Problems and Progress in Lolo-Burmese: Quo Vadimus?*

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1.   Introduction. The Lolo-Burmese languages form one
of the 7 or 8 primary divisions of the Tibeto-Burman
(TB) family.[1] It is also (in my admittedly prejudiced
opinion) one of the most pleasant subgroups of TB to
work with. Modern, copious, and reliable data exist
for well over a dozen Loloish languages/dialects. For
much of this new material we have first-rate Chinese
scholars to thank. Much additional data has been col-
lected by Japanese, European, and American scholars who
have done recent fieldwork in Burma or Thailand.[2] Be-
sides, Lolo-Burmanists are fortunate in having the testi-
mony of Written Burmese (WB) as a guide and check for
their work on the Loloish side.[3]
     Many of the Loloish languages that are now best-
known (Lahu, Lisu, Akha, Sani, Ahi) are quite close to
each other on the genetic tree, with a very high per-
centage of cognacy in basic vocabulary.[4] Others are
more remotely related to these (the Bisu-Pyen-Phunoi
group; the Nasu-Lu-ch'üan group; the Moso-Nakhi group).
These latter languages are in many ways more conserva-
tive phonologically than those of the "Lahoid" group.
At any rate the "distances" among the various subparts
of the Loloish family are great enough to provide consid-
erable time-depth for reconstruction and the recovery of
many archaic features at the Common Loloish stage, while
at the same time being small enough so that there is no
shortage of cognates common to all crannies of the family.
     Besides the sheer volume of data available to work
with, the data itself is uncommonly challenging and in-
teresting. The rich consonantism of the Proto-TB (PTB)
syllable has left ample traces in the modern Loloish
languages, though the contrastive functions once per-
formed by syllable-initial consonant clusters and syllable
-final stops, nasals, and other consonants have had to be
translated into drastically different phonetic terms,
and assumed by different parts of the syllable.[5] When
one compares the complex structure of the PTB syllable,

$$(P_1)(P_2) \; C_i \; (G) \; V \; (\cdot) \; (C_f) \; (s),$$

where P = prefix, C_i = root-initial consonant, G = glide

(-w-, -y-, -r-, -l-), V = vowel, · ▪ vowel length, C_f ▪
final consonant, and s ▪ suffixial -s),
and compares it to the structure of a Loloish language
like Lahu, where syllables have the canonical shape
(C_i) V T [T ▪ tone], one's first impression is that the
proto-syllable has decayed or degenerated beyond re-
demption. Yet the breakdown of the old prefixial system
has led to a multiplication of paradigmatically opposed
entities in the C_i slot; the glides, before disappear-
ing, have differentially affected the position of artic-
ulation of the root-initial consonant and have caused a
proliferation of new vocalic contrasts; final consonants
have affected the preceding vowel's quality before de-
parting the scene; and perturbations in the consonantal
system of the old syllable have triggered the birth of
elaborate tone-systems in the Loloish daughter languages.
Thus, although the syllable canon of the typical Loloish
language is simple in the extreme, the inventory of con-
trastive elements in the various syllable-positions tends
to be highly complex[6]: a language like Sani is typical,
with 43 initial consonants, 19 vowels (on the surface
phonetic level, at any rate), and 5 tones.

The Loloish languages are very inventive phonologic-
ally. They have tried everything -- back vs. front velar
stops, retroflex affricates, syllabic nasals and spirants,
labial and lateral affricates, voiceless laterals and
nasals, front rounded vowels, back unrounded vowels,
central superhigh buzzing vowels, laryngealized vowels,
nasalized vowels -- you name it![7]

The mapping of the original PTB phonological seg-
ments onto the modern Loloish syllable is intricate. To
take a few random examples, the Lahu vowel ɔ may descend
from PLB *uw or *aŋ or *iy. The Lahu consonant c may
descend from *ts, *ʔts, *tš, *ʔtš, *ky, or *ʔky. Con-
versely, one and the same proto-phoneme may have multiple
modern descendants. Thus, *a becomes Lahu o if it had
been followed by *-m or *-p; but *a > Lh. e if it had
been followed by *-n or *-t; if the following consonant
was *-ŋ, *a > Lh. ɔ [see above]; but if *-k followed,
*a remained a!

As is always the case in any language family, some
daughter languages are more useful than others in recon-
structing any given feature of the proto-language. Lahu
is excellent for distinguishing etyma that had the old
nasal prefix, *N-; but, alas, it is totally useless for

distinguishing *s from *š. For this latter task, Lisu
and Akha are invaluable -- though neither one gives us
any help in reconstructing the nasal prefix. As might
be expected, Written Burmese is enormously important for
reconstructing the PLB proto-form. Yet there are many
cases where WB cannot do things that the humble Loloish
tongues do with ease. Thus WB has suffered a merger of
*s and *z (they both appear as s), while almost all the
Loloish languages distinguish them faithfully: e.g. *s
> Lh. š, but *z > Lh. y.

The vertebrate palaeontologist's greatest satisfac-
tion, I suppose, is to take something like the fragment
of a femur and reconstruct from it an entire proto-animal
from tip to tail. Similarly, the private pleasures of
Lolo-Burmanists consist in taking little syllables like
hí and showing how they come from *b-r-gyat 'eight'; or
in comparing two variant forms in a daughter language
that mean about the same thing and are similar to each
other phonologically (say šɔ vs. sɛ 'tonsil') and de-
ciding which one is the direct cognate of some form in
a distantly related but more conservative language (say
bsnyogs).[8]

Perhaps the most rewarding kind of experience is to
discover a sound-correspondence that looks bizarre at
first sight, but which proves to be entirely regular and
supported by abundant examples. Thus a priori one would
not think very highly of a putative cognate pair like
WB lê and Lahu ɔ̂ 'four'. Yet further investigation turns
up strikingly confirmatory parallel examples like the
following: 'heavy' WB lê / Lh. hɔ̂ ; 'wind (n.)' WB le /
Lh. mû-hɔ ; 'bow, sling' WB lê / Lh. hɔ̂-ma ; 'moon'
WB la' / Lh. ha-pa ; 'grandchild' WB mrê (< Insc. Bs.
mlíy) / Lh. ɔ̂-hwē̜ (<ɔ̂-hɔ̄-ɛ̄) ; 'boat' WB hle / Lh. hɔ-lòʔ-qǫ ;
'tongue' WB hlya ~ hra / Lh. ha-tē̜ [9]; WT hla 'god,
image of a god' / WB hla' 'handsome, pretty' / Lh. ɔ̂-ha
'soul, image' ; 'penis' WT mʸe / Jinghpaw (Jg.) mənē̜ / WB
lî / Atsi nʔyì / Maru nʔyì / Maru nʔyì / Lh. nî .[10]

To continue our palaeontological metaphor, another
almost painfully sweet delight for Lolo-Burmanists is
to find in a modern daughter language a "living fossil"
-- i.e. an isolated survival of a very archaic feature
that had almost totally disappeared at a much earlier
stage.[11] Thus the word for 'four' is reconstructed at
the PTB level with prefixial b- on the basis of such extra-

-LB forms as WT b<u>ž</u>i and Jg. məlī. So far as is now
known, the prefix survives nowhere in LB except in the
Maru (Burmish branch) form b<u>ì</u>t. Similarly, we set up a
causative prefix *<u>s</u>- for TB on the basis of Tibetan,
Jinghpaw, and other extra-LB evidence.[12] In all cases
but one, this old prefix shows up in Burmese as aspira-
tion of the initial consonant -- but in one form, <u>sip</u>
'put to sleep' (vs. ^ʔip 'sleep'), the original *<u>s</u>- sur-
vives due to an exceptionally favorable phonological en-
vironment. As a final example we may take the etymon
'lick'. This had been reconstructed [STC, No'. 211] as
*<u>s-lyak</u> ∿ *<u>m-lyak</u>, with the nasally prefixed variant just-
ified exclusively on the basis of extra-LB evidence:
Tangkhul Naga <u>məlek</u> ∿ <u>mərek</u>, Ao Naga <u>məzak</u>, Jg. <u>mətáʔ</u>.
But recently discovered forms provide direct evidence
for the prefix within Loloish itself: Akha <u>myeu</u>ʌ, Bisu
<u>bɛ̀</u>.[13]

    Even though Lolo-Burmese is one of the relatively
best-known branches of Tibeto-Burman, there still remains
a huge amount of work to be done. Not only is there much
unmined and undigested material remaining in already pub-
lished sources, but new data are coming in all the time
from fresh fieldwork. So abundant are the materials
that "micro-linguistic" work is now possible,[14] detailed
research into fine points and minutiae of reconstruction.
It is at first discouraging to increase the power of mag-
nification when doing comparative work: things which
had appeared regular in their broad outlines are shown
to have irregularities and exceptions. But as always,
these difficulties are precisely the harbingers of future
progress -- identifying something as a problem is in it-
self a contribution to that problem's solution.

    The historical <u>phonology</u> of Loloish still presents
many problems of detail in all three "areas of the sylla-
ble": initial consonants (including prefixes), rhymes,
and tones. If that is true of phonology, how much great-
er is our area of ignorance in the domains of historical
<u>morphology</u> and <u>syntax</u>! In the realm of pure <u>lexicon</u>,
hundreds of new cognates are awaiting identification. As
far as <u>taxonomy</u> goes, the internal relationships of the
Loloish languages are still not completely clear,[15] let
alone their external relationships to other TB groups
like Nungish and Kachin.[16]

    Lolo-Burmese studies are potentially important also
from a broader theoretical point of view. Such general

issues as the mechanism of tonogenesis, grammatical
effects on sound-change, proto-variation and the notion
of "cognacy" -- to mention only a few -- cannot help but
be clarified as fringe benefits to painstaking compara-
tive work in this family.

Last spring[*]it was my pleasure to conduct a class in
Lolo-Burmese historical phonology at Berkeley. The eight
students in that class each worked with primary Loloish
materials, and each of them produced a term-paper that
was a genuine contribution to the field.[17] The distri-
bution of labor was as follows: Robert S. Bauer -- Akha
(Lewis, Nishida); Steven P. Baron -- Sani (Ma Hsüeh-liang);
Edward J. Hillard -- Lahu (Matisoff); Chiu-chung Liao
(Ch'iang -- Wen Yu) [18]; Marc Okrand -- Nakhi (Rock);
Graham Thurgood -- Lisu (Burling, Fraser, Hope, Anonymous);
Stella Ting -- Bisu (Nishida); and Julian K. Wheatley --
Lu-ch'Üan (Ma Hsüeh-liang). Many of the findings of these
investigators have been incorporated into this paper [see
footnotes]. Most of the students intend to pursue their
work further, as their time permits. *[spring of 1973]

This paper is a brief outline of ongoing research
into seven Loloish languages: Lahu, Lisu, Akha, Sani,
Bisu, Lu-ch'Üan, and Nakhi.

After some remarks on the PLB phonological system
[Section 2], we go on to discuss PLB syllable-onsets (pre-
fixes, root-initial consonants, medial glides), and their
repercussions on the manners and positions of articula-
tion of initial stops in the daughter languages [Section
3]. In Section 4, the proto-tones of Lolo-Burmese are
examined in relation to the syllable-onset, and the tonal
reflexes in the daughter languages are presented in a
chart.

2. The PLB phonological system. We must set up quite a
rich proto-system for PLB to account for the complex sound-
correspondences we find in the daughter languages. The
PLB syllable had the general canonical shape,

$$(P) \ C_i \ (G) \ V \ (\cdot) \ (C_f),$$

where P = prefix, C_i = initial consonant, G = glide, V =
vowel, • = vowel length, C_f = final consonant, and T = tone.

2.1 Prefixes. For the PLB stage, we must reconstruct pre-
fixes of three basic types. The first type we write ab-

stractly as *C-. This is a cover-symbol for the five
voiced non-nasal prefixes of Proto Tibeto-Burman, /b-,
d-, g-, r-, l-/, which are reflected faintly in PLB
by their effects on the tone of syllables with stopped
finals, as demonstrated in TSR.[19] It remains to be seen
whether these prefixes left any other traces in the
daughter languages.

Secondly, there is ironclad evidence for a nasal
prefix, *N- (realized presumably as a nasal homorganic
to the following C_i). This prefix survives as such in
several Loloish languages (Lu-ch'üan, Nakhi, Moso, etc.)
and has left dinstinctive manner-traces on the initial
consonants of several more (Lahu, Nasu), causing the C_i
to voice.

The third type of prefix we may term "glottogenic".
These two prefixes, *s- and *ʔ-, both had the power to
glottalize the root-initial consonant, typically causing
it to unvoice and usually affecting the tone of the syl-
lable as well (typically leading to a rising effect on
the pitch). The evidence [summarized in TSR, pp. 23-24]
is that the two glottogenic prefixes had largely merged
to *ʔ- before stops and resonants by the Proto-Loloish
stage, but that they were still kept apart before nasal
initials in stopped syllables, with *s- causing the syl-
lable to join the HIGH-stopped class, and *ʔ- causing it
to join the LOW-stopped class.[20]

We shall have some more to say about prefixes, below
3.1.

2.2 Root-initial consonants. The PLB root-initial posi-
tion could be occupied by any of the following:

p	t	ts	tš	k	ʔ
b	d	dz	dž	g	
m	n			ŋ	
	s		š	(h)	
	z		(ž)		
w	l	r	y		

2.3 Medial glides and consonant clusters. We certainly
have to set up medial *-r- and *-y- for PLB. They could
occur after labial and velar stops and nasals, as well
as after the voiceless spirants *s and *š. Medial -w-
must be set up after velars, (with the locus classicus
being the set for 'dog' [see Fig. 2, below]); after
dentals; and maybe after labials as well.[21] Medial -l-
is a feature of Common Tibeto-Burman, and is still attest-
ed in Archaic or Inscriptional Burmese. It appears in
modern Bisu, but since Bisu has no medial -r-, its medial

-1- could be a secondary development, *-r- > -1-. It
is still an open question whether we need -1- at the Proto-
Loloish stage. Much proto-variation between -1- and -r-,
and between -1- and -y- must have occurred [see STC, p.41].

The glides exerted profound influence both on the
preceding C_i and on the following vocalic nucleus. Clusters
of velars plus -r- or -y- typically developed into af-
fricates (palatal or retroflexed) in the daughter lan-
guages, with either glide capable of leading to either
kind of affricate [see Fig. 2]. The presence of *-r-
could also inhibit the backing of a preceding velar to
a post-velar (Lahu, Sani). After labials, a glide could
lead to a retroflex stop (Lu-Ch'ŭan) or even to a lateral
affricate (Sani). Medial -y- typically raised or front-
ed a following vowel, -r- often had a centralizing ef-
fect, while -w- often led to a lowering or backing of
the vowel: PLB *bya 'bee' > Lh. pê; PLB *kriy 'foot' >
Lh. khɨ; PLB *Ntwak ~ *ʔtwak 'emerge' > Lh. tɔ̂ʔ.

For more about syllable-onset developments, see Sec. 3.

2.4 Vowels. In open syllables (for the moment we are de-
fining "open" to include syllables with -w and -y), we
reconstruct the following vowels for PLB:

$$i \quad iy \qquad u \quad uw$$
$$ay \qquad a \qquad aw$$

Instead of "iy" and "uw", we might just as well recon-
struct long vowels *i· and *u· , since we also posit a
length-contrast in closed syllables.

In closed syllables, there is pretty good evidence
for reconstructing three mid vowels as well:

$$e- \quad ʊ- \quad o- \quad .$$

In TB as a whole (and perhaps as a general tendency in
all languages) there are more vocalic contrasts in closed
than in open syllables -- undoubtedly due to the differ-
ential breaking effects on the vowel by the various syl-
lable-final consonants.

2.5. Final consonants and proto-rhymes. There is solid
evidence for 8 C_f's at the PLB stage -- 3 stops, 3 nasals,
and 2 semivowels:

$$-p \quad -t \quad -k$$
$$-m \quad -n \quad -ŋ$$
$$-w \qquad\qquad -y$$

PTB had three more final consonants: *-r, *-1, *-s.

These seem all to have disappeared without trace by the Proto-Loloish stage, though there is some slight evidence that they could trigger the development of Lahu high-rising tone in the manner of a final stop.[22] *-s seems to have merged with *-t in Burmish: 'seven' PTB *s-nis > WB hnac; 'eight' PTB *b-r-gyat > PLB *ʔrit > WB hrac. There is one case where an older *-s may conceivably have caused the development of WB creaky tone: 'know' WT śes, WB si' .

Lolo-Burmese shows many cases of variation between homorganic final stops and nasals. Examples cited in TSR include: 'draw water' (No. 144); 'swell up/swollen' (No. 92); 'tree/wood' (No. 118); 'spirit' (No. 136); 'dream' (No. 144); 'heart' (No. 146); 'step on' (No. 149); 'back' (No. 155) ; 'maggot' (No. 186); and 'stone' (No. 190).

Other variational patterns involving C_f's include alternations in position of articulation of stops and nasals, alternations between final stops and semivowels, and between final stops and open vowels. These phenomena are more appropriately discussed in the context of "word-families" in general [see Matisoff 1978].

There seem to be more vocalic contrasts before final velar stops than before any other C_f's, which again seems reasonable in view of the large region of the hard and soft palate available for dorso-velar and lamino-palatal articulation. The following rhymes are so far attested for PLB (the list includes all those set up with final stops in TSR):

am	an	aŋ	ap	at	ak
im	in	iŋ	ip	it	ik
				i·t	
um	(un)	uŋ	up	ut	uk[23]
				et	ek
					ok[23]
					ɵk

As might be expected, the rhymes differ greatly in their relative lexical frequency. Thus, *-ak is superabundantly attested, but we have to scour the bottom of the barrel to come up with, e.g., *-ut rhymes. *-am and *-aŋ are both much better attested than *-an, etc. This should be no more surprising than the fact that ETAOINSHRDLU are more common word-initial letters in English than are

JQXZV. Why should language always be symmetrical in all
its subparts, in view of the fact that it is changing
constantly?

Under favorable circumstances we may reconstruct
contrastive vowel length before a final consonant. Per-
haps the best example is 'reap', WB rit. The Lushai
cognate, 'hoe', has a long vowel: rîit [Wm. Bright, "An
English-Lushai vocabulary"]. Furthermore, even in the
absence of extra-LB evidence, we are perhaps justified
in setting up PLB *i·t whenever WB has -it, since the
short PLB rhyme *it seems regularly to have merged with
*ik to become WB -ac ('eight' PLB *ʔrit > WB hrac).

2.6 Tones. In non-stopped syllables we reconstruct
three tones for PLB, called, poetically enough, proto-
tone 1, proto-tone 2, and proto-tone 3 (or *1, *2, and
*3 for short). *1 and *2 are vastly more common than
*3, and there is every reason to believe that *3 is a
"younger", more secondary tone than the others.[24]   *1,
*2, and *3 give rise to the "low", "high", and "creaky"
tones of Burmese, respectively.[25]

Tones *1 and *2 correspond regularly to tones in
the distantly related Karen languages [STC, pp. 150-152],
but curiously enough do not correspond in any simple
way to the three non-stopped tones of the relatively
much more closely related Jinghpaw, at least as far as
I have been able to discover.[26]

Some Loloish languages preserve the original three-
way tonal distinction one-for-one (Akha, Bisu, Phunoi
-- see Fig. 3, below). Many others show a tonal split
in one or both of tones *1 and *2, according to the man-
ner of articulation of the syllable-initial consonant.
Many of the daughter languages show a mid-tone reflex
for tone *3 (Lahu, Akha, Sani, Bisu, Nakhi, Phunoi),
and it is the creaky tone (> Tone *3) which is unmarked
in the Burmese writing system with the three basic vowels
a, i, u. This suggests to me that *3 may have been neither
very high nor very low, but probably mid level. But was *1
higher than *2, or was *2 higher than *1? The daughter
languages are split down the middle on this point. Al-
though sometimes a daughter language will have both a
high and a low tone as the reflex of a given proto-tone
(see, e.g. the Lahu reflexes of *2), we can generally
determine overall whether the "average" pitches of the
reflexes of *1 are higher or lower than those of *2.
On that (admittedly somewhat impressionistic) basis, the
reflexes of *1 are higher than those of *2 in Lisu, Akha,
Sani, Bisu, and Phunoi; but the reflexes of *2 are higher

than those of *1 in Modern Burmese, Lahu, Lu-Ch' Üan,
and Nakhi.

   In stopped syllables, I have shown in detail else-
where (TSR) how a two-way tone contrast must be set up
for the proto-Loloish stage. This contrast, which is
not to be found in the Burmish branch, can be shown to
have arisen as a result of the complex interactions of
voiced vs. voiceless syllable-initial consonants with
the various prefixes that were preposable to the root
at the PLB stage. To my surprise, I later found that
the Loloish tonal split can be closely correlated to the
two-way tone distinction in Jinghpaw stopped syllables.[27]
(This is all the more striking in view of the fact that
it is so difficult to correlate the Jinghpaw tone system
to that of LB in non-stopped syllables.) Perhaps this
relationship is evidence for setting up a higher-order
taxonomic nucleus in TB to include both Jinghpaw and LB.
For this nucleus I have suggested the name "Ji-bur-ish"
[ibid.].

3.0 PLB syllable onsets: prefixes, root-initial con-
sonants, medial glides. As an anchor for the following
discussion, it might be well to present a capsulized in-
ventory of the sound-systems of our 7 principal daughter
Loloish languages. In most cases we may regard the phono-
logical statements in the sources as highly accurate,
though Rock's transcription of Nakhi is certainly over-
differentiated. At the moment we do not know enough to
phonemicize Rock's system adequately, so that the sound-
correspondences between Nakhi and the other languages are
still obscure on many points. Except for Nakhi, where
we retain Rock's spellings, the transcriptions have been
normalized somewhat to conform to standard American usage.
Here are the seven sound-systems [see following three pages]:

3.1.   Proto-prefixes and the manners of articulation in
       the daughter languages. There are few things in
LB phonology to match the prefixes for sheer interest
and complexity of behavior. As I have detailed elsewhere,
the prefixes could react with the root-initial consonant
in a bewildering variety of ways (Matisoff 1972b). This
is especially true when the C_i was a resonant /w y r l/.
Taking a hypothetical etymon *g-ya, where the root-initial
was y and the prefix was *g-, any one of a number of fates
could befall the syllable onset in one or another daughter

A. LAHU PHONEMES [Matisoff 1973b, p. 1]

C_1:
```
p   t   c   k   q
ph  th  ch  kh  qh
b   d   j   g
m   n       ŋ
f       ž   h
v       y   ğ
    l
```

V:
```
i   ɨ   u
e   ə   o
ɛ   a   ɔ
```

T:
[unmarked]	33
`	21
^	54
¯	11(2)
´	45
^ˀ	5̂4
`ˀ	2̂1

B. LISU PHONEMES [Hope 1972]

C_1:
```
p   t   ts   c    k    ʔ
ph  th  tsh  ch   kh
b   d   dz   j    g
f   s        ž    x    h
v   z        y    ɣ
m   n        ñ    ŋ
    l        ly
```

V:
```
i   ɨ   u
e   ə   ɔ
æ       a
```

laryngeali-
zation:
```
V
 ̯
```

T:
[unmarked]	mid
´	high
`	low
ˇ	mid-rise
^	high-fall

C. AKHA PHONOLOGY [Lewis 1968, pp. viii-xii]

C_1:
```
p   py   t   ts   c   k   ʔ
b   by   d   dz   j   g
m   my   n        ñ   ŋ
             s        ž   x   h
             z            y   ɣ
             l
```

The following consonants are
aspirated when followed by
non-laryngealized vowels:
```
p   py   t   ts   c   k
              s        ž   x
```

Tones: (a) with oral vowels:
□ˇ	high
□	mid
□ˎ	low

Vowels:

[vowels in parentheses do
not occur laryngealized]

(1) standard phonetic symbols:
```
i   (ü)        ɪ   u
(e)  ö         ŏ   o
ɛ                  ɔ
(ɯ̈)       a       (ɒ̃)
```

(2) Lewis' orthography:
```
i   (oi)       ui   u
(e)  oe        eu   o
eh                  aw
(ɯ̈)       a        (ah)
```

(b) with laryngeal vowels:
□^	high
□ˏ	low

D. SANI PHONOLOGY [Ma 1951, p. 3]

C_i:	p	t	ts	tɬ	tʂ	tš	k	kʷ	q		Tones:	
	p'	t'	ts'		tʂ'	tš'	k'	k'ʷ	q'		⌐	55
	b	d	dz	dl	dʐ	dž	g				˧	44
	m	n			ñ	ŋ					˦	33
	f	s		ɬ	ʂ	š	x	xʷ	ɣ̊	h	˩	11
	v	z		l	ʐ	y	ɣ				˩	2̃2̃

Vowels:

(1) non-constricted					(2) constricted			(3) syllabic nasals		
I	ɤ	u	[	ɿ	ʅ	ʮ	i	ɯ	ɣ	m̩	n̩	ŋ̩
e	ɤ̈	o						z̩				
æ	a	ɑ	[=ɿ	ʯ	ʮ]		[=ʮ]					

E. BISU PHONOLOGY [Nishida 1966]

C_i:	p	py	pl	t	ts	tš	k	ky	kl	ʔ		Vowels:		
	ph	phy	phl	th	tsh	tšh	kh	khy	khl			i	ɯ	u
	b		bl	d			g					e	ɤ	o
	m	my		n		ñ	ŋ					ɛ	a	ɔ
	hm	hmy		hn		hñ	hŋ							
	(f)		hl	s		š		hy		h				
	w		l					y						

Rhymes (in native syllables):

a	i	e	ɛ	ɯ	ɤ	u	o	ɔ
aŋ	iŋ	eŋ	ɛŋ	ɯŋ	ɤŋ	uŋ	oŋ	ɔŋ
am						um		
an		en	ɛn	ɯn	ɤn	un	on	

ɛt ɯt ɤt } ⊕ ɤk / ɤp

aw   ɔy

⊕ occur mostly in loans < Thai

Tones:

(1) <PLB *non-stopped

   55 high level
   11 low level
   33 mid level
       (constricted)

(2) <PLB *stopped

   33 mid level
       (constricted)
   11 low level

F. LU-CH'ÜAN PHONOLOGY [Ma 1948]

C_1:

										Tones:
p	t	ts	ţ	tẓ	tš	k	k^W	?		55 high level
p'	t'	ts'	ţ'	tẓ'	tš'	k'	k'^{W}	?h~		33 mid level
b	d	dz	ḍ	dẓ	dž	g	(g^W)			11 low level
mp'	nt'	nts'	nţ'	ntẓ'	ntš'	ŋk'	ŋk'^{W}			îî low stopped
m	n		ṇ		ñ	ŋ	ŋ^W			
f	ł	s	ş		š	x	x^W			
v	l	z	(ẓ)		y	γ	γ^w			

- -

Vowels: [commonly occurring vowels are circled]

ⓘ   ⓤ   ɯ   ⓤ̈   ʮ̣ ⎫
ɪ   ⎬ syllabic spirants
ⓔ   ⓡ ɤ   ẓ̈ ⎭

ɛ   ɔ   All vowels may also occur
    ⓐ   ⓔ   laryngealized (indicated by
                              underlining: i̠, ṳ̠, etc.).

═══

G. NAKHI SOUNDS [Rock 1963] (left in his original transcription)

C_1:

									Tones:
p'	t'		ts'	ch'	t'ky(y)	·	k'	ø	1 low falling
			ds'						2 mid level
bp	dt	dty	ts	(ch)		gky	gk		3 high, short
			ds						[4 rising-- very rare, only in loans from Tibetan and Chinese]
b	d		tz	dsh		gy	g		
bb	dd		dz	dzh			gg		
mb	nd		nds	ndsh		ngy	ng		
mbb	ndd		ndz	ndzh			ngg		
f			sz	sh	kh	khy	ḳh	h	
ff			ss						
v			z	zh			(gh)		
m	n, nn					ny	n̄g		
w	l, ll					y			

- -

Vowels:
                                                    ùe̠n   (ung)

i   ī   ɏ   ŭ   u   ū   ɏ   un̠
                        iu   o̠n
e   wue   ŭe   ĕr(h)   ou   ån   an
ŏ   (ăr)   o   aw/ŏ̄   wuo   ùan ùan̠
ₐ   (w)uå   (ùa)   ā   u   aw/ŏ̄   (ügh)   (These are non-
                        wua   ₐ   etymological nasal

-language. To these possible fates it is convenient to assign names:

(a) prefix-preservation. Here the presumably original prefix remains in roughly its original phonetic shape, perhaps "protected" from the C_i by a shwa: gəya, kəya.

(b) prefix-loss or prefix-absence. Here the daughter language reflects the simple root-initial, and must be deemed either never to have had the prefix or to have lost it without trace: ya.[28]

(c) prefix-substitution or prefix-alternation. Here the daughter language has what is clearly a prefix, but the prefix is different from those in its sister-languages: pəya, təya, məya. In these cases we must assume either that the given root already admitted of alternative pre-fixations at the proto-stage, or else that the given daughter-language has innovated by substituting a new prefix for the old one.

(d) prefix-fusion. Here the prefix has united with the root-initial consonant to form a single consonantal segment which incorporates phonetic features both of the original prefix and of the original C_i: dža, tša, dza, etc. This "strategy" is especially characteristic of the LB family.

(e) prefix-preemption. Here the prefix was so "power-ful" that it drove out the root-initial consonant alto-gether: ga, ka. This interesting kind of prefixial pre-sumptuousness is well attested in LB. Thus 'seven' [PLB *s-nit] loses its nasal C_i throughout Loloish, so that the daughter languages show initial s- or š- (e.g. Lahu ši). The word for 'penis' [PTB *m-ley, WT mʲe, Jg. mənē] undergoes simple loss of the nasal prefix in WB lī, but in Atsi, Maru, and Lahu (nʔyì, nʔyì, nì respectively) the prefix has become the C_i ... In 'needle' [PLB *rap, *k-rap, *ʔ-rap], the glottal prefix seems to have driven out the C_i in WB (ʔap)... The "fossil survivals" of pre-fixes mentioned above in the Introduction may also be viewed as instances of prefix preemption ("survival by preemption!"): *m-lyak 'lick' > Akha myeu ; *b-lìy 'four' > Maru bìt ; *s-yip 'put to sleep' > WB sip.

(f) prefixial metanalysis of an intrinsic cluster. Occasionally it happens that a language will take an original sequence of C_i + G, and reinterpret the orig-inal root-initial consonant as a prefix, so that the original glide then gets reanalyzed as the C_i. When this happens the old root-initial may then drop. A con-

vincing case has been found by Okrand (p. 74): the Nakhi
word for 'monkey' is [1]yü, with initial y-, even though
the PLB root certainly must be reconstructed with a
root-initial m̠: *myok~*s-myok [TSR 133].[29] (The usual
Nakhi reflex of *my- is my- or ny-, as in 'eye', PLB
*(s-)myak > NK miu ~ niu.)
(g) We may view the phenomenon discussed in the last
paragraph as a process of creating two new morphemes
out of one. The contrary process also occurs, whereby
two original morphemes become fused into one. This hap-
pens especially to original two-syllable compounds or
"binomes", whose first member becomes phonologically re-
duced through destressing, so that its final consonant
becomes attached to the C_i of the second syllable in the
manner of a prefix. Consider the following examples,
all of which look good, and the last one of which I am
especially proud:
(1) 'RIGHT (hand)'. WB lak-ya (intact binome "hand-right"),
Lh. là?-ša (with fusional influence on the C_i; plain *y >
Lh. y, not ž), Jinghpaw ləkhrá, khrá (ləkhrá shows weak-
ened stress on first member, khrá shows the metanalysis
carried to completion).
(2) 'PICK UP'. PLB *k-rok <**lak-rok "hand-pick up".
WB kok, Maru kyuk, Lh. g̈ɔ̂? ~ vɔ̂?, Ak. g'o^, Li. gawɜ.
The prefix preempted the C_i in WB and Lisu, but was re-
tained along with the C_i in Maru. In Lahu and Akha the
prefix dropped without trace (or, more accurately, no pre-
ceding morpheme may ever have developed into a prefix
in those languages). It seems plausible that the *k- pre-
fix we set up in this root [see TSR 187] derives, as in
the previous example, from the word for 'hand'. The
Tibeto-Burman languages typically have "instrumental
verb-with-tied-noun" constructions like "to hand-pick
up" "to foot-kick", "to water-bathe", etc., wherein the
meaning of a verb root is specified by a preceding noun
of instrument.[30]
(3) 'DOVE'. The word for 'dove' is now reconstructed with
prefixial *m- even for the PLB stage, largely on the basis
of Lahu evidence [STC, p. 38]: *m-kruw, *m-krəw. Bradley
1973 reports a Phunoi form khón-khaw which holds the key
to the origin of the nasal prefix in this root in Loloish.

The khón- seems clearly to be the Mon-Khmer "animal prefix" that usually diffused into LB in the shape of a velar stop[31]. In this root, however, it was not the rhyme of the first syllable that weakened (to yield the "velar prefix") but rather the first part of the syllable that dropped, leaving only the final -n. If this explanation is correct, we shall have to assume that the Mon-Khmer prefix also diffused into Kuki-Chin-Naga, since those languages also reflect a nasal prefix here (Khami məkhru, Angami Naga mekru).

In STC (p. 43, n. 139), Benedict surmises that the Jinghpaw word for 'horse', gùm-rà ∿ gùm-ràŋ (Hkauri khə̀m-ràŋ) comes from a double prefixation of the root *raŋ, *k-m-raŋ (cf. WB mrâŋ), and speculates that the nasal prefix derives from the root for 'high' (WB mraŋ', Lh. mu). Perhaps an equally likely explanation might be that the Jg. syllable gùm- ∿ khùm is a direct reflection of the Mon-Khmer prefix just mentioned.

(4) 'ELDER SIBLING'. In a note to set 172 in TSR (p. 72), Benedict convincingly suggests a bisyllabic prototype *ʔu-(y)ik as the underlying form of the root for 'elder sibling' that I had reconstructed with the unique initial cluster *ʔwy- (*ʔwyik). The first morpheme is the TB root for 'head' *(d-)bu, frequently occurring in kinship names referring to elder relatives.

(5) 'MIND, SOUL'. It seems to me likely that WT yid 'mind, soul, seat of the emotions' is directly related to Jinghpaw myìt 'id.'[32] The initial m- in the Jg form, which now behaves like a C_1 (if it now behaved as a prefix a shwa would intervene before the y, *məyit), could derive from a roughly synonymous root represented by WT sem 'mind': *sem-yit > *səmyit > myit.

The weakening and dropping of unstressed syllables goes on apace in LB. In my Lahu Grammar I mention the widespread dropping of initial consonants in functors (words of abstract grammatical function; p. 38). Similar things are happening in Burmese: mə-hou'hpu:la: 'isn't that so?' > hmou'la: , etc.[33]

With all the above in mind, we are now ready to consider the manner-correspondences presented in Fig. 1 (next page), where the prefixes' effects on the manner of the root-initial consonant are tabulated for the eight languages in our study. For the purposes of the chart, we do not consider the possibilities of prefix preemption, substitution, or fusion, since we are considering syllables with <u>obstruental</u> rather than resonantal root-initial consonants.

3.11 <u>Comments</u> on <u>Figure</u> 1.

(a) *<u>b</u>, *<u>p</u>, *<u>C-b</u>, *<u>C-p</u>. The old *voiced series is retained as such in Lisu, Akha, and Lu-ch'üan, but is reduced to voiceless unaspirates in WB, Lahu, and Bisu. The threefold Nakhi reflexes of vless unaspirated "bp", plain voiced "b", and "fortis" voiced "bb" are hard to evaluate, and seem to involve subphonemic overtranscription on Rock's part. The Sani developments are curious. On the basis of the forms assembled by Baron from Ma's data, I have found what appears to be a systematically different treatment of the old *voiced series according to whether the syllable was under Tone *1 or Tone *2. Thus the following Tone *1 words reconstruct with *voiced initials, and come out as vless unaspirates in Sani:

tɣ 'wing', t̠ɫ̠I 'to fly', k̠ɯ̠'body', t̠s̠a 'rice', ts̠ɤ'bridge', tsɣ̠'liquor' (all Sani mid-tone) ;

whereas the following Tone *2 words, which also reconstruct with *voiced initials, come out as <u>voiced</u> in Sani:

b̠a 'thih', b̠ɫ'give', b̠ɣ 'bug, insect', d̠o 'speech', d̠la 'bee', g̠a 'hear', d̠za 'eat', dzʮ'copper', dzḷ'raw' (all Sani low tone).

If the Sani developments have been correctly interpreted, they are a striking example of the tone influencing the manner of initial consonants -- a little bit like a man biting a dog, since we usually expect things to happen the other way around (with the manner of initial consonants influencing the tone)!

The old *voiceless series everywhere became voiceless aspirated, except in Akha, where there is

Figure 1. LOLO-BURMESE MANNERS OF ARTICULATION

Proto Lolo-Burmese	Written Burmese	LAHU (Matisoff) (Thurgood)	LISU (Fraser Hope) (Bradley, Bauer)	AKHA (Lewis [Nishida]) (Baron)	SANI (Ma) (Ting)	BISU (Nishida)	LŪ-CH'ÜAN (Ma) (Wheatley)	NAHI (Rock) (Okrand)
*b (*C-b)	p	ɓ	ɓ	ɓ	p (Tone *1) / b (Tone *2)	p	b	"b, bb, bp"
*p (*C-p)	ph	ph	ph	ph	ph	ph	ph	ph
*mb	p - b	ɓ	ɓ	ɓ	ɓ	p	mpᶜ	"mb, mbb"
*mp	p - b	ɓ	ɓ	p/ph	ɓ	p	mpᶜ	"mb, mbb"
*ʔb	ph	p	p	p	p	ph(?)	p	"bp"
*ʔp	ph	p	p	p	p	ph(?)	p	ph

C = /b- d- g- r- l-/; the labial symbols are meant as cover-symbols for stops and affricates at all positions of articulation

complementary distribution between aspirated and non-
aspirated vless stops, with the former occurring
only in originally non-stopped syllables and the
latter only in originally stopped ones. (Put ano-
ther way, one could say that you cannot simulta-
neously have aspiration and laryngealization in an
Akha syllable.[34])

The old C-prefixes did not have the power to
affect the manner of the root-initial, and left
their traces only in the tonal reflexes in stopped
syllables, as detailed in TSR (pp. 14-15, 23).

(b) *mb, *mp. The nasal prefix has left distinc-
tive reflexes in several Loloish languages. In
Lu-Ch'üan and Nakhi a nasal component survives as
such. In Nasu (not included in our survey)[35] the
nasal prefix has engendered a special series of
voiced aspirated stops, b', d', etc. In Lahu,
*prenasalized initials also have a distinctive
manner of articulation, appearing as simple voiced
stops and affricates /b d j g/, contrasting with
the reflexes of the original *voiced series which
lost its voicing.

Okrand has identified several cases where
Nakhi has a prenasalized initial which is un-
matched (as far as is now known) in the other
Loloish languages.[36] These may be Nakhi innova-
tions, or may reflect genuine word-family alter-
nants current at the PLB stage.

In Lisu, Akha, Sani, and Bisu, the *prenasa-
lized obstruents have merged with the simple
*voiced series. The same is true, by and large,
of Burmese, though there is at least one good case
where an old prenasalized word, 'dove' *m-kruw,
is now pronounced with a voiced initial (Mod. Bs.
/jŏu/), even though it is spelled "khrûi".

The two prenasalized series, *mb and *mp,
have merged throughout Loloish, as far as the
manner of articulation of the daughter initials
is concerned. The voicing difference of the C₁
has left its trace, however, in the tonal reflexes
in stopped syllables; syllables of type *N-bak
have joined the LOW-stopped class, while syllables
of type *N-pak now belong to the HIGH-stopped class
(see the chart in TSR, p. 23). I also believe that
Lahu maintains distinctive tonal reflexes for *mb
and *mp in old Tone *1 words, with *mb giving Lh.
low-falling tone (bà) and *mp giving mid-tone (ba).

(c) *ʔb, *ʔp. The glottal prefix typically has
the effect of unvoicing the root-initial consonant
in Loloish. This is true for Lahu, Lisu, Akha, Sani,
and Lu-Ch'üan. In Burmese (and apparently in Bisu,
though the evidence is scant), the glottal prefix led

rather to the aspiration of the C_1. In all these languages both glottalized series have merged in manner of articulation in the daughter languages. Only Nakhi seems to reflect a manner-difference in its reflexes, with *$?b$ becoming voiceless unaspirated ("bp") while *$?p$ acquires aspiration ("ph").[37] En revanche, Nakhi shows no tonal difference in the reflexes of the two series.

(d) Interrelationships between prenasalization and preglottalization.
I have discussed this question repeatedly (perhaps ad nauseam) in earlier papers.[38] To what has already been said I shall only add a couple of remarks here:
(1) Still another root showing *N- ~ *$?$- is 'house', with Akha ŋ-ŷm, Lh. yè, WB $?im$, WT khyim. We may set up the root for LB as *$?yim$ ~ *$Nyim$.
(2) The ubiquitous TB noun-prefix represented by WB *$?ə$-, Lh. ɔ̄, Bisu $?aŋ$-, and Jg. ŋ- is also reflected in Phunoi, where Bradley reports the prefix $?\tilde{a}$- (which is, gratifyingly enough, both nasal and glottal simultaneously).
(3) It seems entirely reasonable that the two major prefixes in LB should have been exploited by opposing them to each other in morphological alternations, especially in view of the fact that they tended to produce opposite effects on the manner of the C_1, with *N- leading to voicing and *$?$- leading to unvoicing.

3.2 Proto-glides and obstruental positions of articulation.
It is now time to consider the chart in Fig. 2 (next page). In the chart as well as in the following discussion, the voiceless unaspirated symbols are intended to stand for all manners of initials at the given position of articulation.
(a) Labials: *p, *pr, *pl, *py. Plain *p is everywhere maintained as such. The evidence for *pl in LB is scanty with the best example being the set for 'white, silver' (Insc. Bs. phlu). Bisu apparently preserves separate reflexes for *pr, *pl, and *py. Lahu and Nakhi have merged all three of these clusters to p.[39] Sani has, interestingly enough, merged all three clusters to lateral affricates of the type tɬ-. This development is well-established, occurring in such key roots as 'fill', 'bee', 'flee', 'flat', and 'to fly'. A similar thing happens to *my- in Sani, where the reflex in n- ('eye' *$(s-)myak$ > Sa. ne 44; 'monkey' *$s-myok$ > Sa. nu 55). In Lu-Ch'üan all three clusters have merged to retroflexed stops, with this development also being paralleled when the labial C_1 was a nasal: 'monkey' > LC ṇu 55 [constricted].

Figure 2. LOLO-BURMESE POSITIONS OF ARTICULATION (OBSTRUENTS)

PROTO LOLO-BURMESE	Written Burmese	LAHU	LISU	AKHA	SANI	BISU	LU-CH'ÜAN	NAKHI
*p	p	p	p	p	p	p	p	p
*pr	pr	p	p	p	tł	p	*pw>p / *pr>ţ	p [*mr>ž]
*pl	pl(Insc)>pr/py	p (pw?)	p	py	tł	pl	ţ	p
*py	py	p	py	py	tł	py	ţ	p
*t	t	t	t	t	t	t	t	t
*ts	ts or tš / -ts/_ł	tš / -ts/_ł	ts	ts	ts	ts	ts	ts/tš
*tš	ts or tš	tš / -ts/_ł	tš	tš	tš/tṣ	ts	ts	ts/tš
*ky	ky	tš / -ts/_ł	tš	tš	tš/tṣ	tš/ky	tṣ	tš/ky
*kl	kl (Insc)>kr/ky	tš	ts	tš	tš	kl	tṣ	"dky ~ dty"
*kr	kr	k	tš	k	tš/k	ky/k	tš	tš/t'ky"/k
*kw	kw	p	??	k	ts	k	tš	k
*k	k	q	k	x	q	k	k(kʷ before ɔ)	k

Lisu and Akha both seem to preserve the contrast between *pr and *py, with *pr > p, and *py remaining py. There is excellent evidence for *pw- clusters in TB (cf. *bwat 'flower', *pwak 'pig', *pwa 'sole'). The usual treatment of these clusters in LB is to metanalyze the labial stop as a prefix, which then drops, leaving the w- in root-initial position (cf. WB wat 'stamen', wak 'pig', khwa 'hoof'--with substitution by the velar animal-prefix in the latter). In Nakhi, however, as Okrand has shown (pp. 26-27), the labial stop remains in these words, while the medial -w- drops: ^{1}ba-^{1}baw 'flower', ^{1}bu 'pig', ^{2}boa 'sole'. It now looks, therefore, as if we shall have to set up *pw clusters for the PLB stage.

(b) Dentals: *t everywhere remains t.

(c) Dental and palatal affricates, and their confusion with velar clusters: The distinction between affricates of the *ts and *tš type has disappeared in Burmese, Bisu, Lu-Ch'üan, Nakhi, and Lahu.[40] Sani seems to preserve it marginally, but it looks as if the distinction is about to disappear there too. The best languages for keeping them apart are Lisu and Akha (but even in Akha there is much dialectical variation and hesitation in this area--see the papers of David Bradley cited in the Bibliography).

Many of our languages have suffered a merger of *tš and *ky (Lahu, Lisu, Akha, and probably Bisu and Nakhi). Lahu, I am ashamed to say, has undergone a threefold merger of *ts, *tš, and *ky, in favor of the palatal affricates. Sani and Nakhi show particularly messy reflexes in this area, which remains one of the important terræ incognitae in the LB consonantal picture. Only Lu-Ch'üan seems to maintain a clearcut distinction between *tš (> LC ts) and *ky (> LC ts).

(d) Velars: *k, *kw, *kr, *kl, *ky. The velars occupy one of the most interesting domains in the LB initial system.[41] Simple velar initials are retained as such in Burmese, Lisu, Bisu, and Nakhi. In Lu-Ch'üan the velars are allophonically labialized before the vowel -ɔ (from whatever source). The simple velars are retracted to post-velar stops in Lahu and Sani. In Akha, the unvoiced *k has spirantized to x, but the voiced homologue *g remains g.

*kr and *ky are kept apart in Lahu, Akha, and Lu-Ch'üan. Curiously enough, *kr > LC palatal affricates, while *ky > LC retroflex affricates, the opposite of what one might have predicted a priori. The two proto-clusters have merged in Lisu, and the distinction is not clearly maintained in Nakhi, Bisu, or Sani.[42]

*kl is distinctly maintained in Bisu, which is a help.

*kw is well-established in one very important root,
'dog' (where the k- may ultimately be prefixial).[43] Lahu
here has a labial stop reflex, phî(WB khwê < PLB *kwiy),
and Sani also has a distinctive dental affricate, tṣʻúll.
Unfortunately the Lisu cognate is lacking, since a^1-na^5 'dog'
is unrelated to forms in the other languages. A more
hypothetical possibility for a *kw- root is 'branch',
where all the Loloish languages except Akha point to
*ʔkak, but Akha has a˄pya˄. (The medial -y- is a problem,
however.)

3.3 Nasal, spirantal, and resonantal initials. There is
no space to go into these developments in detail, and we
shall have to content ourselves with hitting a few high
spots.

(a) Bisu nasal reflexes. The regular Bisu reflex of a
simple *nasal initial is a voiced stop; 'fire' Bi. bì,
Lh. mî; 'girl' Bi. bí, Lh. mî; 'black' Bi. da 33c,
Lh. nấ?; 'spirit' Bĩ. dât, WB nat; 'I' Bi. ga, Lh. nà;
'soft' Bi. dɔ̀, Lh. nû; 'hungry' Bi. bè, Lh. mè?, etc.
Stella Ting has gone on to show that the modern Bisu
nasals descend from PLB syllables where prefixial *s-
preceded the C₁; 'bean' *s-nok > Bi. nu; 'heart' *s-
nik ~ *s-nin > Bi. nɯŋ-ba; 'eye' *s-myak > Bi. mè-hnɯ,
Since the Bisu form for 'you' is naŋ, that in itself
would be grounds for setting up an otherwise unattested
*s- in this root too. The Bisu aspirated nasals (hm,
hn, etc.), presumably descend from PLB *glottalized
nasals, but there is no evidence yet on this point.
      The most interesting of the words where Bisu has
a simple nasal is 'monkey' (Bi. mjɔ̀). We must now set
up this root as *s-myok, with the sibilant animal prefix
so well-attested in many other TB roots.[45] As a fringe
benefit we can now explain the tonal irregularities
noted in this set in Ahi, Sani, and Nasu (TSR, No. 133)
as due to the influence of this prefix.

(b) Nakhi reflexes of *mr and *ʔmr. Okrand has shown
(pp. 24-25) that PLB *mr > NK "zh", while *ʔmr > NK "sh".
The most convincing pair of examples are 'horse' *mraŋ >
NK 2zhwua, and 'high' *ʔmraŋ (Atsi mʔyâŋ) > NK 1shwua.

(c) Prefixed-sonorant proveniences of Lu-Chʻüan n.
Wheatley has shown (pp. 25-26) how the LC retroflexed
nasal descends from a variety of initial clusters where
a prefix precedes a nasal or liquid, or where a nasal
is followed by a glide. Thus, 'moon' LC nu˩< *s-la;
'wind' LC ŋu˩ < *s-liy; 'soul' LC ŋu˩ < *s-la; 'brains'
LC ŋa˩ ~ ŋe˥< *(ʔ)nok ~ *(ʔ)nuw²; 'ripe' LC ŋớ˩< *s-min;
'monkey' LC ŋu˥ < *(s-)myok; 'many' LC ŋu˩ > *mra; 'neck'
LC ŋớ˩< *m-liŋ.

(d) <u>Glottalized</u> nasals <u>becoming voiceless spirants</u>
<u>in Nakhi.</u>
We have long been used to the idea of glottalized
resonants becoming spirants in Loloish. Thus $*?y$,
$*?r$, $*?l >$ Lh. h, and $*?w >$ Lh. f.[46] Okrand has now
demonstrated that glottalized <u>nasals</u> have yielded
voiceless spirants in Nakhi: 'feather, body hair'
$*?muw>$ NK $\underline{ffu}$; 'deep' $*?nak >$ NK 3_{ho}, 'drive along'
$*?nan^1 >$ NK $^1\underline{ho}$; 'ear' $*?na^2 >$ NK$^2\underline{ha}$; 'red' $*?niy^1 >$
NK$^1\underline{ho}$; 'rib' $*?nam^1 >$ NK $^1\underline{ho}$.
Since s-prefixed nasals seem to have developed
into simple nasals in Nakhi ('bean' $*s-nok >$ NK $^1\underline{nun}$,
'eye' $*s-myak >$ NK $^1\underline{miu} - ^1\underline{niu}$, etc), this is excellent
evidence that the $*s-$ and $*?-$ prefixes were indeed
still distinct before nasals at the PLB stage, as
claimed in TSR (pp. 24-25).

(e) <u>Spirantal reflexes in Lisu.</u> The spirants are a
disaster area in comparative LB phonology, due to
massive mergers of proto-contrasts and much internal
variation within the daughter languages. Thurgood
1973b has now clarified the spirantal picture in Lisu
considerably. In particular he has shown that $*š >$
Li. š before front vowels, but > Li. h/hh before back
vowels. Thus 'new' $*\emptyset-šik >$ Li. $\underline{shi}^6$, 'seven' $*ši(t) >$
Li. $\underline{shi}^5$; but 'meat' $*ša >$ Li. $\underline{hwa}^5$, 'iron' $*šam >$
Li. $\underline{haw}^4$, 'pluck' $*C-šak >$ Li. hha^6, and 'pour' $*\emptyset-šat >$
Li. haw^5.

4. <u>The proto-tones in their relationship to the</u>
<u>syllable onset.</u>
Space is running out, and we cannot here discuss the LB
tonal developments in detail. The charts in Fig. 3
present the results of our most recent work in this area.
The tonal reflexes in Lahu, Lisu, and Akha non-stopped
syllables have been quite clear since Burling 1967 and
Matisoff 1970. The developments in Nakhi and Bisu are
very straightforward, since *1 and *2 did not undergo
any splitting in these languages. The conditioning of
the tonal reflexes in Sani and Lu-Ch'üan have been
provisionally worked out by me as indicated in Fig. 3,
on the basis of the new and convenient organization of
the data in Ma Hsüeh-liang's books by Baron and Wheatley.

Figure 3a. LOLO-BURMESE TONAL REFLEXES (I)

Proto-tone	Initial Class	Written Burmese	LAHU	LISU	AKHA
*1	*voiced (="plain") *N + voiced *voiceless (="aspirated") *N + voiceless *glottalized	□ unmarked (low)	`(Low-falling) □ unmarked (Mid)	Hope: Burling: {Fraser:} Burling: Lewis: [Anon:] □ unmarked "4" □ /	´
*2	*voiced *voiceless *prenasalized *voiceless spirantal *glottalized	^ (high, breathy)	ˆ (high-falling) □ (Very low)	□ "5" □´ ◆◆ "1"	¯□
*3	All Initials	?(creaky)	□ unmarked (Mid)	□ "3"	□
Low Stopped	*voiced *voiceless *v, glottalized *prefixed spirantal	-p -t	?(Low stopped) ´ (High rising)	/ "6" □ "3"	´? □.
High Stopped	*voiced *voiceless *spirantal *glottalized	-k	?(High stopped)	□ "3" □ "2"	´? □

PTB < { *-k, *-t, *-p }

◆ Note: More specifically, *voiced glottalized stops, *prefixed spirants, *glottalized nasals, and *glottalized resonants. See The Loloish Tonal Split Revisited, pp. 23-24.

◆◆ Note: "ŋ" stands for a laryngealized vowel in Hope's transcription.

Figure 3b. LOLO-BURMESE TONAL REFLEXES (II)

Proto-tone	Initial Class	SANI (Ma')	LU-CH'UAN (Ma')	NAKHI (Rock)	BISU (Nishida)	PHUNOI (Bradley)
*1	*voiced	33	11	1□ (low falling) γ	55	55
	*voiceless	33	33			
	*glottalized	44	55	2□ (mid level)	11	11
*2	*voiceless	11	55	2□ (mid level)	33	33
	*voiced	55	33 / 11λ			
	*spirantal					
	*glottalized	55	11; 22			
*3	All Initials	55 /	11; 22	2□ (mid level)	33	33
PTB *-t *-k	Non-glottalized	22	55	1□ Okrand pp. 40–41 See discussion.	11	11 constricted
Low Stopped *-p	*glottalized	55	con-stricted / per-cussion			
High Stopped	All Initials	44	22	3□ (high short)	33	33 constricted

* * FOOTNOTES * *

[1] See Benedict 1972, pp. 4-11. We cite this work henceforth as STC. For an attempt to work out the details of the relationship of LB to other subfamilies of TB, see Matisoff 1978.

[2] See Bibliography.

[3] The earliest WB inscriptions date from the early 12th century, making WB second only to Written Tibetan (WT) itself in antiquity of attestation.

[4] I would informally estimate this percentage to be over 90%, though I have not yet made actual calculations on the basis of a core-vocabulary Swadesh-type list. Such a list, of perhaps 300 etyma chosen for their cultural appropriateness to Southeast Asia, is now in preparation.

[5] For a much fuller discussion, see Matisoff 1973a, especially section 1.2 ("Monosyllabicity, intersegmental feature-sharing, and compensatory tone").

[6] See below 3.0 for the phonemic inventories of the seven principal Loloish languages we are discussing in this survey.

[7] Students of the Chinese dialects of Yunnan report similar phonetic developments in those languages. (Personal communications, Stephen P. Baron.) Is this to be interpreted as the result of contact influence from TB? At any rate it would seem to make sense to speak of a "Yunnanese Sprachbund."

[8] Hypothetical data.

[9] The Lahu form must descend from the variant without medial -y-, since -ya regularly gives Lh. ε (e.g. *s-myak 'eye' > Lh. mɛ̂?; *bya² 'bee' > Lh. pɛ̂).

[10] These sets have already been discussed several times by the writer (Matisoff 1968; 1969 [pp. 19-28, 44-51]; 1970 [p.27]. The details of the reconstructions do not concern us here, but the proto-initials all reconstruct as lateral clusters of various kinds: *sl, *ʔl, *ml, *bl.

[11] Cf. the stir in evolutionary circles when a living Coelacanth was discovered in the Indian Ocean in 1938—an archaic fish that had been thought extinct since the Mesozoic era. See Herald, pp. 286-288.

[12] See STC, p. 105.

[13]See Matisoff 1972, set No. 179. For the regular correspondence of Bisu voiced stops to nasals in other languages, see Nishida 1966a, 1966b, 1967; and Ting 1973. We henceforth refer to The Loloish Tonal Split Revisited as "TSR".

[14]We may distinguish roughly among three types of comparative linguistic work: micro-linguistic (appropriate to LB or, say, the Romance languages); macro-linguistic (appropriate for TB as a whole, or for Indo-European); megalo-linguistic (appropriate for Sino-Tibetan as a whole -- or, a fortiori, for "Austro-Thai"). Different species of maniacs are attracted to the three types of work. Needless to say, all three types are equally valid and equally essential for progress.

[15]For a start in this direction see Matisoff 1972, pp. 5-26.

[16]For an attempt to relate the tone-systems of LB to that of Jinghpaw, see Matisoff 1974.

[17]See the Bibliography, where their papers are marked with an asterisk.

[18]The object of Liao's paper was to decide whether Ch'iang was a Loloish language or not. His conclusion -- in which I concur -- was negative.

[19]If the C_1 of a syllable was a voiceless obstruent, the voicedness of the *C-prefix had the power to force the syllable to join the *LOW-stopped tone class instead of the *HIGH-stopped one.

[20]Before resonantal C_1's we must recognize a fourth prefix-type: a voiceless stop (p- t- k-) that typically arose through the reduction of the first syllable in a compound word, and which had the power to force a resonant-initial stop-finalled syllable into the *HIGH-stopped class. See TSR, pp. 25-26, 68-70.

[21]Cf. the Lu-Ch'üan doublet for 'pig', va] - pu], from *wak and *pwak respectively (Wheatley, op. cit.).

[22]See the following sets in Matisoff 1970: 'hang up' (#18); 'spittle' (#32); 'conversation' (#69).

[23]For some of the evidence for setting up PLB *ok (> WB auk, Lh. ɔ?) vs. *uk (> WB auk, Lh. u?) see my note 232 in STC, p. 76.

[24]For some discussion of "primary" vs. "secondary" tones with respect to Jinghpaw and LB see Matisoff 1974.

[25]The creaky tone is extensively exploited for morphological purposes in Burmese to this day (Okell, pp. 18-21), which suggests that *3 may have arisen in the first place as a "sandhi tone" sometime before the break-up of Common LB.

[26]See Matisoff 1974.

[27]Ibid, section 9; "Jinghpaw/Lolo-Burmese relationships in stopped syllables."

[28]This is a typical Burmish treatment of prefixes. John Okell (personal communication) informs me that modern Tavoyan dialect continues this same process by dropping many initial atonic syllables that occur in Standard Burmese; 'paddy' WB cəpâ, Tav. pá; 'cooked rice' WB səmâṇ, Tav. hmáṇ; 'banana' WB hŋak-pyô-sî > Mod. Stand. Bs. hŋəpyôôî, Tav. byô.

[29]This metanalysis, I now realize, has occurred elsewhere in TB as well. Cf. Kham (Nepal) yu:h 'monkey'. David Watters, personal communication.

[30]See Okell, pp. 36 ff. Also Matisoff 1973b, section 4.5 "Transhemistichial relations: the adverbiality of the 'oblique' cases," pp. 306-314.

[31]For discussions of the "velar animal prefix" in LB see STC, p. 107, and (for LB and Jinghpaw) Matisoff 1969, pp. 190-199. Shorto 1973 posits the Mon-Khmer root *ken/kuen 'child' as the source of the TB prefix. Smith 1973 investigates in detail the traces of this prefix in Sedang, and goes on to study 16 other Mon-Khmer languages of Vietnam with a view to this question. It seems likely that the Burmese classifier for animals, koŋ (Mod. Bs. kaun) is a direct borrowing from Mon-Khmer. This was first suggested to me by Alton L. Becker (Aug. 1973) and then independently by John Okell (Oct. 1973).

Further news on the animal-prefix front includes the following list of Akha words for animals having the first syllable k'a˅ (Lewis, pp. 157-159): k'a˅boe˅ 'white bamboo grub', k'a˅dze˅ 'falcon, hawk, eagle (generic)', k'a˅gu˅ 'generic for pigeons and doves', k'a˅hm˅ 'bear', k'a˅ja˅ 'white-rumped munia', k'a˅je˅ 'parakeet', k'a˅ la˅ 'tiger', k'a˅pa˅ 'frog', k'a˅tseh^ 'sambar deer', k'a˅yeh˅ 'wolf', k'a˅ zui˅ 'leopard', k'a˅ k'oe˅ 'generic for doves'.

[32]Benedict disagrees. But now see Matisoff 1978, pp. 185, 211.

[33]See Cornyn and Roop, 1968, p. 372. Also note 28 above. Okell reports that in Tavoyan the unstressed numeral prefix tə- is normally omitted before classifiers (a construction impossible in Standard Burmese, but normal in Thai).

[34]See Lewis 1968 (Introduction) and Egerod 1971.

[35]See Kao 1958, and TSR.

[36]Op. cit., pp. 16-17. The words include 'bee', 'bridge', 'eat', 'to fly', 'lac', 'nine', 'tooth', and 'tree'.

[37]See Okrand, pp. 17-21.

[38]"Lahu and PLB", pp. 22-23; "Glottal dissimilation", pp. 41-43; Tonal Split Revisited, pp. 48-52. In TSR I set up no fewer than 13 roots (#'s 98-110) showing alternations between the nasal and glottal prefixes. In the case of verbal roots, the nasal prefix seems to have indicated stativity, as opposed to the glottal prefix's meaning of directionality or causativity. (A similar alternation between *m- (stative) and *p- (causative) is set up for Austro-Thai [Benedict, forthcoming], though this is perhaps only a coincidence.)
I have argued that the WT letter "a-chung", transcribed "h", represented a complex sound with both glottal and nasal components ([ʔə̃-] or [ʔŋ-]). See TSR p. 16. Also TSR p. 55, footnote 36.

[39]One possible survival of *pl in Lahu is 'lightning', mû-tí-pwɜ̀ʔ, where Lh. has pw- corresponding to Bisu bl- (mùn-blàp). Cf. Jg. myiʔ-hprap.

[40]In Lahu affricates of both types occur phonetically, but this is automatically conditioned, with [ts] appearing only before /ɨ/, and [tš] appearing everywhere else.

[41]The same is true in other areas of TB. See the discussion of velar clusters in Tangkhul Naga in Matisoff 1972b.

[42]For a discussion of the Nakhi problem, see Okrand, pp. 21-23. Bisu has plain k < *kr in 'fence', 'foot', 'star', and 'fear', but ky < *kr in 'between', 'hear', and 'horn'. Sani has k < *kr in 'fear', 'hear', 'nine', 'six', 'grind', and 'sound'; but tš < *kr in 'sweat', 'star', and 'cold'; and ts< *kr in 'foot' and 'copper'!

[43]See STC, p. 26 (note 83).

[44]In TSR (pp. 10, 60) I opined (for tonal reasons) that it was the second syllable of the Bisu form that was cognate to the forms in the other languages, but now I'm not so sure.

[45]See STC, pp. 106-107. Chang's attack on the reality of this prefix in his review of the Conspectus is unconvincing.

[46]See Matisoff 1969, pp. 171-179.

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