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PHONOLOGICAL TYPOLOGY OF NEPAL LANGUAGES[1]

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Abstract This study applies the method of Henderson's classic typological survey of SE Asia to 21 languages of Nepal, including 20 members of the Tibeto-Burman (TB) family.

Nepal has both tonal (a close majority) and non-tonal languages; in each category, languages with 2, 3, and 4 initial manner-series are found. Stopped and open syllables generally have the same number of tonal distinctions. Two neighboring East Nepal languages have a preglottalized ɓ- (as well as b-). The opposition of retroflex vs dental is found in Nepali and in three East Nepal TB languages, as well as in the Tibetan and Tamang groups, which have initials of the rhotacized type. The languages of the survey have between five and ten vowel qualities, with the richest system in East Nepal. Only Limbu, the easternmost, has distinctive length in closed syllables. Two eastern languages have syllabic nasals, only as personal prefixes. Many of the languages have the ten finals of written Tibetan; one, Chepang, has both glottalized and devoiced series of resonant finals.

In a brief comparative digression, a link is proposed between the preglottalized ɓ- of Bahing and Sunwar and labiovelar articulations of West Nepal.

The present survey is an attempt to apply the method of Henderson's classic typological study of South East Asian languages (1965) to a much smaller area, namely the languages of Nepal. My aim is partly to see if it is possible to detect any micro-areal features (which may or may not turn out to have a common genetic origin), and at the same time to pass in review the phonological properties of the Nepal languages on which materials are available as a preliminary to comparative studies. Eventually I would hope to extend this study at least to neighboring parts of the Western Himalaya and Assam, and, on another axis, to morphological and syntactic traits.

Because Nepal shows less phonological diversity than the vast area covered by Henderson, I have not retained all of her typological criteria; on the other hand, I have been able to go into a few less salient ones. I hope I have not forgotten to make clear what features are common to all of the languages covered, or absent from all, so that this study can be used in conjunction with hers, or with that of Ramanujan and Masica (1969).[2] The relative homogeneity of the

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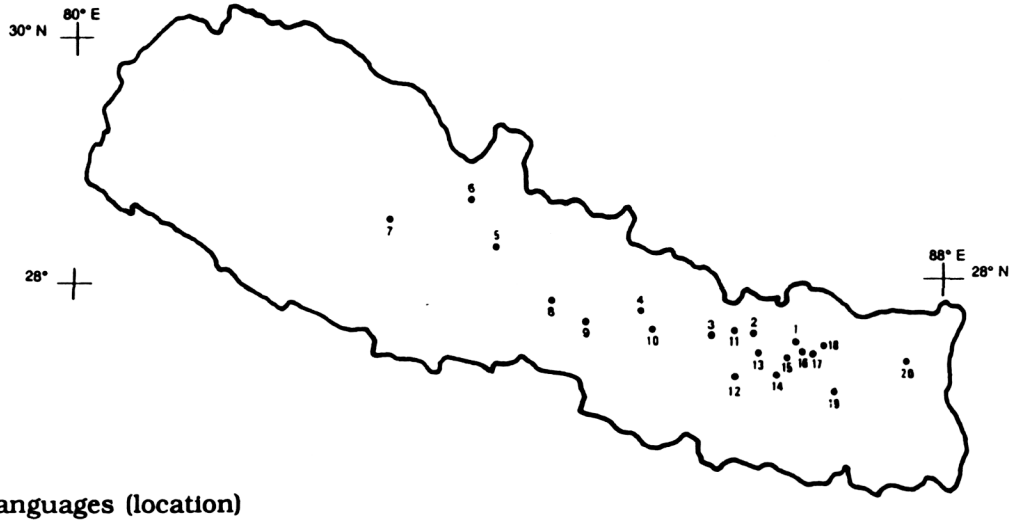
[1] Paper first presented to the 15th Annual Conference on Sino-Tibetan Languages and Linguistics, Peking, 1982, with minor revisions.

[2] The information on Nepal in Ramanujan and Masica's survey contains several inaccuracies, not all of them traceable in their cited sources: (1) Newari is credited with distinctive retroflexion (p. 555). (2) Nepali is credited with the oppositions i vs ɪ and u vs ʊ – an opposition of tenseness and reflex of quantity – in addition to the well-known a vs ə, (3) Nepali is credited with a palatal nasal initial.

languages covered has made it possible to be fairly complete; if I do not mention a salient feature, for example prenasalized series or retroflex vs non-retroflex laterals, it is probably safe to infer that it does not occur, or at least has not been reported. I have tried to exclude patterns found only in loans.

The 20 languages covered, with the exception of Nepali, the Indo-Aryan national language, all belong to the Tibeto-Burman family – in fact to Shafer's Bodic Division of the family. As for subgrouping, it seems clear that Sherpa and Jirel are dialects of Tibetan (i.e. in Shafer's Bodish branch), and that Tamang, Gurung, and Thakali form a subgroup allied to Tibetan (in Shafer's Bodish section). Subgrouping of the rest of the languages is less advanced: most attempts have coincided with geographical distribution in distinguishing a western from an eastern group, with Newari by itself. For the purposes of this survey I will refer to Hayu, Sunwar, Bahing, Thulung, Khaling, Sotang, Kulung, Bantawa, and Limbu as the "Eastern Pronominalized Group." For the geographical distribution of the languages, represented in schematic form on the typological maps, see map 1;

MAP 1: Languages



Languages (location)

1.	Sherpa	(Kerung)	12	Hayu	(Murajor)
2.	Jirel	(Jiri-Yarsa)	13.	Sunwar	(Sabra)
3.	E. Tamang	(Risiangku)	14.	Bahing	(Rangadip)
4.	W. Tamang	(Sahugaon)	15.	Thulung	(Mukli)
5.	Gurung	(Ghachok)	16.	Khaling	(Khastap)
6.	Thakali	(Tukchhe)	17.	Sotang	(Nambu)
7.	Kham	(Taka-Sera)	18.	Kulung	(Bung)
8.	Magar	(Yanchok)	19.	Bantawa	(Chhinamkhu)
9.	Chepang	(Maiserang)	20.	Limbu	(Libang, Tembe)
10.	Kathmandu Newari			Nepali	(Central and E. Nepal dialects)
11.	Dolakha Newari				

for the sources, see the language bibliography. In recent years, each of the TB languages has been more closely in contact with Nepali (virtually all speakers being bilingual) than with any neighboring TB language.

An earlier survey along these same lines was made by Hale (1970), covering Gurung, Tamang, Thakali, Chepang, (Kathmandu) Newari, Sunwar, and Sherpa in considerable detail. My main interest is in the eastern languages, of which only Sunwar is covered by Hale, but I have chosen to cover Hale's other languages as well for the sake of completeness.

I have included a few comparative and historical remarks in the survey, but I think it will be clear where typology ends and comparison begins. In any case, diachronic developments have their own typologies, as Haudricourt (1951) has pointed out (Haudricourt's term "panchronic" is particularly suggestive – cf. Hagège and Haudricourt 1978).

Tone/Register (map 2):

The survey area includes both tonal and non-tonal languages, and some borderline cases. As a general rule, the same number of tonal distinctions is found in syllables with and without final stops (but see Chepang, below). This is in sharp contrast with the situation in the languages of Henderson's survey.

The Tibetan and Tamang groups are described as having four tone categories each, with either no initial voicing distinction or a distinction only on certain tones. These systems have been thoroughly discussed by Mazaudon (1973b, 1977, 1978). Sherpa is noted on the map as having an initial voicing opposition limited to the low tone; in the Khumbu dialect, however, voicing of stops is entirely determined by tone (Sprigg 1977:15).[3]

The remaining tone systems are rather different in type, in that they coexist with fully distinctive voicing oppositions on initial stops. In West Nepal, Kham is described (PS) as having a complex interaction between "pitch-pattern" and register, Magar as having only register.

Magar is described as having a system of two registers, clear and breathy, whose domain is the syllable. The phonetic exponents of the breathy register depend on the voicing of the syllable-initial as follows (PS:31):

voiced initials: initial murmured; vowel breathy; low pitch.

unvoiced initials: initial aspirated; "slight" breathiness and pitch lowering.

Aspiration or murmur, which are observed with all initials, are considered as entirely conditioned by register. No difference in pitch between clear register syllables with voiceless and with voiced initials is mentioned.

The syllabic nature of breathiness, at least with voiced initials, the fact that its exponents, aspiration/murmur, can be generalized to all initials (Magar is the only Nepal language to have [sʰ]), and the fact that breathiness may move forward a syllable after the negative prefix all make its interpretation as a prosody attractive. It would still be possible, however, to describe Magar as having p-ph-b-bh-m-mh initials (i.e. both aspiration and murmur – the Newari pattern plus sʰ) instead of register.

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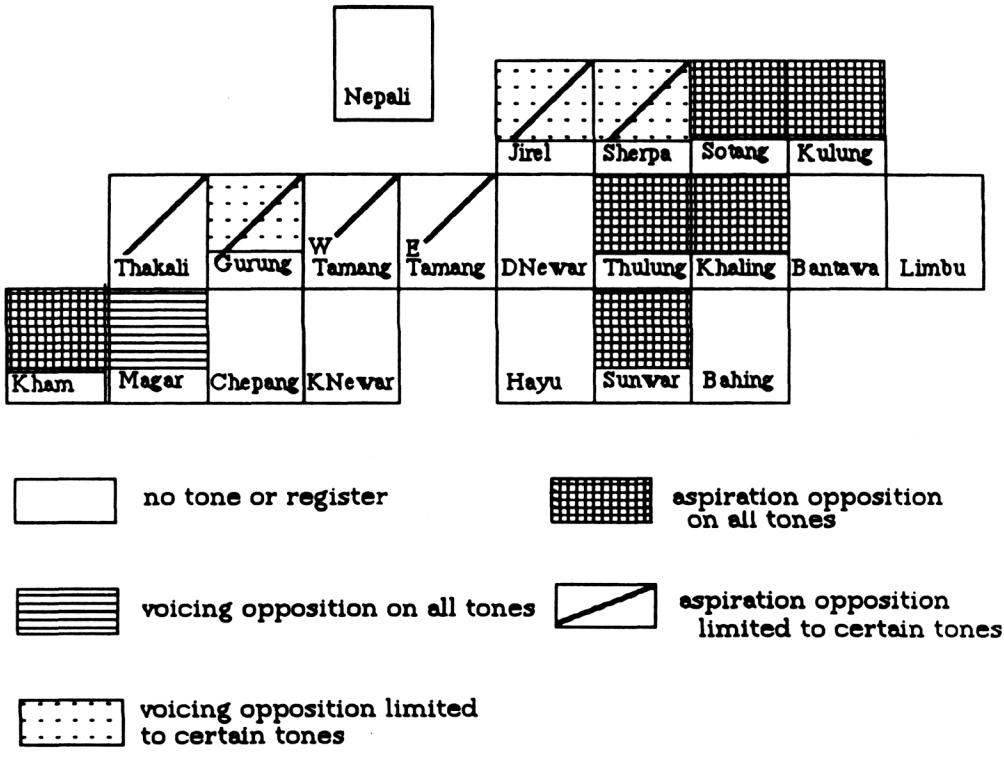
3 Burton-Page described voicing as entirely conditioned by tone in Gurung (1955).

MAP 2: Tone/register and initial stops



Chepang is described as a non-tonal language in which pitch plays an important rôle. According to Caughley's analysis (PS, 1970), pitch is conditioned mainly by syllable-finals, in which Chepang is particularly rich (see below). High pitch is conditioned by the stop finals (p, t, c, k), the glottal finals (ʔ, mʔ, nʔ, ɲʔ, ŋʔ, rʔ, lʔ), and perhaps the devoiced series (n̥, etc.). The problem is that the glottal stop, whether alone or associated with a resonant, is not always realized as such, and at times the raised pitch is the best clue as to its underlying presence (PS:5-7). Thus Chepang has the classic type of Southeast Asian tone (or pre-tone) system (without the bipartition or tripartition of Haudricourt 1961), with one series of stop finals (or the stopped tone) and three series of non-stop finals (or three tones): clear, glottal, and breathy. (In Chepang, the glottal series would apparently have the same pitch as the stopped series.) This is the kind of system proposed by Haudricourt for proto-Vietnamese (1954a) and Archaic Chinese (1954b) and currently found in a number of Mon-Khmer languages. It is also comparable to Boro (Burton-Page 1955).

In the pronominalized languages of East Nepal, tone is reported from a clearly defined area including Sunwar, Khaling, probably Sotang and Kulung, and (problematically) Thulung. All of these languages have distinctive voicing and aspiration of initial stops on all tones; some have murmur as well.

In Sunwar and Khaling, and tentatively in Sotang and Kulung, two-tone systems are reported. Phonetically, the exponents of these systems are high and

low pitch; their domain is the word. In Sunwar, the opposition is neutralized on monosyllables. In Thulung, Allen found a few words distinguished by tone, and proposed a system of two tones, but he was unable to classify the majority of words tonally. He describes the "tense" tone as "pronounced in a more fortis manner" than the "lax" tone. Tone has a morphological function in distinguising some past from present forms of the Thulung verb.

The origin of tone in the Eastern Pronominalized Group, of which half the members — in particular those studied by me — are non-tonal, is an open question. It seems *a priori* unlikely that the loss of an initial manner-series opposition (as in the classic cases of bipartition and tripartition) played a rôle, since the languages retain three or four initial manner series, including a voicing opposition (except in the non-tonal Limbu). There is evidence that the development of tone is related to final consonants rather than initials. Allen argues that Thulung "tense" tone reflects lost non-initial segments, in particular a past tense suffix *-to (1975:32ff). I have shown (1975a) that tone in Khaling, at least in verb roots, is correlated with the morphophonemic root final, stops giving high tone. In the present survey (but outside the Eastern Pronominalized Group) we find two more cases where final stops have a tone-raising influence: Jirel, where stopped monsyllables all have the "non-falling" contour (PS:70) and Chepang. Stop finals are not generally regarded as tone-raisers; I suggest that the explanation lies in the articulation of final stops with a simultaneous glottal closure, as in Hayu and Limbu -[p?], -[t?], -[k?] (see Finals, below), and that it is final glottality, not merely occlusion, that is the tone-raiser.

Initial Manner-Series

Aspiration (no map)

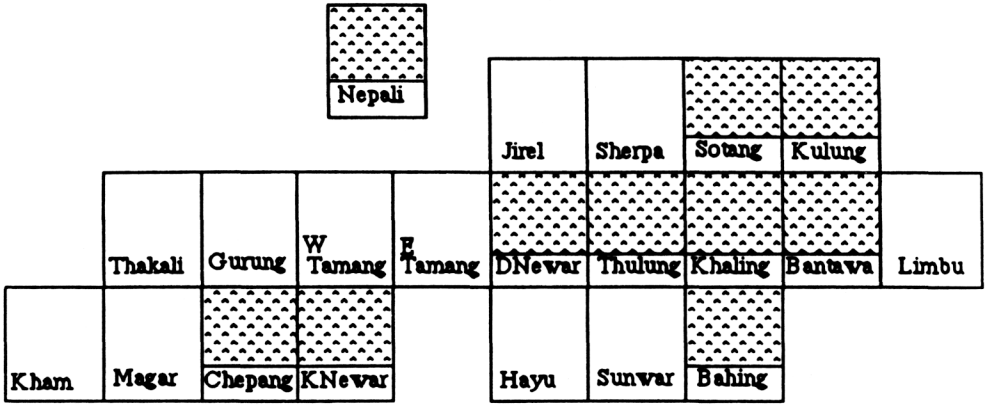
Only Magar lacks distinctive aspiration, if the register interpretation is retained.

Aspiration is missing from certain series, affricates in particular, in three languages of the Eastern Pronominalized Group. In Hayu, the distinction between palatal and alveolar affricates is neutralized for the aspirate members; in Sunwar, the series ky- and ts- have no aspirate members; in Limbu, the ts- series lacks an aspirate. In Limbu, it is clear that */tsh/ has merged with /s/, as in Assamese; Limbu /s/ also has the allophone [tsh] after dental finals.

Murmur (maps 3 and 4):

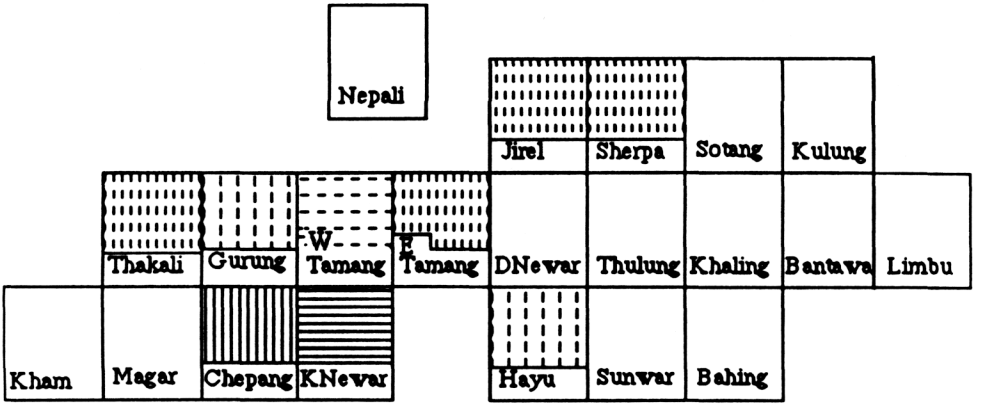
It is perhaps noteworthy that murmured or voiceless nasals (the latter only in Chepang) occur only in languages which also have murmured stops and murmured or voiceless resonants (Newari, Chepang, and - at least phonetically - Magar). In several languages, murmured stops are reported as the allophones of voiced stops on breathy tone (Kham, Magar, Gurung) or as the allophones of aspirated stops in intervocalic or post-nasal position (Limbu).

MAP 3: Murmured Stops (voiced aspirates)



murmur opposition on voiced stops

MAP 4: Murmured (horizontal lines) and voiceless (verticals) initial nasals and liquids



m, n, (ŋ), r, l, only r missing in Newari

r, rfi

N, Nfi, l, lfi

r, ṛ, l, ḷ

N, Ṇ, r, ṛ, l, ḷ

l, ḷ

Voicing (map 5):

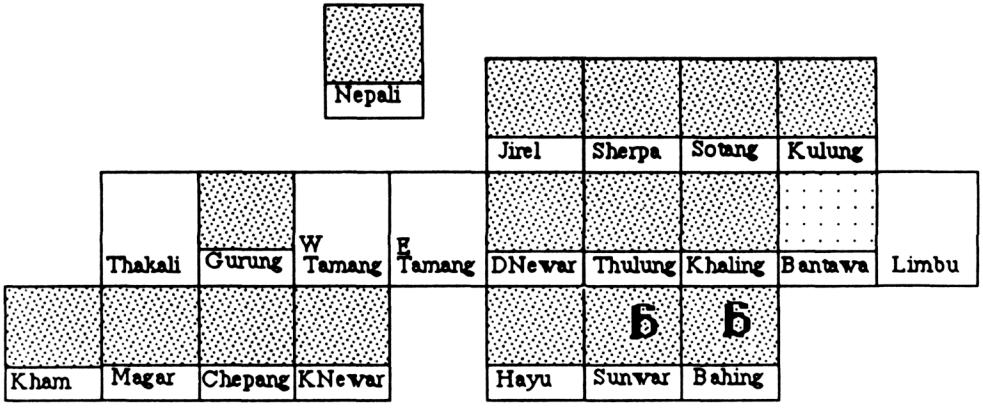
Apart from the Tibetan and Tamang groups, voicing is distinctive everywhere except in Limbu, which has the type p-ph-m (and no tone). Henderson (1965:434, apparently on the basis of information from Sprigg) listed Limbu as having an opposition of voice, but noted that it was restricted to loan words. Sprigg reported that voicing was not distinctive in verb forms, but that it was distinctive on some other forms; he cited the example [ga] 'I' vs [ka'ko(')wa] 'kidney' vs [kham] 'earth' (1966:452 n.7). Voicing is not distinctive in the Limbu dialects I have heard, where the word 'I' is [iŋga] or aŋga]. (This would provide a potential source for a voiced series, however.) In my experience, some Limbus give Nepali loans their Nepali pronunciations, but just as many never distinguish voice, even while speaking Nepali, which they do fluently.

In Bantawa, geographically close to Limbu, the voicing opposition is limited to the bilabial and dental stop series; thus we find the type-pattern p-t-ts-k-b-d (and aspirates ph-th-tsh-kh) to which Henderson drew attention (1965:417) as suggesting a preglottalized series. There is no preglottalization of the voiced series in present-day Bantawa, however.

Preglottalization: Initial ɓ-

An implosive or preglottalized ɓ- is found in two neighboring and closely related languages of East Nepal, Bahing and Sunwar. It is not explicitly

MAP 5: Voice and preglottalization



no voicing opposition

voicing distinction on some stop series (p-t-k-b-d) (g lacking)

voicing distinction on all initial stop series (limited to certain tones in Sherpa, Jirel, Gurung)

ɓ initial ɓ

mentioned in published descriptions of Sunwar, but it is transcribed as an initial /bw-/ cluster, always followed by the vowel /a/ (SS:329 and PS1:13).[4] Bahing ɓ- appears before other vowels as well. These are the only examples of preglottalization to have come to my attention in Nepal.

To digress for a moment on the origin of this ɓ-, two hypotheses suggest themselves. It could represent a preglottalized manner-series, of which another trace might be the p-t-k-b-d type-pattern of Bantawa. Preglottalized series in Henderson's sample all lack the velar member. Another possibility, however, is that ɓ- (without an accompanying ɋ) developed from a labiovelar. The examples of Table 1 might suggest such a development. I have heard all of the Sunwar bw- cited in the table pronounced as [ɓ-]; I have not heard the Sunwar word /re:kbe/ 'yam' pronounced.

Initial articulations

All Nepal languages have at least the three plosive stop series - p-, t-, k- - and at least one affricated stop series ts- (variously transcribed). Some have in addition a retroflex/rhotacized ʈ- series. No uvular articulations are reported.

The question of initial consonant articulations is complicated somewhat by problems of interpretation. The question of whether a given initial is a cluster or a unit phoneme need not overly concern us here as long as both elements of the potential cluster are clearly consonantal, as in CL- series (with C a stop and L either r or l); all such initials, whether taken as simple or complex, are covered in this section. Glide clusters (CG-, i.e. Cj- and Cw-), on the other hand, pose the problem of whether, in a CGV structure, G belongs to the initial or to the nucleus.

Table 1: Some Comparisons with Sunwar and Bahing ɓ

Bahing /ɓa/ 'chicken'; Sunwar /bwā/; Khaling /bā/; Kulung /wā/ 'hen'; Magar /gwā/; E. Tamang /naka/; . . . STC (99) *wa

Bahing /ɓa/ 'yam'; Sunwar /re:kbe/ 'potato'; Khaling /ki/, Kulung /khe/, Sotang /sapkhe/ 'potato'; Chepang /goyʔ/; STC 238 kywi/e (cf. also Sherpa /riki/, Jirel /rege/ 'potato')

Bahing /ɓar/ 'wound'; Sunwar /gār/; Khaling /'kwaar/; Kulung /kher/; Kham /'gəyh/

Bahing /ɓardɛ/ 'hawk'; Sunwar /bwāde/; Kham /'gā/; Chepang /kwar/ 'owl'; E. Tamang /⁴kwat/

Bahing /ɓala/ 'shadow', Chepang /kwaa.lang/ (cf. Khaling /löngma/)

Bahing /ɓɔ:ky/ (baby-talk /ka:ku/) 'water'; Sunwar /'bwaàk/ (SS; variously transcribed with b- and w- in PS and V); Sotang /kow'/; Kulung /kaᵘ/; Limbu /wa/ 'liquid' . . .

Bahing /ɓa:luŋ/ 'fish-net'; Chepang /kwar/ 'frame of fish-net'; STC (158) *kwan/gwan

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[4] I have recently heard another Sunwar dialect in which this phoneme is pronounced as [ʔw].

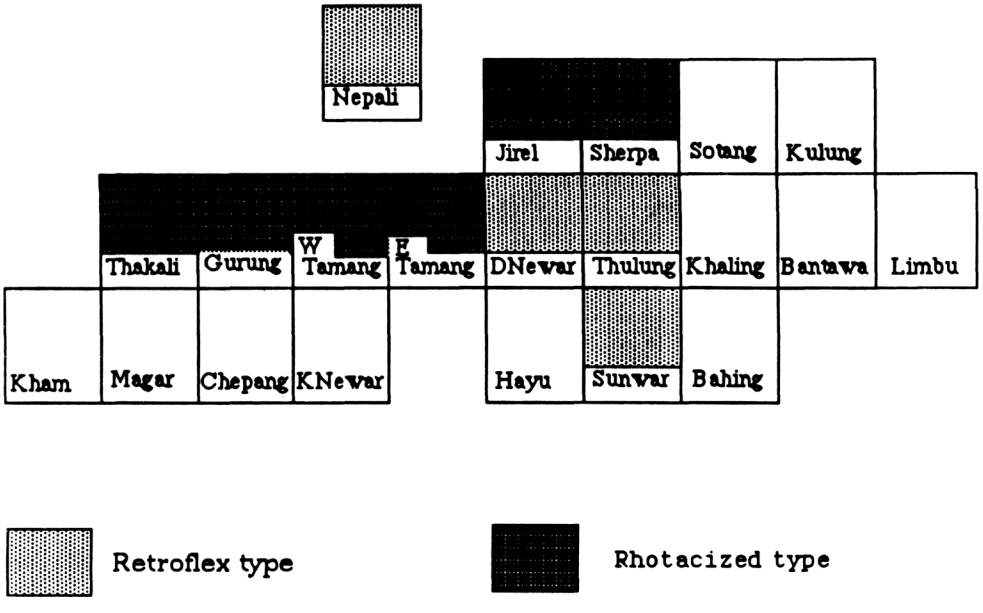
Retroflexion/Rhotacization (map 6, table 2)

The t- series in most of the languages is dental. Kathmandu Newari, however, has an alveolar articulation, which Nepali speakers hear as retroflexed (as they do English t). The Magar series is also alveolar, with dentals pronounced in Nepali loans. The Sunwar series is labeled "alveolar" (as opposed to "alveo-palatal" ʈ, PS2:3f), but I myself heard it as dental (vs retroflexed pre-alveolar). No language has been reported to have a single series with the unvoiced member realized as a dental and the voiced as an alveolar, as in Munda (Henderson 1965:420).

Where there are two series of t's in opposition (leaving aside cluster interpretations for the moment), I have put the back t into a retroflexed/rhotacized category as ʈ. In fact, this category covers two rather different phonetic realities.

Indo-Aryan ʈ is the type-species of the genus *Retroflex*, and Nepali seems close to the Indo-Aryan norm. In Nepali, and in Dolakha Newari, Thulung, and Sunwar, we find a post-alveolar (or alveopalatal) retroflexed articulation with no affrication.

MAP 6: Retroflex/Rhotacized ʈ



The ʈ- series in the Tibetan and Tamang groups has given rise to various interpretations: as retroflex or non-retroflex; as plosive or as affricated; as unit phonemes or as clusters. Henderson does not place Gurung or Tibetan among the languages with retroflex plosive stops; apparently she follows Sprigg (1954:142) and Burton-Page (1955) in regarding their ʈ- series as non-retroflex complex initials.

Phonetically, the series is often described as slightly affricated, and this agrees with my own impression. Retroflexion appears to be somewhat variable. Mazaudon describes the series in E. Tamang as alveolar, with a voiced, flapped affrication ("appendice battant") and variable retroflexion: [ʈ] or [t̠] with [ɹ] or [ʒ] offset (1973a:142). For Burton-Page, Gurung has a "rhotacized" series

(comparable to pr- and kr-) of "postalveolar affricates without retroflexion".[5] The SIL descriptions of Sherpa, Jirel, Tamang, Gurung, and Thakali, less detailed, refer to "alveolar retroflexed stops".

Historically, it is well known that the Tibetan ʈ- series derives from the Cr- clusters of Tibetan orthography; the retroflexes of the Tamang group have a similar origin. In Dolakha Newari, Sunwar, and Thulung retroflexion probably developed under the influence of Nepali, and it remains somewhat marginal. In Sunwar, only ʈ and ʈh- (romanized as tr-, thr-) are said to appear in native words, and only before front vowels. In fact, of some 20 distinct examples in V, 18 are clearly loans, leaving only "threebe" 'big' and "thri-tsa" 'to give birth'; note also /ʈi-tsa/ 'to obey' in PS2. In Thulung, initial ʈ- and ʈh- are rare (Allen 1975:14f): ʈi- occurs in three words, of which two are tree-names, and ʈh- only in the name of a "legendary princess". (Curiously, ʈ and t are found in opposition in final position, although in verbs the opposition is limited to morphophonemic alternation.) Finally, initial ɖ- is quite frequent in Thulung, and minimal pairs with d- are numerous. (Both ɖ- and d- seem to correspond to dentals in related languages.)

Retroflexion is confined to stops in the languages of the survey. Some speakers of Nepali pronounce /ɳ/ in Sanskrit vocabulary, however.

Palatals; Affricates; Cj- Clusters (Map 7, Table 2)

As mentioned above, Nepal languages generally have at least one series of affricates. Where there is only one such series, I have referred to it as ts-; it is usually transcribed "c" in the Indianist tradition. In some languages there is a second series of affricated, lamino-palatal stops [tɕ]- (in opposition to alveolar [ts]-), which is sometimes transcribed "c" as opposed to "ts" (as in the Tibetanist tradition), or as "č", "cj", or "cy" as opposed to "c". It is sometimes taken as a CG cluster. There is also the possibility of a palatal stop [c] or a palatalized [kʲ] in opposition to the velar [k]; such a series may be transcribed as "c" or as "kj" or "ky". Thus there is considerable room for confusion. In Table 2 I have attempted to summarize the plosive and affricate stop initials and CG-clusters for the languages of the study. I have used the transcriptions of the authors of descriptions, but have arranged them in columns according to their phonetic character. I have not made separate columns for all potential Cj- clusters, but only for those most often found in languages with limited inventories of such clusters.

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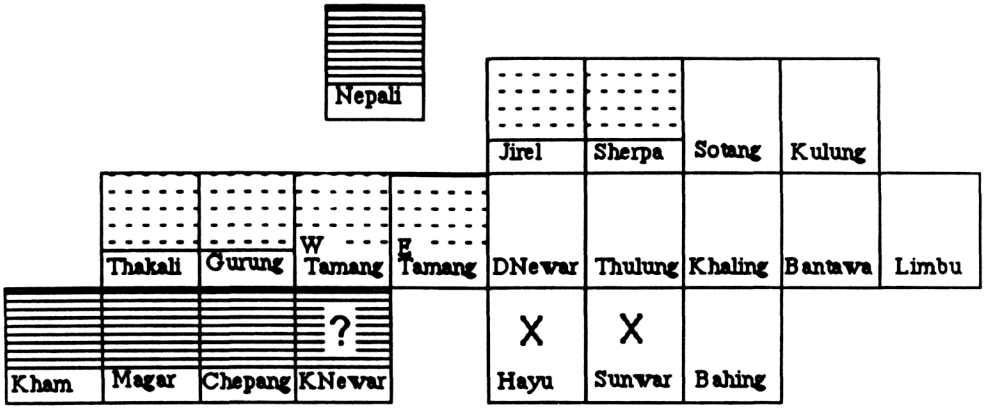
[5] Burton-Page is particularly concerned with distinguishing these Gurung phonemes, in a polysystemic framework, from his informant's pronunciation of the Nepali retroflexes. As evidence for their "non-retroflex" character, he points out that they do not give a retroflex coloring to neighboring vowels; the force of this observation is limited by the fact that Gurung tr-, etc. do not occur as syllable finals. He integrates them into a rhotacized series pr-, tr-, kr-, but in his close phonetic transcription, kr- is noted as a stop + tap cluster [kɹc] (p. 113), while tr- is noted as [tɹ] (p. 118), in seeming contradiction with the qualification "without retroflexion." Perhaps only the stop component is described as "without retroflexion." Even if these consonants are taken as having retroflexion, however, they are clearly of a different type from the Nepali retroflexes.

MAP 7: Palatal series and Cj- clusters



The picture is clearest in the Eastern Pronominalized Group, which also has the fewest CG- clusters. Only Hayu has an opposition of series [tɕ]/[ts] (neutralized for aspirates). Its neighbor, Sunwar, has an opposition of series [kʲ]/[k], with no [khʲ] term; [tsh] is also missing from the ts- series in Sunwar. Sunwar has no other Cj- initials, and the other languages of this group have only k, ts, t, (ʈ), p, with no CG- clusters reported.

In the Tibetan dialects, 7 series are the rule. Jirel is described as having palatal glides only after velars, and an opposition between "dental" and "alveolar" affricates. In Sherpa this last distinction is described as between "alveolar" and "alveo-palatal" affricates (SS); the distribution of glides and vowels is problematic in this source. For Maddieson et al., Sherpa has the following 7 series: k, c (palatal stop), tç, ts, ʈ, t, p, presumably with no CG clusters.

The Tamang languages add the cluster pj-, making 8 series.

Cj- clustering is freer in the remaining languages, in the west of our range. Chepang has Cj- clusters with all initial C-. Magar has Cj- clusters with all stop initials, but rather few with dentals. (I can find only "tyang-ke" 'bright' and "thyat-ke" 'spit out food' in V.) The Kham situation is similar, with the vast majority of Cj- initials involving velar and palatal C-. Nepali has Cj- clusters with all initial series; CG- clusters are particularly favored in phonesthetic words.

Table 2: Initials and CG- clusters

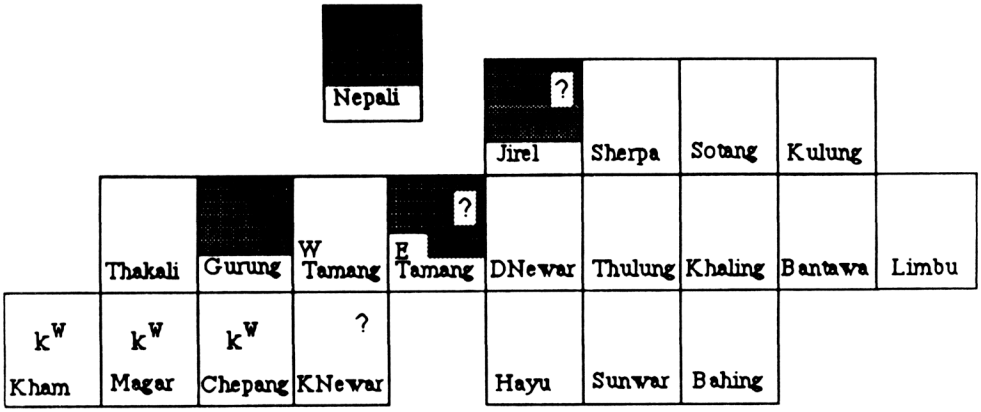
	[kʷ]	[k]	[c/kʲ]	[tɕ]	[ts]	[ʈ/tʳ]	[t̲/t̪]	[p]	[pʲ]	REMARKS
Nepali		k			c	ʈ	t̲	p		Cj- Cw- with all C-.
Sherpa		k	c	tç	ts	ʈ	t̲	p		
Jirel		k	ky	č	c	ʈ	t̲	p		Cwa with all C.
E. Tamang		k	kj	tsj	ts	ʈ	t̲	p	pj	Cwa with all C except t.
W. Tamang		k	ky	cy	c	ʈ	t̲	p	py	
Gurung	?	k	ky	cy	c	ʈ	t̲	p	py	
Thakali	kw	k	ky	cy	c	ʈ	t̲	p	py	
Kham	kw	k			c		t̲	p		Cj- with all C-.
Magar	kw	k			c		t̲	p		Cj- with all C-.
Chepang	kw	k			c		t̲	p		Cj- with all C-.
Newari		k			c		t̲	p		? see vowels for Cj-, Cw-.
Dolakha		k			c	ʈ	t̲	p		
Hayu		k		c	ts		t̲	p		
Sunwar	(ɓ)	k	ky		c	ʈ	t̲	p		
Bahing	(ɓ)	k			ts		t̲	p		
Thulung		k			c	ʈ	t̲	p		
Khaling		k			c		t̲	p		see note 5.
Sotang		k			c		t̲	p		
Kulung		k			c		t̲	p		
Bantawa		k			ts		t̲	p		
Limbu		k			ts		t̲	p		

Labiovelars and Cw- initials (map 8, table 2):

I have suggested the possibility of a labiovelar series particularly where velars are the only series found in Cw- clusters (leaving aside hw-). This is the case in Chepang, where kw- and gw- are found before a number of vowels. It is also true in Kham, where only velars are found in Cw- clusters, all followed by the vowel /a/. (This generalization holds if Kham -wi, which follows virtually all initials but is never itself followed by a final, is taken as a vowel+offglide

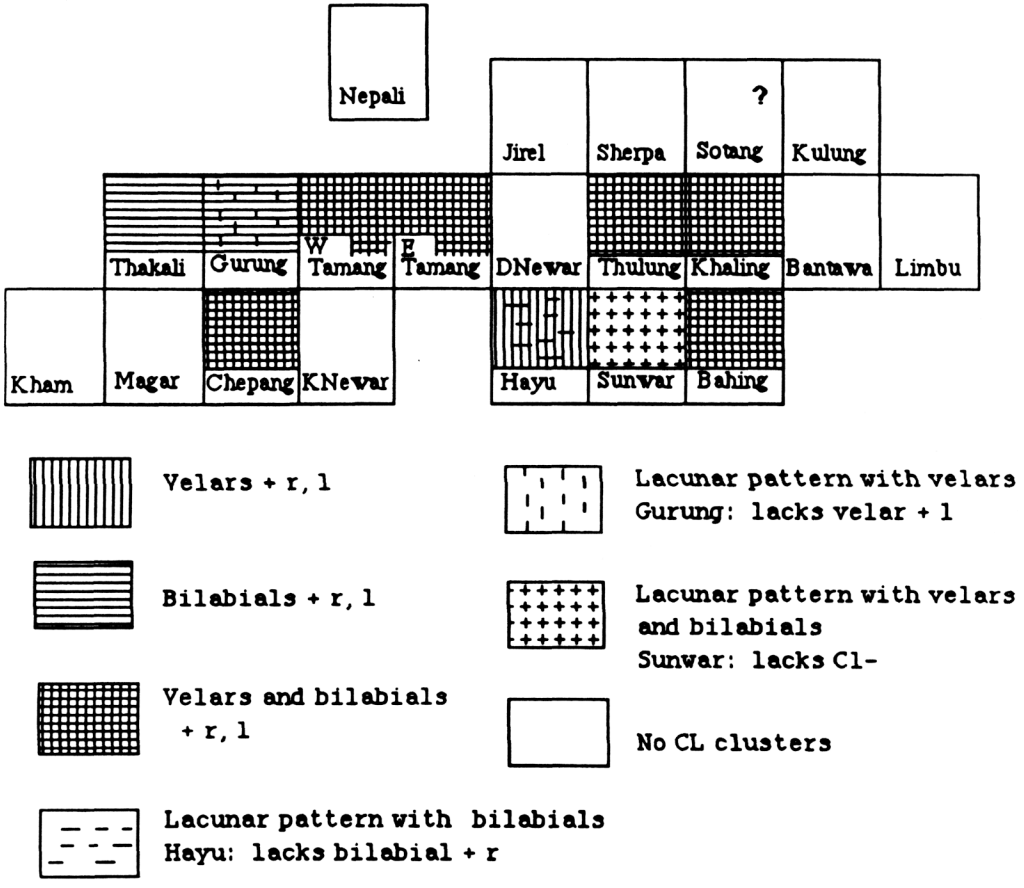
combination rather than as glide+vowel; as -uy it nicely completes the series of finals -əy, -ay, -oy proposed by Watters.) In Magar, Cw- clusters are said to be found with the initials p-, c-, k-, b-, g-; I find 6 examples with velars (always with the vowel /a/) and none with p, c, or b in V. In PS, the examples with these initials are all labeled "onomatopoeic", e.g. /bhwa/ 'onomatopoeic cry of a frightened cow'; thus, such initials would seem to be phonological on a somewhat different level than the velar Cw-. Finally, Thakali is said to have only /kwa/ and /kwɔ/. These appear to be rare; there are no examples in V, and only /kwa^{h}ri/ 'up there' is cited in PS:33.

MAP 8: Cw- and labiovelars



which is only a preliminary survey, shows very few such clusters, all in words shared with Khaling; the informant lived in a Khaling village and was interviewed there.

MAP 9: CL- clusters



Nepali is considered by Bandhu et al. to have no initial clusters; this of course excludes learned pronunciation of Sanskritic (and English) vocabulary.

Not all of the remaining languages have full sets of velar and bilablial clusters with liquids; this is shown on the map.

Fricative Initials: Sibilants (no map):

Nepal languages are poor in fricatives; only sibilants are reported (unless h- is taken as a fricative). All have at least one sibilant; in general those with two series of affricates (tɕ-/ts-) have two corresponding sibilants. This is the case of Sherpa (Maddieson et al.: s/ç; SS: s/š), Jirel (s/š), E. Tamang (s/sʲ), W. Tamang (s/š), Gurung (s/sy), Thakali (s/sy), and Hayu (s/x). Sunwar, which lacks a second affricated series but has a palatalized ky- series, also has s/š.

Voiced sibilants are rare. Kham is reported to have the opposition s/z.

Sherpa is reported by Maddieson et al. to have both s/z and ç/ʑ on the low tone, but voiced sibilants are not mentioned by Gordon and Schottelndreyer (SS) (except as allophones of the affricate /j/ – see below).

Voiced affricates may be realized as voiced sibilants in Sunwar (where /j/ may be realized [dʒ] or [z]), in Sherpa, and (except word-initially) in Jirel.

Aspirated [sʰ] is reported only from Magar, as an allophone of /s/ conditioned by breathy register.

Other initials:

Approximant initials (and their devoiced and murmured correlates) and h- are not covered here. Initial glottal stop is not found in opposition with zero (initial vowel).

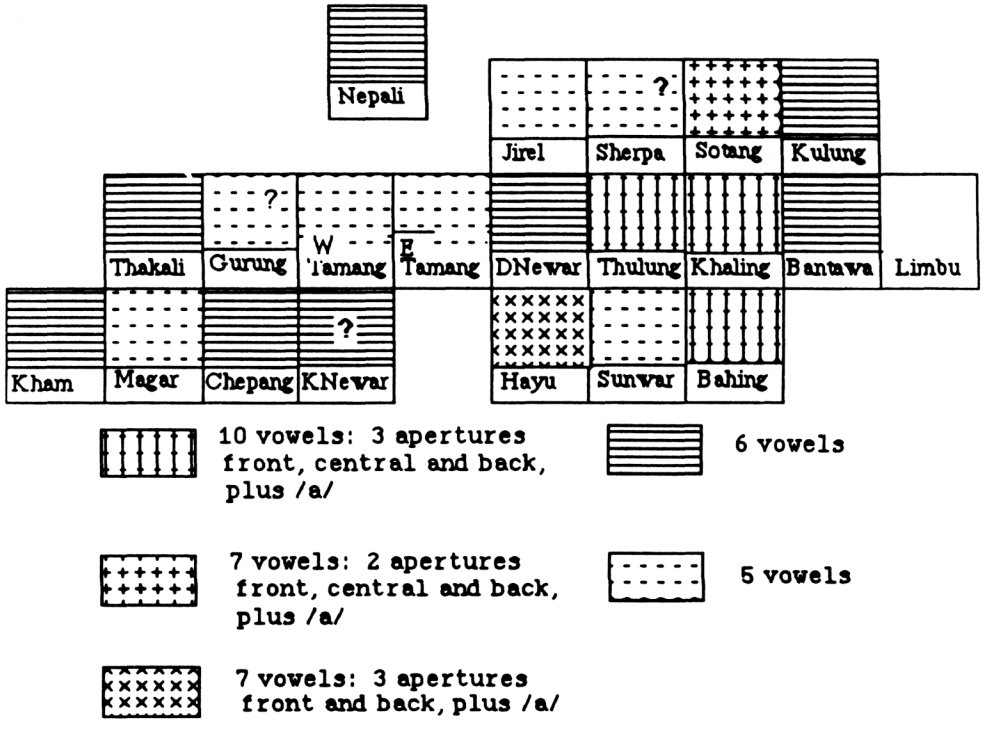
Vowels (map 10)

Vowels in closed syllables, whether phonetically pure or diphthongs, have been chosen as the basis for typology here. In Newari, which has few closed syllables, the system of short vowels is used, since long vowels clearly represent lost finals or contain morpheme junctures.

The most widespread system, the 5-vowel triangle i, e, a, o, u, is found in Jirel, the Tamang dialects, Sunwar (PS2) and Magar. Limbu, the only language with a clear opposition of quantity in closed syllables, has the short vowels i, ɛ, a, ɔ, u, but a 7-vowel triangle of long vowels (adding /e:/ and /o:/).

Next most common are six-vowel systems. Hale (1970) distinguishes two types here: those equivalent to the 5-vowel triangle plus a central schwa, and those with three degrees of aperture front and back: i, e, a; u, o, ɑ. He attributes the first type (which I will call "triangular" from the fact that it comes to a point in the open vowel a) to Chepang, and the second to Thakali, Sunwar (which the S.I.L. later analysed as having only 5 vowels) and Sherpa (whose phonology remains unclear, see below). I do not believe that this typological distinction is justified for the languages under consideration, and I would give the "triangular" interpretation to Nepali (excluding diphthongs), Thakali, Kham, Chepang, and probably Newari, admitting that in some cases the schwa member may be rather backed toward [ʌ]. (This in fact is how Mazaudon transcribes the /ɑ/-term of Hale's Thakali system.) Bantawa is a special case in that the sixth vowel is [ɯ].

MAP 10: Vowel qualities in closed syllables



Gurung is described (PS) as having a five-vowel system with length distinctive only for /a/ (see length below); long /a:/ is also described as more open than short /a/, at least for some speakers (D:vii, PS:32). The distribution with respect to syllable finals is not clear; apparently all six vowels occur in closed syllables.

The analyses of Sherpa differ widely. Maddieson et al. have a system of 5 short and 7 long vowels (like Limbu) but do not discuss their distribution in closed syllables. The S.I.L. descriptions have varied considerably, without reaching a convincing conclusion.

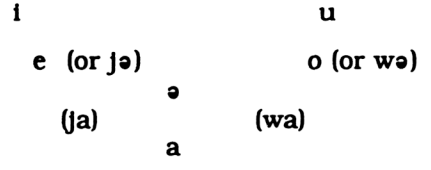
A number of languages of the Eastern Pronominalized Group have richer systems of 7 and 10 vowels.

Two types of 7-vowel system are reported; each may be regarded as adding a 2-vowel series to the 5-vowel system. The first, found in Hayu and in the Limbu long vowels, adds an extra degree of aperture front and back. The other, reported in Sotang, adds two front rounded vowels, which we may consider as a central series.

The richest systems found are the 10-vowel systems of Khaling, Thulung, and Bahing – a potential micro-areal feature. Bahing has three series, front, central (or front-rounded), and back, with three degrees of aperture, plus /a/; this may be the structure of the other 10-vowel systems as well, although both are reported as having a schwa in place of the open front rounded [œ] of the Bahing system. The open front and back vowels are diphthongized in Thulung (/ea/, /oa/) and (with the open central [(ɥ)œ]) in some dialects of Bahing. In Khaling,

the open back vowel of the system is realized and transcribed as [wa].[6]

The Newari vowels are not easily analysed or compared to the closed-syllable systems presented here. I have chosen to consider short vowels (the longs being derived from lost finals or morphophonemic combinations) in C_C-contexts (again to avoid word-final morphology). I would claim that the shape of this system — an isosceles triangle with a central (or rather backed) schwa — is clear enough for typological purposes (allowing perhaps for what I have called the "non-triangular" interpretation mentioned above), but its size depends somewhat on the interpretation of glides:



Thus, Hale argued that anywhere between 4 and 9 short nuclei could be accepted, and himself chose first 4 (PS:23) and later 5 (Hale and Shresthacharya, adding /e/). Kansakar (1980:10) retains 6. An analysis of this question would take us beyond the bounds of our typological framework.[7]

Historical and comparative remarks:

Mazaudon (1973b:88) has remarked that the Thakali schwa, which sets Thakali apart from the Tamang dialects, is the reflex of Tamang short /a/. Thakali has completely lost the opposition of quantity, transphonologizing the opposition between long and short a into a distinction of quality; other long vowels have simply merged with their short counterparts. This development has also occurred for some E. Tamang speakers (Mazaudon 1973a:121) and apparently in Gurung (Glover 1974:xx), unless Gurung is headed for complete merger of the long and short vowels (D:vii). Essentially the same development has taken place in Nepali, where IA ī and ū have merged with their short counterparts, but ā [a·] has remained distinct from a [ə]. A phonetic relic of the quantity distinction remains in the duration of Nepali [a·]; this is not reported for Thakali. It is not clear why /a/ and /ʌ/ are found in opposition in Thakali closed syllables (except before -ŋ [PS:30]), while quantity in Tamang is only distinctive in open syllables.

Bantawa has a 6-vowel system with two high back vowels, /u/ and /ɯ/; the latter is often confused with /i/ by younger speakers. In fact, /ɯ/ most often appears before velar finals, where /i/ does not occur, but /ɯ/ and /i/ are found in opposition in other contexts.

I have shown by internal reconstruction (1975a) that the 10-vowel systems

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[6] In PS, this /wa/ is interpreted as a -GV sequence, leaving only 9 vowels. Khaling clearly does have a syllable-initial glide w-, found in D before the vowels /ɐ, æ, e, o, ɔ/. But the only CG clusters recorded are of the type Cw- (including yw-, and also Crw-, Clw-), and only before the vowel /a/. Under these circumstances, it is surely preferable to elminate CG- clusters from the phonology and to consider /wa/ as a tenth vowel. Note also that /wa/ is found in alternations with the vowel /o/ (see Michailovsky 1975a).

I have been rather inconsistent about the inclusion of diphthongs in the repertories of closed syllable vowel qualities. In several of the descriptions, the distribution of diphthongs with respect to finals is not made clear, but this remark does not apply to the Eastern Pronominalized group.

[7] See also Sprigg (1983), Kansakar (1983), and Malla (1985).

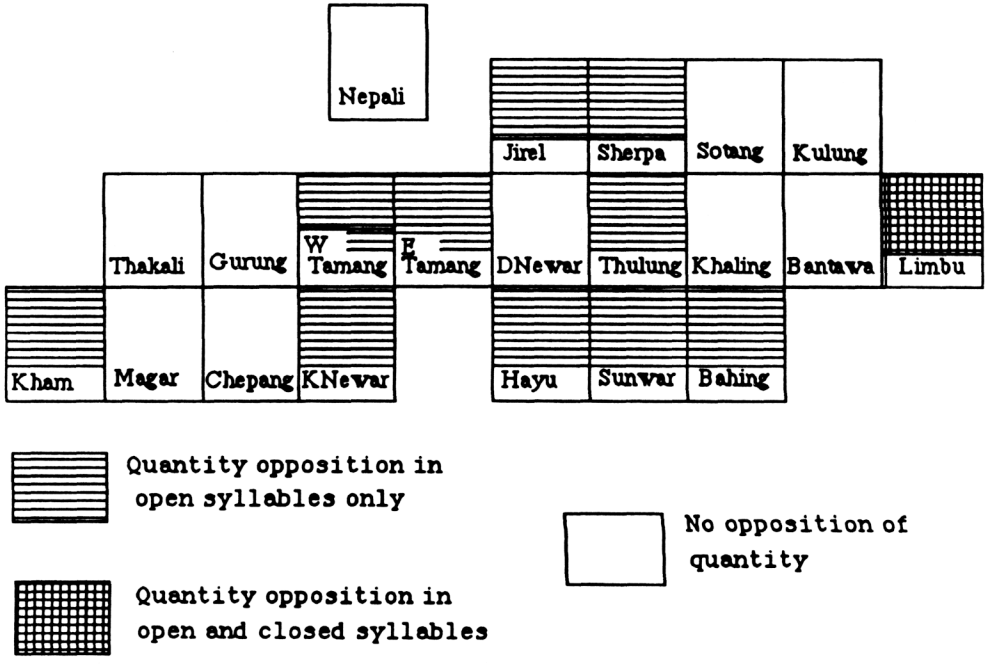
of Bahing and probably of Khaling reflect historical 5-vowel systems, and Allen has made a similar argument for Thulung (1975:116-127). In Bahing morphophonology it is clear that the three degrees of aperture have developed from two under the influence of the finals, and that the central vs back opposition depends on vowel harmony and, secondarily, on the finals.

Length (map 11):

Phonological vowel length on open syllables is shown on map 11. In a number of languages, long vowels are reported to be restricted to the initial syllable of words (Hayu, Thulung, Jirel) or to non-final syllables (Bahing, Jirel, Gurung – if the latter has length).[8]

In Thulung, the quantity opposition is distinctive on closed syllables in certain morphophonemic contexts (Allen 1975:23). In Sunwar the distribution is not quite clear, but presumably length is distinctive on closed syllables only if the initials of "pseudo-syllables" are counted as finals (see below).

MAP 11: Vowel quantity



Historical-comparative remarks:

In some of the languages, the quantity opposition does not have an obvious source and thus may be of comparative interest. This is the case of Limbu, where

[8] Gurung /a:/ is described as more open than /a/ (see above); this makes it at least possible to view the distinction as one of quality rather than of length. Quantity on other vowels is at best marginal: /i:/ and /u:/ are not found, and only one example each of /o:/ and /e:/ are reported in PS:23. The example of /o:/ has more recently been transcribed as nasalized (/tõ/ 'wild pig', D:186) or as short (/to/ 'wild pig', D:112). /e:/ is found in /theeba/ 'hear'.

quantity seems largely independent of the system of finals. In Tamang, which only has length on open syllables, the final system seems to have remained intact, and thus there is no obvious source for the opposition.

Historically, there is no reason to believe that Tibetan had phonological quantity, and length in modern dialects is generally linked to the loss of finals. This may also apply to Sherpa and Jirel, but it remains to demonstrated.

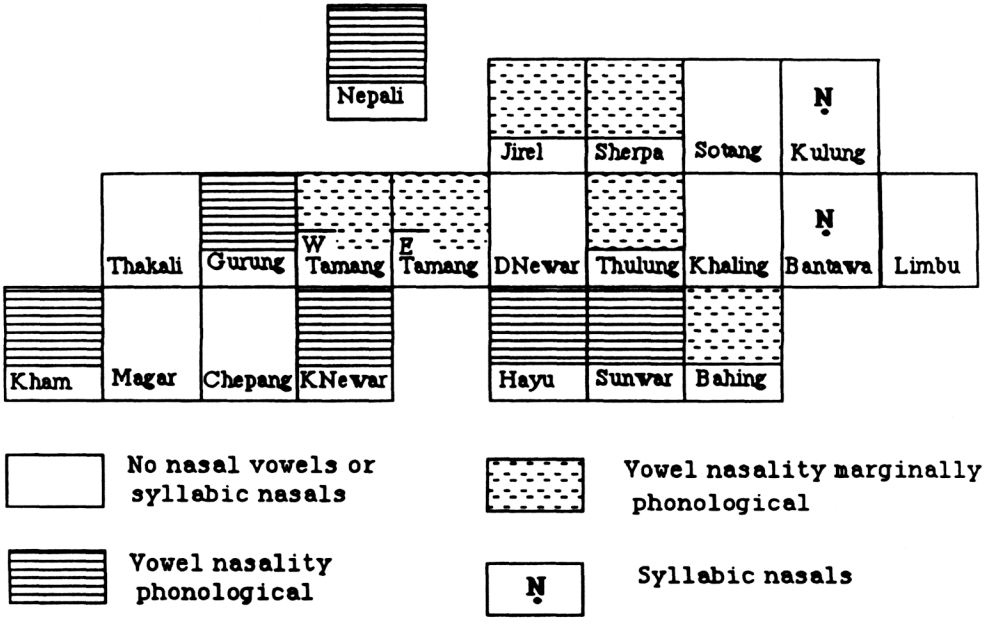
In other languages, vowel quantity is clearly secondary, and related to the loss of finals. This is evident in Newari (Hale 1971, Shresthacharya et al. 1971) and in Bahing (Michailovsky 1975a), in both of which morphophonemic alternations between length and final consonants are widespread. In Hayu, it is distinctive *shortness* that is found in alternation with finals; open initial syllables are normally long, but where a final is lost the resulting open syllable has the short quantity of a closed syllable (Michailovsky 1988). Sunwar long open syllables often correspond to final -ŋ (missing in Sunwar) of related languages. Kham also has promising gaps in the system of finals. Often the phonetic transitions leading to final consonants, since lost, have become phonologized, leading to a multiplication of qualities of long vowels; this is the case in Tibetan, Newari, Sunwar (diphthongs), and some Bahing and Bantawa dialects (Michailovsky 1975b), but it does not explain the extra degree of aperture on long vowels in Limbu.

Nasalization; Syllabic nasals (map 12):

Phonologically distinctive nasalization is shown on map 12. In several languages it is reported as highly marginal and/or unstable — these are marked with dotted lines. There is never a distinction of length for nasalized vowels, which are usually reported as realized long. In Gurung, /ãã/ is reported but not /ã/. Hayu may have very marginal nasalization of short vowels, however.

Syllabic nasals are reported in Bantawa in Kulung. In Bantawa, they are always pronominal elements: /ŋkɑ/ 'I', /ŋ/- 'my', /m̩/- '3ps. verb prefix'; this seems to be the case in Kulung as well: /ŋkə/ 'he, this', /m̩/- 'his'.

MAP 12: Nasality and syllabic nasals



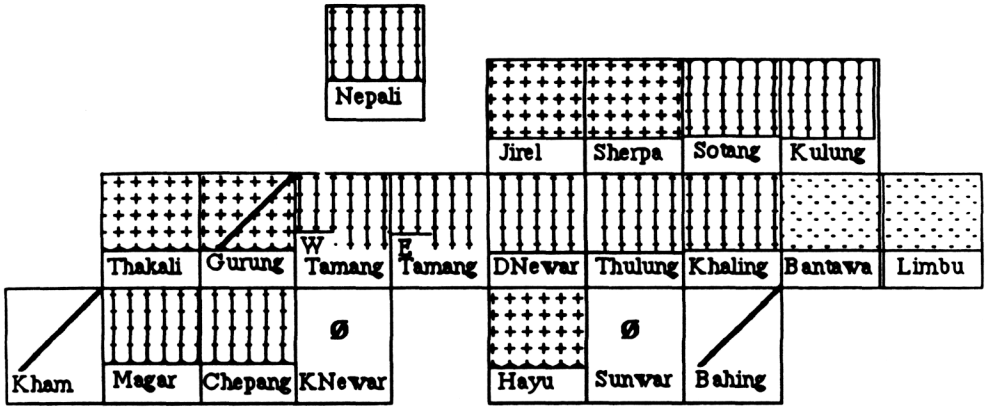
Finals (map 13):

The discussion here is based on word-finals; -y and -w are omitted.

Nepali does not fit into the framework adopted for the TB languages, as all consonants except /h/ may appear in word-final position (Bandhu et al. 1971:30f).

For the TB languages a 10-consonant final system, p, t, k, m, n, ŋ, r, l, s (corresponding to Written Tibetan), is taken as a starting point. In fact, this is the most common system in the sample. Among these languages, /s/ is reported as rare in E. and W. Tamang, in Thulung, and in Dolakha Newari (which lacks -r), leading us to the next most frequent type, lacking /s/ but retaining the liquids. (The inverse is not found.) Finally, at the eastern end of the range, Bantawa and Limbu have only the stop and nasal finals.

MAP 13: Word-final p, t, m, n, ŋ, r, l, s



p, t, k, m, n, ŋ, r, l, s, (and others in some cases) (Dolakha lacks r)

stops absent (Kham: t, k absent)

s absent

Ø No word-final consonants

r, l, s absent

Among the languages having extra finals, Chepang has the most aberrant system, doubling the nasals and liquids with both glottalized and devoiced series. Chepang also adds palatal stop and nasal finals (-/yn/ and -/yk/ in PS). Thus the system is the following:

plain:	ø	p	t	c	k	m	n	ɲ	ŋ	r	l	s
glottalized:	ʔ					mʔ	nʔ	ɲʔ	ŋʔ	rʔ	lʔ	
devoiced:	h					m̥	n̥	ɲ̥	ŋ̥	r̥	l̥	

Thulung adds a retroflex ʈ to the 10 usual finals. Sunwar, which has a relatively full system of finals – less -ŋ and -s (except in geminates) – in non-final syllables, is described as having no word-final consonants (PS:23; orthographic -n is nasalization). However, the initial of a "pseudo-syllable" — that is, a word-final syllable whose vowel is devoiced or omitted in rapid speech (PS:22) — may be stranded (in a cluster with the final, if any, of the preceding syllable) in word-final position; in slow speech the final vowel is pronounced. Kulung has the 10 finals plus the groups -ks, -ms, and -lm, perhaps again the result of devoicing of a final vowel. (Such final groups are known in Kanauri.) In Gurung, word-final -b (only "within a phonological phrase" (PS:17 — apparently the affix -ba) and -r ("locative suffix" — PS:41) are apparently always affixes; -d seems limited to imperatives. Gurung lacks the unvoiced stop finals; the resulting system is b, d, m, n, r, l.

Other defective systems are Bahing, which lacks word-final (but not syllable-final) stops and -s (type m, n, ŋ, r, l) and Kham, which lacks -ŋ (PS:22) and apparently -t and -k, except in loans, leaving p, m, n, r, l, s.

I have found that final stops in Hayu and in Limbu are pronounced not only unreleased, but with a simultaneous glottal closure, as [p?], etc.[9] If my observation is correct, it would be interesting to know the extent of this trait, which I believe may have a role in tonogenesis (see above).[10]

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9 Henderson (1964:417) has remarked on this pronunciation in Thai; I suspect that it is quite widespread in the TB area.

10 I have not made major revisions in this paper since it was presented in 1982. There are now new published sources on Limbu, Weidert and Subba 1985 (Panchthar dialect) and van Driem 1987 (Phedap dialect). The differences in phonology between van Driem's description and the present study are due partly to dialect differences and (mainly) to the fact that I have occasionally posited syncope to preserve generalizations about syllable structure and voicing (see also Michailovsky 1986).

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