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An Extrusional Approach to *p-/w- Variation in Sino-Tibetan

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There are a surprisingly large number of Tibeto-Burman [TB] and Sino-Tibetan [ST] roots that show interchange between a labial stop and the labial semivowel /w/. These are not regular correspondences, where a given language consistently has a stop, while another consistently has a **w**. Neither can the distribution of stop vs. semivowel reflexes be correlated very neatly with particular subgroups of TB. Certain subgroups, notably Qiangic and Kamarupan, are split down the middle, with stop and semivowel reflexes equally common and distributed randomly. Naxi, genetically quite close to Loloish, usually has stops, while Loloish itself favors semivowels. Some languages (e.g. Lepcha) have doublet formations, with both stop and semivowel allofams descending from the same etymon. This phenomenon has been one of the most vexatious in TB comparison, and it is clear that Benedict was never satisfied with any of the many 'explanations', often mutually contradictory, that are offered in the text and notes of STC. In this paper I try to sharpen the theoretical issues involved in choosing one line of explanation over another, opting eventually for an 'extrusional' analysis.

Key words: extrusional, Sino-Tibetan, labial stop, labial semivowel

1. Introduction

There are a surprisingly large number of Tibeto-Burman [TB] and Sino-Tibetan [ST] roots that show interchange between a labial stop and the labial semivowel /w/. These are not regular correspondences, where a given language consistently has a stop, while another consistently has a **w**. Neither can the distribution of stop vs. semivowel reflexes be correlated very neatly with particular subgroups of TB. While it is true in a general way, as suggested in Benedict 1972:23 (henceforth 'STC'), that 'the initial stop of these roots tends to be maintained in the northern languages and in Mikir, while replacement by **w-** is common elsewhere' -- e.g. Himalayish[1] often has stops in these

[1] We must resolutely reject any 19th century-type explanation in terms of geography, i.e. that mountain-dwelling people, with their superior lung capacity, had no difficulty in producing aspirated stops, while the softer inhabitants of the plains preferred semivowels.

words, while Lolo-Burmese[2], Karenic, and Jingpho usually have semivowels -- these are by no means ironclad rules, and certain subgroups, notably Qiangic and Kamarupan, are split down the middle, with stop and semivowel reflexes equally common and distributed randomly. Naxi, genetically quite close to Loloish, usually has stops, while Loloish itself favors semivowels. Some languages (e.g. Lepcha) have doublet formations, with both stop and semivowel allofams descending from the same etymon.

This phenomenon has been one of the most vexatious in TB comparison, and it is clear that Benedict was never satisfied with any of the many 'explanations', often mutually contradictory, that are offered in the text and notes of STC: (a) At first he was inclined to ascribe the variation to now-vanished prefixes: 'Here we must suppose that prefixed elements, present or discarded, have exerted an influence on the initial' (p.23). Thus, The Karen data here might be used as an argument for recognizing doublet roots for TB, e.g. ***r-wat** and ***pat** 'leech' (n.373, p.139;[3] these are what I would call 'proto-allofams'). (b) Sometimes he tried the gambit of setting up 'doublet roots' where one of the variants was a true consonant cluster of stop plus semivowel: e.g. BAMBOO ***g-pa** = ***g-pwa**. (c) When all else failed, he was inclined to have recourse to his favorite *deus ex machina*, accounting for the irregularities in terms of 'borrowings from Austro-Tai' (e.g. n.78, p.24). (d) Finally he seems to have hit upon what I consider to be the most productive approach to an explanation, though he did not pursue it in any detail: 'The unusually large number of these labial stop + **w** initial clusters in ST suggests a relatively late origin from a simple labial stop...' (ibid.). This viewpoint seems to lie behind the strange-looking revised reconstructions to be found in Appendix I of STC (esp. pp.205-6), where we find 'equivalent reconstructions' of the form ***pa** = **pwa**, ***pak** = **pwak**, etc.[4]

In this paper I will try to sharpen the theoretical issues involved in choosing one line of explanation over another, opting eventually for an 'extrusional' analysis that provides a plausible phonetic underpinning for alternative (d). For now let us simply list in formulaic fashion all conceivable ways of looking at the problem (some not envisioned by Benedict). Taking the syllable *pak* as a hypothetical representative root, the perceived variation between reflexes of the types PAK and WAK may be explained by any of the following scenarios:

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[2] Thus, e.g., many Lahu words with initial **v-** are reflexes of etyma with labial stop involvement: BAMBOO **vâ**, FROST/HAIL **vâ**, HIDE **và? ≍ fá**, PIG **và?**, SNAKE **vɨ̀**, etc.

[3] These reconstructions were later contradicted by new notes (nn.78, 374), where LEECH was revised to ***r-pat**, as opposed to BAMBOO, with a 'true cluster': ***pwa**.

[4] These seem identical to a notation using parentheses, i.e. ***p(w)a**, ***p(w)ak**, etc.

- *allofamic proto-variation* ***pak ≍ *wak**
- *sporadic lenition* ***/pak/** > **pak** ∼ **wak**
- *unit phoneme simplification* ***/p^{w}ak/** > **pak** ∼ **wak**
- *cluster simplification* ***/pwak/** > **pak** ∼ **wak**
- *prefixal prototype* ***/p(ə)-wak/** > **pak** (by preemption) ∼ **wak** (by prefix loss)
- *metathesis of prefix and initial* ***/C-pak/** > ***pCak** > ***pwak** > **pak** ∼ **wak**
  /where C- is perhaps a resonant/approximant /r l w y/; this seems to be close to Benedict's original view/
- *extrusion of* ***-w-*** *from labial stop* ***pak** > **[p^{w}ak]**, followed by phonologization, prefixization,[5] and prefix loss:

***/pak/**	**[p^{w}ak]**	>	**/pwak/**	>	**pəwak**	>	**wak**
	subphonemic extrusion		phonologization		prefixization		prefix loss

The body of this paper (Sections 2 and 3) will present the evidence for **p/w** variation in over 30 cognate sets,[6] first where the nuclear vowel is ***-a-** (§2; sets 1-22), then where it is not (§3; sets 23-31). Finally (§4), I will discuss the various alternative analyses in more detail, attempting to demonstrate why the 'extrusional' approach is by far the most satisfying.

2. *p/w sets where the nuclear vowel is *-a-

(1) AXE ***r-p^{w}a** or **P-p^{w}a** where **P -** = /r- m- k- s-/

STC #441; pp.24, 109, 133, 174, 187. Reconstructed as 'PTB ***r-wa** = ***r-pwa'**. (The original reconstruction was ***r-wa**). See also ZMYYC #408

With unprefixed labial stop

Kamarupan Sulong **ba^{53}**; Darang Deng **pɑ^{35}**; Lhoba (Idu) e^{55} **pɑ^{35}**

Several putative cognates have -i vocalism (cf. Ergong **lvi**, Pumi **spy**, etc., below):

Qiangic Guiqiong **pi^{55}** zi^{55}; Shixing **bi^{55}** mi^{33}

Naxi Naxi Yongning (Moso) **bi^{31}**mi^{13}

[5] For an excellent example of this phenomenon, cf. the dropping of the velar stop from the initial of DOG, below 4.4.3.B(2).

[6] It should be emphasized that most of these examples were already noted in STC; it is merely Benedict's analysis of this unquestioned data that is at issue here.

Chinese

'axe'	鈇	GSR 101e	***pi̯wo/ pi̯u^{A}**	WHB[7]	***p(r)ja > pju**	Mand. **fū**
	斧	GSR 102h,i	***pi̯wo/ pi̯u^{B}**	WHB	***p(r)jaʔ > pjux**	Mand. **fǔ**

Loans from Chinese:

Bai (Dali, Jianchuan, Bijiang) **pɯ^{33}** [loan or real cognate?]

Sino-Vietnamese **bua**

STC also mentions Proto-Indonesian ***rimbat'**, without comment (n.78, p.24). For more megalospeculations, including a putative pre-TB borrowing from PAT ***gwal/qwal** of the form ***qrwa/l**, see ATLC, pp.110, 223. Proto-Tai ***buo** and ***fu** are 'perhaps backloans from Chinese'; see Haudricourt 1960 (*Principes*, p.226). Not in Li Fang Kuei HCT.

With prefixed labial stop

(a) Liquid prefix

Milang **ra-pu** (no doubt [rəpu]; this language is badly recorded);
Gyarung ʂa-**rpye** (notice the secondary palatalization)

STC n.78, p.24: we can now reconstruct TB ***r-pwa** rather than ***r-wa** for this root on the basis (of this rGyalrong form) [from Chang Kun 1968]

rGyalrong (Zhuokeji/Suomo) **ʃə rpa** (ZMYYC #778)

(b) Sibilant prefix

Pumi Jinghua **spy^{55}**; Pumi Taoba **zə^{55} pʉ^{55}**

(c) Nasal prefix

Naxi Lijiang lɑ^{31} **mbe^{33}**

With labiodental fricative

PTani ***faːʔ** (J. Sun 1993:100)

With unprefixed labial semivowel

Lolo-Burmese Hpun (Northern) khàv **wàʔ** (the final glottalization is probably subphonemic; see Henderson/Luce 1986); Achang **waʔ^{55}** tsuŋ^{51} (how to explain the final glottal stop? ZMYYC #408 has

[7] Reconstructions marked 'WHB' are according to William H. Baxter (1992). Since that time Baxter has revised his system somewhat: most importantly his former OC medial ***-j-** has now been reinterpreted as a short vowel, so that all reconstructions without ***-j-** are now deemed to have a long vowel. Baxter puts his OC medial ***-r-** in parentheses in environments where the Middle Chinese reflexes of OC ***-j-** and ***-rj-** have merged, and there is no independent *xiéshēng* evidence for the ***-r-**. My thanks to Zev Handel for providing me with Baxter's reconstructions for the etyma presented in this paper. (Where Baxter 1992 does not explicitly reconstruct an etymon, Handel has deduced it according to the Baxter system.)

u^{31}tɕɔŋ^{31}); Zaiwa **vě**^{21}tsuŋ^{21}; Langsu (Maru) **və̆**^{55}tsauŋ^{31}; Nusu **vɑ**^{53}; Yi Xide **vi**^{33}mo^{21}

Kamarupan Chang **wo**; Geman Deng ɑ^{31}**wăi**^{53}

Nungish Anong **vɑ**^{55}; Dulong **wɑ̆**^{ɪ} ^{53} (with secondary rhotacism)

Qiangic Muya tshi^{53} **vɯ**^{53}; Ersu **vu**^{55}tshuɑ^{55}

With prefixed labial semivowel

(a) Liquid prefix

Qiangic Ergong **lvi** /other exs. of *-a > Ergong -i?/

Bodo-Garo Dimasa **roa**; Garo **rua**; Kokborok **rua**

Himalayish Tshangla/Motuo Menba beng-**ra** (ZMYYC has **biŋra**)

(b) Nasal prefix

Jingpho **ǹwā** ～ **nǐŋwā**

These forms can also be referred back to the PTB ***r-** prefix, which frequently becomes a syllabic nasal in Jingpho nouns (STC, p.109); the form with **nǐŋ-** illustrates the Jingpho propensity for secondary syllabification of its prefixes (‘dimidiation’).

(c) Velar prefix

Karenic Pwo and Sgaw **kwa**

STC, p.133: ‘discordant with TB’: but why more ‘discordant’ than the other languages with non-liquid prefixes?

(d) Sibilant prefix

Karenic Bwe cu í-θ**a** (perhaps < *s-wa)

Unrelated roots: [STC pp.21-22]

s-da WT **sta-**(g)ri (also **ste-**po) ‘axe’; PLoloish ***da**^{1} > Lahu á-**tà** ‘knife’, Akha **dá**

Loloish reflects proto-voicing; the WT initial apparently devoiced because of the **s-** prefix. Several Qiangic forms are probably loans < Tibetan: Qiang (Taoping) **χta**^{31} zi̱^{55}, (Mianchi) **tè** zì̱, (Longxi) **tà** **ɪ́**. Qiang Mawo **staːɪ** shows typical monosyllabization of the compound ***sta-(g)ri**.

g-rəy WT **gri** ‘knife’ (≍ sta-**ri**, sta-**re** ‘axe’), Jg. mə**gri** ‘brass, copper, tin’, WB **krê** ‘copper’.

To the forms in STC #39, add: Lahu **kɨ̂** ‘copper’; Khoirao **andri** ‘knife’; Lushai **hrei**; Tiddim **hei**; Gallong e**gi**; Pattani kər**zi**～məku**zi̱**; Qiang (Taoping) χta^{31} zi̱^{55}, (Mianchi) tè **zì̱**, (Longxi) tà **ɪ́**

gyan I have just established this root for ST: Lahu á-**cê**, cé-**cê** ‘traditional pick-axe’ < PLB ***gyan**^{2}; this seems to go perfectly with 斤, 釿 OC ***kɨə̯n**. [GSR 443a-d] /[WHB 59] OC ***kjɨn** > MC k**jɨn** > Mand. **jīn**. This graph is the signific in 斧

GSR 102h-i ***pi̯wo***. This word also appears in Tai: PTai ***xwaan***, Proto-Kam-Sui ***kwan*** (HCT pp.240-1); in Northern Tai dialects the initial velar is dropped (e.g. Po-ai **vaan**). WB **pu'-chin** looks like a double loan, with the first syllable from ***p^{w}a*** (via Chinese?) and the 2nd syllable from Chinese ***ki̯ən***. (The WB tone of the second syllable [< *1] does not agree with Lahu **cê** [< *2]. Besides PLB ***-in*** > Lh. **-ɪ**.) Since WB preserves PTB ***-wa*** as such, and since LB drops the stop in these ***p^{w}*** words, the first syllable has got to be a loan into WB.

(2) BAMBOO/CANE ***p^{w}a***

STC vacillates in its reconstructions of this etymon. In #44 (pp.23-4), it is set up as PTB ***r-wa*** (but this is not listed in the Index p.209). This is revised to '***g-pa*** = ***g-pwa'*** in the Index on p.205. See pp.114, 115, 138, 139, 151, 188. See also ZMYYC #183, and DL, p.1319.

With unprefixed labial stop

Qiangic Qiang Mianchi **pù**; Qiang Longxi **pò** tí

Lolo-Burmese Hani Caiyuan (Biyue) ɔ^{31}**pu^{55}**; Hani Dazhai xa^{31} **bo^{55}**; Hani Shuikui (Haoni) xɔ^{31}**pu^{55}**

Chinese 'bamboo' 芭[8] [GSR 39c] OC ***på*** WHB ***pra*** > ***pæ*** > ***bā***

笆[9] not in GSR 39 ***pra*** > ***pæ*** > ***bā***

With prefixed labial stop

(a) With sibilant prefix Written Tibetan **spa～sba** 'cane'; Qiang Taoping **χpu^{55}**; Qiang Mawo **ʂpu**

(b) With velar prefix Mikir **kepho**

With w- or v- (unprefixed)

Lolo-Burmese PLB ***wa^{2}*** WB **wâ**; Achang **o^{31}**; Zaiwa **va^{21}**; Langsu **vɔ^{35}**; Lahu **vâ**; Yi Nanjian **va^{21}**dzɳ^{55}; Nusu (Bijiang) **vɑ^{55}**; Jinuo **vɔ^{33}**

Kamarupan Garo **wa**

Karenic Pwo, Sgaw **wa**

STC p.138 call the initials in these Karen forms 'secondary', as opposed to the w's in TOOTH and BLOOD. PKB proposes ***hwa*** for the Proto-Karen reconstruction, because the word occurs in the HIGH tonal series (see the references to

[8] GSR glosses 'a kind of fragrant herb; flower'.

[9] Guangyun glosses 'type of bamboo with thorns'.

Haudricourt's Proto-Karen reconstructions in notes 347, 369, 370). But by analogy with Loloish developments (see JAM 1972 [TSR] Class DD, pp.68-70), any hypothetical voiceless prefixal element would do as well to explain the tone (***k-wa**, ***s-wa**, ***p-wa**, ***t-wa**...)

With prefixed semivowel

(a) Velar prefix Jingpho **kəwá～wá**
(b) Liquid prefix Lushai **rua** (< ***r-wa**)
(c) Sibilant prefix Motuo Menba **so** (? < ***s-wa**)
(d) Dental prefix Nung **thəwa** (STC, p.115)
(e) Nasal

An interesting group of Qiangic forms seem to point to a doubly prefixed prototype ***m-r-(w)a**, with the ***-r-** often fricativizing to **ʐ**:
Pumi Jinghua **mʐɐ^{55}**; Ergong **wʐɯ**; Muya **ʐɐ^{35}** mbɯ^{35} tɕø^{53}; rGyalrong Suomo **ȵjo**

A number of other Qiangic and Loloish forms begin with **m-**, and could well be reflexes of a singly prefixed prototype ***m-wa**, where the prefix has preempted the root-initial, ***m-[w]a**:

Qiangic Pumi Taoba **mɐ^{53}**; Queyu **mɐ^{53}** Namuyi **ma^{35}**; Shixing **miɛ^{55}**; Guiqiong **me^{53}**
Loloish Naxi **mɯ^{55}**; Yi Xide **ma^{33}**; Yi Mojiang **mo^{55}**; Mile (Ahi) **mo^{33}** to^{33}; Lisu **mɑ^{44}**dɑ^{33}

A similar form is found in the so far unclassified Tujia language:
Tujia **mu^{55}**

Abor-Miri has a bunch of puzzling forms with liquids, that are of doubtful relationship to our etymon. Could there have been a development ***p^{w}a** > **b^{ɹ}ɑ**?

Geman Deng măi^{55} **blɑ^{53}** (1st. syll. ? < Tai; cf. Siamese **máaj** 'tree, wood'); Lhoba (Idu) ɑ^{31} **b^{ɹ}ɑ^{35}** liɑ^{55}; Lhoba (Bokar Adi) **ja:**

The second syllable of the Darang Deng form **tɑ^{31} liɑ^{53}** is cognate to the last syllable of the Idu. **Check Jackson's dissertation; does he reconstruct this root for Proto-Tani?**

(3) BELLY[4] ***p^{w}am**

Along with several other roots in this semantic area (to be presented en bloc below, #'s 23a-d), JAM 1978 (VSTB: pp.126-7) sets up a root ***pam ≍ *wam**:

With stop initial Jingpho pù-**pham** 'stomach', Tangkhul Naga ā-phur-ā-**pham** 'belly'

With non-stop initial

Lolo-Burmese WB **wâm**; Lahu **ɡ̈ô**-pè (see note 54 for the initial); Zaiwa **vàm**; Maru **wɛn** (all 'belly/stomach') < PLB ***wam**[2]

(Kamarupan) Mikir **vam '**waist, loin'; Lushai **von**-a-śor 'have diarrhea'; Lakher a-**vy**, pa-**vy** 'stomach' (**-y** is the regular Lakher reflex of ***-am** [VSTB n.170]); Tamlu **hwum '**belly'

(4) BIRD ***b^{w}a**

STC sets up two separate roots:

(1) ***bya** ≷ ***bra** (#177): This root shows semantic connections with BEE:
WT **bya** 'bird, fowl'; PLB ***bya**[2] 'bee'

(2) '***wa** = **(b)wa'** (#99): This etymon Shows semantic connections with FEATHER, and is the one that shows stop ≷ semivowel interplay, to the point where Benedict himself throws up his hands: 'Roots reconstructed in initial ***w-** on the basis of evidence from southern TB languages alone...must be regarded as uncertain entities, especially when (as in #99) possible cognates with initial labial stop have been uncovered.'[10]

(a) Reflecting a stop initial

Himalayish
Bahing **ba**
(STC p.35: 'perhaps a borrowing from WT **bya**; puts us in doubt on the matter')
Lepcha **fo**
(STC p.35: Says this Lepcha form is 'not conclusive'; but then adds: 'Lepcha has **f-** for **ph-** in a number of roots, as well as **f-∼ph-** alternation'[11])

(b) Reflecting a semivowel initial [12]

Kamarupan Lushai sa-**va**; Mikir **vo**; Ntenyi a**wa** 'bird', ao**wa** 'id' (< ***awu-(a)wa**), ao**wa**-anu 'feather' (lit. 'bird-mother'; Ao Mongsen to**wa** 'feather')

Himalayish Chepang **wa**

Loloish Nyi **wa**

[10] It is certainly possible that these two separate STC roots are related to each other: ***by/ra ?≷? *(b)wa**. Come to think of it, maybe the root for FLY (v.) ***byam** is also allofamically related! Cf. rGyalrong (Zhuokeji) **kə-bjam** 'bird', WB **pyam**, Jg. **pyēn**, Lahu **pò** 'fly' (ZMYYC #142). (Reconstructed incorrectly as ***pyam** in STC.)

[11] E.g. Lp. **far∼afar** 'price' ≷ **par** 'buy' (WT **phar** 'interest', Kanauri be-**par** 'trade', Gyarong **mphar** 'be for sale, Garo **phal**) (STC n.113).

[12] For more discussion see JAM 1985 ('Arm, hand, and wing...', pp.444-5.)

Possible Chinese comparandum:

羽 'wing; feather' [GSR 98a-b] ***g̱wo***; PKB (p.c.) reconstructs as ***g-wa***.
[WHB:C805.10] ***w(r)jaʔ*** > MC **hjuX** > Mand. **yǔ**

We must also reconstruct a separate (though probably ultimately related) root ***p^{w}u*** EGG/BIRD [see (23) below].

(5) CHAFF PTB ***p^{w}aːy***

STC #170 sets up this root as ***pwaːy***, with no alternant like ***paːy*** or ***waːy*** suggested anywhere (STC pp.46, 140, 149, 150, 152.) Yet this root is no different from any of the others in terms of stop ≍ semivowel interplay. There are differences in terms of the distribution of the variants, however. In this case, Lolo-Burmese preserves the stop; the reflexes in **v-** or **w-** seem confined to Kamarupan (though many Kamarupan languages also preserve the stop). If the Jingpho forms with labial stops meaning 'be blown; scattered' are cognate (see below), this is also different from the usual **w-** reflex that Jingpho shows in the other ***p^{w}-*** etyma. See also ZMYYC #406; GEM p.130; GSTC #77.

(A) With labial stop plus -w- or -f-

Lolo-Burmese PLB ***pway^{2}*** (many daughter LB languages lack an overt -w-, but we include them here) > WB **phwâi**; Lahu cà-**phɨ̂** 'chaff from paddy'; và^{ʔ}-**phɨ̂** 'powdery chaff fed to pigs';[13] Achang o^{ʔ55}**phoi^{33}**tɕe^{ʔ31} (1st syll. is 'pig'; cf. Lahu **và^{ʔ}**-phɨ̂); Zaiwa **phui^{21}**tʃa̱p; Langsu (Maru) **phɔi^{35}**seŋ^{31}; Nusu (Bijiang) **phe^{53}**ri^{53}ɑ^{53}; Mpi ko^{ʔ2} **phɯ^{2}**; Yi Nanjian **phe^{21}**; Yi Nanhua **phɛ^{21}**se̱^{33}; Lisu **phɯ^{31}**sɛ^{35}; Hani Shuikui **phɯ^{31}**xa^{33}; Jinuo pha^{55}khɯ^{31}phɔ^{33}kha^{31} (is it the 1st or the 3rd syll. which is cognate?)

Kamarupan Lushai **phuai**; Pankhu **phəwai** (note the overtly transcribed sesquisyllabicity); Sopvoma (Mao) u-**pfai**

Tujia **pho^{55}**tha^{55}

(B) With plain labial stop

Kamarupan Puiron **bai**; Ntenyi **phai**; Maram a-**pei**; Mikir **phe**-ke; Zeme ke**pai** (with velar prefix); Liangmai cha-**phai**; Khoirao **mphi** (with nasal prefix -- **CHECK**); Lakher **pai** 'be scattered,

[13] The vowel correspondence is irregular; PLB ***-ay*** > Lahu **-e**; apparently ***-way*** > Lh. **-i**, as in TOOTH (PLB ***jway^{1}***) > Lahu **cì**. See GSTC #77.

	disperse; emigrate, migrate'; Tangkhul khəŋə**puy** 'fly in a group (bees), swarm; be scattered everywhere'
Jingpho	Jingpho **pōi** 'be blown, airborne, as fine chaff; be carried away by the wind' (cited in GSTC #77), šə**pōi**∼šə**pói** 'let scatter; cause to float in air' [Maran] (with causative prefix); for the semantics cf. the Lakher and Tangkhul forms, above.
Qiangic	Muya **mbɯ**^{53} (with nasal prefix); Qiang Mawo **pa**; Namuyi **phɐ̲**^{33} da^{55} bo^{33}
Karenic	Pwo, Sgaw **phe**
(C) With f-, w-, or v-	
Kamarupan	Lotha o-**fu**; Tiddim **vaːi**;[14] Thado **wai**; Maring **wai**; Meithei **way**; Konyak **wek**;[15] Chang **ek**
Qiangic	Guiqiong **fu**^{55}tsɻ^{33}
With prefix:	Hallam (Falam) sā-**vāi** (LSI iii:195); Rangkhol śə**bai**∼śə**vai** (note the stop ≍ fricative alternation)

(6) FIRE/BURN/SHINE/BRIGHT/LIGHT

This 'spectacular' word-family was first presented in JAM 1997 ('Laryngeals'). First of all, I am claiming that three sets reconstructed separately in STC[16] (#220; #221; pp.172, 174) are all really allofamically related:

STC #220: ***bar/*par**, revised to ***bwâr ≍ *pwâr**

Nung **hwar** 'burn, kindle'; Jingpho **ʔwàn**, Moshang **var**, Garo **waʔl** 'fire'; Chairel **phal** (< ***par**), id., and Written Tibetan **ḅar-ba** 'burn, catch fire, **sbor-ba** 'light, kindle', Kanauri **bar** 'burn', Miri **par** 'light (fire)'

STC #221: ***hwa-t**

Bahing **hwa** 'light', Lepcha **om** 'shine', **om-bo** 'illuminating', **a-om** 'light', brightness; WT **o̱d** 'light, shine, brightness', **nyi-o̊d** 'sunlight; Written Burmese **ne-at** 'sunlight', Thado **wat** 'shine'

For similar alternation between **pw-** and **hw-**, cf. WB **phwak ≍ hwak** 'hide'.

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[14] Chin reflexes like this motivate STC's reconstruction of a long vowel.

[15] French 1983 sets up Proto-Northern Naga ***C-weːk** as the ancestor of the Konyak and Chang forms, postulating metanalysis of a compound like the Mikir form, above.

[16] For a similar effort, see my paper, 'Universal semantics and allofamic identification -- two Sino-Tibetan case-studies: STRAIGHT/FLAT/FULL and PROPERTY/LIVESTOCK/TALENT' (1988), where I grouped into the same word family two other separate STC roots, both reconstructed ***dyam** (#227 'straight' and #226 'full, fill').

STC pp.172, 174: PTB ***pwaːr** ‘white’
Lushai **vaːr** ‘white’; Proto-Karen ***ʔ(b)wa** ‘white’

To these we may then add a number of new supporting forms with laryngeal initials which point to slightly different but related prototypes:

***hwa:**	Apatani **hú-tò** ‘light (n.)’; Chepang **haʔ**-ʔo ‘shine’; Kulung **ha**-me ‘shine’; Ntenyi **wʊ**-ghʊ
***hya:**	Sangtam a-**vi**-sa ‘bright light’
***hwat**:	Damu (AMD) **wat** ‘glimmer’; Limbu **o:tt-**, **o:ts-** ‘burn, give light, shine’; Manang **wE**[1]
***hyat**:	Dumi **hɪt**-nɪ ‘burn’, Bahing **høt-** ‘id.’
***hant:**	Limbu **ha:nd-** ‘light (lamp, cigarette)’
***yat**:	Chairel **id** ‘burn, catch fire’
***(h)wan**:	Tangkhul **han** ‘shine’; Lotha and Mao **won** ‘id.’; Milang **a-un** ‘bright, light’; Damu **wun**-pit-dung; Chang **wan** ‘fire’, Yacham-Tengsa **wa**-si ‘id.’
***hwam:**	Lepcha **om**, etc. [STC]; Chepang **hyumʔ-sa** ‘burn, scorch’
***(h)(w)aŋ**:	WB **wâŋ** ‘yellow’; Tagin **ong**-ka-nam ‘shine’, **hung** ‘id.’; Konyak **wang**-ngai ‘bright light’
***yan:**	Bokar Adi **a-jen**, Bokar **a-en** ‘shine’
***(h)(w)al:**	Thulung **hal ≍ ul** ‘heat slightly’, **wal** ‘boil lightly’; Lushai **hâl** ‘light, ignite’; Tiddim **haːl** ‘burn’; Tangsa (Yogli) **wal** ‘fire’; Dimasa **wai**
***(h)(w)ar:**	Tangkhul **hor** ‘shine’; Maring **war** ‘bright light’; Limbu **haqr-** burn, alight’; Limbu **oʔr**-u, **oʔ**-ma ‘fire’; Mikir **ar**-nu ‘roast, bake, grill’; Thakali **ur** ‘yellow’; Gurung (Ghachok) **ur**-gyaː ‘id.’; Chepang **yar**-o ‘yellow’; Magari **or**-khe ‘id.’; Hayu **ho** ‘id.’ (Lushai **vaːr** ‘white’ belongs here)
***yar:**	Ao (Chungli) **yar** ‘shine’; Khaling **ehr**-nya; Yimchungru **yin** ‘kindle’

We can summarize these relationships by constructing a ‘pan-allofamic formula’ (PAF), as follows:

h
w **N** **t**
a
y **r**
p/b
l

On the Chinese side, several promising comparanda are available.
(a) STC (pp.172, 174) already identified PTB ***pwaːr** ‘white’ with:

皤[17] [GSR 195r] ***b'wâr ≍ *pwâr** [WHB] ***paj** > **pa** > **bō ≍ *baj** > **ba** > **pó**

(b) STC (p.172) identifies set #220 with two Chinese words:

火 [GSR 353a-c] ***χwâr** 'burn; fire' [WHB 1067, 1216, C764.27] ***hmɨjʔ** >**xwax** > **huǒ**

燔 [GSR 195i] ***b'i̯wăn** 'burn; roast' [WHB C756.19] ***bjan** > **bjon** > **fán**

Another good candidate for relationship (the two characters are graphic variants of each other):

煇 'flame; bright(ness)' GSR 458k] **χi̯wər ≍ g'i̯wən**

輝 'bright' [GSR 458-l] **χi̯wər**

[WHB:C764.11] OC ***hwjɨj** > MC **xjwɨj** > Mand. **huī**

For the semantics, cf. PIE ***bhel-** 'shine; flash; burn; shining white and various bright colors' > Eng. *black, blank, blanch, bleak, bald, bleach, blue, blaze, blind, blend, blond, blink,* etc.[18]

Finally, I would like to include the Chinese word for 'moon', one of the 'bright beings of the night', in this word-family:[19]

月 'moon' [GSR 306a-f] **ngi̯wăt**

[WHB 970] OC ***ng^{w}jat** (or ***Nwjat** ?) > MC **ngjwot** > Mand. **yuè**

(7) FLOWER ***b^{w}at**

This root is set up as ***bwat** in STC (p.24, n.78), and is strikingly confirmed by the Sulong form (below).

With stop initial

Kamarupan	Sulong (ZMYYC) mə^{33}**buat^{53}**
Qiangic	rGyalrong (Chang 1968) ta**pat**; Shixing **bu^{33}bu^{33}**
Greater Lolo-Burmese	Naxi Lijiang **bɑ^{31}**; Naxi Yongning (Moso) **ba^{13}**; Jinuo a^{33}**pɔ^{33}**

With semivowel initial

Nungish	Trung šiŋ^{54}**uat^{44}** (first syllable 'tree'); Anong ɕɯŋ^{55}**vɛn^{55}** (with homorganic nasal final)
Proto-Lolo-Burmese	***sə-wat^{H}**

[17] The Guangyun glosses the meaning of this character as 'white-haired appearance of the elderly'. It has two readings, one the same as 'grandmother' and the other the same as 'wave'.

[18] What have I done! Now Greenberg has more ammunition for his Proto-World speculations.

[19] Cf. Matisoff 1980. Admitting this word into the family would require adding **ŋ-** to the initial consonant slot of the PAF. Perhaps it is a 'rhinoglottophiliac' outgrowth of the original PST initial h-. See Matisoff 1975.

WB **wat**-cham ‘stamen, anther, and pollen of flower’; Lahu **šɨ-vêʔ**, ɔ̀-**vêʔ**

Many similar Loloish forms are cited in TSR #185 and in ZMYYC #228. The ***sə-** prefix is a reduced form of PLB ***sik** < PTB ***siŋ** ‘tree’.

(8) FROST/SNOW ***s-p^{w}-a(l)**

This root was first set up in JAM 1997, p.44.[20]

Qiangic (STOPS) Pumi Jinghua **spy^{55}**; Pumi Dayang[21] **ɸpɨ́**; Pumi Taoba **pu^{55}**; Qiang Taoping **χpɑ^{31}**thu^{33}; Qiang Longxi **pià-**thò; Qiang Mianchi **pèi-**thòu

Notice the secondary palatalization in Longxi **pià**; the ***s-** prefix is directly attested in Jinghua, Dayang, and Taoping.

Himalayish (STOPS ~ w)

Tibetan shows interdialectal variation among labial stops and w:

Written Tibetan **ba**-mo (why no final **-l**?); Lhasa Tibetan **pha^{13}**-mo^{53}; Sde-ge (Khams) **pa^{31}**-mo^{53}; Amdo **wal** (ZMYYC: Xiahe (Bla-brang) and Zeku); also Motuo Monpa **ba**

But other Himalayish forms have only w-:

Chepang **wer**; Geman **wal^{35}** ***(where from?)***

Qiangic (STOPS ~ w) rGyalrong (Zhuokeji/Suomo) tɐi **jpa** (ZMYYC #379); Tey-**va** rGyalrong (Kyomkyo) (Nagano 1998); Muya **vɯ^{35}**; Ersu**z**ɳ^{55} ‘frost’ (cognate? cf. Sulong kə^{33}**ʑɯh^{53}** ‘snow’).

The following forms are apparently loans < Tibetan: Muya **pɐ^{33}mu^{55}**; Queyu **pa^{35}mu^{53}**; Shixing **pe^{55}mu^{33}**

The second syllables of the following forms are to be related to the Tibetan suffix **-ba**/**-wa** (cf. WT **kha-ba)**: Ergong nkhɛ va; Queyu kha^{55}wa^{55}; Guiqiong khø^{55}wu^{55}

Nungish (w) Dulong **wə̆ʔ^{53}** dzuŋ^{55} ‘frost’, tɯ^{31}**wə̆n^{53}** ‘snow’; Anong thi^{31}**vɛn^{53}** (the final **-n** is apparently the reflex of ***-l**)

Loloish (w or v or ɸ) Hani **ɸo^{31}** (Gao Huanian 1955); Hani Shuikui **xɔ^{31}**; Hani Caiyuan **ɔ^{31}**; Lahu **vâ**-məy ‘snow’; **vâ**-sɨ̃ ‘hailstone’; Yi Nanjian mɯ^{55}**fu^{55}** ‘frost’ **vɑ^{21}** ‘snow’ (note this doublet!); Yi

[20] Another new root for FROST is ***s-ŋar** > e.g. rGyalrong (Zhuokeji) **sŋaɹ**, Bengni **ŋɯr**-kam, Zaiwa **ŋa̲n^{51}**phju^{51}, Achang **ŋ̊an^{55}**, Langsu **ŋ̊e̲ŋ** (with assimilation of final to initial), WB **hnâŋ**-khâi (with metathesis of the two nasals), Lahu a-**ŋə**.

[21] This form is homophonous in Dayang with the word for AXE: **ɸpɨ́**. See **4.1**.

Xide **vo**^{33}; Yi Dafang **vu**^{33}; Yi Nanhua, Mojiang, and Mile (Axi) **ɣo**^{21}; Lisu **uɑ**^{31}; Nusu **vɑ**^{55}

Naxi (STOPS) Naxi Lijiang **mbe**^{33}; Naxi Yongning **bi**^{33}

Of doubtful but perhaps related affiliation (with **-r-** extrusion instead of **-w-**?):

Abor-Miri-Dafla Lhoba (Idu) ɑ^{31}**pɹu**^{35}; Darang Deng tɑ^{31}**pɹɯ**^{35}

(9) GRANDMOTHER[1] ***b^{w}a**

STC pp.24, 100, 174, 187; see below (31) for a more detailed presentation.

With stops WB **ʔəphwâ～ʔəbhwâ**[22]
Cf. Chinese 婆 [glossed 'saunter; dance' in GSR 25q] ***b'wâ**
[WHB] OC ***baj** > MC **ba** > Mand. **pó**

With semivowel Ersu ɑ^{33}**wɑ**^{55} (ZMYYC #318)

(10) HALF ***p^{w}ak**

Here STC sets up ***pwak**, with a true cluster (pp.24, 122).

With stops

Qiangic rGyalrong (Chang 1968) **əphak**; rGyalrong (Zhuokeji/Suomo) wu **phɐk**; Pumi Taoba **pha**^{35}; Ergong a **pha**

Loloish Yi Dafang **pha**^{21}; Hani Caiyuan **pha**^{33}; Jinuo **pha**^{31};

Baic Bai Dali/Jianchuan ɑ^{31}**po**^{21}

With semivowel WB **wak** 'to halve', ə**wak** 'a half'

*Forms pointing to ***k-wak*** *(Qiangic)* Shixing dʑi^{33}**qhuɐ**^{55}; Qiang Mawo khɕɑ **qhuɑ**

We are still far from having figured out all the words for HALF. Probably representing an independent root are a couple of forms with liquid initials:

Tangkhul **rak**; Chepang **hlak**

(11) HIDE ***s-p^{w}ak**

STC #46 (pp.24, 50); reconstructed as '***pak** = ***pwak'** (p.205). See also TSR #178, ZMYCC #668.

[22] No other Lolo-Burmese cognates have yet been uncovered, though there are many LB reflexes of GRANDMOTHER[2].

With labial stop

Himalayish Written Tibetan **phag** ‘sthg hidden; concealment’

Lolo-Burmese Written Burmese **phwak** ‘hide, conceal’ (v.t.)[23] ≍ **hwak** ‘hide, conceal’ (v.t.)

This WB doublet reflects PLB ***s-wak**, with causative prefix. Both **phwak** and **hwak** are transitive; **hwak** is more literary.[24]

With labial semivowel

Lolo-Burmese PLB ***wak**^{L} > Lahu **vàʔ** (intransitive; Lahu also has a causative/transitive form **fá** < Proto-Loloish ***ʔwak** < PLB ***s-wak**);[25] Akha **zàq**; Nasu **vɤ^{55}**; Yi Dafang **va^{13}**; Yi Mojiang **ɣɯ̲^{33}** tsɛ^{55}; Hani Caiyuan **v^{55}** ma^{31}; Hani Dazhai **a̲^{31}**; Hani Shuikui **xɛ^{55}** tʃhu^{55}; Jinuo **va^{55}**; Zaiwa **xaʔ^{55}**; Langsu **fɔʔ^{55}**

Kamarupan Lakher **vao**;[26] Angami ^{2}ke^{3}**vie** (Weidert 1987), ke-**va**-le, ke-**va**-lie (Marrison); Chakru ^{2}kɤ^{3}**va**; Lotha mpoi-**vat** (the **-t** instead of **-k** is unexplained)

(12) HOOF ***k-/s-p^{w}a**

This is a brand-new root, perhaps to be reconstructed something like ***k-wa** ≍ ***s-pa**. Most of the forms are from ZMYYC #175.

***k-wa**

(Qiangic)

Pumi Taoba **kua^{55}**ɬa^{55}; rGyalrong (Zhuokeji/Suomo) ta-**ka**; Ergong **ʐ̩ko**; Muya **quɐ^{33}**tshuɯ^{53}; Queyu **ɳ̩e^{55}khø^{53}**;[27] Guiqiong **ngɑ^{35}**; Ersu **nkhuɑ^{55}**: Namuyi **qha^{55}**tsɛ^{33}; Shixing **khɛ^{55}**

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[23] This form is mis-cited as **phak** in STC #46 (p.24), but is given correctly on p.50.

[24] Although nearly all LB languages reflect a prototype with simple initial ***w-** for the intransitive verb ‘hide’ (see below), there is no WB form **wak** (contra STC, n.79, p.24; this erroneous form was later repeated in TSR #178 and DL p.1326!). Burmese uses a morphophonemically unrelated form **pûn** for the intransitive verb.

[25] For the devoicing of the initial and the Lahu high-rising (instead of low-stopped) tone, see Matisoff 1970 (GD) and 1972 (TSR). There is also a Red Lahu variant with stop initial, **phá**.

[26] This is a perfect homophone of Lakher **vao** ‘pig’, just as Lahu **vàʔ** means both PIG and HIDE.

[27] The first syllable of this Queyu form, of unknown meaning, undoubtedly reflects a morpheme that is the source of the syllabic nasals in Guiqiong, Ersu, and Anong.

(Nungish)
Anong **ŋ**^{31}**gɯ**^{31}**ɳ**$_{\text{i}}$^{31}

(Lolo-Burmese)
WB **khwa**; Nusu **khuɑ**^{35}; Yi Xide **kha**^{33}; Yi Dafang **kho**^{21}; Naxi Lijiang **khuɑ**^{33}be^{31}

***s-pa**

(Qiangic)
Pumi Jinghua **spɑ**^{55}; Pumi Dayang [JAM] **ɸpŏ**

Much work remains to be done on words for HOOF. Several other distinct etyma are to be reconstructed here, including one like ***krok ≍ *kroŋ**: Jingpho lă**khʒù?**; Dulong tɕi^{31}**gɹɔ**^{53}; Darang Deng **gɹɔŋ**^{53}tioŋ^{55}; Idu **kɹu**^{53}.

(13) LEECH ***k-r-p^{w}at**

STC takes this root as an example of prefixal variability (p.103). See ZMYYC #167; STC #45 (pp.23-4), and pp.2, 20, 103, 109, 115, 121, 132, 138-9, 144.

With unprefixed labial stop

(A) Himalayish Written Tibetan srin-bu **pad**-ma (the unaspirated initial points to a lost prefix; ***also pad-pa?***), Tibetan (Amdo) nbɔ **pe**-pa (**nbə** 'bug'(=WT **ḥbu**); Lepcha **fot** (with lenition))

There are several other examples of ***p** > Lp. **f**. STC p.35, n.113: 'Lepcha has **f-** for **ph-** in a number of roots, as well as **f-∼p-** alternation.'

Monpa Motuo **pat**-pa, Monpa Cuona **pʌ?**^{53}

(B) Qiangic[28] Pumi (Taoba) **phiɛ**^{35}; Pumi (Jiulong) **phɛ**^{35} 'water leech', **bə**^{35} 'land-leech'; Shixing **bɛ**^{53};

(C) Other Naxi (Lijiang) **py**^{55}; Tujia **phie**^{55} la^{55}

With unprefixed labial stop plus resonant

Dulong (Nujiang) ńe^{31} **phrat**^{55} (Sun Hongkai 1982, LaPolla 1987); Chepang **pyaat**

Prefixed

(A) With velar prefix

[28] Several Qiangic forms have nasalized vowels: Queyu **phã**^{55}, Pumi (Jinghua) **sphã**^{13}, Pumi (Lanping) **fphã**. These look as if they go with the WT form cited in TBL #364: **dpaḥ**-po (where the a-chung 'ḥ' represents nasalization). This form, however, is not to be found in Jäschke. These forms may represent an allofam with homorganic final nasal ***pan**.

Jinuo **ke^{33}pjo^{33}** (note palatal semivowel);[29] Darang Deng **kɑ^{31}pe^{53}**; Idu **kɑ^{31}pi^{53}**; Digaro **kəpe**

(B) With dental prefix

Miri **təpat**; Bokar Idu **ta pet**; Nung **dəphat** (also **phəphat**; see (C) below); Lakher **tɬəva** ('< ***d-wat** (the ***d-** prefix here is of relatively late origin)': STC p.103)

(C) With nasal prefix

(a) Syllabic Dulong (Dulonghe) mɯ^{31}**pat^{55}** (Sun 1982, LaPolla 1987), Dulong (Nujiang) ńe^{31}**phrat^{55}**(ibid.); Meithei tin-**pha**; Mikir iŋ-**phat** (< ***mpat**: STC p.103)

(b) Non-syllabic *(Nungish)* Nung **phəphat** (claimed to be < ***mpat** [STC p.143]; also **dəphat**; see (B) above); *(Qiangic)* Namuyi **mbi^{33}**; rGyalrong (Zhuokeji) smon **mbɐ** kəlu (**kəlu** 'insect'); Lusu **nbi^{35}**; *(Loloish)* Yi (Xide) **mbi^{55}**

With labial semivowel as the root-initial

Kamarupan Lushai vaŋ-**vat**; Chang **wat**

Jingpho-Nung Jingpho **wòt**

Karenic Sgaw **waʔ** 'small black land-leech' (STC pp.138-9); Pwo **waʔ**～θəwaʔ

Loloish PLB ***k-r-wat** > PLoloish ***wat^{L}** [TSR #167]

Lahu **vèʔ**; Lisu[30] **ve^{41}**; Yi (Dafang) **ve^{13}**; Yi (Mojiang) ʌ^{21} **vi̲^{21}** Yi (Nanhua) ʑi^{33} **ve̲^{21}** (1st syll. means 'water'); Yi (Weishan) ɣɯ^{55}**vɪ^{21}** (id.) ; Yi (Mile) sʌ^{21}**vi^{21}**; Sani sʐ^{11}**vɪ^{2}**; Nusu ɑ^{31} **fɑ^{ɪ53}**

Three forms from Hani dialects require special comment:

Hani (Dazhai) a^{31} **ɕe̲^{31}**; Hani (Shuikui) a^{31} **ɕi̲^{31}**; Hani (Caiyuan) **ji̲^{31}** tsɔ^{31}

The Dazhai and Shuikui forms with palatal sibilant initials might reflect a secondary prefix (***s-wat**), which preempted the root-initial **w-**. This hypothetical prefix ***s-** might be derived from a morpheme reflected in the first syllables of the Mile and Sani forms. It would be attractive to guess that this means 'animal' (cf. PTB ***sya**), though the Mile word for 'meat' is not **sʌ^{21}**, but rather **xo^{21}** [ZMYYC #399]. It is probably the *first* syllable of the Caiyuan form (**ji̲^{31}**) which is derived

[29] TBL (#364) cites Jinuo **kø^{33}tho^{55}**, where the 2nd syllable could conceivably come from ***d-wat**, though this is a mere guess.

[30] TBL (#364) cites Lisu (Nujiang) **bo̲^{31}lo̲^{33}**, which resembles the equivocal Qiang Mawo form **bulu**. See n.32.

from ***wat**, since it has a constricted vowel ('j' stands for the semivowel [y] in the transcription), though the meaning of the 2nd syllable is unknown.[31]

With dental prefix (***d-wat ≍ *s-wat**)
Kamarupan Geman Deng **tɯ^{31}wɑt^{53}**
Karenic Pa-O **təwaʔ**; Pwo **θəwaʔ∼waʔ**; Sgaw **θuʔ** 'land-leech' ('< ***θwoʔ**': STC p.132)

Karenic (Sgaw, Pwo) shows variation between plain and prefixed reflexes of this etymon. It seems likely that all the Karenic forms with **t-** or **θ-** onsets reflect prefixal ***s-**, similar to the Hani forms just cited. For a Karenic (Palaychi) form with liquid prefix, see below.

With velar prefix Sulong **kə^{33}vat^{53}**

With liquid prefix (***r-wat**)
Himalayish Magari **ləwat**
Kamarupan Garo **ruat**; Angami Naga **reva**; Rangkhol e-**rvot** (with superadded vocalic prefix e-)

With both velar and liquid prefix[32] ***k-r-wat**
Written Burmese **krwat**
/Hence the PLB reconstruction ***k-r-wat** in TSR #167./

With apparently a double liquid prefix ***l-r-wat**
Palaychi (Karen) **ləro**

STC (p.132) derives the ***s-wat** in this form from ***s-wat**. If this is correct, it indicates that a second liquid prefix was superadded to the first: ***l-r-wat**.

With fricate initials

These look like loans from Chinese 蛭 (Mand. **zhì**):

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[31] However, in the absence of further information it is hard to be sure, since this Caiyuan syllable closely resembles the first syllable of Yi Nanhua **ʐi^{33}** vɛ̱^{21}, where the first syllable means WATER (TBL #46) and it is clearly the *second* syllable that comes from ***wat**.

[32] The rGyalrong (Suomo) form smon-mbɐ **kəlu** (ZMYYC #167, TBL #364) looks superficially as if it might also reflect a prototype like ***k-l-wat**, but apparently **kəlu** is the general term for INSECT (ZMYYC #169). The Qiang (Mawo) form **bulu** 'leech' (ZMYYC #167) is identical, except for syllabification, with Mawo **bu lu** 'insect' (ZMYYC #169). Since the first syllable looks like the general TB root for 'insect' (PTB ***bəw**, WT **ḥbu**), it might seem as if the 2nd syllable **-lu** actually means 'leech', but since it also occurs in the general word for 'insect' this is far from clear. What does the syllable **-mbɐ-** mean in the Suomo form -- BUG or LEECH? It looks very much like the Shixing, Lusu, and Namuyi words; and also like Muya tsæ^{55}**mbø^{55}**. The second syllable of this Muya form *does* mean 'bug' (p.c., Lin Ying-chin).

Bai (Jianchuan, Dali) **tɕi**^{44}; Bai (Bijiang) qɑ^{55}**tsi**^{55} (with velar prefix); Ersu tɑ^{33}**tʂ**˩ ^{55} (with dental prefix); Naxi (Yongning) **tɕi**^{13}

(14) LEFTSIDE ***b^{w}ay**

STC reconstructs as '***bay** = ***bway**' (#47); see also GSTC #80, ZMYYC #50.

With stop initial

Jingpho	**pāi** 'left', ləpāi 'lefthanded, awkward', əpāi 'be awkward, speak with a brogue'
Himalayish	Thebor **ba-e**
Burmish	WB **bhai** 'left'
Baic	Bai Dali **pi**^{35}; Bai Jianchuan **pi**^{55}fv^{33}no^{33}

Certainly related is ***pay** ≍ ***bay** LAME/LIMP/ASKEW [GSTC #124]; cf. e.g. Lushai **băi** 'limp, be lame; hop', **păi** 'stagger, reel; have a foreign accent'

With semivowel initial

Lolo-Burmese	WB lak-**wâi** 'left hand', **wâi** 'speak with a brogue'; Lisu lá^{6}**rgh**^{1} (Fraser), lɛ^{31}**ɣɯ**^{55} (ZMYYC); Mpi la^{2}-ʔ**oʔ**^{2}; Yi Xide la^{44}**v**˩ ^{33}; Nusu **ue**^{55}ɑ^{53}; Naxi Lijiang **ua**^{55}tɕy^{31}; Naxi Yongning **ɣua**^{33}dzə^{33}; Jinuo la^{33}**vu**^{33}
Kamarupan	Tangkhul **wui**-śoŋ 'left' ≍ **phui** kəsiŋə 'lefthanded' ≍ **yuy**-paŋ 'left hand'; Mikir ar-**vi**; Meithei **òy**; Lushai **vei**
Himalayish	Lepcha **vi**-m;
Qiangic	Pumi Taoba **we**^{55}tɕhye^{53}; Pumi Jinghua **uɑ**^{13}

With velar prefix plus semivowel (***g-way**)

Kamarupan	Geman Deng kɯ^{31}**wɑi**^{53}; Darang Deng tɯ^{31}**kiɯ**^{55}
Qiangic	rGyalrong (Zhuokeji/Suomo) ka **wi**
Nungish	Dulong ɑ^{31} **gŭi**

(15) MAN/HUSBAND/FATHER/PERSON ***p^{w}a**

STC artificially sets up two separate roots, though they are certainly one and the same: STC #24 'father': '***pa = *pwa**' (pp.19, 23, 58, 96, 100, 113, 118, 121-2, 134, 174, 187-189); STC #100 'man; husband': '***wa** = ***(p)wa**' (pp.24, 35, 100, 132, 138, 174, 187). See also ZMYYC 'father' #319; 'husband' #337; 'man' #290; and TBL 'father' #218; 'husband' #247; 'man' #173. This root is very often preceded by the 'kinship prefix' **a-/ə-**, originally of vocative meaning. See STC pp.121 ff.

With labial stop [the following forms all mean 'father']

Himalayish WT **pha**, ʔa-**pha**

Kamarupan Garo **pha**, ə**pa**; Lushai **pa**; Geman Deng **pǎi**^{35}; [33] Darang Deng ɑ^{31}**bɑ**^{35}; Lhoba (Idu) nɑ^{55}b**a**^{55}; Bokar Adi a-**bo**; Sulong a^{33}**pa**^{33}

Lolo-Burmese PLB ***ba**^{3} > WB **bha'**, ʔə**bha'**; Achang a^{31}**phɔʔ**^{31}; Langsu a^{31}**phɔ**^{55}; Lahu **pa**, ɔ̀-**pa**;[34] Yi Xide a^{21}**bo**^{33}; Yi Dafang a^{33}**ba**^{33}; Yi Nanhua ᴀ^{33}**bo**^{21}, ᴀ^{33}**pho**^{21}; Yi Mile (Axi) ᴀ^{33}**b**ᴀ^{21}; Yi Mojiang ᴀ^{55}**bɒ**^{33}; Lisu ɑ^{31}**bɑ**^{31}; Naxi Lijiang ə^{31}**bɑ**^{33}; [35] Hani Caiyuan a^{33}**pa**^{31}, ɔ^{31}**pv**^{33}; Hani Shuikui ɔ^{31}**phɔ**^{31}; Nusu iɑ^{55}**bɑ**^{31}; Jinuo a^{33}**pu**^{33}; Nusu n̥õ^{55}**phɑ**^{31} 'husband'

Qiangic rGyalrong Zhuokeji/Suomo tɐ **pɐ**; Ergong a-**pa**; Queyu a^{55}**pha**^{53}; Ersu a^{55}**ba**^{55}

Nungish Anong ɑ^{31}**phɯ**^{31}; Dulong ɑ^{31}**pǎi**^{53}

Baic Bai Bijiang **bo**^{33}

Tujia Tujia a^{21}**pa**^{55}

There are several excellent Chinese comparanda:

'father' 父 ***b'i̯wo** [GSR 102a-e] ***b(r)jaʔ** > **bjux** > Mand. **fù** [WHB C758.14]

爸 ***på** [not in GSR 39] ***baʔ** > **bax** > Mand. **bà**[36]

'man/husband' 夫 ***pi̯wo** [GSR 101a,b] ***p(r)ja** > **pju** > Mand. **fū** [WHB C757.21]

With labial semivowel [the following forms all mean 'father']

Jingpho-Nung Jingpho **ʔwâ**, ə**wâ**, kə**wà**; Kadu ə**wa**

Kamarupan Moshang **wa**

Himalayish Bunan ə**wa**

Qiangic Muya **vɐ**^{35} **vɐ**^{35}

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[33] Cf. Geman **ɑ**^{31}**wɑi**^{53} 'husband'.

[34] Other related Black Lahu morphemes include **phâ** 'fellow; guy' (< PLB ***pa**^{2}) and **pā** 'male' (< PLB ***ʔba**^{2}). Cf. also Lahu **ɔ̀-phɔ̂ '**husband', apparently from a distinct root, perhaps PLB ***paŋ**^{2} or ***pəw**^{2}. Several of these LB forms for 'father' with aspirated initials (Achang, Langsu, Hani Shuikui, Yi Nanhua, Nusu) are perhaps to be grouped with Lahu **phâ** or **phɔ̂**, rather than with Lahu **pa**.

[35] Note that Naxi Yongning (Moso) ə^{33} **v**^{55} (below) has a non-stop initial.

[36] This character is not attested in early texts. That means the phonetic was chosen at a later stage of Chinese phonology, casting the correct OC reconstruction in some doubt. Handel reconstructs it here under the assumption that the phonetic was chosen according to OC pronunciation.

Lolo-Burmese-Naxi	Zaiwa a^{55} **va**^{21}, i^{55} **va**^{21}; Naxi Yongning (Moso) ə^{33} **v**^{55}
	[the following forms mean 'husband', 'man', 'person']
Jingpho-Nung	Jingpho **wā '**human being; man', mătuʔ^{31} **wa**^{33} 'husband'
Himalayish	Lepcha **ɔvo** 'husband'; Dhimal **w**a-dźan 'boy', **wa**-val 'man'
Kamarupan	Lakher **ɔwa**-pa 'husband'; Haka, Taungtha **va** 'id.'; Geman Deng ɑ^{31}**wɑi**^{53} 'id.' (note the Geman doublet **păi**^{35} 'father', cited above); Darang Deng mɑ^{31}**wɑ**^{35} 'husband'; Sulong a^{33}**ve**^{11}
Karenic	PKarenic ***wa '**husband' ≍ ***khwa** 'male' [STC p.132]; Pwo, Sgaw, Bwe **wa** 'husband'
Lolo-Burmese	Yellow Lahu **và** (free morpheme); Black Lahu **vâ**

In Black Lahu this is not a free morpheme, but a bound member of elaborate expressions, where it appears as the couplet of **chɔ** 'person', e.g. **chɔ-qa-vâ-qa** 'human beings', **chɔ-yâ-vâ-yâ** 'humanity'; see DL p.1323.

(16) PALM/SOLE and LEAF ***r-p^{w}a-k**

STC discusses this root in several places (pp.24, 100, 174, 187, 188-9), hesitating as to its proper reconstruction. In set #418 it is reconstructed ***pa**, but with a note (n.287): 'This root is now reconstructed ***pwa**...but ***b-wa** is an alternative (and perhaps better) possibility.' In the Index (p.205) it is given as PTB '***pa** = ***pwa'**. No words with this gloss are given in ZMYYC or TBL. For extended discussion see JAM 1985 'Arm, hand, and wing', pp.430-1 and 447-8.

This etymon seems certainly to have been confused with a root meaning LEAF/FLAT OBJECT, originally reconstructed in STC #40 as ***pak** 'leaf', later revised to ***r-pak** on the basis of an allofamic analysis of the WB forms **phak** and **rwak**.[37] But in the Index to STC (p.216), the reconstruction is given as '**pak** = **pwak**', possibly due to a typo. STC does not identify sets #40 (LEAF) and #418 (PALM) as allofamically related. As admitted in JAM 1985 (p.446), 'the last word has yet to be said on this complex problem.' For now we set up PTB ***r-p^{w}a-k**.

Several forms have a prefixed lateral, which is certainly a reduction of ***lak** 'hand'.

Forms with no evidence for a final stop
With labial stop initial

[37] See the forms cited in TSR #29, where I set up PLB ***V-pak^{L}** 'leaf'. The low-stopped tone could be due to a now lost ***r-** prefix, rather than a vocalic prefix 'V-', so perhaps a better PLB reconstruction in TSR terms would be ***C-pak** (where C- is a cover symbol for a voiced prefixal element).

Qiangic	rGyalrong Kyomkyo ta-yuk **pa** (**ta-yuk ‘**hand’); Tangut (Sofronov) **pạ**
Jingpho-Nung	Jingpho lə**phàn** (**lə- ‘**hand; limb’; with **-n** dual suffix? [STC p.100]); Nung ur-**pha**
Lolo-Burmese	Red Lahu làʔ-tɔ-**pɔ** ‘palm’, khɪ-tɔ-**pɔ** ‘sole’ (cognacy uncertain; the regular Black Lahu reflex of ***-wa** is **-u**)
Kamarupan	Idu (Lhoba) la**po**; Miri lak-**po** ‘palm’, le-**po** ‘sole’; Garo dźak-**pha** ‘palm’; dźa-**pha ‘**sole’
Himalayish	Pattani **pəlt^{h}a** (a peculiar form; perhaps not cognate)

With prefix plus initial w-

Lolo-Burmese	Written Burmese **phəwâ**～**bhəwâ** (note the sesquisyllabicity); Phunoi lə**woa**^{33}, lə**voà** ‘palm’, po^{11}**woɑ**^{33} lək^{h}ə^{11} ‘sole’; Bisu là-**wà** ‘palm’, là-khɨ **pháwa** ‘sole’

The prefixized morpheme for HAND occurs before either the labial stop (Jingpho, Ugong [see below], Idu, Miri) or the labial semivowel (Phunoi, Bisu), or even perhaps before another prefix (see the Mpi form below).

With labial stop plus non-labial semivowel or fricative [38]

Kamarupan	Moyon kik-**bʌjá**; Lakher ku-**paza** ‘palm’, phei-**paza** ‘sole’; Tangkhul pāŋ-**mayā** ‘palm’ (with assimilation of labial stop to final nasal of 1st syllable)
Lolo-Burmese	Ugong lŏʔ-**phyé**
Himalayish	Gurung yo-**plā:**; Sunwar tā-**plā**; Magari huT-**pyā**[39]

Several good Chinese comparanda are available:

巴 [GSR 39a] ***på** ‘snake; place name’, but also glossed ‘palm’ in Karlgren 1923 (AD); WHB ***pra** > **pæ** > **bā**

把 [GSR 39b] ***på** ‘grasp in the hand; handful’

扶 [GSR 101f] ***b’i̯wo** ‘support; assist’ / WHB ***b(r)ja** > **bju** > **fú**
STC (p.174, n.463) gives OC **pi̯wo**, glossed ‘breadth of four fingers’; Chou Fa-kao (1972:204) repeats this gloss, but gives the reconstruction **p’i̯wo**

Cf. also Proto-Tai ***faa** (B1/C1) [HCT pp.77-8] > Siamese **fàa** (B1) ≍ Lungchow **phaa** (C1), Dioi **oua** (C1). See also ATLC p.350.

[38] Cf. the problematic forms for PIG with non-labial resonants, below.

[39] Cf. also Limbu tā**ppe** ‘palm’ (with secondary gemination), huk-**pe** ‘hand’.

Forms with evidence of a final stop

Lolo-Burmese All these LB forms mean LEAF:
WB **phak** ?≍? **rwak**[40] (< ***p^{w}ak** ?≍? ***r-wak**); Lahu á-**phàʔ**; Akha á-**pàq**; Ahi **phiʔ**^{44} ∼ **phieʔ**^{44} (Yuan Jiahua 1953); Sani **pheʔ**^{22}; Hani xa^{55}**pha**^{21} (Gao Huanian 1955); Bisu **phà**; Luquan **p'a̲**^{55}; Nasu **p'aʔ**^{44};

But cf. Mpi lɑ^{2} kh**weʔ**^{2} 'palm' (? < ***lak-kə-wak**), pɑ^{2} **ʔoʔ**^{2} 'sole' **(check analysis)**

Kamarupan Lushai kut-**phaʔ** 'palm', ke-**phaʔ** 'sole'; Mikir ri-**pak**∼ri-**pek** 'palm', keŋ-**pak** 'sole'

(17) PIG *p^{w}ak

STC discussions: #43; pp.14, 23-4, 87, 133, 188-9.

With unprefixed labial stop **pak* ≍ **bak*

(A) Himalayish Written Tibetan (WT) **phag**-pa, Lhasa Tibetan **phak**^{53}pa^{53}, Khams Tibetan **phɑʔ**^{53}, Amdo Tibetan **hak** (with lenition); Monpa Motuo **phak**-pa (prob. loan < Tib.), Monpa Cuona **phʌʔ**^{53}; Newari (Kathmandu) **pha**, Newari (Dolakha) **pha**; Limbu **phak**, Bahing **pok-**, Hayu **puk**, Dumi **poʔo** 'pig' (with echo-vowel? cf. Lotha Naga, Bodo-Garo), **pok**-soᴇ 'piglet'; Kulung **bo** 'pig' (cf. **bok**-khoŋ 'pig trough'), Chamling **bo**-khOr 'pigsty', Thulung **boa**

Most of these forms have voiceless stops; but Chamling, Kulung, and Thulung have voiced ones, and Amdo Tibetan shows lenition (cf. Japanese). The Thulung form looks superficially as though it implies a stop-plus-**w** antecedent (***bwak**). See also the Rengma form, below.

(B) Kamarupan Mikir **phak**, Puiron **bok**, Yimchungru a-**po** (with vocalic prefix); Idu **bi**^{55} li^{55} (for the 2nd syllable, see below), Darang Deng (=Taraon) **bɯ**^{31} liɑi^{35} (for the 2nd syllable, see below)

(C) Qiangic rGyalrong **pak**, Guiqiong **phɑ**^{53}, Taoping Qiang **pa**^{33}; Mawo Qiang **pi**, Ch'iang (Chiu Tzu Ying) **pje** (Wen Yu 1950; cited in TSR #168), Mianchi Qiang **pià** (Evans 1998); Shixing **bie**^{35}, Pumi Jinghua **phʒɑ**^{31}

[40] If these forms are indeed allofams, we must call the compound **phak-rwak** 'incestuous', i.e. composed of two members of the same word-family. For the first use of this term, see VSTB. An analogous English formation is *house-husband.*

Several forms seem to point to a palatal glide at the Proto-Qiangic stage, including several Qiang dialects, Shixing, and Pumi Jinghua.

(D) Naxi Naxi Lijiang **bu**[31], Naxi Yongning **bu**[13]

With labial semivowel **wak*

(A) Lolo-Burmese PLB ***wak**[L] (TSR #168) > *(Burmish)* Written Burmese (WB) **wak**, Burmese (Rangoon) **wɛʔ**, Achang (Luxi) **waʔ**[31], Achang (Longchuan) **oʔ**[55], Langsu **vɔʔ**[31], Zaiwa **vaʔ**[21]; *(Loloish)* Ahi **vieʔ**[44], Akha (Hansson) **à-zàq**, Bisu **wà**, Gazhuo **wa**[53], Hani Caiyuan **va̲**[31], Hani Dazhai a[31] **ɣa̲**[31], Hani (Kao 1955) **ßa**[21], Hani Shuikui a[31] **ja**[31], Jinuo **va**[44] ni[44], Lahu **vàʔ**, Lisu ɑ[55] **vɛ**[21], Lisu (Northern) a[55] **væʔ**[21], Luquan **aʔ**[55], Nasu **vaʔ**[55], Nusu **vɑ̲**[53], Sani **ve̲**[22], Yi Dafang **va**[13], Yi Mile/Yi Mojiang **ve̲**[21], Yi Nanhua **ve̲**[21], Yi Nanjian a[55]**vi̲**[21], Yi Xide **vo**[55]

This is a paradigm set for fate of PLB ***-ak** rhyme, as well as for the LOW STOPPED tone category. Initial reflexes include **w**, **v**, **Ø**, **j**, **z**, **ɣ**. Several Loloish forms have a vocalic prefix.

(B) Kamarupan Ao **ak**, a-**ok**, Chang/Phom **ok**, Garo **wak**, Kezhama e-**vo**, Khoirao **wok**, Kokborok **wauʔ**, Konyak **ak**, Lai Chin **vok**, Lakher **vao**, Lotha **wok**o,[41] Lushai (=Mizo) **vok**, Mao o-**vo**, Maram a-**wak**, Maring **hok**, Meithei **ok**, Meluri a-**vu**, Ntenyi a-**vü**, Nocte/Tangsa/Wancho **vak**, Sema a-**wo**, Tangkhul **hok**, Yacham-Tengsa **ak**

The *w- is reduced to a voiceless vowel (i.e. h-) in Maring and Tangkhul, and to zero-initial in several other languages. Many languages have a vocalic prefix.

(C) Jingpho/Nung (=Kachinic) Jingpho **wáʔ**, Dulong **wɑʔ**[55], Nung **wa**, Anong **ʔu**[55]

(D) Qiangic Ergong **va**, Ersu **vɛ**[55], Muya **ßɐ**, Namuyi **va**[33], Queyu **we**[55]

With velar prefix **k-bak ⇔ *k-wak*

Kamarupan Empeo (=Zeme) **gəbak** (STC #43), **kebak** (GEM); Liangmei **kabak**; Mzieme **hebak**; Rongmei (=Nruanghmei=Kabui) **gəwàk** (JAM 1978)

[41] Note the echo-vowel.

With dental prefix

(A) Himalayish PTGTM[42] ***ᴮḍwa** > Tamang Risiangku/Taglung [4]**ʈwa**, Manang **ta:**[4] /Weidert 1987 cites Tamang **ba:**[ɦ]./

(B) Kamarupan Chokri **thüvo**; [43] Rengma **tebwa**

The root syllable of the Rengma form, like Thulung **boa** (above), seems to point to a stop-plus-semivowel sequence.

Sulong mə[33] **du**[33]

This Sulong form could have arisen through preemption of the root initial by the dental prefix; but the aberrant and obscure Sulong language is still virtually unstudied, so one can hardly be sure.

(C) Kachinic Jili **təwak** (STC #43)

(D) Burmish Hpun (Northern) **tawù?**, **tavɯ̀** (Henderson/Luce 1986), Phön **təwo** (STC #43)

(E) Karenic Proto-Karen *tháu? (Jones 1961)

STC n.365, p.133: Karen ***thɔ?** is derived tentatively from ***t-wak** by 'a process closely analogous to that proposed for the root for DOG, with the initial ***p-** interpreted as a prefix.'

(F) Baic Bai Bijiang, Bai Dali, Bai Jianchuan **te**[42]

Widely scattered forms in different subgroups, including the two most aberrant, Baic and Karen. Cf. STC (pp.114-7) on the sporadicity of the dental prefix.

Chinese comparanda

STC, n.487, pp.188-9: There are two mistakes in characters at the bottom of the page (188y, 189c0; corrected in Chou Fa-kao 1972, p.204). No less than five possible comparanda may be suggested: one with a labial, three with velars, and one with a dental:

[GSR 39d] 豝 ***på** 'sow; pig' / [WHB C746.5] ***pra** > **pæ** > **bā**

[GSR 33f] 豭 ***kå** 'male pig, boar' (STC: 'from ***kwa'**) / [WHB] ***kra** > **kæ** > **jiā**

[GSR 258h] 貛 ***g'wân** 'a kind of pig' (STC: 'with collective suffix **-n**') / [WHB] OC ***g**[w]**an** or ***wan** > MC **hwan** > Mand. **huán**

[GSR 803a-b] 豦 ***g'i̯wag** 'kind of boar' (STC: 'probably from ***gwa-gwa**) [WHB] OC ***g(r)ja(ks)** > MC **gjo(H)** > Mand. **[qú]**

[GSR 1218a] 豕 ***t'i̯uk** 'hobbled pig *(Shuowen* ; but no textual attestations) ? < ***T-wak**.

[42] Proto-Tamang-Gurung-Thakali-Manang (see Mazaudon 1978).

[43] Closely related Angami Naga has **thero**, which looks superficially like the forms with glide initials in 2.17. See the discussion of Angami prefixal **the-** in JAM 1982 ('Sprachgefühl').

(For perhaps similar preemption, cf. the Sulong form, above.)
[WHB] OC ***thrjok** > MC **trhjowk** > Mand. **chù**

See also Benedict's speculations about connections with 'Proto-Austro-Tai' ***mbaɣumbuŋu**. ATLC (pp.253-4) has ***()(m)ba(m)buy**!

Problematic forms

(a) *With fricate initials ('fricate' = fricative or affricate)*
These forms may point to a non-labial glide after the stop. See (b) below.
Muya **ʑyi**[35]; Pumi Taoba **tɕyɛ**[35] (cf. Pumi Jinghua **phʒɑ**[13]; Tujia **tsi**[53])

(b) *With non-labial resonant initials* **yak ≍ *rak**

Apparently confined to the Abor-Miri-Dafla (=Mirish) branch of Kamarupan. See J. Sun 1993.

(A) With palatal semivowel
Bokar ə-**jək**, Damu ʔa-**jək**; Milang **yek**, a-**yek**; Gallong **yek**-po～**rek**-po; e-**yek**～e-**rek**
Note the internal **y- ≍ r-** variation in Gallong.

(B) With r-
Miri e-**rek**, Tagin a-**rɯk**, Bengni ɯ-**rjɯk**, Gallong /see (A) above/
Cf also Gallong also **reŋ**-nɤ 'sow', with assimilation to the nasal initial of the 2nd syllable; **-nɤ** 'female; mother'. Angami **thero** probably does not belong here (see note 43).

Perhaps different in status are a group of forms with initial lateral and front vowels: Geman Deng **li**[55]; Apatani a-**lj̀ì** 'pig', **lji(ʔ)**-po 'boar'; **PBI** i-**li**-a-ri (analysis of compound?); Idu bi[55] **li**[55], Darang Deng bɯ[31] **liɑi**[35]

These forms with **l-** reflect a separate root from ***p**[w]**ak**, if the first syllables of the Idu and Darang Deng binomes are taken to come from the latter.

Apparent isolates: Prakaa [1]**suŋkur**; Sangtam **shüka**; Nruanghmei **cükou**, **goklu**; Dimasa **haono**; Woni **ma̲**[33]

(18) SOW/WINNOW/CAST, THROW ***b**[w]**ar**

Cf. STC pp.172-3, 174, 191 (PTB ***bwâr**).[44]

[44] Benedict sets up a contrast between PTB/PST medial ***-a-** and ***-â-** (see STC n.488, pp.189-91), but the conditioning of the reflexes is so complex and *ad hoc* that it is not convincing.

With stop initial

WT ḥbor-ba ‘throw, cast, fling; leave, forsake’

Chinese 播 ***pwâr*** ‘sow; winnow’ [GSR 195p]
[WHB] OC ***pajs*** > MC ***paʜ*** > Mand. ***[bō]***
簸***pwâ*** ‘winnowing fan; winnow’ [GSR 25n; AD p.222][45]
[WHB 656] OC ***paj?/s*** > MC ***paX～paʜ*** > Mand. ***bǒ～bò***

With semivowel initial

Bahing **war ‘**throw away, squander, abandon’; Chepang **waːr** ‘sow’; Mikir **var** ‘sow, cast, fling’; Lushai **ʔvor** ‘scatter, throw up, toss’

(19) SPINDLE ***pʷaŋ***

STC #48 cites forms from three languages with stops (WT, Thebor, Jingpho), and one with **w-** (Burmese), and reconstructs the root as ‘***paŋ*** = ***pwaŋ***’. To these we may add many more related forms in TB, as well as a solid Chinese cognate.

With plain stop initial Written Tibetan **phaŋ**, **ḥphaŋ**; Thebor **phaŋ**
With velar prefix plus stop Jingpho **kəbāŋ**
With dental prefix plus stop Bokar **ta-poŋ**; Apatani **ta-po**; Bengni **ta-poː**
With initial semivowel

Written Burmese **waŋ’** ‘swing around; spin’ (< PLB Tone *3) ≍ **ʔəwaŋ** ‘spindleful of thread’ (< PLB Tone *1), **waŋ**-rûi ‘spindle’ (2nd. syll. ‘bone; handle’); Lahu **və～ɣə** ‘spin, whirl; be dizzy’ (< Tone *1 or *3) ≍ **vɔ̂～ɣɔ̂** ‘id.’ (< PLB Tone *2)

Note the tonal variability of this etymon in Lolo-Burmese. The Lahu forms also reflect variation between earlier ***w-*** (> Lh. **v-**) and ***r-*** (> Lh. **ɣ-**).

An excellent Chinese cognate is 紡 ‘spin’: OC ***pi̯wang*** [GSR 740r] (Mand. **fǎng**).[46] Li Fang-kuei and Gong Hwang-cherng reconstruct as OC ***phjangx***; WHB has ***phjangʔ*** (= ***phǎng***). Coblin sets up PST ***phjwang*** > OC ***phjangx***, PTB ***pwang***. Pejros/Starostin 1996, set #I:245, cite PST ***[ph]angH*** > OC ***phangʔ*** (both with short **a**). See also Simon 1929 (#16).

Cf. also perhaps 罔, 網 ‘net; web’: [GSR 742L, 742a] OC ***mi̯wang***
[WHB C794.4] OC ***mjangʔ*** > MC ***mjangX*** > Mand. ***wǎng***

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[45] Karlgren says these two characters represent ‘the same word’ (AD Set #721, p.222).

[46] This comparison was not made in STC, but is to be found in Coblin 1986 (p.138), as well as in Gong Hwang-cherng 1995, set #238.

(20) STRENGTH ***d-b^{w}aŋ**

This root is set up in passing in STC n.325 (p.117) on the basis of two forms: WT **dbaŋ** and WB **ʔaŋ**. Despite its meager support (no further TB cognates have been unearthed so far), it is convincing, since the initial WT/WB correspondence is paralleled in HEAD (WT **dbu**, WB **ʔû**); see below.

(21) UNCLE/SENIOR MALE RELATIVE ***b^{w}aŋ ≍ *p^{w}aŋ**

With initial stop

WT ʔa-**baŋ**, **baŋ**-po 'father's or mother's sister's husband'
Chepang **paŋ**, Limbu am-**paŋ**-a, Vayu **poŋ-poŋ** 'father's brother'

With initial semivowel

Nung a-**waŋ** 'father's brother'
Lashi **vaŋ**-mo 'father's older sister's husband, husband's father'; Lisu a-**wɔ** 'f.b.'
Garo a-**waŋ** 'father's y. bro.'

To the above forms (< STC pp.23, 174, 189]), we may add a number of Qiangic, LB, and other forms from ZMYYC #321:

With initial stop

Tujia	Tujia **pɯe**^{35}**pɯe**^{35}
Kamarupan	Geman Deng **poŋ**^{35}; Bokar Adi a **paŋ**
Qiangic	Qiang Taoping **pe**^{33}**pe**^{33}; Pumi Taoba a^{55}**põ**^{55}
Lolo-Burmese	Yi Nanhua ʌ^{33}**bo**^{21}ʑɛ^{21}; Naxi Yongning ɘ^{33}**bu**^{33}dɭ^{55}

With initial semivowel or spirant

Qiangic	Shixing ɑ^{55}**ßu**^{55}; Namuyi a^{55}**ɣo**^{55}
Lolo-Burmese	Zaiwa a^{55}**va**^{21}mo^{55}; Yi Xide pha^{55}**vu**^{33}; Yi Dafang a^{33}**ve**^{55}; Lisu o^{55}**ɣo**^{41}phɑ^{31}; Lahu ɔ-**u**-phâ∼ɔ-**o**-phâ[47]

This gratifying Lahu cognate, just identified, has a variety of related meanings:
1. older brother of a girl 2. a girl's mother's brother 3. wife's brother 4. man's brother-in-law. The basic meaning is 'guardian of a young girl'; the office of guardian is filled by an older brother, if the girl has one, otherwise by a maternal uncle or other older male relative; correlative of **ɔ-nù-ma** 'female ward of elder brother or maternal uncle' (DL, p.135).

[47] This finally allows us to establish that the regular Lahu reflex of the PLB ***-waŋ** rhyme is **-u**, since there is an excellent parallel example: WELL (for water): WB re-**twâŋ**, Lahu ɡɨ-**tû** < PLB *rəy^{1}-**dwaŋ**^{2} (the first element means 'water'). See STC #169 and DL p.613.

A couple of Chinese comparanda have been suggested:

'uncle'	兄	***χi̯wăŋ** [GSR 765a-e] 'elder brother'
		[WHB 388, C798.17] ***hwrjang** > **xjwæng** > **xiōng**
		/problematic initial correspondence/
	?≍? 伯	***păk** [GSR 782i] 'eldest brother; eldest; father's elder brother'
		[WHB 780, C748.12] ***prak** > **pæk** > **bó**
		(STC p.174: 'perhaps from ***pwăŋ**')

(22) PATCH/SEW ***p(ʷ)a**

This is the only root in STC where a root beginning in ***pa-** does not have some reflexes in **w-**:[48] only two forms are cited (p.122):

WB **pha** 'patch'; Nung **ɔpha** 'adhere', **dəpha** 'adhere, patch, affix, transplant'.

However, with more data (from ZMYYC #653, TBL #1161),[49] we see that some reflexes point to ***pa** while others point to ***pu**, perhaps suggesting a prototype ***p^{w}a**; furthermore, a couple of forms have zero-initial (Shixing) or **f** (Naxi), showing that even in this root the tendency to lenition to a **w** has existed:

Shixing **u**^{55}; Naxi **fv**^{55}

While some of the ZMYYC forms with **-u-** vocalism may be loans from Chinese 補 (Mand. **bǔ**), this Chinese word is itself an excellent candidate for cognacy with the TB root (it is not cited in STC):

補 [GSR 102c'] ***pwo** 'mend; patch' [WHB] OC ***paʔ** > MC **puX** > Mand. **bǔ**

3. Sets with nuclear vowels other than *-a (-)

The above **p** ≍ **w** sets are all reconstructed with the nuclear vowel ***-a-**. The next group of such etyma to be considered have back rounded vowels, ***-u-** or ***-o-**.

(23) BELLY (1, 2, 3, 4)

It is quite striking that several different roots in the semantic area of BELLY/GUTS all show labial stop ≍ semivowel interchange. There are at least three separate roots here, perhaps four. There is a detailed discussion in VSTB, pp.124-130.

[48] For another ***pa-** root where no evidence of 'lenition' has yet turned up, cf. PLoloish ***ʔpa** (Akha **pá**, Lisu **pa**^{3}, Lahu **pa**) 'exchange, trade, barter; trade' [DL p.801-2].

[49] Qiangic gives evidence for the ***s-** prefix with this root: Mawo **ʂpa**, Taoping **χpe**^{33} < ***s-pwa**

Additional forms are to be found in ZMYYC #260 **dùzi**; #269 **wèi**; #271 **chángzi**. The nuclear vowels of these belly-roots occupy the three points of the 'vowel triangle': BELLY[1] has **-u-** (plus final **-k**); BELLY[2] (allofamically related to BELLY[1]) has **-i-** (plus final **-k**);[50] BELLY[3] also has **-u** (but with no final consonant); and BELLY[4] (already introduced above) has **-a-**, like most of the etyma discussed in this paper.

(23) a. BELLY[1]

This root, with semantic connections to CONCAVITY/CAVE, is set up as ***puːk ≍ *buk** in STC (#358 and note 237).

With stop initial

WT **p'ug(s)** 'innermost part', **p'ug-**pa 'cavern', **bug**-pa 'hole, sbugs, cavity'; Limbu **səpok** 'belly'; Lushai **puːk** 'cave'; WB **puik** 'pregnancy', wam-**puik** 'outside of belly'; Mikir, Kabui, and Meithei **pok** 'belly'; Sho **pük** 'id'; rGyalrong (Tsa-ku-nao) **pog**, **phog** 'guts', (Chos-kia) t**ipog** 'stomach'.[51]

The WT forms show variation between voiced and voiceless initials, as do the solid Chinese cognates:

'belly'	腹	OC ***pi̯ôk** [GSR 1034h]
		WHB [1620, C758.18] ***p(r)juk** > **pjuwk** > **fù**
'cave'	窡	OC ***b'i̯ôk ≍ *p'i̯ôk** [GSR 1034L]

With non-stop initial

Three of the forms cited in STC #358 have non-stop initials, though Benedict passes this over without raising it as a problem: Lepcha **tăfuk** 'belly',[52] Maring **uk**, Garo **ok**. To these we may add a key form from Tangkhul Naga, **wuk**; as well as some Karenic forms that perhaps reflect a prefixed variant ***r-wuk**: Moulmein Pho **ɣàuʔ**, Pa-O **hóʔ**, Palaychi **hùʔ** (VSTB pp.125, 258).

(23) b. BELLY[2]

With stop initial

The etymon ***pik** 'bowels' is set up in STC #35 on the basis of two forms, Mikir **phek** and Garo **bibik**. As explained in VSTB (pp.125, 258), these are definitely to be grouped with the **-i-** allofams of a WT verb (cited without comment in STC,

[50] Variation between the high vowels **-i-** and **-u-** (especially in the environment of a preceding or following labial) is one of thebest attested variational patterns in TB. See Wolfenden 1929, pp.114-5; STC, pp.80-84, VSTB, pp.41-42.

[51] Several forms reflect a variant with homorganic final nasal, ***poŋ** : Bisu **pɔ̀ŋ**-ba, Pyen **pawng-pawng**, Idu khɹɑ[31]**poŋ**[35], Bokar Adi ki**ːpoŋ** (last two forms from ZMYYC #260).

[52] There are variants within Lepcha with stop initial: **tăbak**～**tăbok** 'belly'.

n.237), **p'ig**-pa (～**p'ug**-pa) ≍ **ḭbig(s)**-pa (～**ḭbug(s)**-pa) 'make a hole; pierce', implying a semantic development as follows:

CAVERN/CAVITY/HOLE → BELLY/STOMACH → GUTS.

From ZMYYC add the following: Shixing **by**[55], Guiqiong **pi**[35]tɔ̃[33], Qiang Taoping **pzɳ**[33], Pumi Jinghua **pʒi**[55] 'intestines'.[53]

With non-stop initial

A well-attested Proto-Loloish root ***ʔwik** 'stomach' is set up in TSR #176, on the basis of Lahu ɔ-**fɨ́**-qō, Sani **hɪ**-ma, and Lisu **h'i**[6]-hchi[6]. Additional cognates are to be found in ZMYYC #269, including Yi Xide **hi**[55], Yi Nanhua **he**[55]mo[33], Yi Mile (Axi) **xi̱**[21]mo[33], Naxi Lijiang **xu**[55], Naxi Yongning (Moso) **xo**[13]mi[33].

The PL glottal prefix ***ʔ-** is conclusively established by the high-rising tone in Lahu ɔ-**fɨ́**-qō, as well as by its initial **f-**, the regular Lahu reflex of PLB ***ʔw-** and ***hw-** (as opposed to plain ***w** > Lahu **v-**). This glottal element is further supported at the PTB level by the WT **ḭ-** (the co-called '*a-chung* prefix') in **ḭbig(s)**-pa (～**ḭbug(s)**-pa), above.

Karenic also has non-stop reflexes of the initial of this etymon: Moulmein Sgaw **ɣyʔ**, Bassein Sgaw **hyʔ**.

(23) c. BELLY[3]

This root (absent from STC), with meanings extending from BELLY to INTESTINES, is reconstructed in VSTB (p.126) as PTB ***(s)-pu** ≍ ***(s-)bu**, with a 'lenited' variant ***wu**.

With stop initial

Limbu **səpu** 'belly' (≍ **səpok**; see above); WT **p'o**-ba 'stomach'; Naxi Lijiang **bv**[33], Jingpho **pù** 'bowels', lùŋ-**pū** 'cave'; Garo bi-**bú** 'guts'.

There is a Chinese cognate, which reflects alternation in initial voicing:

腑 OC ***pi̱u** (Tone B) 'the bowels' / [WHB] OC ***p(r)joʔ** > MC **pjuX** > Mand. **fǔ**

/This character does not appear in GSR #136, but is to be found in Karlgren's *Analytic Dictionary*, Character Group #45./

肘 OC ***b'i̱u** (Tone C) 'intestines' / [WHB] OC ***b(r)jos** > MC **bjuH** > Mand. **fù**

/This character is glossed 'foot' in GS 136o , but as 'intestines' in Pan Wuyun's Chinese translation of GSR, p.70./

[53] The Taoping and Jinghua forms show what is apparently secondary ('extrusional') affrication.

With non-stop initial

Proto-Loloish ***wu**[1] 'intestines' may be reconstructed on the basis of WB **ʔu**, Akha [ILH] bɔ-**ú**, Lisu **wu**[4], Lahu ɔ-**g̈ù**-têʔ (VSTB p.126).[54]

More cognates, both intra- and extra-Loloish are to be found in ZMYYC #271 (INTESTINES):

(Qiangic) Muya **vɯ**^{33}**t**ɕ**ha**^{35}, Ersu **vɛ**^{55}**ɳ**$_{\text{ɤ}}$**o**^{55}, Namuyi **vu**^{33}**ɳ**$_{\text{ɤ}}$**i**^{55}

(Lolo-Burmese) Yi Xide **vu**^{33}, Yi Dafang/Nanjian/Mojiang **vu**^{21}, Yi Nanhua **vu**^{33}, Hani Caiyuan/Shuikui **ɔ**^{31}**v**^{55}, Jinuo **ɑ**^{33}**vu**^{33}, Achang a^{31}**u**^{55}, Zaiwa **u**^{51}, Langsu a-**u**^{31}, Nusu **u**^{35}**ɑ**^{55}

(23) d. BELLY[4] (repeated from (3) above)

Finally, VSTB (pp.126-7) sets up a root ***pam** ≍ ***wam**:

With stop initial Jingpho pù-**pham** 'stomach', Tangkhul Naga ā-phur-ā-**pham** 'belly'

With non-stop initial

Lolo-Burmese WB **wâm**; Lahu **g̈ô**-pè (see note 54 for the initial); Zaiwa **vàm**; Maru **wɛn** (all 'belly/stomach') < PLB ***wam**[2]

(Kamarupan) Mikir **vam** 'waist, loin'; Lushai **von**-a-śor 'have diarrhea'; Lakher a-**vy**, pa-**vy** 'stomach' (**-y** is the regular Lakher reflex of ***-am**); Tamlu **hwum** 'belly'

It must be emphasized that detailed knowledge is needed to distinguish the reflexes of these semantically interconnected etyma.[55] Offhand one can't tell exactly where to assign forms like Hani Shuikui **pu**^{33}m**ɔ**^{33}, Hani Caiyuan **v**^{55}m**ɔ**^{33}, Jinuo **vu**^{33}m**ɔ**^{33} 'stomach' -- are they from *pu/wu (BELLY[3]) or *pam/wam (BELLY[4])? Or take Pumi Taoba **pi**^{35} and Pumi Jinghua **spi**^{55} 'belly'; do these go with ***pik** (BELLY[2]), or rather with ***pu** (BELLY[3]), in view of Qiang Taoping **pu**^{33} and Queyu **bu**^{55}? To which roots are we to assign Bai Jianchuan **fv**^{44} 'belly' (ZMYYC #260), as opposed to **v**^{42} 'stomach' (ZMYYC #269)?

(24) EGG ***p**$^{\text{w}}$**u**

This (along with the next set, INCUBATE) is a prime example of **p** ≍ **w** interchange before a back vowel:[56]

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[54] As explained in VSTB (n.168), although ***w-** regularly becomes Lahu **v-**, since the syllables **vu** and **vo** do not exist in modern Lahu, the reflex of ***w** has merged with that of ***r** to become /g̈/ before modern back rounded vowels.

[55] Cf. the note on the various Lahu reflexes in VSTB n.169, p.259.

[56] Extensive support for this etymon is provided in Volume I, Fascicle 1 of STEDT (submitted for publication, Nov. 1997), where it is broken down into two sub-roots, ***wu** (1.1) and ***pu** (1.2).

With stop initial

Kamarupan	Proto-Tani ***pɯ*** > Apatani **pù** ‘lay an egg’, pà-**pu** ‘egg’; Padam-Mising a-**pɯ** ‘egg’, Damu rok-**pɯ** ‘egg’, təp-**pɯ** ‘testicle’, etc.
Himalayish	Sunwar bo-**phu**

With semivowel initial

Lolo-Burmese	PLB ***ʔu***^{3} (=***wu***^{3}) ‘egg’ > WB **ʔu’**; Lahu **u** ‘lay an egg’, ɔ-**u** ‘egg’, nì-ʂ̀ì-**u** ‘testicle’; Lisu **fu**^{44} ‘egg’, e^{55}**fu**^{44} ‘lay an egg’, etc.
Kamarupan	Tangsa (Moshang) **vu ‘**bird’, (Yogli) **vu** ‘bird’, **wu-**rong ‘wing’; Khoirao a**wu** ‘feather’; Wancho **ao** ‘bird’ (< *a-**wu**); Ntenyi **ao**wa ‘bird’,[57] Chang **ao** ‘bird’, **au**wi ‘feather’; also perhaps Monpa **oi**-lom ‘wing’
Jingpho-Nung	Jingpho **ù** ‘bird; fowl’, Kadu **u**-di ‘egg’
Qiangic	Qiang Mawo **wu**-stə, Qiang Yadu **wə**-s
Baic	Bai Bijiang **ueɹ**^{44}, Bai Dali/Jianchuan **vu**^{44}

(25) EGG/INCUBATE/SIT ON EGGS ***p^{w}um**

With stop initial

Kamrupan	Hill Miri **pɯp** ‘egg’; Liangmei marui-**bum**; Zeme nrui-**bum**
Himalayish	Kaike kā**pum**; Manang **pɯm**, Tamang ^{1}**pum**; Kham **pum**-nya ‘brood (hens)’, Sunwar **pup**-cā ‘id’
Jingpho-Nung	Jingpho **phúm** ‘hatch’, Anong **bɯm**^{35} ‘id.’
Lolo-Burmese	WB **phûm** ‘cover up’, Lahu **phê** ‘hatch’

With non-stop initial

Himalayish	Chepang **ʔum** ‘egg’

(26) GRANDFATHER ***p^{w}əw**

The general PTB reconstruction is clearly ***pəw*** (STC #23).

With stop initial

Kamarupan	Garo **bu**, Lushai **pu**, Mikir **phu**, Meithei i**pu**
Himalayish	WT **phu**-bo ‘elder brother’

[57] For the second syllable of this form, see the possibly related etymon ***b^{w}a*** BIRD/FEATHER, above (4).

Jingpho Jingpho **phu** ‘elder brother’

Qiangic Pumi Taoba a^{55}**pu**^{53}, Ersu ɑ^{33}**pu**^{55}, Guiqiong ɑ^{55}**pu**^{53}, Shixing ɑ^{33}**bɐ**^{55}, Jinuo a^{33}**phu**^{33}, Bai Bijiang ɑ^{55}**pu**^{55}, Tujia pha^{21}**phu**^{55} (ZMYYC #317)

Lolo-Burmese PLB ***ʔbəw**^{2} > WB ʔə**phûi**; Lahu ə-**pū**

The glottalized initial in LB is from the kin-prefix ***ʔa-**; cf. the glottalization in Jingpho kinterms. Many other Loloish cognates are to be found in ZMYYC #317.

With semivowel initial

But a few Qiangic languages have forms with lenited initials:

Qiangic rGyalrong (Zhuokeji/Suomo) ta **wu**; Muya vɛ^{33}**vɯ**^{53}; Namuyi ɛ^{55}**vu**^{55}

(27) HEAD ***d-b^{w}u**

STC briefly mentions this etymon in a note (n.325), reconstructing it as ***(d-)bu** on the basis of three forms: WT **dbu**; WB **ʔû**; Anong **u**. Many more cognates with **w-/v-** type initials are to be found in Lolo-Burmese (see ZMYYC #232), including Lahu **û-** ≋ **ú-** ≋ **ó-** (as in **û**-ní ‘turban’, **ú**-gê ‘pillow’, **ó**-qō ‘head’), Yi Nanhua **u**^{55}kɯ^{33}, Zaiwa **û**^{21}lum^{21}, Jinuo **vu**^{33}khɛ^{33}, etc. < PLB ***wu**^{2}.

Reflexes with labial stop initials are harder to come by. Among the possibilities are Jingpho **bō**,[58] and two Baic forms which look very like WT, with initial dental element: Bai Jianchuan **tɯ**^{21}**po**^{21}, Bai Dali **tɯ**^{31}**po**^{21}. In other Loloish head-related compounds where the second element has a labial stop, the morpheme is probably to be referred to a separate morpheme meaning ‘tuber; bulbous object’: Lahu ú-**phu** ‘head’, Nusu u^{31}**phu**^{55} ‘id.’

STC (pp.166, 184) offers a Chinese comparandum with dental stop initial to this root, implying that the dental prefix exemplified in WT has preempted the semivowel root-initial, i.e. PST ***d-bu** > Pre-OC ***d-wu** > OC ***du**:

‘head’ 頭 ***d’u** [GSR #118 e] (WHB) ***do** > **duw** > **tóu**

However, there is another root for HEAD of the shape ***du** to be found in many Loloish languages, which is an equally good cognate for candidacy with the Chinese form, e.g. Yi Nanjian u^{21}**dy**^{55}; Lisu o^{55}**du**^{33}, Hani Dazhai u^{31}**du**^{31}, Hani Shuikui v^{31}**tv**^{31}, Red Lahu ʔa-**tù**-kù. The first syllables of the Bai forms cited above (along with Bai Bijiang **ʈo**^{33}qɑ^{44}) might also belong here.

[58] STC has nothing definite to say about the sources of Jingpho **-o** (pp.58-9), but the examples offered (some of them doubtful) have Jg. **-o**/WT **-o**/WB-**au**.

(28) MONKEY ***(b)woy**

Most of the reflexes of this root (STC #314) have non-stop initials:

*Reflecting simple *w-*

Jingpho and Northern Naga — Jingpho **wōi** ~ **wē**; Moshang **vi**-sil; Shangge yok-**vi**;[59] Muklom Tangsa **hui**; Nocte **ui** (these last two forms are from Marrison 1967)

Reflecting a prefix plus w

Nungish-Luish — Jili **təwe** (< ***t-woy**); Kadu **kwe** (< ***k-woy**); Trung a-**koi** (< ***k-woy**)

Reflecting a labial stop

A couple of forms with stop initials are tentatively (STC n.213) included in this etymon:

Kamarupan — Mikir ki-**pi**; Miri si-**be** (to these add Bokar Adi ɕə-**be** [ZMYYC #128])

Not mentioned in STC are WT **spre** ~ **spra**, which look suspiciously like the Mikir, Miri, and Adi forms.

STC (ibid.) suggests a 'possible Chinese cognate', 猿 [GSR 256c] ***gi̯wɑn** ('with suffixed **-n**'), but says this points to ST initial ***w-**; this agrees with WHB's reconstruction (OC ***wjan** > MC **hjwon** > Mand. **yuán**), but is contra to Benedict's interpretation of GSR's ***gi̯wo** 'feather' (see #4 above), which he said was < PST ***g-wa**. Strikingly resemblant to GSR's reconstruction is Tujia **ɣɯe**[53] (ZMYYC #128). Also perhaps worthy of consideration is another Chinese word for MONKEY: 猴 [GSR 113g] ***g'u** / [WHB] OC ***g(r)o** > MC **huw** > Mand. **hóu**[60]

(29) POISON ***p^{w}u**

This new root is reconstructed as ***p-wu** in JAM ('Laryngeals': 1997:44), on the basis of four forms, one of which has a labial stop initial, while the other three have lenited onsets:

Northern Naga

Konyak — **wu**

Kamarupan — Puiron **hu**; Meithei **hu**; Maram a-**phu**

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[59] For the first syllable cf. PLB ***myok** [TSR #133]; see also Chepang **yuk**, where the **m-** was treated as a prefix; cf. Bhramu **pəyuk**.

[60] See Baxter 1992 section 10.2.10 (pp.500-501) for an explanation of ***(r)** in this word.

(30) SNAKE

This immensely complicated and interesting etymon may be reconstructed as an original compound ***(sya)-bəw-rul**[61] > PTB ***s-b-rul** > ***s-m-rul** > PLB ***m-r-wəy**[1] > Proto-Loloish ***wəy**[1]. Although some reflexes have labial stops while others have **w**-type initials, this etymon is different from most of the others discussed in this paper, in that the root-initial seems to originally have been ***r-**, while the ***b-** appears to have been prefixal, deriving ultimately from a separate morpheme ***bəw** 'insect; snake' (see note ***10***). The **w**-type initials or medials that appear in Lolo-Burmese are quite secondary, having arisen from the rhyme ***-ul**.

Himalayish WT **sbrul**; Thebor **brul**; Cuona Menba **breː**[13]; Magar **bul**

Kamarupan Mikir **phurul ~ phurui**; Lushai **ruːl**; Meithei **lil**; Sema **əpeɣü**; Tangkhul **phərə**; Ao **per** (with reduction of the root-syllable); N. Khami **pəwi**; S. Khami **məgui**; Tiddim Chin **gul**; Geman Deng **ɹuɯl**[35]

The following forms from Abor-Miri-Dafla are probably to be assigned to ***b-rul** rather than to ***bəw**: Darang Deng **tɑ**[31]**bu**[55] (vs. **tɑ**[31]**pɯm**[55] 'insect'); Idu (Lhoba) **jɑ**[55]**bu**[55] (vs. **ɑ**[55]**pu**[55]**toŋ**[31]**po**[53] 'insect'); Bokar Adi **ta bɯ** (vs. **ta pum** 'insect')

On the other hand, the following form for 'snake' from the obscure Sulong language is clearly from ***bəw**: Sulong **pɯh**[53] (cf. **pɯh**[53]**ɕa**[53] 'insect')

Qiangic rGyalrong (Zhuokeji) kha **brɛ**; Ergong **mphʂi** (evidently with a secondary m- prefix);
Queyu **bru**[53]; Muya **ʒo**[53]; Guiqiong **tʂu**[53]

In the following Qiangic forms, the first syllables with labial stop initials have not been reduced to a prefix; these syllables are fully tonal, and are obviously reflexes of PTB ***bəw** 'insect; snake':

Ersu bɛ33**r ɭ** [55] (cf. bɛ[33]dz ɭ [55] 'insect'); Qiang Taoping bə[31]**guə**[241] [62] (cf. bə[31]dʑa[31] 'insect');
Pumi Taoba bɐ[35]**re**[53]; Pumi Jinghua bɐ[13]**ʐɑ**[55]; Shixing bɑ[33]**ro**[55] (vs. bɛ[55]ly[33] 'insect')

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[61] The first syllable means 'animal; flesh' (STC #181), reduced in many TB languages to the ***s-** 'animal prefix' (see STC p.107). It appears clearly in WT **sbrul**. The second element **-b-** seems to be a reduction of the widespread etymon ***bəw** 'insect; snake; vermin' (STC #27), though this is not suggested in STC. Among the numerous cognates cited in STC #27: WT **ḥbu** 'worm, insect', **ḥbu**-riŋ 'snake'; WB **pûi** 'insect'; Jingpho **ləpū** 'snake'.

[62] The development of PTB ***r-** > Taoping **g-** in this word is paralleled regularly in many Chin languages (cf. Tiddim **gul**, S. Khami **məgui** 'snake', above). See Solnit 1979.

In the following Qiangic forms it is the second syllable of the compound ***bəw-rul** that has been reduced to a suffix: Namuyi **bəɹ**[53]; Qiang Mawo **bəs** (with sigmatization of the ***r-**)

Burmish Proto-Burmish ***mrwəy**[1] > WB **mrwe**;[63] Achang **mʒui**[55]; Zaiwa la̱ŋ[51]**mui**[51]; Langsu lɔ̃[31]**mɔi**[31]

Loloish Proto-Loloish ***wəy**[1] > Lahu **vɤ̀**; Lisu **fu**[44]; Hani Caiyuan ɤ[55]lu[55]; Hani Dazhai **o**[55]lo[55]; Hani Shuikui **ɣɯ̱**[55]l̥u[55]; Jinuo **ɣɯ**[42]

In several other Loloish languages, the first syllable of the word for 'snake' is identical (except perhaps for a tonal difference) with the morpheme for 'insect' (< PLB ***bəw**[2]):

Yi Xide **bu**[33]ʁ̩[33] (cf. **bu**[21]**di**[33] 'insect'); Yi Dafang **bu**[33]**sə**[33] (cf. **bu**[33] 'insect')

Karenic Proto-Karen ***wəy**[A] > Bwe **wi**; Sgaw **ɣü**; Pwo **ɣu**;

Tujia Tujia **wo**[53]

For extensive discussion of the Chinese comparanda to this etymon, 閩 and 蛇 see Handel 1997 and Lin Ying-chin 1998.

(31) GRANDMOTHER[1] and GRANDMOTHER[2]

(31) a. ***b**[w]**a** [repeated from (9) above]

With stops WB **ʔəphwâ～ʔəbhwâ**[64]

Cf. Chinese 婆 [glossed 'saunter; dance' in GSR 25q] ***b'wâ**[65]
[WHB] OC ***baj** > MC **ba** > Mand. **pó**

With semivowel Ersu ɑ[33]**wɑ**[55] (ZMYYC #318)

(31) b. ***p**[w]**əy**

This root is reconstructed as ***pəy** in STC #36.

Himalayish WT ʔa-**phyi**; Kanauri a-**pi**; Bahing/Vayu **pi-pi**

Kamarupan Mikir **phi**, Lushai **pi**, Garo a(m)**bi**

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[63] There are several other examples of PTB ***-ul** > WB **-we**, including SILVER and HAIR (STC, notes 54, 55).

[64] No other Lolo-Burmese cognates for GRANDMOTHER[1] (31c) have yet been uncovered, though there are many LB reflexes of GRANDMOTHER[2] (31b).

[65] Glossed 'old woman; grandmother (vocative)' in STC, p.174. See Benedict 1942.

Nungish Dulong ɑ^{31}**pi**^{55}

Lolo-Burmese

Lahu a-**pi** 'grandmother' and WB ʔə**phê**-ma' 'great-grandmother' point to a PLB *glottalized initial; but the Lahu rhyme reflex of ***-əy** should be **-ɨ**. Maybe the Lahu descends from an alternant ***ʔpey**. Many other Loloish cognates are to be found in ZMYYC #318.

Here too we can find scattered forms with semivowel initial:

rGyalrong (Zhuokeji/Suomo) ta-**wi**; Zaiwa a^{55}**v̩i**^{55}; Jingpho kă**woi**^{33}

I now think we should combine this root with ***pwi(y)** FEMALE (STC #171), especially since ***-iy** and ***-əy** are equivalent PTB reconstructions in Benedict's system. Besides the supporting forms given in STC #171 (Lushai and general Kuki **pui** 'feminine affix'; Jingpho **wi ≍ yi** 'feminine affix', śə**wī**～śə**yī** 'female'), we may add a number of other forms, including Lahu -ma-**pə** 'female of certain animals' (for discussion see JAM 1991 'Mother of all morphemes').

STC offers two Chinese comparanda, one to Set #36 and one to Set #171. They both look valid, i.e. allofamically related to each other as well as to this newly expanded TB etymon (30b):

妣 ***pi̯ər** [GSR 566n-o] 'deceased mother or ancestress'; compared to PTB ***pəy** 'grandmother'
[WHB 652] OC ***pjijʔ**～***pjijs** > MC **pjijX**～**pjijH** > Mand. **bǐ**

牝 ***b'i̯ən ≍ *b'i̯ər** [GSR 566i-j] 'female of animal'; compared to PTB ***pwi(y)** 'female'
[WHB] OC ***bjijʔ** > MC **jijX** > Mand. **bì ≍ *bjinʔ** > **bjinX** > **[pìn]**

4. Analysis and conclusions

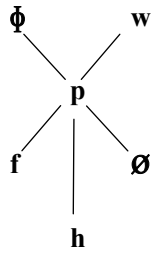
Let us look a bit more closely at the alternative lines of explanation for the observable inter- (and even intra-) lingual variation between labial stop and semivowel in ST:

4.1 Lenition and fortition

I used the term 'lenition' in this connection as far back as *VSTB* (JAM 1978:56-7), in a section entitled 'Resonantal alternation in root-initial position: *lenition* of labial stops':

> ...In several important TB roots (FATHER, PIG, BAMBOO, LEECH, HIDE, LEFT SIDE, SOLE, FLOWER) the modern languages show variations between an initial labial stop and the labial semivowel **w-**. Benedict formerly felt this...was due to prefixial influence (STC p.23), but has now taken the position that it reflects PST clusters like ***pw-** and ***bw-** (STC, n.78). I have adoped the term **lenition** from Celtic linguistics to characterize the appearance of an initial semivowel in a word-family that also contains members with the homorganic stop...If we accept Benedict's proto-cluster explanation, this 'lenition' is really nothing more than the metanalysis of the original stop-component of the cluster as a prefix, which was then free to drop...

While this passage at least clarifies to some extent the shifting positions taken by Benedict, it is obvious that to call this phenomenon 'lenition' (literally *softening*) is not an explanation, but merely a description referring to something like 'a loss of firmness of occlusion'. My colleague, the distinguished phonetician John J. Ohala, observes (p.c. 1998) that 'lenition is a cover term for a heterogeneous set of processes.' One can imagine various paths of 'softening' that a voiceless labial stop might follow, ending up as a voiceless labial fricative, a labial semivowel, or even as zero (perhaps via **h-**). It would be misleading to express this geometrically by a straight line (e.g. ***pak > ɸak > fak > wak > hak > ak**), since several different directions of change are equally well attested in the world's languages. A slightly better representation would be radial:



Familiar examples of these developments abound. Proto-Indo-European ***p-** became Proto-Germanic ***f-** by Grimm's Law, and evolved into Armenian **h-** and Irish **Ø-** (e.g. PIE ***pətēr** 'father' > Gothic **fadar**, Arm. **hair**, Irish **aθir**); Old Japanese ***p-** > Mod. Jse. **h-**; in Modern Hebrew there is still a process of lenition that still affects the voiceless stops /p k/, which often become [f x] postvocalically;[66] different North Indic

[66] Classical Hebrew had a much more pervasive lenitive process affecting all 6 stops /p t k b d g/, usually written 'ph th kh bh dh gh' in their lenited (spirantal) form. These spirants only had

dialects produced the allofamic forms *Nepali* and *Newari* (etymologically the same, though one is an Indo-Aryan language and the other is TB). But in all these cases the loss of occlusion follows regular sound laws, quite unlike the situation in TB/ST.[67]

The opposite process, *fortition* (defined as 'an increase in firmness of occlusion'), certainly occurs abundantly as well, though one could argue that it is somewhat rarer than lenition in the world's languages. Random examples include the development of Proto-Tai ***f-*** > **ph-** in Shan, Ahom, and many Central Tai languages (F. K. Li 1977:77-8), or the pronunciation 'Pilipino' acquired by the Spanish-derived name 'Filipino' in most of the indigenous languages of those islands.[68] In fact, however, the terms 'lenition' and 'fortition' can hardly be used meaningfully to describe all the various types of consonantal mutations that involve fricatives or semivowels. Is the regular development of Proto-Lolo-Burmese (PLB) ***/ʔw hw/** > Lahu **f** to be called 'fortition'? Or is PLB ***/ʔl ʔr ʔy hl hr hy/** > Lahu **h** to be called 'lenition'?

What we can perhaps say, is that on universal grounds **p-** is likely to be more frequent than **w-** as an initial consonant. Stops are optimally contrastive consonants; semivowels are the opposite, being the most vowel-like, and thus vulnerable to absorption both by neighboring vowels and neighboring consonants. In terms of our present problem, that is an argument against setting up two co-allofams of equal status at the proto-level, one with a stop and one with a spirant (e.g. ***pak ≍ *wak**). A fortiori, it is an argument against assuming a fortitional development of the type ***wak** > **pak**.

4.2 Prefix preemption

An analysis in terms of prefix preemption[69]would have to interpret the original root-initial to have been the semivowel, so that the labial stop was a prefix. While the reflexes with simple labial stop would then be the result of prefix preemption (e.g. ***p-wak > pak**), those with semivowel initial would have arisen through prefix loss. This was the view I expressed recently in JAM 1997 ('Laryngeals': n.14, p.33) in

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allophonic status until various phonemic mergers interfered with their patterns of complementary distribution with the stops.

[67] The late Middle Chinese phenomenon of 'dentilabialization', whereby certain labial consonant clusters like ***p(j)w-** became labiodental fricatives, might also be considered a kind of lenition.

[68] Another example would be the claimed development of Middle Chinese **d** from Old Chinese **l** (e.g. Pulleyblank 1961-2).

[69] This term was first introduced in JAM 1972, 'Tangkhul Naga and comparative TB.' It refers to the phenomenon of a prefix displacing a 'weak' root-initial consonant (i.e. a semivowel, nasal, or liquid).

connection with EGG/INCUBATE (see above, sets 24 and 25[70]): "This...illustrates a widespread variational pattern in TB, between initial labial stops and **w-**, which affects at least a dozen other excellent etyma...which I now reconstruct with prefixal **p-** plus **w-** root-initial, e.g. ***p-wak** 'pig'."

I am now pleased to retract this analysis! In the first place, as we have just noted (4.1), to assume that such a large number of roots began with ***w-** is improbable on universal grounds. Furthermore, there is no obvious meaning to this putative prefix ***p-**. Not that something always has to have a precise meaning to be called a 'prefix' -- the term 'formative' would perhaps be better to sidestep this issue. Still, the semantic heterogeneity of the words showing **p∼w** (including animals, body parts, artifacts, plants, kinship terms, verbs, etc.) certainly does not particularly favor a prefixal interpretation. There is no plausible morpheme that could have occurred as the first syllable of hypothetical compounds with all these words, so that they would have reduced (been 'prefixized') to a labial stop.[71]

A preemptional explanation *does* sometimes work with respect to reflexes of SNAKE (set 30, above), where one can plausibly suggest a binomial prototype ***bəw-rul** (***bəw** 'insect; vermin'), yielding preemptional reflexes like Magar **bul**.

4.3 Cluster simplification

From this point of view, we would assume there were original PTB/PST intrinsic clusters /*pw- *bw-/, with no morpheme boundary between the stop and the semivowel. These could then have simplified in either of two ways: by losing the stop (***pwak** > **wak**), or by losing the **-w-** (***pwak** > **pak**). This is one possible interpretation of Benedict's intent, when he writes the **-w-** on the line as an alternative reconstruction, e.g. '***pak=*pwak'**. In STC (n.78, pp.23-24) he explicitly invokes the cluster explanation: "The Chinese evidence (nn.463, 487) unmistakably points to initial labial stop + **w** clusters in several ST (and TB) roots, including those for 'father' and 'bamboo'..." Yet, wanting to have his cake and eat it too, at the end of the note he makes it clear that he feels these 'clusters' to have ultimately arisen from something else: 'The unusually large number of these labial stop + **w** initial clusters in ST suggests a relatively late origin from a simple labial stop...'

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[70] One might say that this position would lead one to claim that the initial in EGG was ***w** *ab ovo*, as it were.

[71] An example of a morpheme of this sort is PTai ***hmaak** 'fruit' that appears as **mə-** in so many Siamese plant names, e.g. **məmûaŋ** 'mango', **məkhy̌a** 'eggplant', **mənaaw** 'lemon', **məphráaw** 'coconut'. See F. K. Li 1977:75-6.

A serious problem with the intrinsic cluster scenario is that true clusters of labial stops plus **-w-** are typologically/areally/perceptually unlikely. There is little salience to a contrast between /p-/ and /pw-/ in initial position, especially before non-front vowels. (Even before front vowels such a contrast is excessively rare in TB.) There are virtually no contrasts in TB between ***pa-/*ba-** and ***pwa-/*bwa**. If there had truly been such contrasts, one would expect the examples of non-variant [pa- ba-] to be much more numerous than the examples of **p/b∼w** interchange.

4.3.1 Prefix vs. cluster

It is no idle exercise to draw a distinction between *prefix-plus-root-initial on the one hand and *intrinsic cluster on the other. Under favorable circumstances this difference can be utterly clear:

'weave'	PLB ***rak**	Lahu **g̈àʔ**	(LOW stopped tone)
'crossbow'	PLB ***krak**	Lahu **khâʔ**	(*velar-plus-**r** clusters yield Lahu front velars)[72]
'chicken'	PLB ***k-rak**	Lahu **g̈âʔ**	(HIGH stopped tone)

4.3.2 Influence of a 'prefixal' element (X-) coming before the labial stop

This seems to have been Benedict's first hypothesis (see above §1), symbolizable by formulae like **/*X + pak/ > X + wak**. In a way this is a version of the LENITION scenario, but it purports to explain the loss of occlusion in terms of a mysterious prefixal element for which there is no independent evidence. Benedict does not suggest a phonetic mechanism for this lenition -- e.g. is it that a stop prefix forces a stop initial to lenite in order to avoid an unpronounceable sequence of two stops? One way to explain it would be to assume something like the following:

X + pak > Xəpak > Xəßak > Xəwak > wak.

That is, a vowel, probably schwa, that accompanied this prefixal element must have put the labial stop root-initial into an intervocalic position, which could have led first to its voicing, then to its frication and eventual reduction to a semivowel. It is to be noted that we find secondary prefixes before both stop and semivowel initials, e.g. for PIG reflexes like **kəbak** and **kəwak** are both attested.

Another gambit would be to invoke metathesis of the prefix and the root-initial. Thus we could envision a scenario where the original prefixal element was ***s-**, which then assimilated to the root initial in point of articulation (this is exactly what has

[72] Contrast, e.g. 'expensive; at its peak' PLB ***kak** > Lahu **qhâʔ** (simple *velars yield Lahu back velars). See JAM 1972 (TSR), #'s 192, 9, 184).

happened to ***s-*** in Pumi Dàyáng [JAM 1998]), and later metathesized with the initial,[73] thus:

***s-pak**	>	**ɸpak**	>	**pɸak**	>	**pwak**
		assimilation		metathesis		lenition (here = defrication) of ɸ to **w**

4.4 The extrusional hypothesis *pa > p^{w}a

4.4.1 What is extrusion?

By 'extrusion' I mean the perseveration of a phonetic feature to the point where it oversteps the bounds of a single segment, so that it creates a second segment to which it imparts a portion of its phonetic substance. At this point we should make a careful distinction (or 'repartition') between *extrusion* and *epenthesis*. I would like to reserve the term 'epenthesis' for cases where there is the insertion of a phonetic element *ex nihilo*. Familiar examples of epenthesis would include phenomena like the appearance of a meaningless **-t-** in French third-person interrogatives, where the subject and verb are transposed from the declarative order, e.g. **y a-t-il** 'is/are there?' < **il y a** 'there is/are'; **parle-t-elle** 'does she speak?' < **elle parle** 'she speaks'. English examples include derivations like *Shavian* from *Shaw*, *tobacconist* < tobacco, *Ciceronian* < *Cicero*, etc. The **-t-**, **-v-**, and **-n-** in these examples are not directly derived from any neighboring segment, but are inserted 'from outside' as it were. On the other hand examples like English [warmpθ] 'warmth' or French *chambre* < Latin *camera* illustrate what I am calling 'extrusion': the [-p-] and the [-b-] here are natural perseverations of the labiality of the preceding phoneme [-m].

Clear cases of extrusion in Sino-Tibetan and other East Asian or European languages are not hard to find:

(a) In Lahu, the four labial phonemes /p ph b m/ are allophonically affricated before the vowel /u/, which is itself unrounded to [ɯ] in this environment:
/pu, phu, bu, mu/ → [pfɯ phfɯ bvɯ mvɯ̥]
(In the case of /mu/ the vowel often disappears entirely, yielding a syllabic labiodental nasal. See JAM 1973/82:3.)[74]

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[73] Metathesis is indeed an attractive explanation in other cases involving prefixes and root-initials. See Bodman's (1969) derivation of Old Chinese (OC) dental affricates from the PST ***s-*** prefix before dental stops; and more recently (1995) Gong's analysis of OC ***Cr-*** clusters as having arisen from PST prefixal ***r-***: ***r-C*** > ***Cr***.

[74] A similar development has occurred in Angami Naga, where syllables of the type ***ka*** typically develop into labial affricates, e.g. BITTER PTB ***ka*** > Angami **phfə**. See Weidert 1981 and JAM 1982.

(b) Similarly, the Japanese phonemic syllable /tu/ is realized as [tsɯ].

(c) In the Mianchi dialect of Qiang, the aspirated and voiced labial stops (but not unaspirated **p-**) are allophonically affricated before /-i/ (Evans 1998, p.2):

/phi bi/ > [pɕi bʑi]

(d) A particularly striking example is the Japanese treatment of loans from English with /kæ-/, which regularly develop an extrusional palatal glide -y- before the vowel:

cabaret	**kyábaree**	cabbage	**kyábetsu**
cabin	**kyábin～kébin**	cabinet	**kyàbine**
caddie	**kyádei**	Cadillac	**kyàderákku**
calico	**kyàráko**	camera	**kyámera**
camp	**kyámpu**	cancel	**kyánseru**
candy	**kyándee**	canon	**kyánon**
canvas	**kyánbasu**	cap	**kyáppu**
capital	**kyápitaru**	captain	**kyáputen**
caramel	**kyàrámeru**	caravan	**kyáraban**
carom	**kyáromu**	carburetor	**kyábu(rettaa)**
cast (play)	**kyásuto**	casting vote	**kyàsúchingu-bōto**
catastrophe	**kyátasutorofui**	catch ball	**kyàtchí-bōru**
catcher	**kyátchaa**	caviar	**kyábiya**
character	**kyára(kutaa)**		[*Kenkyūsha*, pp.1005-7]

This also occasionally occurs with borrowings of English words with **g-** (e.g. **gyaru** < *girl*), but note that the extrusion does not happen with English words in /ka-/ or /kʌ/:

car	**kaa**	color	**karaa**
collar	**káraa**		

Ohala (pers. comm.) accounts for this phenomenon in terms of the high f^2 of the acute (=front) vowel, which is parsable as a palatal offglide by the Japanese speaker.

(e) A similar phenomenon is the palatalization of Gallo-Romance ***ka-** > Old French **tša-** (> Mod. Fr. **ša-**), e.g. Latin **camera** > OF **chambre** [tšãmbrə] (> Mod. Fr. [šɔ̃br]).

(f) In the Dàyáng dialect of Pumi (Qiangic group of TB), the rhyme **-o** labializes *any* preceding consonant, e.g. /ró/ [r^{w}o] 'chicken', /gǒ/ [g^{w}o] 'mountain', /dǒ/ [d^{w}o] 'back', /ʃtʃhǒ/ [ʃtʃh^{w}o] 'to pound'. Here it is obvious that it is the vowel that is acting 'regressively' on the preceding consonant, rather than vice versa. This automatic labialization is in fact the chief auditory clue for distinguishing /o/

from the otherwise very similar diphthong /ou/, before which the labialization does not occur. (See JAM 1998.)

(g) Mandarin rhymes illustrate both types of extrusion:

(1) Where a phonetic feature is squeezed out of a vowel: the rhyme /**-o**/ induces labialization of most preceding consonants, e.g. /po to sho lo/ → [pu̯o, tu̯o, shu̯o, lu̯o].

(2) Where a phonetic feature is squeezed out of a final consonant: the final **-n** in the rhyme /**-un**/ causes a breaking of the vowel to [uə], e.g. /tun dun lun kun/ → [tuən, duən, luən, kuən].

4.4.2 The role of the following vowel

One might think *a priori* that the most favorable environment for the extrusion of [-w-] would be before a back rounded vowel. It is certainly true that several such examples can be found in TB (see the Lahu treatment of labials before **-u** (4.4.1(a), as well as sets 23-30, above), e.g.

EGG	***pu**	>	***p^{w}u**	>	***(p)wu**	>	***wu**
BELLY[1]	***puk**	>	***p^{w}uk**	>	***(p)wuk**	>	***wuk**

We can also find sporadic examples of labial extrusion before a high front vowel (e.g. BELLY[2] ***p^{w}ik** [23b, above]), though this is quite rare.[75] [76]

However, by far the most frequent vowel in TB/ST words showing stop/semivowel alternation is ***-a(-)**. (In fact all sets in STC that are deemed to show this pattern have this nuclear vowel.) In part of course this reflects the fact that ***-a** is overwhelmingly the most common vowel in PST/PTB, both in open and closed syllables. Beyond this, however, there seems to be something about the 'unmarked' quality of [a], the vowel that is neither front nor back, and that is not in contrast with

[75] One set reconstructed with a labial cluster that seems to have no reflexes with simple **w-** is: (32) BAMBOO RAT ***bwəy** (STC #173). All reflexes have **bw-**, **bu-**, **by-**, or simple labial stops, e.g.: WT **byi**-ba (WT has no **bw-** clusters), WB **pwê**, Lushai **bui**. There are, however, many irregularities in the Lolo-Burmese reflexes of this root: Lahu fâʔ-**phî** has an irregular manner and vowel reflex, apparently reflecting ***pwi** or ***pwey** instead of ***bwəy**; we would expect **-pɨ̂** < ***bwəy**. Akha ho-**pì** reflects ***ʔb** or ***ʔp**. (The account in DL p.1307 does not correctly characterize the Akha form.)

[76] In this connection, I must reiterate my withdrawal of an extrusional explanation for the Lahu variational pattern between back vowels and 'prelabialized' front vowels of the same height: u ～wi, o～we, ɔ～wɛ (JAM 1973:19). Instead of 'labial extrusion' this alternation reflects a palatal suffix which deprived the previous back vowel of syllabicity. See JAM 1995.

any other central vowel in PTB/PST open syllables, that makes it particularly vulnerable to the influence of neighboring consonants.[77]

4.4.3 The stages of the extrusional scenario

Our scenario (taking the syllable ***pak** as typical):

1		2		3		4		5
***pak**	>	**p^{w}ak**	>	**pwak**	>	**pə-wak**	>	**wak**
		extrusion		*phonologization*		*prefixization*		*prefix loss* or *cluster simplification*

As we have observed, the very large number of examples (and the fact that most of them have something in common with respect to the rhyme of their syllables) makes **p/w** interaction look like a purely phonetic phenomenon. The post-extrusional process may be broken down into several stages:

(A) Phonologization of the exudate

Once the semivowel has been extruded from the stop (symbolized by a small superscript ^{w}), it is available for phonologization; that is, it can achieve phonemic status, so that it is worthy of being written on the line, as /-w-/. (One could also call this 'segmentalization'.) By a sort of shift in the center of gravity of the articulatory gesture, it passes from an extrusional excrescence to an autonomous phoneme; from a predictable offglide, it becomes an autonomous component of a *consonant cluster*.

(B) Sesquisyllabization and prefixization

The stage is now set for a further shift in the 'articulatory center of gravity'. The semivowel can now be detached from the preceding stop by the insertion of an unstressed vowel, creating a morpheme that is 'a syllable and a half' long, i.e. a *sesquisyllable*.[78] The unstressed 'half-syllable' (or 'minor syllable') can then be treated as a prefix ('prefixized'), and is thenceforth subject to all the vagaries that can befall a prefix (especially loss or substitution).

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[77] Among such tendencies in other languages, we could mention the huge allophonic variation in the realization of the Arabic phoneme /a/, which ranges from mid front to central to mid back pronunciations according to the consonantal environment. Note also the backing of English /a/ to [ɒ] after **w-** (wall, wash, walk, water, etc.). This tendency has led to a merger in American pronunciation between the Mandarin and Cantonese pronunciations of the surname Wang (Mand. *wang* , Cant. *wong*).

[78] This term was first introduced in JAM 1973 ('Tonogenesis in Southeast Asia').

There are at least three kinds of sesquisyllabization:

(1) Due to reduction of a compound constituent:

Familiar examples include:

'son-in-law'	***za-mak** > WB **səmak** (***za** 'child; son')
'ant'	***bəw-rwak** > WB **pərwak**
'snake'	***sa-bəw-rul** > WT **sbrul** [səbrul]
	***bəw-rul** > ***bə-rəy** > ***mə-r^{w}əy**[79] > WB **mrwe** [mərwe]

If the compound constituent that was destined to become a prefix was a closed syllable (i.e. if it was of the form *C^1 + V + C^2), either the C^1 or the C^2 could become the new prefix. The schwa of the minor syllable may either be the remnant of the vowel of the former first syllable of the compound, or it may be epenthetic (especially if it is the C^2 which is the new prefix):

(i) C^1 became the prefix: e.g. PTai ***hmaak** 'fruit' > Siamese **mə-** in fruit names (see note 69).

(ii) C^2 became the prefix: e.g. Thai **náam-bɔ̀ɔ** 'well' > Mpi (Loloish) **m^{4}po^{5}** (see JAM 1978:13-14).

(2) Due to breaking up of an intrinsic cluster:

A prime example of this phenomenon is the fate in the Chin languages of the intrinsic cluster ***kw-** in the PTB root ***kwəy** 'dog', where the velar stop was reinterpreted as a prefix (***k-wəy**) and then dropped, yielding forms like Lushai **ui**, Lai Chin **uy**. DOG is in fact a most interesting example, since its initial consonant group has been interpreted in different ways in the various subgroups of TB:

- Tibetan changed the semivowel to **-y-**: WT **khyi**
- Loloish reanalyzed the initial as a unit phoneme, ***k^{w}** (> Lahu **phɨ̂**)
- Karenic also reanalyzed the velar stop as a prefix, and then substituted another prefix for it: **thwi**.[80]

(3) Due to phonologization of an extrusional phonetic feature:

This is the type of sesquisyllabization in which we have been especially interested in this paper, e.g. 'pig' PLB ***p^{w}ak** > ***pə-wak**.

(D) Prefixation at various points in the cycle

Note that the addition of a prefix can take place at several different points in our scenario, either before or after the extrusion of the labial semivowel. Where 'X' stands for any prefix, we may find any of the following outcomes:

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[79] Perhaps the deocclusion of the prefix (***b** > **m-**) is connected to the extrusional **-^{w}-** that developed after the **r-**.

[80] Benedict clearly recognized this phenomenon with respect to Karen (STC, p.133).

(a) a prefix added to the bare bilabial stop (no extrusion): ***pak** > **X-pak** (e.g. **kəpak**, **təpak**);
(b) if there is an extrusion, once the original labial stop has been 'prefixized' (reinterpreted as a prefix), it can drop: ***p(**^{w}**)ak** > ***p-wak** > **wak**;
(c) after such a prefixized stop has dropped, the remainder of the syllable (now with initial semivowel) can be *reprefixed* by a new element (e.g. **kəwak**, **təwak**); cf. e.g. Karenic ***thɔʔ** < ***t-wak**;
(d) a reprefixation can occur without displacing the earlier prefix, yielding forms with double prefixes,[81] e.g. WB **krwat** 'leech' < ***rwat** < ***r(p)wat** < ***r-pwat** < ***r-p**^{w}**at** < ***r-pat**.

Note that my usual formulation of the PTB syllable canon gives the wrong impression with respect to the diachronic status of multiple prefixes:

(P^1) (P^2) Ci (G) V (Cf) (s)

The numerals 1 and 2 have been intended merely in a synchronic linear sense, from left to right; but it is more meaningful to number them in diachronic order of antiquity (and I shall henceforth do so):

(P^2) (P^1) Ci (G) V (Cf) (s)

4.5 Some remarks on Chinese reflexes of p/w etyma

We will not attempt here any detailed analysis of the putative Chinese cognates to the TB **p/w** etyma that have been offered in this paper, but will content ourselves with a few general remarks.

If we more or less accept Karlgren's GSR reconstructions of these etyma (as Benedict does in STC; see especially n.463, p.174), most of the OC comparanda show a medial **-w-** after a labial stop (e.g. ***pi̯wo**), or else a labial stop plus a reconstructed vowel ***-å** that has affinities with such a medial glide. This suggests that the extrusion of the semivowel took place in Sino-Tibetan before the split-off of Proto-Chinese from PTB. However, the extrusional cycle we have outlined seems never to have further unfolded in Chinese to the point where the **-w-** drove out the preceding stop and became the new root-initial.

In other systems of reconstruction no **-w-** is posited for these roots; e.g. Karlgren's rhyme ***-å**, appearing in roots like BAMBOO, PALM, PIG, corresponds to Li Fang Kuei's ***-rag**, **-jiag**, and to Baxter's ***-ra**, **-j**A. (This is the rhyme category **yú** FISH, which appears in both Divisions II and III in the rhyme tables. The Div. II words are

[81] Naturally it is the historically older prefix which is closer to the root. In Chinese terms we could call the 'inner' or more ancient prefix the **nèiqiánzhuì**, and the 'outer' or younger prefix the **wàiqiánzhuì**.

reconstructed by Baxter and Li with ***-r-**, and the Div. III words with ***-j-**; see Baxter 1992:478-83.) Is it not possible that at least some of the Division II words are really to be reconstructed with ***-w-** and not ***-r-**? In any case, one is forced to admit that variation between **w** and **r** is by no means rare in ST/TB, both at the level of reconstructed etyma and within a single synchronically observable language.[82]

4.6 Extrusion viewed in broader terms

For what we have been calling 'extrusional' phenomena, John Ohala has been using the term *emergent.* The concept of 'emergence', borrowed from evolutionary biology, refers to a 'novel structuring of behavior from a reconfiguration of preexistent elements'. Familiar examples include the wings of insects and the feathers of birds, originally evolved for temperature regulation, later used for flying; the wings of bats (from earlier fingers); and closer to home, the secondary functions of the larynx in speech, as opposed to its primary biological functions (including protection of the esophagus, and creating a pressure differential to aid in defecation).

Ohala (pers. comm.) points out that grave (=non-front) vowels have a low f^2, which favors their labialization[83] -- i.e. the extrusion of a labial offglide -- just as acute (=front) vowels, with their high f^2, favor the extrusion of a palatal offglide. That these offglides can sometimes achieve more salience than the segments from which they sprang should be no more surprising to us than the fact that we now use our larynges for other purposes than to expel our intestinal contents.

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[82] For a general discussion of variation between medial glides, see JAM 1978 (VSTB:33-36). I have devoted a whole article (JAM 1985) to the reconstruction of the ST copula, which has two equally well-attested allofams, ***ray** and ***way**. We have seen above (SPINDLE #19) how modern Lahu doublet forms (e.g. **vɜ̂ ≍ ɡɜ̂** 'spin, whirl') reflect earlier ***w ≍ *r** variation.

[83] Pharyngealization (which involves a lowering of f^2) is therefore not likely with labials or velars, whose f^2 is already low.

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