

Proto-Tibeto-Burman phonology

Syllables

The structure of the PTB syllable may be schematized by the formula

$(P_1) (P_2) C_i (G) V^{TJ}(:) (C_f) (s)$

where (C_i) stands for the root-initial consonant, which could be preceded by up to two consonantal prefixes (P_1 and P_2) and optionally followed by a liquid or semivowel glide (G). After this came the vocalic nucleus, consisting minimally of a simple vowel (V), followed optionally by a restricted set of possible final consonants (C_f) and/or the suffix (s). This schema is quite similar to the syllables found in Written Tibetan, which range in complexity from simple $C_i + V$ (e.g., *k'a* 'bitter') to $P_1 + P_2 + C_i + G + V + C_f + s$ (e.g., *brnyoŋs* 'convenient,' *bsnyigs* 'sediment').

The prefixes, especially the stop or nasal ones (*b-*, *d-*, *g-*, *m-*), and especially when preceding a stop root-initial, were undoubtedly vocalized by an epenthetic schwa (ə) for ease of pronunciation, as in the pronunciation of the Polish city name Gdansk [*gədansk*]. Strictly speaking, such forms are sesquisyllabic (a syllable and a half long) rather than monosyllabic.

The glides (especially the semivowels *-w-* and *-y-*) occupied an ambiguous position in PTB, sometimes behaving as if they belonged to the initial consonant complex but sometimes as if they were part of the syllable's vocalic nucleus. The semivowels could also occur postvocally, forming falling diphthongs in *-w* and *-y*; in this position the semivowels are considered to belong to the inventory of C_f 's. Vowel length (symbolized by a colon, ":") is contrastive, but only in syllables closed with a final stop, nasal, liquid, or semivowel. This contrast is rather marginal at the PTB level, with many irregularities and much variation. There is no contrast between syllables that have zero-initial $*\emptyset$ - (e.g., **ap*) and those with initial glottal stop $*ʔ$ - (e.g., **ʔap*). Reconstructing $*ʔ$ - when

there is no other initial consonant simplifies the canon somewhat, since C_i is then an obligatory element.

The status of contrastive tone at the PTB stage is still in doubt. Tonal languages use variations in pitch (often accompanied by other configurations of the larynx that produce “clear” versus “creaky” [glottalized] versus “breathy” [*h*-like] vowel qualities) to distinguish words from one another. (Nontonal languages like English use pitch variations “intonationally”—e.g., to distinguish statements from questions). Although some scholars claim that a two- or three-tone system may be reconstructed for PTB, it seems preferable to consider tone as having developed independently (though according to similar principles) at many different times and places throughout the history of TB. To reflect this uncertainty, the superscript T is enclosed in brackets in the above formula.

Many modern TB languages (especially Sinospheric ones) have vastly simpler syllabic possibilities than those of Written Tibetan. For example, Lahu syllables lack prefixes, glides, or final consonants, but (unlike Tibetan) each Lahu syllable must carry one of seven distinctive tones, so Lahu syllable structure may be schematized as (C) V^T.

Figuring out how complex proto-syllables map into their simpler descendants is one of the most fascinating aspects of Sino-Tibetan historical phonology. Thus, PTB **b-r-gyat* ‘eight’ is carried over unchanged into Written Tibetan *brgyad* but > Lahu *hí* (the symbol > means “becomes”), while PTB **k-r-wat* ‘leech’ > Written Burmese *krwat* (with two prefixes, *k-* and *r-*), Magar *l̥wat* (with the single prefix *l̥-*), and Lahu *vèʔ* (with no prefix).

Initial consonants

The *Conspectus* reconstructed 23 simple initial consonants for PTB. Although many of its daughter languages have three or even four manners of articulation, only a simple two-way contrast in this feature (**voiced* and **voiceless*) is reconstructible for PTB obstruents (consonants produced by obstructing the flow of air from the vocal tract). Many factors have been involved in the proliferation of manner contrasts in the daughter languages, chiefly the intricate patterns of interaction between the prefix and the root-

initial consonant. Nothing, in fact, is more unstable in diachronic TB phonology than the voicing or aspiration of initial obstruents (plosives, fricatives, and affricates). A *voiceless C_i could easily assimilate in voicing to a voiced prefix (e.g., to *m-), while a voiceless prefix (e.g., *s-) could devoice or aspirate an originally *voiced C_i. The prefix might then drop, leaving only the change in voicing of the C_i as a trace of its former presence. Of particular importance as prefix-induced types of secondary articulation are prenasalization and preglottalization, as in syllables like Luquan Yi *nt'u* 'fern' (from Proto-Loloish *m-da) or Lalo (Western Loloish) *ʔlā* 'trousers' (from Proto-Loloish *s-la). The voicing or voicelessness of the prevocalic consonant complex is also of key importance in the process of tonal development.

Besides the three primary positions of articulation for PTB stops (labial, dental, and velar) and the two primary series of affricates (dental and palatal), several other positional types of obstruents occur in one or another daughter language. These can be easily shown to be secondary, as with the postvelars (found especially in Qiangic and Loloish) or the labiodentals (found in Angami Naga and Lahu). There is persuasive evidence to reconstruct a series of *labiovelars at least as far back as the Proto-Lolo-Burmese level; the best example is the etymon for 'dog,' where Lahu *phi*^ˆ (with labial initial) reflects the Proto-Lolo-Burmese labiovelar root *k^wəy.

No labiodental fricatives are reconstructed for PTB, though many daughter languages have /v/ (usually developed from *w) or /f/ (deriving in Lahu, for example, from earlier *hw and *ʔw). Both the dental (*s, *z) and palatal (*š, *ž) fricatives are reconstructible (though *ž was quite rare), with *z having a variety of reflexes in Lolo-Burmese, including Written Burmese s, Lahu y, Lisu r, and Mpi and Ugong l. The palatal fricatives and affricates may be interpreted as clusters of the dentals plus medial *-y-, as in *š = /sy/, *ž = /zy/, *tš = /tsy/, *dž = /dzy/. Quite a few modern TB languages have a retroflex series of affricates, fricatives, and stops, but they do not occur in Written Tibetan or Written Burmese and are not attested for Xixia; they seem to be secondarily derived from proto-clusters with medial liquids like *kr and *gr. Some languages have secondarily developed complex sibilant phonemes and clusters; the Dàyáng dialect of Pumi (Qiangic group) boasts no fewer than 32 fricatives and affricates.

Prefixes

Prefixes are of primary importance for Sino-Tibetan reconstruction, though they have left only the most indirect traces in Chinese. Sinologists are increasingly becoming aware of the possibility that a complex system of prefixes may account for morphological alternations within Chinese word families and for apparently aberrant phonetic series.

The first insightful treatment of Tibeto-Burman prefixes was Stuart N. Wolfenden's *Outlines of Tibeto-Burman Linguistic Morphology* (1929). The *Conspectus* reconstructs seven prefixes for PTB: *s-, *m-, *a-, *r-, *b-, *g-, and *d-. Some of these are more important and have clearer semantic functions than others. For instance, *s- before a verb signaled causativity, transitivity, or outer-directedness; a distinct but homophonous element, derived from the full noun *sya 'animal, meat,' was frequently prefixed to names of animals. When placed before verb roots, the prefix *m- indicated stativity, intransitivity, reflexivity, or inner-directedness. The prefix *a- (better interpreted as *ʔa- or *ʔə-) had a variety of functions, including the marking of kin terms, vocatives, third-person subjects, and "bulk-providing" extensions of both nominal and verbal roots. Both *s- and *ʔ- frequently led to the devoicing or glottalization of a following root-initial consonant, while *m- often caused a secondary voicing of the C_i.

The historical morphophonemic effects of the prefixes has been complex. Besides affecting the voicing or aspiration of the root-initial consonant, the prefixes could metathesize (switch order) with it, palatalize it, drive it out entirely (a process known as prefix-preemption), fuse with it into a single segment, drop out altogether, or be substituted for by another prefix—and any of these activities could be accompanied by an effect on the syllable's tone. Taking a hypothetical etymon *g-ya, a wide variety of reflexes would be possible. A daughter language could reflect the simple root-initial, as in ya (a situation known as prefix loss or prefix absence); the original prefix could remain roughly the same, perhaps "protected" from the C_i by a schwa, as in gəya and kəya (prefix preservation); the root could have allowed alternative prefixations at the proto-stage, or the daughter language could have innovated by substituting a new prefix for the old one, as in pəya, təya, or məya (prefix

substitution or prefix alternation); the prefix could unite with the root-initial to form a single consonantal segment incorporating phonetic features of both, as in *dža, ɛa*, and *dža* (prefix fusion); a new prefix could be superadded to the older one, as in *səgəya* (reprefixation); or the prefix could drive out the C_i altogether, as in *ga* or *ka* (prefix preemption). Examples of prefix preemption include ‘seven’ (PTB **s-nis* > Jingpo *sənìt*, but Lahu *šĩ*), ‘penis’ (PTB **m-ley* > Lahu *nĩ*, but compare Written Burmese *li*), ‘needle’ (PTB **[k/?]-rap* > Written Burmese *ʔap*), ‘lick’ (PTB **m-lyak* > Akha *myə`ʔ*), ‘put to sleep’ (PTB **s-yip* > Written Burmese *sip*), ‘four’ (PTB **b-lay* > Maru *bit*), and so on.

Rhymes

As in Chinese and English, PTB had more diphthongs (13) than pure vowels, or monophthongs (5). Except for **-a*, far and away the most frequently attested vowel in the system, pure vowels in final position were relatively rare; **-a* is usually preserved as such, though sometimes it becomes a back vowel /*v*/, /*ɔ*/, /*o*/, or even /*u*/, as in Luquan (LQ) Yi (for example, ‘fern’ Proto-Lolo-Burmese **n-da*¹ > LQ *nt’u* and Lahu *dà*; ‘moon’ PLB **s-la*³ > LQ *ηu*²² and Lahu *ha-pa*; ‘many’ PLB **mra*² > LQ *ηu*³³ and Lahu *mâ*; ‘soul, spirit’ PLB **s-la*¹ > LQ *ηu*¹¹ and Lahu *ɔ`-ha*). In Qiangic languages such as Pumi, Tosu, and Xixia, **-a* sometimes becomes *-i*, as in ‘moon’ (PTB **s-(g)la* > Pumi Dayang [PD] *zĩ*), ‘hundred’ (PTB **r-gya* > PD *fĩ*), ‘salt’ (PTB **tša* > PD *tshĩ*), and ‘ill, hurt’ (PTB **na* > PD *ηĩ*).

The *Conspectus* tentatively sets up a contrast between a front and a back low vowel, PTB **-a* and **-â*. This putative contrast, which has not been accepted by other scholars, was intended to handle vocalic alternations in Tibetan verb morphology and to multiply possible “regular” correspondences with Chinese.

Vowel length is an inherently unstable feature in Tibeto-Burman. Contrasts in vowel length seem to have come and gone cyclically in the history of the family, with the effects of later changes largely obscuring the results of earlier developments. In any case, length contrasts are only to be found in syllables closed by a semivowel (i.e., falling diphthongs) or other final consonant.

Final consonants

Besides the semivowels, nine final consonants (-*p*, -*t*, -*k*, -*m*, -*n*, -*ŋ*, -*r*, -*l*, -*s*) are reconstructed for PTB. As is generally true of Southeast Asian languages, there is only a single series of (unreleased) final stops, with no voicing or manner contrast (although Tibetan orthography, like that of Thai, renders final stops with voiced letters). Unlike Mon-Khmer, Tibeto-Burman has never had final palatals (-*c*, -*ñ*) or final -*h*. A secondary final -*ʔ* occurs in many languages, deriving from *-*p* -*t* -*k* (as generally in Loloish and Karenic) and/or *-*s* (as in Lushai/Mizo). This final glottal stop is frequently reduced further, yielding a creakiness or glottalization of the syllable's vocalic nucleus. Other secondary final consonants occasionally occur, especially in Qiangic, because of the reduction of the second syllable in compounds.

Creakiness or constriction of the vowel may also arise through the influence of one of the “glottogenic” prefixes (**s*- or **ʔ*-) or as an automatic concomitant of certain tones, as in Dàyáng Pumi, where some words under high tone are optionally pronounced with a noticeable final glottal stop (the symbol “~” indicates a variant): ‘face’ *zíw* ~ *zíwʔ*; ‘soybean’ *ŋé* ~ *ŋéʔ*; ‘invite to eat’ *dzyú* ~ *dzyúʔ*; and ‘sweat’ *ʃt/hí* ~ *ʃt/híʔ*.

The loss of a *nasal final consonant often leads to nasalization of the vowel (as in, for example, Burmese and Pumi) or to a change in the vowel's quality (as in Lahu, where *-*am* > -*o*, *-*an* > -*e*, and *-*aŋ* > -*ɔ*). Subphonemic vowel nasalization sometimes occurs in syllables with low vowels and Ø- (zero) or *h*- initials, according to a widespread phenomenon called rhinoglottophilia.

Many TB roots show variation between final homorganic (produced in the same position of articulation) stops and nasals (-*k* ~ -*ŋ*, -*t* ~ -*n*, and -*p* ~ -*m*). This alternational pattern is also frequent in Chinese. Other variational patterns to be found in closed syllables include *-*u*- ~ *-*i*- (especially in the environment of a labial initial or final) and *-*ik* ~ *-*yak*.

Final *-*r*, *-*l*, and *-*s* are relatively rare but occur in a number of well-established roots, including Proto-Tibeto-Burman **skar* ‘star,’ **s-brul* ‘snake,’ and **rus* ‘bone.’

Suffixes

A number of nonsyllabic suffixes are reconstructible for PTB, most of them dental (*-s, *-t, *-n). When the suffix was -s, it could result in postvocalic sequences of stop or nasal plus -s (e.g., -ps, -ms) or (quite rarely) final liquid plus -s (-ls and -rs), which do not occur within a morpheme.

Among the semantic functions of these suffixes was the nominalization of verbal roots, as in Qiang (*nə* ‘sleep’ > *nəs* ‘bed’; *guə* ‘wear’ > *guəs* ‘clothes’; *dzə* ‘eat’ > *dzəs* ‘grain’) and Jingpo (*khú* ‘be smoky’ > *ʔwàn-khùt* ‘smoke’; *ləgú* ‘steal’ > *ləgùt* ‘thief’; *dží* ‘urinate’ > *džít* ‘urine’; and *śá* ‘eat’ > *śàt* ‘food, rice’).

Tones

Most TB languages have contrastive (phonemic) tone. The most elaborate systems are found in the Sinospheric Northern and Central Loloish groups, where systems of six to eight tones are the norm. Baic, Karenic, and Jingpo-Nung are also highly tonal. The situation in Qiangic, Himalayish, and Kamarupan is more varied. These latter groups comprise both tonal and nontonal languages; even the tonal languages among them tend to have systems that are on the rudimentary side, often with only two or three contrasts, or with the tone-bearing unit larger than a single syllable (as, for example, in the Tamangic and Kham groups of Nepal). Some languages, such as Tibetan and Qiang, have both tonal and nontonal dialects.

In 1954 André-Georges Haudricourt established that phonemic tonal systems evolved to make up for the loss of a voicing contrast in syllable-initial position (as when *p*- and *b*- are no longer differentiated) or the loss of a syllable-final laryngeal consonant (*-h* or *-ʔ*). However, despite attempts by Benedict (1972) and Alfons Weidert (1987), reconstructions of a single tonal system at the PTB or even the PST level have remained unconvincing. The tone systems of the various TB subgroups do not show regular correspondences; such tonal similarities that exist across subgroup divisions in TB can plausibly be attributed to universal phonetic tendencies in “tone-prone” monosyllabic languages rather than to descent from a common ancestral system. Tones seem to come

and go cyclically, with the period of oscillation sometimes very rapid. Even if a hypothetical phase of Sino-Tibetan tonal uniformity did once exist, it could not have been a stable equilibrium, and it could not have left unambiguous traces thousands of years later.

Though prefixes or root-initial consonants frequently influence a syllable's tone, occasionally the influence is in the opposite direction, as in Sani (Central Loloish), where original *voiced syllables remain voiced under Proto-Lolo-Burmese Tone *2 but become voiceless unaspirated in syllables under PLB Tone *1.

Tone is not simply a matter of relative pitch but is also usually bound up with phonation type, as determined by the configuration of the glottis. Thus, the three nonstopped tones of modern Burmese are primarily distinguishable not by their pitch contours but rather by their voice quality (“clear” versus “breathy” versus “creaky”).

Occasionally grammar plays a role in tone assignment. In Mpi (Southern Loloish), nouns appear only under nonstopped tones 2, 4, and 6 and stopped tones 2 and 4, while verbs occur only with nonstopped tones 1, 3, and 5 and stopped tones 1 and 3. This is probably because Mpi verbs were originally followed by a special particle that later fused with the root, causing a perturbation of the tone.

Compounding and phonological bulk

Classical Chinese, with its relatively rich inventory of consonants, was strictly monosyllabic, with the syntactic word and the phonological syllable virtually coextensive; the same was undoubtedly true for PTB. In phonologically eroded modern languages such as Mandarin and Lahu, however, many once-distinct syllables have become homophonous, so that the vast majority of words are now disyllabic compounds, though almost all of them are still analyzable into their monosyllabic constituent morphemes. For example, Lahu has merged five distinct PTB etyma (**b-r-gya* ‘hundred,’ **s-gla* ‘moon,’ **s-lya* ‘tongue,’ **s-hla* ‘spirit,’ and **g-ya(:p)* ‘winnow’) into the identical syllable /ha/, all under the same mid-tone (mid-tones are left unmarked in transcription). These are kept distinct in Lahu because they are “bulked out” by additional words, prefixes, or suffixes that make their meaning

clear: *ha* ‘hundred’ is not usable by itself but must always be preceded by a numeral (e.g., *tê ha* ‘one hundred’); the actual Lahu word for ‘moon’ is *ha-pa*, with the suffix *-pa*, ubiquitous in Tibeto-Burman (compare Written Tibetan *zla-ba*); the Lahu word for ‘tongue’ is *ha-tē*, where the second syllable looks like it once had an independent meaning but now occurs nowhere else in the language; the word for ‘spirit’ is *ɔ̀-ha*, with a prefix (deriving from Proto-Tibeto-Burman **aŋ-*) that occurs as a bulk-provider before hundreds of Lahu roots; and the verb *ha ve* ‘winnow,’ like all verbs cited in isolation, is accompanied by the particle *ve*, a nominalizer (much like English *to*) that serves to distinguish verbs from any homophonous nouns.

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