

Initial consonants in Yipo-Burmic and their effect on tonogenesis with special attention to stop-final syllables.

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Introduction.

The two major sides of the Yipo-Burmic (Lolo-Burmese) language family both contain many examples of languages whose tone-systems are sufficiently complex to reflect two, or sometimes more, different reflexes developing out of the Common YB (cYB) tonal categories. In Lahu, for example, words with a mid-level tone often derive from cYB Tone-Conture One (TC-I) when the word had a voiceless initial, thus typologically similar to Mandarin Tone-1 (*mā*) while words with a low-falling tone also derive from cYB TC-I, but from formerly voiced initials, parallel to Mandarin Tone-2 (*má*). On the Burmish side, Bola, for example, shows no such split in its tonal reflexes for TC-I, but words with a high-rising tone often derive from TC-II with voiceless initials, whereas words with low-falling tone as a rule derive from TC-II with voiced initials in cYB. Conversely, Lahu fails to show such a split for TC-II (although it does show a TC-II split based on another, less commonly seen distinction).

For the historical phonologist it is particularly unfortunate that the language with the oldest records in the YB group, Inscriptional and Written Burmese, itself lacks any tonal splits at all, thus, despite all its other valuable evidence, Burmese contains no information about the earlier voiced vs. voiceless status of cYB non-resonant initials. This is a fact which seems to have eluded some scholars working in this field.

Based on the languages which do show such tonal splits, many aspects of the YB group's phonological history have been worked out to the agreement of many investigators, although in the case of the Burmish side such work has been very recent. But with regard to TC-IV, the category of words that can be deemed to have had final stop consonants in cYB, there is significant disagreement among scholars. The variety of initial-types found to occur in present-day YB languages within the tonal categories that must be reflexes of cYB TC-IV is larger than one would expect based on the fairly simple explanations that have been worked out for the other Tone Contures, and the confusion lies in various scholars' attempts to explain this unexpected distribution. Resonants are typically associated with voiced initials from the proto-language, but here we find them also on the other side of the tonal split derived from voiceless initials. Most particularly, aspirated stop initials are found in many of these languages on both sides of the tonal split within this TC-IV group. This paper examines the major theories which attempt to explain this tonal split in TC-IV, and introduces a new view based on known historical developments in Chinese, Karen, Thai, and particularly in Tibetan.

Distribution of initials in TC-IV syllables in YB.

We will examine the types of initials which can occur in languages of the YB group. Since our interest is in understanding the behavior of categories of sounds, it is not necessary to catalog every single type of initial possible. For this preliminary investigation it will suffice to pick a suitably representative language from the Burmish side and the Yipoish side of YB.

Burmese, the best-documented language of the YB group, preserves all four tonal categories from Common Yipo-Burmic (cYB), but, apart from a series of voiced and voiceless resonant initials, shows no differentiation which would reflect earlier voicing distinctions for other initials. Given the complex relationship that we often see between present-day reflexes of initial stops and their historical sources in various languages of East Asia, it would, in the context of TC-IV syllables, be reckless to assume that a Written Burmese (wBrm) syllable such as *pak* must always derive from an earlier **(C)bak*, or that a wBrm syllable such as *p'ak* can only be a reflex of earlier **(C)pak*. This issue will be further discussed later.

For now, let us take a closer look at Zaiwa as a representative of the Northern Burmish group in which TC-IV syllables often do show a tonal split, that is to say a division into an upper and a lower register. If we look at the distribution of initial-types seen in TC-IV words (in Yabu 1982) we find several types of skewed distribution: Voiceless aspirated stops and fricatives (*s - š - x*) are, excepting a few rare examples --- mostly loans from Jingpo --- not found in the lower register, and unaspirated stop initials are not found in the upper register unless accompanied by tense voicing. Of the nineteen types of resonant-initial syllables found in the upper register, all but one have tense voicing, otherwise the resonant initials are all in the lower register. Vowel-initial words are in the upper register.¹ Thus, some typical examples are: *áp - júp - lòq - ñóq - mjòq - sát - čúp - čak - šít - t'óq - kút - pjùq - xáq - kjíp* (JP loan). The distribution of the various initials can be simply explained by seeing the upper-register as a development from voiceless initials, and the lower register from voiced initials. Here we can remember Thurgood 1977 (p.156): "It is a well known acoustic fact that a vowel following a voiced consonant has a lower pitch than a vowel following a voiceless consonant."

The aspirates and fricatives had no voiced counterparts, thus no presence in the lower register; the normal explanation for resonants in upper register is that they had been rendered voiceless due to a prefix such as *s-* or *h-*; such prefixes also insured the voiceless quality in words such as *kút*.

On the Yipoish side, Lahu has a clear distinction between upper and lower register in stop-final syllables, and also in the unmarked TC-I category, but since the mid-tone in Lahu is also a reflex of TC-III, we will only consider the TC-IV (stop-final) category here. A search through the whole of Lewis 1986 reveals the following distribution of initials:

upper register:

b - c - c' - d - f - g - γ - h - ʒ - k - ḳ - k' - ḳ' - m - n - ŋ - p - p' - s - t - t' - v - j

lower register:

b - c - c' - d - f - g - γ - h - ʒ - k - ḳ - k' - ḳ' - m - n - p - p' - s - t - t' - v - j

We can see that the distribution is virtually the same, which could indicate that the two tone-registers are basically of independent origin, but if we consider frequency, we find that the matter is not so simple.

Vowel-initial syllables, excluding a couple cases of onomatopoeia, all are low-register except for the morpheme 'oq 'form cracks'. The lower-register *f-* is only found in one Thai loan, contrasting with numerous upper-register *f-* words. A similar distribution holds for *h-* and *s-*. The distribution of resonant initials is, in general, more skewed towards the lower register. These facts can be explained by again assuming that the lower register derives from earlier voiced initials, and the upper one from voiceless. But when we look at the stops, the picture is not so clear. If we

count by individual entries, we find, for dentals and labials:

upper register: 51 *d-*, 53 *b-* 75 *t-*, 60 *p-* 26 *t'*, 60 *p'*
lower register: 21 *d-*, 19 *b-* 43 *t-*, 30 *p-* 22 *t'*, 68 *p'*

Now, if the upper register is associated with voiceless proto-initials, what are all those voiced stops doing there, over twice as many as in the lower register? And although it makes sense that *t-* and *p-* are much more seen in the upper than the lower, but why should they be in the lower at all, and especially why are there all those aspirated *t'* and *p'* in the lower register?

Explanations for the distribution.

An explanation for much of this can be found in Matisoff 1972: the upper-register voiced stops derive from earlier prenasalised voiceless stops, e.g. *t-* *p-*, those in the lower register then derive from *d-* *b-* etc. The lower-register *t-* and *p-* here were said to derive from earlier *d-* and *b-*, which would then have a surprisingly low frequency in this sample. The aspirated stops in lower-register, although rather plentiful, had the most elaborate (~ marked) derivation: they were said to be originally voiceless stops but prefixed by some voiced prefix (evidently excluding the homo-organic nasal). So, for example, Matisoff was led to account for the difference in Lahu between a high-toned form like *k'áq* 'crossbow' and a low-toned form like *k'òq* 'six' by positing a prefix, probably *d-* in this case, before a voiceless **kruk*.

Matisoff theorised that the "voiced prefixes" seen in Written Tibetan (*g-* *b-* *d-* *r-* *l-* *ʕ-*) were also found in proto-Yipoish; the argument being: 'six' must have had a voiceless velar stop in order to turn into the present voiceless aspirate (according to Benedict's system laid down in the STC), but the tone category is low, so there must have been a voiced prefix before the velar stop that caused the word for 'six' to end up with a low tone. This would be in agreement with the generally observed tonogenetic phenomenon seen throughout East Asia, including in Chinese, wherein voiced initials develop into low tones and voiceless initials into high tones.

Li 1996 offers quite a different view on the early shape of YB. He would posit no consonantal prefixes at all for the cYB stage, although he accepts them for Common Tibeto-Burman (cTB). Although he accepts the Matisoff-Bradley version of a two-way (e.g. *p b*) distinction in initial stops for cTB, he reconstructs a four-way distinction for cYB: *p - p' - b - b'*. He also recognizes the likelihood that the difference between, say, cYB *p-* and *p'* is due to the influence of prefixes at the cTB stage; also that where one YB language has *p-* corresponding to *p'* in another YB language, that is also likely due to the influence of cTB prefixes (op.cit. bottom of page 2). I cannot follow Li's logic here: if we are talking about prefixes still in the cTB stage, there would not even be any cYB language in existence, let alone any individual YB languages to be influenced.

Li's cYB **b'* is indeed an oddity: although we find such four-way stop-arrays in many languages of the Indian subcontinent, they are practically non-existent in East Asia, the Sino-Tibetan sphere. Furthermore, one usually reconstructs **b'* in order to account for a combination of voicing and aspiration seen in daughter languages, e.g. voiced aspirates for Indo-European, although increasingly in doubt, were to account for the aspiration seen in its reflexes in Sanskrit and Greek (and of a sort in Latin, too). Li's **b'*, however, has no aspirated reflexes (op.cit. page 4), so I suspect it could be better interpreted as "some different kind of **b-*".

In Li 1992 he first suggests three different factors which may influence the development of

differences in tone: 1) variation in type of initial 2) presence or absence of a final 3) variation in vowel-length. Looking at data similar to the distribution of initials seen in Lahu's upper and lower tone register portrayed above, Li found no reason to try and explain the distribution of initials in stop-final syllables, instead he decided that the distribution was irrelevant. This was easier to do since he had already decided, rather categorically, that there could also have been no prefixes in cYB to influence tonogenesis.

Li's second factor is not a variable here since all the syllables being considered have the same kind of final --- a stop. By Li's logic, that left #3 as the only possible explanation, and conveniently he found a single TB language, Hani, which shows a slight variation in vowel-length between closed syllables in upper and lower register. Although other scholars have taken this variation to be sub-phonemic since there is already a contrast in tonal categories, Li took it to mean that the tonal contrast was secondary, that all YB languages must have originally had this length-variation also, but that it is now preserved only in Hani. Li's theory would also presumably need to explain this length-contrast in cYB by deriving it from cTB. Unfortunately, other than in Hani there is no evidence for such a variation, especially in the set of words required for it under Li's system, anywhere in TB or even in YB languages.

Neither does Li present any explanation for the distributional details mentioned above: why should syllable beginning with sounds such as *f-* *š-* *x-* be so much more common with Li's "long-vowel" proto-rimes? And why should resonant initials favor "short-vowel" proto-rimes? Further, in systems which contain vowel-length contrasts in stop-final syllables, the same contrast is commonly found in the other closed syllables (i.e. nasal finals) also; why not in Li's cYB? The eleven Tai-Kadai languages described in Wang 1984 all have vowel-length contrasts before stop codas, but also before other (i.e. nasal) codas; this is also true of Lakkia, You Mien and Mun (both in the Hmong-Mien group). Such contrasts are rare in TB; in lsTib, for example, although there are short and long vowels, the contrast is not found in closed syllables. Where it is found, as in Tiddim Chin, the contrast again occurs with any type of coda, not just with stop endings. Is there any real language, particularly in East Asia, with such a phonological typology as Li proposes for cYB?

Given these serious problems involved in using Li's analysis of tonogenesis in YB, can we instead rely on Matisoff's analysis or its subsequent, quite similar treatment seen in Bradley 1978? Although some aspects of this model are useful, its explanation for low-tone aspirates in Lahu, Hani et al. is deficient in several ways:

1) There is no evidence either from Old Tibetan or from modern Tibetan dialects that the wTib prefixes usually transliterated as *g-* *b-* *d-* were ever really voiced; the same letters have also been used since the beginnings of wTib to indicate final stops which, according to all cognate evidence as well as typological arguments, must have been and still are voiceless; in a sense we can regard this series in wTib as representing the unmarked stop which can occur in three different positions, e.g. *gsar - sgo - lug*. Even *r-* and *l-*, where they are still articulated as prefixes in certain modern Tibetan dialects, are unmarked for voicing; their voicing status simply assimilates to the following consonant. Merely relying on the appearance of the written symbols is thus no more an argument for voiced prefixes than for voiceless ones. If we look at the nature of prefixes in those TB languages which have them in abundance nowadays, it would appear that voiceless prefixes are actually more typical.

2) For many words which would need to be reconstructed with such a prefix in order to solve this "problem" in the YB group, there is no evidence for such prefixes in the YB group or even in

other TB languages.

3) Even if such a prefix had existed in the ancestor of words such as Lahu *k'òq*, it may well have prevented the aspiration of **k-*, not caused it, as in Li Fang-Kuei's analysis of Tibetan, e.g.: **ka* > *k'a* but **d + ka* > *dka*.

4) Such an explanation for low-toned aspiration is not the most simple one available; it is unnecessarily complicated and thus violates Occam's Razor. It further lacks any corroborative evidence in the Sino-Tibetan linguistic area.

The relevance of Tibetan language history to this problem.

The above discussion of the phonological history of the YB group is tinged with a certain degree of unreality, like many issues in TB reconstruction, because our knowledge of earlier stages of the language remains so scanty and piecemeal. An exception to the rule is the Tibetan language which, after the Indic manner, has from the beginning been written in a script which appears to have reflected all essential details of its early phonological system. With earliest records extending back over 12 centuries, Tibetan provides a unique opportunity to examine subsequent developments in numerous dialects in light of the early written records. Let us briefly look at tonogenesis in Lhasa Tibetan (lsTib) with particular reference to words with initial stops and resonants.

Distribution of initials in various tone categories of lsTib.

Initials found in the upper tone register are *k- k'- h- ŋ- š- c- c'- s- l- r- n- č- č'- ñ- p- p'- m- h^mm- w-*. With the exception of *c'-* and *h^mm-*, all these can also occur in lower tone register words. The *h^mm-* initial is highly marked, only occurring in the syllable *h^mma* as an alternate for the negative prefix *ma* when it occurs with aspirated initials, e.g. *t'op* (obtained)- *h^mma-top* (didn't obtain). In addition there are vowel-initial words found in both registers, although co-articulatory factors may suggest an alternate interpretation.

The explanation of this distribution, confirmed by both wTib spelling and reflexes in certain conservative present-day Tibetan dialects or loans into neighboring languages, is that all the words in lsTib low-tone register derive from forms with voiced initials, and that the aspiration seen in some of the words with stop initials is due to a lack of prefix before the earlier voiced initial, e.g. lsTib *to* (feather) :: Alike Tib. *ržo* :: wTib *sgro* vs. lsTib *t'up-ši* (square) :: Tsangla *žup-ži* :: wTib *gru-bži*. The upper tone register is derived from words with earlier voiceless initials, and the explanation for resonants appearing also in this category is that they derive from earlier resonants devoiced by certain prefixes, e.g. lsTib *nā-kuq* (nose) :: Bathang Tib. *hⁿna* :: wTib *sna*. So, although it first appears irregular that aspirated initials appear in the lower register and that resonants appear in the upper register, these two traditional analyses as applied to lsTib offers a simple, reasonable explanation. Whereas the latter analysis has also gained general acceptance within YB studies, it is curious that the explanation for the presence of aspirated stops in low tone register and its relevance to YB has simply been ignored, not even refuted.

Applicability of a similar analysis to distribution problem in YB.

The lsTibetan model as applied to the words for 'six' in YB would then be quite simply: wBrm *k'ruk*, ZW *k'júq*, Lahu *k'òq*, lcHani *kùq* < **k'rùk* < **gruk*
Because wBrm does not show different reflexes for former voiced vs. voiceless initials, its reflex for a hypothetical ***k'ruk* would be the same as for 'six'. Since native ZW words with aspirated initials only appear in upper tone, that is where we find 'six' despite its ultimately voiced origin. The Lahu and Hani reflexes remain in the lower tone as expected with originally voiced initials, and have gained aspiration merely due to the initial being a voiced stop. There are some important refinements to this process to be discussed further below.

Some corroboration from other branches of TB.

I assume this aspiration of voiced initial stops must have come about very early in the development of YB since there are no traces of voicing in the initials of such words in any YB language I am aware of. This is not the case when we look beyond the YB group to other branches of TB. In the case of 'six', we find clear evidence for voicing in the Tibetan language and its relatives, and possibly in Southern Kuki-Chin also. In the case of 'vomit', e.g. ZW *p'át*, we see cognates with overt voicing of the initial in Paku (Karen group), in Bogar, Apatani, Gallong (Tani group), and in Boro, Tripuri (Baric group). Another example is: wTib *grok·po* (lsTib *t'òq*), XD Achang *·k'ròq* < **grok*, wBrm *k'jok* < **gruk*, Jino *·č'ó* < **grok* 'valley, ravine', cf. Paku Karen (*t'í*) *glō*, M. P̄yo Karen *k'lòq* < **gloq*, Chinese 瀆 *duk* < **glók* 'ditch, gully'.

Comparison of similar phenomena in Tai, Chinese and other languages.

What Li Fang-kuei reconstructs as proto-Tai **b-* regularly appears as *p'* in the large SW Tai area including Standard Thai. The same process, change to a voiceless aspirate, has occurred with the other proto-Tai voiced stop initials. Aspiration of former unaspirated voiced stops also is widespread among Chinese dialects, but varies according to the tone-categories it is seen in. In Mandarin Chinese it is as a rule only seen in former "level-tone" 平聲 --- the unmarked category --- but in more southerly dialects this aspiration is found in more tonal categories; in the Gànn and Hakka dialect groups it is usually found in all tonal categories. In Shuāng-fēng, the conservative Xiāng dialect, it is found only in stop-final 入聲 syllables.

Among TB languages, this neo-aspiration is seen in Pwo Karen in all three of its tonal categories; it is common in Mikir (Kuki-Chin-Naga group) and of course in the dialects of Central Tibetan such as lsTib mentioned above. Under certain circumstances this process also took place in Jingpo, Rawang (Kachin group), and outside of TB in various languages of the Hmong-Mien, and Mon-Khmer groups. Thus in the Sino-Tibetan linguistic area there is a widespread pattern of voiced stop → aspirated voiceless stop; it is an accepted, common-place fact of the area's linguistic history.

This paper's new proposal.

For this reason, and because of the inherent simplicity of the process, I have proposed that this process also occurred, at an early stage, in the YB group. In Yipoish languages such as Lahu, Hani, and Lisu this change *g-* > *k'* (low tone) etc. which I propose appears to occur only in his-

torically stop-final syllables, i.e. those whose cognates have final stops in Written Burmese. How can we compare this with the global changes of $g- > k'-$ found in Hakka Chinese or in Lhasa Tibetan? There is no reason why such a change need be global: in Mandarin Chinese, for example, this sort of change from a voiced stop to a voiceless aspirate is almost exclusively limited to the level-tone. The best match for the change I propose in Lahu (and most other languages in the YB group) is found in three different languages of southern China: 1) Shuāng-fēng Chinese (mentioned above), 2) Bān-Xī Hmong (in the Qián-dōng group), 3) Shuāng-lóng Miēn: in these languages the change of voiced (unaspirated) to voiceless aspirated stop occurs only in words with final stops, just as I am proposing for Lahu and its relatives (Chen 1991 page 3).

There are also many other low-toned words in the TC-IV category with initial stops that do not show aspiration. What is the reason for this? I propose that again we follow what is already established fact in the history of Tibetan and regard this category of words as having had a prefix that prevented aspiration of the prevocalic or "root" consonant. This is the generally accepted analysis of this development in Central Tibetan, and also is more generally applicable, cf. Li Fang-kuei's principle mentioned above: $*ka > k'a$ but $*d + ka > dka \cdot [ka]$. Whether any traces of such proposed prefixes can be found in present-day TB cognates is of course a difficult matter, but the Matisoff/Bradley theory faces the same problem with their $*cbak$ category. An example where prefixes can be found is 'crooked, bent' with *rgo* (reduplicated) in E.Gyarung and *d-goq* in Drung; the verbal form (be crooked) has a prefix in JP, Jino and Zhábà. Northern Yipo (Y35) *là-gú* may be showing a prefix, but in general we should not expect to find many traces in YB.

The above proposals necessitate a revision of at least one other category in the prevalent Matisoff/Bradley theory on cYB; in a future paper I intend to detail this whole matter. Here I only summarise with a provisional table which is based on the model found in Matisoff 1972 (LTSR):

wBrm	Lahu	--- Yipo-Burmic ---	
		LTSR72	new proposal
p'ak	p'àq	*C-p(h)ak	*bak
p'ak	p'áq	*p(h)ak	*pak
pak	pàq	*bak	*'bak

The difference between the first and the second line in this table then can be explained as simply due to the Burmese tendency to lose the distinction of voiced vs. voiceless. This set of sound-changes I propose is, in the case of Lahu, just the same as has long been documented in Tibetan. ($*'bak$ = containing some undefined prefix)

Data-sets: some examples of correspondence sets from YB.

Table-1 below shows the reflexes --- abstracted as "stop + vowel + final stop" --- in several YB languages, and to the left are my proposed cYB sources for the reflexes. In this table and in the data-sets below I draw particular attention to Y38, an Eastern Yipo dialect of Wǔ-dìng County, Yun-nan, since it is an excellent example of the widespread, ongoing nature of the mechanism for aspiration I have proposed.

Table 1: reflexes of stop-final syllables in YB

cYB	Y38	Y35	Y39	Lisu	Lahu	lcHani	mjHani	wBrm	nBsh
<i>pak</i>	<i>p'â</i>	<i>p'ā</i>	<i>p'â</i>	<i>p'á</i>	<i>p'áq</i>	<i>páq</i>	<i>p'á(q)</i>	<i>p'ak</i>	<i>p'ák</i>
<i>xpak</i>	<i>pà</i>	<i>pā</i>	<i>pâ</i>	<i>pá</i>	<i>páq</i>	<i>páq</i>	<i>p'á(q)</i>	<i>p'ak</i>	<i>xpák</i>
<i>ʼpak</i>	<i>ʼp'â</i>	<i>ʼbā</i>	<i>bâ</i>	<i>bā</i>	<i>báq</i>	<i>báq</i>	<i>pá(q)</i>	<i>pak</i>	<i>pàk</i>
<i>'pak</i>	<i>bà</i>	<i>bā</i>	<i>bâ</i>	<i>bā</i>	<i>páq</i>	<i>báq</i>	<i>pá(q)</i>	<i>pak</i>	<i>pàk</i>
<i>bak</i>	<i>p'á</i>	<i>p'á</i>	<i>p'â</i>	<i>p'â</i>	<i>p'âq</i>	<i>pàq</i>	<i>p'âq</i>	<i>p'ak</i>	<i>p'ák</i>
<i>xbak</i>	<i>pá</i>	<i>pá</i>	<i>pá</i>	<i>pâ</i>	<i>pá</i>	<i>pàq</i>	<i>p'âq</i>	<i>p'ak</i>	
<i>ʼbak</i>	<i>ʼp'á</i>	<i>ʼbá</i>		<i>bâ</i>	<i>bàq</i>	<i>bàq</i>		<i>pak</i>	<i>pàk</i>
<i>'bak</i>	<i>bá</i>	<i>(ʼ)bá</i>	<i>bâ</i>	<i>bâ</i>	<i>pàq</i>	<i>bàq</i>	<i>pàq</i>	<i>pak</i>	<i>pàk</i>

The reflexes in this table for Y38 are very similar to those of “Lü-ch’üan” Yipo in Figure 10 (page 23) of Matisoff 1972, but the reflex *bà* < *ʼ*pak* seen here is not listed in Matisoff’s table. The x- prefix is a symbol for stridency.

Data-sets: the number on the left is for entries in YZ (Huang 1992), and the first entry is always Y38. (:: = “is proposed as being cognate to”). “Y” before a number = Yipo and the numbers refer to dialects listed in YY (Fu 1991) or YZ.

cYB voiceless initials:

#0066 *k'â* :: Y35 *kā* Y37 *k'ā* Y39 *č'ê* :: Lisu *k'á* :: Lahu *k'áq* ‘village’

#0097 *ç'â* :: Y35 *č'ā* Y36 *ç'ā* Y37 *č'ē* Y39 *č'ê* :: Lisu *č'é* :: Jino *č'a*

:: ZW *č'óq* wBrm *k'jak*

#1391 *t'â* :: wBrm *p'jak* < **p'rak* (cf. #1390) ‘destroy-(vt)’

#1780 *c'î* :: Y35 *c'ī* Y36 *c'ī* Y37 *c'ī* Y39 *c'î* ‘blink-’

Comments: It can be seen that Y38, although described in the Chinese literature as an “Eastern Yipo dialect”, also shows the register inversion characteristic of Northern Yipo.

#1545 *t'î* :: Y35 *c'ī* 36 *t'ī* 37 *t'ī* 39 *t'î* :: Lisu *t'í* < **x'tiq*

:: lcHani *t#q* :: Lahu *t'íq* < **t'iq* (< **x'tiq* ?) ‘brew- (tea)’

#1803 *t'ù* :: Y35 *t'ū* Y39 *t'ū* :: Lisu *t'ó* :: lcHani *tuq* :: wNaxi *t'v*

:: cNusu *tuq* < **x'tuk*

:: Y37 *t'ō* :: Lahu *t'óq* :: Jino *t'ó* :: ZW *t'úq* wBrm *t'ok* < **tuk*

‘use / lean on (a walking stick)-’

#1805 *čā* :: Y36 *čī* Y37 *čā* :: cNusu *kraq* :: ZW *kjāq* < **xkraq*
 << **xgrat* ? cf. JP *m·kraq* :: Drung *m·grat* 'grab, seize-'

Comments: In #1803 we see an early variation between a plain voiceless initial and one with the strident prefix. If, as seems necessary, we regard the various Yipo dialects as having derived from a unitary source, and also if we view as unlikely that three quite distinct dialects would independently add on the same prefix to this verb, then the prefixed form must be original, and the prefix later dropped off in Burmese (necessarily) as well as in other languages in both the Yipoish and Burmish groups.

#0584 *č'ū* :: Y35 *čū* 36^{vt} *čū* 37 *čū* 39 *čū* 22 *čō* 25 *čū* 26 *čū* :: Jino *c'jœ* ?
 :: ZW *còq* (< **'zok* < **'cok* ? or < JP *còq* ?) 'lock-'
 #1611 *·p'ə* :: Y37 *bā* Y39 *bā* < **'p-* Y25, 36 *bā* :: cNusu *beq* :: Lisu *bī* < **'pəq* ?
 :: lcHani *bā* < **'pəq* :: Lahu *bóq* < **'pəq* ?) :: Jino *pə* < **'pəq*
 :: nBsh **bek* (< **'pek* ?) :: wBrm *pas* < **'bec/'pec* < **'pek* < **'pek*
 'shoot-' (also cf. Y35, 22 *'bē*)
 #1736 *'k'ū* :: Y39 *gū* 'write-' < **'k-*

Comments: Going by other YB cognates, the words in this set appear to derive from forms with prenasalized unaspirated initial stops, but the presence of the nasal prefix, or onset if you will, must be associated with the neo-aspiration seen in Y38.

'Shoot-' shows variation between a nasal and non-nasal prefix.

#1207 *dù* :: Y35 *dū* Y36 *dō* Y37 *dū* Y39 *dū* < **'toq* :: Lisu *dō* < **'toq*
 (#1619) :: Jino *to* :: lcHani *dū* < **'toq* :: Lahu *tóq* < **'toq* :: wNaxi *t'v̄*
 :: Gazhuo *tôq* :: wBrm *t'wak*, ZW *t'óq* < **'tok* 'come out-'
 #1341 *də* · :: Y37 *dā* < **'təq* ? :: Lisu *dī* :: cNusu *·d#q* 'sever-(vi)'
 #1366 *žū* :: Y35 *žū* Y39 *gū* :: Lisu *žō* < **'čoq* :: lcHani *gūq*
 :: Lahu *kóq* :: Gazhuo *čôq* < **'kruk* :: cNusu *gruq*
 :: nBsh **kjùk*, wBrm *krok* < **'kruk* 'be afraid-'
 #1390 *dā* :: Bola *·xpjéq* :: wBrm *pjak* < **'pjak* < **'prak* (cf. #1391) 'destroy'
 #1539 *dā* :: Y35 *dō* Y36 *dī* Y37 *dē* Y39 *dē* :: Lisu *dē*, lcHani *dā* < **'tak*
 (#1609) :: Jino *ta*, Lahu *táq* :: Gazhuo *tāq* < **'tak* :: wNaxi *dō*
 :: nBsh **tàk* < **'dak* / **'tak* :: wBrm *tak* < (**'tak* <) **'tak* 'climb-'

Comments: In this set although there may be nasalised prefixes in some other languages, Y38 has despecified the prefix, i.e. it is still [+cons] but no longer [+nas] and the result is lack of aspiration in Y38. - On the Burmish side there seems to be some confusion between proto-initial types such as **'t-* / **'p-* and **'t-* / **'p-* resulting, in the case of nBsh, in low-register forms, or, in the case of Burmese, in unaspirated forms, in both cases these forms are then indistinguishable from those deriving from **'b-* / **'b-* etc. We even see this crossover into voiced initials affecting the Yipo initials, although not with the overt prenasalization that causes aspiration in Y38.

cYB voiced initials:

In the following set YB38 shares the YB-wide (but not TB-wide) aspiration:

- #0276 c'í :: Y35 c'í Y36 ·c'í Y37 ·c'í Y39 c'í :: Lisu ·c'íq :: lcHani ·cìq
 :: Lahu ·c'èq :: wNaxi c'í :: Gazhuo c'í :: wBrm c'it < *zit 'goat'
- #1362 k'ú :: Y35 k'ú Y36 k'ò Y39 k'ù Y22 k'ǔ Y25, Y26 k'ù :: Lisu k'òq
 :: lcHani xùq :: Lahu k'òq :: Gazhuo kôq :: wNaxi k'v̄ eNaxi k'v̄
 < *guk 'celebrate, pass-'
- #1382 k'ú :: Y37 k'ú· Y39 k'ù :: lcHani ·xùq :: Lahu k'òq :: Gazhuo kôq
 *guk 'return, give back-' (cf. vi #1385)
- #1701 k'ú :: Y35 k'ú 37 ·k'ū 39 ·k'ù :: Lisu k'ū :: Jino ·k'ō :: Gazhuo kôq
 :: XD-A k'óq < *guk 'bend-(vt-cf. #1004/1700 below)'
- #1476 t'ǎ :: Y39 t'ǎ :: Lisu ·t'èq :: Gazhuo ·t'êq < *d- 'kowitz-'
- #1535 p'í :: Y36 p'í 37 p'é :: Lisu p'èq, Jino p'œ < *bat :: lcHani bèq < *'b-,
 mjHani p'iq < *b- :: wNaxi p'ȳ : nBsh *p'at < *bat 'vomit-'
- #1540 c'ǎ :: Y39 žà :: cNusu brǎ 'strike, rap-'
- #1582 k'ǎ :: Y37 k'ǎ ? :: Y39 k'ǎ :: Lisu k'òq, lcHani xàq < *gak
 :: Gazhuo kâq 'chip-'
- #1753 c'ǎ :: Y39 k'ǎ :: Lisu k'òq 'bite-'
- #1802 p'ǎ :: Y36 p'ȳ Y37 p'ǎ Y39 p'ǎ :: Lahu p'òq < *bop
 :: Jino p'œ < *'bop :: Gazhuo p'ê :: Gyarung ·bop 'swell-'

Comments: This is the set for which the Matisoff/Bradley theory would require the mechanism of voiced prefix + voiceless stop >> aspirated voiceless stop, a complex process and merely a hypothesis; instead I have proposed the developmental mechanism as simply voiced stop > voiceless aspirate, which in itself is not a hypothesis but a common fact of linguistic history.

Matisoff 1972 p. 15 top states that "there is good evidence" for this hypothesis, yet the only evidence available, i.e. indications of voiced prefixes in cognates of this set, are quite hard to find. Footnote 8 (p. 33) states: "When there is no evidence for a prefix *except for the tonal development itself*, we symbolize the hypothetical prefix as C". The words I have emphasized reveal an unscientific attitude in which the theory is apparently proven simply by being proposed. If we instead look only at those fewer cases where Matisoff has C-, not C-, i.e. where there is a real prefix we can examine, we rarely find any of the "voiced prefixes" (wTib g- b- d- r- l-) symbolized by Matisoff's "C-". His #31 'one' refers to wTib gčig, yet, as mentioned earlier, the last letter was certainly voiceless, but we have no way of knowing whether the first one was voiceless too, or voiced as Matisoff supposes. Certainly it is voiceless in modern Tibetan, e.g. lsTib čukčiq 'eleven'.

#35 'six' incredibly uses the PTB reconstruction *d-krok as the only evidence for a prefix in YB. #37 refers to some Jingpo words with prefixes, but they are doubtful cognates since their rime is -ot compared to cYB *-ak. #38 rightly excludes the JP nasal prefix as evidence, but then lamely adds that it "demonstrates the prefixability" of the root.

#68 'be/exist/able-' contains three variants: *C-prek ~ *'brek ~ *brek for which my reconstruction *brek ~ *xbrek ~ *'brek removes the need to explain the alleged change in voicing.

#69 alludes to wTib prefixes (in gtub - btub) whose actual existence in the language is unknown; there is certainly no spoken evidence for them. We cannot rely on modern Tibetan dic-

tionaries for accurate, i.e phonological information about prefixes. For example, the prefix in wTib *dpon* 'leader' is actually manifest as *-k-*, cf. lsTib *čokpø* 'leader of ten (a military term)'. The wTib spelling here may well be worthless.

Looking through the 192 cognate-sets presented in Matisoff 1972, we see quite a few *č-* but precious few *C-*, mostly of the doubtful kind discussed above, and particularly of the prenasalized or prevocalic type (e.g. Trung *a-čit*, Bisu *aŋ-t'à*) which are not supposed to be evidence for the high > low conversion proposed. Moreover, not only this latter type of prefix but also the *C-* type prefixes can also be found in data-sets where they should exert their effect but do not, e.g. #14, 15, 18, 56, 58, 78, 82.

- #1270 *tú* :: Y35 *tú* Y36 *tò* Y37 *tú* Y39 *tó* :: lcHani *dòq*
 :: Lahu *tú* (= *xduq*) :: Lisu *dòq* < **xdap* :: Jino *t'ó*
 :: Gazhuo *tó* (vi?) :: ZW *xtáp* < **st-* < **sd-* ? 'light-(a fire)'
 #1496 *cá* :: Y35 *có* Y36 *čĭ* Y24, Y25 *cĕ* Y26 *čĕ* :: Lisu *cá* :: Lahu *čá*
 :: Gazhuo *cá* < **xzak* :: lcHani *càq* :: Bisu *c'ḥ*
 :: wBrm *c'ak*, nBsh **c'ak* < **zak* 'connect, link-'
 #1804 *čá* :: Y35 *čó* Y36 *čĭ* Y37 *čĕ* Y39 *čé* :: Lisu *jue2čâ* :: Lahu *čá* :: Jino *čá*
 :: cNusu *čaq* :: ZW *čóq* < **xzak* < **sgrak*
 :: lc Hani *čàq* :: wBrm *k'jak* < **grak* 'cook, boil-'
 :: 煨 *gyek* (jué) < **gjak* < **grak* defined as 炊 *č'øz* 'cook-'
 :: 煮 *čøø* (zhǔ) < **kjaŋ* < **sgraŋ* 'cook, boil-'

For the Hani, Bisu and Burmish forms in #1496, the Matisoff/Bradley theory would require this cascade of changes: *xzak* > *xcak* > *'cak* > *'c'ak* > *'c'àk* > *c'àk*.

The M/B theory cannot conceive of aspiration developing except from a voiceless proto-initial, and therefore must assume the unlikely conversion of the voiceless strident prefix into a voiced prefix (here as *'*).

My analysis is simply: *xzak* > *zak* > *c'àk*.

- #1221 *k'ḥ* :: Y35 *'gú* :: wNaxi *gṽ* < **'guq* 'jab, poke-'
 #1230 *'k'á* :: Y35 *'gó* Y37 *gḗ* Y22 *'gǎ* Y25 *žĕ* :: Lisu *'gàq* :: Jino *'ká* < **'gak*
 :: #1811 sNusu *'k'aq* :: nBsh **k'át* < **gat* 'hunt, chase-' (?)
 #1758 *'p'í* :: Y35 *'bĭ* < **'biq* 'overflow-' cf. Y37 *bī*, Lahu *bī*, lcHani *bì* < **'bī*

Comments: In this set Y38 has undergone the same aspiration-process which I have proposed for cYB itself at an earlier stage, and because of the prenasalization we can still find overtly voiced initials in other YB languages. In this set Y38's neo-aspiration has affected the other tone categories too, cf. some examples:

- #1228 *'t'v̄* :: Y35, Y22 *'dù* Y36 *dè* Y37 *dḗ* Y39 *dḗ* :: Lisu *dḥ*
 :: lcHani *dì* Jino *tḥ* < **dḥ* (cf. #1571) 'hit, strike-'
 #1370 *'t'ò* :: Y35 *'dō* Y36 *dú* Y37 *dā* :: Lisu *dō* :: lcHani *dó*
 :: Lahu *do* :: Jino *tə* < **də* :: wNaxi *t'ḥ* :: Gazhuo *tō* 'drink-'
 #1694 *'k'ò* :: Y35 *'gō* 36 *yú* 37 *gā* 39 *kō* 22 *'gò* 25 *kū* 26 *gò*
 :: Lisu *gō* Lahu *yo* :: lc Hani *yā* ? 'drag-'
 #1711 *'k'ò* :: Y37 *'gā* 39 *kō* lcHani *yo* Tujia *yà* 'inhale-'

- #1588 ʼcʼ :: Y35 ʼzi· 36 ʼzi 39 ʼzi :: Lisu ʼzi 'endure-'
 #1726 ʼtʼ :: Y39 ʼn·d̄v̄ :: Lisu ʼduʼ :: Lahu ʼdoʼ :: Naxi ʼd̄v̄
 :: mjHani ʼtʼuʼ ? 'think-'
 #1742 ʼcʼ :: Y35 zō Y37 ʼzā lcHani ʼzo cNusu ʼzɔ LC-A ʼzəŋ 'learn-'
 #264 b̄ə :: Y35 b̄í Y36 b̄ȳ Y37 b̄ə Y39 b̄ə :: Jino ʼpəé :: Bogar ʼbuk 'hoof'
 #1254, 1548 d̄é :: Y35 ʼdí Y37 d̄ə Y39 d̄ə :: Lisu d̄əq :: Jino t̄ə :: Gazhuo t̄əq
 :: Lisu t̄h̄ :: < *ʼtap wBrm tap < *ʼdap / *ʼtap
 :: Y37 t̄ə (< *xtap) :: ZW xtáp 'wear-'
 #1324 (---) Y35 ḡú Y36 ḡȳ :: Lisu ʼžiq :: lcHani guq :: Jino čú < *ʼgrup
 :: ZW kʼjúp wBrm ʼkʼjup cNusu kʼrɔq < *kʼruq < *grup
 :: Drung krɪp :: Lysu ʼžh̄ Gyarung ʼɔp :: wTib ʼdrup < *ʼgrup
 'sew-'
 #1385 ʼḡú :: Y37 ḡò Y39 ʼk̄ù Y25, Y26 ḡù :: lcHani yùq
 :: Lahu ʼkòq < *ʼguk 'return-(vi)' (cf. vt #1382)
 #1700 ḡú :: Y35 ḡú 37 ḡù Y39 ʼk̄ù 22 ḡǔ 25 ḡú 26 ḡù :: Lisu ḡòq
 :: lcHani yùq :: Gazhuo kʼôq :: Lahu ʼkòq
 :: wNaxi ḡv̄ eNaxi ḡv̄ :: wBrm kok < *ʼguk 'bend-(vi)'
 #1500 b̄í :: Y35 b̄í Y36 b̄ì :: mjHani p̄iq :: Lahu ʼpèq < *ʼb-
 :: Gazhuo piêq :: 開 bhic (pì) < *bek ? 'split open-'
 #0098 ʼžú :: Y35 ʼžú Y36 ʼžò Y37 ʼžù Y39 ʼžù :: Lahu čòq :: Jino ʼčó
 :: Akha ʼžòq :: cNusu ʼžuq :: Stau ʼžo :: Lysu ʼžš < *ʼgjuk
 cf. Taraon ʼkrh̄ < *gruk

Comments: This last group, which Matisoff reconstructs with plain voiced stops, has a prefix before the stop in my reconstruction in order to account for the lack of aspiration, just like in Tibetan. Occasionally direct attestation of such prefixes in present-day cognates can be found, just as Matisoff would need to find them for the apparently even larger set of low-tone aspirates, but the acceptability of my reconstruction will rest more on: 1) the demonstration of a sufficient number of voiced stop initials in TB cognates in the low-tone aspirates set, where Matisoff posits a basic TB voiceless stop (prefixed in cYB). 2) the mechanism's basic simplicity and historical corroboration in the Sino-Tibetan area---as compared to the complexity and lack of corroboration for the M/B theory.

Footnotes:

1. Vowel-initial morphemes, except as unstressed prefixes, are not common in nBsh languages, but if we look at ZW *u* 'intestines' (with identical cognates in cNusu, Standard Burmese, Bola and lcHani), *iʼ* 'urine', the *·u* of *taq·u* 'cotton' and the *uʼ* of *uʼ·l̄uʼm* 'head', we can deduce that for these two tone-categories (TC-I and TC-II) vowel-initial words also are in the upper-tone register (cf. Dempsey 2000 -Table-1).

Abbreviations used:

Brm: Burmese, Bsh: Burmish, c: Common, JP: Jingpo, LC-A: Long-Chuan Achang, TB: Tibeto-Burman, Tib: Tibetan, vi: intransitive verb, vt: transitive verb, w: written, XD-A: Xian-Dao Achang, YB: Yipo-Burmic, ZW: Zaiwa.

Segmental / diacritical transcriptions:

- x- in the Zaiwa Group denotes tense vocalisation.
-*r*, -*h*: tone marks.
-*q* = final glottal stop.
= any high central vowel (as a *phoneme*)
‘C- = homoorganic prenasalisation of the stop C.
ʒ- = dz-, ʒ̣- = dž- .
ą = nasalising of vowel; -ą = raised vowel.
My Lahu e/o are often transcribed by others as ε/ɔ .

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