

## THE INFLUENCE OF TONE AND AFFRICATION ON MANNER: SOME IRREGULAR MANNER CORRESPONDENCES IN THE TAMANG GROUP

Martine Mazaudon  
CNRS, Paris

**Abstract:** The influence of the manner of articulation of initials on tonal development is well established; conversely, apparently irregular correspondences in manner among daughter languages can be the result of the indirect influence of tone and the complexity of onsets. We present three examples from TGTM (the Tamang-Gurung-Thakali-Manangba subgroup of Tibeto-Burman). This subgroup presents a classic case of initial-merger-with-tonal-split, in which the loss of a voicing contrast on initials in a two-tone system led to the development of a four-tone system. Where the \*voiced series of proto-TGTM normally developed into a voiceless unaspirated series under both proto-tones, in Manangba it developed into an aspirated series under one of the proto-tones and into a voiceless unaspirated series under the other. In Gurung, we find a double conditioning of the manner of the initial by tone and segmental complexity of the onset: \*voiced stops have become voiceless under proto-tone \*I, but have retained their voicing under proto-tone \*II, unless they were affricated or followed by a medial, in which case they devoiced. Initial complexity has also influenced manner in Taglung and Risiangku Tamang, and in one word we suspect that it may even have altered the tone category.

**Keywords:** Tamang, Tamangish, TGTM, tonogenesis, influence of tone on manner, influence of affrication on manner

### 1. INTRODUCTION<sup>1</sup>

The influence of the manner of articulation of consonants, more precisely syllable or word initial consonants, on the phonetic pitch of the syllable or word, is a well-known phenomenon, and the development of tonal contrasts from the loss of an earlier contrast of voicing on initial consonants has been shown in many languages of Southeast Asia (Haudricourt 1961). Concerning the “Tamang Group” of languages, I have shown (Mazaudon 1973, 1978) how the merger of an old voiced series of initials with its voiceless counterpart led to the split (or

---

<sup>1</sup> This paper was written in 1988, when I was a research fellow at the University of California at Berkeley. It was presented and circulated at the 21st ICSTLL in Lund (5-9 October 1988), but has remained unpublished. Much descriptive work on Tibeto-Burman languages and on TGTM languages has appeared since, but the basic question addressed in this paper—what factors influence the phonetic and phonological development of the consonants that are at the origin of tonogenesis after tones have been phonologized—has remained under-studied. So it has seemed worthwhile to publish this brief analysis of the case of the TGTM group with minimum corrections and updating of the references. Thanks to J.M. Roynard for help in formatting and for the map, and to Boyd Michailovsky for going over the whole text.

bipartition) of an original two-tone system into modern four-tone systems, defined in terms of pitch and phonation. Among the eight dialects analyzed<sup>2</sup> there is some phonetic variation (see pitch values in Table 1), but the phonological structure is the same in terms of the present-day distribution of initials with respect to tones.

Tone	TAMANG			THAKALI			GURUNG	MANANG
	Risiangku	Sahu	Taglung	Tukche	Marpha	Syang	Ghachok	Ngawal
1	54	44	55/44	54	43	43	33	33
2	44	54	43	44/33	45	45	54	45
3	33 <sup>h</sup> /22 <sup>h</sup>	11 <sup>h</sup>	33 <sup>h</sup> /22 <sup>h</sup>	11 <sup>h</sup>	33 <sup>h</sup> /22 <sup>h</sup>	11 <sup>h</sup>	11 <sup>h</sup>	54
4	211 <sup>h</sup>	32 <sup>h</sup>	51	121 <sup>h</sup>	51	33 <sup>h</sup> /22 <sup>h</sup>	12 <sup>h</sup>	31

Table 1. Phonetic pitch of the four tones in eight TGTM dialects (<sup>h</sup> indicates breathiness)

Tone systems and tonogenesis in the TGTM group have two important characteristics:

(1) The two tones of the Proto-TGTM two-tone system were in contrast on all syllable types, including checked syllables. Across Tibeto-Burman languages, checked syllables tend to exhibit a smaller number of contrasts than smooth syllables, and no tonal contrasts are reconstructed on checked syllables in the earliest stages of languages of Asia, as for instance in Old Chinese and Archaic Vietnamese (Haudricourt 1954a, 1954b). But since all modern TGTM languages exhibit four tones on all syllable types, Proto-TGTM certainly did not have a neutralization of tonal contrasts on checked syllables.

(2) Although some individual tones have migrated far and wide in the phonetic space due to secondary developments, this later evolution of the tones in the modern languages has not obscured their original systemic relationship as HIGH vs LOW series. This historical relationship of the tones is still evidenced by the neutralization, in all eight languages, of the contrast between aspirated and unaspirated stops in the context of tones 3 and 4, the tones issued from the LOW series. The general pattern of tonogenesis in TGTM is shown in Table 2.

Series	Proto-initials	Tones	>	Modern initials	Tones
HIGH	*p, mh, jh, rh, lh, wh, s	I, II	>	p, m, j, r, l, w, s	1, 2
	*ph	I, II	>	ph	1, 2
LOW	*b, m, j, r, l, w, z	I, II	>	P, m, j, r, l, w, s	3, 4

Table 2. Origin and correlations of initials and tones in modern TGTM languages

<sup>2</sup> Risiangku-Tamang (Ris), Sahugaon-Tamang (Sa), Taglung-Tamang (Tag), Tukche-Thakali (Tuk), Marpha-Thakali (Mar), Syang-Thakali (Sya), Ghachok-Gurung (Gur), and Ngawal-Manangba (Man). Taglung is a village on the Northern edge of the Kathmandu valley; it is misplaced on the map in Mazaudon 1978. Data are from the author's fieldnotes on Risiangku, Taglung, Marpha, Syang, and the Manang dialect in Manang and Ngawal. For Sahugaon, Gurung and Tukche see also Hale & Watters 1973. Tones are designated by the numbers 1 to 4; their phonetic pitch value is expressed, between square brackets, according to Chao's system (Chao 1930).

In Table 2, the symbols for labials /p, ph, b, P, m/ stand for all points of articulation. Capital /P/ stands for the series of oral stop archiphonemes which do not distinguish “aspirated” from “non-aspirated” in the modern TGTML languages. The most frequent realization of /P, T, Ṭ, TS, K/ is as the voiceless series [p, t, ṭ, ts, k], thus merging with the proto-voiceless series. There is phonetic variation in this realization, and this will be the topic of the present paper. Note that whether the proto-voiced stop series is totally devoiced or not, the nasals, liquids and sibilants of the proto-voiceless and the proto-voiced series have fully merged, thus phonemicizing the tonal bipartition.

In several of the modern dialects of TGTML, there exists free variation of the realization of the initial stops with tones 3 and 4, the tones of the etymological LOW series, varying from [p] to [b] and including breathy variants [ḃ]. This had been noted by ear, and has been confirmed in a recent acoustic study for the dialect of Risiangku (Mazaudon and Michaud 2008). Such free variation does not include aspirated realizations.



TGTML language locations (bold) in Central Nepal

## 2. MANANG ASPIRATES ON TONE 4

Among the eight languages or dialects of TGTML studied in my 1978 paper, in only one, Manangba,<sup>3</sup> have we found an aspirated reflex of the old \*voiced series

<sup>3</sup> This is true of all variants of Manangba recorded as of 1988: Ngawal, Manang proper, and Praka (Prak) (Hoshi 1984). Manangba is a very unified form of speech. The slight variations

in any context. The rarity of the aspirated reflex in TGTm may be surprising when compared to the evolution of the rather closely related Tibetan dialects, where it seems to be as frequent as the unaspirated reflex. In any case, in Manangba, \*voiced stops which were under tone \*I have evolved into voiceless stops associated with tone 3, and \*voiced stops under tone \*II into aspirated stops associated with tone 4, as shown in Table 3.

<i>proto-initial</i>	<i>*tone-I &gt; 1,3</i>	<i>*tone-II &gt; 2,4</i>
*p, t, ts, ʈ, k	<sup>1</sup> p, <sup>1</sup> t, <sup>1</sup> ts, <sup>1</sup> ʈ, <sup>1</sup> k	<sup>2</sup> p, <sup>2</sup> t, <sup>2</sup> ts, <sup>2</sup> ʈ, <sup>2</sup> k
*ph, th, tsh, ʈh, kh	<sup>1</sup> ph, <sup>1</sup> th, <sup>1</sup> tsh, <sup>1</sup> ʈh, <sup>1</sup> kh	<sup>2</sup> ph, <sup>2</sup> th, <sup>2</sup> tsh, <sup>2</sup> ʈh, <sup>2</sup> kh
*b, d, dz, ɖ, g	<sup>3</sup> p, <sup>3</sup> t, <sup>3</sup> ts, <sup>3</sup> ʈ, <sup>3</sup> k	<sup>4</sup> ph, <sup>4</sup> th, <sup>4</sup> tsh, <sup>4</sup> ʈh, <sup>4</sup> kh

Table 3. The development of the proto-voiced series in Manangba as a function of tone

Examples (with reconstruction in proto-TGTm):

* <i>gla</i> : [II] ‘place’	> Man / <sup>4</sup> khja/
* <i>gja</i> t [II] ‘work’	> Man / <sup>4</sup> khje/
* <i>dap</i> [II] ‘needle’	> Man / <sup>4</sup> the/
* <i>ban</i> [II] ‘strength’	> Man / <sup>4</sup> phan/
* <i>ba</i> : [I] ‘leaf’	> Man / <sup>3</sup> pa/
* <i>dzan</i> [I] ‘nest’	> Man / <sup>3</sup> tsan/

No aspirated stops are found under tone 3, and no unaspirated stops under tone 4. The aspiration feature is thus, synchronically, in the context of these two particular tones, a redundant feature depending on the tone.

Its historical origin remains mysterious. What in the phonetic nature of proto-tone \*II was favorable to aspiration, but only in Manang? Or what in Manang tone 4? Its modern pitch [31] is a middish low, the lowest in its system, with no remarkable feature. It seems that the breathiness which was probably present between the \*voiced stage and the modern stage (and which is well attested in the more conservative languages of the group) was reinterpreted as aspiration under tone 4, and as an occasional creak under tone 3.<sup>4</sup> We still do not understand why (by which I mean under the influence of what contextual feature) or how (by which I mean through what precise evolutionary path).<sup>5</sup> The only thing we can be

---

between villages are incommensurable with those found between the three dialects of Tamang. To me the whole of Manang valley is one dialect. Newer data from Hildebrandt (2003, 2005) confirm the distribution of aspirated reflexes.

<sup>4</sup> Hildebrandt did not note any creak associated with tone 3. It was certainly extremely perceptible with my teacher, but may have been a “teaching pronunciation” on her part. This creaky pronunciation occurred on occasions when I asked for a set of quasi-homonyms starting with the lower pitched tones. As she went higher and higher, my teacher went into creak to differentiate the very high tone.

<sup>5</sup> In a recent paper, I offer the following sequence of events as a tentative explanation: breathiness, which was for a while an enhancing feature of the two tones of the LOW series, was dropped from tone 3 when that tone became phonetically high, for “psycho-phonetic” reasons. As a consequence, breathiness was found only associated with tone 4. Since, as we

sure of is that the shift from \*voiced to aspirate occurred after the tone split, since the modern tone remains one of the LOW series: no confusion occurred between lexical items which had a \*voiced initial in the proto-language and items which had an \*aspirated one, *e.g.*:

\**dap* [II] ‘needle’ > /<sup>4</sup>the/  
 \**thet* [II] ‘sibling’ > /<sup>2</sup>the/

### 3. THE VOICED STOPS OF GURUNG

#### 3.1. *The status of voicing in Gurung*

Glover’s phonological analysis of modern Gurung includes a series of voiced stops in the inventory of Gurung phonemes, largely under the influence of the numerous Nepali loans that have entered the language. At least forty percent of the vocabulary in the *Dictionary* (Glover, Glover and Gurung 1977) are loans from Nepali. The socio-linguistic situation may warrant their inclusion, but the comparativist has to treat the two stocks of vocabulary separately.

If we exclude Nepali loans, we find a strict conditioning (in synchronic terms) of voicing by tone, with a few exceptions which we will presently consider. Gurung tone is analyzed and transcribed by Glover as a combination of the two features of accent and breathiness, both of which have consequences on the pitch, yielding four tonal categories.<sup>6</sup> These four categories correspond etymologically with the four tones in other TGTML languages, so I have designated them by the same four numbers in Gurung as in the other TGTML languages.

#### 3.2. *Voiced stops occur only on tone 4*

A first observation of the distribution of voiced stops shows that all voiced stops occur on tone 4, phonetically [12], which historically derives from words with \*voiced initials and \*tone II (See Table 4). As expected from the etymology, all words under tone 1 or tone 2 have voiceless initial stops. The sixty or so native tone 3 words in the Gurung data also all have voiceless initial stops.

There are only two exceptions to the rule that all voiced stops occur on tone 4: two verbs, /biba:/ ‘to say’ and /boba:/ ‘to take away’, which I mark with a tone 1 in Table 4a. Both are transcribed with no accent mark and no breathiness mark in the Gurung data, a combination which is not supposed to be permitted in verbs.<sup>7</sup>

---

already said, there was no aspiration contrast on that tone, breathiness, which had become rarer with the defection of its partner under tone 3, was reinterpreted as aspiration (Mazaudon 2012).

<sup>6</sup> ‘On monosyllabic morphemes (the majority when loan words are excluded) accent and breathiness intersect to give four tone classes: clear intense (*ca* ‘he’); clear relaxed (*ca* ‘vein’); breathy rising (*cxa* ‘tea’); breathy low (*cxa* ‘son’)’ (Glover, Glover & Gurung 1977: vii).

<sup>7</sup> Verb roots, which are monosyllabic, appear with atonal suffixes. While the two low tones are distinguished, on verbal words as on nouns, by presence or absence of an accent mark on the root syllable, Glover indicates the distinction between the two high tones by the placement of

The length on the suffix, usually redundantly transcribed with tone 1 verbs, would tend to indicate a tone 1 ([33], historically \*tone I with voiceless initial).

<sup>4</sup> dī	house		<sup>4</sup> gē	to lean on
<sup>4</sup> de	to press mud on terrace wall		<sup>4</sup> gē	to employ other's oxen
<sup>4</sup> de	to lean hand on s.o.'s shoulder		<sup>4</sup> gã	shell of snail
<sup>4</sup> demyō	a basket		<sup>4</sup> gō	rocky area
<sup>4</sup> dō	to thresh grain			
<sup>4</sup> dū	tree			
<sup>4</sup> dū	to stand, rest upon			
<sup>4</sup> dūba	thick, fat, large			
<sup>4</sup> dūri	marten			
<sup>4</sup> biru	necklace			
<sup>4</sup> ba	to bring			
<sup>4</sup> bō	strength			
<sup>1</sup> bi	to say	< *bi <sup>3</sup>		
<sup>1</sup> bo ~ <sup>4</sup> bo	to take away	< *bor <sup>3</sup>		

Table 4a. Inventory of Gurung native words with a voiced initial: Simple initials

<sup>4</sup> gjã ~ <sup>4</sup> gã	road	
<sup>4</sup> gjōsī	alder (tree)	
<sup>4</sup> gri ~ <sup>2</sup> kri	one	
<sup>4</sup> dzjū	to crumple, wrinkle	cf. Ris <sup>4</sup> tsjom
<sup>4</sup> dzō	to pour, put in	cf. Ris <sup>4</sup> tsaŋ
<sup>4</sup> dzadza	small	cf. Ris <sup>3</sup> tsatsa
<sup>4</sup> dzōdzu	tripod	cf. Ris <sup>4</sup> tsaŋku
<sup>4</sup> bwi	to bring from above	cf. Ris <sup>2</sup> pwi
<sup>4</sup> baē	to wait	cf. Ris <sup>4</sup> pran
<sup>4</sup> bjō	to throw down	
<sup>4</sup> bjã	to throw away	cf. Ris <sup>4</sup> pjaŋ
<sup>4</sup> blī	to turn over	cf. Ris, Sa <sup>3</sup> pliŋ

Table 4b. Inventory of Gurung native words with a voiced initial: Complex initials

But /boba/ 'to take' is quoted as having a doublet under tone 4 /<sup>4</sup>boba/, and 'to say' has become, in the whole TGTm group, as in Gurung, a very weak verb, frequently used as an auxiliary in unstressed position. This would account for a loss of distinctive tone, as is observed on all suffixes, and the presence of 'word-internal' voicing, which is the norm in all TGTm languages. A third word, /bjōba/, appears (with the same anomalous combination of no stress and no breathiness) with the meaning 'to resemble' in the *Dictionary*, and in the expression /<sup>3</sup>ŋinde bjōba/ 'terrible' in the 1972 *Vocabulary* (Glover 1972), an

an accent mark on the root for tone 2 vs placement of an accent mark on the suffix for tone 1. So no high tone verb should appear without an accent mark.

expression not found in the *Dictionary* (cf. /<sup>3</sup>ŋĩba/ ‘to be frightened’ in the *Dictionary*). All other voiced-initial words on tones other than 4 are either loans or onomatopoeic words.<sup>8</sup>

### 3.3. Voiceless stops on tone 4 are clusters or affricates

Conversely, if we found only voiced stops on tone 4, the (synchronic) conditioning of voicing by tone would be complete. This is not the case, but an examination of Table 5 reveals that most voiceless initials in tone 4 words are either clusters or affricates<sup>9</sup> (Table 5a).

<sup>4</sup> kwe ~ <sup>4</sup> koe	bee	<sup>4</sup> pra	to walk
<sup>4</sup> kwe ~ <sup>4</sup> koe	song	<sup>4</sup> pra ~ <sup>1</sup> bra ~ <sup>1</sup> pra	hundred
<sup>4</sup> kwẽ	to measure (volume)	<sup>4</sup> pro	cliff
<sup>4</sup> krwe ~ <sup>4</sup> kure ~ <sup>1</sup> kwre	vulture, eagle	<sup>4</sup> pro	flour
<sup>4</sup> krosena	for good	<sup>4</sup> pru	to thresh
<sup>4</sup> kju ~ <sup>1</sup> kju	sheep	<sup>4</sup> pre ~ <sup>1</sup> pre	eight
<sup>4</sup> kjwi ~ <sup>4</sup> kwi	language	<sup>4</sup> pri	to grind in mortar
<sup>4</sup> kjo	to plough	<sup>4</sup> priũba	lower
<sup>4</sup> kla	ox	<sup>4</sup> pwe	to engage
<sup>4</sup> kae	to push; cf. Newari ghwatẽ	<sup>4</sup> plo	to be rich
		<sup>4</sup> plu	seed
		<sup>4</sup> pli	four
<sup>4</sup> tsu ~ <sup>4</sup> tsũ	to distribute, to share	<sup>4</sup> pjo	to fall over
<sup>4</sup> tsu	to put on stove	<sup>4</sup> pjo	to stamp (foot)
<sup>4</sup> tsi	to remember		
<sup>4</sup> tsi	to winnow sideways		
<sup>4</sup> tsjo	to count		
<sup>4</sup> to	to be warm		
<sup>4</sup> to	carrying head-strap		
<sup>4</sup> tu	to sew		
<sup>4</sup> tũ	six		
<sup>4</sup> tu	to glare in anger		
<sup>4</sup> twi ~ <sup>2</sup> tũiba:	to collapse		

Table 5a. Gurung voiceless initials on tone 4: clusters or affricates

Among the tone 4 words with a simple voiceless initial (Table 5b), we find that most can be traced either to a proto-form with a cluster:

/<sup>4</sup>ke/ ‘work’ < \*gjat [II]

<sup>8</sup> The TGTM word ‘wall’ \**dim* [I] appears as /<sup>3</sup>dĩ/ in Glover’s 1972 word list with the meaning ‘house’. The proper word for ‘house’ /<sup>4</sup>dĩ/ < \**dim* [II] is found in the *Dictionary*, from which the word ‘wall’ has disappeared. A confusion between the two roots in early versions of the work on Gurung may account for the voiced transcription.

<sup>9</sup> The retroflex /t/ is rhotacized in all TGTM languages, that is, it is realized with a rhotic or grooved fricative appendix (Burton-Page 1955) and may thus be considered as complex. Glover transcribes the sibilant affricates /ts/ and /dz/ as *c* and *j* (see note 6) respectively in accordance with the usage in Indo-Aryan languages.

or to an evolutionary path through a cluster stage :

<sup>4</sup>ti /‘load’ < \**twi* < \**dwi* < \**dot* [II]  
<sup>4</sup>ti /‘to gather’ < \**twi* < \**dwi* < \**dut* [II]<sup>10</sup>

<sup>4</sup> ke	work	< * <i>gjat</i> <sup>4</sup>
<sup>4</sup> ki	thatch	< * <i>gi</i> <sup>4</sup>
<sup>4</sup> ti	load	< * <i>dwi</i> < * <i>dot</i> <sup>4</sup>
<sup>4</sup> ti	to gather into sheaves	< * <i>dwi</i> < * <i>dut</i> <sup>4</sup>
<sup>4</sup> te	to cook vegetables	< * <i>dai</i> <sup>4</sup>
<sup>4</sup> ta:	to hoe, dig	?cf. Ris <sup>3</sup> twa ‘plant corn’
<sup>4</sup> ta:	needle	< * <i>dap</i> <sup>4</sup>
<sup>4</sup> pu	to ripen artificially	cf. Ris-Sa <sup>4</sup> pup
<sup>4</sup> pa:	to bury	?cf. Ris <sup>4</sup> pip Praka <sup>4</sup> pju:
<sup>4</sup> po	to cover or wrap self	?cf. Ris <sup>4</sup> pa: ‘pile up’

Table 5b. Gurung voiceless initials on tone 4: modern single stops

Diphthongs with a first element /a/ (as in <sup>4</sup>kae/ ‘to push’, in Table 5a) have been described synchronically as having a “semi-vowel” /a/ (Glover 1969: 26-27), and should be considered as having complex initials for our purpose. This may seem odd, but it corresponds to the placement of the syllable peak on the second member of the diphthong, in Gurung as in the three Thakali dialects.<sup>11, 12</sup> Hence <sup>4</sup>kae/ is to be considered as a “schwa-cluster” word. Another apparent exception, <sup>4</sup>te/ ‘to cook vegetables’, corresponds to a Ris/Tag Tamang form <sup>4</sup>tai/, and can be supposed to have had a schwa-cluster initial at some point.

The other exceptions to the rule that voiceless stops on tone 4 are complex initials are more problematic. <sup>4</sup>ta:/ ‘to hoe’ might be cognate to Ris <sup>3</sup>twa/ ‘to plant’, pointing to a proto-cluster. But this pair needs more study. <sup>4</sup>po/ ‘to cover

<sup>10</sup> The evolution of the rhymes \**ot* and \**ut* into /wi/ is well attested in Gurung with non-dental initials as in : \**kot* [II] ‘to weigh’ > Ris <sup>2</sup>kot/, Gur <sup>2</sup>kwi/; \**dut* [I] ‘to pull’ > Ris <sup>3</sup>tut/, Gur <sup>3</sup>twi/. The initial dental in ‘load’ and ‘gather’ pushed the palatalization one step further to /i/.

<sup>11</sup> In several Gurung words /ae/ varies freely with /we/, as in <sup>3</sup>mae ~ <sup>3</sup>mwe/ ‘footprint’, <sup>4</sup>maēba ~ <sup>4</sup>mwaība/ < \**man* [II] ‘to think’. /ai/ in other languages can correspond to Gurung /wi/, as in Sahu <sup>1</sup>sai/, Gur <sup>1</sup>swi/ ‘to sort’. These variations parallel those between /we/ ~ /ue/ ~ /oi/ ~ /oe/ (see ‘bee’) and /wi/ ~ /ui/ (see ‘collapse’). In Marpha and Syang, I also noted /ɣi/ or /ʌe/ diphthongs where the first element is non-syllabic, and which sometimes correspond to a historical cluster, as in the words:

‘waist, belt’: \**kret* [I] > Tam <sup>1</sup>ke: ~ <sup>1</sup>keppa/, Tuk <sup>H</sup>tɛ/, Mar-Sy <sup>1</sup>kʌe/, Gur-Man <sup>1</sup>kre/

‘one’ : \**grik* [II] > R <sup>4</sup>kik/, Sa <sup>4</sup>ki:/, Tag <sup>4</sup>ki/, Tuk <sup>4</sup>tj/, Mar <sup>4</sup>kɣi/, Sy <sup>4</sup>gi/, Gur <sup>4</sup>gri/, Man <sup>4</sup>hri/.

We might also note that the open syllable short \**a* has become, although still phonemically /a/, a very closed [ɤ] in Manang. The addition of a “central glide” to the standard IPA list of glides [j, w, ɥ] seems useful. The same functional variation between consonant and vocalic status accorded to /i/ ~ /j/, /u/ ~ /w/, /y/ ~ /ɥ/, should also be accepted for /a/ ~ /X/. Glover used an underlined a to transcribe this non-syllabic /a/.

<sup>12</sup> On the topic of “a” as a glide see Mazaudon 2007.



oneself’ compared to Ris /<sup>4</sup>pa:/ ‘to pile up’ would yield a proto *\*ba:* [II]. Positing a cluster there is unwarranted (but the semantics is not good in any case). ‘bury’ is a very irregular set, with Gur /<sup>4</sup>pa:/, Ris /<sup>4</sup>pip/, Tuk /<sup>4</sup>pup/ and Prak /<sup>3</sup>pju:/. It may also be an allofam of Gur /<sup>4</sup>pu/ ‘to ripen in a hotbed (*i.e.* by burying)’ corresponding to Ris /<sup>4</sup>pup/, Sa /<sup>4</sup>pup/. These three roots are too problematic to reconstruct with confidence.

Finally the words /<sup>4</sup>ki/ ‘thatch’ (< *\*gi* [II]) and /<sup>4</sup>ta:/ ‘needle’ (< *\*dap* [II]) are clear exceptions, where no cluster can be found at any point in the reconstruction.<sup>13</sup>

### 3.4. Some clusters on tone 4 retain voicing

A small number of Gurung words retain voicing on tone 4 in spite of having an initial cluster. These words are listed in Table 4b.

Two of the velar-initial words in this category are quoted with variants which eliminate their anomaly (‘road’ and ‘one’); the third one is a plant name, which is found only in one of the sources.

The examples with labial initials do have cluster cognates in other TGTM languages, although the tones and segments do not always correspond perfectly.

The sibilant affricates are almost as often voiced as voiceless.

### 3.5. Toward a re-phonemicization of voicing?

The Gurung evolution has created the conditions for a new phonemicization of voicing by the creation of minimal pairs, the voiced member issued from a Proto-TGTM simplex initial and the voiceless member from a reduced proto-cluster. Thus we might expect to find:

*\*dot* [II] > *\*dwi* (II/<sup>4</sup>) > /<sup>4</sup>ti/ ‘load’

in opposition to the reflex of:

*\*di* [II] ‘to light a fire’ (reconstructed from the three Tamang dialects /<sup>4</sup>ti/) which should become *\*<sup>4</sup>di* in Gurung.

But the etymon is not found. Instead we find a word /<sup>2</sup>thiba/ ‘to scorch, burn (cloth)’, which is not attested in other TGTM languages, unless it is the same etymon.

/<sup>4</sup>pa:/ ‘to bury’ (with its awkward connexion to Ris /<sup>4</sup>pip/, Tuk /<sup>4</sup>pup/) misses forming a minimal pair with /<sup>4</sup>ba/ ‘to bring’ by one feature (vowel length).

The only apparently perfect pair is /<sup>4</sup>po/ < *\*ba:* [II] ‘to cover oneself’ opposed to /<sup>4</sup>bo/ < *\*bor* [II] ‘to take away’, but it should not be a pair at all, since both words should have retained their voicing. What is more, the tone of the voiced member of the pair fluctuates, as we have seen (§3.2), between tone 4, and a form

<sup>13</sup> Although /<sup>4</sup>ki/ could be construed as deriving from *\*gji*, in all likelihood not distinct from *\*gi*.

which could be tone 1 (but for its voiced initial), or tone 3 (but for its lack of breathiness), or a toneless form. Its cognates in Manangba and in Risiangku-Tamang are under tone 3.

	<i>Ris</i>	<i>Sa</i>	<i>Tag</i>	<i>Tuk</i>	<i>Mar</i>	<i>Sya</i>	<i>Gur</i>	<i>Man</i>
‘flour’	<sup>4</sup> pra	<sup>4</sup> pra:	<sup>4</sup> pra:	<sup>4</sup> pra	<sup>4</sup> pra	<sup>4</sup> pra	<sup>4</sup> pro	<sup>4</sup> phra
‘cliff’	<sup>4</sup> pra:	<sup>4</sup> pra:	<sup>4</sup> bra:	<sup>3</sup> pra	<sup>4</sup> pra	<sup>4</sup> bra	<sup>4</sup> pro	<sup>4</sup> phra

Table 6. Various reactions to a threatening merger across TGTM languages

Variability in the choice of features retained (or perhaps innovated by hypercorrection) to distinguish a merging pair of words is found in some other TGTM languages as well. ‘flour’ and ‘cliff’ are a good example.<sup>14</sup> Only in Sahu, Marpha, Gurung and Manang have the two roots merged (Table 6).

To my mind, hesitations like these, with eventual placement of the feature on the historically wrong member of the pair, reveal that we have reached a stage where hypercorrection comes into play. There is the “memory” of a feature still lingering as a redundant feature, but one which is not used anymore as a secondary clue for the identification of words. In Gurung, it seems that we have reached a stage where the voicing feature has lost all distinctive power, and is unable to be rephonemicized from within the system.<sup>15</sup> If a phonemicization of voicing is ever to occur in Gurung it will have to come from the Nepali loans.

### 3.6. Causes and effects, the chronology of change

From a historical point of view, when should we place the influence of the tone on the initial?

That the modern conditioning of voicing by tone and syllable structure is not a plain synchronic reversal of the historical connexion [<sup>\*</sup>voiced > LOW tone] is (fortunately for historical linguistics!) shown by the fact that words like /<sup>4</sup>ke/ ‘work’, /<sup>4</sup>ti/ ‘load’, or /<sup>4</sup>ti/ ‘gather’, which match the synchronic condition for voicing (plain single obstruent), do not re-acquire their lost voicing. Thus Gurung modern words with an initial voiced stop are the result of the partial retention of a redundant historical feature, and not the product of what would be a phonetically surprising reversal of the connexion between manner and tone.

In Manang we were presumably dealing with a tonal context favoring a change from non-aspirated to aspirate, in Gurung with a tonal context inhibiting

<sup>14</sup> The comparison with WT *brag* ‘rock’ and WB *pra* ‘turret, fortification’ could point to a \*velar final in ‘cliff’ as opposed to a non-stopped final in ‘flour’ (cf. WB *pra* ‘ashes’, ?WT *phra-mo* ‘fine’, *bras* ‘rice’, *brabo* ~ *bra’u* ‘buckwheat’). But the correspondences are not regular with any feature we may choose to reconstruct.

<sup>15</sup> I realize this is hard to accommodate in anybody’s phonological theory, including my own, and will require some more thought!

The *Dictionary* (but no other source) cites a verb /<sup>4</sup>de/ ‘to press mud on terrace wall/to lean hand on another’s shoulder’, which, if confirmed, would form a minimal pair with ‘to cook’. Field checking is called for to determine how consistently the speakers maintain the contrast and whether they indulge in merger or feature shuffling.

devoicing. In both cases we may ask at what point in the chronology of change we should place the influence of the tone on the evolution of the segment.

What was there in the nature of proto-tone I, or of daughter tone 3, and in affrication, that made them more hostile to voicing than proto-tone II (or daughter tone 4) and segmental simplicity? I have no theory to offer at the moment for the feature of the proto-tone or daughter tone which could be responsible,<sup>16</sup> and will now focus on the other aspect of the contextual conditioning of the retention of initial stop voicing which we have encountered: the link between segmental complexity and manner.

#### 4. CLUSTERS, AFFRICATION, ASPIRATION

We have seen that in Gurung, initial clusters and affricates lost their original voicing more readily than single stops. In other languages of the TGTM group, too, the manner of initial clusters and affricates has sometimes evolved differently from that of single stops, sometimes resulting in aspiration. In Manangba and in Taglung Tamang this affected only velars; in Risiangku Tamang it affected syllable initials at all points of articulation word-internally.

##### 4.1. Manang: fricativization of aspirated velar + r

In Manangba, at first sight, it looks as if tone 4 (or its ancestor proto-tone II) conditioned the change of old voiced velar clusters + r into a voiceless or aspirated fricative vibrant (*\*gr* > *hř* under tone 4), while this did not happen under tone 3.

*\*grwa* [II] ‘wheat’ > Man /<sup>4</sup>hřo/  
*\*gri* [I] ‘filth’ > Man /<sup>3</sup>kri/

But in fact, all initial aspirated velar clusters became fricatives in Manang, whatever the proto tonal category or the modern tone, including tones of the HIGH series. Example:

*\*khru* [II] to wash > Man /<sup>4</sup>hřu/<sup>17</sup>

Independently, as we have seen earlier (§2), all proto-\*voiced initial stops, whether simple or in an initial cluster, became aspirated under tone 4. By this process the old velar voiced cluster *\*gr* became *\*khr* under tone 4 (Table 3).

<sup>16</sup> See footnote 5. I would now, in 2012, rather consider that the aspirated reflexes of old voiced stops under tone 4 did not result from a direct phonetic conditioning, but rather from a systemic reaction to the earlier loss of breathiness of tone 3, which left the breathiness of tone 4 as an isolated feature, opening the way to its reinterpretation as aspiration. (See Mazaudon 2012) This does not change the fact that the shift to aspiration had to follow and not precede the tone split as shown in section 2.

<sup>17</sup> Before /u/ this aspirated vibrant tends to be grooved [hř] ~ [ʃ], as in /<sup>2</sup>ʃuba/ ‘to wash’ < *\*khru* [II], or in /<sup>4</sup>ʃo/ ‘wheat’ < *\*grwa* [II]. But before /i/, /hř/ and /ʃ/ seem to be in contrast as in /<sup>2</sup>hři:ba/ ‘to scratch’ < *\*rhit* [II] vs /<sup>2</sup>ʃi:ba/ ‘to know’ < *\*se:* [II].

These new velar aspirate clusters in -r- then underwent fricativization together with the old *\*khr-* clusters.<sup>18</sup> Thus:

*\*khra* [I] ‘falcon’ > Man. /<sup>1</sup>hřʁ/ [33]  
*\*gra* [II] ‘enemy’ > *\*<sup>4</sup>khra* > Man /<sup>4</sup>hřʁ/ [32]

A variation is sometimes encountered, revealing the intermediate aspirated stage:

*\*grik* [II] ‘one’ > /<sup>4</sup>khri ~ <sup>4</sup>hři/ in Prakaa (Hoshi 1984) — /<sup>4</sup>hři/ only, I believe, in Manang village.

The old *\*gr* cluster under tone \*I did not become aspirated (nor did any of the other \*voiced stops under that tone), nor did it lose its occlusion. cf. Prakaa /<sup>3</sup>krəmə/ ‘cheek’ < *\*grampa* [I], /<sup>3</sup>kuruj/ ‘intestines’ < *\*gruj* [I], /<sup>3</sup>kri/ ‘body-dirt’ < *\*gri* [I] (examples from Hoshi 1984).

Hence in the Manang evolution, tone conditioned aspiration, and in some contexts aspiration conditioned fricativization. Fricativization in itself was independent of tone.

<i>Proto-initial</i>	<i>*tone-I &gt; 1, 3</i>	<i>*tone-II &gt; 2, 4</i>
<i>*kr</i>	<sup>1</sup> kr	<sup>2</sup> kr
<i>*khr</i>	<sup>1</sup> hr <sup>19</sup>	<sup>2</sup> hr
<i>*gr</i>	<sup>3</sup> kr	(> <i>*<sup>4</sup>khr</i> >) <sup>4</sup> hr

Table 7. Context-free fricativization of the aspirated velar cluster *\*khr* in Manang

In Manang affrication is not responsible for aspiration, which is tone bound, but in Taglung and Risiangku it is.

#### 4.2. Taglung: aspiration of proto-velar clusters, fricativization of velar aspirates

In the Taglung dialect of Tamang, independently of tone and of the voicing of the proto-initial, the old \*velar stops have become aspirated when followed by one of the three more consonantic medials of proto-TGTM (/l, r, w/). Before /l/, they remained occlusive:<sup>20</sup>

*\*kli* [I] ‘feces’ > Tag /<sup>1</sup>khli/  
*\*gla:* [II] ‘place’ > Tag /<sup>4</sup>khla:/

<sup>18</sup> Nishi uses this double development as an isogloss to define the place of Manangba in the TGTM group (article “Tamang group” in the *Sanseido Dictionary of Linguistics*, in press, now published as Nishi 1989).

<sup>19</sup> There are very few examples of *\*khr* under \*tone-I: beside *\*khra* [I] ‘falcon’ > /<sup>1</sup>hřʁ/, we have an homonym *\*khra* [I] ‘chisel’ > /<sup>1</sup>hřʁ/. Ris /<sup>1</sup>khrap/ ‘to bite (dog)’ seems to correspond to Manangba (Manang village) /tçhe/, while Ris /<sup>1</sup>khren/ ‘to be hungry’ is /<sup>1</sup>krẽ/ in Hoshi’s Prakaa. (It does not seem that the Risiangku aspiration is secondary in this word since Gurung has it too: Gur /<sup>1</sup>khřẽ/.)

<sup>20</sup> In Gurung the evolution of the velar + lateral clusters was pushed one step further to [t̪].

If the old medial was *\*r* or *\*w* the velar occlusion disappeared, leaving either a voiceless aspirated /hw/ initial<sup>21</sup> if the vowel was *\*a* and remained /a/, as in:

<i>*kra</i> [I] ‘hair’	> Tag / <sup>1</sup> hwa/
<i>*grwa</i> [II] ‘wheat’	> Tag / <sup>4</sup> hwa/
<i>*kwan</i> [I] ‘clothes’	> Tag / <sup>1</sup> hwan/
<i>*grwat</i> [II] ‘hawk’	> Tag / <sup>4</sup> hwai/

or a simple /h/ if the following modern vowel is /i, u, e, o/, as in:

<i>*kru</i> [I] ‘cubit’	> Tag / <sup>1</sup> hu/
<i>*gruŋ</i> [I] ‘intestines’	> Tag / <sup>3</sup> huŋ/
<i>*krat</i> [I] ‘to climb’	> Tag / <sup>1</sup> he:/
<i>*gret</i> [II] ‘to saw, cut throat’	> Tag / <sup>4</sup> he/

The simple velar aspirated stop also lost its occlusion:

<i>*khu</i> [II] ‘vegetable’	> Tag / <sup>2</sup> hu/
<i>*kha</i> [I] ‘to come’	> Tag / <sup>1</sup> ha/

It seems here that the *\*aspirated velar* *\*kh* and a proto affricated velar *\*kx* issued from *\*Kw* and *\*Kr* merged into a back fricative which varies between a velar fricative [x] and a glottal fricative [h].<sup>22</sup>

Before the palatal glide *\*j*, on the other hand, as in the absence of a medial, the unaspirated velar initial was conserved, as in:

<i>*gjat</i> [II] ‘work’	> Tag / <sup>4</sup> ke:/
<i>*gju</i> [II] ‘sheep’	> Tag / <sup>4</sup> kju/
<i>*kjuj</i> [II] ‘water’	> Tag / <sup>2</sup> kju/
<i>*ku</i> [II] ‘nine’	> Tag / <sup>2</sup> ku/

In Taglung, aspiration does not develop under the influence of tone, but rather as the result of the transformation of resonant clusters into fricative clusters: the three most consonantal medials *\*w*, *\*r*, *\*l* cause the development of an intermediate velar fricative appendix which becomes aspiration. As a second stage, these aspirates join the simple aspirates in losing their occlusion and becoming the glottal fricative /h/.

This evolution, like the aspiration of old *\*voiced* initials in Manang, had to follow the tonal split since the original HIGH vs LOW tonal class of the words is maintained.

<sup>21</sup> A plain unaspirated /w/ from *\*gr* is also found in /<sup>3</sup>wamba/ ‘cheek’ < *\*grampa*, and from *\*gw* in /<sup>3</sup>wai/ ‘to brew’ < *\*gwai* [I], both tone 3 words, thus phonetically accompanied by breathy voice.

<sup>22</sup> These evolutions are not exceptionless, and some words retain the occlusion, either apparently regularly (/<sup>2</sup>khi:/ ‘to tie’, /<sup>1</sup>khriŋ/ ‘to shout’) or as variants (/<sup>1</sup>kwan ~ <sup>1</sup>hwan/ ‘clothes’).

*k, *g	> k
*kj, *gj	> kj
*khl, *kl, *gl	> khl
*khw, *kw, *gw, *khr, *kr, *gr	> hw / __a > h / __ i, u, e, o
*kh	> h

Table 8. Aspiration and fricativization of velar stops in Taglung

### 4.3. Risiangku: aspiration of internal clusters

In Risiangku Tamang, word internal clusters of stop with /r/ or /l/ have tended to become aspirated. So from *\*bra* [II] ‘powder, flour’ we have /<sup>4</sup>pra/ ‘flour’ but /<sup>1</sup>mephra/ ‘ashes’, /<sup>4</sup>puphra/ ‘coals’; from *\*kli* [I] ‘feces’ we have /<sup>1</sup>kli/ ‘feces’ but /<sup>4</sup>mekhli/ ‘cowdung’, /<sup>2</sup>mikhli/ ‘tear’, /<sup>3</sup>nakhli/ ‘earwax’; from *\*brat* [II] ‘eight’ we have /<sup>4</sup>prat/, but /<sup>2</sup>cophrat/ ‘eighteen’. Some other aspirates are unanalyzable inside the Risiangku dialect but have unaspirated cognates in neighbouring languages:

‘a fly’	Ris / <sup>1</sup> naphraŋ/, Sa / <sup>1</sup> napraŋ/, Tuk / <sup>2</sup> nəpraŋ/, Prak / <sup>1</sup> na:praŋ/
‘ant’	Ris / <sup>3</sup> nakhru/, Sa / <sup>2</sup> nakkhru/, Tuk / <sup>2</sup> naʈo/, Gur / <sup>2</sup> nabbru/, Prak / <sup>1</sup> nokro/
‘bone’	Ris / <sup>2</sup> nakhru/, Tuk / <sup>2</sup> naʈi/ (< <i>*nak-rus</i> ), Gur / <sup>3</sup> riba/ (< <i>*rus</i> ), Prak / <sup>2</sup> nokre/
‘snake’	Ris / <sup>2</sup> pukhri/, Tuk / <sup>2</sup> puʈi/, Gur / <sup>3</sup> puri/, Prak / <sup>3</sup> pukri/
‘crab’	Ris / <sup>1</sup> kakhre/, Gur / <sup>2</sup> kwrẽ/

Risiangku Tamang has an aspiration contrast for simple intervocalic occlusives, as in /<sup>1</sup>nakhi/ ‘dog’ vs /<sup>1</sup>naka/ ‘fowl’, and a very marginal one for intervocalic clusters (cf. /<sup>2</sup>sapra/ ‘soil’, consistently unaspirated, but in all likelihood derived from the same *\*bra* [II] which becomes aspirated in ‘ashes’).

Word internal aspiration does not seem to be contrastive in any of the other TGTm languages. I believe we need not reconstruct an aspiration contrast for internal clusters at the Proto-TGTm level. The aspiration of word-internal clusters in Risiangku seems to have been a process similar to what we observed in word initial position with Taglung velars (§4.2).

Since tone did not develop on non-initial syllables in TGTm, whether the aspiration of old internal clusters occurred before or after the tone split had no importance for tonal development.

In a few cases though, I suspect that a similar evolution in word initial position, occurring before the tone split, could have led to a change in the tone class of the lexical item.

The only good example is ‘body-dirt’ Ris /<sup>1</sup>khiti/, Sa /khriti/ (tone unknown), all forms in other TGTm languages from *\*gri* [I].

The absence of an /r/ in Risiangku is no objection to cognacy, as there seems to have been a tendency in Risiangku (and other Tamang dialects) to simplify word initial \*velar + /r/ clusters when followed by a close vowel or semi-vowel:

<i>*grik</i> [II] ‘one’	> Ris / <sup>4</sup> kik/
<i>*kre</i> [I] ‘waist, belt’	> Ris / <sup>1</sup> ke:/
<i>*grwat</i> [II] ‘hawk’	> Ris / <sup>4</sup> kwat/
<i>*grwa</i> [II] ‘wheat’	> Ris / <sup>4</sup> kwa/

I would suspect that *\*gri(ti)* [I] became affricated and aspirated following the same pattern as the intervocalic -*\*kr-* clusters. If this happened before the tone split, the word was reclassified as HIGH. Hence:

TGTM	$\left\{ \begin{array}{l} > \text{Pre-Tamang } *khriti \text{ [I]} > \text{Sa } /khriti/, \text{ Ris } /1khiti/ \\ > \text{Pre-Gur-Thak } *gri \text{ [I]} > \text{Gur-Man } /3kri/, \text{ Mar-Sy } /3gʁi \sim 3gi/ \end{array} \right.$
<i>*gri(ti)</i> [I]	

## CONCLUSION

We have touched upon only very few of the irregular correspondences in manner among TGTM languages.

We have seen that, after the old voiced stop initials lost their phonemic voicing in favor of tonal distinctions, their further phonetic development could be influenced, separately or jointly, by the tonal category (which includes phonation characteristics along with pitch), and by phonotactics, clusters and affrication leading to a stronger degree of voicelessness and sometimes to aspiration.

We found one case where change of manner due to syllable phonotactics appears to have occurred before or during the tonal split, leading to both an irregular manner correspondence and a discrepancy in the tone series. This kind of change may have occurred in pre-*proto-TGTM* as well.

## REFERENCES

- Burton-Page, John. 1955. Two studies in Gurungkura: I. tone; II. Rhotacisation and retroflexion. *Bulletin of the School of Oriental and African Studies* 17(1).111-119.
- Chao, Yuen-ren. 1930. A system of tone letters [avril-juin 1930]. *Le Maître Phonétique* [3<sup>o</sup> série] 30.24-27.
- Glover, Warren W. 1969. *Gurung Phonemic Summary*. SIL Nepal.
- Glover, Warren W. 1972. *A Vocabulary of the Gurung language*. SIL Nepal.
- Glover, Warren W., Jessie R. Glover & Deu Bahadur Gurung. 1977. *Gurung-Nepali-English Dictionary*. Pacific Linguistics, Series C 51. Canberra: The Australian National University.
- Hale, Austin & David Watters (eds.) 1973. *Clause, Sentence and Discourse Patterns in selected languages of Nepal*. SIL Publications in Linguistics and Related Fields: 40. Norman, Oklahoma: SIL.
- Haudricourt, André-Georges. 1954a. De l'origine des tons en vietnamien. *Journal Asiatique* 242.69-82.
- Haudricourt, André-Georges. 1954b. Comment reconstruire le chinois archaïque. *Word* 10(2-3).351-364.

- Haudricourt, André-Georges. 1961. Bipartition et tripartition des systèmes de tons dans quelques langues d'Extrême-Orient. *Bulletin de la Société de Linguistique de Paris* 56(1).163-180.
- Hildebrandt, Kristine. 2003. Manange tone: scenarios of retention and loss in two communities. PhD, Linguistics, University of California at Santa Barbara.
- Hildebrandt, Kristine. 2005. A phonetic analysis of Manange segmental and suprasegmental properties. *LTBA* 28(1).1-36.
- Hoshi, Michiyo. 1984. A Prakaa Vocabulary — a dialect of the Manang language. *Anthropological and linguistic studies of the Gandaki Area in Nepal*, 133-202. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.
- Mazaudon, Martine. 1973. Comparison of six Himalayan dialects of Tibeto-Burmese. *Pakha Sanjham* 6.78-91.
- Mazaudon, Martine. 1978. Consonantal mutation and tonal split in the Tamang subfamily of Tibeto-Burman. *Kailash* 6(3).157-179. [available at [http://www.thdl.org/texts/reprints/kailash/kailash\\_06\\_03\\_01.pdf](http://www.thdl.org/texts/reprints/kailash/kailash_06_03_01.pdf)]
- Mazaudon, Martine. 2007. A low glide in Marphali. In Roland Bielmeier & Felix Haller (eds.) *Himalayan linguistics and beyond*, 163-188. Berlin: Mouton de Gruyter.
- Mazaudon, Martine. 2012. Paths to tone in the Tamang branch of Tibeto-Birman (Nepal). In Gunther de Vogelaer and Guido Seiler (eds), *The dialect laboratory. Dialects as a testing ground for theories of language change*, 139-177, John Benjamins. Studies in Language Companion Series 128.
- Mazaudon, Martine & Alexis Michaud. 2008. Tonal contrasts and initial consonants: a case study of Tamang, a 'missing link' in tonogenesis. *Phonetica* 65.231-256.
- Nishi, Yoshio. 1989. The Tamang group. *The Sanseido Encyclopaedia of Linguistics*, 658b-667b. Tokyo: Sanseido.

*Author's address:*

Martine Mazaudon  
LACITO/CNRS  
7, rue Guy Môquet (bât. D)  
Villejuif Cedex – 94801  
France

mazaudon@vjf.cnrs.fr