkrɕ^{2}
370. to lick	liŋ^{2}	liat^{2}	leɲ^{2}
381. to open (eyes)	plaŋ^{1}	----	plɕn^{2}
388. to pound	ŋklɔŋ^{1}	----	ŋklʏh^{1}
430. to trap	toŋ^{1}	----	tom^{1}

/ŋh/ Initial

Evidence for a */ŋh/ exists in the data, but only three cognate items were found in support of it.

151. fingernail	ŋn̥ẹm^{1}	ŋim^{1}	ɲ^{h}em^{1}
71. paddy rice	ŋhuʔ^{1}	----	ŋhuʔ^{1}
448. to yawn	ŋhap^{1}	----	ŋhap^{1}

Thus a reconstruction of */ŋh/ needs more data for confirmation.

3.1.4 *Liquids*

/l/ Initial

*l > K l, Sh l, S l

118. pig	kɔnlik^{1}	lik^{2}	kɔnlęc^{2}
168. pus	lạm^{2}	lɯm^{2}	lɤm^{2}
258. market	lah^{2}	kaʔ^{4} laḷ^{2}	alah^{2}

*/l/ remains unchanged in syllable-initial position, with one exception:

80. clsf.for tree	lɯm^{1}	kaʔ^{4} lɤm^{1}	l^{h}em^{1}

In Clusters

*l > K l, Sh l, S l

55. fruit	pli̥h^{2}	pliʔ^{1}	pliʔ^{1}
77. thatching grass	plɔŋ^{1}	plɔŋ^{1}	ploŋ^{1}
101. eagle	klaŋ^{1}	klaŋ^{1}	klaŋ^{1}

Two correspondences do not fall into this category:

100. duck	el^{1} kat^{1}	ɛh^{1} kap^{2}	ia^{2} klaʔ^{1}
114. land leech	apẹŋ^{1}	kliŋ^{1}	piŋ^{1}

Final

*l > K l, Sh l, S Ø

9. fire	ŋol^{2}	ŋual^{2}	ŋɔ̰^{2}
53. cucumber	acel^{1}	kaʔ^{4} kel^{1}	ci^{1}
135. belly	kətɯl^{2}	kaʔ^{4} tɤl^{2}	tɔ̰^{2}

The deletion of /l/ in Samtao can be summarized as:

$$(9) \quad \begin{bmatrix} +\text{son} \\ +\text{lat} \end{bmatrix} \rightarrow \emptyset \; / \; \_\$$$

There is one exception to this:

288. wall	n̥t^{h}al^{2}	ntal^{2}	taʔ^{1}

**/lh/ Initial*

*lh > K lʰ, Sh l̥, S lʰ			
339. to fear	lʰat¹	l̥at¹	lʰat¹
511. tall	lʰo̤ŋ¹	l̥oŋ¹	lʰaŋ¹
521. yellow	lʰɯŋ¹	l̥ɤŋ¹	pəlʰɤŋ¹

Again Samtao has a tendency toward voicing, as in the nasals, seen in the following items:

*lh > K lʰ, Sh, l̥, S l			
14. iron	----	l̥ɛk²	lec¹
25. rain	lʰiʔ¹	l̥ɛʔ¹	leʔ¹
61. leaf	lʰaʔ¹	l̥aʔ¹	laʔ¹

The rule for nasal voicing (#7) applies here as well.

The exceptions to these sets are:

155. forehead	ŋciŋlʰel¹	xɛl¹	nari¹
514. thin	lʰe̤l¹	ʑih¹	rʰi¹

It is rather doubtful that the forms for 'thin' are cognate. Nor does it seem likely that the Samtao form for 'forehead' is cognate with the others.

Final

*lh > K h, Sh l̥, S h			
28. salt	ce̤h²	kil̥²	ci̤ah²
45. banana	kəmɔh¹	kaʔ⁴ mual̥²	amoah²
65. mushroom	ta̤h¹	tɯl̥¹	tiah¹

The voiceless component of */lh/ is all that remains in final position in Kontoi and Samtao. The following rule states this change:

$$(10) \quad \begin{bmatrix} +\text{son} \\ +\text{lat} \end{bmatrix} \rightarrow \emptyset \; / \; \_\text{h\$}$$

**/r/ Initial*

There are two reflexes of initial */r/ in complementary distribution with each other. Syllables with tone two have this reflex:

*r > K r, Sh x, S r			
60. grass	arɕp²	xep²	rɣp²
73. root	reh²	xɛl̥²	riah²
107. frog	arɔ̤k²	xɔk²	rok¹

Syllables with tone one are as follows:

*r > K r, Sh x, S rʰ			
111. horn	rɯŋ¹	xɤŋ¹	rʰuŋ¹
177. tooth	raŋ¹	xaŋ¹	rʰaŋ¹

In both of these reflexes Shinman has a post-velar fricative. In the discussion of */k/ in clusters with */r/ it was noted that the presence of a */r/ created a uvular stop initial in Shinman. Thus the quality of */r/ must have been far back in the vocal tract at some stage between Proto-Plang and today. There is evidence for this type of /r/ in some modern varieties of Wa as well as in Shinman (Paulette Hopple, personal communication). At the stage of Proto-Plang it is difficult to say exactly what the quality of */r/ was, whether closer in articulation to Kontoi /r/ or Shinman /x/. If more like /r/ then the rule for Shinman would be:

$$(11)\quad \begin{bmatrix}+\text{cont}\\+\text{back}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{voice}\\+\text{son}\end{bmatrix} \;/\; \$\_\_$$

The rule of aspiration in high tone syllables for Samtao is:

$$(12)\quad \begin{bmatrix}+\text{son}\\-\text{nas}\\+\text{back}\end{bmatrix} \rightarrow [+\text{asp}] \;/\; \_\_\text{V(C)}^{1}$$

There are four exceptions to this for initial */r/.

38. water	um^{1}	um^{1}	rom^{1}
124. spider	ar̥ah^{2}	haŋ^{4}hɯl̥^{2}	rɤ̥ah^{2}
480. hot	rɔn^{2}	hɔn^{4}	ron^{2}
255. house pole	rɔŋ^{1}	hɔŋ^{1}	r^{h}oŋ^{1}

In 'water' most of the Wa languages retain the */r/, while P'uman, Tailoi and Khalo as well as Plang have lost the */r/ (Diffloth 1980). It is doubtful that the Shinman form for 'spider' is cognate with the others. The last two words are loans from Tai where Central Thai retains the /r/ and in Thai Yai the /r/ has become an [h].

In Clusters

*r > K r, Sh ∅, S r

87. bear	k^{h}r̥ih^{1}	qhil̥^{1}	krɤh^{1}
130. wing	p^{h}rɯc^{1}	phɤik^{1}	pruc^{1}
246. drum	k^{h}ra̤ŋ^{1}	qhɯŋ^{1}	krɤŋ^{1}

As was discussed with */p/ and */k/, there are times when the */r/ has produced aspiration in Samtao as well, and is even deleted sometimes.

*r > K r, Sh ∅, S ∅

378. to meet	k^{h}rɯp^{1}	qhɤp^{1}	k^{h}ɤt^{1}
337. to fall	----	qhɯik^{1}	k^{h}ɤc^{1}
279. sieve	ak^{h}rɯŋ^{1}	----	k^{h}rɤŋ^{1}

The */r/ deletion rule for Shinman, and partially Samtao, is as follows:

$$(13)\quad \begin{bmatrix}+\text{son}\\-\text{nas}\\+\text{back}\end{bmatrix} \rightarrow \emptyset \;/\; \begin{bmatrix}-\text{cont}\\-\text{son}\end{bmatrix} \_\_$$

Final

*r > K l, Sh h, S Ø			
40. wind	kạl[1]	kɯh[1]	ŋkɤa[1]
75. squash	mpẹl[1]	npih[1]	mpia[1]
271. rice field	mạl[1]	mah[1]	ma[1]

There is evidence in other Waic languages that there were both */r/ and */l/ finally in Proto-Wa (Diffloth 1980). Kontoi has lost that contrast since /l/ is the only liquid in final position. In Shinman the final */r/ is again a fricative but glottal in articulation. And in Samtao, final */r/ patterns like */l/ in deleting, but in its effect on the preceding vowel it patterns like */lh/.

So for Kontoi, the following rule expressing */r/ > /l/ holds:.

$$(14) \quad \begin{bmatrix} +\text{cont} \\ +\text{son} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{back} \\ +\text{lat} \end{bmatrix} \; / \; \_\_\#$$

The rule for Shinman */r/ becoming /h/ is similar to the one for initial */r/.

$$(15) \quad \begin{bmatrix} +\text{cont} \\ +\text{high} \\ -\text{ant} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{voice} \\ -\text{son} \end{bmatrix} \; / \; \_\_\#$$

In Samtao the deletion of */r/ may be stated as:

$$(16) \quad \begin{bmatrix} +\text{son} \\ -\text{nas} \\ +\text{back} \end{bmatrix} \rightarrow \emptyset \; / \; \_\_\#$$

3.1.5 *Semivowels*

/y/ Initial

*y > K y, Sh ʑ, S y			
190. grandmother	aya?[1]	ʑa?[2]	aya?[2]
329. to die	yɯm[2]	ʑɤm[3]	yɔm[2]
482. lightweight	siyọŋ[1]	ka?[4] ʑuŋ[1]	siyaŋ[1]

In Shinman the quality is slightly different from the others, being more of a fricative than a glide. It is difficult to determine if the proto-segment resembled [y] or [ʑ].

Final

*y > K y, Sh i, S i			
95. cow	amɔy[2]	ka?[4] moi[2]	moi[2]
145. eye	ŋay[1]	ŋai[1]	ŋai[2]
200. person	pɯy[2]	pɤi[3]	pọi[2]

The difference is only one of notation. Since Kontoi has only closed syllables, a final consonant [y] was written rather than [i].

There is one exception to this rule:

181. female in-law avɔy^1 oi^1 o^1

*/ɣ/

The sound inventories of both Kontoi and Samtao include a voiceless semivowel /y/ but only one cognate item is available for comparison.

143. ear yụk^1 ɀuk^1 ɣak^1

Thus the reconstruction of a */y/ awaits further evidence.

3.2 *Summary of Rules for Consonants*

Aspiration rule for Kontoi and Shinman:

$$(1)\quad \begin{bmatrix}\text{-cont}\\ \text{-nas}\end{bmatrix} \rightarrow [\text{+asp}] \;/\; \_\_\text{r}$$

Weakening of */c/ to /l/ in Shinman and Samtao:

$$(2)\quad \begin{bmatrix}\text{-cont}\\ \text{-nas}\\ \text{-ant}\end{bmatrix} \rightarrow \begin{bmatrix}\text{+glottal}\\ \text{-cor}\end{bmatrix} / \begin{bmatrix}\text{+syl}\\ \text{-back}\end{bmatrix} \_\_\#$$

Initial consonant fronting in Kontoi and Samtao:

$$(3)\quad [\text{-cont}] \rightarrow \begin{bmatrix}\text{+high}\\ \text{-back}\end{bmatrix} / \_\_[\text{-back}]$$

Backing in Shinman:

$$(4)\quad \begin{bmatrix}\text{-cont}\\ \text{-nas}\\ \text{+back}\end{bmatrix} \rightarrow [\text{+low}] \;/\; \_\_\text{r}$$

Final consonant fronting in Samtao:

$$(5)\quad [\text{-cont}] \rightarrow \begin{bmatrix}\text{+high}\\ \text{-back}\end{bmatrix} / [\text{-back}]\_\_$$

Deaspiration in Kontoi and Shinman:

$$(6)\quad \begin{bmatrix}\text{+cont}\\ \text{-son}\\ \text{+cor}\end{bmatrix} \rightarrow [\text{-asp}] \;/\; \$\_\_$$

Sonorant voicing in Shinman and Samtao:

$$(7)\quad \begin{bmatrix}+\text{cons}\\+\text{son}\end{bmatrix} \rightarrow [+\text{voice}] \;/\; \#\_\_$$

Weakening of */ɲ/ to /y/ in Shinman and Samtao:

$$(8)\quad \begin{bmatrix}+\text{son}\\+\text{high}\\-\text{back}\end{bmatrix} \rightarrow [-\text{nas}] \;/\; \$\_\_$$

Loss of final liquid */l/ in Samtao:

$$(9)\quad \begin{bmatrix}+\text{son}\\+\text{lat}\end{bmatrix} \rightarrow \emptyset \;/\; \_\_\$$

Loss of voiced liquid component of */lh/ finally in Kontoi and Samtao:

$$(10)\quad \begin{bmatrix}+\text{son}\\+\text{lat}\end{bmatrix} \rightarrow \emptyset \;/\; \_\_\text{h}\$$

Backing of liquid */r/ syllable-initially in Shinman:

$$(11)\quad \begin{bmatrix}+\text{cont}\\+\text{back}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{voice}\\-\text{son}\end{bmatrix} \;/\; \$\_\_$$

Aspiration of */r/ in high tone syllables for Samtao:

$$(12)\quad \begin{bmatrix}+\text{son}\\-\text{nas}\\+\text{back}\end{bmatrix} \rightarrow [+\text{asp}] \;/\; \_\_\text{V(C)}^{1}$$

*/r/ deletion in clusters with */p/ and */k/ in Shinman and sometimes Samtao:

$$(13)\quad \begin{bmatrix}+\text{son}\\-\text{nas}\\+\text{back}\end{bmatrix} \rightarrow \emptyset \quad \begin{bmatrix}-\text{cont}\\-\text{son}\end{bmatrix} \quad \_\_$$

In word final position, */r/ becomes /l/ in Kontoi:

$$(14)\quad \begin{bmatrix}+\text{cont}\\+\text{son}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{back}\\+\text{lat}\end{bmatrix} \;/\; \_\_\#$$

Weakening of */r/ to /h/ word-finally in Shinman:

$$(15)\quad \begin{bmatrix}+\text{cont}\\-\text{high}\\-\text{ant}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{voice}\\-\text{son}\end{bmatrix} \;/\; \_\_\#$$

Deletion of */r/ word-finally in Samtao:

$$(16) \quad \begin{bmatrix} +son \\ -nas \\ +back \end{bmatrix} \rightarrow \emptyset \; / \; \_\_\# \quad$$

4. Toward a reconstruction of Proto-Plang vowels and register

4.1 *Vowel and Register System of Proto-Plang*

The effects of register can be seen in each of the languages in this study. Each has developed at least a two tone system. Both Kontoi and Samtao have contrastive voice qualities breathy and clear. Kontoi and Samtao have a great amount of synchronic free variation in the vowels. Li et al. (1986) do not mention any free variation in Shinman. The fluctuation in the vowels obscures the diachronic picture. This is especially true in the back rounded vowels where [u] and [o] freely vary in many environments in Kontoi and also in some environments in Samtao. The phonetic boundaries of /u/ and /o/ in these two languages are very fluid. Given a synchronic situation less clear than one might wish, the proto-vowel segments are inevitably more complex and variable.

The data used to reconstruct the vowels were limited to those etyma attested in all three languages and are well-known Mon-Khmer forms. The reconstruction is also based generally on data from basic vocabulary, familiar enough to support a reliable analysis, rather than on suspect unique correspondences. The items selected for analysis in vowel reconstructions are marked by an asterisk (*) in section 6. Register one is marked here by a subscript$_{I}$ and register two by subscript $_{II}$.

The reconstructed vowel system of Proto-Plang is:

Register I

i_I		u_I
e_I	$ɤ_I$	o_I
	a_I	$ɔ_I$

Register II

i_{II}		u_{II}
e_{II}	$ɤ_{II}$	o_{II}
	a_{II}	$ɔ_{II}$

Figure 12. Proto-Plang Vowel System

Table 2 shows the correspondence sets attested in the data. Again a frequency count is included.

TABLE 2

REFLEXES OF PROTO-PLANG VOWELS

PP	Environment	Kontoi	Shinman	Samtao	# of occurrences
*i_I	stop final	i	e	e	4
	continuant final	e	ɛ	i	3
*i_{II}	stop final	i̤	i	i	7
	continuant final	e̤	i	i	7
*e_I	stop final	e	ɛ	e	4
	continuant final	e	e	e	1
*e_{II}	stop final	i̤	i	e	3
	continuant final	e̤	i	e	4
*$ɤ_I$	tone 1	ɯ	ɤ	u	16
*$ɤ_{II}$	tone 2, normal	ɯ	ɤ	o	4
	tone 2, _ l	ɯ	ɤ	o̤	2
	tone 2, _ c, ɲ	ɯ	ɛ	e	3
*a_I	all environments	a	a	a	45
*a_{II}	all environments	a̤	ɯ	ɤ	14
*u_I		u	u	o	2
		u	o	o	2
		u	o	u	2
*u_{II}		u	u	u	4
	y_ŋ, k	u	u	a	3
*o_I		ɔ	o	o	2
		ɔ	o	ɔ	2
*o_{II}		o	o	o	2
		o	u	o	3
		o̤	o	u	1
*$ɔ_I$	normal	ɔ	ɔ	o	7
	_ i	ɔ	o	o	2
*$ɔ_{II}$	normal	ɔ	ɔ	ɔ	3
	_ i	o̤	u	u	2
	_ l̥	ɔ	ua	o	2
	_ l̥	o	ua	o̤	1
	_ n	ɔ	ua	ɔ	1

Since the reconstructed vowels are not as well attested as the consonants, all examples of each reflex will be listed. There is one process in Samtao by which the final consonant causes gliding in all the vowels except the low central, so the rule describing it is presented first.

(1) Samtao V → Va/_l̥, r

	K	Sh	S
422. to sweep	pe̱h[1]	[npih[1]]	piah[1]
88. bee	aphel[1]	phɛh[1]	hia[2]
149. fat	rəʔuh[1]	laʔ[4] ul̥[1]	aluah[1]
345. to fly	phɯl[1]	pɤh[1]	pua[1]

as well as in items 28, 40, 45, 65, 73, 75, 93, 166, 235, 238, 297, 320, 324, 517, 542, and 543.

Another rule, affecting all vowels in Shinman, gives a high front off-glide /i/ before palatal consonants /c/ and /ɲ/ (written /k/ and /ŋ/ respectively in Shinman).

(2) Shinman V → Vi / __c, ɲ

	K	Sh	S
33. star	səmɯɲ[1]	kaʔ[4] mɤiŋ[1]	səmuɲ[1]
186. father	akạɲ[1]	kɯiŋ[1]	kɤɲ[1]
413. to spit	phrɯc[2]	phɛik[2]	mpec[2]
546. all	ɯc[1]	ɤik[1]	uc[1]

4.1.1 *Front Vowels*

*/*i*/

*/iɪ/ *Stop Final*

One reflex of first register */i/ occurs with stop finals:

*iɪ > K i, Sh e, S e

191. husband	kəmiʔ[2]	kaʔ[4] meʔ[2]	ameʔ[1]	
263. needle	pəɲiʔ[1]	kaʔ[4] ɲeʔ[1]	aneʔ[1]	
526. left side	aviʔ[1]	kha[2] kaʔ[4] ve[2]		kraʔ veʔ[1]
528. near	n̥tiʔ[1]	nteʔ[2]	n̥teʔ[2]	

Typically for first register, the vowel is lowered in both Shinman and Samtao. Though all these examples end in a glottal stop, symmetry with the other front vowels would suggest the broader category of any stop being the relevant environment.

*/iɪ/ Continuant Final

*iɪ > K e, Sh ɛ, S i

73. root	reh[2]	xɛl̥[2]	riah[2]
88. bee	aphel[1]	phɛh[1]	hia[2]
93. chicken	kɔnel[1]	ɛh[1]	kɔnia[2]

Again, vowel lowering is found but this time in Kontoi and Shinman.

Variations from the above rules for */iɪ/ include:

8. earth	kətiʔ[1]	kaʔ[4] tɛʔ[1]	tiʔ[1]

25. rain	lʰi?^{1}	l̥ɛ?^{1}	le?^{1}
76. sugar	səmi?^{1}	um^1 mie?^{2}	nomame?^{2}
105. flea	atep^1	tiap^1	tip^1
142. dung	iŋ^1	ɛŋ^1	eŋ^1
204. Tai	sem^1	sem^1	sʰim^1
220. we (3+)	i?^{1}	ɛ?^{1}	i?^{1}

Each of these is a slight variation from the stated correspondences for */i$_{II}$/, the degree of lowering of the vowel being different for each. These variations reflect the complexity and variation of the proto-high front vowel as well as of the synchronic front vowel system of each of the daughter languages.

*/i$_{II}$/ *Stop Final*

*i$_{II}$ > K i̤, Sh i, S i

10. firewood	cʰi̤?^{1}	khi?^{1}	cʰi?^{1}
55. fruit	pli̤h^2	pli?^{1}	pli?^{1}
409. sleep	i̤t^1	it^1	it^1

This correspondence with stops also occurs in nos. 17, 115, and 221. It also occurs once before a continuant:

461. cooked	si̤n^1	sin^1	sʰin^1

There are two examples of vowel lowering in this set:

157. hand	ti̤?^{1}	ti?^{1}	tai?^{1}
509. spicy	səpʰri̤c^2	ka?^{4} phɛi?^{1}	səprai?^{1}

Though these are second register correspondences, the high tone in each has affected the vowel height in Samtao, as if it were a first register correspondence.

*/i$_{II}$/ *Continuant Final*

*i$_{II}$ > K e̤, Sh i, S i

28. salt	ce̤h^2	kil̥^{2}	ci̤ah^2
75. squash	mpe̤l^1	npih^1	mpia^1
394. to return	e̤ŋ^1	iŋ^1	iɲ^1
545. nine	sətḛm^1	ka?^{4} tim^1	sɪtim^1

This correspondence also occurs in nos. 89, 235, 422.

One other item demonstrates a */i$_{II}$/ reflex:

87. bear	kʰri̤h^1	qhil̥^{1}	krɤh^1

The Samtao vowel in 'bear' is backed due to the influence of the back consonant /r/.

The main distinguishing feature of */i$_{II}$/ correspondences is that Kontoi has a breathy vowel. Occasionally Samtao has a breathy vowel as well, but breathiness is much less common in Samtao than in Kontoi, though it is still contrastive. The low frequency of breathiness in Samtao is probably due to its status as a recent and continuing innovation. Thus it does not correspond consistently with proto registers.

*/e/

The correspondence sets for */e/ are again dependent on the nature of the final. Each of the correspondences can occur in high or low tone syllables.

*/e_I/ *Stop Final*

Before stops the following correspondence is found:

*e_I > K e, Sh ɛ, S e			
109. goat	apɛʔ^2	pɛʔ^4	peʔ^1
296. to bite	cet^2	kɛt^2	cet^2
505. small	et^1	ɛt^1	et^1

The vowel is lowered in Shinman before stops.

One continuant final also has this correspondence:

12. hail	l^{h}iap^{h}el^1	phɛl^1	per^1

There is one exception to this correspondence with a stop final:

276. shoes	c^{h}ep^1	khiap^2	c^{h}ep^1

The palatal initial has raised the vowel in Shinman to a high front vowel. The final /p/ also has an effect on the vowel in Shinman, giving the high front vowel /i/ a transitional offglide [a]. This was also seen in the word for 'flea' in first register */i/:

105. flea	atep^1	tiap^1	tip^1

The rule expressing this offglide in first register front vowels in Shinman is:

(3) Shinman V_I > V_I a / __p

*/e_I/ *Continuant Final*

*e_I > K e, Sh e, S e				
534. there (far)	teh^1	man^4 teh^1	kəteh^1	

This correspondence is not well attested in the data, but looking at the whole system we would expect more like this or very similar correspondences for */e_I/ with low front vowel reflexes in each of the daughter languages.

There are two other words which have reflexes that can be reconstructed as */e_I/:

478. heavy	səcen$^{1`}$	kaʔ^4 kian^3	cen^2
542. six	leh^2	liel^2	leah^2

Again Shinman has a raised vowel with offglide as in the word for 'shoes' mentioned above (*e_I stop final). 'Heavy' has the initial palatal which accounts for the raised vowel, but the cause of the high vowel in 'six' in Shinman is obscure.

*/e_{II}/ *Stop Final*

The normal reflex for */e_{II}/ with stop finals is:

*e_{II} > K i̤, Sh i, S e

5. day	nɯmɲi̤c^2	ka?^{4} ŋi?^{2}	ŋɔnsiɲɲe?^{2}
118. pig	kɔnli̤k^1	lik^2	kɔnlẹ̈c^2
537. one	kəti̤?^{2}	ka?^{4} ti?^{4}	te?^{2}

There is one other unique correspondence that can also be reconstructed as *e_{II}:

51. corn	sɛlẹ?^{1}	sa?^{4} le^2	sılẹ^2

The breathy low vowels make this distinctly a proto second register low vowel.

Another exception to this correspondence for */e_{II}/ is:

60. grass	arẹ̈p^2	xep^2	rɣ̈p^2

Here Samtao has a backed vowel [ɤ] following the back consonant */r/, just as in the word for 'bear' seen in the section on */i_{II}/.

*/e_{II}/ *Continuant Final*

*e_{II} > K ẹ̈, Sh i, S e

151. fingernail	ŋ̤ŋẹ̈m^1	ŋim^1	ɲ^{h}em^1
346. to forget	pẹ̈l^2	pil^2	pẹ̈^{2}
352. to go down	lẹ̈h^2	lih^2	lẹ̈h^2
402. to sew	cẹ̈ŋ^2	ciŋ^2	keŋ^2

As with */i_{II}/, the second register */e/ reflexes for Kontoi have a breathy vowel. Again, Samtao occasionally has breathiness, but it is not as frequent or consistent in correspondences as in Kontoi.

4.1.2 *Central Vowels* [4]

***/ɤ/**

The alternation in correspondences for */ɤ/ is completely dependent on tone and final segments. Thus the correspondences could all be accounted for by contrast within one register. But since tone often correlates with register, the vowel */ɤ/ here will be analyzed as first register */$ɤ_I$/ in high tone syllables and second register /$ɤ_{II}$/ in low tone syllables.

*/$ɤ_I$/ *Tone 1*

*$ɤ_I$ > K ɯ, Sh ɤ, S u

33. star	səmɯɲ^1	ka?^{4} mɤiŋ^1	səmɯɲ^1
351. to go	hɯl^1	hɤl^1	hu^1
546. all	ɯc^1	ɤik^1	uc^1

This correspondence also occurs in items 30, 111, 123, 211, 297, 300, 320, 345, 385, 404, 470, 495, and 517. The exact value of */$ɤ_I$/ is difficult to reconstruct except that it was a central/back unrounded vowel which has become rounded in Samtao. Over all, Samtao has a much lower frequency of unrounded vowels

[4]Throughout this section /ɤ/ will be referred to as a back unrounded vowel, while /a/ will be termed a central vowel, though both have been allocated to the central section of the vowel chart.

than the other two languages. The back unrounded vowel is merging with the rounded vowels in Samtao.

*/ɤII/ *Tone 2*

*ɤII > K ɯ, Sh ɤ, S o

41. year	nɯm^2	nɤm^3	nom^2
200. person	pɯy^2	pɤi^3	pǫi^2
363. to kick	n̥tɯn^2	ntɤn^3	n̥ton^2
425. to take out food	pɯk^2	pɤk^2	pǫk^2

The vowel in Samtao is lower in tone 2 syllables than in tone 1. Also, breathiness does not consistently correlate in Samtao. This correspondence occurs before all finals except */l/, */c/ and */ɲ/.

Before */l/ the following is found:

*ɤII > K ɯ, Sh ɤ, S ǫ

135. belly	kətɯl^2	kaʔ^4 tɤl^2	tǫ^2
513. thick	kəpɯl^2	kaʔ^4 pɤl^3	pǫ^2

The vowel in Samtao is not only rounded but lowered further before */l/.

This lowering is also found once before */m/ in Samtao:

329. to die	yɯm^2	ʑɤm^3	yɔm^2

But, as seen above in no. 41 'year', /m/ does not normally produce this effect.

Before the palatals */c/ and */ɲ/ the vowel */ɤII/ is fronted. The height of the vowel is somewhat variable in Shinman.

*ɤII > K ɯ, Sh ɛ, S e

336. to enter	lɯc^2	lɛik^2	lec^2
413. to spit	pʰrɯc^2	phɛik^2	m̥pec^2
159. intestines	vɯc^2	veik^2	vec^2

This fronting also occurs once in a high tone:

501. short (length)	nɯɲ^1	ŋeiŋ^1	ɲeɲ^1

There is also one occurrence of fronting in Shinman but not in Samtao:

499. sharp pointed	səpɯc^1	kaʔ^4 pɛik^2	m̥pʰoc^1

/a/

The two register manifestations of */a/ occur in both high and low tone.

/aI/

*aI > K a, Sh a, S a

78. thorn	kat^1	kat^1	kat^1
271. rice field	m̥al^1	mah^1	ma^1
444. to weep	yam^2	ʑam^2	yam^2

This correspondence is well attested in the data, occurring in 45 items out of those used for the vowel analysis. In this first register the vowel remains low in all three languages.

*/a_{II}/

*a_{II} > K ạ, Sh ɯ, S ɤ

40. wind	kạl^1	kɯh^1	ŋkɤa^1
81. vegetable	tạ?^{1}	tɯ?^{1}	tɤ?^{1}
168. pus	lạm^2	lɯm^2	lɤ̣m^2

This correspondence is also well attested in the data, occurring in nos. 30, 86, 156, 178, 186, 234, 246, 294, 333, 463, and 492. The phonetic value of /ạ/ in Kontoi is [ʌ], and /ɤ/ in Samtao in low tone is also [ʌ]. Thus the quality of */a_{II}/ was probably a centrally located unrounded vowel.

There are four examples of a slight variation from this normal correspondence, where the vowel in Shinman is written as a lower vowel:

298. to blow	pạŋ^2	pɤ̣ŋ^2	pɤŋ^1
304. to bury	kəpạŋ^2	ka?^{4} pɤ̣ŋ^1	apɤŋ^1
428. to think	kạt^2	ka?^{4} kɤ̣t^1	kɤ̣t^2 p^{h}om^1
464. deep	rạ?^{1}	xɤ?^{1}	rɤ?^{1}

It is possible that the contiguous backed consonants in each are causing lowering of the vowel in Shinman, but this does not happen in most instances (see no. 246 especially).

There is one unusual exception in Samtao to this correspondence for */a_{II}/:

65. mushroom	tạh^1	tɯl̥^{1}	tiah^1

Two other cognate sets show an unexpected reflex for Shinman.

166. nose	ŋkoŋ^2 mạh^2	muḷ^2	ŋkoŋ^2 mɤah^2
210. wife	mạn^2	ka?^{4} muiŋ^3	amɤn^2

The presence of the bilabial nasal could explain the added rounding to the vowel in Shinman.

There is also one occurrence of a rounded vowel in Kontoi where one would expect the second register reflex /ạ/:

214. I	u?^{1}	ɯ?^{1}	ɤ?^{1}

4.1.3 *Back Vowels*

As was mentioned in section 4.1, the back vowels especially are obscured by the high degree of free variation between [u] and [o]. This makes reconstruction of these two vowels rather difficult, but looking at the correspondences with common register phenomena in mind we can tentatively assign each to a particular proto-vowel. This means that there may not be strict contrast and complementary distribution of correspondences as desired using the comparative method. The lack of consistent correspondences and the lack of high frequency correspondences make contrast and complementary distribution difficult to substantiate.

***/u/**

*/u_I/

Vowel lowering is a common manifestation of the first register.

*u_I > K u, Sh u, S o

38. water	um^1	um^1	rom^1
399. to see	ɲu̯ʔ^2	ʑuʔ^1	yoʔ^2

In the back vowels, the breathiness in Kontoi is less common and much less consistent in vowel correspondences.

This proto vowel in another correspondence shows vowel lowering in Samtao as well as Shinman in the first register:

*u_I > K u, Sh o, S o

99. dog	suʔ^1	soʔ^1	sʰoʔ^1
256. ladder	m̥buŋ^2	npoŋ^1	m̥poŋ^1

One other correspondence shows vowel lowering in first register, this time in Shinman:

*u_I > K u, Sh o, S u

358. to hide	səmuʔ^1	kaʔ^4 moʔ^2	muʔ^1
435. to wait	kuʔ^1	khoʔ^1	ŋkuʔ^1

There is another correspondence which has perhaps accentuated vowel lowering in Shinman and Samtao due to the surrounding segments:

112. hornet	aʔuŋ^1	ɔŋ^1	ɔŋ^1
165. neck	ŋuk^2	ŋɔk^2	ŋɔk^2

The low vowel occurs in Shinman and Samtao in the environment of back and low consonants: glottal or velar initial and velar final.

*/u_{II}/

In the second register this vowel in all of the languages remains high:

*u_{II} > K u, Sh u, S u

149. fat	rəʔuh^1	laʔ^4 u̯^{1}	aluah^1
262. mosquito net	su̯t^1	sut^2	ŋkaŋsut^1
324. to crawl	mul^2	muh^2	mua^2
540. four	ləpun^1	pun^1	pun^1

Another correspondence for */u_{II}/ occurs in the following three items:

*u_{II} > K u, Sh u, S a

143. ear	yu̯k^1	ʑuk^1	yak^1
205. village	yuŋ^1	ʑuŋ^1	pɤiyaŋ^1
482. lightweight	siyo̯ŋ^1	kaʔ^4 ʑuŋ^1	siyaŋ^1

In this environment the vowel is lowered by the presence of the velar final and fronted by the palatal initial, producing a low central vowel in Samtao. The lower vowel in Kontoi in no. 482 is phonetically in free variation between [u̯] and [ɤ]. Again, breathiness in Kontoi is not consistent in this correspondence.

Unlike the front vowel correspondences, those for the back vowels do not correlate with either tone or final consonants. The correspondence for */u_{II}/ is the

most frequent of any of the high back vowel correspondences and it includes both high and low tone, and both continuant and stop finals. Thus a case cannot be made for either of these being determining factors for register in */u/.

Other single-occurring correspondences are reconstructed under the first register:

*u_I > K u, Sh u, S ɔ

332. to dream	kəmuʔ^2	kaʔ^4 muʔ^2	itəmɔʔ^2

K ụ, Sh u, S ɔ

27. rock	səmụʔ^1	kaʔ^4 muʔ^2	səmɔʔ^1

K u, Sh u, S ao

273. rope	m̥uʔ^1	muʔ^1	maoʔ^1

K ụ, Sh u, S ao

79. tree	kəlɯmkʰụʔ^1	khuʔ^1	nom^2 kʰaoʔ^1

K ọ, Sh u, S ao

31. smoke	tọʔ^1	tuʔ^1	taoʔ^1

K u, Sh o, S ɔ

161. liver	kətum^1	kaʔ^4 tom^1	tɔm^1

The main characteristic of each of these correspondences is the lowering of the vowel height in Samtao. In particular, the third, fourth, and fifth correspondences show a typical first register phenomenon of lowered vowel onset glide. Also, each of these, except the first, occurs in high tone syllables, another factor indicating first register.

The questions then arise as to why these six unique correspondences exist and why they are different. In Kontoi, the main difference is just breathiness, which we have already seen does not consistently correlate in the back vowels. Thus the major difference in these correspondences is the two distinct reflexes in Samtao of /ɔ/ and /ao/. The first five items each end in a glottal stop, with the initials being proto-voiced consonants for words having an /ɔ/ vowel and /ao/ for proto-voiceless consonant initials. The last word has a voiced final */m/ with an /ɔ/ vowel. Thus /ɔ/ correlates with a voiced environment in the proto language and /ao/ with a voiceless environment.

/o/

*/o_I/

*o_I > K ɔ, Sh o, S o

455. bitter	sɔŋ^1	soŋ^2	soŋ^1
530. right side	atɔm^1	kha^{2}kaʔ^{4}tom^2	kraʔtom^1

*o_I > K ɔ, Sh o, S ɔ

183. child	kɔn^1	kon^1	kɔn^1 et^1
366. to know	ɲɔŋ^2	ʑoŋ^3	yọŋ^2

Vowel lowering again occurs in first register, this time in Kontoi and Samtao.

There is a single occurrence of a correspondence that would best fit into first register */oI/:

107. frog	arọk^2	xɔk^2	rok^1

*/oII/

*oI I > K o, Sh o, S o

335. to eat (rice)	som^1	som^1	som^1
439. to wash dishes (Samtao-wash face)	kʰọc^1	khoik^1	kʰoc^1

Again breathiness is not consistent in Kontoi.

The following correspondences fit into a second register */oII/, with a raised vowel in Shinman or Samtao:

*oI I > K o, Sh u, S o

23. night	nɯm^2 som^1	nsum^1	ŋɔnsom^1
154. foot	coŋ^2	cuŋ^3	coŋ^2
434. to vomit	họl^1	hul^1	ho^1

*oI I > K ọ, Sh o, S u

348. to get	pọn^2	pon^2	pun^2

Exceptions to these correspondences for */o/ include:

243. comb	ṇsat^1	nsat^1	sot^1
174. throat	kʰrọŋ^2	qhoŋ^1	kraŋ^1
511. tall	lʰọŋ^1	l̥oŋ^1	lʰaŋ^1

*/ɔ/

*/ɔI/

*ɔI > K ɔ, Sh ɔ, S o

77. thatch grass	plɔŋ^1	plɔŋ^1	ploŋ^1
102. egg	kətɔm^1	kaʔ^4 tɔm^1	tom^1
113. horse	ŋrɔŋ^2	nxɔŋ^3	ṃproŋ^2
309. to carry on shoulder	klɔm^1	klɔm^1	klom^1
326. to cut/slash	mɔk^2	mɔk^2	mok^2
395. to ride	pʰɔk^2	pɔk^2	pọk^2
504. slow	kɔy^2	kɔiʔ^4	koi^2

*/ɔI/ appears to be the least stable of the Proto-Plang vowel system with many factors influencing its reflexes. The final palatal in nos. 95 and 539 below appears to cause raising of [ɔ] to [o] in reflexes of */ɔ/.

*ɔI > K ɔ, Sh o, S o

95. cow	amɔy^2	kaʔ^4 moi^2	koi^2
539. three	laʔ ɔy^1	laʔ^4 oi^1	loi^1

*/ɔII/

The first correspondence for */ɔII/ consists of all low back rounded vowels:

*ɔII > K ɔ, Sh ɔ, S ɔ

355. to grind	mm̥ɔʔ^{1}	mɔ^{2}	mɔ^{2}
456. black	lɔŋ^{2}	lɔŋ^{3}	lo̤ŋ^{2}
500. sharp (knife)	lɔm^{2}	lɔm^{3}	lɔm^{2}

*/ɔII/ has a raised variant before /i/ in Shinman and Samtao, just as */ɔI/ is raised in this same environment:

*ɔII > K o̤, Sh u, S u

356. to have	ko̤y^{1}	kui^{2}	kui^{1}
412. smell bad	səʔo̤y^{1}	kaʔ^{4} ui^{2}	səʔui^{1}

Three final correspondences are very similar for */ɔII/. The first occurs preceding final */l̥/. In this set the vowel in Samtao is raised:

*ɔII > K ɔ, Sh ua̤, S o

45. banana	kəmɔh^{1}	kaʔ^{4} mual^{2}	amoah^{2}
238. charcoal	pəsɔh^{1}	kaʔ^{4} sual̥^{1}	soah^{1}

The second occurs before */l/. Here Kontoi has a raised vowel.

*ɔII > K o, Sh ua, S o̤

9. fire	ŋol^{2}	ŋual^{2}	ŋo̤^{2}

The third occurs before */n/.

*ɔII > K ɔ, Sh ua, S ɔ

541. five	ləp^{h}ɔn^{1}	phuan^{1}	p^{h}ɔn^{1}

These last three correspondences all demonstrate a vowel raising and offglide for Shinman (ua) before alveolar consonants. This rule is expressed as:

$$(4) \quad \text{Shinman } ɔ \rightarrow \text{ua} \; / \; \_\_ \begin{bmatrix} +\text{cons} \\ +\text{ant} \\ +\text{cor} \end{bmatrix}$$

There is one exception to the */ɔ/ correspondences:

416. to stand	cɔŋ^{2}	cuŋ^{3}	co̤ŋ^{2}

Comparing 'to stand' with 'foot':

154. foot	coŋ^{2}	cuŋ^{3}	coŋ^{2}

we find that Kontoi and Samtao have contrasting vowels for these two items,whereas Shinman does not. According to Diffloth (1980), Proto-Wa has two distinct etyma for 'to stand' and 'foot'. Since Shinman does not demonstrate a merger of */o/ and */ɔ/ anywhere else in the data, the vowel in Shinman in this unique correspondence for 'stand' is probably due to a transcriptional error. This is highly likely because of the semantic similarity between 'to stand' and 'foot'.

4.2 *Summary of Rules for Vowels*

Gliding rule for Samtao:

$$(1) \quad V \rightarrow Va \; / \; \_\_ \; l̥, r$$

Vowel palatalization in Shinman:

(2) $V \rightarrow Vi \; / \_\_ \; c, ɲ$

Transitional glide for first register front vowels before /p/ in Shinman:

(3) $V_I \rightarrow V_I a \; / \_\_ \; p$

Low back vowel raising and transition before alveolars in Shinman:

(4) Shinman $ɔ \rightarrow ua \; / \_\_ \begin{bmatrix} +voc \\ +ant \\ +cor \end{bmatrix}$

5. Reconstructed tone and presyllables

5.1 *Tone*

It has been seen in the previous section that sometimes tone correlates with register in Proto-Plang vowels, but there are a few different factors which can be associated with the formation of a tone system, such as advanced vs. retracted tongue root, voiced vs. voiceless initial consonants, and final consonants. Therefore the difficulty lies in the fact that a combination of these factors is involved with tone in the languages under study. That is, tone does not correlate simply with any one factor.

Li et al. (1986:13) propose four tones for Shinman Plang. This is a relatively high number of tones for a Mon-Khmer language of the Waic branch. Li's tone 4 mostly occurs in the first syllable of compounds or in loan words. Outside of these instances its frequency is too low to justify the existence of a fourth tone in Proto-Plang.

Tone 3 in Shinman always occurs with sonorant finals:

	K	Sh	S
21. mountain	ŋkoŋ^2	nkɔŋ^3	ŋkɔŋ^2
200. person	pɯy^2	pɤi^3	pǫi^2
402. to sew	cęŋ^2	ciŋ^3	keɲ^2
with one exception:			
405. to shout	rak^2	xak^3	----

Other examples of tone 3 are nos. 35, 41, 69, 91, 106, 113, 121, 128, 154, 162, 201, 210, 236, 250, 291, 299, 313, 329, 363, 366, 403, 416, 447, 456, 457, 467, 469, 478, 500, 502, 513, 523, 549. It does not however act in complementary distribution with either tone 1 or tone 2, though it generally corresponds with tone 2 in the other languages.

Similarly, Kontoi has a high falling tone (1`) which occurs only with sonorant finals and generally corresponds with tone 2 in the other languages but contrasts with both tones 1 and 2 in Kontoi.

	K	Sh	S
160. knee	ŋay^{1} ŋoŋ$^{1\backslash}$	ŋai^{1}kaʔ^{4}qhoŋ^{2}	ŋɤiŋɔŋ^{2}
478. heavy	səcen$^{1\backslash}$	kaʔ^{4} kian^{3}	cen^{2}
523. far	səŋaŋ$^{1\backslash}$	kaʔ^{4} ŋai^{3}	sɪŋai^{2}
331. don't !	pay$^{1\backslash}$	----	pai^{1}

It is also found in items 32, 50, 57, 62, 83, 182, 369, 458, 474. Unfortunately, Kontoi tone 1\` does not generally correspond with Shinman tone 3. Both are relatively infrequent and several of the Kontoi tone 1\` words are loanwords (nos. 50, 62, 83, 182). At this point there is not enough evidence to support the reconstruction of a third tone for Proto-Plang, but the existence of Kontoi tone 1\` and Shinman tone 3 does point to a possible development in this sub-branch.

Haudricourt (1954) describes the origin of tones in Vietnamese as coming from two sources. First a three-way split occurred due to the final consonants forming a three-tone system. Then, these three tones further split into two tones each, this split being conditioned by the initial consonants. This same kind of process may be happening here but in the reverse order. One split, caused by the initials or advanced/retracted tongue root, occurred prior to the stage of Proto-Plang such that a two contrastive tone system was complete in Proto-Plang. This split occurred later than Proto-Wa though, as Proto-Wa has contrasting voiced/voiceless initials and no tone (Diffloth 1980). In the modern languages, both Kontoi and Shinman have tones (1\` and 3 respectively) which seem to be dependent on sonorant finals. Thus a further split, determined by finals, may be underway in both of these daughter languages. It is interesting to note that the Palaungic branch of Mon-Khmer (to which Plang and Samtao belong) includes several tonal languages, Danaw, Riang, Man Met (Svantesson 1988), which are rare in all but the Vietic branch of Mon-Khmer.

With these things in mind a two-tone system is reconstructed for Proto-Plang. Though the majority of items are clear cases of either tone 1 or tone 2, there are abundant examples of tone 1 corresponding with tone 2. The strict application of the procedures of contrast and complementary distribution using the comparative method would force the reconstruction of several tones and introduce unnecessary complexity in a proto-tone system that was, if anything, less complex than the system in the daughter languages. Thus only high and low tone can be supported in Proto-Plang. Taking all of the factors affecting register/tone into mind, tone is reconstructed on an item by item basis.

5.2 *Presyllables*

The nature of presyllables makes them rather difficult to reconstruct phonologically. As was mentioned in section 2, presyllables are unstable and limited in their components. They are non-tonal and unstressed. The CV type presyllables will be discussed first.

The vowel in CV type presyllables is generally reduced to [ə]. The only component of presyllables that could participate in correspondences are the initials. The initial consonant correspondences of this type of presyllable do not produce meaningful proto-segments. It is the full presyllable which alternates, and these alternations are rarely phonologically determined.

From these data it appears that Samtao is losing its presyllables. Samtao has deleted presyllables in many items where they have often been retained in Kontoi and Shinman.

	K	Sh	S
96. crab	kətam^{1}	ka?^{4} tam^{1}	tam^{1}
103. elephant	kəsaŋ^{1}	ka?^{4} saŋ^{1}	s^{h}aŋ^{1}
358. to hide	səmu?^{1}	ka?^{4} mo?^{2}	mu?^{1}

By far the most frequent presyllable in Shinman is *ka?*, as seen in the above examples. Kontoi shows the greatest variety of presyllables:

	K	Sh	S
53. cucumber	acel^{1}	ka?^{4} kel^{1}	ci^{1}
263. needle	pəɲi?^{1}	ka?^{4} ɲe?^{1}	ane?^{1}
372. to listen	rəciŋ^{2}	----	aceɲ^{2}

If we look at the most frequent correspondences of presyllables we would find the following two commonly occurring:

K kə, Sh ka?

K sə, Sh ka?, S sə

There are two possible explanations for these correspondences. One is that there were two presyllables, possibly [kə] and [cə] with the second shifting in different directions for Kontoi and Shinman. The other possible explanation is that Shinman is reducing all presyllables to /ka?/, while Kontoi is retaining a variety of presyllables. The second is the preferred analysis here, as there is no evidence within Proto-Plang for a [cə] presyllable.

The syllabic nasal presyllables generally assimilate to the point of articulation of the following consonant. The assimilation is written overtly in the Kontoi and Samtao data and is implied in the Shinman transcription.

	K	Sh	S
21. mountain	ŋkoŋ^{2}	nkɔŋ^{3}	ŋkɔŋ^{2}
75. squash	m̥pɻ̊l^{1}	npih^{1}	m̥pia^{1}
176. tongue	n̥tak^{1}	ka?^{4} tak^{1}	n̥tak^{1}
385. to plant	n̥sɯm^{1}	n̥sʏm^{1}	sum^{1}

The only change from the proto form in the nasal presyllables would be in the point of articulation. Any change in the point of articulation of the presyllable is completely dependent upon the evolution of the root initial consonant.

The presyllables play a role in the development of register and tone. Since the voicing of initial consonants is one factor associated with tonogenesis, the presyllables may be important to the reconstruction of tone. The scope of conditioning varies though. Sometimes tone is conditioned by the presyllable initial, sometimes by the main syllable initial, and even sometimes by the consonant in a cluster closest to the vowel. This can be a cause of tone flip-flops where one tone is expected according to the initial consonant but a different tone is manifest due to an *-r* or *-l* cluster. One example is 'fruit':

55. fruit	pl̥ih^{2}	pli?^{1}	pli?^{1}

Shinman and Samtao both have the high tone which is expected with the voiceless initial /p/. Kontoi, on the other hand, has a low tone which is probably due to the presence of the voiced segment /l/. This difference in the range of conditioning would be a useful topic for further study.

6. Conclusion and Word List

6.1 *Conclusion*

The reconstruction of Proto-Plang and the rules reflecting innovations formulated in the preceding sections are used as a basis for determining the inter-relatedness of Kontoi, Shinman, and Samtao, along with their cognateness.

Based on this reconstruction it is apparent that Kontoi Plang is the closest to the proto language. The reason for this claim is the number of innovations in Kontoi. Only 5 of the 17 consonant change rules are used to derive Kontoi from Proto-Plang. The more rules necessary to derive a present language from the parent language, the more innovative the present language is and the more distant phonologically it is from the parent. Conversely, the fewer rules applied, the closer the daughter language is to the parent language.

The most innovative of the three languages is Samtao, with 10 of the 17 consonant change rules necessary to derive it from Proto-Plang. Shinman is almost as innovative as Samtao in having 9 rules necessary. It might appear that Samtao and Shinman are closely related to each other by the number of innovations each has, but only four of these are shared innovations.

Cognate counts add supporting evidence that Samtao and Shinman are not most closely related. The following cognate percentages were found: Kontoi and Shinman 68% cognate, Kontoi and Samtao 68% cognate, and Shinman and Samtao 63% cognate. These percentages would indicate that Shinman and Samtao are least closely related. Thus, according to the reconstruction and the cognate counts, there are no two languages which are strikingly more closely related to each other than to the third. Figure 13 illustrates the genetic relationship between the daughter languages.

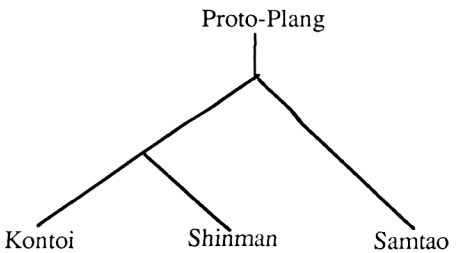

Figure 13. Genetic relationships

6.2 *Word List*

The following word list includes the forms for each of the three daughter languages and the proto form for Proto-Plang. A series of hyphens means no cognate form is available in the daughter languages or that no form is reconstructable for Proto-Plang. A grave accent mark over a vowel in Proto-Plang signifies second register, while first register is unmarked. An underline below a vowel signifies uncertain register. Parentheses around a form denote a tentative reconstruction. A single hyphen in combination with a reconstructed form means another syllable (or presyllable) exists but there is not enough evidence for reconstruction. An * before an item number signifies an item used for determining the vowel reconstruction.

The word list is organized according to the following categories:

1-42	lifeless nature
43-83	flora
84-131	fauna
132-180	human anatomy
181-212	sociology
213-223	pronouns
224-290	man-made objects
291-448	verbs
449-521	statives
522-536	spatial relations
537-549	quantifiers
550-554	interrogatives

	English	Kontoi	Shinman	Samtao	Proto-Plang
1.	ashes	puɯyu̱ʔ^{1}	kaʔ^{4} ʑu^{2}	ɲoʔ^{2}	*ɲuʔ^{2}
2.	cave	tʰam^{2}	----	tətʰam^{1}	*tʰam^{2}
3.	cloud	kətɯlʔum^{1}	----	taoʔom^{1}	----
4.	country	nɔkkạŋ^{1}	kɤŋ^{1}	nɔk^{2} yaŋ^{1}	*nɔkkàŋ^{1}
*5.	day	nɯmɲi̱c^{2}	kaʔ^{4} ŋiʔ^{2}	ɲɔnsiɲɲeʔ^{2}	*-ŋèc^{2}
6.	dew	----	um^{1} mɤi^{1}	rom^{1} mʰɤi^{1}	*rummhVy^{1}
7.	dust	pəlạŋ^{2}	kaʔ^{4} lɤŋ^{2}	----	*Cəlàŋ^{2}
*8.	earth	kətiʔ^{1}	kaʔ^{4} tɛʔ^{1}	tiʔ^{1}	*kətiʔ^{1}
*9.	fire	ŋol^{2}	ŋual^{2}	ŋ̱^{2}	*ŋ̀l^{2}
*10.	firewood	cʰi̱ʔ^{1}	khiʔ^{1}	cʰiʔ^{1}	*kʰ̀iʔ^{1}
11.	gold	sẹ̱l^{1}	----	səri^{1}	*sr̀il^{1}
*12.	hail	lʰiapʰel^{1}	phɛl^{1}	pre^{1}	*prel^{1}
13.	hole	kətạʔ^{1}	kaʔ^{4} tɯʔ^{1}	tɤʔ^{1}	*kətàʔ^{1}
14.	iron	----	l̥ɛk^{2}	lec^{1}	*lhek^{1}
15.	mist	mɯynɔŋ^{1}	----	mʰɤi^{1} kɣʔ^{2}	*mhVy^{1}-
16.	moment	kʰraw^{2}	----	təkrao^{1}	*kraV^{1}
*17.	month	təcʰi̱ʔ^{1}	khiʔ^{1}	teʔ^{2} cʰiʔ^{1}	*kʰ̀ic^{1}
18.	first month	nɯncin^{1}	nɤn^{1} ciŋ^{1}	lɤnceɲ^{1}	----

	English	Kontoi	Shinman	Samtao	Proto-Plang
19.	moon	raŋkʰi̤c^{2}	khaŋ^{4} khi?^{1}	raŋkʰi?^{1}	raŋkʰ̀ic^{1}
20.	morning	nɯmŋop^{2}	ti?^{4} ŋup^{4}	paŋŋɔp^{2}	*ŋVp^{2}
*21.	mountain	ŋkoŋ^{2}	nkɔŋ^{3}	ŋkɔŋ^{2}	*ŋkɔ̀ŋ^{2}
22.	mud	----	ka?^{4} piŋ^{2}	pɐ̤n^{2}	*pèŋ^{2}
*23.	night	nɯm^{2} som^{1}	nsum^{1}	ŋɔnsom^{1}	*sòm^{1}
24.	noon	nɯmɲi̤c^{2}	----	ŋɔnsiɲɲe?^{2}	*ŋèc^{2}
*25.	rain	lʰi?^{1}	l̥ɛ?^{1}	le?^{1}	*lhi?^{1}
26.	rainbow	pəyuŋtoŋ^{2}	----	ayɔŋ^{2}	*-yVŋ^{2}
*27.	rock	səmṳ?^{1}	ka?^{4} mu?^{2}	səmɔ?^{1}	*Cəmu?^{1}
*28.	salt	cɐ̤h^{2}	kil̥^{2}	cia̤h^{2}	*kìlh^{2}
29.	shadow	səpa̤y^{1}	ka?^{4} pui^{1}	kɔnpui^{1}	*-pVy^{1}
*30.	silver	ma̤l^{2}	ka?^{4} mɯl^{2}	mɤ^{2}	*màl^{2}
*31.	smoke	tɒ̤?^{1}	tu?^{1}	tao?^{1}	*tu?^{1}
32.	snow	sətapaɲ$^{1`}$	----	mʰɤi^{1} paɲ^{2}	*-paɲ^{2}
*33.	star	səmɯɲ^{1}	ka?^{4} mɤiŋ^{1}	səmuɲ^{1}	*Cəmɤɲ^{1}
34.	sun	ŋay^{1}ɲi̤c^{2}	ŋai^{4} ŋi?^{2}	ŋaisiɲɲe?^{2}	*ŋay^{1}ŋèc^{2}
35.	thunder	n̥nɯm^{2}	nɤm^{3}	anompre?^{1}	*nɤ̀m^{2}
36.	today	səɲeɲ^{1}	----	iɲe?^{2}	*ɲeɲ^{1}
37.	tomorrow	pənsa?^{1} nsa?^{1}		pəsʰa?^{1}	*-sʰa?^{1}
*38.	water	um^{1}	um^{1}	rom^{1}	*rum^{1}
39.	wet rice field	ti?na?^{1}	na?^{4}	na^{2}	*na?^{1}
*40.	wind	kɐ̤l^{1}	kɯh^{1}	ŋkɤa^{1}	*kàr^{1}
*41.	year	nɯm^{2}	nɤm^{3}	nom^{2}	*nɤm^{2}
42.	yesterday	nɯmkɒ̤?^{1}	nku?^{1}	nəmkao?^{1}	*-ku?^{1}
43.	bamboo	pa?u?^{1}	ka?^{4}ɔ?^{1}	nomo?^{1}	*-V?^{1}
44.	bamboo shoot	apɔŋ^{2}	ka?^{4} poŋ^{2}	pɒ̤ŋ^{2} o?^{1}	*poŋ^{2}
*45.	banana	kəmɔh^{1}	ka?^{4} mua̤l^{2}	amoah^{2}	*kəmɔ̀lh^{1}
46.	bark	lʰṳ?^{2}	----	kʰi?^{2} lʰo?^{1}	*lhu?^{1}
47.	betel nut	tɔy^{1}	----	kətoi^{1}	*tɔy^{1}
*48.	branch	kak^{1}	kak^{1}	kak^{2}	*kak^{1}
49.	bud	tom^{1}	----	alom^{1}	*Còm^{1}
50.	coconut	makpaw$^{1`}$	----	makpao^{2}	*makpaV^{2}
*51.	corn	sɛlɐ̤?^{1}	sa?^{4} le^{2}	sɪlɐ̤^{2}	*səlè?^{1}
52.	cotton	ka̤y^{1}	----	kɤi^{1}	*kày^{1}
53.	cucumber	acel^{1}	ka?^{4} kel^{1}	ci^{1}	*kVl^{1}
54.	flower	tay^{2}	----	tai^{2}	*tay^{2}
*55.	fruit	pli̤h^{2}	pli?^{1}	pli?^{1}	*plìh^{1}
56.	clsf. for fruit	ŋmɯl^{1}	----	mu^{1}	*mɤl^{1}
57.	fruit seed	sumal$^{1`}$	----	sɪma^{2}	*səmaC^{2}
58.	garlic	hɔmlaw$^{1`}$	hom^{1}	hɔmyaŋ^{2}	*hom^{2}
59.	ginger	səcɐ̤ŋ^{1}	sa?^{4} kiŋ^{1}	səciɲ^{1}	*səkìŋ^{1}
*60.	grass	arɐ̤p^{2}	xep^{2}	rɣp^{2}	*rèp^{2}
*61.	leaf	lʰa?^{1}	l̥a?^{1}	la?^{1}	*lha?^{1}
62.	mango	makmuŋ$^{1`}$	----	makmoŋ^{2}	*makmuŋ^{2}
63.	meat	pon^{1}	puan^{1}	----	*pVn^{1}
64.	millet	səpi̤?^{1}	----	s pɐ̤?^{2}	*səpè?^{1}

	English	Kontoi	Shinman	Samtao	Proto-Plang
*65.	mushroom	tạh^{1}	tɯl̥^{1}	tiah^{1}	*tàlh^{1}
66.	orange	məcu̱k^{2}	----	makcuk^{1}	*makcu̱k^{2}
67.	papaya	maksaŋpʰɔʔ^{1}	----	maksaŋpʰɔ^{2}	*maksaŋpʰɔ̀ʔ^{1}
68.	red pepper	pʰrẹ̱k^{2}	phɛik^{2}	----	*prVk^{2}
69.	pine tree	raŋ^{2}	khuʔ^{1} xaŋ^{3}	----	*raŋ^{2}
70.	cooked rice	ạp^{1}	----	ʏp^{1}	*àp^{1}
71.	paddy rice	ŋhuʔ^{1}	----	ŋʰuʔ^{1}	*ŋhu̱ʔ^{1}
*72.	rice husk	kam^{1}	kam^{1}	ŋkam^{1}	*kam^{1}
*73.	root	reh^{2}	xɛl̥^{2}	riah^{2}	*rilh^{2}
74.	sesame	kəŋaʔ^{2}	l̥aʔ^{4} ŋaʔ^{2}	aŋaʔ^{2}	*ŋaʔ^{2}
*75.	squash	mṵpẹ̱l^{1}	npih^{1}	mṵpia^{1}	*mpì̱r^{1}
*76.	sugar (cane)	səmiʔ^{1}	um^{1}mieʔ^{2}	nomameʔ^{2}	*mu̱ʔ^{1}
*77.	thatch grass	plɔŋ^{1}	plɔŋ^{1}	plɔŋ^{1}	*plɔŋ^{1}
*78.	thorn	kat^{1}	kat^{1}	kat^{1}	*kat^{1}
*79.	*tree*	kəlɯmkʰụ̱ʔ^{1}	khuʔ^{1}	*nom*^{2} kʰaoʔ^{1}	*kʰuʔ^{1}
80.	clsf. for tree	lɯm^{1}	kaʔ^{4} lʏm^{1}	lʰem^{1}	*lVm^{1}
*81.	vegetable	tạʔ^{1}	tɯʔ^{1}	tʏʔ^{1}	*tàʔ^{1}
82.	vermicelli	casan^{2}	----	cɪsan^{1}	*cəsan^{1}
83.	watermelon	makteŋtaw^{1}	----	makteŋtao^{2}	*makteŋtav^{2}
84.	animal	sat^{1}	----	sat^{1}	*sat^{1}
85.	animal clsf.	tọʔ^{1}	tuʔ^{1}	to^{2}	*tòʔ^{1}
*86.	ant	amhạc^{1}	kaʔ^{4} mɯik^{1}	mʏc^{1}	*mhàc^{1}
*87.	bear	kʰrịh^{1}	qhil̥^{1}	krʏh^{1}	*krVlh^{1}
*88.	bee	apʰel̥^{1}	phɛh^{1}	hia^{2}	*Cir^{1}
*89.	bird	sẹ̱m^{1}	sim^{1}	sʰi̱m^{1}	*sʰì̱m^{1}
*90.	buffalo	akʰrak^{1}	qhak^{1}	krak^{1}	*krak^{1}
91.	butterfly	tʰaŋlʰak	taŋ^{4} klau^{3}	taŋŋalak^{2}	*tʰaŋ$^{-}$
92.	cat	miaw^{2}	miau^{1}	miao^{2}	*miav^{2}
*93.	chicken	kɔnel̥^{1}	ɛh^{1}	kɔnia^{2}	*konir^{1}
94.	cock's comb	ɲat^{2}	kaʔ^{4} ʑat^{1}	----	*ɲɑt^{2}
*95.	cow	amɔy^{2}	kaʔ^{4} moi^{2}	moi^{2}	*mɔy^{2}
*96.	crab	kətam^{1}	kaʔ^{4} tam^{1}	tam^{1}	*kətam^{1}
*97.	crow	ak^{1}ak^{1}	kaʔ^{4} ak^{2}	alak^{1}	*-ak^{1}
98.	sambhar deer	kɔncak^{1}	----	kɔncak^{1}	*koncak^{1}
*99.	dog	suʔ^{1}	soʔ^{1}	sʰoʔ^{1}	*ʂʰuʔ^{1}
100.	duck	elkat^{1}	ɛh^{1} kap^{2}	ia^{2} klaʔ^{1}	*ir^{1} kaC^{1}
*101.	eagle	klaŋ^{1}	klaŋ^{1}	klaŋ^{1}	*klaŋ^{1}
*102.	egg	kətɔm^{1}	kaʔ^{4} tɔm^{1}	tom^{1}	*kətɔm^{1}
103.	elephant	kəsaŋ^{1}	kaʔ^{4} saŋ^{1}	sʰaŋ^{1}	*kəsʰaŋ^{1}
*104.	fish	kaʔ^{1}	kaʔ^{1}	kaʔ^{1}	*kaʔ^{1}
*105.	flea	atep^{1}	tiap^{1}	tip^{1}	*tip^{1}
106.	a fly	----	xaŋ^{4} xoi^{3}	roi^{2}	*rɔy^{2}
*107.	frog	arọk^{2}	xɔk^{2}	rok^{1}	*rok^{2}
108.	gibbon	faʔ^{1}	----	kɔnfaʔ^{1}	*faʔ^{1}
*109.	goat	apeʔ^{2}	pɛʔ^{4}	peʔ^{1}	*peʔ^{1}
110.	goat	ceh^{1}	----	ciah^{1}	*Cilh^{1}

	English	Kontoi	Shinman	Samtao	Proto-Plang
*111.	horn	rɯŋ^{1}	xɤŋ^{1}	r^{h}uŋ^{1}	*rɤŋ^{1}
*112.	hornet	aʔuŋ^{1}	ɔŋ^{1}	ɔŋ^{1}	*uŋ^{1}
*113.	horse	ŋrɔŋ^{2}	nxɔŋ^{3}	m̥proŋ^{2}	*Crɔŋ^{2}
114.	land leech	aplɛ̤ŋ^{1}	kliŋ^{1}	piɲ^{1}	*Cìŋ^{1}
*115.	louse	s̤iʔ^{1}	siʔ^{1}	s^{hi}ʔ^{1}	*s^{hì}ʔ^{1}
116.	milk	bạ̤ʔ^{2}	um^{1} pɤʔ^{2}	----	*(b)àʔ^{2}
117.	mosquito	amɯŋ^{2}	mɤŋ^{4}	----	*mɤ̀C^{2}
*118.	pig	kɔnl̥ik^{1}	lik^{2}	kɔnlɛ̤c^{2}	*konlèk^{2}
119.	porcupine	----	nkhut^{1}	ŋkuah^{1}	*ŋCùC^{1}
120.	python	klɯn^{1}	----	klun^{1}	*klɤn^{1}
*121.	rat	kɔnkaŋ^{2} kaŋ^{3}		kɔnkaŋ^{2}	*konkaŋ^{2}
122.	snail	səkʰroc^{1}	----	səroc^{1}	*səkròc^{1}
*123.	snake	səʔɯŋ^{1}	kaʔ^{4} ɤiŋ^{1}	səʔuŋ^{1}	*Cəʔɤŋ^{1}
124.	spider	ar̤ah^{2}	haŋ^{4} hɯl̥ ^{2}	rɤ̤ah^{2}	*ràlh^{2}
125.	squirrel	lay^{1}	----	lai^{1}	*lay^{1}
*126.	tail	sətaʔ^{1}	kaʔ^{4} taʔ^{1}	sətaʔ^{1}	*Cətaʔ^{1}
127.	termite	ŋrạ̤ŋ^{2}	nxɤiŋ^{3}	krɤ̤ŋ^{2}	*ŋkràŋ^{2}
*128.	tiger	kɔnvay^{2} kaʔ^{4} vai^{3}		avai^{2}	*vay^{2}
129.	turtle	ar̤ah^{2} kọ̤p^{2}	----	rɤ̤ah^{2}	*ralh^{2}
*130.	wing	pʰrɯc^{1}	phɤik^{1}	pruc^{1}	*prɤc^{1}
131.	worm	n̥rɯc^{2}	----	ŋkrec^{2}	*ŋkrɤ̀c^{2}
132.	armpit	cokklik^{1}	nlɛk^{1}	kɤm^{2}klec^{1}	*ClVk^{1}
133.	armspan	----	tɔp^{1}	tətop^{1}	*top^{1}
134.	back	kạ̤ʔ^{1}	nqhɯʔ^{1}	----	*kràʔ^{1}
*135.	belly	kətɯl^{2}	kaʔ^{4} tɤl^{2}	tɔ̤^{2}	*kətɤ̀l^{2}
*136.	blood	nham ^{1}	n̥am^{1}	n^{h}am^{1}	*nham^{1}
137.	body	iktoh^{2}	nɤʔ^{4} tuʔ^{1}	to^{1} meŋ^{2}	*tòh^{2}
*138.	bone	səʔaŋ^{1}	kaʔ^{4} aŋ^{1}	saʔaŋ^{1}	*Cəʔaŋ^{1}
139.	breast	bạ̤ʔ^{2}	pɤʔ^{2}	----	*(b)àʔ^{2}
140.	chest	naʔɯk^{1}	----	naʔɤk^{1}	*naʔVk^{1}
141.	chin	kap^{2}	----	kap^{1}	*kap^{1}
*142.	dung	iŋ^{1}	ɛŋ^{1}	eɲ^{1}	*iŋ^{1}
*143.	ear	ɣụk^{1}	ʁuk^{1}	ɣak^{1}	*ɣùk^{1}
144.	elbow	sok^{1}	----	cas^{h}ok^{1}	*s^{h}òk^{1}
*145.	eye	ŋay^{1}	ŋai^{1}	ŋai^{2}	*ŋay^{1}
146.	eyebrow	hạk^{1} kitaʔ^{1}	----	hɤk^{1} kita^{1}	*hàk^{1} kitaʔ^{1}
147.	eyelash/brow	hạk^{1}ŋay^{1}	kɤh^{4} ŋai^{1}	----	----
148.	face	----	n̥aʔ^{4}	n^{h}a^{1}	*nhaʔ^{1}
*149.	fat	rəʔuh^{1}	l̥aʔ^{4} ul̥^{1}	aluah^{1}	*CəʔùlH^{1}
150.	finger	ŋkɯn^{1} tị̈ʔ^{1}	nklaik̥^{1} tiʔ^{1}	cen^{1} taiʔ^{1}	*-tìʔ^{1}
*151.	fingernail	n̥n̥ɛ̤m^{1} ŋim^{1}		ɲ^{h}em^{1}	*ŋhèm^{1}
152.	index-thumb	tɯŋtaʔ^{2}	----	tentaʔ^{2}	*taʔ^{2}
153.	flesh	hɯc^{1}	----	neʔ^{1} huc^{1}	*hɤc^{1}
*154.	foot	coŋ^{2}	cuŋ^{3}	coŋ^{2}	*còŋ^{2}
155.	forehead	ŋciŋl^{h}el^{1} xɛl^{1}		nari^{1}	----
*156.	hair	hạk^{1}	hɯk^{1}	hɤk^{1}	*hàk^{1}

	English	Kontoi	Shinman	Samtao	Proto-Plang
*157.	hand	tɻi?^{1}	ti?^{1}	tai?^{1}	*tì?^{1}
158.	heart	m̥m̥ɯl pʰom^{1}	m̥ul^{1}	----	*mhVl^{1}
*159.	intestines	vɯc^{2}	veik^{2}	vec^{2}	*vɤc^{2}
160.	knee	ŋay^{1} ŋoŋ^{1}`	ŋai^{1} ka?^{4} qhoŋ^{2}	ŋɤiŋɔŋ^{2}	*ŋay^{1} Cɔŋ^{2}
*161.	liver	kətum^{1}	ka?^{4} tom^{1}	tɔm^{1}	*kətum^{1}
162.	mouth	----	ntuiŋ^{3}	n̥tut^{1}	*ntuɲ^{1}
163.	mucus	----	um^{1} m̥ɯl^{2}	mɤah^{2}	*màlh^{2}
164.	navel	kətiŋtɻl^{1}	ka?^{4} tiŋ^{2}	tɤ?ateɲ^{2}	*-tVŋ^{2}
*165.	neck	ŋuk^{2}	ŋɔk^{2}	ŋɔk^{2}	*ŋuk^{2}
*166.	nose	ŋkoŋ^{2} mạh^{2}	mul^{2}	ŋkoŋ^{2} mɤah^{2}	*màlh^{2}
167.	penis	klaw^{1}	----	kli?^{1}	----
*168.	pus	lạm^{2}	lɯm^{2}	lɣm^{2}	*làm^{2}
169.	ribs	sə?aŋ^{1}pʰrɻk^{1}	----	sa?aŋprak^{1}	*sə?aŋprɻk^{1}
170.	saliva	----	um^{1} miah^{1}	rom^{1}mia^{2}	*rum^{1} mìC^{2}
*171.	skin	hak^{1}	hak^{1}	hak^{1}	*hak^{1}
172.	testicle	kətɔm^{1} klaw^{1}	----	tom^{1} kla^{1}	*kətɔm^{1}klav^{1}
*173.	thigh	kəvaŋ^{2}	ka?^{4} vaŋ^{1}	avaŋ^{2}	*kəvaŋ^{2}
*174.	throat	kʰrɻŋ^{2}	qhoŋ^{1}	kraŋ^{1}	*krɻŋ^{1}
175.	thumb	ayma?^{1}	----	ŋkunma?^{2}	*ma?^{1}
*176.	tongue	n̥tak^{1}	ka?^{4} tak^{1}	n̥tak^{1}	*ntak^{1}
*177.	tooth	raŋ^{1}	xaŋ^{1}	rʰaŋ^{1}	*raŋ^{1}
*178.	urine (K-v)	n̥ạm^{1}	n̥ɯm^{1}	nɤm^{2}	*nhàm^{1}
179.	vein	sənak^{1}	----	sənak^{2}	*sənak^{1}
180.	waist	ɲɲɔŋ^{2}	----	ɲɔŋ^{2}	*ɲVŋ^{2}
181.	fem. in-law	avɔy^{1}	oi^{1}	o^{1}	*(C)ɔy^{1}
182.	Burman	təman^{1}`	----	man^{2}	*man^{2}
*183.	child	kɔn^{1}	kon^{1}	kɔn^{1} et^{1}	*kon^{1}
184.	custom/habit	rɻt^{2}	----	məret^{2} mərao^{1}	*rVt^{2}
185.	doctor	m̥ɔ?^{1}	m̥ɔ?^{2} ʑa?^{1}	----	*mhɔ?^{1}
*186.	father	akạŋ^{1}	kɯiŋ^{1}	kɤŋ^{1}	*kàŋ^{1}
187.	father's bro.	alɻŋ^{2}	loŋ^{2}	----	*lòŋ^{2}
188.	friend	ay^{1}	----	səhai^{1}	*(C)ay^{1}
*189.	grandfather	ata?^{1}	ta?^{1}	ata?^{1}	*ta?^{1}
*190.	grandmother	aya?^{1}	ʑa?^{2}	aya?^{2}	*ya?^{2}
*191.	husband	kəmi?^{2}	ka?^{4} me?^{2}	ame?^{1}	*kəmi?^{2}
192.	male in-law	apɻ?^{1}	kon^{1} phau^{1}	----	----
193.	man	m̥mi?^{2}	ka?^{4} me?^{2}	kɔnme?^{1}	*mi?^{2}
*194.	mother	ama?^{2}	ma?^{2}	ma?^{2}	*ma?^{2}
195.	mother's sis.	----	pu?^{1}	ma?pɻ?^{2}	*pu?^{1}
196.	name	mạh^{2}	mɯl^{2}	----	*màlh^{2}
197.	nephew/niece	kɔnlʰan^{1}	l̥an^{1}	lʰan^{1} pɻ?^{2}	*lhan^{1}
198.	old man	takɔt^{2}	----	pakɔt^{2}	*takɔ̀t^{2}
199.	old woman	yakɔt^{2}	----	yakɔt^{2}	*yakɔ̀t^{2}
*200.	person	pɯy^{2}	pɤi^{3}	pɻi^{2}	*pɤ̀y^{2}
*201.	Plang	plaŋ^{2}	plaŋ^{3}	plaŋ^{2}	*plaŋ^{2}
202.	single female	kɔnkʰrẹh^{1}	----	pəkrih^{1}	*krìh^{1}

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203.	single male	kʰuŋ̈um¹	meʔ² naŋ² num¹	----	*Cu̱m¹
*204.	Tai person	sem¹	sem¹	sʰim¹	*sʰim¹
*205.	village	yuŋ¹	ʑuŋ¹	pɤiyaŋ¹	*yùŋ¹
206.	Wa person	----	vaʔ⁴	vaʔ¹	*vaʔ¹
207.	wedding	kʰɯkkan¹	----	praʔkan¹	*-kan¹
208.	widow	mɛmhay¹	----	mɛmʰai²	*m(ɛ)mhay¹
209.	widower	pomhay¹	----	pomʰai²	*pomhay¹
*210.	wife	mạŋ²	kaʔ⁴ muiŋ³	amɤŋ²	*màŋ²
*211.	woman	m̥pɯn¹	kaʔ⁴ pɤn¹	kɔnpun¹	*pɤn¹
212.	ygr. sibling	ɔŋ¹	ɔŋ¹	----	*ɔŋ¹
213.	he	ɯn²	ɤn¹	----	*ɤ̱n¹
*214.	I	uʔ²	ɯʔ¹	ɤʔ¹	*aʔ¹
215.	they (2)	kaʔ²	kaʔ²	----	*kaʔ²
216.	they (3+)	kiʔ¹	kɛʔ²	----	*kiʔ¹
217.	that	ɔʔ¹	ɔn²	an¹	*Vn¹
218.	this	eʔ²	en²	in¹	*in²
219.	we (2)	aʔ²	aʔ¹	----	*aʔ¹
*220.	we (3+)	iʔ¹	ɛʔ¹	iʔ¹	*iʔ¹
*221.	thou	m̥iʔ²	miʔ²	miʔ¹	*mìʔ²
222.	you (2)	paʔ²	paʔ¹	----	*paʔ¹
223.	you (3+)	piʔ¹	pɛʔ¹	----	*piʔ¹
224.	armband	pʰɔlsọk¹	----	plesʰok¹	*-sʰòk¹
225.	arrow	tiʔ¹ ak¹	tieʔ⁴	----	*tiʔ¹
226.	axe	taŋmet¹	----	təmet¹	*met¹
227.	ball	maklom²	mak² lum²	makəlum¹	*makIVm²
228.	silver belt	sɔysɔyiŋ¹	----	soisəʔeŋ²	*sɔy-iŋ¹
229.	boat	vayrɯʔ¹	xɤʔ⁴	rɤ²	*r(ɤ)ʔ¹
230.	book	----	pap²	pap²	*pap²
231.	bottle	kuŋ¹	kaŋ⁴ kiauʔ⁴	koŋ¹	*kVŋ¹
*232.	bow	ak¹	ak¹	ak¹	*ak¹
233.	rice bowl	tʰalʰɯy¹	----	təlʰai¹	*tʰəlhVy¹
*234.	bridge	m̥pạk¹	kaʔ⁴ pɯk²	apɤk¹	*pàk²
*235.	broom	m̥bẹh¹	npih¹	m̥piah¹	*mpih¹
236.	bucket	poŋ²	thoŋ³	pọŋ²	*Còŋ²
237.	car	kaʔ²	----	ka²	*kaʔ²
*238.	charcoal	pəsɔh¹	kaʔ⁴ sual¹	soah¹	*sòlh¹
239.	live charcoal	ŋkoh²	----	ŋkoŋ¹	*ŋkòC²
240.	cigarette	səlịk²	----	səlẹc²	*səlek²
241.	clsf. clothes	pʰạn¹	phɤn¹	pʰɤn¹	*pʰàn¹
242.	clsf. cup	mɯl¹	----	mu¹	*mɤl¹
*243.	comb	n̥sat¹	nsat¹	sot¹	*nsọt¹
244.	digging stick	mol¹	----	mo¹	*mòl¹
245.	door	kəvaʔ¹	----	avaʔ²	*kəvaʔ¹
*246.	drum	kʰrạŋ¹	qhɯŋ¹	krɤŋ¹	*kràŋ¹
247.	fish basket	asaʔ²	----	sia²	----
248.	fishing net	niŋ²	----	neŋ²	*niŋ²

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249.	garden	val^{2}	----	va^{2}	*vaC^{2}
250.	gong	----	[ka?^{4} paŋ^{3}]	akaŋ^{2}	*Caŋ^{2}
251.	grease	rə?uh^{1}	la?^{4} u̥l^{1}	----	*Cə?u̱lh^{1}
252.	hat	m̥u̱k^{1}	----	m^{h}uk^{1}	*mhu̱k^{1}
*253.	house	ɲa?^{2}	ɲa?^{2}	ɲa?^{2}	*ɲa?^{2}
254.	house clsf.	l^{h}aŋ^{1}	----	l^{h}aŋ^{1}	*lhaŋ^{1}
255.	house pole	rɔŋ^{1}	hɔŋ^{1}	r^{h}oŋ^{1}	*rɔŋ^{1}
*256.	ladder	m̥buŋ^{2}	npoŋ^{1}	m̥poŋ^{1}	*mpuŋ^{2}
*257.	liquor	play^{1}	plai^{1}	plai^{1}	*play^{1}
*258.	market	lah^{2}	ka?^{4} la̱l^{2}	alah^{2}	*lalh^{2}
259.	mat	ŋ̊riŋ^{2}	----	ŋkrę^{2}	*ŋkrVŋ^{2}
260.	medicine	ŋ̊pay^{1}	ka?^{4} pai^{1}	----	*pay^{1}
261.	mortar	p^{h}əlok^{1}	----	təlɔk^{2}	*Cəlɔk^{1}
*262.	mosquito net	sụt^{1}	sut^{2}	ŋkaŋsut^{1}	*sùt^{1}
*263.	needle	pəɲi?^{1}	ka?^{4} ɲe?^{1}	ane?^{1}	*ɲi?^{1}
264.	pair	təkụ?^{2}	ku?^{4}	təkɔ̱^{2}	*ku?^{2}
265.	paper/poster	kənn̥at^{1}	ka?^{4} nat^{2}	kənat^{1}	*kənhat^{1}
*266.	path	k^{h}ra?^{1}	qha?^{1}	kra?^{1}	*kra?^{1}
267.	photograph	p^{h}oŋ^{1}	----	p^{h}uŋ^{1}	*p^{h}òŋ^{1}
268.	pillow	k^{h}aŋkɔ̱ŋ^{2}	----	mɔnkoŋ^{2}	*kVŋ^{2}
269.	planting tool	ŋ̊re?^{2}	----	ŋkre?^{1}	*ŋkre?^{1}
270.	price	cę̱ŋ^{1}	kiŋ^{1}	----	*kVŋ^{1}
*271.	rice field	m̥al^{1}	mah^{1}	ma^{1}	*mhar^{1}
272.	ring	kəcup	----	paicup^{1}	*cu̱p
*273.	rope	m̥u?^{1}	mu?^{1}	mao?^{1}	*mhu?^{1}
274.	men's sarong	n̥tay^{1}	----	n̥tai^{1}	*ntay^{1}
275.	shirt	p^{h}rɔ̱?^{2}	pho?^{1}	----	*prò?^{2}
*276.	shoes	c^{h}ep^{1}	khiap^{2}	c^{h}ep^{1}	*k^{h}ep^{1}
277.	shot medicine	tiŋk^{h}em^{1}	----	t^{h}oc^{h}ɪm^{1}	*k^{h}Vm^{1}
278.	sickle	vik^{2}	nvuik^{1}	səvɔk^{2}	*vVk^{2}
279.	sieve	ak^{h}rɯŋ^{1}	----	k^{h}rɤŋ^{1}	*krVŋ^{1}
280.	space by well	ləmɔ?^{1}	----	nɤmmɔ^{1}	*-mɔ^{1}
281.	spear	pleh^{1}	----	pleah^{2}	*plelh^{1}
282.	stool	paŋ^{1}	paŋ^{1}	----	*paŋ^{1}
283.	sword	vac^{2} laŋ^{1}	----	vac^{2}	*vac^{2}
284.	table	p^{h}ɯn^{1}	phɯn^{2}	p^{h}ɤn^{1}	*p^{h}Vn^{1}
285.	thatched roof	ploŋ^{1}	----	top^{2}ploŋ^{1}	*plVŋ^{1}
286.	tray	t^{h}alep^{h}an^{1}	----	təlaiteɲ^{1}	----
287.	tumpline	n̥tol^{1}	----	kaɲ^{1} toa^{2}	*tòr^{1}
288.	wall	n̥t^{h}al^{2}	ntal^{2}	ta?^{1}	*t^{h}al^{2}
289.	window	kəvapɔŋ^{1}	pha?^{4} moŋ^{2}	pətupɔŋ^{1}	*poŋ^{1}
290.	wok	pəc^{h}iŋ^{1}	pha?^{4} chɛiŋ^{2}	m̥pa^{1}	*C^{h}Vŋ^{1}
291.	able	caŋ^{2}	ʑoŋ^{3}	----	----
292.	answer	tup^{1}	tɔp^{1}	----	*tVp^{1}
293.	bark	kwal^{1}	kual^{1}	----	*kwal^{1}

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*294.	bathe	hạm^{1}	hɯm^{1}	hɤm^{1}	*hàm^{1}
295.	beat	pạh^{2}	----	pɤh^{2}	*pàh^{2}
*296.	bite	cet^{2}	kɛt^{2}	cet^{2}	*ket^{2}
*297.	blossom	kɔnp^{h}rɯh^{1}	phɤl^{1}	pluah^{1}	*prɤlh^{1}
*298.	blow	pạŋ^{2}	pɤŋ^{2}	pɤŋ^{1}	*pàŋ^{2}
299.	borrow	----	vai^{3}	vai^{2}	*vay^{2}
*300.	break (tr)	mpɯk^{1}	npɤk^{2}	puk^{1}	*mpɤk^{1}
301.	breathe	t^{h}ɔ̣y^{1} p^{h}ọm^{1}	----	t^{h}ui^{1} p^{h}om^{1}	*t^{h}ɔ̀y^{1} p^{h}om^{1}
302.	burn (intr)	ŋol^{2} haʔ^{1}	----	ŋɔ^{2} haʔ^{1}	*ŋɔ̀l^{2} haʔ^{1}
303.	burp	k^{h}ɯʔ^{2}	----	saʔɤʔ^{1}	----
*304.	bury	kəpạŋ^{2}	kaʔ^{4} pɤŋ^{1}	apɤŋ^{1}	*kəpàŋ^{1}
305.	buy	viʔ^{2}	----	avẹ^{2}	*viʔ^{2}
306.	carry on back	pɯh^{2}	----	pụah^{2}	*pɤlh^{2}
307.	carry child on back	----	pɔʔ^{2}	kɔʔ^{1}	*Cɔ̀ʔ^{1}
308.	carry in hand	pẹn^{1}	----	pin^{1}	*pìn^{1}
*309.	carry on shoulder	klɔm^{1}	klɔm^{1}	klom^{1}	*klɔm^{1}
310.	carry water	cạn^{2}	----	cẹn^{2}	*cVn^{2}
*311.	catch	mṃɯt^{1}	mɯt^{1}	mut^{1}	*mhɤt^{1}
*312.	chew	pam^{2}	pam^{2}	pam^{2}	*pam^{2}
313.	choose	rɔh^{1}	xɔl^{3}	----	*rɔlh^{1}
314.	clap	t^{h}ɔp^{2}	nthop^{2}	ṇt^{h}ap^{2}	*t^{h}Vp^{2}
315.	climb	hụk^{1}	----	hak^{1}	*hùk^{1}
316.	close(eyes)	yep^{2}	----	yep^{2}	*yep^{2}
317.	comb	sat^{1}	sat^{1}	----	*sat^{1}
318.	come	ẹŋ^{1}	----	iɲ^{1}	*ìŋ^{1}
319.	to come from	nɯm^{2}	----	nom	*nɤm^{2}
*320.	cook (rice)	kɯh^{1}	kɤl^{1}	kuah^{1}	*klɤh^{1}
321.	cough	ŋhak^{1}	ŋhɛk^{1}	mak^{1}	*CVk^{1}
322.	count	nhịn^{1}	sin^{2}	amẹn^{2}	----
323.	cover (pot)	kạp^{1}	----	kɤp^{2}	*kàp^{1}
*324.	crawl	mul^{2}	muh^{2}	mua^{2}	*mùr^{2}
325.	cut (trees)	ŋkol^{2}	----	ŋkɔ^{2}	*ŋkVl^{2}
*326.	cut/slash	mɔk^{2}	mɔk^{2}	mok^{2}	*mɔk^{2}
327.	cut (hair)	cẹp^{2}	kip^{1}	cip^{1}	*kìp^{1}
328.	dance	hɔn^{2}	----	pɔn^{2}	*CVn^{2}
*329.	die	yɯm^{2}	ʑɤm^{3}	yɔm^{2}	*yɤm^{2}
330.	do	yuh^{2} ----		coʔ^{1}	----
331.	don't (imper.)	pay^{1}	----	pai^{1}	*pay^{1}
*332.	dream	kəmuʔ^{2}	kaʔ^{4} muʔ^{2}	itəmɔʔ^{2}	*kəmuʔ^{2}
*333.	drink	ɲạʔ^{1}	ɲɯʔ^{1}	ɲɤʔ^{2}	*ɲàʔ^{1}
334.	dry in sun	hɔk^{1}	qhah^{1}	hok^{1}	*hVk^{1}

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*335.	eat (rice)	som^{1}	som^{1}	som^{1}	*sòm^{1}
*336.	enter	lɯc^{2}	lɛik^{2}	lec^{2}	*lɤc^{2}
337.	fall	----	qhɯik^{1}	kʰɤc^{1}	*kràc^{1}
338.	fan/wave hand	vi̬ʔ^{2}	----	vi^{1}	*vìʔ^{2}
*339.	fear	lʰat^{1}	l̥at^{1}	lʰat^{1}	*lhat^{1}
340.	feel	mɔŋ^{1}	----	moŋ^{1}	*mhVŋ^{1}
341.	fill up	----	nuk^{2}	nok^{2}	*nVk^{2}
342.	fish	met^{1}	----	met^{1}	*met^{1}
343.	float	tɻy^{1}	----	tui^{1}	*tɔy^{1}
344.	flow	----	l̥ai^{1}	lʰai^{1}	*lhay^{1}
*345.	to fly	pʰɯl^{1}	pɤh^{1}	pua^{1}	*phɤr^{1}
*346.	forget	pɻl^{2}	pil^{2}	pɻ^{2}	*pèl^{2}
347.	fry (meat)	----	khoʔ^{2}	kʰru^{1}	*krVʔ^{1}
*348.	get	pɒn^{2}	pon^{2}	pun^{2}	*pòn^{2}
349.	get up	kuh^{1}	----	kaoh^{1}	*kulh^{1}
350.	give	kah^{2}	kaʔ^{2}	----	*kah^{2}
*351.	go	hɯl^{1}	hɤl^{1}	hu^{1}	*hɤl^{1}
*352.	go down	lɻh^{2}	lih^{2}	lɻh^{2}	*lèh^{2}
353.	go out	ew?	----	ɪo^{1}	----
354.	go up/north	----	huk^{1}	hak^{1}	*hùk^{1}
*355.	grind	mɻ̥mɔʔ^{1}	mɔ^{2}	mɔ^{2}	*mhɔ̀ʔ^{1}
*356.	have	kɒy^{1}	kui^{2}	kui^{1}	*kɔ̀y^{1}
357.	hear	mɔŋ^{1}	----	moŋ^{1}	*mhVŋ^{1}
*358.	hide	səmuʔ^{1}	kaʔ^{4} moʔ^{2}	muʔ^{1}	*muʔ^{1}
359.	hold (hand)	ɳsɔp^{1}	----	sop^{1}	*ɳsVp^{1}
360.	hug	kʰɔt^{2}	----	kɔt^{2}	*kʰVt^{2}
361.	ill	sɻ̨ʔ^{1}	----	sɤʔ^{1}	*sàʔ^{1}
*362.	itch	ŋaʔ^{2}	ŋaʔ^{2}	ŋaʔ^{2}	*ŋàʔ^{2}
*363.	kick	ɳtɯn^{2}	ntɤn^{3}	ɳton^{2}	*ɳtɤn^{2}
364.	kick	ɳcʰah^{1}	cal^{1}	----	*ɳcʰalh^{1}
365.	kill	ɲyɯm^{2}	----	mpʲum^{1}	*Cɤm
*366.	know	ɲɔŋ^{2}	ʑoŋ^{3}	yɻŋ^{2}	*ɲoŋ^{2}
367.	laugh	----	kaʔ^{4} ɲal^{1}	ɲah^{2}	*kəɲalh^{1}
368.	lay an egg	----	kaʔ^{4} tɔm^{1}	tom^{1}	*kətɔm^{1}
369.	lean	səciŋ$^{1`}$	----	səceɲ^{2}	*səciŋ^{2}
370.	lick	liŋ^{2}	liat^{2}	leɲ^{2}	*liŋ^{2}
*371.	like	mak^{2}	mak^{2}	mak^{2}	*mak^{2}
372.	listen	rəciŋ^{2}	----	aceɲ^{2}	*ciŋ^{2}
373.	live	muk^{1}	mok^{1}	----	*muk^{1}
374.	look at	nɔk^{2}	nɔk^{2}	----	*nɒk^{2}
375.	look up	ɳmuŋ^{1}	----	moŋ^{2}	*muŋ^{1}
376.	love	mɯh^{1}	----	amuah^{1}	*mhɤlh^{1}
377.	make thatch	pʰruy^{2}	----	plai^{2}	----
378.	meet	kʰruup^{1}	qhɤp^{1}	kʰɤt^{1}	*krVC^{1}
379.	open	toh^{1}	tuh^{1}	----	*tòh^{1}

	English	Kontoi	Shinman	Samtao	Proto-Plang
380.	open (door)	tah^{1}	toh^{1}	----	*tVh^{1}
381.	open (eyes)	plaŋ^{1}	----	plẹn^{2}	----
382.	pass wind	pʰɯm^{1}	----	pʰum^{1}	*pʰɤm^{1}
383.	peel	pah^{1}	----	pah^{1}	*pah^{1}
384.	place/put	an^{1}	ɯn^{1}	ɤn^{1}	*Vn^{1}
*385.	plant	n̥sɯm^{1}	nsɤm^{1}	sum^{1}	*n̥sɤm^{1}
386.	play	raʔ^{1}	kaʔ^{4} xaʔ^{1}	----	*raʔ^{1}
387.	point	səcit^{1}	----	cẹ^{2}	*cit^{1}
388.	pound	ŋklɔŋ^{1}	----	ŋklɤh^{1}	----
389.	pull	yac^{2}	ʑat^{2}	----	*yaC^{2}
390.	push	ɲɲut^{2}	----	ɲut^{1}	*ɲu̱t^{2}
391.	raise	a̱y^{1}	----	ɤi^{1}	*ày^{1}
392.	reap rice	vạc^{2}	vuik^{2}	vɔk^{2}	*vVc^{2}
393.	rest	tah^{1}	tah^{1}	----	*tah^{1}
*394.	return	ẹŋ^{1}	iŋ^{1}	iɲ^{1}	*ìŋ^{1}
*395.	ride	pʰɔk^{2}	pɔk^{2}	pọk^{2}	*pʰɔk^{2}
396.	roast (tr)	m̥pẹŋ^{1}	piŋ^{1}	----	*pVŋ^{1}
397.	rub (hand)	ɲɯlɲal^{1}	----	ɲɤ̱^{2}	*ɲVl^{2}
398.	scratch	hac^{1}	----	krac^{2}	*Cac^{1}
*399.	see	ɲu̱ʔ^{2}	ʑuʔ^{1}	yoʔ^{2}	*ɲuʔ^{2}
400.	sell	paɲ^{1}	paiŋ^{1}	----	*paɲ^{1}
401.	separate	----	kaʔ^{4} kah^{2}	ŋkoah^{2}	*kVh^{2}
*402.	sew	cẹŋ^{2}	ciŋ^{3}	keɲ^{2}	*cèŋ^{2}
403.	shiver	n̥rạŋ^{2}	nxɤŋ^{3}	----	*n̥ràŋ^{2}
*404.	shoot	puɲ^{1}	pɤiŋ^{1}	puɲ^{1}	*pɤɲ^{1}
405.	shout	rak^{2}	xak^{3}	----	*rak^{2}
406.	sing	cay^{2}	----	coi^{2}	*CVy^{2}
407.	sink	m̥bah^{2}	----	m̥pah^{2}	*m̥pah^{2}
408.	sit	muk^{1}	mok^{1}	----	*muk^{1}
*409.	sleep	i̱t^{1}	it^{1}	it^{1}	*ìt^{1}
410.	smell	hạt^{1}	----	hɤt^{1}	*hàt^{1}
411.	smell good	hum^{1}	xɔm^{2}	hom^{1}	*hVm^{1}
*412.	smell bad	səʔa̱y^{1}	kaʔ^{4} ui^{2}	səʔui^{1}	*Cəʔɔ̀y^{1}
*413.	spit	pʰrɯc^{2}	phɛik^{2}	m̥pec^{2}	*prɤ̀c^{2}
414.	split	pʰaʔ^{1}	pha^{2}	pʰa^{1}	*pʰaʔ^{1}
415.	squeeze	----	miet^{1}	men^{1}	*mVn^{1}
*416.	stand	cɔŋ^{2}	cuŋ^{3}	cọŋ^{2}	*cɔ̱ŋ^{2}
417.	start a fire	paŋ^{2}	----	pɤŋ^{1}	*pàŋ^{2}
*418.	steal	ŋraʔ^{2}	nxaʔ^{2}	praʔ^{2}	*Craʔ^{2}
419.	sting	hạc^{1}	----	hɤc^{1}	*hàc^{1}
*420.	stretch (hand)	ɲat ^{1}	ɲat^{1}	ɲat^{1}	*ɲat^{1}
421.	swallow	n̥nɯt^{2}	pluɯt^{2}	plon^{1}	----
*422.	sweep	pẹh^{1}	phil̥^{1}	piah^{1}	*pìlh^{1}
423.	swell	puŋ^{2}	----	pɔŋ^{2}	*puŋ^{2}
424.	swim	lɔy^{2}	----	lọi^{2}	*lɔy^{2}

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*425.	take out food	puɯk^{2}	pɤk^{2}	pọk^{2}	*pɤ̀k^{2}
426.	take	tị?^{2}	----	tọi^{2}	*tV?^{2}
427.	tell	lah^{2}	la?^{1}	----	*lah^{2}
*428.	think	kạt^{2}	ka?^{4} kɤt^{1}	kɤ̣t^{2} p^{h}om^{1}	*kàt^{2}
429.	throw out	tik^{2}	----	tic^{1}	*tik^{2}
430.	trap	toŋ^{1}	----	tom^{1}	*tòC^{1}
431.	turn head	p^{h} at^{1}	----	p^{h} at^{1}	*p^{h}at^{1}
432.	twist/wring	vet^{2}	miet^{4}	yot^{2} yet^{2}	*Cit^{2}
*433.	untie	kah^{1}	kah^{1}	kah^{1}	*kah^{1}
*434.	vomit	họl^{1}	hul^{1}	ho^{1}	*hòl^{1}
*435.	wait	ku?^{1}	kho?^{1}	ŋku?^{1}	*k^{h}u?^{1}
436.	wake up	kuh^{1}	qhɔn^{1}	kaoh^{1}	*kuh^{1}
437.	walk	hɯl^{1}	hɤl^{1}	hu^{1}	*hɤl^{1}
438.	want	som^{1}	----	som^{1}	*sòm^{1}
*439.	wash dishes	k^{h}ọc^{1}	khoik^{1}	k^{h}oc^{1}	*k^{h}òc^{1}
440.	wear	c^{h}ọp^{1}	chup^{2}	cɪp^{1}	*c^{h}Vp^{2}
*441.	weave	taŋ^{1}	taiŋ^{1}	taŋ^{1}	*taŋ^{1}
442.	weed	ṇlọh^{2}	luh^{2}	----	*lòh^{2}
443.	weed	rem^{2}	----	riam^{2}	*rim^{2}
*444.	weep	yam^{2}	ʑam^{2}	yam^{2}	*yam^{2}
445.	whistle	soc^{1}	----	ṇc^{h}oc^{1}	*Còc^{1}
446.	winnow	----	kɯm^{4}	kɤ̣m^{2}	*kàm^{2}
447.	wrap	kaw^{2}	kau^{3}	ka^{2}	*kav^{2}
448.	yawn	ŋhap^{1}	----	ŋ^{h}ap^{1}	*ŋhap^{1}
449.	all gone	ɯc^{1}	----	uc^{1}	*ɤc^{1}
450.	ashamed	kac^{2}	----	kac^{2}	*kac^{2}
451.	bad	l^{h}ɯ?moŋ$^{1`}$	----	lɤ?^{2} akah^{1}	*lhV?^{1}-
452.	bald	tohpak^{1}	----	kaŋ^{1} pak^{1}	*-pak^{1}
453.	beautiful	ŋam^{2}	n̥om^{1}	----	----
454.	big	kətẹŋ^{2}	----	teŋ^{2}	*kətèŋ^{2}
*455.	bitter	sɔŋ^{1}	soŋ^{2}	soŋ^{1}	*soŋ^{1}
*456.	black	lɔŋ^{2}	lɔŋ^{3}	lọ̣ŋ^{2}	*lòŋ^{2}
457.	cheap	----	ʑau^{3}	ya^{2}	*ya^{2}
458.	clear	sɪŋɔm$^{1`}$	----	sɪŋɔm^{2}	*sɪŋVm^{2}
459.	clever	hiŋ^{1}	----	heŋ^{1}	*hiŋ^{1}
460.	cold	kɔt^{1}	kuat^{1}	----	*kɔ̀t^{1}
*461.	cooked	sịn^{1}	sin^{1}	s^{h}in^{1}	*s^{h}ìn^{1}
462.	correct	cɔp^{1}	----	cap^{1}	*cVp^{1}
*463.	deaf	n̥l^{h}ạt^{1}	naŋ^{2} l̥ɯt^{1}	l^{h}ɤt^{1}	*lhàt^{1}
*464.	deep	rạ?^{1}	xɤ?^{1}	rɤ?^{1}	*rà?^{1}
465.	delicious	ɲum^{2}	----	ɲọm^{2}	*ɲum^{2}
466.	difficult	n̥n̥̊ap^{1}	----	ɲ^{h}ap^{1}	*ɲhap^{1}
467.	drunk	mawrəplay^{1}	mau^{3}	mao^{2} kəplai^{1}	*mav^{2}–
468.	dry	səʔuh^{1}	ka?^{4} oh^{1}	kroh^{1}	*Cuh^{1}
469.	fast	vɯy^{2}	vɛi^{3}	vai^{2}	*vVy^{2}

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*470.	fat	klɯɲ^{1}	klɤiŋ^{1}	kluɲ^{1}	*klɤɲ^{1}
471.	finished	hoc^{1}	----	hoc^{1}	*hòc^{1}
472.	full	lo̤k^{2}	----	alɔ̤k^{2}	*lɔ̀k^{2}
*473.	full (w/food)	sak^{1}	sak^{1}	sak^{1}	*sak^{1}
474.	green	siŋal^{1}	----	sɪŋa^{2}	*siŋaC^{2}
475.	green/alive	i̤m^{1}	----	im^{1}	*ìm ^{1}
476.	grey	pa̤l^{1}	----	pɤ^{1}	*pàl^{1}
477.	hard	kol^{1}	kɔh^{1}	n̤koa^{1}	*kVr^{1}
*478.	heavy	səcen^{1} kaʔ^{4}	kian^{3}	cen^{2}	*Cəken^{2}
479.	high	lʰo̤ŋ^{1}	----	lʰaŋ^{1}	*lhVŋ^{1}
480.	hot	rɔn^{2}	hɔn^{4}	ron^{2}	*rɔn^{2}
481.	hungry	sompʰom^{1}	kaʔ^{4} phum^{1}	----	*pʰòm^{1}
*482.	lightweight	siyo̤ŋ^{1}	kaʔ^{4} ʑuŋ^{1}	siyaŋ^{1}	*Cəyùŋ^{1}
*483.	long	laŋ^{1}	laŋ^{1}	laŋ^{1}	*laŋ^{1}
484.	long (time)	le̤ŋ^{1}	----	liŋ^{1}	*lìŋ^{1}
485.	loud	lɔh^{1}	----	loah^{1}	*lVlh^{1}
486.	muddy	səkɯl^{1}	----	səku^{1}	*səkɤl^{1}
487.	narrow	up^{1}	op^{1}	kop^{1}	*up^{1}
488.	new	so̤ʔ^{1}	chuʔ^{1}	----	*Còʔ^{1}
489.	not	un	un^{2}	----	*un
490.	old (man)	kɔt^{2}	----	takɔt^{2}	*kVt^{2}
491.	old (object)	pʰre̤m^{1}	----	prim^{1}	*prìm^{1}
*492.	pain	sa̤ʔ^{1}	sɯʔ^{1}	sɤʔ^{1}	*sàʔ^{1}
*493.	red	səkʰrak^{1}	kaʔ^{4} qhak^{1}	sərak^{1}	*Cəkrak^{1}
494.	ripe	kətạm^{2}	----	tɤm^{2}	*kətàm^{2}
*495.	rotten	səʔɯm^{1}	kaʔ^{4} ɤm^{1}	səʔum^{1}	*Cəʔɤmˈ^{1}
496.	round	m̤mɯl^{1}	----	mu^{1}	*mɤl^{1}
497.	salty	ɯm^{1}	ɤm^{1}	----	*ɤm^{1}
498.	shallow	tol^{2}	----	tɔ^{2}	*tVl^{2}
*499.	sharp pointed	səpɯc^{1}	kaʔ^{4} pɛik^{2}	m̤pʰoc^{1}	*pʰɤ̀c^{1}
*500.	sharp (knife)	lɔm^{2}	lɔm^{3}	lɔm^{2}	*lɔ̀m^{2}
*501.	short (length)	nɯɲ^{1}	ŋeiŋ^{1}	ɲeɲ^{1}	*Cɤɲˈ^{1}
502.	short (ht)	tem^{2}	tiam^{3}	----	*tVm^{2}
503.	shy	kac^{2}	----	kac^{2}	*kac^{2}
*504.	slow	kɔy^{2}	kɔiʔ^{4}	koi^{2}	*kɔy^{2}
*505.	small	et^{1}	ɛt^{1}	et^{1}	*et^{1}
506.	smooth	kənul^{1}	----	ɲo^{1}	*kəCul^{1}
507.	soft	kəcɯm^{2}	kaʔ^{4} ɲom^{1}	----	*kəCɤmˈ^{1}
*508.	sour	n̤naʔ^{2}	naʔ^{2}	naʔ^{2}	*naʔ^{2}
*509.	spicy	səpʰri̤c^{2}	kaʔ^{4} phɛiʔ^{1}	səpraiʔ^{1}	*Cəprìc^{1}
510.	sweet	tew^{1}	tiu^{1}	----	*tVv^{1}
*511.	tall	lʰo̤ŋ^{1}	l̥oŋ^{1}	lʰaŋ^{1}	*lhVŋ^{1}
512.	tasteless	caŋ^{1}	----	caŋci̤ah^{2}	*caŋ^{1}

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*513.	thick	kəpɯl^{2}	ka?^{4} pɤl^{3}	pɔ̰^{2}	*kəpɤ̀l^{2}
514.	thin	l^{h}e̤l^{1}	ʑih^{1}	r^{h}i̤^{1}	----
515.	tired	səɬɯŋ^{1}	ka?^{4} tɤŋ^{1}	tɤ?^{2}	*CətVŋ^{1}
516.	torn	n̥reh^{2}	----	ŋkreah^{2}	*ŋkrelh^{2}
*517.	warm	sə?ɯl^{1}	ka?^{4} ɤh^{1}	sə?ua^{1}	*Cə?ɤr^{1}
518.	wet	səku?^{1}	----	cɤ?^{2}	----
*519.	white	paŋ^{2}	paiŋ^{2}	paŋ^{2}	*paŋ^{2}
*520.	wide	vah^{2}	vah^{2}	vah^{1}	*vah^{2}
521.	yellow	l^{h}ɯŋ^{1}	l̥ɤŋ^{1}	pəl^{h}ɤŋ^{1}	*lhVŋ^{1}
522.	beside	pet^{2}	----	pe̤t^{2}	*pet^{2}
*523.	far	səŋaŋ^{1} ka?^{4} ŋai^{3}		sɪŋai^{2}	*Cəŋaŋ^{2}
524.	here	te?^{2}	man^{4} ni?^{1}	kətiŋ^{1}	*-tVŋ^{2}
525.	inside	lak^{2} nɯy^{2}	kha^{2} nai^{2}	----	*-nVy^{2}
*526.	left side	avi?^{1}	kha^{2} ka?^{4} ve^{2}	kra?ve?^{1}	*-vi?^{1}
527.	middle/ between	ŋŋɔn^{1}	----	kəŋɔn^{1}	*ŋVn^{1}
*528.	near	n̥ti?^{1}	nte?^{2}	n̥te?^{2}	*n̥ti?^{2}
529.	outside	lak^{2} nɔk^{2}	kha^{2} nok^{2}	nɔk^{2}	*-nok^{2}
*530.	right side	atɔm^{1}	kha^{2} ka?^{4}tom^{2}	kra?tom^{1}	*-tom^{1}
531.	side/end	----	man^{4} cɛiŋ^{2}	kəceŋ^{2}	*-cVŋ^{2}
532.	space behind	----	kha^{2} qhɯ?^{2}	kra?kri^{1}	----
533.	spatial/ front	lak^{2} n̥n̥a?^{1}	kha^{2} n̥a?^{2}	kra?n^{h}a^{1}	*-nha?^{1}
*534.	there (far)	teh^{1}	man^{4} teh^{1}	kəteh^{1}	*-teh^{1}
535.	the top	ŋoc^{2}	----	ŋoc^{2}	*ŋòc^{2}
536.	with	may^{1}	----	me??	----
*537.	one	kəti̤?^{2}	ka?^{4} ti?^{4}	te?^{2}	*kətè?^{2}
*538.	two	la?al^{1}	la?^{4} al^{1}	ra^{1}	*Ca?al^{1}
*539.	three	la?ɔy^{1}	la?^{4} oi^{1}	loi^{1}	*la?ɔy^{1}
*540.	four	ləpun^{1}	pun^{1}	pun^{1}	*pùn^{1}
*541.	five	ləp^{h}ɔn^{1}	phuan^{1}	p^{h}ɔn^{1}	*p^{h}ɔ̀n^{1}
*542.	six	leh^{2}	liel^{2}	leah^{2}	*lelh^{2}
*543.	seven	həreh^{1}	al^{4} ka?^{4} lie̤l^{2}	aleah^{2}	*həlelh^{2}
*544.	eight	səti̤?^{1}	xɔŋ^{4} ti?^{1}	sɪtai?^{1}	*sətì?^{1}
*545.	nine	sətem^{1}	ka?^{4} tim^{1}	sɪtim ^{1}	*Cətìm^{1}
*546.	all	ɯc^{1}	ɤik^{1}	uc^{1}	*ɤc^{1}
547.	half	k^{h}rɯŋ^{2}	----	krɤŋ^{2}	*krVŋ^{2}
548.	many	hɯn^{1}	hɤn^{1}	----	*hɤn^{1}
549.	medium/few	la̤mle̤ŋ^{2}	lɛiŋ^{3}	----	*lVŋ^{2}
550.	who	anɔ?^{1}	----	mo^{1} mɔ^{2}	----
551.	what	kənɔ?^{1}	ka?^{4} n̥a^{2}	mi?mɔ^{2}	----
552.	when	nɯmnɔ?^{1}	----	ɲammɔ^{2}	----
553.	where	naŋnɔ?^{1}	man^{4} mu?^{4}	təmɔ^{2}	----
554.	how much	----	pɤn^{4} mu?^{4}	pɔn^{2} mɔ^{2}	----
555.	if	ɲṳ?^{2}	----	yu	*ɲù?
556.	already	hoc^{1}	----	he?^{1}	----

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Received November 1989

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