

Tone in Tamang and Tibetan, and the Advantages of Keeping Register-Based Tone Systems Separate from Contour-Based Tone Systems

R. K. Sprigg
Kallimpong, India

In a recent comparison of tone in Tibetan with tone in Tamang, I had hoped to use Tibetan, with its twelve centuries of orthographic history, to account for the notable discrepancy whereby Tibetan, or, more specifically, the reading style of pronunciation of Written Tibetan and the Lhasa dialect of spoken Tibetan, could be analyzed in terms of two tones, though Tamang seemed to need four tones.¹

For both Tibetan and Tamang, the unit on which I based my analysis was the word. In accordance with such an analysis, therefore, each word in the reading style or in the Lhasa dialect is identified as either a tone-1 word or a tone-2 word; while correspondingly, Tamang words are identified as tone-1, tone-2, tone-3, or tone-4. In these two forms of Tibetan, at one end of the scale, a word may comprise a single syllable, equivalent to a single lexical item (or morpheme, in one use of that term), e.g., [ʃɔ:] *shog* 'come here', [dø:] *sdod* 'sit down', and, at the other end of the scale, in the verbal phrase at least, as many as six syllables, equivalent to seven lexical items, e.g., [ʃu:gɪ jɔ:jɪmbənɔ] *bzhugs-kyi-yod-pa-yin-pa-no* 'do they stay'.² My study of Tamang was limited to the verbal phrase; so, for the sake of grammatical comparability between the two languages, I shall restrict my Tibetan examples to the verbal phrase.

I. The Tibetan and the Tamang (word-based) tone systems and their pitch patterns

A. Tibetan: two-term tone system (tone 1, tone 2)

My examples of tone-1 and tone-2 words here are analyzable grammatically into a verb, [ʃɪ]/[ʃɪ] *shi* 'die' or [sø:]/[sɔ] *bzos/bzo* 'make', accompanied by the verbal particles [sɔ̃], [bə], [gɪ] and [ɛe:]/[ɛe], *song, ba/pa, gi, and red*:

¹ "A comparison of tone classes in Tamang and Tibetan", a paper presented at the Ninth Annual Conference of the Linguistic Society of Nepal, at Tribhuvan University, Kathmandu, November, 1988.

² Cf. also, for a more detailed account, Sprigg 1954, 137.

| | 1 | 2 | 3 |
|---------|------------------|--------------------|---------------------|
| | <i>shi-song</i> | <i>shi-ba-red</i> | <i>shi-gi-red</i> |
| Tone 1: | [\ ·] | [\ · ·] | [¯ · \] |
| Tone 2: | [\ ·] | [\ · ·] | [_ · \] |
| | <i>bzos-song</i> | <i>bzos-pa-red</i> | <i>bzo-gi-red</i> |
| Tone 1: | (he) died | (he) died | (he) will die |
| Tone 2: | (he) made (it) | (he) made (it) | (he) will make (it) |

The pitch distinction shown in each of the three pairs of words in columns 1, 2, and 3 is of the register type, between an upper range of pitches for tone-1 words and a lower range for tone-2 words. The pitch of the tone-1-word verb lexical item [ʃɿ] is in the upper range; and the tone-2-word verb lexical item [sø:]/[sɔ] is in the lower range. In both the tone-1 word and the tone-2 word the verb lexical item has a falling pitch contour, [\] and [\], when it is used in a word containing such particles as *song* and *ba/pa*, falling to the low pitch level appropriate to these two particle lexical items; but it has a level pitch contour, [¯] and [_], when it appears in words containing the particle lexical item *gi*, which has high pitch (but low pitch when sentence-final; Sprigg 1968, 688-9). The two contour pitch features, falling contour and level contour, are, therefore, in complementary distribution with each other here; consequently, they could be regarded, if desired, as allotones of the same toneme, high toneme for *shi*, with allotones [\] and [¯], and low toneme for *bzos/bzo*, with allotones [\] and [_]. These contour pitch features do not distinguish morphemes; but the register pitch features do distinguish them.

With the particle lexical items *song*, *ba/pa*, *red*, and *gi*, the position as regards pitch behavior is quite different from that stated for the verb lexical items: *song* and *ba/pa* have the lower of the two pitch ranges, *gi* has the upper range (except when sentence-final), and *red* alternates between the two ranges, having the lower when it occurs in the two pitch patterns shown in column 2, in which it follows the low-pitch particle lexical item *ba/pa*, and the upper when it occurs in the pitch patterns shown in column 3, in which it follows the particle *gi*, before falling to the lower. The difference in register for the particle lexical item *red* is accompanied by a difference in contour and a difference in length, and, therefore, a difference in prominence: level contour, short vowel, and weak prominence ([ɹe]) in the types of word exemplified in column 2, but falling contour, long vowel, and strong prominence ([ɹe:]) in the types shown in column 3. In other words, the register and contour of *red*, its length, and its degree of prominence are all a function of the type of word in which it occurs, the column-2 type of word versus the column-3 type of word; and

the alternative register, contour, length, and prominence features are in complementary distribution by type of word.³

In the verbal phrase the verb lexical item *shí* occurs in, and only in, tone-1 words, whether polysyllabic, as in the above examples, or monosyllabic, as in the word *shí* ([ç1]) in the verbal phrase *shí 'gro-ba-'dug* '(he) is nearly dead'; it can, therefore, be given a classification in relation to word tone, however many syllables the word may contain, as a tone-1-word (or tone-1) lexical item. Correspondingly, the verb lexical item *bzos/bzo*, which occurs in the polysyllabic tone-2 words (columns 1-3) above, and can also occur in the monosyllabic word *bzos* ([sø:]) of the verbal phrase *bzos tshar 'gro-ba-'dug* '(he) has almost finished making (it)', can be classified as a tone-2-word (or tone-2) lexical item.⁴ The particle lexical items *song*, *ba/pa*, *red*, and *gi* occur in words of either tone, and, if it were thought useful to give them a classification in relation to word tone at all, would have to be classified as tone-1/2-word lexical items.

³ Cf. also Sprigg 1954, 141-6 and 150-2, which also give alternative pitch patterns in use in sentences with emphatic intonation: a sequence of low and level pitches.

I have not used the five-point "tone letters" devised by Chao for symbolizing the pitch-level distinctions 1-5, going from low to high (Chao 1930, 24-7; cf. also Yu and Jaw (Chao) 1930, 27), because I believe five levels to be excessive for Tibetan and Tamang. For the tonal and intonational needs of Tibetan and Tamang (and also Burmese, for that matter) a four-level scale, lower and upper low and lower and upper high, should be sufficient; and, in attempting to impose a five-point scale on languages such as these phoneticians run the risk of making it difficult for their readers to see the phonological wood for the phonetic trees.

⁴ The tone-2 lexical item *bzos/bzo* 'make' can also occur in tone-1 words, though not in the verbal phrase and not as the first lexical item of the word; e.g., the nominal-phrase noun tone-1 word [̄ŋɔpsɔ:] *dn̄go-bzo-ba* 'shoemaker', in which it occurs as the second lexical item of the compound.

B Tamang: (revised) four-term system (tones 1, 2, 3, and 4)⁵

My examples of tones 1, 2, 3, and 4 here correspond to those given in (A) above for Lhasa Tibetan in that they are analyzable grammatically into verb and particle; these Tamang words are, however, disyllabic, the second syllable being the particle lexical item *ji* ([dʒi]), the past-tense particle; but the difference in number of syllables between the Tamang words and some of the Tibetan words has no significance for the tonal analysis; e.g., (each word has alternative pitch patterns, the former being appropriate to final, and the latter to continuative, sentence intonation):

| tone 1 | tone 2 | tone 3 | tone 4 |
|-----------------|-----------------|-----------------|-----------------|
| [\ . / \ /] | [- \ / - -] | [^ . / ^ /] | [_ \ / _ -] |
| <i>shi-ji</i> | <i>khru-ji</i> | <i>so-ji</i> | <i>drup-ji</i> |
| he died | he washed | he prepared | he sewed. |

In addition to the alternative pitch patterns shown above for words of each of the four tones in accordance with a twofold difference in sentence intonation, I have noted variations in pitch and prominence for three of

⁵ This four-term system has been referred to as 'revised' here because it replaces my earlier three-term system. I revised it to a four-term system after Mazaudon had pointed out to me, in correspondence, that the pitch transcriptions in my phonetic data, collected in Rishingo, east-central Nepal, in 1956, were better suited to a four-term than a three-term analysis (cf. Mazaudon 1973, 72, n. 61). I had mistakenly merged members of my current tone-2 category with those of my current tone-1 in a category that I at that time termed 'tone-1', having assumed, incorrectly, that their pitch patterns were merely free variants of a single tone category.

For this confusion, my working method was largely to blame: in order to study the junction relationships of the final part of verb lexical items with the initial part of a following particle (suffix), I had been obliged to alternate particles, e.g., *-ji*, *-ba*, *-la*, *-sai*; as a consequence of this, I have since come to suspect that there were occasions when my informant used contrastive stress while alternating particle lexical items, rendering them more prominent than the preceding verb lexical item, in something like the way in which, as a schoolboy, I used to chant the present tense of first-conjugation verbs in Latin as *amō*, *amās*, *amat*, etc., giving contrastive stress to the inflexion syllable, the ultimate syllable, instead of to the penultimate syllable. Correspondingly, in my phonetic transcription of pitch in Tamang I had noted the pitch pattern [- \] for the tone-1 word *choi-ji* '(he) ate/drank' (hon.), in which contrastive stress is given to the past-particle lexical item *-ji*, as well as [\ .], the more usual pattern for this word, and had then gone on to accept both patterns as tone-1 variants, which indeed they are. Observing, further, that *tsung-ji* '(she) sold' and a number of other such words also had the [- \] pattern, or a pattern closely resembling it, I classified them too as tone-1. In doing so, I overlooked two important considerations: (i) for *tsung-ji* the [- \] pattern is the more usual pattern, and therefore in contrast with the tone-1 [\ .]; and (ii) the tone-1 pattern [\ .] is unsuitable for *tsung-ji* and other such words; they never have it.

On the difficulty of distinguishing tones 1 and 2, cf. Mazaudon 1973, 72 (n. 61) and 70-2. 'fluctuations entre /1/ et /2/'; for a similar difficulty in the analysis of high-register forms in a closely-related language, Thakali, cf. Hart 1970, 134.

those tones as follows: (tone 2) [- \], [' \], and [' -]; (tone 3) [- _], [\ .], and [/ ']; (tone 4) [. \] and [. ^].

Thus, the four-term Tamang tone system rests equally on pitch distinctions of the register type and of the contour type, supported, to some extent, by differences in the degree of prominence of certain syllables.

My tonal analysis here closely corresponds to Mazaudon's (1973, 62-92; cf. also 1988a, 11); earlier analyses for Western Tamang, however, made use of a two-term tone system and a two-term phonation system, 'breathiness': 'contrasts for breathiness (tense or clear versus lax or breathy and contrasts for pitch contour (basically level versus falling)' (Hari, Taylor, and Pike 1970, 82). It is because I have based my analysis on the word unit that I have had to give greater prominence to pitch patterns than they have, as a means of accounting for the pitch behavior of particles jointly with the pitch behavior of verb lexical items.

II. Aspiration and non-aspiration, and voice and voicelessness, in Tamang

Since there is the degree of variation in pitch pattern that I have shown three paragraphs earlier for tones 2, 3, and 4, it might well appear difficult to distinguish one Tamang tone from another; and, indeed, the tonal distinction is not easily detected for certain of the tones (cf. note 5); but it is made less difficult by two associated systems that accompany word-initial plosives and affricatives. They comprise aspiration, non-aspiration, voice and voicelessness.

A. Aspiration

Aspiration in Tamang combines with plosion and affrication (when further combined with voicelessness);⁶ these combinations, [ph th kh tʃh tʃh], characterize the initials of tone-1 and tone-2 lexical items, e.g.

tone-1: *phep, thai, khren, khi, choi, chot, tsha*

⁶ It might seem that voicelessness could be taken for granted as the voicing feature of plosives and affricates (and, in Burmese, even fricatives) with which aspiration ([h]) combines, e.g., [ph kh tʃh tʃh] (and, in Burmese, [ʃh]), such combinations of voice with voicelessness as [bh gh] being dismissed as phonetic impossibilities; but in Siswati, a language of southern Africa, I have noted combinations such as [mbh], e.g., *ĩmphĩ* 'war', and [ŋgh], e.g., *ĩnkhõsi*, 'king' (I owe these Siswati examples to D. K. Rycroft, of the Africa Department of the School of Oriental and African Studies). The orthography suggests that [mbh] and [ŋgh] have developed from *[mph] and *[ŋkh] through the extension of the voice feature from the nasal to the following plosive, thus giving rise to a situation in which voice, the voicing feature of the plosives, has ceased to match the voicelessness feature of the aspiration (alternatively, [bh] and [gh] could be treated not as examples of aspiration but merely as casual sequences of [b] or [g] and [h]).

tone-2: *phyaa, thung, khru, choi, tshoo*

(tone-1) *go (hon.), listen, be hungry, know (hon.), eat/drink (hon.), sacrifice, graze;*

(tone-2) *sweep, drink, wash, tear at (meat), dye.*

Initial aspiration, therefore, in a verb lexical item or in a word unit provides a very useful clue towards identifying it as either tone-1 or tone-2, and disqualifying it from being tone-3 or tone-4.

B. Non-aspiration, voicing (voice, voicelessness)

Non-aspiration is less distinctive than aspiration because it can combine with initial plosion and affrication in words of all four tones; but voicing, voice versus voicelessness, is as useful as a help to tonal recognition as is aspiration. It is only (1) in tone-1 and tone-2 words that voicelessness (and tenseness) combines with initial plosion and affrication, and non-aspiration ([p t k tʃ ts]), while (2) it is only in tone-3 and tone-4 words that voice combines with these features, in [b d g dʒ dz], e. g.,

1. tone-1: *po, trul, kee, caa, tsuu,*
tone-2: *pui, tun, kul, cet, tsung*

(tone-1) *move, reincarnate, be born, gaze at, begin;*

(tone-2) *carry, be short, employ, skin, sell.*

2. tone-3: *bree, dam, drong, jal, (phee) dzaa,*
tone-4: *boo, drup, gai, jii, dzang*

(tone-3) *shave, choose, die (hon.), bow down to, break (wind);*

(tone-4) *(bread) rise, sutch, be late, remember, put hand in*

It should be pointed out that, in interpreting the voice symbols [b], [d], [dʒ], [dz], etc. phonetically, the degree of voice to be heard in word-initial position is usually only partial, resembling the degree to be heard in voiced word-initial plosives and affricates in southern British English -- it finds an echo in my own speech. Indeed, like this form of English, the partial voice feature in Tamang alternates with voicelessness combined with laxness of articulation (I have, on occasion, also noted the opposite extreme, full voice, for this type of initial; but I am fairly confident that this degree of voice is artificial, and due to the type of situation in which the material was collected, a relationship of researcher and informant, which was quite

outside my Informant Pema Norbu's previous experience, resulting in over-exact articulation).

C. *Relations of word-initial aspiration and voicing with (word) tone*

Consequently, within the confines of Tamang phonology, there are grounds for dividing the four tones into two groups in the voicing feature: voicelessness (and tenseness) serves to distinguish the two tones that have been designated above as tone 1 and tone 2 from those designated as tone 3 and tone 4; the latter two tones have no expectancy of voicelessness (except, in some instances, voicelessness in combination with laxness); and the same is true of aspiration, which is also confined to tones 1 and 2; while voice (apparently in free variation with voicelessness and laxness) distinguishes tones 3 and 4 from tones 1 and 2:

| <i>word-initial features</i> | <i>tone classes, as above</i> | | | |
|--------------------------------------|-------------------------------|---|---|---|
| aspiration (+ voicelessness): | 1 | 2 | | |
| voicelessness + non-aspiration: | 1 | 2 | | |
| voice (and voicelessness + laxness): | | | 3 | 4 |

These features characterizing word-initial plosives and affricates, voicelessness, aspiration, and voice, support a division of the four-term tone system into two two-term systems: (i) tones 1 and 2; (ii) tones 3 and 4. The tones hitherto termed 1 and 2 are also associated with each other by register, both of them having the upper of the two distinctive ranges of pitch at the beginning of the word-initial syllable, while the two tones hitherto termed 3 and 4 must have the lower of the two pitch ranges at the beginning of the initial syllable of the word.

1. *Register tone system: 1 versus 2 (or 'high' v. 'low')*

In order to give these word-initial and register distinctions their full significance, therefore, I propose separating register tone from contour tone through setting up a two-term register tone system: tone 1 (word-initial high register) and tone 2 (word-initial low register). The tones hitherto termed tones 1 and 2 will both be assigned to the new register tone system as tone 1; and the tones hitherto termed tones 3 and 4 will both be assigned to the new register tone system as tone 2. Accordingly, the pairs of pitch patterns designated 'tone 1' and 'tone 2' in the figure in (I.B) will now be treated as tone-1 pitch patterns; and the former 'tone 3' and 'tone 4' pitch patterns will be treated as tone-2 pitch patterns. Word-initial voicelessness for plosives and affricates will now be a tone-1 feature, and so will aspiration, while (partial) voice will be a tone-2 feature; and so will laxness.

2. Contour tone system: A versus B (or 'falling' v. 'level')

The remaining pitch features, falling, level, and, in sentences with continuative intonation, also rising pitch, are dealt with through a parallel tone system, the contour system, the two terms of which could be termed 1 and 2, or, rather, contour 1 and contour 2, like the two terms of the register tone system; but using figures for these terms, and the same figures at that, might well cause confusion between the members of the two systems; so it seems advisable to use letters of the alphabet, whence tone A and tone B.⁷ The pitch patterns hitherto ascribed to tones 1 and 3, in which a fall in pitch characterizes the verb lexical item (initial syllable), [\ .] / [\ /] and [^ .] / [^ /], will therefore be termed tone A, while the remaining two pitch patterns, those formerly termed tone-2 and tone-4, with level pitch for the verb lexical item (initial syllable of the word) but falling pitch for the second, or particle, syllable when accompanied by final sentence intonation, [- \] / [- -] and [_ \] / [_ -], will be termed (contour) tone B. The four types of pitch pattern given in (I.B) above, therefore, need to be re-designated as follows:

| | | | | |
|-----------|-------------------|-------------------|-------------------|-------------------|
| | [\ .] / [\ /] | [- \] / [- -] | [^ .] / [^ /] | [_ \] / [_ -] |
| register: | 1 | 1 | 2 | 2 |
| contour: | A | B | A | B |

III. Features accompanying word-initial plosion and affrication in Tibetan

In the preceding section (II.C) I have proposed replacing a former single tone system for Tamang comprising four terms by two tone systems each comprising two terms, one system for register pitch distinctions and the other for contour pitch distinctions; and, furthermore, I have done it purely in order to serve the interests of Tamang phonology; but drawing this distinction between two types of tone system would, I believe, serve the interests of Tibeto-Tamang comparison too.

A. Voice and tone 2 (lower register)

⁷ The descriptive terms *falling* and *level* might also have been used; but they too might have proved misleading because, in sentences with final intonation at least, both contour tones have falling pitch; so it is not the feature "falling pitch" that distinguishes the tone, but which of the two syllables it is that the falling pitch characterizes (the first, or verb-lexical-item, syllable or the second, or particle-lexical-item, syllable.)

In (II.C) above, I employed the exclusive relationship of word-initial voice combined with plosion and affrication ([b d g dz dz]) with tone 2 in Tamang, my newly distinguished lower-register tone, to point out that this voice feature, usually partial voice rather than full voice, commonly alternates with voicelessness in the same lexical item provided that the voicelessness is accompanied by laxness; a similar voicing feature, partial voice alternating with voicelessness and laxness, is characteristic of Tibetan word-initial plosives and affricates too. In the reading-style and the spelling-style pronunciations of Written Tibetan, though, there is a further voicing possibility, not to be found in Tamang or, for that matter, spoken Lhasa Tibetan: full voice for the plosive or affricate in harmony with the (full) voice of a preceding homorganic nasal. These word-initial nasal-and-plosive/affricate clusters ([NC]), comprising [mb nd ndɿ ŋg ɲdz n(d)z], correspond to Written Tibetan (WT) word-initial spellings with a prefix *m* or ' : 'b, m/'d, m/'g, m/'j, m/'dz.

These two Tibetan voicing features combine exclusively with tone 2, the lower-pitch member of the two-term (register) tone system distinguished at (I.A) above. To the following examples of these two Tibetan voicing features in Written Tibetan (WT) reading-style and spelling-style pronunciations and in Lhasa Tibetan (LT) I have added Tamang cognates for comparison.

| | | | | | |
|-----|-----|-------------------------------|--------------------------|---------------|-----------------------|
| | | <i>soak, moisten</i> | <i>shave</i> | <i>write</i> | <i>die (hon.)</i> |
| WT | 2: | [b] sbang | [ndɿ] 'breg ⁸ | [ndɿ] 'bri | [ndɿ] 'grong |
| LT | 2: | [b] | | | |
| Tam | 2A: | [b] bam <i>wet, dampen</i> | [br] bree | [br] brii | [dɿ] drong |
| | | <i>fit together</i> | <i>cover</i> | <i>choose</i> | <i>make obeisance</i> |
| WT | 2: | [dɿ] sgrig | [ŋg] 'gebs | [nd] 'dam | [ɲdz] mjal |
| LT | 2: | [dɿ] | | [d] | [dz] |
| Tam | 2A: | [dɿ] drik | [g] gap | [d] dam | [dz] jal |
| | | <i>be handsome</i> | | | |
| WT | 2: | [n(d)z] mdzes | | | |
| LT | 2: | [z] | | | |
| Tam | 2A: | [dz] jee | | | |
| | | <i>suit, 'être beau'</i> | (Mazaudon 1988b, 10) | | |

⁸ Lhasa Tibetan has no cognate of Written Tibetan [ndɿ] 'breg 'shave': so the space for the initial sound of the Lhasa Tibetan cognate has been left blank. The lexical item 'breg of Written Tibetan translates into Lhasa Tibetan as *bzhar*. Apart from this one instance of lack of cognation in the two dialects the initials of Lhasa-Tibetan cognates not found in this table should be sought in (B.2) below, 'variant aspiration and tone 2 (lower register)'.

| | | | |
|---------|--------------------|----------------------------|----------------|
| | <i>rise</i> | <i>gush</i> | <i>sew</i> |
| WT 2: | [mb] 'bo(s) | [ndɤ] 'brub | [ndɤ] 'drub |
| Tam 2B: | [b] boo | [br] brup | [dɤ] drup |
| | | <i>come into the udder</i> | <i>stitch</i> |
| | <i>throw down</i> | <i>turn off</i> | <i>place</i> |
| WT 2: | [gj] sgyel | [nd] zlog(s) | [n(d)z] 'dzugs |
| Tam 2B: | [gj] gyal | [d] doo | [dz] dzuu |
| | <i>throw away</i> | <i>turn upside down</i> | |
| | <i>consider</i> | | |
| WT 2: | [n(d)z] 'dzin | | |
| Tam 2B: | [dʒ] jii | | |
| | <i>think about</i> | | |

This relationship of voice with the lower-register tone, tone 2, for Tamang and Tibetan cognates reinforces my proposal that register tone be kept separate, in Tamang, from contour tone; and it does so in order to make comparison of Tamang with Tibetan more straightforward as regards the associated word-initial feature, voice.

B. Aspiration

1. Invariant aspiration and tone 1 (upper register)

I also emphasized, in (II.A) above, that in Tamang word-initial aspiration correlates only with the upper-register tone, tone 1 (corresponding to former tones 1 and 2); aspiration also has a role to play in Tibeto-Tamang comparison because word-initial [ph th kh tɕh tsh] correlate with tone 1, the upper-register tone, in Tibetan. This aspiration feature is symbolized in WT orthography as *ph*, *th*, *kh*, *ch*, and *tsh*, combined, for some lexical items, with a preceding ' for *ph* and with ' or *m* for the other four, e. g.,

| | | | | |
|---------|--------------------|---------------|--------------------|------------------|
| | <i>go (hon.)</i> | <i>hear</i> | <i>know (hon.)</i> | <i>sacrifice</i> |
| WT 1: | [ph] pheb(s) | [th] thos | [kʝ] mkhyen | [tɕh] mchod |
| LT 1: | [ph] | [th] | [kʝ] | [tɕh] |
| Tam 1A: | [ph] phep | [th] thai | [kʝ] khen | [tɕh] chot |
| | | <i>listen</i> | | |
| | <i>graze, feed</i> | | | |
| WT 1: | [tsh] 'tsho | | | |

LT 1: [tsh]
 Tam 1A: [tsh] tsha

| | <i>hit</i> | <i>wash</i> | <i>drink</i> | <i>gnaw</i> |
|---------|--------------------------------|-------------|--------------|-------------------------------------|
| WT 1: | [ph] 'phog | [tɣ] 'khru | [th] 'thung | [tɕh] 'chos |
| LT 1: | [ph] | [tɣ] | [th] | |
| Tam 1B: | [ph] phoo <i>fire (gun)</i> | [th] khru | [kɟ] thung | [tɕh] choi <i>tear at (meat)</i> |

| | <i>sweep</i> | <i>paint (n.)</i> |
|---------|---------------------------|---------------------------|
| WT 1: | [tɕh] 'phyag | [tsh] tshos |
| LT 1: | | [tsh] tshon |
| Tam 1B: | [pɟ] phyaa <i>wipe</i> | [tsh] tshoo <i>dye</i> |

A word of caution is necessary in dealing with the honorific forms from Tamang here; this is because they are suspiciously close phonetically to honorific Tibetan forms, and therefore raise the possibility that they might be recent loans, to fill a stylistic lexical vacuum in Tamang: the Tamang monks of Rishingo had a special relationship with the monastery of Kyirong, on the other side of the Nepalese frontier with Tibet, and might conceivably have imported such items of vocabulary into Tamang in order to give a fitting dignity to the activities of monks, and distinguish them from those of laymen.

The term *invariant* has been applied to aspiration in the heading of this section (1) because, in Tibetan, aspiration in this function applies to all speakers, and does not vary, with non-aspiration, from speaker to speaker.

2. Variant aspiration and tone 2 (lower register)

A reason for the term *variant* here is that for some speakers (and readers) word-initial aspiration, combined with voicelessness and plosion or affrication, [ph th kh tɕh] but not [tsh], also correlates with tone 2, the lower of the two register tones, as well as tone 1, in which case it is symbolized in WT orthography by (unprefixed) *b, d, g, and j*, but not *dz*, e.g., the noun lexical items *bod, deb, drug, gangs, ja*, (Tibet, book, six, snow, tea). My informant Rinzin Wangpo, born in Lhasa, was one of those speakers who use aspiration for this type of lexical item; but another of my informants, Tashi Lhakpa, born at Chushur, about two days' walk from Lhasa, used non-aspiration for this type; hence aspiration in this type of lexical item needs to be distinguished by some such term as *variant* aspiration; and the non-aspiration that, for some speakers, alternates with it phonetically

equally needs to be distinguished as variant non-aspiration.⁹ Because of its association with tone 2, variant aspiration makes the relations of aspiration with tone rather more complicated in Tibetan than in Tamang, though it should be noted that only invariant aspiration can combine with apico-alveolar affrication ([tʃh]), and hence with tone 1; so the set of invariant-aspiration initials differs significantly from that of variant-aspiration initials. The following are examples of variant-aspiration lexical items, with Tamang cognates added:

| | <i>write</i> | <i>make warm</i> | <i>die (hon.)</i> | <i>understand</i> |
|---------|--------------|------------------|-------------------|-------------------|
| WT 2: | [tɿ] bris | [th] dugʂ | [tɿ] grongs | [kh] go |
| LT 2: | [tɿ] | | [tɿ] | [kh] |
| Tam 2A: | [br] brii | [d] duu | [dɿ] drong | [g] go |

| | <i>cover, hide</i> | <i>get hot, grow warm</i> |
|---------|------------------------|---------------------------|
| WT 2: | [tʃh] byib | [tɿ] dros |
| LT 2: | | [tɿ] dro |
| Tam 2B: | [b] bip <i>bury</i> | [dɿ] droo |

Exceptionally, variant aspiration, and therefore tone 2, in a Tibetan lexical item corresponds to non-aspiration and tone 1 in a Tamang cognate: e.g.

| | <i>put on</i> | <i>give</i> |
|---------|---------------|-------------|
| WT 2: | [kh] gon | [tʃh] byin |
| LT 2: | [kh] | |
| Tam 1A: | [kw] kwan | [p] pin |

C. Invariant non-aspiration and tone 1 (upper register)

I have already pointed out (i) that it is, as one would expect (cf. n. 6), non-aspiration that combines with word-initial voice, and, therefore, with tone 2, and (ii) that variant non-aspiration also combines with tone 2, and voicelessness, according to the preference of the individual speaker for aspiration or for non-aspiration; invariant non-aspiration, on the other hand, combines only with voicelessness and with the upper-register tone, tone 1; and is symbolized by initial *p*, *t*, *k*, *c*, and *tʃ*, with appropriate

⁹ Cf. also Goldstein 1970: 'Since Mr. Norrang is one of those speakers who almost always use the aspirated stop in low tone, we have tried to use this form consistently in the manual. The student should note, however, that there are Lhasa speakers who use unaspirated stops in low tone' (xiii-xiv).

orthographic prefixes and superscript and subscript symbols: e.g.. (with Tamang cognates added)

| | | | | |
|---------|-----------------------|-------------------------|--------------------|----------------|
| | <i>remove</i> | <i>cut to pieces</i> | <i>reincarnate</i> | <i>be born</i> |
| WT 1: | [p] spo(s) | [t] gtub | [tʂ] sprul | [kj] skye(s) |
| LT 1: | [p] | [t] | [tʂ] | [kj] |
| Tam 1A: | [p] po <i>move</i> | [t] tup <i>slice</i> | [tʂ] trul | [kj] kee |

| | | |
|---------|----------------|--------------|
| | <i>entrust</i> | <i>begin</i> |
| WT 1: | [tʂ] bcol | [ts] btsugs |
| LT 1: | [tʂ] | [ts] |
| Tam 1A: | [tʂ] col | [ts] tsuu |

| | | | | |
|---------|-------------------------|----------------------------|--------------------------|-------------------------|
| | <i>goods (n.)</i> | <i>shorten</i> | <i>appoint</i> | <i>cut</i> |
| WT 1: | [p] spus | [t] rtung | [k] skul | [tʂ] bcad |
| LT 1: | [p] | | [k] | [tʂ] |
| Tam: B: | [p] pui <i>carry</i> | [t] tun <i>be short</i> | [k] kul <i>employ</i> | [tʂ] cet <i>skin</i> |

| | |
|---------|--------------|
| | <i>sell</i> |
| WT 1: | [ts] btsongs |
| Tam 1B: | [ts] tsung |

IV. Comparison of word-initial pitch patterns, Tamang and Tibetan

Having considered the relationship of the word-initial features voice, aspiration, and non-aspiration, the features that accompany plosion and affrication, to tone 1 and tone 2 in Tamang and in Tibetan, and identified those word-initial features with the upper-register and lower-register tones, tones 1 and 2, as appropriate, in both languages, it remains to compare the classifications of lexical items by tone in the two languages on the basis of a twofold distinction in word pitch pattern. This can most usefully be done by taking examples from words that have word-initial features other than plosion and affrication, namely nasal, fricative, lateral, and rolled consonants, and also non-syllabic vowels: such words depend entirely on pitch differences, without any clues to tonal identification from word-initial features.

A. Register

For words of these types, nasal-initial, lateral-initial, etc., the register distinction is well symbolized, for Tibetan, in WT orthography.

1. Lower register (tone-2 pitch patterns)

Tone-2 pitch patterns, examples of which have been shown in (I.A) above for verb-and-particle words, are identified with the word-initial letters *ng*, *ny*, *n*, *m*, *l*, *r*, *w*, *y*, and ' as single letters, unprefixed;¹⁰ and this is also the case for word-initial *zh* and *z* whether prefixed or not, (*g/b*)*zh* and (*g/b*)*z*. The Tamang pitch patterns shown in (I.B) above in the tone-3 and tone-4 columns, both later re-designated as tone-2 (II.C.1), correspond well with the Tibetan tone-2 category through cognate verb lexical items; e.g.,

| | | | | | |
|-----|-----|---------------------------------------|---------------------|----------------------|----------------------|
| | | taste | make a mistake | roaring (n.) | loose |
| WT | 2: | [ŋ] myangs | [n] nor | [ŋ] ngar-skad | [l] lod |
| LT | 2: | | [n] | [ŋ] | |
| Tam | 2A: | [mj] myang | [n] nor do wrong | [ŋ] ngar roar | [l] lot get loose |
| | | be heavy | be long | fall | sleep (hon.) |
| WT | 2: | [ŋdz] lji | [ɣ] ring | [ndɣ] 'dril | [s] gzim |
| LT | 2: | [dz] | [ɣ] | | [s] |
| Tam | 2A: | [l] lii 'être lourd' ¹¹ | [r] reng | [r] ril fall down | [ʃ] shim |
| | | get up (hon.) | | | |
| WT | 2: | [ʃ] bzhengs | | | |
| LT | 2: | [ʃ] | | | |
| Tam | 2A: | [ʃ] sheng stand up (hon.) | | | |
| | | melt | snore | suck | the act of fanning |
| WT | 2: | [ŋdz] 'ju | [ŋ] ngug | [ʃ] bzhibs | [j] yab-mo |

¹⁰ Among the spoken, and therefore largely unwritten, dialects, this statement can also stand for cognates in Lhasa Tibetan apart from *mi* 'eye' and *mag-pa* 'son-in-law, bridegroom', which are tone-1 in Lhasa Tibetan, and for which, therefore, appropriate spellings would be **dmig* and **dmag-pa*; indeed Jäschke 1881/1934 has an entry *dmag-pa* (422) referring the reader to *mag-pa*.

In another spoken Tibetan dialect, Dzongkha, the national language of Bhutan, these and other such nasal-initial and vocalic-initial words have the high-register tone in spite of Tibetan orthography; e.g., *mi* 'man', *nag-po* 'black', *yul* 'region', whence the recently devised Dzongkha spellings for these words: *mi* with reversed *i*, *gnagg*, and *gyul* (Michallovsky 1989, 299).

¹¹ The Lhasa Tibetan cognate, in this instance, is adjectival, [dzɿ bɔ] lji-po; I owe the Tamang cognate to Mazaudon (1973, 151).

| | | | |
|-----------------|------------------|----------|-------------------|
| LT 2: [ɕ] | | [dz] | |
| Tam 2B: [ɲ] nyu | [ŋ] ngu sleep | [ɕ] ship | [j] yap winnow |

There are, however, a few exceptions: the tone-2 Tamang verbs *glu* 'buy' and *yuk* 'shake' have tone-1 cognates in Tibetan: *glud* ([l-]) 'ransom' and *dbyugs* ([j-]) 'swing'.

2. Upper register (tone-1 pitch patterns)

Tone 1 in Tibetan is identified, for WT, with (i) word-initial prefixed or superscribed *ng*, *ny*, *n*, *m*, *l*, *y*, *by*, and *br*, (ii) subscribed *l* (*la-btags*) in *gl*, *bl*, *rl*, and *sl*, but not *zl*, and (iii) *s* and *sh* whether prefixed or not.

Specimen pitch patterns for tone 1 (upper-register) verb-and-particle words have been given at (1. A) above. The following Tibetan verb lexical items can be classified as tone-1-word (or tone-1); and so can their Tamang cognates:

| | | | | |
|---------|---------------|---------------|---------------------|-------------------|
| | <i>be mad</i> | <i>plough</i> | <i>hear, listen</i> | <i>vex</i> |
| WT 1: | [ɲ] smyo(s) | [m] rmo(s) | [ɲ] mnyan | [ŋ] sngog |
| LT 1: | [ɲ] | | | |
| Tam 1A: | [mj] myoo | [m] moi | [ɲ] nyan | [ŋ] ngoo tease |

| | | | | |
|---------|---------------------|------------------|--------------|--------------------|
| | <i>grant (hon.)</i> | <i>go near</i> | <i>teach</i> | <i>loosen</i> |
| WT 1: | [n] gnang | [ɲ] snyen | [l] slob | [l] glod |
| LT 1: | [n] | | [l] | [l] |
| Tam 1A: | [n] nang | [n] ni [?] go | [l] lop | [l] lot ?loosen |

| | | | | |
|---------|------------|---------------------------------|-------------|-------------------|
| | <i>die</i> | <i>go (hon.)</i> | <i>kill</i> | <i>eat (hon.)</i> |
| WT 1: | [ɕ] shi | [ɕ] gshegs | [s] bsad | [s] gsol |
| LT 1: | [ɕ] | [ɕ] gshags <i>dle (hon.)</i> | [s] | [s] |
| Tam 1A: | [ɕ] shi | [ɕ] shee go (hon.) | [s] sat | [s] sol |

| | |
|---------|---------------|
| | <i>put in</i> |
| WT 1: | [tɕ] bcug |
| LT 1: | [tɕ] |
| Tam 1A: | [j] yuu |

| | | | |
|---------|----------------|---------------------|-------------|
| | <i>be ripe</i> | <i>sweet (adj.)</i> | <i>know</i> |
| WT 1: | [m] smin | [ŋ] dngar-mo | [ʑ] shes |
| LT 1: | [m] | [ŋ] | [ʑ] |
| Tam 1B: | [m] min | [ŋ] ngam | [ʑ] shee |

It is only fair to mention that there are a number of counter-examples, in which a Tamang tone-1 (upper-register) lexical item has a tone-2 (lower-register) cognate in Tibetan; e. g.,

| | | | | |
|---------|-----------|----------------|--------------------|----------------|
| | <i>be</i> | <i>assault</i> | <i>action (n.)</i> | <i>roll up</i> |
| WT 2: | [m] mod | [ɣ] rub | [l] las | [dɣ] sgril |
| LT 2: | | | [l] | [dɣ] |
| Tam 1A: | [m] mu | [r] rop hit | [l] la do | [r] ril |

| | | | |
|---------|----------------------|--------------|---------------------|
| | <i>be sufficient</i> | <i>eat</i> | <i>take hold of</i> |
| WT 2: | [l]/[nd] l(d)angs | [s] (b)za(') | [s] (b)zung |
| LT 2: | [d] | [s] | [s] zin |
| Tam 1A: | [l] leng | [ts] tsa | [ts] tsung |

| | | | |
|---------|-------------------|---------------------------|------------------|
| | <i>be painful</i> | <i>put, throw</i> | <i>be light</i> |
| WT 2: | [n] na | [gʝ] rgyab | [j] yang |
| LT 2: | [n] | [gʝ] | [j] |
| Tam 1B: | [n] na | [r] rap [ʔ] ¹² | [j] yang |
| | <i>be ill</i> | <i>stand up</i> | (Mazaudon 1988b) |

B. Tamang contour system: tones A and B

In section (A) above good correspondences have been shown for Tibetan tone1 and Tamang tone 1, the upper-register tones, and for Tibetan tone 2 and Tamang tone 2, the lower-register tones, from verb lexical items with initial nasals, laterals, non-syllabic vowels, fricatives, and rolled consonants; earlier, in section (III), matching correspondences had been shown for verb lexical items with plosion and affrication as their initial features, reinforced by correspondences in such initial features as (A) voice, (B) invariant and variant aspiration, and (C) invariant non-aspiration.¹³

¹² Cf. also Burmese *rap* (and other cognates; Benedict 1972, 57), for which Benedict reconstructs TB **g-ryap*. The *rap-rgyab* cognation is flawed by an unsatisfactory match in glosses; but it can be supported by correspondences such as Tamang *brat* and Tibetan *brgyad* 'eight' (TB **b-r-gyat*; Benedict 1972, 45) and Tamang *gya* (from my own material) and Tibetan *brgya* 'hundred' (TB **r-gya*; Benedict 1972, 45).

¹³ Mazaudon 1977: 'one of the axes of the Tamang tonal system, namely high/low, has the same origin as the high/low opposition in Tibetan' (54; cf. also 56).

In sharp contrast with the relationship between register tones 1 and 2 in Tibetan and in Tamang stands the contour distinction between tones A and B in Tamang (II.C.2 above, equivalent to Mazaudon's tones 1 and 3 versus her tones 2 and 4): no correspondence with features of Tibetan can be shown, either with initial features of Tibetan verb lexical items or with final features of those lexical items. This lack of relationship between the Tamang contour tones and Tibetan initial features has already been shown in sections (III) and (IV.A) above, in which Tamang cognates have been drawn, as examples, from either contour tone, A or B, indifferently:

| | | |
|---------|-----------------|---------------------------------|
| III. A | Tibetan tone 2: | Tamang tone 2 and tones A and B |
| B 1 | " " 1: | " " 1 " " " " |
| 2 | " " 2: | " " 2 " " " " |
| C | " " 1: | " " 1 " " " " |
| IV. A 1 | " " 2: | " " 2 " " " " |
| 2 | " " 1: | " " 1 " " " "; |

a similar lack of relationship between the two Tamang contour tones A and B and final features of the Tibetan lexical items appears equally from the following examples, containing the full range of Tamang finals. [p t k m n ŋ l r V: V1 V]:¹⁴

| | Tib 1, Tam 1A | Tib 1, Tam 1B | Tib 2, Tam 2A | Tib 2, Tam 2B |
|-----|--|--------------------------|--------------------------|----------------------------|
| [p] | Tib gtub, phebs Tam tup phep Tib <i>mince, go (hon.), break, cover, suck, sew</i> Tam <i>slice, go(hon.), be powdered, cover, suck, stitch</i> | rtib tip | 'gebs/bkab gap | bzhib, 'drub ship, drup |
| [t] | Tib phus, bshad Tam phut, shat Tib <i>blow, explain, cut, tie together, frail, drag, scratch</i> Tam <i>blow, say, skin, make longer, frail, drag, scratch (up)</i> | bcad, mthud cet, thut | rjud, 'drud jut, drut | 'brad dret |
| [k] | Tib blugs Tam phluk Tib <i>pour, fit (together)</i> Tam <i>spill, fit (together)</i> | -- | sgrig drik | -- |

¹⁴ The phonetic symbol [V] is used here to symbolize any appropriate Tamang vowel.

| | Tib 1, Tam 1A | Tib 1, Tam 1B | Tib 2, Tam 2A | Tib 2, Tam 2B |
|------|---|----------------------------------|-----------------------------|---------------------------|
| [m] | Tib skum Tam kum | dngar-mo ngam (Maz. 1988b) | gzim, 'dam shim, dam | |
| | Tib contract, sweet, sleep (hon.), choose Tam bend, sweet, sleep (hon.), have an appetite for | | | |
| [n] | Tib rten, mkhyen Tam ten, khen | smin min | zin jin | non nan |
| | Tib lean on, know (hon.), be ripe, finish, cover with Tam support, know (hon.), be ripe, finish, roof | | | |
| [ŋ] | Tib sang, gsung Tam sang, sung | 'thung, btsongs thung, tsung | ring, 'grong reng, drong | sbyangs byang |
| | Tib cleanse, speak (hon.), drink, sell, be long, die (hon.), clean Tam sweep, speak (hon.), drink, sell, be long, die (hon.), throw away | | | |
| [l] | Tib rkyal, bcol Tam kyal, col | 'khol khwai | mjal, yal jal, yal | sgyel gyal |
| | Tib swim, entrust, boil, pay one's respects, vanish, throw down Tam swim, entrust, boil, bow down to, fade, throw away | | | |
| [r] | Tib shar, skor Tam shar, kor | bcar car | 'dar, nor dar, nor | yar yar |
| | Tib rise, wander through, squeeze, shiver, err, stray Tam rise, stroll, squeeze, shiver, do wrong, run (away) | | | |
| [V:] | Tib 'phyi(s), smyog Tam phii, myoo | 'phyag, tshos phyaa tshoo | bris, bzhugs brii, shuu | ldog, dro(s) doo, droo |
| | Tib be late, be mad, wipe, dye (n.), write, sit (hon.), turn away, be heated Tam be late, be mad, sweep, dye, write, sit (hon.), turn upside down, get hot | | | |
| [Vi] | Tib thos, rmos Tam thai, moi | 'khal, 'chos khai, choi | -- | rga(s) gai [?] |
| | Tib hear, plough, spin, gnaw off, be old Tam listen, plough, spin, tear at (meat), be late | | | |
| [V] | Tib shi, spo(s) Tam shi, po | 'khru khru | go, bzo go, so | 'ju, ngug nyu, ngu |
| | Tib die, move (house), wash, understand, make, melt, snore | | | |

Tam die, move (house), wash, understand, prepare, melt, sleep

From the point of view of Tibeto-Tamang comparison, then, contour tone in Tamang has a very different significance from register tone; and the two types of tonal distinction can usefully be kept quite separate.

V. Extending the register-versus-contour distinction from Tamang to TGTM

Mazaudon has pointed out, in relation to monosyllables, that in five out of eight Tamang, Gurung, Thakali, and Manangba dialects, namely Risiangkhu (Rishingo) and Sahu Tamang, Tukche and Syang Thakali, and Ghachok Gurung, tone-1 and tone-2 words are high with clear voice quality, and tone-3 and tone-4 words are low with a breathy voice quality (1978, 164); but for the reasons that I have given above, I prefer to put her statement in a somewhat different form: tone-1 words, of either contour tone (A or B), are high with a clear voice quality; tone-2 words, of either contour (A or B), are low with a breathy voice quality.

A. Pitch patterns and tones 1 and 2, the register tones

The remaining three dialects of the eight, Taglung Tamang, Marpha Thakali, and Ngawal Manangba, show some irregularities. These irregularities appear prominently in Mazaudon's table showing the 'phonetic realization of the four tones in each dialect', 'using Chao Yuen-ren's tone letters':

| | Tamang | | | Thakali | | | Gur. | Man. |
|--------|--------|-----|-------|---------|-------|-------|------|------|
| | Ris. | Sa. | Tag. | Tuk. | Mar. | Syang | Gha. | Nga. |
| tone-1 | 54 | 44 | 55/44 | 54 | 43 | 43 | 33 | 33 |
| tone-2 | 44 | 54 | 43 | 44/33 | 45 | 45 | 54 | 45 |
| tone-3 | 33/22 | 11 | 33/22 | 11 | 33/22 | 11 | 11 | 54 |
| tone-4 | 211 | 32 | 51 | 121 | 51 | 33/22 | 12 | 31 |

(Mazaudon 1978, 165)

From this table, the realizations of tone 1 (Mazaudon's 'tone-1' and 'tone-2') can readily be seen to draw on pitch levels 5 and 4 in all dialects; and six of them also draw on 3; but tone 1 never draws on the two lowest pitch levels, 1 and 2. Tone 2 (Mazaudon's 'tone-3' and 'tone-4') draws on pitch levels 1 and 2 for all eight dialects, on pitch level 3 for six of them, never pitch level 4, but, irregularly, pitch level 5 for Taglung, Marpha, and Ngawal. Apart from these dialects, my tone 1 is always higher in register pitch than my tone 2. However, even in two of the exceptional dialects in which pitch level 5, the highest pitch level, occurs for my tone 2 (the lower-

register tone), namely Taglung and Marpha. It is only in combination with pitch level 1, the lowest pitch level, in the pitch pattern 51, that this pitch level occurs for tone 2; and, furthermore, in these two dialects it is only following pitch level 5 that pitch level 1 occurs at all. If, therefore, pitch level 1 were taken to be an over-riding criterion of tone 2, it would serve to regularize 51 as a phonetic exponent of tone 2, the endpoint of the 51 pitch pattern being taken to be more significant than its beginning.

B. *Aspiration and tone 1*

Although the three dialects Taglung, Marpha, and Ngawal are irregular as regards register in that all three of them draw on pitch level 5 for some of the members of the tone-2 category (Mazaudon's tone-4 for Taglung and Marpha, tone-3 for Ngawal), all three of them are just as regular as the other five dialects, Risiangkhu, Sahu, Tukche, Syang, and Ghachok, in associating aspiration with tone 1 (Mazaudon 1978, 164, 170); and that association is exclusive except for Ngawal Manangba. Mazaudon observes: 'in Marpha and Taglung, in spite of the dissociation of tone-4 from any breathiness, and in spite of its being the highest tone in the system, no aspirated units occur under that tone' (Mazaudon 1978, 170). Mazaudon's tone-4 in these two dialects, with its 51 pitch pattern, does indeed draw on the highest pitch level; but so does her tone-1 in Taglung, with its 55/44 pitch pattern, and so does her tone-2 in Marpha, with its 45 pitch pattern. These two patterns' claim to be 'the highest tone in the system' is, therefore, at least as good, with their 55 and 45 pitch patterns, as tone-4, with its 51 pitch pattern, descending to 1, the lowest pitch level. None of Mazaudon's other three tones goes below pitch level 2 in Taglung and Marpha.

C. *Contrastive and non-contrastive aspiration in Ngawal Manangba*

Ngawal Manangba differs from the other seven dialects in that it has aspiration as an initial feature of tone-2 lexical items as well as tone-1; this is so for all tone-2 plosive-initial and affricate-initial lexical items that are also (contour) tone-B, Mazaudon's tone-4: 'but in Manangba there are no unaspirated initials on tone-4 and thus (as in the other dialects) no opposition between aspirate and unaspirate on tone-4' (Mazaudon 1978, 170). Thus, aspiration as a Ngawal tone-1 feature is contrastive aspiration, in opposition to non-aspiration; but, as a tone-2 feature, it is non-contrastive (cf. also variant aspiration as a feature of tone-2 initials in Tibetan, where the aspiration appears to be in complementary distribution with non-aspiration by idiolect, and just as non-contrastive, therefore, as the aspiration in the initial of Mazaudon's tone-4 words in Manangba).

D. Normal voice quality for tone 2 versus very tense voice quality for tone 1

Mazaudon has pointed out that the voice quality, or phonation, appropriate to 'the two high tones', her tones 1 and 2, corresponding to my tone 1, is not 'normal' in Ngawal Manangba, as in the other seven dialects, but 'very tense', serving to distinguish my tone 1 from tone 2, which is characterized, in Manangba, not by 'breathy voice quality', as in the other seven dialects, but by 'normal' voice quality; so the voice-quality distinction between tones 1 and 2 is maintained in Manangba too, but by a phonetically different means.

E. Register and 'breathiness'

In their analysis of Gurung, Glover (1970) and Glover and Glover (1977) have stated only one tone system, 'accent' ('high pitch' v. 'low pitch'), supplemented by a category of 'breathiness' ('breathy' v. 'clear'). Hari (1970) uses much the same categories for Thakali (Tukche): 'contrasts for breathiness and contrasts for pitch contour' (125); and so do Hari, Taylor, and Pike for Tamang (Western): 'contrasts for breathiness (tense or clear versus lax or breathy) and contrasts for pitch contour (basically level versus falling)' (1970, 82). The two terms of their breathiness category, 'clear' and 'breathy', correspond well with the two terms of my register category, tone-1 (upper) and tone-2 (lower): to put it negatively, the breathy feature seldom, if ever, combines with an upper range, but only with a pitch range in which the vocal cords are vibrating slowly, a 1-2 pitch range, or, possibly, 1-3. The main difference, however, between their analyses and mine is that mine is based on the word unit, commonly comprising more than one syllable; and commonly, therefore, it attempts to account for the pitch features of two or more syllables jointly, especially those of a verb, as in this article, or a noun, and associated suffixes or, less commonly, prefixes, hence my emphasis on the pitch pattern of the word as a whole.

VI. Conclusion

Within the confines of the Tamang language and such closely related languages as Gurung, Thakali, and Manangba the case for keeping a register tone system separate from a contour tone system on grounds of pitch pattern seems to be strong, though with the opposition of tone-3 in Manangba (Mazaudon 1978, 165, 170); that case can be strengthened by calling up support from associated features of initial plosion and affrication, namely voice, aspiration, and voicelessness. Since these features are initial in verb lexical items, they are also word-initial apart from words containing the word-initial negative suffix *a-*, such as Rishingo (or Risiangku) Tamang

[aʒaɭi] 'I did not eat'; cf. [tsadzɪ] '(I) ate'. These initial features support the division of tone into register and contour systems for the maverick Ngawal Manangba dialect equally with the other seven dialects; and so do phonation (or voice-quality) features, apart from Mazaudon's tone-4 in Taglung and Marpha, which has clear phonation instead of the expected breathy phonation, possibly because it begins at a pitch level (5) too high for combination with the feature breathy to be physically possible.

Outside the confines of the TGTM group of languages, comparing Tamang with cognates in Tibetan also gives fairly strong support for dividing the four-term TGTM tonal system into two two-term systems, a register tone system and a contour tone system.

REFERENCES

- Benedict, P. K. 1972. *Sino-Tibetan: a Conspectus*. Contributing editor, J. A. Matisoff. Cambridge: CUP.
- Chao, Y. R. 1930. "ə sistəm əv 'toʊn-lətəz'." *Le Maître Phonétique*, 30, 24-7.
- Glover, W. W. 1970. "Gurung tone and higher levels." In F. K. Lehman, ed., *Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics (OPWSTBL)*, III, *Tone Systems of Tibeto-Burman Languages of Nepal*, Pt. I, A. Hale and K. L. Pike eds., *Studies in Tone and Phonological Segments*. Urbana: the University of Illinois, 52-73.
- Glover, W. W., and Glover, J. R. 1977. *Gurung-Nepali-English dictionary*. Canberra: Australian National University.
- Goldstein, M. C., and Nornang, N. 1970. *Modern Spoken Tibetan: Lhasa dialect*. Seattle and London: University of Washington Press.
- Hari, M. 1970. "Thakali tone and higher levels." In *OPWSTBL*, III, 125-42.
- Hari, M., Taylor, D., and Pike, K. L. 1970. "Tamang tone and higher levels." *OPWSTBL*, III, 82-124.
- Jäschke, H. A. 1881/1931. *A Tibetan-English Dictionary*. London: Routledge and Kegan Paul.
- Mazaudon, M. 1973. *Phonologie Tamang*. Paris: Société d'Etudes Linguistiques et Anthropologiques de France.
- Mazaudon, M., 1977. "Tibeto-Burman tonogenetics." *Linguistics of the Tibeto-Burman Area*, 3.2, 1-123.
- Mazaudon, M. 1978. "Consonantal mutation and tonal split in the Tamang sub-family of Tibeto-Burman." *Kailash*, VI, 3, 157-80.
- Mazaudon, M. 1988a. "The influence of tone and affrication on manner: some irregular manner correspondences in the Tamang group" [Paper presented at the 21st International Conference on Sino-Tibetan languages and linguistics, Lund, Oct., 1988].
- Sprigg, R.K. 1990, "Tone in Tamang and Tibetan and the advantages of keeping register-based tone systems separate from contour-based systems", in *Linguistics of the Tibeto-Burman Area*, vol. 13, no. 1, pp. 33-56. (purl.org/sealang/sprigg1990tone.pdf)

- Mazaudon, M. 1988b. "Tentative list of Tamang verbs, October, 1988" [Typescript].
- Michailovsky, B. 1989. "Notes on Dzongkha orthography." In D. Bradley, E. J. A. Henderson, and M. Mazaudon, eds., *Prosodic Analysis and Asian Linguistics: To Honour R. K. Sprigg* (Pacific Linguistics, series C - No. 104). Canberra: Department of Linguistics, Research School of Pacific Studies, The Australian National University, 297-301.
- Sprigg, R. K. 1954. "Verbal phrases in Lhasa Tibetan - I." *Bulletin of the School of Oriental and African Studies*, 16.1, 134-56.
- Sprigg, R. K. 1968. *The Phonology of the Grammatical Constituents of Verbal-Phrase Words in Spoken Tibetan (Lhasa dialect)*. Ph.D. thesis. University of London.
- Yu, D., and Jaw, Y. (Y. R. Chao). 1930. *Love Songs of the Sixth Dalai Lama. Tshangs-dbyangs-rgya-mtsho* (Academia Sinica, series A, No. 5). Peiping.