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Notes on Tibeto-Burman Consonant Clusters

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In the People's Republic of China, there are more than thirty Tibeto-Burman languages, some having early written records e.g., Written Tibetan and Xixia, which are important to research on Tibeto-Burman consonant clusters. Of the still spoken languages, many preserve a number of different consonant clusters. Through comparing the changes undergone by clusters in cognate words, we discover that these are often quite different in each language. The variations in the way the clusters are manifested in different dialects help us in our investigation. Through comparison of Written Tibetan, Written Burmese, and materials on modern Tibeto-Burman languages, we discover regularity in the tendencies of phonological evolution of these clusters.

1 - Classification and structure.

In the modern Tibeto-Burman languages of China, the number of clusters varies from language to language. Most languages have from 10 to 30 clusters, some such as Ergong have more than 200, while others do not have any at all. Sometimes even dialects of the same language have different numbers of clusters. Among Tibetan dialects, for example, Zeku (an Amdo Tibetan dialect) has more than 90 distinct clusters, and the K'ang dialect Dege (=Derge) has only 13, while modern Lhasa Tibetan has none. A similar situation appears in the Qiang languages; the northern dialect of Mawo has 71 clusters, while the southern dialect of Tauping has twenty-four, and the southern dialect of Longxi has none at all. In this paper, the clusters in some major Tibeto-Burman languages of China are introduced (see Chart 1 below):

Zeku Tibetan	90	Gyarung	152	Yongning Naxi	0	Fugong Nung	19
Dege Tibetan	13	Ergong	201	Lisu	0	Jinghpö	4
Lhasa Tibetan	0	Muya	14	Hani	0	Trung	11
Cuona Menba	10	Zhaba	9	Lahu	0	Taruang Deng	15
Mutuo Menba	4	Ersu	32	Jino	5	Kaman Deng	22
Baima	7	Namuyi	23	Bai	0	Bogar Luoba	0
Tauping Qiang	24	Shixing	6	Tujia	0	Idu Luoba	18
Mawo Qiang	71	Xide Yi	6	Achang	7	Sulong Luoba	5
Qinghua Pumi	22	Mojiang Yi	0	Zaiwa	0	Guiqiong	21
Taoba Pumi	3	Lijiang Naxi	6	Bijiang Nung	15		

Chart 1: Consonant clusters in Tibeto-Burman languages of China

In Tibeto-Burman languages the clusters differ not only in quantity but also in their phonological type. For the sake of convenience, we divide clusters into three parts: F indicates a prefixal element, C indicates the basic consonant, and B indicates any element after the basic consonant. In modern Tibeto-Burman languages, clusters basically exhibit four patterns:

- a. CB type - This type is comparatively common. They are relatively frequent in Qiang and Jinghpö languages.
- b. FC type - This type is a little less frequent. They exist in some

languages of the Qiang branch, Yi, and Tibetan.

- c. CC type - This type is rare, but it does exist in individual dialects.
- d. FCB type - This type of cluster is not frequently seen and only exists in some dialects.

In Written Tibetan materials F<sub>1</sub>F<sub>2</sub>CB clusters are found, but these have basically disappeared from the modern spoken language.

In each of the four cluster types, certain regularities can be seen:

#### (1) Type CB

In type CB clusters, C (the basic consonant) is usually a stop, affricate, or nasal. As B (the following sound), we find fricatives, laterals, trills, or semi-vowels. For example, there are eight CB type consonant clusters in Mawo Qiang: khs, khg, khp, gz, g<sub>z</sub>, g<sub>z</sub>, qhs, and qhg; the southern Qiang dialect of Tauping also has pz, phz, bz, p<sub>z</sub>, ph<sub>z</sub>, and b<sub>z</sub>.

Ergong has 13 CB consonant clusters: pg, phg, bz, ph<sub>g</sub>, b<sub>z</sub>, bl, kg, khg, g<sub>z</sub>, qg, qhg, ql, and qhl.

Suo-mo Gyarung<sup>2</sup> has 23 CB consonant clusters: phs, ph<sub>s</sub>, bz, b<sub>z</sub>, khs, kh<sub>s</sub>, gz, g<sub>z</sub>, pr, pl, pj, phr, phl, phj, bl, kr, kl, kw, khg, khl, khw, gr, and tsr.

Qinghua-Pumi has 7: pz, phz, bz, m<sub>z</sub>, p<sub>z</sub>, ph<sub>z</sub>, and b<sub>z</sub>.

Ersu has six: ps, phs, bz, pg, phg, and b<sub>z</sub>.

In Zhaba and Namuyi, a similar situation also exists. In these CB consonant clusters, the fricative added after the main consonant [s, z, g, z, j, z, f, z] is at a different position of articulation, a situation rarely seen in Tibeto-Burman languages outside of the Qiang branch.

In the Tibeto-Burman languages in the areas bordering India and Burma (mainly in dialects of the Jingpho and Burmese branches), the majority of dialects only keep clusters of the form stop plus liquid -r (or z, z), although a small number also keep those with -l. For example, in Jaruang Deng there are pl, phl, bl, ml, kl, khl, gl, pr, phr, br, mr, kr, khr, gr, and xr.

Kaman Deng has pl, phl, bl, kl, khl, gl, pr, phr, br, kr, khr, gr, and xr.

Trung has pl, bl, ml, kl, gl, pr, br, mr, kr, gr, and xr.

Karen, in complete accord with Deng and Trung in both type and number, also has clusters consisting basically of consonants plus the lateral -l or consonants plus the liquid -r.<sup>3</sup>

Fugong Nung has pr, phr, br, mr, fr, vr, khr, gr, and xr.

Jingpho has pr, phr, kr, and khr.

Achang has pz, phz, mz, kz, khz, and xz.

Bijiang Nung has pr, phr, br, mr, mr, kr, khr, gr, xr, fr, and vr.

Individual Yi languages also have consonant clusters. For example, Jino has pr, phr, mr, kr, and khr.

#### (2) Type FC

In FC type consonant clusters, as F (the prefixal sound) fricatives, nasals, trills, laterals, and semivowels occur, and as C (the basic sound) stops, affricates, nasals, and laterals appear. For example in Ergong, there are 132 different consonant clusters. The main types are mp, mph, mb, mts, mtsh, mdz, md<sub>z</sub>, mkh...; nt, nd, nl, ntsh, nt<sub>sh</sub>, nt<sub>ph</sub>, nk<sub>h</sub>, ng, nq<sub>h</sub>...; wb, wph, wm, wl, wd, wth, wt<sub>ph</sub>, wd<sub>z</sub>, wj...; vts, vtsh, vt, vd, vl, vt<sub>ph</sub>, vt<sub>ph</sub>, vd<sub>z</sub>,

vkh...; sp, sph, sm, st, sth, st~~h~~, st~~h~~, s~~h~~, sk, sqh...; zb, zd, zl, zd~~z~~, zd~~z~~,  
zk, zg, z~~h~~...; lp, lb, lm, lt, ldz, ld, lk, lg, l~~h~~, l~~h~~...; zph, z~~b~~, z~~m~~, z~~ts~~,  
ztsh, z~~t~~, z~~d~~, z~~l~~, z~~g~~, z~~h~~, z~~g~~...; hm, ht, hd, hn, h~~l~~, h~~ts~~, h~~h~~, h~~h~~...

In Gyarung there are 119 FC type consonant clusters, similar in structure to those of Ergong. In these clusters, the prefixal element is usually  $\int$ -,  $ʒ$ -,  $r$ -, or  $j$ - (but they do not have the Ergong  $w$ -,  $v$ -,  $\beta$ -, or  $z$ -). In Qiang the prefixal element is a little bit different. For instance, in Mawo the prefixal elements are  $\int$ ,  $r$ ,  $s$ ,  $z$ ,  $\beta$ ,  $ʒ$ ,  $x$ ,  $\chi$ , and  $\beta$ , producing clusters such as  $\int p$ ,  $\int t$ ,  $\int k$ ,  $\int ts$ ,  $\int p$ ,  $\int b$ ,  $\int d$ ,  $\int k$ ,  $\int g$ ,  $\int m$ ,  $\int s$ ,  $\int t$ ,  $\int sk$ ,  $\int sq$ ,  $\int zb$ ,  $\int zd$ ,  $\int zg$ ,  $\int sp$ ,  $\int sk$ ,  $\int sq$ ,  $\int xp$ ,  $\int xts$ ,  $\int xt\beta$ ,  $\int xt\int$ ,  $\int xl$ ,  $\int \beta b$ ,  $\int \beta dz$ ,  $\int \beta dz$ ,  $\int \beta l$ ,  $\int \beta r$ ...

In Amdo Tibetan most consonant clusters are retained. In Zeku there are 85 FC type consonant clusters, constructed mainly with the prefixal elements  $\gamma$ -, m-, n-, v-, and w-.

In certain regions, as in some languages of the Qiang branch and some dialects of Amdo Tibetan the prefixal elements (F) are often simplified into one or two consonants. For example, in Ersu, there are just n- and h-: nph, nb, ntsh, nth, nd<sub>3</sub>, ntph, nd<sub>7</sub>, nk, ng..., hp, hts, ht, ht<sub>3</sub>, ht<sub>7</sub>, ht<sub>9</sub>, hk. Pumi has only s-: sp, sph, sb, st, sth, sd, st<sub>3</sub>, st<sub>7</sub>, sd<sub>3</sub>, sk, skh, sq, sq, sqh, sG. Guizhong has only n-: np, nph, nb, nt, nth, nd, nts, ntsh, ndz, nt<sub>3</sub>, ntsh, ndz, nt<sub>7</sub>, nt<sub>9</sub>, nt<sub>3</sub>, nt<sub>7</sub>, nt<sub>9</sub>, nd<sub>3</sub>, nk, nk, nk, ng.

Although most Yi languages no longer have clusters, some Yi languages or dialects still keep the prenasalized clusters. For example, in Xide (Yi) and in Naxi nb, nd, ng, ndz, ndz, and ndz are found. A similar situation exists in the Zhaba language of Qiang, in the K'ang dialect of Tibetan, and in Baima.

From this, it is already clear that there are three types of nasals as prefixal F: (1) One case is exemplified by Ergong, Gyarung, and Zeku Tibetan, where in the same system not only is the nasal m- found in combination with consonants of different places of articulation (e.g., mt, mts, mtɕ, md, mg, mdʒ, etc.) but nasals are also found in combination with consonants of the same place of articulation e.g., nt, nts, ntɕ, nd, ng, ndʒ, etc. The second case is exemplified by Ersu and Guiqiong, where the nasal has already simplified to prenasalization at the basic place of articulation, but where the prenasalization occurs in combination with voiceless unaspirated and voiceless aspirated sounds as well as with voiced sounds. The third is exemplified by various dialects of Yi, Qiang, and Tibetan, where the prenasalization is restricted not only to the same place of articulation but also just to combinations involving voiced stops or voiced affricates.

In addition, among the clusters of a few Tibeto-Burman languages, there is preglottalization. For example in Fugong Nung, the following occur: ʔb, ʔd, ʔd̥, ʔg, ʔdz, ʔdz̥, ʔm, ʔŋ, ʔn, and ʔŋ.

Overall, FC clusters in Tibeto-Burman have a clear geographical distribution. In the eastern Qinghai and southern Gansu herding areas as well as in parts of northwest Sichuan, there are generally upwards of 40 comparatively complex clusters reflecting rather completely the history of the sounds; these may be exemplified by Zeku Tibetan, Mawo Qiang, Ergong, and Gyarung. In the southern Gansu agricultural areas and western Sichuan, there are generally between 15 to 40 largely simplified combinations; these may be exemplified by Qinghua Pumi, Ersu, Tauping Qiang, and Guiqiong. In the Szechwan, Yunnan, and Guizhou areas, there are generally less than 10 combinations. Moreover, more than half are combinations of prenasalization with voiced stops or voiced affricates. Further, in these areas, there are not a few Tibeto-Burman languages and dialects which are already without any clusters at all.

### (3) Type CC

Type CC clusters consist of two sounds that are pronounced at different places of articulation but which follow the regular phonological rules for the formation of clusters. In the few languages in which these have been kept, the combinations involve stops, affricates, nasals, fricatives, and semi-vowels. For example in the Zeku dialect of Amdo Tibetan, there are 6 patterns involving both stop-plus-stop and stop-plus-affricate combinations: pt, pk, pts, ptg, pte, pcg. In Suomo Gyarung, there are 18 cluster combinations: pt, pth, pk, pkh, bd, kp, kph, kt, gb, pts, ptg, ptj, pcg, kts, ktg, ktj, tsʃh, kcg. In Ergong, there are three combinations involving nasal-plus-nasal: mn, mɲ, mɲ; there are 20 combinations involving fricative-plus-fricative: vs, vz, vʃ, vɸ, vɸh, vɸ, sz, sx, zv, zz, zɸ, zɸ, zɸ, hv, hz, hɸ; and, there are six combinations of fricative plus semi-vowel: vj, zj, hj, zɰ, zɰ, wj.

### (4) Type FCB

These three-part clusters are basically a combination of FC and CB clusters, in which two parts of the cluster generally share a place of articulation. For example in Ergong, there are 23 three-part clusters: mphg, mphɸ, mbz, mbl, mkhg, mkhl, nks, nkhs, ngz, vks, vqhl, spg, sphg, sphɸ, sks, skhg, sqg, sqhs, sql, sqhl, zbɰ, zgɰ, zphɸ. In Gyarung, there are a number of three-part clusters; for instance in Suomo, there are 21 three-part clusters: spr, skr, spj, zbr, zbj, ʃpr, ʃkr, ʃkl, ʒgr, mphr, mbr, mkr, mphʃ, mpj, mbj, ndzr, ŋkr, ŋkhr, ŋgr, ŋgl.

In contrast to those in Ergong and Gyarung, the FCB clusters in Ersu, Namuyi, and Deng are comparatively rare as most have been simplified. For example in Ganluo Ersu, there are only five: mphs, mbz, mphg, mbɰ, hphs. In Kaman Deng, there are four: mphi, mphi, ŋkhl, ŋkhr. In Namuyi, there are four: mphs, mbz, mphg, mbɰ.

In Ergong and Gyarung, they still have a few FCC, CCB, and FFC clusters. For example, in Ergong, there are nzz, nzɰ; in Suomo Gyarung, there are pkr, wzd; and, in Zhuokeji Gyarung, there are kpj, psr, pst, jndɰ. Some cluster have a low frequency with no systematicity in their combinations, but most of these do not appear as the initials of the first syllable in compounds, therefore they are not particularly important.

In the consonant clusters discussed above, the overwhelming tendency in the spoken languages is toward simplification or loss, but with the exact form of the change being different in each case. In CB clusters, the major type of change is the weakening of the following segment or its merger with the main element; in FC clusters, the major types of change are the loss of the prefixal sound or the prefixal sound being separated from the cluster and made into an independent syllable; and in CC clusters the major changes are loss and replacement. However, with FC clusters the changes are different. In FC clusters the typical process is loss of the F, but in CC clusters the process involves loss of either the first or the second element, but not in any regular way. In FCB clusters, the FC behaves as do FC clusters, while the CB element behaves like CB clusters. Metathesis of consonant clusters also occurs, but this is not common.

## 2 - Types of change and tendencies toward change in clusters

As discussed above, in the clusters of Tibeto-Burman languages the overwhelming tendency is toward simplification and loss; in the majority of