

# Nasality in Bisu and Bisoid

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## Abstract

Diachronically, Bisu and closely related languages provide an example of consonant denasalization relevant to those discussed in Haudricourt 1970. Synchronically, this development is reflected in variation within and between dialects of Bisu. The complete lack of similarity between syllable-initial and syllable-final nasal consonant developments shows the relevance of the rhyme in historical processes.

## Introduction

Bisu is a language spoken by about 400 people in Northern Thailand; most live in Huai Chumphu and Doi Pui villages, Myang District of Chiengrai Province. There are a few speakers left at Takaw in Mae Sruai District of Chiengrai, and at Phadaeng in Phan District of Phayao Province; the language is in the process of being replaced by Northern Thai at these two places.

Nishida was the first linguist to find the Bisu, and he has written several articles about their language and its historical linguistic position: Nishida 1966a, 1966b and 1967. In 1977-78,

I conducted fieldwork on the dialects of all four villages;<sup>1</sup> Bradley 1978 contains some preliminary observations on the dialect differences and the process of language replacement.

Bisu is a Tibeto-Burman language, though the Thai authorities classify the group as Lawa, along with several groups who speak Northern Mon-Khmer languages. Within Tibeto-Burman, it is one of the numerous Loloish languages. Nishida 1966b groups it with two other languages, Pyen and Phunoi, which form a subgroup of Loloish. Matisoff 1972 coined the term Bisoid to refer to this subgroup; according to Nishida 1966b, Bisu is more closely related to Pyen.

Pyen was spoken by about 800 people at three locations in the southern part of Kengtung State in 1900, according to Scott and Hardiman 1900; they provide a short wordlist (p. 718-719), which is the only linguistic data on this group. The Bisu report that there are Bisu in Burma, and the similarity of Bisu and Pyen suggests that Pyen is a dialect of Bisu. However, the Bisu are not in contact with their counterparts in Burma; and even in 1900, the Pyen were reported to be losing their language and becoming Shan.

Phunoi is spoken by about 20,000 people in northern Laos, around the town of Phongsaly. Roux 1924 contained the first description of this group and its language; Ferlus 1975 and 1977 describes another dialect; and Bradley 1977b describes a third. Phunoi informants report that there are five subgroups of the Phunoi, and thus presumably

five dialects; there are many more than five Phunoi villages in Laos, of course. Roux reported that there was one Phunoi village in China in 1924; and Chinese scholars (personal communication) report that there are indeed speakers of Bisoid languages in China.

The C<sup>o</sup>ong national minority of some 11,000 in northwestern Vietnam also speaks a Bisoid language; in fact, a short vocabulary was provided in Lefèvre-Pontalis 1892 (Kha Khong), so this was the first variety of Bisoid to be documented. Judging from this material, C<sup>o</sup>ong is probably a dialect of Phunoi under another name, just as Pyen is probably a dialect of Bisu.

When I played tapes of Phunoi to Bisu speakers, they found it unintelligible; despite what seemed to me to be rather small differences. Unfortunately, I did not have tapes of Bisu when I was working with a Phunoi speaker, but I suspect the result would have been the same. The two groups are separated by the Mekhong River and a substantial distance, and were unaware of each other's existence (until I talked about the Phunoi with the Bisu). However, the Phunoi have a tradition that they came from the west, leaving some people behind; while the Bisu have a tradition that they are autochthonous where they live now.

The major phonological characteristic of the Bisoid languages is the development of voiced stop initials in some cognates with nasal initials in other Loloish languages.

Nishida 1966b and 1967, Matisoff 1972, and Bradley 1979 all cite this correspondence pattern. Bradley 1979 cites other characteristics of Bisoid languages, such as the absence of final glottal stops or laryngealization in forms reconstructed as having final \*stops; the development of voiceless nasals from \*s or \*ʔ prefixed \*nasals; the loss of medial \*r in clusters after a \*bilabial initial; and so on. There are also various conservative characteristics, such as the retention of final \*t as /t/; and of final \*p as /p/ in Phunoi and the conservative Takaw dialect of Bisu; the retention of all final \*nasals, \*m \*n \*ŋ, as such in Bisu /m/ /n/ /ŋ/, with Phunoi final \*ŋ reflected by nasalized vowels; the absence of various tonal developments that characterize the Central and Northern Loloish groups; and so on.

Thus, on the grounds of historical phonology, the Bisoid languages form a close-knit subgroup of the Southern Loloish languages, according to Bradley 1977a and 1979. They are fairly closely related to such languages as Mpi and Akha. On lexical grounds Bisoid also forms a subgroup, having a number of cognates found in Bisu and Phunoi but not elsewhere; and showing some unique shared developments in the forms of particular lexical items, such as the addition of final /ŋ/ to some words with initial nasals (e.g. 17 113 142 288 317 321 675 and some further examples in the Appendix below).



### Synchronic Nasality

Bisu, like Phunoi, some Northern Loloish languages, and Burmese, has 'voiceless' as well as voiced nasals; the 'voiceless' nasals start voiceless and end voiced, like those of most languages. The following partial inventory of syllable initials also includes voiced stops, which are relevant in the discussion of diachronic developments below. For more details of Bisu and Phunoi phonetics and phonology, see Bradley 1979.

/ b	d		g
m	n	ɲ	ŋ
hm	hn	hɲ	hŋ/

The inventory of relevant initials in Phunoi is similar, but lacks the velar voiced and voiceless nasals, and contains a marginal /ɟ/, a voiced palatal stop. The Pyen materials do not distinguish the voiceless nasals; doubtless a defect of the transcription. Other problems in the Pyen transcription include occasional voiceless stops where one would expect voiced, and vice versa; also a few l where /d/ would be expected from Bisu;<sup>2</sup> and various diacritics used inconsistently.<sup>3</sup> Tones are not indicated. The Pyen materials show examples of m n ny ng b g but not d initials.

The syllable-final nasals of Bisu are /m/ /n/ /ŋ/. In native vocabulary (excluding Dai loans) /m/ occurs only after

/a u o ɔ/; of these only /am/ and /um/ are frequent; /n/ occurs only after /e ɛ ʊ ə a ɔ/; of these /en/ /ən/ and /an/ are fairly frequent. Words with /om/ /ɔm/ /ɛn/ /ʊn/ and /ɔn/ mostly have no clear extra-Bisoid etymology; they may vary with one of the more frequent combinations of vowel plus final nasal; or they may be unrecognised Dai loans.

Bisu syllable-final /ŋ/ occurs with eight of the nine vowels /i e ɛ ʊ ə a u o ɔ/ in native vocabulary; of these combinations, /ɔŋ/ /aŋ/ and /ʊŋ/ are extremely frequent; /ɛŋ/ and /uŋ/ are less frequent; /iŋ/ /əŋ/ and /oŋ/ occur in a few words each; and /eŋ/ does not occur. As noted above, some of these words have extra-Bisoid etymologies without a final \*ŋ.

Phunoi has /m/ /n/ and /ɲ/ as syllable-final nasal possibilities. As in Bisu, for final /m/, /um/ and /am/ are the frequent sequences, with a few /om/ and other sequences in loans. For final /n/, /an/ /ən/ and /on/ are common combinations in native vocabulary, with /un/ an infrequent sequence, and others in loans. Final /ɲ/ occurs only in /iɲ/, in native words which correspond to Bisu words in /iŋ/ or /ʊŋ/. The major difference in finals between Phunoi and Bisu is that Phunoi has no final /ŋ/ in native lexicon; Phunoi has nasalized vowels /ĩ ẽ ɿ ẽ õ/ in most words corresponding to those with Bisu final /ŋ/. The exact details of the Bisu/Phunoi correspondences are not given here; they are not relevant to the

main topic, the nasal-initial consonants.

Pyen data provides examples of um and am; of in en ün [wɳ] an un on awn [ɔɳ]; and of ing eng üng [wɳ] ang ung ong awng [ɔɳ]. The generalization that can be made about all three languages is that final /m/ occurs after a small number of vowels, notably /u/ and /a/; while final /n/ occurs after a few more, and final /ŋ/ occurs after nearly all; except in Phunoi which has nasalized vowels instead.

One very notable fact which would confound the reconstruction and scramble the correspondences of the initials is that there is dialect-internal and interdialect variation in the initials. For Bisu, where I have the most data, most dialects show variation between prenasalized stops and voiced oral stops: [mb]~[b], [nd]~[d], [ŋg]~[g]. The prenasalized alternative occurs more frequently in careful speech, and does not occur in Takaw - the dialect which shows the most interference from Northern Thai phonology. The voiced oral stop is more frequent in Huai Chumphu, especially in the speech of younger people. Words with front vowels that have voiced oral stop or prenasalized stop initials elsewhere have voiced nasal initials in Phadaeng: [mì thò] 'fire' 329, [nɛ̃ l'à] 'spirit' 361, and so on;<sup>4</sup> this dialect difference is completely regular for Phadaeng residents, and so is not indicated in the Appendix below. However, there are several young Phadaeng speakers who have moved to Huai Chumphu;

these speakers vary in their use between a voiced nasal and a voiced oral stop initial, in words with front vowels such as those given above. For more frequently-used words, these Phadaeng speakers tend to use the voiced oral stop (Huai Chumphu) form most of the time; but less frequently-used words tend to keep their nasal (Phadaeng) form. Moreover, there is some variation between voiced and voiceless nasals, with the voiced nasal found within a word or in rapid speech.

There are traces of a similar phenomenon in the very limited Pyen data. For example, the morpheme in 'mouth' 94 occurs as man in the words for 'moustache/beard' and 'tongue', but as ban in 'mouth'. Shan shows exactly this variation: /m/ ~ /w/ in dialects; and Shan was the language replacing Pyen when these words were collected. Even better, the morpheme in 'sky' 321 occurs as bung in a long list of words elicited together; but later in 'sun' 317 it occurs as mong, and again further on in 'roof' 347 again as mong. This suggests variation between /m/ and /b/ in Pyen, as in Bisu. The effect of this internal and intervillage variation could be expected to result in substantial irregularity in the correspondences between Bisu, Pyen and Phunoi oral and nasal stop initials. Moreover, the fact that there is synchronic variation between the voiced nasals, prenasalized stops and stops suggests that Anderson 1976 is right about the possibility of nasality having a domain "smaller than a single segment" (p. 337); in this case,

the domain varies from all to the second part to none of a given initial segment.

### Diachronic Nasality

Bradley 1979 (p. 142-146) first noted the conditioning factor which accounts for the distribution of the reflexes of Proto-Loloish\**nasals* in Bisoid: the \**nasals* with Proto-Tibeto-Burman \**b* \**d* \**g* \**r* \**l* prefixes, subsumed by the Proto-Loloish cover symbol \**C*, develop into the variable voiced oral stops in Proto-Bisoid; those with Proto-Tibeto-Burman and Proto-Loloish\**s* or \**ʔ* prefixes develop into the voiceless nasals of Proto-Bisoid; and the unprefixes \**nasal* initials develop into Proto-Bisoid voiced nasals. The Burmese-Lolo correspondences are set out in the following table (N is a cover symbol for voiced nasals, N for voiceless nasals, S<sup>vd</sup> for voiced stops and S<sup>vl</sup> for voiceless unaspirated stops).

	<u>Burmish</u>		<u>N. Loloish</u>	<u>C. Loloish</u>		<u>S. Loloish</u>		
*BL	Burmese	Maru	Nasu	Lahu	Lisu	Akha	Mpi	Bisoid
*N	N	N	N	N	N	N	N	N
*C-N	N	N	N	N	N	N	N	S <sup>vd</sup>
*-N	N	N	N	N	N	N	N	N
*S-N	N	N2	N	N	N	N	N	N
*S <sup>vd</sup>	S <sup>vl</sup>	S <sup>vd</sup>	S <sup>vd</sup>	S <sup>vl</sup>	S <sup>vd</sup>	S <sup>vd</sup>	S <sup>vl</sup>	S <sup>vl</sup>

This development in Bisoid must have been preceded by the development of \*voiced stop initials to something else, presumably voiceless unaspirated as they are now in Bisoid languages; thus it can be seen as part of a chain shift. Other types of \*stop initials are not discussed further here; see Matisoff 1972 for a subgrouping of Loloish based on the developments of \*stop initial manners of articulation, and Bradley 1979 for more details and examples.

In the Appendix, Bisu and Phunoi forms from my field notes and Pyen forms from Scott and Hardiman 1900 which have initial consonants relevant to the question of nasality have been assembled. 98 Loloish or Bisoid cognates, some with several relevant syllables, and 24 exemplificatory Dai loanwords are presented. Reference numbers to cognate sets in Bradley 1979 are used, and the last column gives the Proto-Loloish form reconstructed there; in a few cases additional Bisoid data has led to revision of the Proto-Loloish reconstruction. A Proto-Bisoid reconstruction is also given; in some cases the Bisoid and Loloish forms are not related (e.g. 347 590); or only one syllable of the Bisoid form derives from a Loloish form (e.g. 25 94 586); or there is no Loloish form reconstructible (e.g. 466 473 554 726). There are some interesting cases of prefix preemption, where the Proto-Loloish prefix becomes the Bisoid initial (e.g. 216 217 328 630 675 742); there are also some cases of other prefix-related processes, such as 141 'lungs' where Proto-Loloish \*ʃ-p develops

into Bisoid \*hm, which would regularly reflect Proto-Loloish \*s-m. However, most of the cognates show regular correspondences. The following table shows the numbers of full or partial cognate sets for each Proto-Loloish category, of Loloish cognates and of internal Bisoid cognates.

<u>Proto-Loloish</u>	<u>Proto-Bisoid</u>	<u>Bisu</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Loloish cognates</u>	<u>Bisoid cognates</u>	<u>Total</u>
*N	*N	N	N	N	14	7	21
*C-N	*S <sup>vd</sup>	S <sup>vd</sup>	S <sup>vd</sup>	S <sup>vd</sup>	22	5	27
*2/s-N	*N <sub>o</sub>	N <sub>o</sub>	(N?) <sub>o</sub>	N <sub>o</sub>	27	2	29
*(C-)N	*N~*C-N	N/S <sup>vd</sup>	N/S <sup>vd</sup>	N/S <sup>vd</sup>	7	4	11
*(S/2-)N	*N~*N <sub>o</sub>	N/N <sub>o</sub>	(N/N?) <sub>o</sub>	N/N <sub>o</sub>	12	2	14

Thus, of 102 cognate syllables, 77 or 75% show regular correspondences, and 25 show variation; either between voiced stop and voiced nasal or between voiced and voiceless nasal. There are no examples of variation between voiced stop and voiceless nasal, which are not observed to vary with each other in Bisu at the present either.

Of the cognate sets showing voiced oral or nasal stop reflexes, there are four cases in which closely-related Bisu and Pyen agree (201 217 326 598) against Phunoi; three in which Pyen is the irregular language, with a nasal where Bisu and Phunoi have a stop (302 567 763s); two with Bisu irregular, having a nasal where Pyen and Phunoi have a stop (92 94); and two incomplete

cognate sets. In the face of observed synchronic variation, language-internal dialect differences and dialect mixture, this seems to me to be a rather small proportion of irregularity.

In the 24 Dai loans cited, there are various reasons for the lack of exact equivalence to the Thai forms given. Firstly, most of these loans would have been from Shan, or more recently from Northern Thai in the case of Bisu, and Ly in the case of Phunoi. Secondly, some of the older loans were clearly borrowed when the Dai source language was in an earlier stage, with a distinction between voiced and voiceless nasals (e.g. 166 169), or reflect regional characteristics, such as the retention of / $\eta$ / in Northern Thai (e.g. 139 184) and Northern Thai lexical differences (e.g. 388 391). The relevance of these loans to the discussion of nasal-initial sound changes in Bisoid and Bisu is that some loans appear to have undergone these changes (e.g. 'count' 671 Bisu /dáp/, from Dai \*nap), while others have not (e.g. 415 Bisu /nà/, from Dai \*naa). Presumably the loans which reflect Bisoid sound changes are early ones; those which reflect the Dai forms more exactly are either more recent, or have been kept in their Dai-like form because of knowledge of a Dai language. Of course, as noted in Bradley 1978, the number of Dai loans in Bisu is very large and increasing; and the vast majority of these reflect Dai /b d m n  $\eta$ / initials with Bisu /b d m n  $\eta$ / as do some of the loans given in the Appendix as examples.

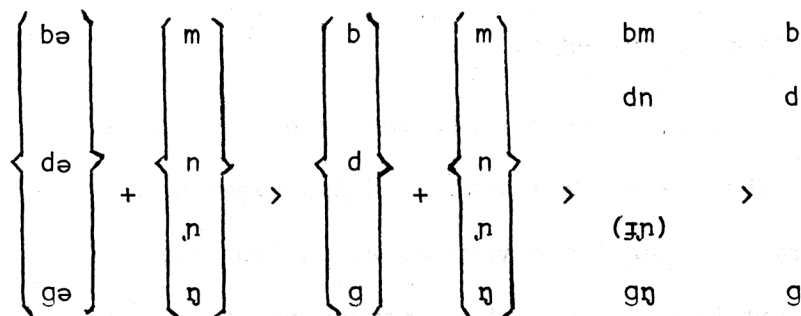


Another Dai factor which may have some relevance to the actuation of the Bisoid initial nasal developments is found in Shan, as briefly noted above. For Southwestern Dai generally, most scholars suppose that the source forms for the initial correspondences which Thai /b/ and /d/ fit into were voiced (implosive) stops; though, of course, this is not true for Central or Northern Dai languages. Thus Southwestern Dai must have developed voiced stops from something else, as Bisoid did. In Shan, the Southwestern Dai language with which Bisoid was probably in contact at an early stage, the corresponding initials are not /b/, but instead /m/~w/, and not /d/, but /l/. Thus sound changes involving both the development of voiced stops from something else and a development involving voiced stops and voiced nasals (among other things) took place in a language which was in contact with Bisoid, and which many Bisoid speakers would have known as a second language.

The specific nasal initials which became voiced stops in Bisoid were the Proto-Loloish \*b/d/g/r/l-prefixed ones, as noted above. While there is some controversy among scholars about how many of these prefixes were contrastive at the Proto-Tibeto-Burman stage, it is usually the case that Loloish evidence does not show any distinction among them. However, there are the various instances of prefix-preemption, where the \*prefix becomes the initial and the \*initial becomes the medial or is lost; in such cases the specific

\*prefix is of course reflected directly in Loloish languages.

What is more relevant is the putative phonetic value of these \*C prefixes; they seem mostly to be voiced stops or fricatives (\*r may have had the phonetic value [ɣ] or [ʁ], as it has in some Tibetan dialects); those which preempt in Loloish tend to be the voiced stops. A possible development path is as shown in the following figure.



That is, first the prefixes fuse with the nasal initials, then become homorganic to them; thus giving a series of prestopped nasals in pre-Proto-Bisoid. In most Loloish languages, these prefixes are reflected only in tonal developments, such as the stop-final syllable tonal split (Matisoff 1972); but in Bisoid they have voiced stop reflexes, while the \*prenasalized and \*voiced stops of Proto-Loloish developed to Bisoid voiceless unaspirated stops.

If this sequence of events reflects the historical process, then the synchronic variation in Bisu could reflect a kind of metathesis, with prestopped nasals becoming prenasalized or voiced stops; thus variably preserving the nasality in a different part of the same segment. The more usual process of denasalization proceeds as follows, according

to Haudricourt 1970 and Hyman 1975.

m		mb		b
n	>	nd	>	d
ŋ		ŋg		g

In fact, without the Proto-Tibeto-Burman evidence, this is exactly the process which one might postulate for Bisoid, using the dialect differences and variation as evidence.

Hyman 1975 (p. 255) suggests that this kind of denasalization only takes place (before an oral vowel) in languages which have a contrast between oral and nasalized vowels, which Proto-Bisoid almost certainly did not have. Thus, the apparent counter-example is avoided if the process was as suggested above; alternatively, a development direct from \*C-N to a \*prenasalized stop with subsequent (variably) complete denasalization would perhaps be phonetically more natural, though still involving a kind of metathesis or relocation of the nasality in the segment at one stage; and then also contradicting Hyman's suggestion. Bisoid in any case provides an interesting example of "the historical operation of processes which alter the domain of a specification of nasality" (Anderson 1976, p. 341).

The other development in Bisoid languages is much less problematic. As Ohala 1975 (p. 295) says, voiceless nasals may arise from a sequence of voiceless fricative plus nasal; this happens

in Burmese. However, in other Burmish languages such as Maru, the corresponding nasals are glottalized (with creaky voice quality in the following vowel as well) rather than voiceless. For several languages in different subgroups of Loloish, voiceless nasals are found corresponding to both \*s and \*ʔ- prefixed nasals of Proto-Loloish. These languages include several Northern Loloish languages, but not all; and the Southern Loloish Bisoid languages discussed here. In most other Loloish languages, all \*nasal initials merge to voiced nasals; but the effects of \*prefixes are reflected in tonal developments. No Loloish language distinguishes the initial reflexes of \*s and \*ʔ prefixed stop or nasal initials from each other, so the two presumably merged early in the Proto-Loloish stage except before \*liquids and \*glides, where fusion and prefix-preemption are often found. However, the distinction of \*s-N and \*ʔ-N is relevant for the early Loloish tonal split in \*stop-final syllables, with only the former conditioning the high stopped tone; and of course the distinction is kept in Burmish as well.

The \*nasal-final rhymes of Proto-Loloish, like the \*stop-final rhymes, each show a unitary development different from the developments of the corresponding \*vowel. For example, Proto-Loloish \*ɪ regularly becomes Bisu /i/, while \*iŋ gives /uŋ/, \*im gives /uɪ/, and \*in gives /en/; \*ik gives Bisu /u/, \*ip becomes /u/, and \*it has the reflex /it/. Partial parallels between \*rhymes

with the same \*vowel and a homorganic \*stop or \*nasal can be seen; but \*-j- has different reflexes depending on the following segment (if any) within the \*syllable. Thus the \*rhymes are best regarded as the relevant unit in sound changes of Bisu, Bisoid, and Loloish; as they have traditionally been treated in Chinese historical phonology.

Viewed from the point of view of the \*nasal-final consonants, Bisoid is the most conservative Loloish language: it retains \*-m, \*-n and \*-ŋ as /m n ŋ/, with some mergers among the preceding vowels. These final nasals have no unusual characteristics; they are always fully voiced, and do not vary, except that occasionally during casual or rapid speech they assimilate in place of articulation to the initial consonant of a following syllable in close juncture. In all these respects, the final nasals are unlike the initials, which have more contrastive possibilities, show some unparalleled changes, and vary extensively in manner but not place of articulation, with regard to the presence and location of nasality.

Further evidence for the importance of the rhyme is seen in the sporadic addition of final /ŋ/ to Bisoid and especially Bisu forms. Nishida 1966a (p. 75) notes the variable addition of /ŋ/ to verbs as a productive process. Above I have identified a number of nouns as well as verbs which have an added final /ŋ/ in Bisoid. Most of the examples are in words with initial nasals, but there are others with initial glottal stop or /h/, which provides another

example of rhinoglottophilia (Matisoff 1975). There is no evidence for the addition of syllable-initial nasals where the syllable final is nasal; so again the initial and final nasals behave in non-parallel fashion.

This addition of final /ŋ/ could be seen as evidence for a syllable prosody of nasality, realized both in the initial and in the final; with a slightly nasalized vowel between. Conversely, Phunoi loses final /ŋ/, but the preceding vowel remains nasalized; thus creating a contrast between oral and nasalized vowels. This is a frequently-encountered change, according to Ohala 1975 (p. 297), and is especially likely for [ŋ]. Again, the rhyme has operated as a unit, losing a segment but retaining the nasality of that segment.

Appendix

	<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Proto-Bisoid</u>	<u>Proto-Loloish</u>
6.	horse	amawng	mò	mòq	mraq <sup>2</sup>
8b.	buffalo	pǒngna	ǎ	hpa	ʔ-ɣya <sup>2</sup>
9b.	cattle	amyāng	jò hmjà	hmjàŋ	ʔ-myaŋ <sup>1</sup>
17a.	cat	aměng	mí	meŋ	mí <sup>1</sup>
23.	monkey		dàbà	bì/bà	(C) -myok <sup>L</sup>
25.	gibbon		nàlì	nàŋlì (n)	C-lway <sup>2</sup>
84.	tail		tǎhmìn	tǎŋ hmì (n)	daŋ <sup>1</sup> ʔ-mrí <sup>2</sup>
85.	feathers/fur	mu	ʔǎ hmot	hmu (t)	ʔ-mwe <sup>3</sup>
92.	eye	byennu	ʔǎbja	mja/bja hnu	C-myak <sup>H</sup>
93.	nose	nakang	lǎkǎ	hnákhaŋ	s-na <sup>1</sup> kaŋ <sup>2</sup>
94.	mouth	ban pòŋ (bàn (m)àn) pawng	ban fon	man/banpòŋ	(C) -me <sup>2</sup>
102.	ear	na süng	ʔǎ hnà	nà/hnà	ʔ-na <sup>1</sup> ʔ-baŋ <sup>1</sup>
113.	finger		lǎ hñú	là hñúŋ	s-ŋo <sup>1</sup>
114.	thumb		lǎba	làba	lak <sup>L</sup> C-ma <sup>3</sup>
122.	penis		nè/hlè	lè/hlè/hè	n-lí <sup>2</sup>
140.	brain		ʔǎdò	dò	C-nok <sup>L</sup>
			ʔǎhman	hmap <sup>L</sup>	f-pap <sup>L</sup>

		<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Proto-Bisoid</u>	<u>Proto-Loiloish</u>
142.	heart	nuŋba	nüŋgba	lǎbsǎi	nuŋba	ni <sup>3</sup> C-ma <sup>3</sup>
152.	mucus	hnàw		hnàp	hnàp	s-nap <sup>L</sup>
160.	girl	jàbǐ	yabyé	jàbǐ	bǐ	C-mi <sup>2</sup>
166.	widow	(mèhmáj(D))		bǎchàw	bǐchàw	C-mum <sup>2</sup> co <sup>2</sup>
179.	N. Thai/Ly	bǐchàm		bǎchàm	bǐchàm	bi <sup>2</sup> cam <sup>2</sup>
200.	mother	zaba	a ba	ba	zaba	ʔə- C-ma <sup>3</sup>
201.	father	ʔa bóŋ	bōŋ	mú	ʔabóŋ/móŋ	ʔə-pa <sup>3</sup>
216.	wife	khàbà	kabala	khǎba	khàbà	(C-)məya <sup>2</sup>
217.	husband	ʔəŋbǎŋ	ang plawŋ	ʔǎ mjǒ	bǎŋ/mǎŋ	m-ləŋ <sup>1</sup> /plaŋ <sup>1</sup>
257.	knife	hmjǎ/hmjà		hmjà	hmjǎ	ʔ-mi (a) <sup>1</sup>
266.	arrow	blà		bǎlǎ	blà	C-mla <sup>2</sup>
276a.	bean	nu kòŋ		lǎpat	nu	(s)-nǒk <sup>H</sup>
284.	taro	(màn kɛw(D))		hmǎ	hmún	ʔ-mun <sup>1</sup>
288.	mushroom	hmúŋ		hmú	hmúŋ	s-mo <sup>1</sup>
289.	sesame	nàmpà		hnám	hnám/nám	s-nam <sup>2</sup>
296.	bamboo shoot	ha hmǐt		hà hmǐt	hmǐt/hmǐt	s-mye <sup>L/H</sup>
297.	bamboo tie	né phə			né	s-ne <sup>2/L</sup>
302.	grass	bòkà	mokka	bò	bò/mòkà	(C)-mruk <sup>L</sup>



	Bisù	Pyen	Phunoi	Proto-Bisoid	Proto-Loloish
317.	sun	mong nŭng	mònlisì	mùŋ hnu(ŋ)	mo <sup>2</sup> ʔ-ne <sup>1</sup>
320.	cloud	bong bung	mò thəm	mùŋ(bən)	mo <sup>2</sup> c-dim <sup>1</sup>
321.	sky	bung/mong	mò thà	mùŋ/bùŋ	mo <sup>2</sup>
323.	earth	linta	hmítǎ	hmú(ŋ)tsha	ʔ-mre <sup>1</sup> tsa <sup>2</sup>
326.	wind	hāng mān	hábán	hág man/bán	le <sup>1</sup>
328.	lightning	bung blap	mò bjàp	mùŋ/bùŋ blàp	b - lyap <sup>1</sup>
329.	fire	mitaw	bì	bì/mì (tho)	c-mi <sup>2</sup>
337.	stone	laba	lǎphú	lò(ba)	k-lok <sup>1</sup>
347.	roof	mong	jəmǔ	(house-sky)	koŋ <sup>1</sup>
361.	spirit	dèjà	dàt	dàt	c-na <sup>1</sup>
408.	salt	tshàmè	shà	tshà(mè)	tsa <sup>2</sup>
419.	name	meng	ʔǎ hmín	ʔaŋ hméŋ	ʔ-m(y) iŋ <sup>1</sup>
438.	I	ga	gánǒm	gá	c-ŋa <sup>1</sup>
439.	you	mang	nǎ	naŋ	naŋ <sup>1</sup>
445b.	right	làhma	làhmín	làhma(n)	lak <sup>1</sup> ʔ-ma <sup>1</sup>
448.	behind	nòŋnòŋ	hno e	nòŋ	(s)-nok <sup>1</sup>
454.	this	ni/ne	hǎǎ	(s-)ni	ni <sup>1</sup>

		Bisu	P'yen	Phunoi	Proto-Bisoid	Proto-Loloish
461.	day	hɿɿɿ		hɿɿ	hnɿ (ɿ)	(ɿ)-ne <sup>3</sup>
463.	morning	ɿaŋdà		lǝsədà	dà	C-nak <sup>L</sup>
466.	today	mí hɿɿɿ		hɿnaméni	mí hɿɿ (ɿ)	ɿəmi <sup>L</sup>
470.	yesterday	míɿ kɿɿ		hùni	mí (ɿ)	
473.	tomorrow	nǝsǝ		lǝsə	nǝsǝ	
479.	two	nǝ	nyí	hnǝ	nǝ/hnǝ	s-nǝ <sup>2</sup>
494.	general classifier	ma		má	má	ma <sup>L</sup>
502.	red	hné	ngé	ɿǝ hné	hné	ɿ-nǝ <sup>L</sup>
513.	smell bad	nám		ɿǝ hnám	nám/hnám	ɿ-nam <sup>2</sup>
526.	deep	ɿaŋ hnà		ɿǝ hnò	hnà	ɿ-nak <sup>L</sup>
528.	soft	ɿaŋ dǝ		(ɿǝ pǝnjà)	dǝ	C-nu <sup>2</sup>
535.	old	ɿaŋ màŋ	māŋ	mǝ	màŋ	maŋ <sup>2</sup>
554.	beautiful	ɿaŋ hmaŋ		ɿǝ hmǝ	hmaŋ	
563a.	good	ɿaŋ hmén	myen 'pretty'	ɿǝ hmin	hmén	ɿ-min <sup>L/2/3</sup>
567.	round	ɿaŋ bun	mun	ɿǝ bǝn	bún/mún	woŋ <sup>2</sup>
586.	dream	mè bǝn	umye bun	jǝp ba	mè bǝn/ba	C-mak <sup>H</sup>
590.	know	bè	bé	sè	bè	si <sup>2</sup>
591.	forget	(lǝm(D))		hminlà	hmin	ɿ-me <sup>2</sup>

		<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Proto-Bisoid</u>	<u>Proto-Loloish</u>
596.	see	hmjáŋ	m̄āŋ	hmjǎ	hmjáŋ	?-mraŋ <sup>1</sup>
598b.	live/sit	đuŋ	l̄üŋ/nung	ni	đu(ŋ)/nú	(C)-ni <sup>2</sup>
617.	clear field	bjà		bja	bjà	C-mya <sup>2</sup>
630.	lick	bè		bè	bè	m-lyak <sup>L</sup>
636.	swallow	hnaŋ		hna	hnaŋ	myo(k) <sup>1/L</sup>
637.	hungry	bè		bàt	bàt	C-mwat <sup>L</sup>
667.	ask/listen	hná		hná	hná	?-na <sup>1</sup>
675.	roar (tiger)	bùŋ			bùŋ	m-(b)u <sup>1</sup>
690.	blow	mi/hmi		hmot	hmi (t)	s-mut <sup>H</sup>
694a.	lean	hni (TK)		hnin	hni (n)	s-nwe <sup>2/3</sup>
726.	play	bò	baw	(tàn)	bò	
738a.	squeeze	(tshù)		hni t	hni t	s-ni t <sup>L</sup>
742.	twist	bít		bít	bít	b- ök <sup>L</sup>
751.	near	?aŋ dù	ang lu	?ǎdì	dù	b-ni <sup>2</sup>
752.	many	?aŋ bjà		bé hno	bjà	C-mya <sup>2</sup>
754.	long	?aŋ hmóŋ			hmóŋ	s/m-riŋ <sup>1</sup>
755/	short/low	?aŋ hnúm		?ǎ hní	hnúm	?/s-n-yum/yim <sup>1/3</sup>

	<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Proto-Bisoid</u>	<u>Proto-Loloish</u>
758. high	ʔaŋ hmoŋ	mawŋ	ʔǎmu/mũ	hmɔŋ	ʔ-mroŋ <sup>3</sup>
763s. ill	ʔaŋ dá	na	dá	dá	C-na <sup>1</sup>
764b. ripe	ʔaŋ hmiŋ			hmiŋ	s-miŋ <sup>3</sup>
767s. awake	dùŋ		nǎŋ	dùŋ/nuŋ	(C)-no <sup>2</sup>
hate	mè	bũ		mè/bè	m-but <sup>2</sup> /ʔəmaŋ <sup>1</sup>
796a. now	níhmi		hnǎmè		ma <sup>2</sup>
801. not	mà	ma	mě	mà	way <sup>3</sup>
838. declarative	ŋé	ngé	ŋí	ŋéss	
845. object	na			na	
849/ with	ne		ne	ne	nay <sup>3</sup>
850					
133					
106					
15					

Dai Loanwords (Shan, Northern Thai, Ly)

	<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Thai</u>
72.	fly	méŋ tən		mɛŋwan
106.	chest	ná ʔák		náa ʔòg
139.	life	ʔaŋuʔ	ʔaʔúʔ	ʔaʔúʔ
166.	widow	mèhmáj		mêɛ máj
169.	doctor	hmo		mɔ̌ɔ
175.	Iahu	muə		muusəə
184.	Karen	ɲaŋ		jaaŋ
238.	button	mátóm	gědúm	kradum
260.	axe	muʔ		(muʔ)
261.	hoe	khəbop		(khəbòb)
265/ 267	bow/gun	sàŋ hnət	sing na	(Portuguese loan, via Burmese)
284.	taro	màn kɛw		man kɛw
388.	top (toy)	mɔʔ khaŋ	hməkhā	luŋg khàaŋ
391.	poison	ja bə		jaa phíd

	<u>Bisù</u>	<u>Pyen</u>	<u>Phunoi</u>	<u>Thai</u>
400.	airplane	hə bín		kryaŋ bín
409.	sugar	nam tàn	nam tàn	nam taan
412.	soap	sàbò		sabuu
415.	irrigated field	nà	lǎtàn	naa
490.	ten thousand	mén	hmě	məə
534.	young	ʔaŋnùm		nùm
539.	crooked	ʔaŋ nòj		ŋɔɔ
545.	easy	ʔaŋ hɔaj	ʔǎ ga:j	ŋǎaj
559.	drunk	màw		maw
671.	count	dáp		náb

## NOTES

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2. Phunoi develops /l/ from \*n in the first, reduced syllable of a two-syllable word in a few cases: see 93 142 276 463 473 in the Appendix. It could be that Pyen has a similar change from \*d to /l/, rather than these being errors in transcription. Of course, as Ohala 1975:296 points out, [n] and [l] are acoustically similar, so this would be both a natural change and a natural misperception. The examples are 323 598 751; 323 could be a Shan loan in Pyen. Of course \*d to /l/ is also a sound change which occurs in Shan.
3. The diacritics used include an acute accent on e, indicating [ɛ]: examples 502 590 838 (but not 17 92 419 454 563) and an umlaut on u, indicating [ʊ] 102 142 317 598 751 'hate' (but not 85 92 320 586). The macron in 9 201 326 535 596 is not a tone mark, as it occurs on three probable high tone syllables, two low, and one mid; and the breve in 17 with probable mid tone also occurs with other tones in the wordlist data available.
4. In fact, the name of the group, /bìsù/, is another example; [mbì sù] or [bìsù] in most dialects, it is [mì sù] in Phadaeng.

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