

DULONG AND PROTO-TIBETO-BURMAN¹

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ABSTRACT

This paper compares the Dulong language of northwestern Yunnan Province in China to other Tibeto-Burman languages and to Proto-Tibeto-Burman, with a view toward understanding the historical development of Dulong and toward supporting, revising, and adding to the body of accepted PTB reconstructions.

INTRODUCTION²

The Dulong people live in the north-west corner of China's Yunnan Province, along the banks of the Dulong River in the Gongshan Dulong and Nu Nationality Autonomous County of the Nujiang Lisu Nationality Autonomous Prefecture. Their land is bordered by Tibet to the north, and by Burma to the west and south. Their language is generally considered to be in the Jingpo branch of Tibeto-Burman.³ Though the Dulong people number less than five thousand, the Nujiang dialect of Dulong is also spoken by approximately six thousand of the Nu people. This paper will concentrate on the Dulong River (Dulonghe) dialect of Dulong, but the Nujiang dialect will also be given for reference. There is little difference between the two. Please see Appendix B for a list of the major differences.

Loan words account for some ten percent of the Dulong vocabulary. Of these loans, 80% are Chinese loans, 10% are Tibetan loans, five percent are Yi loans, and there are also a few Burmese loans. I have dealt only with native vocabulary in this paper.

TONES AND VOWEL LENGTH

From a careful comparison of the Dulong forms in Sun (1982) with the tone sets of Jingpo and Burmese in Matisoff (1974), it seems that although Jingpo, Burmese, and Dulong all have three tone categories in open syllables, there is only the vaguest connection between any two of the tone systems of these languages. I could find only 61 words in Dulong that had cognates among the 322 open syllable⁴ Jingpo-Burmese cognates given in Matisoff (1974). Only the two high tones of Dulong are significant in doing comparative work, as the low-falling tone is rarely used word-finally. Because of this, though it is possible to see some regular patterns in the proveniences of proto tone *2, these could be simple coincidence. The number of roots in proto tones *1 and *2 with both Jingpo and Dulong correspondences are given below:

PLB *1, JP 55 (not enough Dulong examples)

PLB *1, JP 31 = DL 55 (6 examples), DL 53 (6 examples)

¹ I would like to thank Sun Hongkai, Mark Hansell, and especially James A. Matisoff for their valuable suggestions during the revision of this paper.

² The information in this introduction and Appendix B is taken from Sun (1982, 1983a).

³ Benedict (1972:5) suggests that Nungish (=Dulong) might belong to the Lolo-Burmese branch of Tibeto-Burman, but on pages six and eight recognizes its closeness to Kachin (=Jingpo) as well. According to Sun Hongkai (1983a:233-243), The Rawang language in Barnard (1934) (cited by Benedict as 'Nung'), and the Trung language in Lo (1942) are basically the same as Dulong. From a comparison of the forms in Benedict (from both Lo and Barnard) with the forms given for the two dialects of Dulong, it seems that Trung = Dulonghe Dulong (in this paper DLa) and Nung = Nujiang Dulong (in this paper DLb). Though Benedict (1972:8) feels that "Rawang and Trung are separate languages in a Nungish group," Sun (1983a:233-247) argues convincingly that these are merely dialects of the same language, Dulong, and that this language belongs to the Jingpo branch of Tibeto-Burman. Sun (1983a:100) includes Jingpo, Dulong, Darang and Geman Deng, and Luoba in this branch. Benedict (1972:5-6) has Geman (Miju) and Darang (Digaro = Taraoon) Deng in the Abor-Miri-Datla branch.

⁴ Dulong stopped tones are almost all high-level, so I did not use them in the comparison.

PLB *1, JP 33 = DL 55 (5 examples), DL 53 (6 examples)
 PLB *2, JP 55 = DL 55 (8 examples)
 PLB *2, JP 31 = DL 55 (9 examples), DL 53 (3 examples)
 PLB *2, JP 33 = DL 53 (11 examples), DL 55 (4 examples)

The vowel length distinctions in Dulong also do not correspond with anything in the proto language or other TB languages except Deng. Because of the above facts, I have not dealt with tones or vowel length in the rest of this paper.⁵

INITIALS

Simple Initials

Dulong is relatively conservative in that it preserves the proto place of articulation fairly well, though, as in Jingpo, the voicing and aspiration of the initial are not always regular vis à vis the proto form. Even so, the main trend in Dulong is to reflect the proto voicing contrast (aspiration is not phonemic in Dulonghe Dulong, so is not marked), and the forms that deviate from this are definitely in the minority. The dental fricative became an alveo-palatal in those forms where it is followed by the high front vowel /i/ in Dulonghe Dulong or the high unrounded vowel /u/ in Nujiang Dulong. The nasals basically reflect the proto-form, except where there is palatalization or an m → n shift before a high unrounded vowel.

As Dulong often preserves the proto-prefixes as separate syllables, there doesn't seem to have been the kind of pervasive influence on the root initial that you see, for example, in the Yi languages. Exceptions to the above rules are discussed in the section on non-regular reflexes.

I include with the simple initials proto affricates and fricatives followed by *-y-, because as Benedict (1972) says on p. 37, these might better be seen as unit phonemes in a separate palatal series. Certainly the Dulong evidence seems to support this. For example, the /ʃ/ reflex of *s- occurs only when the Dulong initial is followed by /i/. The reflex of *sy- is /ʃ/ even when the Dulong initial is not followed by /i/.

Below is a list showing the various reflexes of Proto-Tibeto-Burman (PTB) in Jingpo (from Benedict 1972) and in Dulong. Only those initials where I had sufficient data to make a generalization, or where the forms are very clearly cognate, are listed.

TB	Jingpo	Dulong
*k	k(h)-g	k(h)-g
*g	g-k(h)	g
*ng	ng	ng
*t	t(h)-d	t(h)
*d	d-t(h)	d
*n	n	n-ŋ/ŋi
*p	p(h)-b	p
*b	b-p(h)	b
*m	m	m-n
*s	s	s-ʃ
*ts	ts-dz	ts-s
*l	l	l
*r	r	r
*w	w	w
*y	y	y

⁵ For a thorough analysis of vowel length in Dulong, please see Dai (1986), and for a discussion of the sources of vowel length in Tibeto-Burman, please see Sun (1983b).

Following are examples of the various correspondences:⁶

*k- → k(h)-⁷

bitter, crow, basket, tiger, steal, pillow, uncle, chin, speech, branch, plant

[1]bitter	DLa ka55; DLb kha53; T kha-ba; B khà; L kha. PTB *ka (8)
[2]crow	DLa tak55 ka55; DLb tang31 kha55; T kha-tha 'crow, raven'; K kha; B khi-kàn (with *-n 'collective' suffix); Rawang thang-kha; Trung tak-ka; LCA kha31 nɔʔ55; LXA ka55 naʔ31. PTB *ka [99-100]
[3]basket	DLa pai55 kɔʔ55; DLb tu31 kɔʔ55; T khug-ma 'pouch'; G khok; Lepcha kóm ba-guk 'purse'. PTB *kuk (393)
[4]steal	DLa ku55; DLb khu53; T rku-ba; K lægu; B khui; N khü. PTB *r-kuw (33)
[5]pillow	DLa u55 kum55; DLb u53 kum53; K bung-khum; N əɔp məkhim; Lh ú-gé; B khum; L khum. PTB *m-kum (482)
[6]uncle	DLa a31 ku53; DLb a31 khu53; T ʔakhu; B kui; K ku; N əkhò; Ao Naga okhu; Miri əkü. PTB *kuw (255)
[7]chin	DLa mu31 kai55; DLb mu31 kai55; N məkha; K nkha-ningkha; L kha; Thad kha. PTB *m-ka (470)
[8]word,speech	DLa ka55; DLb ka55; T bka-skad; B tsa-ka; K gà-səgà; N kha. PTB *ka (9)
[9]branch	DLa śing55 ang31 kɔʔ55 (śing 'tree'); DLb śung55 ang31 kɔʔ55; B akhak; Lh ɔ̄-qá, L kaak 'fork of tree'. PLB *ʔgak [TSR 43] PTB *s-kaak (327) ≠ **s-k(w)ak

Though reconstructed for PTB in STC as *kaak, in TSR #43, Matisoff reconstructs the PLB form for 'branch' as *ʔgak, based on Lolo forms. There are no examples of Dulong k- < *g-, and the Lushei form is also voiceless, so I am including this form in the *k- → k- set, assuming that either the PTB form is voiceless or that there is a voiced ≠ voiceless doublet.

[!0]plant	DLa kaat55; DLb kat55; JP khai55, K gāt 'sow,scatter'; Boro gáy; Nocte khet. PTB *kay ≠ *gay [G&C 114]
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The forms for 'plant' show a -t suffix in Dulong and some other languages. In Dulong, this suffix also shows up in an alternate form for 'speech,word': kat55.

*k- → g-⁸

body, nine, dog, yam, roast, star

⁶ In the word lists that follow, a number in parentheses after a proto-form is the number of the set in Benedict 1972 (STC); one in square brackets is the page number from the STC; one in brackets preceded by "G&C" is the number of the set from Matisoff 1985; one in brackets preceded by "Mpi" is the number of the set from Matisoff 1978; one in brackets preceded by "TSR" is the number of the set from Matisoff 1972. Proto-forms marked with two asterisks are my own reconstructions. Where there might be confusion as to which form of a phrase I consider cognate to the others of a set, I have underlined that form. Please see Appendix A for the key to language names, sources and symbols used.

⁷ There doesn't seem to be any clear conditioning factor for determining when the DLb form will be aspirated.

⁸ No conditioning factor is evident from the examples I have for explaining this change in voicing (assuming the transcription is correct).

- [11]body⁹ DLa ang31 gu55; T sku; B kui(y); MC *khiu (110)
PTB *(s-)kaw=*(s-)kuw [184]
- [12]nine DLa du31 gu53; DLb du31 gu53; T dku; B kui;
G sku; N təgō.
PTB *d-kuw (13)
- [13]dog DLa du31 gui55; DLb du31 gi55; T khyi; K kui;
B khwē; L ui; Jili takwi; N təgi; Digaro nkwi.
PTB *kwiy=*kwəy (159) ≠ **d-k-wiy
- [14]yam DLa gui55; T skyi-ba 'potato'; B kywē; N gi; Digaro gi;
JP kui31 mjau33 'mushroom potato'.
PTB *kywiy (238)
- [15]roast,toast DLa du31 gaang55; DLb du31 gaang55; K kəkang;
B kang; L kaang 'burn'; N dəgang.
PTB *kaang (330)
- [16]star DLa gur55 met55, DLb gu31 riet55 (+ *s-ngwat 'moon');
T skar-ma; K ʃagan; W. Kuki *s-gar; L ar-ʃi.
PTB *s-kar (49)

*g- → g-

bent, wear, vegetable, saddle, body

- [17]bent DLa du31 gɔʔ55; DLb du31 gɔʔ55; T kug; B kok; JP ma31 koʔ31
(ku5 in TSR); Bahing guk; Lh qɔʔʔ; Ahi gu44s; LCA kok55.
PLB *gok [TSR 2]
PTB *guk ≠ *kuk [125]; **gok
- [18]wear DLa gwa55; DLb gwa53; T bgo-ba; G gan; N gwa-ga; K khon.
PTB *gwa-n ≠ *kwa-n (160)
- [19]vegetable DLa dzu31 gwaʔ55; DLb zu31 gwaʔ55; Lh ɡɔ̄-cá;
Ahi vu-tʃe22-44; Sani Yi o-tʃe11-55; MT tshɛ55.
PLB *ʔgyak [TSR 49]
PTB **gwak~**gyak
- [20]saddle DLa ga55; DLb ga55; T sga 'yoke-horses; to yoke'; B ka'
'saddle-frame'; MBb ga; AC *ka (ʔg)
PTB *s-ga [Matisoff 1983, set 60]
- [21]body¹⁰ DLb gɔng53; Nungish: Rawang gung, Mutwang dial. gong;
B akhaung; Atsi kung; AC *kiōng (ʔg); also possibly JP khum31.
PTB *gung [182]

The different forms for 'body' in the two dialects of Dulong possibly stem from an allofamic variation of *-0 ≠ *-ng finals (as with 'you' *na ≠ *nang; cf. also the discussion of the Trung -ng suffix in n.74 in STC) that might go all the way back to PST.

*ng- → ng-

I, five, fish, silver, borrow, weep/cry, cattle

- [22]i DLa nga53; DLb gu55; T nga; N nga; B nga; G ang;
Dhimal ka; L ka; MW ka.
PTB *ka ≠ *nga (406)
- [23]five DLa pu31 nga53; DLb pu31 nga53; T lnga; K mąnga;
B ngà; G bo'nga; L nga-pənga.
PTB *l/b-nga (78)

⁹ See page 7 for DLb form for 'body'.

¹⁰ See page 5 for DLa form for 'body'.

- [24]fish DLa nga55 plaʔ55 (+ Tai); T rña; K ngo; N nga; B ngà;
L hnga; Chepang nga-rña.
PTB *ngya (189)
- [25]silver DLa ngul55; DLb nguun55; T dngul; B ngwe; AC *ngien (ᄒᄑ).
PTB *d-ngul [15,173]
- [26]borrow DLa nga55; DLb nga53; T brña-ba; B hngà; N nga.
PTB *r-ngya (190)
- [27]weep,cry DLa ngu53; DLb ngu53; T ngu-ba; B ngui; N ngü.
PTB *nguw (79)
- [28]cattle DLb nung55 ngwa53 'huáng niú'; K nga; B nwà;
Moshang nga; N ngwa~nga.
PTB *ngwa (215)

*t- → t-

roll, span, short, hear, join, big, one, cut, drip, thick, fir/pine

- [29]roll DLa a31 tal53; DLb tan53; Angari Naga ratuu <*rətul 'roll';
N redul 'roll, wrap, enwrap'; West T (Ladakhi) thul-ba
'roll or wind up', T thul-pa 'dress made from the
skins of animals (=something rolled or wound up).
PTB *r-tul [110]
- [30]span DLa ti55 pu31 ta55; DLb tsi55 pu31 ta55 (ti55, tsi55 'one');
T mtho; B athwa; LCA tho; Lh ᄑ-thu.
PTB *twa (165)
- [31]short DLa tui53; DLb thi53; B tui; JP ka31 tun31 (Matisoff 1974 has
JP tū); MBb thumi~tumbi; GMD ku31 ti55.
PTB **twiy
- [32]hear DLa tɔ55; DLb ta55; T thos-pa; JP ma31 tat31; N tha;
Trung thang; Newari ta-l; Mīri tat; Lepcha thyo <*s-ta;
Luoba taa; MBb than; GMD tat55.
PTB *ta-s (415)

The proto final for 'hear' is actually more complicated than it would seem from the given reconstruction because of the possibility of several suffixes and an *s- prefix, though I have not tried to make a formulaic reconstruction incorporating them. Whether the irregularity of the DLa final (*-a usually → DL -a) is due to the effect of a certain proto-suffix, or is due to some proto-medial, I have no way of knowing.

- [33]join,tie,knot DLa sw31 tɔɔ55; DLb sw31 tɔɔ55; T sdud-pa; MB tut;
K mətut~kətut; N dəthut; G stit <*stut 'tangle'.
PTB *du-t ≠ *tu-t (421)
- [34]big DLa tai53; T mthe-bo 'thumb'; N the; Mikir the; B tai 'very';
Abor-Mīri ta; AC *t'ai (大).
PST *tay (298)
- [35]one DLa tiʔ55; DLb tsi55; T gtšig; B tats; N thi; MC tsiäk (ᄑ).
PLB *C-ti-k [TSR 31]
PST *tyik ≠ *tyak [84,94,169,189]
- [36]cut DLa a31 tɔp55; T gtub~Hthub; MB tup53; B twap.
PLB *tɔwap ≠ *C-dwap [TSR 69]
PTB **-tup ≠ **-t/dwap
- [37]drip DLa a31 tɔʔ55; DLb thɔʔ55; T thigs ~ Hdzags; K ka31 theʔ31;
B tsak; Lh jāʔ; LCA tɔk55; MW tšh; Mpi tuʔ2;
MT thik54 pa54 'a drop', thik54 pa54 ɔp12 'drip';

- AC *ɹák /cɔk (ꨀꨣ), *riək/tɹiək (ꨀꨣ)
 PLB *Ntsak [TSR 82]; {*tik ≠ *dzik} ≠ *ndzak [Mpi 5]
 PTB **tsak ≠ **ty(w)ak
 PST **ty(w)ak
- [38]thick
 DLa tat55; DLb that55; T 'thas-pa 'hard,solid'; N that;
 K that; L tsaʔ.
 PTB *r-tas (426)
- [39]fir,pine
 DLa tang53; DLb tang31 xai53; T thang-sing; B tháng-ru;
 Vayu thong <*thang; Lh thɔ̄-cè; Tangyul matang thingrong.
 PTB *tang [69]
- *d- → d-
 nephew, dig, pit, full, flat, spit/vomit
- [40]nephew
 DLa puu31 du55; DLb buu31 du53; B tu; N phədu; L tu;
 Lisu -du; Gyarong temdau. Also possibly cognate with
 JP tu55 'fourth son'.
 PLB *du [STC p. 62, n. 196]
 PTB *tu ≠ *du (259)
- [41]dig
 DLa du53; K thu; B tu; Vayu du; Gyarong tu; Digaro thu;
 N du; LCA/LHA tu31.
 PTB *tu (258) ≠ **du
- [42]pit,hole
 DLa ang31 dung55; DLb ang31 dung55; T dong; B twāng; N dung-khr;
 Lisu du 'well'; LCA pun55 tɔng31, LHA tɕuŋ31 tung31.
 PTB *dwaang (169)
- [43]full
 DLa dam55; DLb dam53; T ltam-pa; Vayu dam; Tiddim dim; Bahing dyam.
 PTB *dyam¹¹ (226)
- [44]flat
 DLa dam55 mu31 li53 'plain, flat ground' (mu31 li53 'earth,ground');
 Bahing dyam 'to be straight'; T ldam-pa 'straight, upright';
 B atam 'a straight, long piece'; N ədam 'plain (level
 ground),flat'; Tiddim tam 'to be level'.
 PTB *dyam (227)

Matisoff (1986) argues persuasively that the roots given for 'full' and 'flat' given above should be considered one root which represents 'full, straight, flat'.

- [45]spit,vomit
 DLa duʔ55; DLb duʔ55; Mìkir ingtok; Maru tauk; Lepcha tyak.
 PTB *m-tuk ≠ *s-tuuk ≠ s-duuk [58,75,126,132,146]

Benedict (1972:58) incorrectly associates Rawang du 'vomit' with PTB *m-twa ≠ *s-twa because the final glottal stop (<*-k) is not marked in his source.

*n- → n-
 bean, ear, brain (DLa), brain (DLb), black, deep, two, sun, day, nose, you,
 younger sibling, aunt, shit, year, rest, hair(head), west, smell

- [46]bean
 DLa a31 nɔʔ55; DLb a31 nɔʔ55; B nok; JP noʔ31 kju55;
 LXA nuʔ31; Lh nɔʔ.
 PLB *s-nok [TSR 140]
 PTB **nok
- [47]ear
 DLa a31 na53; DLb a31 na55; B nà; K na; G na-tsil;
 Trung na-ba; N əna.

¹¹ This root is possibly related to Siamese tem, Lunghow Thai tim, reconstructed by F. K. Li (1977) for Proto-Tai as *tlyem.

- PTB *g/r-na (453)
 [48]brain(1) DLa u55 nuʔ55 (u55 'head'); K nu-ənu; B ù-hnauk.
 PTB *nuk (483)
 [49]brain(2) DLb nung31 ku31 leʔ55; N əning; G tanəŋ¹²; T sring,
 Mikir ning 'heart,mind'.
 PTB *s-ning (367)
 [50]black DLa naʔ55; DLb naʔ55; T nag-po; B naʔ; N naʔ; Lh naʔ;
 MW niq; LXA na51; LHA na31.
 PTB *s-nak [88,102,155]
 [51]deep DLa ru31 naʔ55; DLb ru31 naʔ55; Trung na43; Lh ná; LCA nak31.
 PLB *ʔnak ≠ *nak [TSR 157]
 PLB *-nak

'Black' and 'deep' are actually from the same root, and differ only in the prefix.

- [52]two DLa a31 ni55; DLb a31 ni55; T gnis; K ni; Kanauri nis;
 B hnac; Gyarung kénés; G gani; L hniʔ.
 PTB *g-ni-s (4)
 [53]sun DLa nam53; DLb nam53 luŋ55; T gnam 'heaven, sky', nam 'night';
 Magari nam-khan-riam-khan 'sun'; Vayu nomo <nama 'sun, sky';
 Bahing nam, N nam 'sun'; Mikir amam 'god' ('wind' in comp.);
 possibly also Zaiwa tsan51 nam55 'summer' (tsan51 'year').
 PTB *nam [148]

The word nam53, glossed here as 'sun', actually has a broader range of meanings (sky, season, weather) when used in combination with other morphemes: nam53 buŋ53 'wind', nam53 dzaʔ55 'rain, to rain', nam53 lum53 nam53 'Spring' (lum 'warm'), dzuŋ55 nam53 'winter' (dzuŋ55 'cold'), nam53 du55 'cloudy', nam53 gam53 'clear sky/weather' (gam53 'good').

- [54]day DLa ni55; DLb ni55; T ni-ma; B né; K ni; Dimasa -ni.
 PTB *niy=*nəy (81)
 [55]nose DLa su31 na55; DLb su31 na55; T sna; B hna; L hna:r.
 N sána; LXA na55 kang35.
 PTB *s-na (101)
 [56]you DLa na53; DLb na53; K nang-na; B nang; G naʔa; Dhimal na;
 L nang; N na.
 PTB *nang (407) ≠ **na
 [57]younger sibling DLa a31 nu55; DLb ang31 nu53; T nu-bo; K nau; G no; L nau;
 Lepcha num-nu 'blood rel.'; Luoba nuuro.
 PTB *naaw (271)
 [58]aunt DLa a31 ni53; DLb a31 ni53; T ʔane-nene-mo; K ni; L ni;
 G ma-ni; Miri ni; Gyarung ni; N ni.
 PTB *ni(y) (316)
 [59]shit DLa ni55; DLb ni53; B niats 'dirty'; K ni-rie 'defecate';
 T snigs-ma 'impure sediment'; N ni; Dimasa dzim 'dit'.
 PTB *n(y)ik (235)
 [60]year DLa ang31 ning55; DLb ang31 niŋ55; T ning; Karen *hneng;
 Miri niŋ; K niŋ-saŋ; Pyu sni <*sniŋ.
 PTB *s-ning (368)
 [61]rest DLa ru31 na53; DLb ru31 na53; T gnas-pa 'be,live,dwell,stay';
 Bahing na-so 'take rest'; Kanauri na-si; B ná 'cease from motion,
 alight'; Lh ná 'perch (bird); rest'; LXA na51; LHA na31; GM Deng na55.

¹² I have altered the STC's Garo forms for 'brain', 'two', 'seven' and 'father' as per the corrections in Burling (1981).

- PTB *na (414)
 [62]hair(head) DLa u55 nai55 (head+hair); DLb u53 ne53; Gyarung mi; G khani;
 Boro kaniy; Dimasa khani; N ni-tani.
 PTB *ney (292) [G&C 51]
 [63]west DLa nam55 nuup55; T nub; K nip 'shade, cast a shadow, be overcast,
 dim'; N nam nip lam (nam 'sun', lam 'side'); possibly also
 Kanauri nup 'northwards'.
 PTB *nup ≠ *nip (400)
 [64]smell(tr.) DLa pu31 naam55, pu31 nam55 gam53 'fragrant' ('smell' +
 'good'); DLb pu31 nam53; T snam-pa; K nam; B nam;
 Bahing nam; Vayu nam; N phnam; Trung panam.
 PTB *s-nam ≠ *m-nam (464)

In his discussion of the *m- prefix, Benedict (1972:117) defines it as having a "'middle voice' force, often durative, intransitive or reflexive...Note that the unprefixed root may be either transitive or intransitive, whereas the *m- prefixed form is always intransitive." He goes on to give the example *m-nam 'smell, have an odor' (trans: **s-nam), and says that *m- has been replaced by ph- (<*b-) in Nung. In note 326 (p.117) he says that Trung has panam (<*manam) for both the transitive and intransitive, and so is exceptional vis à vis the above generalization.

In the dialects I worked with, pu- has not replaced *m- in all the prefixed forms; some forms have pu-, and some have mu-: mu31 kai55 'chin', mu31 si755 'marrow', but pu31 lai53 'tongue', pu31 sin55 'liver', etc. In the case of 'smell', the pu- prefixed form is only given as the transitive form (the intransitive form is non-cognate), though the word for 'fragrant' is pu31 nam55 gam53 ('good'), which could be the result of an alternant form for intransitive 'smell'.

I also give the **s-nam reconstruction for transitive 'smell' because of the Tibetan, Lepcha, and Kanauri forms. In Kanauri both the transitive, stam-mig, and the intransitive, stam-shi-mig, have the reflex of *s-, though as Benedict points out on page 105, use of a *s- prefix ("directive, causative, or intensive") on an intransitive verb such as the Kanauri form for intransitive 'smell' (which he gives as stam <*snam) "appears only sporadically". Looking at the fuller Kanauri forms I have given, it seems that Kanauri has developed a different mechanism for expressing transitivity in some verbs: the addition of an auxiliary verb, -shi- (Cf. skyub-mig 'to carry, to transport, to bear' ~ skyub-shi-mig 'to load, to burden'). Because of this, it is likely the original significance of the *s- prefix was lost.

Another point is that there are other verbs in Dulong that I suspect are PTB *m- verbs that are used transitively, such as mu31 graai55 'take, hold in hand', pu31 daam55 'measure', pu31 tsi53 'light (a lamp)', mu31 duum55 'return (something)', etc., though I don't have solid reconstructions for them.

*p- → p-
 grandmother, father, price/value, spindle, leech, knee

- [65]grandmother DLa a31 pi55; T ?a-phyi-phyi-mo; Kanauri a-pi; G a(m)bi;
 L pi; Mikir phi; MBb ?api; Bahing & Vayu pi-pi; B apha
 'great grandfather', apha-má 'great grandmother';
 Lh a-pi 'grandmother'.
 PTB *piy (36)
 [66]father DLa a31 pai53; DLb a31 pai53, a31 ba53; GMDeng pai35; L pa;
 T pha-?apha-?apa; G pa-?pa; LHA a31 pha31; MBb ?apa;
 MW apa 'grandfather'; B bhá, abhá; K wa-?wa; Kadu ?wa;
 Bunan ?wa; Moshang wa.
 PTB *pwa (24) [23]
 [67]price DLa ang31 pu53; DLb phu53; MW phala, K phu, N ?phü 'be of
 value'; K dzaphu, N dphü, Lh ɔ-phü, B aphui-abhui 'price'.
 PTB *puw (41)
 [68]spindle DLa ɣap55 pang53, DLb ɣang31 phung53 'treadle operated
 rice husker' (ɣap55, ɣang31 'mortar'); T phang-?phang;

- Thebor phang; K kəbāng 'hand spindle'; B wáng 'swing around, spin', wang-rui 'spindle' (rui 'handle').
 MBa pheng53; MBb phenga; Luoba tapong; DRD ná31 bong35.
 PTB *pang=*pwang (48)
- [69]leech DLa mu31 pat55; DLb nie31 phrat55; T pad-pa (cf. also srin-bu pad-ma 'lotus insect'); B krwat <*k-r-wat;
 Lh vèʔ; L vang-vat; cf. Magari lwat;
 Lepcha fot <*phat; Angami Naga reva.
 PTB *r-pat (45)
- In the DLb form for 'leech' the prefix has metathesized with the initial, as in the DLa and DLb forms for 'dream': DLa mlaang55, DLb mlang55 <*r-mang (see below).

- [70]knee DLa bak55 put55; DLb paang31 pit55; T pus-mo (West T pis-mo);
 Lepcha tuk-pat; K ləphut; N phang-phit 'knee',
 ur-phut 'elbow', ra-phut 'shoulder'.
 PLB *put (7) (<Maru pat-lau <put)
 PTB *put (7)

The first syllable in each of the DL forms for 'knee', if they are cognate, are somewhat irregular, as this is the only example I have of a DLa b- ~ DLb p- correspondence. The final -k of the DLa form is probably due to assimilation, as *-k has become -ʔ in all cases where I can establish a proto TB form, and because we see the same situation in the forms for 'thorn' DLa bak55 xru55, DLb bang31 xru55; and 'crow' DLa tak55 ka55, DLb tang31 kha55.

*b- → b-

snake, rot, deaf/mute, thin/shallow, break/broken, give, fly

- [71]insect,snake DLa bu55; DLb bu53; T 'bu 'worm,insect'; B puì 'insect'
 Lepcha bũ 'reptile.worm'; Bahing bu-sa; K pu-ləpu; N bō;
 Digaro tbo~təbu; Lh pū; G tsipu 'snake'.
 PTB *buw (27)
- [72]rot/rotten DLa bup55; DLb bup55; B pup; Atsi pup; Maru páp;
 Lh bùʔ; LCA pup55; LXA pɔp31.
 PLB *Nɔp [TSR 75]
 PTB **bup
- [73]mute/deaf DLa du31 bang55; DLb du31 bang55; LXA pju31 pang31;
 JP na31 phang55, MW nəkubu (<*bang), LXA na55 pang51.
 LHA na31 pang31 Lh nā-pɔ pɔ (na31, nəku,
 na55, na31, nā-pɔ 'ear') 'deaf'.
 PTB **d-bang
- [74]thin DLa ba53; DLb ba53; T ba-spu 'a little hair (spu)'; K pha;
 N ba; B pà; G ba; Lh pà.
 PTB *ba (25)
- [75]break/broken DLa beʔ55; L peʔ; LHA pjiʔ55; JP woʔ31; B pái; G be;
 Dimasa bai; Kanauri pá-shi-mig 'to break'.
 PTB *be ɛ *pe (254) (*bay ɛ *pay [G&C 74])
- [76]give DLa bi55; DLb zi53; T sbyin-pa (suffixed -n); Kiranti *bi; Lh pī;
 Miri bi; Dhumal pi; B pè; Mikir pi; LXA pji53; MW spu;
 Nyi Lolo ve-bi; Trung bing (with suffixed -ng).
 PTB *biy (427)
- [77]fly(v.) DLa ber53; DLb zer53; Bahing byer; Abor Miri ber; Trung biel;
 Luoba byar; AC *p'jan/p'jjan (374).
 PTB *byer (398)

The correspondence of DLa b- with DLb z- in 'give' and 'fly' also shows up in 'pus' DLa su31 bu53, DLb du31 zu53; and in 'wound', DLa bin55 na55, DLb zi31 na55; the DLb initial possibly

being the result of the influence of the palatal or high front element on the initial.

Benedict (1972:83, n. 249) has another root for 'fly' that he says is separate from the one above: N *ə*phr [əphar] 'shake (as a cloth), khong-phr 'moth'; T 'phur-ba; Central T 'phir-ba; G bil; Dimasa bir; PTB *pur ⇌ *pir; all related to Chinese *pjwər/pywəi (𪛗), *pjwər/pjuən (𪛗) and *pjwər/pjuən (𪛗). MBa phir and MBb phen probably would also go with this root. I am not sure that this should be two roots, and if they are, whether the division of daughter forms has been done correctly. I would prefer to see this as one more inclusive root, as there isn't a tremendous difference phonetically between pir and byer. There is another TB root *pyam, from Lh pò, JP pyen and B pyam that might be the source of the MBb form and the latter two Chinese forms.

*m- → m-

to wear on head/hat, forget, blow, negative, dream, fire, tail, wound, eagle, ripe, eye,
sky, hair/fur, extinguish, think/remember, medicine

- [78]wear on head/hat DLa mɔʔ55; DLb mɔʔ55; T rmok 'helmet';
Zaiwa muʔ31 kjup55 'hat' (kjup55 'to wear (hat)');
B kha-mok 'hat', ə-mok/mok- 'crest, comb'; MBb muk 'ulum 'hat';
AC *mōg/mâu-, alt. reading *māk/māk 'a covering,
to cover' (𪛗)
PTB **r-mok¹³ (𪛗)
- [79]forget DLb ə31 mat55; G mat 'to be spent', gima-at-gimat 'destroy, waste,
obliterate', gima-ani 'loss, damage'; Dimasa gama-kama 'lose,
disappear, perish'; K ma 'to be exhausted, finished, spent',
mat 'to be lost, to have disappeared'; Magari hma-hmat 'to be
lost; lose'; possibly also MBa ngat13, MBb ngat 'to forget'.
PTB *ma-t (425)
- [80]blow DLa mut55; DLb mit55; B hmut; Lepcha māt, sung-mut 'wind';
Bahing mut-hmut; Gyarung -mut; K (Assam dial.) mut;
Miri mut; Maru bùt; JP ka31 wut31.
PTB *s-mut [75]
- [81]negative DLa mu31; DLb mu31; STC: "almost universal TB distribution"
PTB *ma [97]

The normal reflex of *-a is -a, but as the vowel in the negative marker (<*ma) is unstressed, it reduces to -u.

- [82]dream DLa mlaang55; DLb mlang55; T mlang-lam (lam 'road');
Miri im-mang; K mang-yup-mang; N ip-mang; Mikir mang;
G dzu-mang; B ip-mak 'dream', hmang-tsa-sang 'walk in sleep';
K (Maran) ?mang; Lh (yì?)-māʔ; Trung mlɔŋ 'from
*lɔmang <*r-məŋ by metathesis; cf. Trung a-mra 'field', Mutwang
(Rawang dial.) rəma, id." STC p.31. This explanation holds
for the DL forms as well.
PTB *r-mang (82)
- [83]fire DLa tu31 mi55; DLb tu31 ni55; T me; B mi; L mei; N thami;
Kanauri me; Gyarung timi; Bahing mi; Mikir me; Lh à-mī <*s-ni;
K myi-phrap 'lightning' (lit. 'fire-flash').
PTB *mey (290)

Prof. Matisoff has suggested (pers. comm.) that the PTB form for 'fire' might be reconstructed with an *s- prefix because of the Lahu, Dulong and Gyarung evidence, but as Dulong usually preserves *s- intact (except when it is a causative prefix followed by certain initials), I suspect the Dulong and

¹³ There is also Thai hmuak 'hat'.

Gyarung prefix may have a different origin. In Dulong the *nu-* prefix is relatively rare, so I was not able to trace its origin.

- [84]tail DLa mi55 tś>ʔ55; DLb ang31 nu31 tśh>ʔ55; Gyarung teme: Thebor me-kon; Magari me-me; Bahing me-ri; Aka ʔrim; Digaro lmi-laming; K mai-nmai; B amri; L mei; G kime; Mikir arne; Aimol rəmai; AC **miwər/mjwei: (尾)
PTB *r-may-*mey (282)
- [85]wound DLa bin55 ma55; DLb zi31 ma55; T rma; K rma~numma; G mat 'to wound'; Dimasa bumai <*bumat; Tiddim ma; TN khəma; Lakher hma; Akha má; also K mat-tsəmat, N rəmat, G gilmat. Dimasa germa 'nettle' (= 'the wounder'), with suffixed *-t.
PTB *r-ma ʔ *r-ma-t (446)
- [86]jeagle DLa tu31 mu53; DLb tu31 mu53; Mikir vo-mu; N thəmō; L mu; Miri pəmuū; Lakher pəhmo; Khami əhomo; Sho əhmū; Angami Naga re-mu~mu-vi; LCA ti31 m>31.
PTB *muw (257)
- [87]ripe DLa min53; DLb nin53; T smin-pa; Vayu min; Bahing ming; Magari min; Lepcha nyan; Miri min; B hmyan~hman; K myin; N min 'cooked; to rot'; G min-gipa; L hmin; Dimasa gimin-gumun; Mikir men.
PTB *s-min (432)
- [88]eye DLa meʔ55; DLb neʔ55; T mig; Kanauri mik; Lepcha amik; K nyi; G mik; L mit; Vayu mek; Magari mik; Bahing mi-tsi; Miri amik; Mikir mek; Thulung, Dumi, Rai mik-si; Dhimal mi; but B myak; N me-ne<*myak; Gyarung temriak; Karen *me <*myak; Lh meʔ; AC *miök/miuk (眼).
PTB *mik ʔ myak (402); PLB s-myak
PST *mya[a]k [190]¹⁴

The initial *n-* in the DLb forms for 'fire', 'tail', 'ripe', and 'eye' is the regular reflex after a front vowel (*-u* is actually an apical vowel after certain initials). This type of development is also seen in Ahi, Nyi, Bahing, Aka (STC p. 29), and MW Qiang (cf. 'person' Taoping Qiang m>33, MW Qiang n>). For further discussion of this, please see the section below on non-regular reflexes.

- [89]sky DLa muʔ55, ru31 mut55 'cloud'; DLb muʔ55, ru31 mit55 'fog'; T rmugs-pa 'dense fog; inertness', smug-po 'dark red, purple-brown'; Lepcha muk 'foggy', muk muk 'darkness, dullness'; B muik 'dark'; L muuk 'dull (color)'; K muʔ (high tone) 'thunder, cloudy', lmuʔ (low tone) 'sky'; Rawang muʔlang 'heaven'. But DLa ʃu31 muui55 'fog'; T rmu-ba 'fog'; B muï(gh) 'sky, clouds, rain'; LCA, LHA mau31, LXA mau51 'heaven'. LXA na55 mau55, LHA mau31 riau31 'clouds'.
PTB *r-muw=*r-məw (488) ʔ *r-muuk (357)

Evidence from Dulong supports the contention in STC (n.236.p.77) that *r-muuk is an archaic doublet of *r-muw=*r-məw. DLa muʔ55 'sky, heaven' <*muk, while ʃu31 muui55 'fog' <*muw. Cf. B muï(gh) 'sky; clouds, rain' ('the -gh is a product of etymologizing' p.148; possibly an attempt to relate it to Pali/Sanskrit megha 'cloud' (Matisoff pers. comm.), though as in Matisoff (1974:183), the JP variant müʔ might mean that this assumption is wrong). Two other reflexes of this word family have a final -t, DLa ru31 mut55 'clouds' and DLb ru31 mit55 'fog', possibly originally due to the influence of the vowel (cf. Lushai mit <*myak 'eye' STC p.14). The same 'sky' ʔ 'cloud' connection occurs in Be vis

¹⁴ Matisoff (pers. comm.) suggests that *s- is probably needed at the PST level because of tonal evidence from the Min dialect of Chinese.

à vis Proto Tai (Mark Hansell, pers. comm.).

- [90]hair, fur DLa ang31 mul55; DLb ang31 mun53; L hmul; K mun~mun;
Mikir angmi <*angmil; B mwè <*mui<*mul; G kimil;
Moshang mul-komul.
PTB *mul (2)
- [91]extinguish DLa a31 mit55; Abor-Miri mit; N samit; K simit (Assamese
dial.); L timit; Tangkhul khaimit; Mikir met; G kimit; Lh mē?
'shut; blink'; B hmit 'wink'.
PTB *mit (374)
- [92]think, remember DLa mit55; DLb nit55; Zaiwa myit31; MBb mi; JP mjit31;
LXA, LHA myit31 la35 'forget'; GMD ngit35 'know'.
PTB *m-yet ≠ *b-yet [Matisoff 1978a p. 211] ≠ **myit

Matisoff (1978a) has *m-yet ≠ *b-yet for 'think, remember' based on Lepcha a-byet 'liver', Limbu naribet 'heart', Nung mit ~ nit 'mind, temper', and Tibetan yid 'soul, mind', but Prof. Matisoff (pers. comm.) now gives *m-yit as the proper form. It seems that this must be a case of non-obvious prefix pre-emption, as in the case of 'love' dealt with below.

- [93]medicine¹⁵ DLa man55; DLb man55; T sman; MBa man53; MBb man; Luoba nien;
PMa hmiē55; PMb hmi; DRD ta31 mang55.
PTB **s-man

*s- → s-
three, itch, kill, comb, know, garlic, new

- [94]three DLa a31 sum53; DLb sum53; T gsum; G githam; B sūm;
Digaro kasang; K masum <*b-sum; N atsum; L thum.
PTB *g-sum (409)
- [95]itch, itchy DLa pu31 saʔ55; DLb pu31 saʔ55; K masaʔ; L thak <*sak;
Lakher pətha; Ao Naga nəsak; Mikir ingthak.
PTB *m-sak (465)
- [96]kill, hit DLa saat55; DLb sat55; T gsod-pa; K sat; B sat; G sot; L that;
Mikir that; MW tja; LCA, LXA sat55; LHA saʔ55.
PTB *g-sat (58)
- [97]comb DLa sui55, DLb si53 'to comb', DLa u55 sui55, DLb u53 si53.
MW qasi 'comb' (u55, u53, qə- 'head'); K pasi 'comb',
masit 'to comb'; GMD si55 pin55, Mikir ingthi 'comb';
Ao Naga masa 'to comb'; N asi 'comb, to comb'.
PTB *m-si(y) (466)
- [98]know DLa sɔ55; DLb sɔ55; T šes-pa; Vayu ses; B si; G masi;
Dimasa mathi~mithi; Bodo mithi; K ši 'news'.
PTB *syey (182)
- [99]garlic DLa su53 'garlic', su53 dɔng55 'green onion'; DLb su53
'garlic', su31 dɔng55 'green onion'; B Krak-swani;
AC *swān/suān (蒜); Lh sū-qə 'leek',
sū-phu 'onion', sū-phu-nū 'garlic'.
PTB *swa-n [174] [G&C p.10]
- [100]new DLa ang31 sar55; DLb ang31 sar53; T gsar-ba; Rawang angsar.
Trung aksal 'fresh'; L thar; Thado atha; Tiddim thak.
PTB *sar [p.147,172,189]

¹⁵ Sun Hongkai (pers. comm.) has suggested that the DL form for 'medicine' might be a loan from Tibetan. If this is so, it must be an early loan, as the Tibetan dialects closest to Dulong geographically generally have quite different forms than that for Dulong. For example, the Kang dialect, Changdu subdialect, form hme55 is typical.

*s- → s/_____ $\left\{ \begin{array}{l} i \\ u \end{array} \right\}$

die, fruit, tree, liver, arise/awaken

- [101]die DLa śi53; DLb śi53; T śi-ba-'tshi-ba; Kanauri śi; N śi; G si; K si; B se; Dimasa thi; L thi; Mikir thi; Miri śi Limbu si.
PTB *siy=*səy (232)
- [102]fruit DLa ang31 śi55; DLb śi53; T se-; K si-asi; B asi; L thei; Mikir the~athe; G the~bithe; N śing śi; Dimasa bathai.
PTB *sey (57)
- [103]tree.wood DLa śing55; DLb śung55; T śing; Kanauri śing; Vayu sing; Magari śing; Bahing sing; N śing-thing; L thing.
PTB *sing (233)
- [104]liver DLa pu31 śin55; DLb pu31 śin53; T mtshin <msin; B asari; Kanauri śin; Miri asin; N phasin; K sin-masin; Mikir ingthin.
PTB *m-sin (234)
- [105]arise,awaken DLa sa55 śu31; JP su31; L thou; Dimasa masau; Lakher potheu; Ao Naga meso.
PTB *m-sow (295)

We can now confirm the reconstruction for 'awaken' in STC because of the Dulong and Jingpo evidence.

*z- → DLb z-

- [106]leopard DLb zuʔ; T gzig; B sats <*sik; N khang-zi; MBa zik13; MBb zik; MW sa; TP si55.
PTB *zik (61) [TSR 122]

*ts- → ts-

count, repay, person, clean, chop, pointed/thorn

- [107]count DLa tsi55; T nsi-ba; K thi; B re; AC *srju/śju ~~tsu~~; MBa tsi53 ja13; MW sasa.
PTB *r-tsiy=(r-)tsəy (76)

Benedict (1972), in footnote 95, proposes the initial cluster *tʃr- to explain the Burmese forms for 'water' (see 'spittle' below) and 'count', and also to explain the Kachin th- forms for 'count' and 'mortar', but Matisoff (1978:31) feels that this is a case of "proto-form stuffing", and suggests the alternation *ts- ⇔ *t- for these roots. I agree with this viewpoint (though it means the Burmese forms are possibly not cognate), and have given the proto forms of 'count', 'mortar', and 'spittle' accordingly.

- [108]repay DLa tsap55; DLb tsap55; T 'tshab-pa; B tshap; LCA tshap55; LXA tshap55; Zaiwa tshap.
PTB *tsap (63)
- [109]person DLa a31 tsang53; DLb a31 tshang53; Lh ch5 <PLB Tone *1 'person', ch5 <PLB Tone *2 'friend'; GMD tsong35; LXA a31 tshang35 'other people'; LHA sang 'him'; PMA tsā55 'him'.
PTB **tsang
- [110]clean DLa tsang55 ma55; DLb tsang55 ma55; T 'tsang-ba~sang-ba 'make clear, cleanse'; B tsang 'clear, pure'; L thiang, Thado tsheng 'clear, clean'; Meithei aseng-ba; Zauwa san31 seng51; MBa tsang55 ma53; MBb tsangma; MW śutiū <*syang; GMD ku31 song35 'clear', kau55 sang35 'clear (water)'; JP san31 seng55; PMA šō55 ne55; PMb šā55 hnie53 ma53.
PTB *(t)syang=*syang [37,52,53]

Though Benedict (p.37,53) says that 'clean' should now be reconstructed as *syang, I feel that based on the Dulong, Tibetan, Burmese, and Menba forms we should recognize a doublet here: *syang ≠ **tsang. Because of this, I put this root in this set.

- [111]chop DLa a31 tsep55; MBa tsap53; MBb tsap; JP jep31; Zaiwa tʃap31;
PMA nɔ13 tsi13; LXA tsap31; T gtsab, Lhasa T tsap53.
PTB **tsap

The form for 'chop' is possibly a doublet with DLa a31 tsep55, MBa tsap53 'chop (trees)' T grub-'thub 'cut to pieces, mince', B twap 'cut, chip, as precious stone' (see above; PLB *ʔtwap ≠ *C-dwap TSR #69), but as the forms are distinct in the daughter languages, they are treated separately here.

- [112]pointed DLa a31 tsu55; DLb a31 tsu55; Kanauri tso, Lepcha dzu.
K dzu, B tshù 'thorn', tsù 'prick; piercer, awl';
G and Dimasa su 'pierce', busu 'thorn'; Meithei and
Thado sou, Lakher seu 'panji' (Kuki *sow<*tsow);
Mikir su 'thorn, panji, sting'; Tangkhul kəsui,
MW tshəp 'thorn' (-p <pa 'flower'), tsa 'pointed';
LCA tso31, LXA tsu51, LHA tsu31, PMA tsu55, Zaiwa
tsu31 'thorn'; poss. also MBa tse53 'pointed'.
PTB *tsow (276)

Even though no other TB language (except for MW and MBa, if those forms are cognate) has this meaning, I give the Dulong form for 'pointed' as cognate with PTB *tsow 'thorn' because of the similarity in meaning and form. There is the problem of 'fat' DL su55 from PTB *tsow and 'boil' DL a31 su53 from PTB *tsyow (see below), so this correspondence is tentative. Benedict (n.200) says that "T mtshon 'any pointed or cutting instrument; forefinger' has perhaps developed from this root." I mention this because there is a form for 'pointed' in several TB languages that seems to be related to this: LXA tshun35, LHA tshuen55, JP ma31 sen31, Zaiwa tʃhun51. Because of the differences of initials and finals between these forms and the forms for 'thorn' in these languages, it is hard to say whether or not they are allofamic.

*ts- → s-
red, earth/dirt, boil, fat

- [113]red DLa pu31 sai55; DLb pu31 sai53; L tai, sen; Thado asén;
Tiddim san, tán; Laizo sən/səñ; B ta-tya; Lakher sai;
MBb tsalo; GMD kau31 sal35.
PTB *(y)a-n ≠ *(s)aaɣ [G&C 150]

DRD si53 and the first syllable in MW sizi 'red' are possibly denasalized reflexes of PTB *r-ni (cf. MW si 'day' <*nəy), so are not included in the set above.

- [114]earth,dirt DLa a31 sa55; DLb a31 sa53; T sa; LHA se31; MBa sa53; MBb sa;
PMA tʃa55; PMb tsa53; Zaiwa mji31 tse31 (tense vowel);
AC *sa/ʃa (ʃ) 'sand'.
PTB *(t)sa

Benedict (1972:188) has only the Tibetan and Chinese forms for 'sand' on page 188, and does not give a reconstruction except to say that the proto final should be *-a.

- [115]boil DLa a31 su53; DLb su53; T 'tshod-pa-'tsho-ba 'cook in boiling
water,bake'; K dzu 'burn, bake, roast, broil'; G so,
Dimasa sau 'burn'; N əsu 'boil'; B tshu 'boil, bubble';
Meithei əsau 'heat'; L sou, Lakher əaeu, TP tshu33,
Zaiwa tsu51, LCA su55, LXA tsu 35 'boil'.
PTB *tsyow (275)

- [116]fat (adj.) DLa su53 ša55 'fat meat' (ša55 'meat'); T tsho-ba;
B tshu; Zaiwa tshu51; LCA tšho55; MW tshú.
PTB *tsow (277)

It might seem better to put the Dulong form for 'fat' with PTB *saaw (STC #272 — based on K sau 'oil, fat, grease', L thau 'fat, grease, to be fat', G tho, Dimasa thau 'oil', and Bodo thau 'oil'), because of the initial correspondence and lack of same with PTB *tsow, but I put it here on the strength of the final and the semantic correspondences. The parallel with 'boil' is further confirmation of the correctness of this choice.

*ts(y)- → ts-
urine, spittle, child, small, goat, stretch out

- [117]urine DLa tší55; T gtsíd-pa-gtsí-ba 'urinate', gtsín 'urine';
K dzít-tsyi-dzít-dzi 'urinate', dzít 'urine'; N tsi 'urine', tsi-tsi
'urinate'; B tshì 'urine (poilte form)'; Lh ji, Dimasa si-di (di 'water')
'urine, urinate', all from *ts(y)i. Also PLB *ziy > B sè, Lisu rzi.
PTB *ts(y)i ≠ *ziy (77)
- [118]spittle DLa cui55; DLb tšun55; T mtšhíl-ma; L tšil; N thil 'spittle',
thil thil 'to spit'; GMD džal35; MW tsəsar (tsa 'water');
Luoba tatsur; Zaiwa tji31 (tense vowel); possibly also
LCA tšho31, LHA tšhu31, JP ma31 tho55 'to spit'.
PTB *m-ts(y)il (231) ≠ *m-thil [cf. discussion of 'count']
- [120¹⁶]child,son DLa ang31 tšal53, DLb ang31 tšan53 pe53 'son' (pe53 'male');
Dhimal tšan 'son'; Lepcha (a-)zon 'grandchild'; K ša; Magari za;
Tsangla za-ža; Digaro sa; B sà; G bisa; L fa; Dimasa sa-basa;
N za-mi 'daughter'; MBb waktša 'child', za 'son'; LCA tsə31 lo31;
LHA tsa31 lo31; MW zaʃ, Zaiwa tso31 'grandchild'; Lh yā 'son'
≠ šá 'niece/nephew' ≠ cà- prefix in male names'.
PTB *tsa ≠ *za (59)

The forms for 'child' in Lepcha and Dhimal (and ostensibly Dulong) are said (STC n.86,284) to have an -n suffix. The Dulong ~ Nujiang -l ~ -n pattern usually reflects a proto *-l final (Cf. 'spittle', 'silver', etc.), so the cognacy of the Dulong forms might be questionable. This form is also used as the hypocoristic suffix, as can be seen in its use in 'small', and in the following forms: a31 tšit55 'mountain goat' ~ a31 tšit55 tšal53 'small mountain goat', lang53 taʃ55 'cooking pot' ~ lang53 taʃ55 tšal53 'small cooking pot'.

- [121]small(1) DLa tší55 tšal53 (tšal53 'son'); West T zi. K zi. B sè;
Lh i <*yi<?zi; MW bərtsi 'fine'.
PLB *ʔziy <*a-ziy [STC p.27, n.87 by JAM]
PTB *ziy (60) ≠ **tsiy

For 'small; fine' I suggest the alternation *ts- ≠ *z-, as in the form for 'child', to account for the Dulong and Qiang forms.

- [122](mt.)goat DLa a31 tšit55; DLb tšhit55; B tshit; Lh àchèʔ; Lisu atshìʔ;
Nyi tshí; Lolopho atšəʔ; MW tsha; PMA tshu55;
Deng ku31 tší53; Trung a-tšit.
PLB *tšit [88] ≠ *V-cit [TSR 27]
PTB **tšit
- [123]stretch out DLa tšan53; DLb tšan53; B tsan (adj.) <*dzan3, tshan (v.)
<?*dzan3; Lh che <*tsan3, qhe (more intense than che);
possibly also LXA tsə55.

¹⁶ [119] has been skipped.

PLB *ʔ-dzan3 ≠ *tsan3 [G&C 11]

The root for 'mountain goat' in the STC and the root for 'stretch out' in Matisoff (1985) were set up for Lolo-Burmese only (the Trung form listed above is from Matisoff (1972a) (TSR)). With the other TB evidence presented here we can set up these roots for TB as a whole.

*dz- → dz/z-
clf. for trees, food

- [124]clf. for trees DLa ti55 dzuŋ55; DLb tsi55 zuŋ55 (ti55, tsi55 'one');
Mpi tu6; Lh cɛ; LCA tseng55.
PLB *dzing1 [Mpi 37]
PTB **dzing¹⁷
- [125]food DLa ang31 dza55; DLb ang31 za55; T za-ba~bza-ba; B atsà;
Bahing dza, Nagari dzya, K sa, Lh cá, G tsha 'eat';
PTB *dza (66) ≠ *dza [Mpi 47]

In Matisoff (1978) the PLB form for 'eat' is given as *ja (=dza), and in a footnote it is explained that this should be the correct form for PTB, or at least the alternation *dz ≠ j should be posited because of the mixed evidence. I have opted for the latter because of the Dulong evidence.

*sy- → s-
iron, meat, east

- [126]iron DLa sam53; DLb sam53; Gyarung som; N sam; Trung syam;
B sam; LCA sam55; LXA sam55; LHA sam55; TP si55;
Zaiwa sam51 toʔ55 (toʔ55 poss. rel. to T tsaks).
PTB *syam (228)
- [127]meat, flesh DLa sa55; DLb sa53; Tsa; Kanauri sa; Magari mi-sia;
Bahing sye; Sangpang sya; K san; N sa; B sa-asà;
L sa; MBa sa53; MBb sa; LCA sua31; LXA sa55; LHA sa31;
possibly also GMD sin53 (cf. K san).
PTB *sya (181)
- [128]east DLa sar55; DLb se31 sɔʔ55; T sar; Kanauri sar-si 'rise'
(reflexive form); N nam sarr kha; PMa se55; PMb se53.
PTB *syar [28]

*l- → l-
easy, buffalo, god, neck, grandchild, armpit, tongue, leaf, lick, cover/bury, stone,
cotton, flea, round, warm, heavy, moon, maggot, fathom, plain

- [129]easy DLa la55; DLb la55; GMD pu31 la55; MBa lelamu;
MT leʔ13 la53 po53; T las sla po; Loloish *sa.
PTB *lway (302)
PTB **s-la or possibly **s-l(w)a-y

In proposing the proto form *s-la for 'easy', it is not my intention to replace the form established in the STC (which is based on Bunan lo-i, K loi-lwe, and B lwai), and can in fact support it with Zaiwa lui51. These two separate forms may be ultimately related as an *a- ≠ *ay doublet, but the medial *-w- is still a problem, so for now I list them as separate roots. The *s-l- > Loloish *s- given for this root is paralleled by Lahu su '3rd person pronoun' a-su 'who' <*s-lu (cf. Burmese lu 'person') (J.A.Matisoff pers.comm).

¹⁷ As pointed out by Mark Hansell (pers. comm.), this root may ultimately be related to PTB *sing 'tree, wood'.

- [130]buffalo DLa ngu31 ɬi53; DLb ngu31 ɬi53; K ngəloi; B kywai <klwai;
L loi; Siyin loi.
PTB *lwaay (208)
- [131]god DLa nam55 la55 (nam53 'sun; heavenly affairs' with tone
assimilation); DLb la55; T hla; PLB *s-la 'soul';
K min-la-num-la 'ghost,spirit'; N phala <*b-la 'demon,
soul'; L thla <*khla 'spirit'; Tangkhul mang-la.
PTB *(m-)hla (>*sla 'in all but Tibetan' STC p.132) (475)
- [132]neck DLa ling55 gui53; DLb lang55 gi53; Lepcha tuk-ling-tung-ling;
Miri lüŋ; N ling; B laŋ <*ling; L ring;
T 'dzing-pa-mdzing-pa <*a-lying~*m-lying (STC n.106);
MC ljäng (𑄎𑄚) 'neck, collar'.
PTB *ling (96)
- [133]grandchild DLa pu31 li55; DLb pu31 li55; N phəli; B mrè (mliy in
inscriptions); G (ang-)ri <*li; Lolo li; K mali,
Mikir phili-po, Chang (Konyak) li 'nephew'.
PTB *b-liy (448)
- [134]armpit DLa ra55 li55; N ra-kyi tsip <*ra-kli (ra 'shoulder');
B lak-kali (lak 'arm'); Lakher ba-kali; Lh pè-li-kā.
PTB *g-li (265) (possibly an old AT loan - STC n. 199)
- [135]tongue DLa pu31 lai53; DLb pu31 lai53; T ltse <*s-le; Kanauri le;
Lepcha ali; Vayu li; Limbu le-sot; N phəle; K lai; G sre;
Dimasa salai; L lei; Mikir de.
PTB *s-lay (281)
- [136]leaf DLa ŋing55 lap55 (ŋing55 'tree'); DLb ŋung55 pu31 laap55;
West T lob-ma; Kanauri lab; Takpa blap; K lap;
N śalap 'leaves for packing food'.
PTB *lap (321)
- [137]lick DLa laaʔ55; DLb laaʔ55; Lepcha lyak 'taste, try'; B lyak;
G srak; N la-le; Miri yak; L liak; Mikir inglek;
Tangkhul khəməlek.
PTB *m-lyak ≈ *s-lyak (211)
- [138]bury DLa lup55, possibly also DLa, DLb klup55 'to cheat, deceive';
T klub-pa 'cover'; K grup 'wrap, cover'; Boro dzokhlop;
Dimasa phunkhlob 'wrap around', sukhlob 'drown, immerse';
JP lup31 'bury'. Also Old Mon *grop 'to cover, obscure, conceal'.
PTB *klup (479) ≈ **k-lup

Benedict (STC p.80) suggests that Lepcha lap 'bury' possibly goes with PTB *lip 'sink; dive', but it seems from the Dulong and Jingpo evidence that *klup 'cover,wrap' is an even greater possibility. The Kachin form that Benedict gives glossed as 'wrap, cover' is glossed as 'to circle around' in Xu et al. (1983). There seems to be a semantic field including 'wrap, cover, cheat, circle around' with several related forms¹⁸. To those given above add the forms for 'bury' given in STC #376: T byib-pa 'cover, wrap up; hide, conceal'; Bodo phop-fop 'bury'; Dimasa bib-bub 'conceal oneself, hide', phup-phup 'bury'; Mikir pip 'bury'. Also consider Zaiwa njup55 'bury', lom55 'surround', lom53 (tense vowel) 'hide oneself'; LCA hmzop55, LXA mɔp55 'bury'; MBb lom 'wrap up'; Kanauri lub-mig ~ lum-mig 'to cover, conceal'. The Kanauri forms show the relationship between the -p/b and -m forms. The *lip 'sink;dive' forms (STC #375) might also fit in here, especially as some of the forms show an -i- ~ -u-alternation, as in Dimasa lip-lup 'dive', glib-gulub 'drown'. These last two forms might be the key to the lack of a reflex for the *k of the proposed *kl- cluster. Also consider LCA riɔp55, LXA lɔʔ31, Zaiwa nop31 'sink' for the connection between 'west' (set #63) and 'sink'. The formulaic summary of the forms in this semantic field would look something like *g-p(y) $\begin{cases} i \\ u \end{cases}$ p.

¹⁸ Thanks to Mark Hansell for reminding me that the same semantic link between 'to cover' and 'to cheat' also exists in Taiwanese Mandarin gai (蓋) 'cover' when used in 'Wo hu gai ni!' ('I'm not fooling/lying to you!').

- [139]stone DLa luung55; DLb luung55; Bahing lung; Lepcha lung~lung; Miri ūling; K lung~nlung; B kyauk <*k-lauk; G rong; Dimasa long; L lung; Mikir arlong; MW RRLu <*C-lung. PTB *r-lung (88)
- [140]cotton DLa sa55 la53; Mikir phelo; Lakher pəla; N. Khami pholo; S. Khami məhla; L lu; Lh ʃá-lá. PTB *b-la [111]
- [141]flea DLa suw31 li53; DLb suw31 li53; T ldzi-ba~'dzi-ba <*sli; Miri i-po; N sáli; K khabwi~khalai <*khwəli (by metathesis); B khwè-klè; L ui-hli; Mikir tsikli. PTB *s-liy (440)
- [142]round DLa ang31 kw31 lum55; DLb duw31 lum55; T zlum-pa; K lum; B lüm; L hlum 'ball'; LCA lum31, but Zaiwa ling55. PTB *s-lum=*zlum (n.136) (143)
- Benedict (1972:42, n. 136) changes his original reconstruction for 'round' to a proto consonant cluster initial to explain L hl- and B l-, as "(TB *sl- should yield B *hl-)". Based on the Dulong evidence, it seems this should not be a cluster, and B l- developed from a plain initial.
- [143]warm DLa lum53; DLb lum53; K lum; N lim; B lum; Dimasa lim~lum 'hot, have fever'; Bodo lum-dong 'fever'; MW stśala; LCA lum55; Luoba agulumlum 'warm (water)'. PTB *lum (381)
- [144]heavy DLa a31 li53; DLb a31 li53; T ltši-ba~ldzi-ba <*s-li; K li; Kanauri li-k; Vayu li-s; Lepcha li-(m); N əli; B lè; G dzrim; Dimasa risi; L rit; Bodo illit~gilit; LCA l131. PTB *s-liy (95)
- [145]moon DLa suw31 la55; DLb suw31 la55; T zla-ba; Bahing la; B lá; Vayu tsolo <*tsala; Digaro həla~hlo; N sala; K śata; Kadu sada; Mikir tsklo; Magari gya(-hot); L thla <*khla. PTB *s-la ≠ *g-la=*s-gla (STC n.137) (144)
- [146]maggot DLb tshi31 lɔng53; L lung; B lok; Maru lək; Zaiwa luʔ31; PMb lə53 <*long; LCA nuʔ55, LHA lu31; possibly also MW bulu 'insect' <*lu/ong, qhs;bulu 'maggot'. PLB *k-lung ≠ *k-luk [TSR 186] PTB **lo/ung ≠ **lo/uk
- [147]fathom DLa ti55 lam53; DLb tsi55 lam53; K lalam; B alam; L hlam; Tiddim laam; LCA lam55; Zaiwa lám51. PTB *la[a]m [71]
- [148]plain (earth) DLa dam55 muw31 li53 (dam55 'flat'); DLb muw31 li53 dang53; Mikir mili~meli 'sand-bank, bare ground'; N dialect mli 'country; mountain'; Manyak (Hsi-fan group) m.li~mli; B mre; Tavoyan dial. mle; Phön (Samong dial.) tmlī~tmyi 'earth'; MC¹⁹ **mli (𑜃𑜨). PTB *mliy (152); PST **mliy

The form for 'plain (flat ground)' in Dulong is curious because the form for 'earth, dry field' is a31 mra55, similar to the Burmese form mre given for 'earth'. Even so, I feel the muw31 li53 form is the correct cognate, as I have no cases of *l- > r- shift and no cases of *-iy > -a. The other part of the phrase for 'plain', dam55 'flat' <*dyam (STC #227), is also clearly cognate, so the phrase is transparent. I treat this form as a prefix plus initial, rather than a cluster because of the Dulong form, as Dulong makes a distinction between these two types of combination.

¹⁹ The reconstruction of the MC form is based on Sagart (1985).

*r- → r-

we/us, fear, string, ant, bone, otter, dawn/morning, weave, fireplace, pine,
stand, saw

- [149]we (inclusive) DLa rang55; DLb rung55; T rang 'self', nga rang tsho 'we (inclusive)';
MBA rang13; possibly DRD rion35 xang31 and B ə-rang
'nearness, presence', ə-hrang 'owner, master, lord'.
PTB **rang
- [150]fear DLa pu31 reʔ55; DLb pu31 reʔ55; T bred-pa (with suffixed -d);
Digaro re; Aka rie; N phəre 'to fear, be afraid', Mikir phere
'fear, doubt, dread'; DRD rai55 'to be afraid, ma31 xrai53
'to frighten'.
PTB *b-ray (450)
- [151]string,thread DLa tsw31 ri55; DLb tsw31 ri53; Magari ri 'cane', K ri
'rattan,cane,cord,string,thread', ginri 'fine thread';
N thəri 'cane', sari 'thread', ban-ri 'rope, string';
G re, Dimasa rai 'rattan, cane'; MW suz; TP sia33 li55;
PTB *rey (478)
- [152]ant DLa su31 rəʔ55; DLb bang31 su31 rəʔ55; T grog-ma; N səɾɔ:
Gyarung korok; Lohorong and Lambichong (Kiranti) khorok;
Miri tərək; Dafla torub; B parwak; Lh pú-ḡɔʔ.
PTB *rwak (199)
- [153]bone DLa ang31 ru55; DLb ang31 ru53; T rus-pa; K nrut; L ruʔ;
Zaiwa ʃo31 vui31; LCA a31 zau31; LXA a31 zau31; LHA
a31 zəu35; MBA rɔɔ13 pha53; DRD ru31 bong35;
B rui; Lh -ḡɔ <*ruw2; MW rapats (pats 'round').
PTB *rus (6)
- [154]otter DLa su31 ram53; DLb su31 ram53; T sram; Miri si-ran;
Lepcha saryom <*sasram; L sa-hram; N saram; K saram;
PLB *sram (based on Maru Xrén, Phunoi sam); G matram;
Dimasa matham; Mikir serim; Zaiwa xam51; LCA sam55;
LXA zam35; MW ʔdzi (zi <*ram); MBA tsam53; MBb sam;
Luoba saram; GMD ram35.
PTB *s-ram (438)=*sram [107.n.302]
- [155]morning DLa su31 raang55; DLb su31 reeng55; Mikir prang 'dawn';
G phring, Dimasa phorong 'morning'; Trung srang;
Lh sɔɔ-pɔ 'tomorrow' (sɔɔ 'morning').
PTB *prang (332)=*b-rang ≠ *s-rang [72.n.224]
- [156]weave DLa raaʔ55; DLb raaʔ55; B rak; LCA zaaʔ31; LXA zaʔ31;
LHA za31; Zaiwa voʔ31 (<*rak); Tangkhul Naga khərək;
T 'thag-pa; Magari dak; K daʔ; G dak; L taʔ; Mikir thak;
Maru ʔəʔ; Lh ʔəʔ.
PLB *rak ≠ *tak/*dak ≠ *k-rak [TSR 192]
PTB *tak (17)=*trak <AT loan [19.n.68]; *d-rak [TSR 192]
- [157]fireplace DLa mu31 rap55; DLb mu31 rap55; K rap; N mərəp; L rap;
Mikir rap; B mi-rap-paung 'wooden fireplace'.
PTB *rap (84)=*trap/drap <AT loan [19.n.69]

Benedict (STC n.69) suggests that the root *rap 'fireplace shelf' is related to STC #18 *tap 'fireplace', both from an original AT loan *trap/drap. The lack of clear semantic distinction could support this claim, but there is no evidence to support a proto initial cluster. Perhaps *rap ≠ *tap is a clearer way to express this relationship, as was done in the treatment of 'weave' in TSR 192, which Benedict (STC n.68) would like to trace back to a single AT loan *trak.

[158]pine,tir DLa su31 ru55 ŋing55; DLb su31 ru55 ŋung55 (ŋing55)

- 'tree'): K mərau; N s̄aru thing; B thàng-rù;
 Luoba taru; possibly also MW RRdzusi, GMD rung53 sang35.
 PTB *row (320)
 [159]stand DLa pu31 rep55; Lepcha hryam <*hryap 'stand on tip of toe';
 Kiranti: rap (Bahing), rep~reb (Khaling et al.), yeb
 (Balali et al.) and rip (Sangpang); Vayu yep~ip; N rip;
 B rap; Old Meithei ts̄arep; Dhimal sz̄ap; K tsap;
 Moshang ts̄ap; Mikir ard̄zap; Empeo sap; Zaiwa yap31;
 TP zi55; LCA źap55; LXA liap31, Luoba rop.
 PTB *g-ryap (246)

I would like to propose a very tentative new reconstruction: **rey ≠ **ley 'saw; plane'. Unfortunately, as except for the copula (DLa and DLb e53 <*way) the few examples I have of a DLa -e ~ DLb -e correspondence are all either obvious loans or highly probable loans (e.g.: d̄zi55 Fe55, DLb ži31 gre55 'book', DLa and DLb ma55 d̄ze53 'sugar cane') it would seem that the DL forms here are loans, too, either from Tibetan sog le or possibly even Thai lyaj. The first syllable, sog, is possibly from T sog-ma 'blade or stalk of straw'.

- [160]saw(n.) DLa s̄o55 re55, bu55 le55 'plane(wood)';
 DLb s̄o55 re55 'saw(n.)', b̄o55 le55 'plane(wood)';
 MBa s̄o55 li53 'saw(n.)', pe13 len55 'plane(wood)';
 MBb soli 'saw(n.)', buli 'plane(wood)';
 Luoba solu 'saw(n.)', bulen 'plane(wood)';
 DENG so55li55, PMb so55 yi55, Tangkul horay, T sog le,
 LCA li31 la31, Lh li-l̄, TP kie33 zi55 'saw(n.)';
 WB hli 'cut with a sliding motion'; JP ma31 li33 'scrape, shave'.
 PTB **rey ≠ **ley

*p/bw- → w-
 flower, axe, pig, uncle

- [161]flower DLa ſing55 wat55 'flower', ſing55 wat55 wat55 'bloom';
 DLb ſung55 wat55 wat55 'bloom'; Gyarung tapat;
 PLB *wat; Nungish ſing-wat 'bud' (Rawang), flower (Trung).
 PTB *bwat [24]
 [162]axe DLa war53; DLb war53; Gyarung ſarpye <*-[r]-pa; G rua;
 K nwa~ningwa; Dimasa roa; Chang Naga (Konyak group)
 wo <*wa.
 PTB *r-wa (441)=*r-pwa [24]

It seems the final in DL 'axe' is irregular, but this could be another example of prefix metathesis, as in DLa mlaang <*r-mang 'dream'. As there is no wr- cluster, the r- goes to syllable-final position.

- [163]pig DLa waʔ55; DLb waʔ55; T phag; Mikir phak; K waʔ; B wak;
 G wak; L vok; Zaiwa vaʔ31; MW pi <*pak; LCA oʔ55 <*-ak;
 LXA waʔ31; LHA wa31; MBa phaʔ53; MBb phakpa.
 PLB *wak [TSR 168]
 PTB *pwak [23-24]
 [164]uncle DLa a31 wang53; DLb a31 wang53; T ʔa-bang-bang-po 'father's
 or mother's sister's husband'; Chepang pang; N awang; Limbu
 am-pang-a; Vayu pong-pong <*pang; Lashi vang-mo 'father's
 older sister's husband, husband's father; Lisu a-w̄ <*-wang; G a-wang.
 PTB *pwang [23]

*y- → 0/y-

- [165]sleep DLa ip55; DLb yup55; T yib-pa 'hide one's self'; K ip-yip 'cover, conceal (information)', ?yup 'sleep'; N ip; B ip; Ao Naga yip; Tsangla ip-yip; Bunan ib; Bahing ip; Mini yup (Abor ip); Zaiwa yup55; MBb yip; Luoba yup. PTB *ip=*yip (114)

Consonant clusters²⁰

Though the data on consonant clusters is not abundant, some general patterns can be seen: A proto stop can be reflected by a fricative in Dulong when it is followed by /r/, though there are several examples of *kr- or *dr- being reflected in a k(h)r- cluster in Dulong; a proto velar stop initial, if followed by a /y/, is reflected as a voiceless alveo-palatal affricate in some cases, especially where the glide has not influenced the main vowel. Aside from this, a few types of clusters are discussed in the section on non-regular reflexes.

Following is a list of examples:

*kr- ~ *gr- ~ *dr- → xr-

gall bladder, horn, foot, cut open, scrape/shave, meet

- [166]gall bladder DLb tsi31 xri55; DLb tshu31 khri53; T mkhris-pa <*mkhrids 'bile'; N səhi <*səkhri 'gall-bladder'; B sari-khre 'gall' (sari 'liver'); Dimasa bikhlu <*bikhliit; G kha-khit 'bile' (kha 'bitter'='liver'); Lepcha kri 'bitter'; K khri 'acid, sour'; Moshang əhi <*əkhri 'acid'; Dimasa khiri 'sour'; Lh ɔ-kə PTB *kriy (412-413)

Benedict (p.98) separates *(m-)kri-t 'gall' from *kri(y) 'acid, sour, bitter', and has Nung səhi 'gall-bladder' under the former. The distinction seems to be artificial, so I have included the reflexes of both sets (#412,413) under the Dulong forms for 'gall-bladder'.

- [167]horn DLa tsi31 xru55; DLb ang31 tu31 xru55; B khui-khyui; Lisu tshu; Ahi tshö; Nyi hka; N (Melam dial.) tkru; Lh ɔ-khɔ.

PTB *kruw (37)

- [168]foot DLa xrai55; DLb xre55; T khri 'seat, chair; frame'; N hi; B khre; Lisu tshu; Ahi khi; Nyi tshö; Lh kh.

PTB *kriy (38)

- [169]cut, chop DLa a31 xraat55; DLb a31 xrat55; B phrat 'cut in two', hra 'wound by a slight cut'; G ra ~ rat; Dimasa ra; T dra-ba 'cut, clip, lop, dress, prune'; Lepcha hra; Lh phə? 'cut open'; JP kran33; MBb tsat; MW xtši; N rat; PM nə13 tshu55.

PLB *ʔ-brat ɳ *C-prat

PTB *ra (458) **d-ra-t

I have put STC (#458) *ra 'cut' and G&C (#27) *(ʔ-)brat ɳ *C-prat 'cut open' together in one set because they seem to me to be one and the same root (cf. Garo). The Dulong initial possibly first became kr-, as in 'six' and 'sew' (see below), then went to xr-. The difference between this reflex and those for 'six' and 'sew' might be the difference between a proto cluster and a proto prefix + initial. For this reason I have included this root with these other cluster forms. If this criterion is valid, then STC *krang (#322) 'mosquito' might also be considered a prefix plus initial because of DL ku31 rang53 'firefly' and possibly Geman Deng ko55 run55 'mosquito' (see below).

²⁰ Please see Sun (1984) for a very detailed treatment of consonant clusters in Tibeto-Burman.

- [170]scrape,shave DLa xɔ̃55; DLb xɔ̃755; B khrac 'mark with the nails, scrape';
 Jg khret 'rasp, grate'; Nasu tshu32; Lh gē? 'rasp, scrape';
 Aka~~h~~ jeh HS 'scrape, rake, shave away' (the last two from pre-nasalized proto forms); Kanauri krá-chok-shi-mig 'to shave'.
 PLB *(N)kret [TSR 97]
 PTB **kr(w)et

There is another PLB form, TSR #96 *(N)krak 'scratch,rake', reflected by B khrac, Maru kyak, Aka ka HS, Lh gā?, that could be related to the Nujiang form (as DL -ʔ <*k, though the final should be *-wak to give DLb -ɔ̃ʔ). There is also Zaiwa vuʔ31 <*rok 'shave' that might fit here.

Though I think the rule mentioned above that makes a distinction between the reflexes of clusters and those of prefix plus initial is valid, because of the Menba form I had no choice but to posit a *k- prefix in reconstructing the root for 'meet':

- [171]meet DLb tu31 xrum53; JP khrum55; B krum-krim 'meet with, find';
 MBb rum.
 PTB **k-rum ≈ **k-rim

*gr/l- ~ *kr/l- → kr/l- ~ gr/l-
 firefly, village, fear, bark, boil

- [172]firefly DLa ku31 rang53; DLb ku31 rang53; K dzyi-grong (dzui 'winged insect'); B khrang; Mikir tim-krang (tim 'gnat, midge') 'mosquito'; Rawang māgang <*m-grang 'mosquito'; Trung krang 'firefly'; Zaiwa kyang51 'mosquito'; possibly also GMD klaung 'insect' or ko55 run55 'mosquito'.
 PTB *krang (322)

Based on the supposition that Dulong makes a distinction between clusters and prefix-plus-initial combinations, this root should probably be reconstructed as **k-rang. Probably also related to this is the root reconstructed in the STC as *yang=*(s-)brang 'fly,bee' (492), based on T sbrang 'fly, bee', West Tibetan bu-yang 'bumble bee', Kanauri yang 'fly, bee', B yang 'fly, insect', and Lepcha sum-bryong 'fly'. Other examples of *r ≈ *y alternation are PTB śrak ≈ *g-yak 'ashamed', PTB *yaap ≈ *k-rap 'fan, winnow' (set 194 below) and PTB *mra ≈ *mya 'many, much'.

- [173]village DLa krɔ̃ng55; DLb khrɔ̃ng53; Tankhul Naga khu; L khúa;
 B rwa; T grong; Bisu (Loloish) khɔ̃ng-ba; MW gzu <*grang;
 PMb t̃sã35 ba35.
 PTB *grwa-ng [Matisoff 1972b, set 28]
- [174]fear,frighten DLa a31 kra755; T skrag-pa 'to be terrified, afraid';
 B krauk 'to fear' <*grok; Lh kɔ̃ʔ; Zaiwa kjuʔ31.
 PTB *grāk ≈ *krāk (473)
- [175]scream,bark DLa gru53, DLb gru53 'bark', DLa gui53, DLb gu755
 'crow (rooster)', DLa guʔ, DLb grung55 'speak;talk';
 K goi 'crow, as a cock; squeak, as some kinds of snakes;
 laugh loudly', māgroi 'howl, scream', JP k3ut31 (=grut)
 'call (of a panther)', k3ong55~khong55 'call (of a
 barking deer)'; B krwè~kywè 'call out, halloo,
 shout; screech and scream in large numbers, as birds',
 kro 'shout, call out'; Kanauri gre-nan-mig 'to roar',
 grán-mig 'to neigh', ku-chi-mig 'to call out,
 exclaim'; LCA kzai55, LHA kai55 'speak, talk', LCA
 kza55, LXA ku31, LHA ku55 'to yell, call out'.
 PTB *groy (310)

The reconstructed form for 'scream, bark' in STC is based on the Kachin and the first two Burmese forms. Both of these languages have two forms, one with medial *-r-*, one without. I have added three JP forms and one Burmese form, all within a single semantic field, varying only slightly in phonological form. When the three types of Dulong reflex (I'm assuming that *guʔ* and *guŋ* simply reflect a **k*~**ŋ* alternation) and the Kanauri forms are added to this set, it seems there is one large related set. The **u* ⇌ **oy* final alternation is a problem, though this alternation exists in three of the languages given here, and Dulong *guui* (with a long vowel) is actually one of the inflected forms of *grung* 'speak' used in emphatic and mutual action patterns (cf. Dai 1986). The best I can do for now is to assume there are two roots: ***g(r)u-ŋ* and ***g(r)oy*.

[176]cook,boil DLa *du31 gluuʔ55*; B *kyak* 'to be cooked', *khyak* 'cook';
K *khya* 'prepare glutinous rice'; Lh *cá* 'to boil';
Mikir *arklak* ~ *arklok* 'boil over'; L *tlak* 'boil or
cook without salt'; MBa *k6ʔ53* 'boil'.
PTB **klak* ⇌ **glak* (124)

**dr-* → *k(h)r-*
six, sew

[177]six DLa *kruʔ55*; DLb *khruʔ55*; T *drug*; Kanauri *tǔg*; G *dok*;
Lepcha *tarak*; Digaro *thorɔ*; Mikir *therok*; MBa *kroʔ53*;
Zaiwa *khjuʔ55*; JP *kruʔ55*; LCA *xɔʔ55*; Trung *khlu*;
B *khrauk*; Poeron *kəruk*; K *kru*; Lh *khɔʔ*.
PTB **d-ruk* (411) ⇌ **d-k-rok* (Matisoff pers. comm.)

[178]sew DLa *kruuʔ55*; DLb *khruuʔ55*; T 'drub-pa; Lepcha *hrap*;
Gyarung *tup*; Magari *rup*; B *khyup*; Trung *krap*; Lh *tɔ*;
LCA *xzop55*; LXA *tshɔp55*; Zaiwa *khjup55*.
PTB **d-rup* (456)=**drup* [n.320]

This **d-* → *k-* change is seen also in the Poeron, Kachin, Menba, Zaiwa, and Burmese forms for 'six', and the Burmese and Zaiwa forms for 'sew'.

**br-* → *br-*
name, smallpox, write

[179]name DLa *ang31 brung53*; DLb *ang31 brung55*; Lepcha *sbrang*;
Trung *ang-prang*; N *bing* <*bring.
PTB **s-brang* ⇌ *bring [31]

STC footnote 99 mentions that Prof. Matisoff suggests a connection with PTB **brang* 'to give birth' (#135); T 'brang-ba 'bear, give birth', L *piang* 'to be born'. I don't know why Benedict says N *bing* <*bring.

[180]smallpox DLa *brum55*; DLb *brum31 khar55*; T *lta* 'brum; MW *bur*.
PMa *bzō13*.
PTB ***brum*

[181]write DLa *bri53*; DLb *bri53*; T 'bri-ba 'draw, write', *nis* 'figure,
form, design'; K *mariʔ* 'to mark, line, rule'; N *nga* *ɬrit* 'boundary'
(*nga* 'country'); B *rè* 'write, paint, delineate'; G *a-ri*, Dimasa *ha-ri*
'boundary' (*a--ha-* 'earth'); L *ri* 'boundary', *riin* 'draw a line,
scratch'; MBa *pri13*; MBb *brü*; Luoba *pii*.
PTB **riy* (429) ⇌ ***b-riy* (with possible suffixes *-t*, *-k*, *-n*)

*ky- ~ *gy- → (t)š-

house, eight, hundred, jump

- [182]house
DLa šum53; DLb tšum53; T khyim; Bahing khyim-khim;
Vayu kim-kem; Lepcha khyum; Miri əkum; Mru kim;
Mikir hem <*khem; N kyim-tšim-tšum; B im; Lahu yè;
Trung tšiam; MW tši; TP tši33; Zaiwa jum51.
PTB *kyim ≈ *kyum (53) [n.82]
- [183]eight
DLa šat55; DLb šat55; T bryad; Kanauri rae; Bahing ya;
Thulung yet; K mətsat; N əšat; B hrats; G tšhet; L riat;
Dimasa džai <*džat; MW khar; Zaiwa šit55; LCA šet55.
PTB *b-r-gyat (163)
- [184]hundred
DLa ti55 ša55; DLb tši55 ša55; T bryga; K lətsa; N ya; B ara;
G rittša; Dimasa radža; L za <ya; MW khir; Zaiwa šo51.
PTB *r-gya (164)
- [185]jump
DLa a31 tšat55; DLb tšhat55; Aka [PL] ceɦ^, [ILH] tšéq; Lisu
hchye2; Sani ce44; Bodo khat; G kat; Mikir kát; JP ka31 kat31.
PTB *k(y)at '(sudden) lateral action' [G&C 39; TSR 18]

FINALS

As in the case of the initials, Dulong is relatively conservative phonologically vis à vis the finals, in that it preserves many of the consonantal endings. Final *-p and *-t, and all of the nasal finals, are unchanged, but final *-k is preserved only as a glottal stop, as in Jingpo. Final *-l had different reflexes in the two dialects. In DLa the *-l was preserved, but in DLb it became a final /-n/, also as is the case in Jingpo. Final *-s is a bit more complex. It seems there are two reflexes, -0 and -t, as in the pairs listed below:

*-s → -0
bone, two

- [153]bone
[52]two
DLa ang31 ru55; DLb ang31 ru53; PTB *rus (6)
DLa a31 ni55; DLb a31 ri55; PTB *g-ni-s (4)

*-s → -t
thick, seven

- [38]thick
[186]seven
DLa tat55; DLb that55; PTB *r-tas (426)
DLa su31 rit55; DLb su31 rit55; K sənit; G sənī;
Gyarung késnēs; Kanauri stis.
PTB *s-nis (5)

This is similar to Jingpo, except that Jingpo 'bone' /nrut/ has final -t where Dulong has an open syllable. Even if we discount 'two' as an *-s final root by saying that the *-s was an old suffix, as is suggested in note 61 of the STC, there is still the unexplainable final of 'bone'.

Another interesting, though not entirely regular development is the effect of proto-medials on Dulong vowels in closed-syllable finals. For some roots with palatal medials, the glide had the effect of fronting the main vowel, as can be seen in the examples below:

*-yap → -ep
snot, stand

- [187]snot
DLa ɲep; DLb ɲep; T snabs; B hnəp; L hnəp; Zaiwa nap55;
LCA hnəp55; LXA nap55; LHA hnək55; PMa hna13.
PTB *s-nap (102); **s-nyap²¹

- [159]stand DLa pu31 rep55; PTB *g-ryap (246)
- *-yat → -et
joke/laugh, star/moon
- [188]joke,laugh DLb yet55; T gza-ba 'to sport, joke, play', bžad-pa-gžad-pa 'laugh, smile'; Thebor rot; Bunan sred; Magari ret; N it; Bahing rit-ris; Digaro mara; B rai 'laugh'.
PTB *rya-t (202)
- [189]star(-moon) DLa gur55 met55; DLb gu31 nyet55; Angami Naga thəmva; Lh məʔ(-kə); MBb karmi; AC *sngywat (𑄀) 'moon'.
PLB *mwat [G&C 35]
PTB and PST *s-nyawat [G&C 35]
- *-yak → -eʔ
- [88]eye DLa meʔ55; DLb neʔ55; PTB *myak (402);
If the medial is a labial-velar glide, then the effect is one of raising, rounding²² and backing:
- *-waay → -oi
- [130]buffalo DLa ngu31 ɬi53; DLb ngu31 ɬi53; PTB *lwaay (208)
- *-waang → ung
- [42]pit,hole DLa ang31 dung55; DLb ang31 dung55; PTB *dwaang (169)
- *-wang → -ɔŋ
- [173]village DLa kɔŋ55; DLb khɔŋ53; PTB *grwa-ŋ [Matisoff 1972b, set 28]
The above two sets are the only two where there might be evidence of the proto-vowel length distinction in the Dulong reflexes.
- *-wap → -wɔp
- [36]cut DLa ɹ31 tɔp55; PLB *ʔɔwɔp ɹ *C-dwɔp [TSR 69]
PTB **-tɔp ɹ **-ʔdwɔp
- *-wak → -ɔʔ
- [152]ant DLa su31 ɔʔ55; DLb buŋ31 su31 ɔʔ55; PTB *ɔwɔk (199)
There are a few exceptions to this rule. Dulong forms that don't reflect a proto medial are listed with those words that descend from roots without medials. In 'vegetable' the velar medial is preserved without affecting the vowel:
- *-wak → -waʔ
- [19]vegetable DLa dzu31 gwaʔ55; DLb zu31 gwaʔ55; PLB *ʔgyak [TSR 49]
PTB **gwak ɹ **gyak

²¹ Please see the discussion of this root and 'star,moon' in the section on non-regular reflexes.

²² Thanks to Mark Hansell for pointing out that though *-wap → wɔp does not have any rounding, this could be due to dissimilation of rounding because of the labiality of the final, as occurred in Chinese.

I am assuming that the Dulong forms descended from a proto-form with a labial-velar glide rather than the palatal glide reconstructed for PLB in TSR.

The form wang55 'uncle' also does not show any influence of the glide on the vowel, possibly because it is the initial:

[164]uncle DLa a31 wang53; DLb a31 wang53; PTB *pwang [23]

The situation for open syllables is generally different, as with the *-wa rhyme, which is reflected faithfully in Dulong in four out of the following six forms:

[162]axe DLa war53; DLb war53; PTB *r-wa (441)=*r-pwa [24]
 [28]cattle DLb nung55 ngwa53 'huing niú'; PTB *ngwa (215)
 [18]wear DLa gwa55; DLa gwa53; PTB *gwa-n ≠ *kwa-n (160)
 [30]span DLa ti55 puw31 ta55; DLb tsi55 puw31 ta55; PTB *twa (165); *(t)wa

The form for 'span' does not reflect the labial-velar medial at all (just as DL nga53 < *ngya 'fish' does not reflect the palatal medial), though I feel it is cognate.

[99]garlic DLa su53; DLb su53; B Krak-swán; AC *swân/suân (𑖓𑖔); Lh sū-qó
 'leek', sū-phu 'onion', sū-phu-nú 'garlic'.
 PTB *swa-n [174] [G&C p.10]

The original PTB reconstruction of *swan was revised to *swa-n in Matisoff (1985:10) with the suggestion that the *-n has the 'collective' *-n suffix discussed in n.284 in the STC. The DL forms for 'garlic' are similar to Lahu /sɔ/. In Lahu the proto-medial has the same type of effect on the final as in Dulong, but it is a bit more regular. In the case of 'garlic' in Lahu, the *-w- has had the effect of raising and rounding the vowel. I can only assume that something similar happened in Dulong. Other forms that might belong here are JP la31 son33, LHA laʔ31 suan35, LXA la31 suan55, LCA ka31 sun55, and either Zaiwa phe55 ʔo55 or the first syllable of Zaiwa xu31 khjong55 'onion'. I did not include them above because they either looked too much like loans or because I was not sure of the cognacy of the forms.

Even with the exceptions just mentioned, the rule of medial effect is solid enough to be useful in confirming or revising PTB roots. Several of these cases are discussed below in the section on non-regular reflexes. Two more cases where there might be a need for a slight revision of an established form are 'branch' and 'drip':

[9]branch DLa síng55 ang31 kɔʔ55 (síng 'tree'); DLb síng55 ang31
 kɔʔ55; PLB *ʔgak [TSR 43]; PTB *s-kaak (327) ≠ **s-k(w)ak
 [37]drip DLa a31 tɔʔ55; DLb thɔʔ55;
 PLB *Ntsak [TSR 82]; (*úik ≠ *dzik) ≠ *ndzak [Mpi 5];
 PTB **tsak ≠ **tywak; PST **ty(w)ak

Based on the Dulong reflexes it seems the proto-forms had -w- medials, i.e.: **s-kwak; **ntswak, though the initial correspondence in 'drip' is not entirely regular either.

Below are listed examples of the regular correspondences. In general I would require at least three examples to call a correspondence 'regular', but in some cases, as for '*-ip', there aren't many roots with that final, and the Dulong form is obviously cognate, so I have included it as a solid possibility.

*-a → -a

bitter, crow, saddle, I, ear, nose, you, rest, five, thin, wound,
 god, earth/dirt, food, flesh/meat, moon, speech, cotton

[1]bitter DLa ka55; DLb kha53; PTB *ka (8)
 [2]crow DLa tak55 ka55; DLb tang31 kha55; PTB *ka [99-100]
 [20]saddle DLa ga55; DLb ga55; PTB *s-ga [Matisoff 1983, set 60]
 [22]I DLa nga53; DLb gw55; PTB *ka ≠ *nga (406)

| | |
|-----------------|--|
| [47]ear | DLa a31 na53; DLb a31 na55; Trung na-ba; N əna; PTB *g/r-na (453) |
| [55]nose | DLa su31 na55; DLb su31 na55; N sənə; PTB *s-na (101) |
| [56]you | DLa na53; DLb na53; N na; PTB *nang (407) ≠ **na |
| [61]rest | DLa ru31 na53; DLb ru31 na53; PTB *na (414) |
| [23]five | DLa pu31 nga53; DLb pu31 nga53; PTB *l/b-nga (78) |
| [74]thin | DLa ba53; DLb ba53; N ba; PTB *ba (25) |
| [85]wound(n.) | DLa bin55 ma55; DLb zi31 ma55; N rəmat 'nettle' (= 'the wounder'), with suffixed *-t; PTB *r-ma ≠ *r-ma-t (446) |
| [131]god | DLa nam55 la55 (nam53 'sun; heavenly affairs' with tone assimilation); DLb la55; PLB *s-la 'soul'; N phəla <*b-la 'demon, soul'; PTB *(m)-hla (>*sla 'in all but Tibetan' STC p.132) (475) |
| [114]earth,dirt | DLa a31 sa55; DLb a31 sa53; PTB *tsa [188]; **sa |
| [125]food | DLa ang31 dza55; DLb ang31 za55; PTB *dza (66) ≠ *dža [Mpi 47] |
| [127]meat,flesh | DLa śa55; DLb śa53; N śa; PTB *sya (181) |
| [145]moon | DLa su31 la55; DLb su31 la55; N səla;
PTB *s-la ≠ *g-la=*s-gla (STC n.137) (144) |
| [8]word,speech | DLa ka55, kat55; DLb ka55, kat55; N kha; PTB *ka (9) |
| [140]cotton | DLa sa55 la53; PTB *b-la [111] |

*-ya → -a
hundred, fish, borrow

| | |
|--------------|---|
| [184]hundred | DLa ti55 śa55; DLb tsi55 śa55; N ya; PTB *r-gya (164) |
| [24]fish | DLa nga55 plaʔ55 (+ Tai); N nga; PTB *ngya (189) |
| [26]borrow | DLa nga55; DLb nga53; N nga; PTB *r-ngya (190) |

Of the Dulong forms in the above set, only the initial in 'hundred' shows any trace of the proto palatal medial.

The words in the following two correspondences are probably all examples of PTB *-a ≠ *-ay doublets (as discussed in Matisoff (1985:27)), with Dulong reflecting the diphthong in the first two words and monothong in the last four:

*-a → -ai
father, chin

| | |
|------------|--|
| [66]father | DLa a31 pai53; DLb a31 pai53, a31 ba53; PTB *pa (24)=*pwa [23] |
| [7]chin | DLa mu31 kai55; DLb mu31 kai55; N mukha; PTB *mi-ka (470) |

*-ay → -a
paddy, bee, plant, easy

| | |
|-----------------|---|
| [190]rice/paddy | DLa tsu31 ma55; DLb tshu31 ma55; Garo mi-me; Dimya mai 'rice, paddy'; Pwo and Sgaw (Karen) nie 'boiled rice'; AC *mi:r/miei (𪎭); Tangkhul ma 'paddy'; Luoba amə 'rice'; PTB *may ≠ *mey [65,128,149,192-3] [G&C 57] |
| [191]bee | DLb khwa31 me53; B kwai 'dammer-bee'; L khuai-kho; Thado khoi-khui-va (va 'bird') Tangkhul khui; Lakher kha 'bee'; N kha 'bee (domesticated)'; PTB *kwaay (157) |
| [10]plant | DLa kaat55; DLb kat55 (both with suffixed -t, Cf. 'speech'); PTB *kay ≠ *gay [G&C 114] |
| [129]easy | DLa la55; DLb la55; PTB *lway (302); PTB **s-la or **s-l(w)a-y |

In the following sets, the Dulong forms faithfully reflect the proto diphthong:

*-ay → ai

big, tongue, red

- [34]big DLa tai53; N the; PST *tay (298)
 [135]tongue DLa pu31 lai53; DLb pu31 lai53; N phalɛ; PTB *s-lay (281)
 [113]red DLa pu31 sai55; DLb pu31 sai53; PTB *(y)a-n ɛ *(s)ay [G&C 150]

I'm assuming Dulong form for 'red' reflects the same PTB root as the Lakher form, given as *(s)ay, though I am not altogether happy with the initial in this reconstruction.

Please consider the forms for 'change', 'hair' and 'foot':

- [192]change DLa klai55; DLb kle53; JP gelai; N thalɛ 'alter.(ex)change'; B lai '(ex)change'; G sre; Dimasa salai; L lɛi 'buy, barter'; Tiddim lay.
 PTB *s-lay (293) [G&C 69]
 PTB *r-ley ɛ b-rey [G&C 54] 'buy, barter'
 [62]hair(head) DLa u55 nai55 (head+hair); DLb u53 ne53; N ani-tani;
 PTB *ney (292) [G&C 51]
 [168]foot DLa xrai55; DLb xre55; N hi; PTB *kriy (38)

Based solely on the DLa form and the semantic similarity, it would seem that *s-lay is the correct provenience for 'change', but comparing this with the forms for 'hair', it seems that the *r-ley ɛ b-rey proto form might be the correct one. There is another correspondence, *-ey → -i (see below), that seems to be the more regular one for *-ey. The DLa -ai/DLb -e forms then are not part of the *-ay → DLa -ai/DLb -ai set, nor are they part of the *-ey → DLa -i/DLb -i set, nor are they part of the *-ay → DLa -eʔ/DLb -eʔ set (see section on non-regular reflexes). They are probably reflexes of *-ey, but I don't know what the conditioning factor was that caused them to form this separate set. The forms for 'foot' make it even more confusing, as *-iy usually is reflected as DL -i.

Related to this is the problem of the DL reflexes of PTB *tsa 'hot, spicy, illness' (T tsha 'hot, illness', tsha-ba 'hot; heat; spice; condiment'; B atsha 'hunger; something faulty or hurtful (but Lolo *tsha 'hot)'; G sa 'ache, sick', sagipa 'pepper'; Dimasa sa 'ache, pain', sa-ba 'hot (spicy)'; L sya-syat 'hot'; Mikir so 'hot, to be ill, sore'; possibly also the first syllable in MW tsətsi 'spicy'). There are two possibilities: DLa dza53, DLb za53 'illness'; and DLa sai55, DLb se53 'spicy'. In the former the final is regular, but I have no other examples of *ts- → dz-; for the latter there are at least four other examples of *ts- → s-, but no examples of *-a → -ai/-e, unless this is another example of a *-a ɛ *-ay alternation, and the DL forms descended from *-ay. I prefer the latter explanation, but the ai/e set is still too problematic to say anything definite.

*-am → -am

full, flat, smell, sun, iron, fathom, otter

- [43]full DLa dam55; DLb dam53; PTB *dyam (226)
 [44]flat DLa dam55 mu31 li53 'plain, flat ground' (mu31 li53 'earth,ground');
 N ɔdam 'plain (level ground),flat'; PTB *dyam (227)
 [64]smell(tr.) DLa pu31 naan55, pu31 nam55 gam53 'fragrant' ('smell' +
 'good'); DLb pu31 nam53; N phənam; Trung pənam;
 PTB *s-nam ɛ *m-nam (464)
 [53]sun DLa nam53; DLb nam53 luung55; T gnam 'heaven, sky', nam 'night';
 N nan 'sun'; PTB *nam [148]
 [126]iron DLa śam53; DLb śam53; N śam; Trung śyam; PTB *syam (228)
 [147]fathom DLa ti55 lam53; DLb tsi55 lam53; PTB *la[a]m [71]
 [154]otter DLa su31 ram53; DLb su31 ram53; N sram; PLB *sram;
 PTB *s-ram (438)=*sram [107,n.302]

*-an → -an

stretch out, medicine

| | |
|--|---|
| [123]stretch out | DLA tsan53; DLb tsan53; PLB *ʔ-dzan3 ≠ *tsan3 [G&C 11];
PST *tyik ≠ *tyak [84,94,169,189] |
| [93]medicine | DLA man55; DLb man55; PTB **s-man |
| *-ang → -ang
we/us, firefly, roast, fir, spindle, deaf/mute, dream, person, dawn/morning, clean | |
| [149]we (inclusive) | DLA rang55; DLb rung55; PTB **rang |
| [172]firefly | DLA kw31 rang53; DLb kw31 rang53; Rawang maḡang
<*m-grang 'mosquito'; Trung krang 'firefly'; PTB *krang (322) |
| [15]roast,toast | DLA duw31 gaang55; DLb duw31 gaang55; N dəḡang; PTB *kaang (330) |
| [39]fir,pine | DLA tang53; DLb tang31 xai53; PTB *tang [69] |
| [68]spindle | DLA śap55 pang53, DLb śang31 phung53 'treadle operated
rice husker' (śap55, śang31 'mortar'); PTB *pang=*pwang (48) |
| [73]mute/deaf | DLA duw31 bang55; DLb duw31 bang55; PTB **d-bang |
| [82]dream | DLA mlaang55; DLb mlang55; N ip-mang; Trung mləḡ
'from *ləmang <*r-məḡ by metathesis; cf. Trung a-mra
'field', Mutwang (Rawang dial.) rəma, id." STC p.31.
This holds for the DL forms as well. PTB *r-mang (82) |
| [109]person | DLA a31 tsang53; DLb a31 tshang53; PTB **tsang |
| [155]morning | DLA suw31 raang55; DLb suw31 reeng55; Trung srang;
PTB *prang (332)=*b-rang ≠ *s-rang [72,n.224] |
| [110]clean | DLA tsang55 ma55; DLb tsang55 ma55; PTB *(t)syang=*syang [37,52,53] |

*-ap → -ap
repay, leaf, needle, fan/winnow, munch, fireplace

| | |
|-----------------|---|
| [108]repay | DLA tsaap55; DLb tsaap55; PTB *tsap (63) |
| [136]leaf | DLA śing55 lap55 (śing55 'tree'); DLb śung55 pu31 laap55;
N ślap 'leaves for packing food'; PTB *lap (321) |
| [193]needle | DLA wap55; DLb wap55; T khab; B ʔap <*(t)-ghap; Kanauri keb;
Gyarung tekyep; Lepcha ryum; MW Xe; Zaiwa ap55; LCA,
LXA ap55; Trung uop; Lh gōʔ.
PTB *kap=*kap (52) [n.82] |
| [194]fan,winnow | DLA raap55; DLb raap55; T 'khrab-pa 'strike, beat; winnow;
fan'; Chepang krap 'winnow'; Nungish (Rawang) rap <*(h)rap
'winnow, thresh, paddle, row' (cf. Rawang rip 'flying ant' <TB *krep).
PTB *krap [141] [n.382] |

Based on the Dulong form and the probability that the above forms for 'fan, winnow' are related to PTB *yaap (92) 'fan, winnow' (reconstructed on the basis of T yab-mo ~ g-yab-mo 'the act of fanning or waving; fan', Miri mayap, B yap, Mikir hi-dzap 'fan', L zaap 'fan, winnow, flap, flutter', Tang-khul kəyap 'to fan', and K kətsap 'winnow'), the *k- should be seen as a prefix.

| | |
|----------------|---|
| [195]munch | DLA ngap55 ('yao3'); DLb rep55 ('ken3'); B kwap, kyap, krap 'clamp,
make fast, firm, secure'; Lh gəʔ 'hold firmly in mouth';
Bisu kō 'bite into' (from *Ngwap etc.).
TN khəḡkup 'bite and see whether the paddy is well dried
or not'; Lh khōʔ 'munch, bite noisily'; Aka kaw 'to bite
as a dog bites a person'. Possibly related to B hap
'bite at, as a fish or dog'; PTB *hap 'mouthful'.
PLB [*Ngwap ≠ *Ngrap ≠ *Ngyap] ≠ [*C-kwap ≠ *C-krap] (TSR 90) |
| [157]fireplace | DLA nuw31 rap55; DLb nuw31 rap55; N nrap;
PTB *rap (84)=*trap/drap <AT loan [19,n.69] |

*-at → -at

forget, leech, kill, flower, cut, braid, eight, jump, slippery

- [79]forget DLb a31 mat55; PTB *ma-t (425)
 [69]leech DLa mu31 pat55; DLb nye31 phrat55; PTB *r-pat (45)
 [96]kill, hit DLa saat55; DLb sat55; PTB *g-sat (58)
 [161]flower DLa sing55 wat55 'flower', sing55 wat55 wat55 'bloom';
 DLb sung55 wat55 wat55 'bloom'; PLB *wat; Nungish sing-wat
 'bud' (Rawang), flower (Trung); PTB *bwat [24]
 [169]cut, chop DLa a31 xrat55; DLb a31 xrat55; N rat; PLB *?-brat ≠ *C-prat;
 PTB *ra (458) **d-ra-t
 [196]braid DLa bla55; DLb blat55; Zaiwa tsham51 pan31 (tsham51 'hair');
 LXA tsham35 pyen35 (Chinese?); Lh phé: Mpi phe?1;
 possibly also B phan 'shuffle cards'.
 PLB *C-pat ≠ *pan1/2 (G+C 37)
 PLB *bat ('wind around')
 PTB **b(1)at/n
 [183]eight DLa sat55; DLb sat55; N sat; PTB *b-r-gyat (163)
 [185]jump DLa a31 tsat55; DLb tshat55;
 PTB *k(y)at '(sudden) lateral action' [G&C 39; TSR 18]
 [197]slippery DLa tu31 klat55; DLb du31 laa55; T hlod-pa 'loose,
 relaxed'; K lot 'escape, be free, unrestrained'; B lwat
 'to be free', kywat < klwat 'loosed, freed'.
 PTB *g-lwat ≠ *s-lwat (209)

*-ak → -aʔ

deep, black, itch, weave, fear, chicken, lick, pig

- [51]deep DLa ru31 naʔ55; DLb ru31 naʔ55; Trung na43;
 PLB *ʔnak ≠ *nak [TSR 157]; PTB *s-nak
 [50]black DLa naʔ55; DLb naʔ55; N naʔ; PTB *s-nak [88,102,155]
 [95]itch, itchy DLa pu31 saʔ55; DLb pu31 saʔ55; PTB *m-sak (465)
 [156]weave DLa raaʔ55; DLb raaʔ55; PTB *tak (17)=*trak <AT loan [19.n.68]
 [174]fear, frighten DLa a31 kraʔ55; PTB *grāk ≠ *krāk (473)
 [198]chicken DLa kaʔ55; DLb khaʔ55; B krak 'fowl'; Maru 𑜀𑜂𑜆𑜇 <*rak; Lh ḡāʔ?
 L va-rak 'duck'; Zaiwa voʔ <*rak; LCA kʒuaʔ55; LXA kjaʔ31.
 PTB *k-rak
 [137]lick DLa laaʔ55; DLb laaʔ55; N la-le; PTB *m-lyak ≠ *s-lyak (211)
 [163]pig DLa waʔ55; DLb waʔ55; PLB *wak [TSR 168]; PTB *pwak [23-24]

*-ar → -ar

new, east

- [100]new DLa ang31 sar55; DLb ang31 sar53; Rawang angsar; Trung aksal 'fresh';
 PTB *sar [p.147,172,189]
 [128]east DLa sar55; DLb se31 sɔʔ55; N nam sarr kha; PTB *syar [28]

*-u → -u

nephew, dig, head

- [40]nephew DLa pu31 du55; DLb bu31 du53; N phodu; PLB *du;
 PTB *tu ≠ *du (259)
 [41]dig DLa du53; N du; PTB *tu ≠ **du (258)
 [199]head DLa u55; DLb u53; T dbu; B ù; Anong (Nungish) u; Lh ú;

LHA u31 nung31; LXA u55 nɔng55.
 PLB *ʔu2 [Mpi p.15]
 PTB ***-u*

Benedict (1972:117) does not give a proto form for 'head', but suggests that a **d-* prefix might be reconstructed for this root, based solely on the Tibetan form. I don't know if he would include the initial *b-* from the Tibetan form as well. I have not included either because it is only Tibetan that shows any evidence of them.

**-ul* → DL*a* *-ul* / DL*b* *-un*
 silver, hair/fur, spittle,

[25]silver DL*a* ngul55; DL*b* nguun55; PTB **d*-ngul [15.173]
 [90]hair,fur DL*a* ang31 mul55; DL*b* ang31 mun53; PTB **mul* (2)
 [118]spittle DL*a* cwi55; DL*b* tsun55; N thil 'spittle';
 PTB **m*-ts(y)il (231) ≠ **m*-thil [cf. discussion of 'count']

-uw*=-aw* → *-u*
 steal, uncle, body, nine, cry, price, insect/snake, eagle, horn

[4]steal DL*a* ku55; DL*b* khu53; N khü; PTB **r*-kuw (33)
 [6]uncle DL*a* a31 ku53; DL*b* a31 khu53; N akhö; PTB **kuw* (255)
 [11]body DL*a* ang31 gu55; PTB *(*s*-)kaw=*(*s*-)kuw [184]
 [12]nine DL*a* du31 gu53; DL*b* du31 gu53; N tagö; PTB **d*-kuw (13)
 [27]weep,cry DL*a* ngu53; DL*b* ngu53; N ngü; PTB **nguw* (79)
 [67]price DL*a* ang31 pu53; DL*b* phu53; N əphü 'be of value'; PTB **puw* (41)
 [71]insect,snake DL*a* bu55; DL*b* bu53; N bö; PTB **buw* (27)
 [86]eagle DL*a* tu31 mu53; DL*b* tu31 mu53; N thəmö; PTB **muw* (257)
 [167]horn DL*a* tsi31_xru55; DL*b* ang31 tu31 xru55;
 N (Melam dial.) takru; PTB **kruw* (37)

**-um* → *-um*
 pillow, three, warm, house, round, smallpox, meet

[5]pillow DL*a* u55 kum55; DL*b* u53 kum53; N ɔgɔ nu^hkhim; PTB **m*-kum (482)
 [94]three DL*a* a31 sum53; DL*b* sum53; N atsum; PTB **g*-sum (409)
 [143]warm DL*a* lum53; DL*b* lum53; N lim; PTB **lum* (381)
 [182]house DL*a* süm53; DL*b* tsüm53; N kyim-tsim-tsum; Trung tsim;
 PTB **kyim* ≠ **kyum* (53) [n.82]
 [142]round DL*a* ang31 ku31 lum55; DL*b* du31 lum55;
 PTB **s*-lum=**z*lum (n.136) (143)
 [180]smallpox DL*a* brum55; DL*b* brum31 khar55; PTB ***brum*
 [171]meet DL*b* tu31 xrum53; PTB ***k*-rum ≠ ***k*-nm

**-ung* → DL*a* *-uung*

[139]stone DL*a* luung55; DL*b* luung55; PTB **r*-lung (88)

**-ung* → DL*b* *-ɔng*
 maggot, body

[146]maggot DL*b* tshi31 ɔng53; PLB **k*-lung ≠ **k*-luk [STR 186]
 PTB ***lung* ≠ ***luk*
 [21]body DL*b* gɔng53; Nungish: Rawang gung, Mutwang dial. gong;

PTB *gung [182]

*-up → -u(w)p

rotten/to rot, cover(bury), sew

[72]rot/rotten

DLA buwp55; DLb buwp55; PLB *Nbuwp [TSR 75]; PTB **buwp

[138]bury

DLA lup55, possibly also DLa, DLb klup55 'to cheat, deceive';

PTB *klup (479)

[178]sew

DLA kruwp55; DLb khruwp55; Trung krap;

PTB *d-rup (456)=*drup [n.320]

*-uup → -uup

[63]west

DLA nam55 nuup55; N nəm nip lam (nam 'sun', lam 'side');

PTB *nuup ≠ *ni[i]p (400)

*-ut → -ut/-it

knee, blow

[70]knee

DLA bak55 put55; DLb paang31 pit55; N phang-phut 'knee',
ur-phut 'elbow', ra-phut 'shoulder'.

PLB *put (7) (<Maru pat-lau <put); PTB *put (7)

[80]blow(v.)

DLA mut55; DLb mit55; PTB *s-mut [75]

*-uut → -ɔɔt

[33]join.tie.knot

DLA sw31 tɔɔt55; DLb sw31 tɔɔt55; N dathut;

PTB *duut ≠ *tuut (421)

*-uk → -ɔʔ (after velars only?)

basket, bent

[3]basket

DLA pai55 kɔʔ55; DLb tu31 kɔʔ55; PTB *kuk (393)

[17]bent

DLA du31 gɔʔ55; DLb du31 gɔʔ55; PLB *gok [TSR 2];

PTB *guk ≠ *kuk [125]; **gok

*-uk → -uʔ

[48]brain(1)

DLA u55 nuʔ55 (u55 'head'); N əning; PTB *nuk (483)

*-u(u)k → -uʔ

vomit, sky, six

[45]spit,vomit

DLA duʔ55; DLb duʔ55; PTB *m-tuk ≠ *s-tuuk ≠ s-duuk [58,75,126,132,146]

[89]sky

DLA muʔ55, ru31 mut55 'cloud'; DLb muʔ55, ru31 mit55 'fog';

Rawang muʔlang 'heaven'; DLa sw31 muwi55 'fog';

PTB *r-muw=*r-məw (488) ≠ *r-muuk (357)

[177]six

DLA kruʔ55; DLb khruʔ55; PTB *d-ruk (411)

-iy=-əy → -i

sun/day, aunt, grandmother, give, die, count, urine, small, grandchild, armpit,
flea, heavy, plain, gall bladder, write, four, who

[54]day

DLA ni55; DLb nyi55; PTB *niy=*nəy (81)

| | |
|--------------------|---|
| [58]jaunt | DLa a31 ni53; DLb a31 nyi53; N ani; PTB *ni(y) (316) |
| [65]grandmother | DLa a31 pi55; PTB *piy (36) |
| [76]give | DLa bi55; DLb zi53; Trung bing (with suffixed -ng); PTB *biy (427) |
| [101]die | DLa ši53; DLb ši53; PTB *siy=*say (232) |
| [107]count | DLa tsi55; PTB *r-tsiy=(r)tsray (76) |
| [117]urine | DLa tsi55; N tsi 'urine', tsi-tsi 'urinate';
PTB *ts(y)i ≠ *ziy (77) |
| [121]small(1) | DLa tsi55 tsal53 (tsal53 'son');
PLB *ʔziy <*a-ziy [STC p.27, n.87 by JAM]
PTB *ziy (60) ≠ **tsiy |
| [133]grandchild | DLa pu31 li55; DLb pu31 li55; N phali; PTB *b-liy (448) |
| [134]armpit | DLa ra55 li55; N ra-kyi tsip <*ra-ki (ra 'shoulder');
PTB *g-li (265) (possibly old AT loan - STC n. 199) |
| [141]flea | DLa su31 li53; DLb su31 li53; N sali; PTB *s-liy (440) |
| [144]heavy | DLa a31 li53; DLb a31 li53; N ali; PTB *s-liy (95) |
| [148]plain (earth) | DLa dam55 mu31 li53 (dam55 'flat'); DLb mu31 li53 dang53;
N dialect mali 'country; mountain'; PTB *mliy (152) |
| [166]gall bladder | DLb tsi31 xri55; DLb tshi31 khri53; N səhi <*s:khri 'gall-bladder';
PTB *kriy (412-413) |
| [181]write | DLa bri53; DLb bri53; N rəga dərit 'boundry'
(rəga 'country'); PTB *riy (429) ≠ **briy |
| [200]four | DLa a31 bli53; DLb bli53; T bzi <*bli; Thulung bli; B lè;
Kanauri pò <*pli; Magari buli; Digara kəprei; Miri pi;
N əbyi (dial. əbəli); K məli <b-li; Mikir phli; Lh ɿ; MBa pli;
MBb phi; Luoba apii; DRD ka31 prai35; LCA mi31; Zaiwa myi.
PTB *b-liy (410) |

-wiy=-way → -wi/-i
dog, yam, blood, comb

| | |
|------------|--|
| [13]dog | DLa du31 gui55; DLb du31 gi55; N təgi; PTB *d-k-wiy (159) |
| [14]yam | DLa gui55; N gi; PTB *kywiy (238) |
| [201]blood | DLa syui55; DLb syi55; Kanauri syui; Bunan syu; Vayu vi;
Chepang wi-wei; K sai; N syö; B swè; G antsyi;
Dimasa thi; L thi.
PTB *s-hwiy (222)=*s-hyway [n.169] |
| [97]comb | DLa sui55; DLb si53 'to comb', DLa u55 sui55; DLb u53 si53.
N asi 'comb,to comb'; PTB *m-si(y) (466) |

I have included 'comb' in this set because it seems the DLa form developed from a proto form with a labial-velar medial: **m-s(w)iy.

The following reconstruction is very tentative because I don't have enough solid cognates:

| | |
|-----------|----------------------------------|
| [31]short | DLa tui53; DLb thu53; PTB **twiy |
|-----------|----------------------------------|

*-im → DLb -um

| | |
|-----------------|--|
| [202]raw,unripe | DLb a31 zyum53; N ʔzim; B tsim 'green; unripe';
Zaiwa a31 tʃum31, JP ka31 tsing33, LCA tsrn31,
LHA a31 tsing35, T dzin-pa 'raw(meat)'.
PTB *dzim [81] |
|-----------------|--|

I assume here that the vowel in the DLa form would be -i- if I had a cognate, based on the similar situation with the *-ing and *-ip finals below.

*-in → -in

ripe, liver

| | |
|------------|--|
| [87]ripe | DLa min53; DLb nin53; N min 'cooked; to rot'; PTB *s-min (432) |
| [104]liver | DLa pu31 sin55; DLb pu31 sin53; N pha5in;
PTB *m-sin (234) |

*-ing → DLa -ing/ DLb $\left\{ \begin{array}{l} a \\ u \end{array} \right\}$ ng

year, tree, clf. for trees, neck, name

| | |
|---------------------|--|
| [60]year | DLa ang31 ning55; DLb ang31 niung55; PTB *s-ning (368) ≠ *s-nik |
| [103]tree,wood | DLa sing55; DLb sung55; N sing~thing; PTB *sing (233) ≠ PLB *sik |
| [124]clf. for trees | DLa ti55 dzuang55; DLb tsi55 zuang55 (ti55, tsi55 'one');
PLB *dzing1 [Mpi 37]; PTB **dzing |
| [132]neck | DLa ling55 gui53; DLb lang55 gi53; N ling; PTB *ling (96) |
| [179]name | DLa ang31 bruang53; DLb ang31 bruang55; Trung ang-prang;
N bing <*bring; PTB *s-brang ≠ *bring [31] |

The DLb form for 'name' seems to have both lost the initial consonant of the cluster and to have developed from the *-k alternative of a proto *-k ≠ *-ng alternation.

*-ip → -ip/-wup

| | |
|------------|---|
| [165]sleep | DLa ip55; DLb yup55; PTB *ip=*yip (114) |
|------------|---|

*-it → -it
extinguish, think, goat

| | |
|--------------------|---|
| [91]extinguish | DLa a31 mit55; N samit; PTB *mit (374) |
| [92]think,remember | DLa mit55; DLb nyit55; PTB **myit |
| [122]goat(mt.) | DLa a31 tsit55; DLb tshit55; PLB *tsit [88]; PTB **tsit |

*-ik → -i?/-w?
one, louse, twist, leopard

| | |
|--------------|---|
| [35]one | DLa ti?55; DLb tsi55; N thi; PLB *C-ti-k [TSR 31] |
| [203]louse | DLa si?55; DLb su?55; T sig; K tsi?; Mikir rek; G tik; N si;
L hrik; Kanauri rik; Bunan srig; LCA pha31 tshek35.
PTB *s-rik=*srik [108] |
| [204]twist | DLa tsi?55; DLb tshu?55; B rac 'wind around, encircle';
Lh si; Aka yeu LS (all but DL from PLB form).
T 'khyig-pa 'bind'; B kyats 'twist hard and tight';
Kuki *d-khik 'bind' (from PTB *kik).
PLB *r-sik ≠ *s-yik [TSR 130]
PTB *kik (484) 'twist,bind' |
| [106]leopard | DLb zu?; N khang-zi; PTB *zik (61) |

*-cy → -i
fire, tail, fruit, string/rope, younger brother

| | |
|--------------------|---|
| [83]fire | DLa tu31 mi55; DLb tu31 ni55; N thami; PTB *mey (290) |
| [84]tail | DLa mi55 ts>?55; DLb ang31 nu31 tsh>?55;
PTB *r-may ≠ *mey (282) |
| [102]fruit | DLa ang31 si55; DLb si53; N sing si; PTB *sey (57) |
| [151]string,thread | DLa tsu31 ri55; DLb tsu31 ri53; N thari 'cane', |

- [205]younger brother səri 'thread', ban-ri 'rope, string'; PTB *rey (478)
DLa ang31 nɪk55 ra31; DLb ang31 nyi55 nam; Lh ÷-ni-pā;
Akha à-nyí; B nyi; Boro baynay 'wife's younger
brother, younger sister's husband'; Luoba nuoro;
LCA a31 nyi55; LXA zya55 niʔ31.
PTB *nyey [G&C 146]

It seems to me that the -k final of the DLa form for 'younger brother' is just a suffix, as *-k went to -ʔ in all other cases, though the LXA form confuses things a bit.

*-ey → -e

- [160]saw(n.) DLa sɔ55 re55, bu55 le55 'plane(wood)';
DLb sɔ55 re55 'saw(n.)', bɔp55 le55 'plane(wood)';
PTB **rey ≠ **ley 'saw;plane'

*-ok → -ɔʔ

bean, wear on head/hat

- [46]bean DLa a31 nɔʔ55; DLb a31 nɔʔ55; PLB *s-nok [TSR 140];
PTB **nok
- [78]wear on head/hat DLa mɔʔ55; DLb mɔʔ55; PTB **r-mok

*-ow → - $\left\{ \begin{array}{c} u \\ u \end{array} \right\}$

arise/awake, pointed, boil, fat, pine/fir

- [105]arise, awake DLa sa55 sɔw31; PTB *m-sow (295)
- [112]pointed DLa a31 tsw55; DLb a31 tsw55; PTB *tsow (276)
- [115]boil DLa a31 su53; DLb su53; N əsu 'boil': PTB *tsyow (275)
- [116]fat (adj.) DLa su53 sa55 'fat meat' (sa55 'meat'); PTB *tsow (277)
- [158]pine, fir DLa suw31 ru55 sɪŋ55; DLb suw31 ru55 sɪŋw55 (sɪŋ55
'tree'); N sɪru thing; PTB *row (320)

NON-REGULAR REFLEXES

Initials

The two types of non-regular reflexes for nasals were a palatal nasal and palatalized nasal instead of a dental or velar nasal in DLa and DLb respectively for 'snot', seven and 'love'; and a dental nasal instead of a labial nasal in the DLb reflexes for 'ripe', 'tail', 'fire' and 'eye':

*n- → ŋ-/ŋ̃

- [187]snot DLa ŋep; DLb ŋep; PTB *s-nap (102); **s-nyap
- [186]seven DLa suw31 nɪt55; DLb suw31 nɪt55; PTB *s-nis (5)

*ng- → ŋ̃/ŋ̃̄

- [206]love DLa ni55 si31; DLb ni55 si31; JP ŋwái; Tiddim -ngai;
L uai 'hang on to; make love', ngái 'long for, miss,
feel earnest desire for; copulate'; Tangkhul sa-ngai kachu
'that which one likes to do', khəngáy 'desire'.
PTB *ng-(w)ay [G&C 126]

*m- → n-(NJ)

| | |
|----------|---|
| [87]ripe | DLa min53; DLb nin53; N min 'cooked; to rot'; PTB *s-min (432) |
| [84]tail | DLa mi55 tɕ>ʔ55; DLb aŋ31 nu31 tɕh>ʔ55;
PTB *r-may ≠ *mey (282) |
| [83]fire | DLa tu31 mi55; DLb tu31 ni55; N thami; PTB *mey (290) |
| [88]eye | DLa meʔ55; DLb neʔ55; N me-ne<*myak;
PTB *mik ≠ myak (402); PST *mya[a]k [190] |

It seems in 'snot' that there are two types of evidence for a palatal glide in the proto-form: the nasal is palatal(ized), and the vowel is fronted. A palatalized nasal is the normal reflex of a dental nasal in DLb only when it is followed by a high front segment (usually /i/ and not /e/). Though the regular reflex of *-a- is -a- in both dialects, when preceded by a palatal glide a vowel may be fronted, as in 'stand' *g-ryap > DLa pu31 rep55. It may be that in this case the palatal glide in evidence is a reflex of the *-s- prefix, as is often the case in Lepcha, and this looks plausible given the lack of any other evidence of a proto-prefix in DL, but this is not regular, as can be seen in the reflexes for *s-la and *s-ram: PTB *s-la > DL su31 la55 'moon'; PTB *s-ram > DL su31 ram53 'otter'. Therefore, there must have been some variation in the proto-form, as the immediate provenience of the DL forms for 'snot' must have been **nyap.

The case for 'love' would be very similar. It seems again that there are two types of evidence for a palatal as opposed to labial-velar glide: the nasal is fronted to a palatal(ized) one, and the final is irregular. The normal reflex for *-ay is -ai in both dialects (see section on regular final reflexes), but in this case the reflex is -i/.

The evidence from other TB languages (including closely-related Jingpo) points to a labial-velar glide in 'love' (Matisoff 1985 p.43), but in the case of Dulong, the proto-form seems to have been something like *ngyai.

A third source for DL ŋ/i seems to be a case of prefix pre-emption: followed by phonetic changes as in 'love'²³ and 'snot' above.

| | |
|------------------------------|--|
| [20 ⁷]fingernail | DLa nut55; DLb nin53; K ləmyin <*lak-myin; B asāri;
N rin <*myin; Digaro msi; Miju msen 'claw'; T senmo;
MBb tshing-nang; Zaiwa loʔ31 sing31; LXA laʔ31 sang35;
Lh ð-ʂ-ǰú.
PTB *m-(t)sin=*m-tsyen (74) |
|------------------------------|--|

The change from *m- to n- seems to have occurred where the proto-form (and not the daughter form, as evidenced by DLb mit55 'blow' < *s-mut) had any type of front segment following the initial. The DLb form for 'tail' is irregular in its vowel also (as it is in Lahu), as can be seen if it is compared with that for 'fire' and 'tongue' (pu31 lai53 < *s-lay), regular reflexes of *-ey and *-ay respectively, though I still feel that this is a cognate form.

Related to the above two types of irregularities is the latter half of the form for 'star', which comes from the TB root for 'moon':

| | |
|------------------|--|
| [189]star(-moon) | DLa gur55 met55; DLb gu31 riet55; PLB *mwat [G&C 35]
PTB and PST *s-ng(y)wat [G&C 35] |
|------------------|--|

Again we seem to have a case of Dulong evidence of palatalization where the reconstructed PTB form has a labial-velar glide. The DLa form seems to have developed from *miwat, but as the vowel is fronted, a proto-palatal glide seems more likely. The DLb form seems to have developed from *s-ngwat, but here we have both the fronting of the vowel and the palatalization of the initial. There is again the possibility of the *-s- prefix having had some effect, or there might have been some regularity to interplay between labial-velar and palatal glides in proto-Dulong. At this point I don't have enough evidence

²³ The Dulong form for 'love' might also be a case of prefix pre-emption, but as the proto form reconstructed is in essence a zero initial, there was nothing to pre-empt.

to say for sure.

The Dulong forms for 'middle' are the only examples I have of a *t- → d- development, though the Trung form given in the STC has a voiceless initial:

| | |
|-------------|--|
| [208]middle | DLa a31 duung55; DLb a31 duung55; L tsyhung 'the inside (of anything)'; Tiddim sung; Bodo sing; Dimasa bising; Trung atung; Rawang ədung 'in, middle'; AC *tjông/tjung (𑜉𑜂𑜆𑜄).
PTB *tuung (390) |
|-------------|--|

CONSONANT CLUSTERS As mentioned earlier, proto-prefixes are usually reflected as syllabic units in Dulong, but there are a few exceptions:

| | |
|---------------|---|
| [192]change | DLa klai55; DLb kle53; N thəɛ 'alter.(ex)change';
PTB *s-lay (293) [G&C 69]; PTB *r-ley ɳ b-rey [G&C 54] 'buy, barter' |
| [197]slippery | DLa tu31 klaf55; DLb du31 laaf55; PTB *g-lwat ɳ *s-lwat (209) |
| [200]four | DLa a31 bli53; DLb bli53; N əbyi (dial. əbɛli);
PTB *b-liy (410) |

I have never heard any of these words spoken, so I must rely on the veracity of the data when a prefix + initial is written as a cluster and not as two syllables. I must assume there is some real phonetic difference. Why there were these two types of development, I don't know, but it is clear that the forms here were the result of prefix-initial fusion. In the case of 'change', the proto-form has an *s- prefix, but the /k-/ initial must have come from a velar prefix, as can be seen in the Jingpo form. (See also the discussion of the final of this form above.)

Fusion also seems to have taken place in 'louse' and possibly 'twist', if the affricate initial of 'twist' was formed by the fusion of the *s- and the initial *y-. The other possibility is that 'twist' is the result of the palatalization of the PTB *k- initial. Benedict (1972:108) changes the *s-r- of 'louse' to the cluster *sr-, and includes a form for 'green' in Nung: məŋg. I have not included this set ('alive:green' (STC #404)) because I feel Dulong pu31 ŋing55 ŋing53 'green' is simply another form of DL ŋiŋg55 'tree', and not a separate root.

| | |
|------------|---|
| [203]louse | DLa ši755; DLb šui755; N ši; PTB *s-rik=*srik [108] |
| [204]twist | DLa tsi755; DLb tshu755; PLB *r-sik ɳ *s-yik [TSR 130]
PTB *kik (484) 'twist.bind' |

The opposite development can be seen in the case of 'uncle', 'pig', 'flower' and 'axe', where a cluster is not preserved, though this is not unique to Dulong. (For a discussion of this see STC pp.23-24):²⁴

| | |
|-------------|--|
| [163]pig | DLa wa755; DLb wa755; PLB *wak [TSR 168]; PTB *pwak [23-24] |
| [164]uncle | DLa a31 wang53; DLb a31 wang53; N awang; PTB *pwang [23] |
| [161]flower | DLa ŋing55 wat55 'flower', ŋing55 wat55 wat55 'bloom';
DLb ŋung55 wat55 wat55 'bloom'; Nungish ŋing-wat
'bud' (Rawang), flower (Trung); PLB *wat; PTB *bwat [24] |
| [162]axe | DLa war53; DLb war53; PTB *r-wa (441)=*r-pwa [24] |

It seems either the initial *p- has been lost from a proto-cluster, or the Dulong forms come from proto forms closer to that of PLB. The parallel development of 'joke/laugh', with a palatal glide, would seem to give evidence to the former:

²⁴ I have serious doubts about Benedict's reconstruction of a *pw cluster, especially as he seems to be doing it on the basis of the Chinese evidence. He seems to claim that the archaic Chinese forms (which do not have the *-w-) developed out of forms that did have the *-w-. No evidence is given, though there may be some. It seems to me that his original explanation, that initial *p- sometimes went to w-, or simply to posit a *p- prefix, would be better, but I'm not really comfortable with any of these explanations, so I have let his analysis stand as is.

[188]jokc.laugh DLb jet55; PTB *rya-t (202)

In the case of 'needle', the STC has *kap in set (52), but in note 82 the reconstruction is changed to *kəp:

[193]needle DLa wap55; DLb wap55; Trung uop; PTB *kap=*kəp (52) [n.82]

This would be the only cognate form from a proto -ə- vowel, so I don't know what the regular reflex is, but it seems that the Dulong forms probably did not develop directly from *kap anyway. If the initial was a stop + w cluster of some type, as in the forms discussed above, then the w- initial would fit the pattern discussed in the preceding section. (This would be consistent with the discussion of this root on pp. 25-26 of the STC, where the initial + glide form /ryam/ in Lepcha is said to be cognate.) Otherwise it would be very difficult to explain how a w- developed out of a *k- in only this one word.

Two other difficult cases in this regard are 'fan/winnow' and 'munch':

[194]fan.winnow DLa raap55; DLb raap55; Nungish (Rawang) rap <*k(h)rap
'winnow, thresh, paddle, row' (cf. Rawang rip 'flying ant' <TB *krep).
PTB *khrap [141] [n.382]

[195]munch DLa ngap55 ('yao3'); DLb rep55 ('ken3');
PLB [*Ngwap ≡ *Ngrap ≡ *Ngyap] ≡ [*C-kwap ≡ *C-krap] (TSR 90)

Benedict has the Dulong forms for 'fan/winnow' descending from *k(h)rap, but I don't know what his evidence is except for the parallel with 'flying ant'. In most cases a *kr- initial is reflected as /xr-/ in Dulong. It may be, though, that the stop could be lost not only before glides, but before any sonorant, but I don't have enough evidence to prove it.

For 'munch' there are several closely related proto-forms and two forms in Dulong. The DLa form seems to have developed from the *ngwap form, but lost the glide and any evidence of it. The DLb form is a bit more complex, as it reflects a loss of the initial consonant and pre-nasalization, and a fronting of the vowel reflecting the palatal glide. The loss of the initial consonant is different from the cases discussed above because the initial is pre-nasalized rather than being a simple stop. There is also the possibility that the DLb form is related to the alternate forms *C-kwap ≡ *C-krap given in the same set, though there is no evidence for the voiced prefix in Dulong, and there is evidence for a palatal glide. If they are related, then this root could be established for PTB as a whole.

A totally different problem is presented by the Dulong forms for 'braid', where it seems there has developed an epenthetic /l/:

[196]braid DLa blaət55; DLb blaı55; PLB *C-pat ≡ *pan1/2 (G+C 37)
PLB *bat ('wind around')

I feel these Dulong forms are definitely cognate with the PLB forms, yet no other language form thought to be cognate has this /l/ (see Matisoff 1985, p.16; STC p.46). No prefix is in evidence except for the fact that Mpi /phe?/ in tone 1 reflects a voiced prefix. If this prefix was an *l-, and was also the provenience to the Dulong forms, then there might have been metathesis to form an acceptable cluster, as happened with the word for 'dream', DL mlaang55 < PTB *r-mang, but it would be stretching things a bit to posit this seriously without more evidence of the prefix.

Aside from other problems with prefixes and clusters, there are four other forms that seem to be cases of prefix pre-emption:

[209]arrow DLa tu31 ma55; DLb tu31 ma55; N thāma; Vayu blo <*bla;
Bahing bla; Newari bala; Magari mya; K pəla; B hmrā;
G bra; Dimasa bala; Tangkhul məla
PTB *b-la ≡ *m-la (449)

[198]chicken DLa kaʔ55; DLb khaʔ55; PTB *k-rak

[206]fingernail DLa nui55; DLb rui55; N rui <*myin; PTB *m-(t)sin=*m-tyen (74)

[210]monkey DLa a31 gəi53; K woi-wc; Jili təwe; Kadu kwe <*k-wc; N əwε;

Moshang vi-sil; Shangge yok-vi; Trung a-koi.

PTB *woy (314)=*(b)woy [n.213]; **k-woy

Benedict adds the *(b)- to the form for 'monkey' because he wants to add Mikir ki-pi and Miri si-be to this set. I don't feel these two forms should be included, so I have set up the proto form with only the *k- animal prefix.

Finals

Referring again to the problem of the variation of medials and the effect it has on the main vowel, I would like to try to explain the abeŋant form for 'to know':

[98]know DLa sɔ55; DLb sɔ55; PTB *syey (182)
Normally, the reflex of *-ey is /-i/, as seen above, but in this form we have instead a back rounded vowel. If the medial in the proto-form was not a palatal glide, as reconstructed, but was a labial-velar glide, then the backing and rounding could be explained. It seems that this variation between medials is an important part of Dulong's historical development.

One unexplainable development is a glottal stop in Dulong where the proto-form is the open syllable *-ay:

*-ay → -eʔ
small, chaff, break/broken, fear

- [21]small(2) DLa ka31 neʔ55; JP ʃa31 ngai31 'bear children': B ngai 'small, little, inferior', ngai cany tong kyê 'since childhood'; Boro mangáy 'small'; LCA nyi55, LXA ngoi31, LHA nge55 'small'.
PTB *ngay [G&C 111]
- [212]chaff DLa ang31 peʔ55; B phwái 'husks, chaff': L phuai 'shavings': Thado wai; Tiddim -vaai; Methei way; JP poi33 'to float through the air'; Lakher pai 'be scattered, disperse; emigrate, migrate': Tangkhul khəngəpuy 'fly in a group (bees), swarm, be scattered everywhere'; Mikir phe-ke; Mpi koʔ2 phu2; Lh vəʔ-phî; LCA oʔ55 phoi31; LXA waʔ31 phu35; LHA wa31 phu55 'chaff' (Lh vəʔ, LCA oʔ55, LXA waʔ31, LHA wa31 'pig'); Zaiwa phu31; possibly also MW pa, TP pa31.
PTB *pwaay (170) [G&C 77]
- [75]break/broken DLa beʔ55; PTB *be ɳ *pe (*bay ɳ *pay) (254)
- [150]fear DLa pu31 reʔ55; DLb pu31 reʔ55;
N phore 'to fear, be afraid'; PTB *b-ray (450)

Without the glottal stop the finals would present no problem. Again we are captive of the veracity of our materials, and can only assume that these forms are correct, especially given the regularity with which it develops from *-ay. It is interesting that it seems to happen only with this final, but I have no way to explain this fact. This is unlike the case of 'younger brother', where we could possibly assume a suffixation has taken place, as in 'speech':

- [205]younger brother DLa ang31 nik55 ra31; DLb ang31 nyi55 nam; PTB *nyey [G&C 146]
- [8]word,speech DLa ka55, kat55; DLb ka55, kat55; N kha; PTB *ka (9)

The opposite case holds for 'shit', where Dulong seems to have lost a final consonant, as *-it should give DL -it:

- [59]shit DLa ni55; DLb ni53; N ni; PTB *(n(y))k (235)

Benedict gives the open syllable Nung, Dimasa and Jingpo forms, but does not comment on them in reconstructing a closed syllable based on the Written Tibetan, Burmese, and Garo forms.

In at least five forms there seems to have been an -a- ɳ -u- or -a- ɳ -i- alternation:

- [149]self DLa rang55; DLb rung55; PTB **rang

| | |
|----------------|---|
| {132}neck | DLb lang55 gi53; N ling; PTB *ling (96) |
| {176}cook,boil | DLa du31 gluu755; PTB *klak Ꞥ *glak (124) |
| {213}face | DLa mar55; DLb mar55; T mur 'gills', mur-gong 'temples', mur-gram 'jaw'; L hmuur 'point, tip, prow'; Thado mu <*mur 'beak'; N mr [mər] 'face, mouthful'; Tangkhul khəmor 'mouth'; possibly MBa ngor55, GMD a31 ngal35.
PTB *muur (366) |
| {29}roll | DLa a31 tal53; DLb tan53; N redul 'roll, wrap, enwrap';
PTB *r-tul (110) |

The same type of -ɬ- Ꞥ -u- alternation occurs in Lepcha (please see Benedict 1972:75, n. 231 for a fuller discussion).

In 'sister' it seems that *-r → -l, but the Meithei forms show the same reflexes. Based on the Dulong, Jingpo, Meithei and Kadu forms, the proto final seems to have been *-l, not *-r.

| | |
|-------------|---|
| {214}sister | DLa mu31 dzyl53; K dzyan; L far-nu; Tangkhul /zār-vā 'sister (man talking); Meithei itsyal-itsyan; Kadu san 'younger sister'.
PTB *dzar (68) |
|-------------|---|

FINAL REMARKS

It may be that the greatest contribution I made in writing this paper was putting together all of this data in one place, but I feel that based on the information presented here, it is clear that Dulong can be a very useful language for doing Tibeto-Burman reconstructive work. This is especially true because Dulong is so conservative in terms of phonological change, and generally preserves distinctions such as that between cluster and prefix-plus-initial groupings. In this paper I have attempted to show what the historical development has been in Dulong, and, based on the knowledge gleaned from that effort, I have supported or revised over 200 of the reconstructions given in the STC, and added a few of my own.

REFERENCES

- Benedict, Paul K. 1972. *SinoTibetan: A Conspectus*. London: Cambridge University Press.
- Benedict, Paul K. ed. 1976. *Rhyming Dictionary of Written Burmese*. *Linguistics of the Tibeto-Burman Area*, 3.1.
- Burling, Robbins. 1981. *Garó Spelling and Garó Phonology*. *Linguistics of the Tibeto-Burman Area*, 6.1.
- Dai Qingxia. (1986). *Dulongyu Muliwang hua de Chang Duan Yuanyin*. (The Long and Short Vowels of Muliwang Dulong). *Zhongyan Minzu Xueyuan Xuebao Yuyan Wenxue Zengkan* 3. Beijing.
- Dai, Qingxia; Cui Zhichao eds. 1985. *Achangyu Jianzhi*. Beijing: Minzu Chubanshe.
- Jin, Peng, ed. 1983. *Zangyu Jianzhi*. Beijing: Minzu Chubanshe.
- Karlgren, Bernard. 1957. *Grammata Serica Recensa*. *Museum of Far Eastern Antiquities, Bulletin #29*. Stockholm: Museum of Far Eastern Antiquities
- Li, Fang Kuei. 1977. *A Handbook of Comparative Tai*. University Press of Hawaii.
- Liu, Lu, ed. 1984. *Jingpozu Yuyan Jianzhi (Jingpo Yu)*. Beijing: Minzu Chubanshe.
- Lu, Shaozun, ed. 1983. *Pumiuyu Jianzhi*. Beijing: Minzu Chubanshe.
- Matisoff, James A. 1986. *Universal Semantics and Allofamic Identification - two Sino-Tibetan case studies - 'straight/flat/full' and 'property/livestock/talent'*. Paper presented to the 19th Int. Conf. on

- Sino-Tibetan Lang. and Ling. Ohio State University, Columbus, Sept. 11-14, 1986.
- Matisoff, James A. 1985. God and the Sino-Tibetan Copula. Paper presented to the XVth Int. Conf. on Sino-Tibetan Lang. and Ling., U. of Washington, Sept. 15-18, 1983. Published in *Journal of Asian and African Studies*, No. 29.
- Matisoff, James A. 1983. Translucent insights: a look at Proto-Sino-Tibetan through Gordon H. Luce's *Comparative Word-list* BSOAS 46 Part 3, 462-76.
- Matisoff, James A. 1978a. Variational Semantics in Tibeto-Burman. *Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics*, Vol. VI, F. K. Lehman, Editor. Philadelphia: ISHI.
- Matisoff, James A. 1978b. Mpi and Lolo-Burmese Microlinguistics. *Monumenta Serindica* No. 4. Tokyo: ISLCAA.
- Matisoff, James A. 1974. The tones of Jinghpaw and Lolo-Burmese: Common origin vs. Independent Development. *Acta Linguistica Hafniensia*, Vol. 15.2:153-212.
- Matisoff, James A. 1972a. The Loloish Tonal Split Revisited. *Center for South and Southeast Asian Studies Research Monograph* No. 7. Berkeley: CSSEAS.
- Matisoff, James A. 1972b. Tangkhul Naga and Comparative Tibeto-Burman. *Tonan Ajia Kenkyu (The Southeast Asian Studies)*, Vol. 10.2:271-283.
- Sagart, Laurent. 1985. A Chinese Cognate for Tibeto-Burman *mliɣ "earth, country". *Cahiers de Linguistique Asie Orientale*, Vol. 14.2:215-216.
- Sun, Hongkai. 1984. Zang-Mianyu Fufuyin Janjiu. Paper circulated at the 17th Int. Conf. on Sino-Tibetan Languages and Linguistics, Eugene, Oregon, 1984. Translated version, with the title *Notes on Tibeto-Burman Consonant Clusters*, published in *LTBA* 9.1:1-21.
- Sun, Hongkai. 1983a. Liu Jiang Liuyu de Minzu Yuyan ji chi Xishu Fenlei. *Minzu Xuebao*, 1983.3.
- Sun, Hongkai. 1983b. Zang-Mianyu Ruogan Yinbian Tanyuan. *Zhongguo Yuyan Xuebao*, 1:269-298.
- Sun, Hongkai. 1982. *Dulongyu Jianzhi*. Beijing: Minzu Chubanshe.
- Sun, Hongkai. 1981. *Qiangyu Jianzhi*. Beijing: Minzu Chubanshe.
- Sun, Hongkai; Lu Shaozun; Zhang Jichuan; Ouyang Jueya. 1980. *Menba, Luoba, Dengren de Yuyan*. Beijing: Chinese Social Science Press.
- Xu, Xijian; Xiao Jiacheng; Yue Xiangkun; Dai Qingxia eds. 1983. *Jingpo Miwa Ga Ginsi Chyum (Jingpo-Chinese Dictionary)*. Kun Ming: Yunnan Nationality Press.
- Xu, Xijian; Xu Guizhen eds. 1984. *Jingpozu Yuyan Jianzhi (Zaiwa Yu)*. Beijing: Minzu Chubanshe.

APPENDIX A: Symbols used in this paper

Languages and Sources:

| | |
|-------|--|
| AC | = Ancient Chinese/Middle Chinese, from Karlgren 1957. |
| B | = Written Burmese, from Benedict 1972 or 1976. |
| DLa | = Dulonghe Dulong, from Sun 1982. |
| DLb | = Nujiang Dulong, from Sun 1982. |
| DRD | = Darang Deng, from Sun et al. 1980. |
| G | = Garo, from Benedict 1972. |
| GMD | = Geman Deng, from Sun et al. 1980. |
| JP | = Enkun Jingpo, from Liu 1984 or Xu et al. 1983. |
| K | = Kachin (Jingpo) from Benedict 1972. |
| L | = Lushei, from Benedict 1972. |
| LCA | = Longchuan Achang, from Dai and Cui 1985. |
| LXA | = Luxi Achang, from Dai and Cui 1985. |
| LHA | = Lianghe Achang, from Dai and Cui 1985. |
| MBa | = Cuona Menba, from Sun et al. 1980. |
| MBb | = Motuo Menba, from Sun et al. 1980. |
| MC | = Middle Chinese, from Karlgren 1957. |
| MT | = Modern Tibetan, from Jin 1983. |
| MW | = Mawo Qiang, from Sun 1981. |
| N | = Nung, from Benedict 1972. |
| PLB | = Proto-Lolo (Yi)-Burmese, from Matisoff (all) or Benedict 1972. |
| PMA | = Qinghua Pumi, from Lu 1983. |
| PMB | = Taoba Pumi, from Lu 1983. |
| PTB | = Proto-Tibeto-Burman, from Matisoff (all) or Benedict 1972. |
| T | = Written Tibetan, from Benedict 1972 or (rarely) Jin 1983. |
| TP | = Taoping Qiang, from Sun 1981. |
| Zaiwa | = Zaiwa, from Xu et al. 1984. |

Key to symbols used in this paper:

| | |
|------------|--------------------------------|
| ə | = schwa |
| û | = mid-back unrounded vowel |
| ε | = epsilon |
| α | = upsidedown a |
| ω | = upsidedown m |
| ɔ | = open o |
| ɿ | = apical vowel |
| RR | = upsidedown R |
| ʂ | = retroflex s |
| ʐ | = retroflex z |
| ɳ | = retroflex n |
| ʃ | = palato-alveolar fric. |
| ʒ | = voiced palato-alveolar fric. |
| ʃ̥ | = alveo-palatal fric. |
| ʒ̥ | = voiced alveo-palatal fric. |
| ɲ | = palatal n |
| X | = voiceless uvular fric. |
| γ | = gamma |
| ŋ | = velar nasal |
| h(segment) | = voiceless segment |

ʔ = glottal stop
 H = voiced h
 F = upsidedown f

APPENDIX B: Comparison of the two Dulong Dialects

Below I will simply list the correspondences.²⁵ As they are not of great importance to this paper, I will not give examples for each. These correspondences are quite regular, and several examples for each are given in Sun (1982).

| Nujiang | Dulonghe |
|-----------|------------------|
| aspirated | non-aspirated |
| tʃ | ʃ |
| dʒ, g, j | F (upsidedown f) |
| ʃ | c cedilla |
| ɳ | ɳ |
| z | dz |
| z | b |
| ʒ | dʒ |
| retroflex | non-retroflex |

²⁵ The correspondences are given in with the Nujiang form first, because DLB aspirated always corresponds with DL's non-aspirated, but not the other way around.