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# MANNER vs PLACE OF ARTICULATION IN THE KIRANTI INITIAL STOPS

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## 0. Introduction

The Kiranti languages of Eastern Nepal have between two and four manner-series of initial stops. In the present paper we will trace the evolution of these series within the group, particularly as concerns the opposition of voice reconstructed for proto-Kiranti and found in all the modern languages of our sample except Limbu. This evolution is of typological interest because it has proceeded differently for different points of articulation. It reveals sound changes of a distinctly southeast Asian type in languages which today fall clearly into the Indian linguistic area.

Kiranti is taken here to include the languages generally called «Rai» in Nepal, plus Sunwar, and Limbu. I also include data on Hayu, whose closest relatives may well (as Shafer believed) lie in a closely related West-Central Himalayish group. Within Kiranti I identify Western (here represented by Bahing, Sunwar, Dumi, Thulung, Khaling) and Eastern (Kulung, Chamling, Bantawa, Limbu) groups; Limbu, however, might better be treated as a separate group.

## 1. Synchronic phonology

The plosive stop inventories of the modern languages are presented in Table 1.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hayu | k kh g | ts | tsh | dz | | | t th d | p ph b | |
| Bahing | k kh g gh | ts | | dz | dzh | | t th d dh | p ph b bh | ʔb |
| Sunwar | k kh g | c | | j | | ʈ ʈh | t th d | p ph b | ʔb |
| Dumi | k kh g gh | ts | | dz | | | t th d dh | p ph b bh | |
| Thulung | k kh g gh | c | ch | j | jh | ʈ ʈh ɖ | t th d dh | p ph b bh | |
| Khaling | k kh g gh | c | ch | j | jh | | t th d dh | p ph b bh | |
| Kulung | k kh g | c | ch | j | | | t th d dh | p ph b bh | |
| Chamling | k kh | ts | tsh | | | | t th d dh | p ph b bh | |
| Bantawa | k kh | c | ch | | | | t th d dh | p ph b bh | |
| Limbu: | k kh | ts | (s) | | | | t th | p ph | |

Table 1: Kiranti initial stop inventories. See Michailovsky 1988.

There is an additional palatal order in Sunwar (ky, gy) and Hayu (c,ɟ).

Bahing ʔb is an implosive. Sunwar has this implosive in some dialects, and ʔw in others. The SIL transcribes «bw-» (very irregularly); Genetti «ʔw».

In Limbu, [tsh] is found as an allophone of /s/.

Retroflexes are extremely marginal with one exception: Thulung ɖ- is clearly in opposition to d- in native words (Allen 1975:15). Rai 1985 transcribes all t, th, d, dh in native Bantawa words as retroflex.

Note the total lack of a voicing distinction in Limbu, and its lack in the velar and affricate series in Chamling and Bantawa. Rai 1985 cites a few Bantawa words in initial g-, gh-, j-, and jh-, mostly obvious loans. I found no non-loans of this type in my earlier fieldwork. However, voiced consonants may be found transcribed in voicing contexts (intervocalic, postnasal) in these languages.

Phonological tone (in Sunwar, Thulung and Khaling) is unrelated to initials (Michailovsky 1975, 1988).

Some of the western languages (Hayu, Bahing, Sunwar, Thulung) and Limbu conserve traces of morphological prefixation, widely known in T-B. In these languages we find pairs of related verbs in which a generally intransitive or non-causative verb with a voiced initial (plain in Limbu) has a transitive or causative partner with a plain or aspirated intitial. This and similar processes may be expected to have introduced some irregularity in manner correspondences across Kiranti (Michailovsky 1990).

## 2. Correspondences

Table 2 shows the regular correspondences of initial stops across Kiranti. We reconstruct Proto-Kiranti as shown, with a typical Kiranti system of stops.

| | ----------Western---------- | | | | | | --------Eastern---------- | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PK | hay | bah | sun | dum | kg | thu | kul | cha | ban | lim |
| *b | b | b | b | b | b | b | p | p | p | p |
| *p | p | p | p | p | p | b | b | b | b | ph |
| *ph | ph | ph | ph | ph | ph | ph | ph | ph | ph | ph |
| *d | d | d | d | d | d | d | t | t | t | t |
| *t | t | t | t | t | t | ɖ | d | d | d | th |
| *th | th | th | th | th | th | th | th | th | th | th |
| *g | g | g | g | g | g | g | k | k | k | k |
| *k | k | k | k | k | k | k | kh | kh | kh | kh |
| *kh | kh | kh | kh | kh | kh | kh | kh | kh | kh | kh |
| *ɟ | dz | dz | gy,j/dz | dz | j | j | c | c | ts | ts |
| *c | c,ts | ts | ky,c/ts | ts | c | c | ch | ch | tsh | s |
| *ch | ch | s | s | ts | ch | ch | ch | ch | tsh | s |
| *kw | - | ʔb | ʔw | - | - | p | - | - | - | - |

Table 2: Kiranti initial stop correspondences.

### 2.1 *PLAIN vs *VOICED

If we consider only the opposition PK *PLAIN vs *VOICED, ignoring the *ASPIRATE series and the last line of the table, we find four types of development, indicated by partitions in the table:

1. Preservation of the voicing opposition as reconstructed: most western languages (left side of table).
2. Inversion of the reconstructed opposition: Kulung, Chamling, and Bantawa bilabial and dental orders (upper right of table, excluding the last column).
3. Transphonologization as aspiration: all orders: Limbu (last column); velar and palatal orders only: Kulung, Chamling, Bantawa (lower right of table).

4. Loss of opposition (merger): Thulung bilabial and dental orders. Thulung conserves the opposition *t/*d as retroflex vs dental: ɖ-/d-.

The evolution of the *PLAIN series clearly depends on the place of articulation in Thulung, Kulung, Chamling, and Bantawa: *p and *t have become voiced while *c and *k have remained voiceless. In the east, where the PK *VOICED series has devoiced, no new g- or ɟ- initials were created, leaving a gap in the modern voiced series (see Table 1). The gap is partly filled in Kulung, where g- is the reflex of PK *r-. In Thulung, where devoicing did not take place, new p- and t- initials have arisen, probably by dialect mixture, and some p- initials have evolved from labiovelars (see below).

Some examples of these manner correspondences in etyma which are well represented across the family are listed in the appendix. The aspiration in Bahing-Sunwar in the sets FLOWER (*p), CURRY (*k) and HOUSE (*k), and in Dumi in FIG#1 (*k) is unexplained.

2.2 *ASPIRATE

The reconstruction of an *ASPIRATE series is somewhat doubtful; aspiration (except where it represents the transphonologization of voice) does not correspond very reliably across the group. In the context of Proto-Tibeto-Burman, which is reconstructed with only two manner series, aspiration is a secondary development related to the loss of prefixes (Benedict 1972:20). The aspiration of individual lexical items may not have been fixed at the time of Common Kiranti, and it may be necessary to reconstruct prefixes in PK. For the present, however, we have tentatively reconstructed a PK *ASPIRATE series. (I have had to omit examples in the appendix).

Voiced aspiration appears to have developed sporadically in the modern languages from plain voiced initials, under Indo-Aryan influence. No conditioning environment has been noted. Voiced bh- and dh- generally correspond between Chamling and Bantawa, but beyond this subgroup voiced aspirates appear to have the same correspondences as plain voiced initials, and they are not reflected in the reconstruction. Note that the Bantawa and Chamling velar and affricated orders, which lack plain voiced initials, also lack voiced aspirates; this coincidence is easily explained if both represent the same protoseries. In Bahing and Thulung (Allen 1975:12), there is considerable variation between plain voiced and voiced aspirate initials.

2.3 Implosive ʔb-

The evidence for *ʔb is the correspondence between Bahing ʔb-, Sunwar ʔb- (transcribed very irregularly as bw- by the SIL) or ʔw- (as in Genetti's Sunwar), and Thulung p-. There is no clear regular correspondence beyond these languages, but there is a scattering of cognates with velar and labiovelar initials, and one (SPEAK#2) with a cluster initial (see appendix).

Clearly it is necessary to set up a proto-phoneme at some level to account for the Bahing-Sunwar-Thulung correspondence. Most probably *ʔb- was a WK innovation corresponding to a labiovelar, and perhaps sporadically to other clusters and velars. Michailovsky 1988 cites examples in which Bahing ʔb- corresponds to labiovelars outside Kiranti, notably in Chepang: Bahing ʔbarde 'hawk', Sunwar bwade, Tamang 4kwat, Chepang kwar ('owl'); Bahing ʔbala 'shadow', Chepang kwaa.lang; Bahing ʔbaːluŋ 'fish-net', Chepang kwar. It may be necessary to reconstruct *kw- in PK.

2.4 Previous Studies

There have been some previous comparative studies covering the Kiranti group (Shafer 1966:145-148, Benedict 1972, Winter 1986, 1987) which I cannot discuss in detail here. Neither Shafer nor Benedict actually reconstructs a proto-language at the PK level, but it is clear that both consider the western languages as conservative in voicing (as in our present reconstruction), and in agreement with Proto-TB. Winter, on the other hand, sketches a reconstruction taking Bantawa (with the addition of *g and *gh) as representative of the protolanguage, which thus has four series and voicing roughly opposite to that of our PK.

3. Devoicing and glottalization in the evolution of Kiranti *VOICE

The main tendency in the evolution of Kiranti initials is devoicing, which has led to a sound shift of the Germanic type in the Eastern group. The *VOICED series has devoiced everywhere, and the *PLAIN series has become aspirated in all orders in Limbu, and in the velar and affricate orders in the other eastern languages, leading to a transphololologization of the opposition of voice into one of aspiration. Note that aspiration can be viewed phonetically as a natural extension of devoicing, in that it further delays voice onset.

A second development in a number of languages is the voicing of reflexes of the dental and bilabial members of the PK *PLAIN series (*p- and *t-). In the eastern languages Kulung, Chamling and Bantawa, *p- and *t- have the reflexes b- and d- — a «flip-flop» with the *VOICED series, which has devoiced in all orders. In Thulung, a western language, the reflexes of *PLAIN *p-, *t- are voiced like those of *VOICED *b-, *d-, resulting in merger in the bilabial order (*p, *b > b-); in the dental order the opposition of series is transphonologized into one of retroflexion (*t> ɖ-, *d > d-).

These evolutions have left two synchronic gaps of typological importance: absence of g- and j- in the voiced series in Chamling and Bantawa, and the existence of ɖ- virtually without corresponding ʈ- in Thulung.

Typology, both synchronic and diachronic, suggests that these distributions and correspondences point to a preglottalized or implosive series. In his classic study of preglottalization in Southeast Asia, Haudricourt (1950) developed Li Fang-kuei's hypothesis of ʔb-, ʔd-, ʔy- in Common Tai, based on his observation of preglottalized series in certain modern dialects, and drew attention to the widespread occurrence of such lacunar series, both plain voiced (as in many modern Tai dialects) and preglottalized, in various Southeast Asian families. He proposed an articulatory explanation as to why preglottalization occurs more readily with bilabials and dentals than with velars, and at the same time tends to cause dental articulations to retract toward alveolar or retroflex ones (cf. Maddieson 1984:111-121). Both Haudricourt and Henderson (1965) described the areal extent of what we may call the «missing g» type; now Eastern Kiranti replaces Khasi as the westernmost example. Where the origin of implosive or preglottlized series can be traced, they develop from unvoiced series, often in parallel with the devoicing of an old voiced series (Haudricourt 1950; Ferlus 1979, especially pp. 41-44 on Palaung, where an inversion of voicing has occurred in all orders; Ferlus 1992 for Khmer).

It thus appears likely that both the Eastern Kiranti (excluding Limbu) and the Thulung evolutions began with glottalization of *PLAIN *p-, *t- to *ʔb-, *ʔd-.

In Eastern Kiranti, the plain *VOICED series devoiced and the remaining plain initials *c-, *k- became aspirated; finally, *ʔb- and *ʔd- simplified to b-, d- (as in most Tai dialects). This scenario solves the classic paradox of the «flip-flop», that is, it explains how A could become B while B became A without their paths crossing in a

merger. Unfortunately it is somewhat speculative as there is not yet any direct evidence of glottalized initials in eastern Kiranti. (Winter 1987, however, seems to list ʔ- as corresponding to Western t- in Athpariya, an Eastern Kiranti language.)

In Kulung, the missing g- was supplied by reflexes of PK *r-, just as a similar gap in Central Chin was filled in Northern Chin (Henderson 1965:432).

Since the eastern preglottalization, which did not affect Limbu, must have occurred before aspiration, this scenario requires that Limbu be separated from the other eastern languages before the «Germanic» devoicing-aspiration took place. The latter will then have occurred in parallel in these neighboring groups.

In Thulung, it appears that a similar glottalization occurred in the *PLAIN series, but without devoicing of the *VOICED series. Later, simplification of Thulung *ʔb- led to merger with *b-, but the retracted articulation of *ʔd > ɖ kept it distinct from *d > d. The evolution of PK *PLAIN and *VOICED is schematized in Table 3. The shared glottalization does not imply that Thulung belongs to Eastern Kiranti.

| Protoseries | Glottalization | Devoicing/Aspiration | Deglottalization |
|---|---|---|---|
| | | Limbu | |
| | ——————————> | ph, th, ch, kh | |
| | | p, t, c, k | |
| *PK | *PEK, *PThulung | *PEKiranti | Eastern Kiranti |
| p, t, c, k ——> | ʔb, ʔd, c, k ——> | ʔb, ʔd, ch, kh ——> | b, d, ch, kh |
| b, d, ɟ, g | b, d, ɟ, g | p, t, c, k | p, t, c, k |
| | | | Thulung |
| | | ——————————> | b, ɖ, c, k |
| | | | b, d, ɟ, g |

Table 3. The evolution of PK *PLAIN and *VOICED

There is an additional complication in Thulung, namely the creation of Bahing-Sunwar ʔb- ~ Thulung p-, whose relative chronology is not clear to me. This Bahing-Sunwar ʔb- is an example of a second source of preglottalization, that is, development from complex initials, here labiovelars.

Sources and acknowledgements

Hayu, Bahing, Bantawa, Limbu: author's field notes; Sunwar: Bieri and Schulze 1971, Hale 1973, C. Genetti (1988 and personal communication); Dumi: Van Driem 1993; Thulung: Allen 1975; Khaling: Toba and Toba 1972; Kulung: Rai et al. 1975; Chamling: Ebert, personal communication. I am grateful to K. Ebert, C. Genetti, and G. Van Driem for unpublished material, and to M. Ferlus, A.-G. Haudricourt, and M. Mazaudon for their suggestions.

High tone is noted by an apostrophe in SIL materials. Sunwar items from Genetti's data all have tone marked as either $^{H}$ or $^{L}$.

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APPENDIX: Example sets

| | pk | hay | bah | sun | dum | thu | kg | kul | cha | ban | lim |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *p | p | p | p | p | b | p | b | b | b | ph |
| PIG | *pak | puk | po | poː | poʔo | boa | 'po | bo | bo- | bak | phak |
| FLOWER | *puŋ | puŋmi | phuŋ | phuː | puma | buŋma | pungme | buŋ | bungwa | buŋgat | phuŋ |
| AXE#2 | *pandi | | | | pəndhi | | pwaandu | bhatə | baiti | beti, ban | |
| FART | *pi- | pet- | pis- | ᴸpit- | piː- | | pi- | bes- | bhis- | bhes- | pheːs- |
| | | | | | | | | | | bhett- | pheʔr- |
| | *b | b | b | b | b | b | b | p | p | p | p |
| COW | *bit- | | biŋ | biː | bhiʔi | beno | 'bay | pitto | pyupa | pit | pit |
| FLY#3 | *ber- | bon- | ber- | ber- | byer- | | bher- | per- | per-a | pen- | pɛːr- |
| GIVE#1 | *bi- | bi(t)- | bis- | ᴴbit- | biː- | bisi- | bi- | piy- | pid-yu | pï- | pi- |
| GROW#1 | *bor- | | bar- | ᴴbor- | bar- | bər- | bor- | pəy- | por-a | pon- | poːr- |
| | *t | t | t | t | t | ɖ | t | d | d | d | th |
| LOOM | *tak | | to | toː | toʔo | ɖoa | 'to | domsama | do | dak | thak |
| EGG | *ti(n) | | ʔbadi | | tiː | ɖi | ti | wadi | daâ, duâ | din | thiːn |
| RHODODE. | *tak- | | tɔksɛl | | tokpeʔbhu | ɖəksa buŋ | taaktibung | | | dakbuŋ | thoːkphɛk |
| DRINK | *tuŋ- | tun- | tuŋ- | ᴸtuŋ- | tɨŋ- | ɖu(ŋ)- | tuŋ- | duŋŋ- | dung- | duŋ- | thuŋ- |
| STRIKE#1 | *tup- | tup- | tup- | ᴴtup- | tɨp- | ɖiup- | tup- | dupp- | dip- | dup- | thups- |
| | | | | | | | | | dhip- | dhup- | thup- |
| | *d | d | d | d | d | d | d | t | t | t | t |
| VILLAGE | *del | | dɛl | | deːl | del, ɖel | del | tel | | ten | tɛn |
| LIVER#1 | *diŋ | diŋ | diŋ | audi | | duŋ | | | | tïŋlem | |
| HEAD#2 | *daŋ | | | | doː | | dhong | toŋ | tâ | taŋ | taŋ |
| DIG#1 | *do- | dʊ- | dho- | ᴴdo- | dhu- | d(h)a- | dho- | dhəy- | tyo | tu- | tɔ- |
| MEET#2 | *dum- | | | | dɨm | | dum- | tupp- | tip- | tup- | tum- |
| RECEIVE | *dat- | do(t)- | dhatt- | ᴴdatt- | | d(h)et- | dot- | təy- | taid- | tatt- | tɛt- |
| | *k | k | k | k | k | k | k | kh | kh | kh | kh |
| DEER#1 | *ki | keːtsho | kiːsi | kisysye | | | | khis | khasi | khïsa | khireːba |
| FIG#1 | *kok- | koksi | kœgœsi | | khoksibhu | kəksi | khup | | | khukpu | khɔkse |
| CURRY | *kan | kʊn | khan | khay | kœ | ke | 'kwaay | khai | khai | khan | |
| HOUSE | *kim | kem | khim | khiːM | kiːm | | kam | khim | khim | khim | him |
| WALNUT | *korsi | kaxtʊ | | | kursi | 'kosi | kursi | kharsu | | khaisi | kheːsik |
| CARRY#1 | *kur- | ku- | kur- | ᴸkur- | kɨr- | kur- | kur- | khur- | khur- | khun- | ku- |
| CUT#3 | *kok- | | kokt- | | kok- | | kokt- | khoks- | | khokt- | khɔkt- |
| | | | | | | | khok- | | | | |

| | pk | hay | bah | sun | dum | thu | kg | kul | cha | ban | lim |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *g | g | g | g | g | g | g | k | k | k | k |
| PICK UP | *gup- | | gup- | ᴸgup- | | | | kəp- | kup- | kup- | |
| CARE#2 | *gent- | | | | | geː(t)- | gent- | | kait- | kent- | |
| ASSEMBLE | *gam | | | | | gam- | gham- | | kapt- | kams- | kam- |
| | | | | | | ghap-, gap- | | | | | kams- |
| BEND#1 | | guk- | guk- | ᴴgukt- | | gəŋte | ghuŋ- | | | kuŋt- | pɛkɔk |
| | *c | c,ts | ts | ky,c/ts | ts | c | c | ch | ch | tsh | s |
| CHILD | *ca | tso | -tsa | | tsuʔu | ceo | cö | cha | cha | tsha | sa |
| URINATE | *cer- | tsɪ- | tsars- | ᴸtsar- | tsir- | sar(s)- | cer- | ches- | chərs- | tshens- | seːs- |
| CLOSE#3 | *cok- | | tsok- | 'coːk- | | cəks- | cekt- | | | tshekt- | sakt- |
| WRITE#2 | *cap- | sat- | | | tsəp- | | | chapp- | chapd- | tshapt- | sapt- |
| | *ɟ | dz | dz | gy,j/dz | dz | j | j | c | c | ts | ts |
| RIGHT | *ɟup | | dzumro | gyura | | jeo(p) | jhap | cup | | tsuwa | tsukwa |
| COLD#1 | *ɟuŋ | huːdzuŋ | dzu | | dzuʔu | ju | jhung | cuŋ | cungama | tshïŋ- | tsuŋ |
| EAT#1 | *ɟa- | dza- | dza- | ᴴdza- | dzu- | | jo- (?) | cəy- | cyo | tsa- | tsa- |
| BREAK#4 | | dzik- | dzik- | ᴸdzik- | | jəks- | | | | | tsɛk- |
| | | tsɪk- | | | | | | | | | |
| | | | ʔb | ʔb | | p | | | | | |
| CHICKEN#1 | | xwoːco | ʔba | bwaː | pawœm | po | phö | wa | wa- | wa | wa |
| NET | | | ʔbaːluŋ | | | paluŋ | | | | | |
| SHADOW#1 | | | | ʔbala | | pel | | | | | |
| WOUND#1 | | buʔma | ʔbar | gaːr | kar | par | 'kwaar | kherə | | khenwara | |
| YAM | | xi | ʔbe | reːkbe | kiː | pə | ki | khe | soki | saki | khe |
| COOL#3 | | | ʔbet- | | | pəs- | | | | | |
| EAT#2 | | | ʔba- | 'ba- | | p(e)- | bət- | | | | |
| | | | ʔbat- | | | pet- | | | | | |
| SPEAK#2 | | | ʔbak- | bwaːk- | boʔo | roak- | 'braa | | | | |
| THROW#1 | | | ward- | ᴴʔward- | wər- | par- | | | | | |
| | | | | ᴴward- | | | | | | | |
| | | | | ᴸwar- | | | | | | | |