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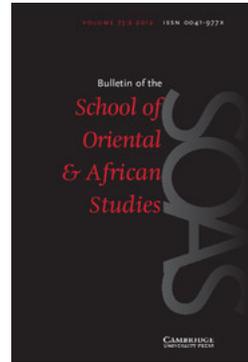
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A POLYSYSTEMIC APPROACH, IN PROTO-TIBETAN RECONSTRUCTION, TO TONE AND SYLLABLE-INITIAL CONSONANT CLUSTERS¹

By R. K. SPRIGG

Introduction

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INTRODUCTION

In an earlier article (Sprigg, 1963b) I drew on Burmese, with only a few examples from certain Tibetan dialects (Lhasa, Sherpa), to advocate applying prosodic analysis, the name commonly given to the polysystemic type of phonological analysis devised by J. R. Firth, to the languages of the Tibeto-Burman group for purposes of comparison and reconstruction;² since then I have had an opportunity of studying two typologically different Tibetan dialects, the non-tonal Golok and the slightly tonal Balti, both of them remarkable for syllable-initial consonant clusters;³ and the relations of tone in the tonal Tibetan dialects to syllable-initial consonant clusters in the non-tonal dialects much strengthens the case, to my mind, for basing comparison of Tibetan dialects, and, through them, Proto-Tibetan reconstruction,

¹ Based on 'Tibetan syllable-initial consonant clusters as syllable features, equivalent to tone', a paper contributed to the third Conference on Sino-Tibetan Reconstruction, Cornell University, Ithaca, N.Y., in October 1970. For references, see pp. 586-7.

² cf. also Sprigg, 1963a. For 'prosodic analysis' see Palmer, 1970, and especially 'Introduction' (pp. ix-xvi).

³ For tone in Balti see Sprigg, 1966.

on polysystemic analysis. The two main characteristics of such an analysis would be: (i) separate phonological systems for different types of syllable feature and syllable-initial feature; (ii) the emphasis on the syntagmatic association of successive phonetic features of the utterance rather than on purely paradigmatic contrast.⁴

In Appendixes A and B I therefore give a synopsis of the syllable-initial consonant clusters I observed in the Balti and Golok dialects of Tibetan, together with corresponding cluster and non-cluster initial consonants of the Lhasa dialect, and its matching distinctive-pitch features; it is on features such as these that my thesis is based.

I. PROSODIC ANALYSIS AND SYLLABLE-INITIAL CONSONANT CLUSTERS

In prosodic analysis prominence is given to syntagmatically associated features as opposed to features in paradigmatic contrast. Before I apply this type of analysis to Tibetan syllable-initial consonant clusters and to the corresponding syllable-initial simple consonants of Lhasa Tibetan, it may be helpful to give a brief illustration from English, which also distinguishes syllable-initial consonant clusters from non-cluster initial consonants in a similar way to Tibetan but not with the same complexity. In the English words *Sprigg*, *string*, and *screech*, or *split* and *sclerosis*, or *spew*, *stew*, and *skew*, the syntagmatic association of **s** with the voicelessness of **p**, **t**, or **k**, and with their non-aspiration feature (**pr tr kr pl kl pj tj kj**), would require that an assibilated (or initial-cluster) span or 'piece' (**spr str skr spl skl spj stj skj**) be distinguished from the non-assibilated type of initial 'piece' to be found in such monosyllables as *big*, *pig*, *brig*, and *prig*, or *bloom* and *plume*, *clue* and *glue*, or *pew*, *beauty*, *dew*, and *queue* (**big piɪg, briɪg pɪɪg; blum plum klu glu; piju bjuti dju kju**), in the syllable initial of which (i) voice is in contrast with voicelessness as a feature of the syllable initial as a whole (**bu br bl gl bj dj** versus **pi pɪ pl kl pj kj**), and (ii) aspiration is distinguished from non-aspiration, the former feature being linked to voicelessness in the plosive but the latter to voice.⁵ The two sets of phonetic features, the assibilated (or cluster) and the non-assibilated (or non-cluster), would be stated as the (phonetic) exponents

⁴ For the significance of polysystemicity in prosodic analysis see Palmer, 1970, pp. x-xiv.

Syllable-final features have not, in Tibetan, the relevance for tonal analysis that they have in Burmese and Lolo; for the former see Sprigg, 1963b, 89, and Sprigg, 1964, 415-18, 420-1, 426-7, and for Lolo see Matisoff, 1970.

⁵ Phonetic transcription is in the International Phonetic Alphabet, except that (i) **C** and **V** have been introduced to symbolize consonant or vowel, **P** any appropriate plosive consonant, and **N** any appropriate nasal consonant; (ii) raised and lowered hyphens are used to symbolize high and low pitch respectively; (iii) **f** and **ʒ** symbolize palato-alveolars in Balti but alveolo-palatals in Golok, Lhasa, Sherpa, and Sikkimese.

The symbol **r** represents alveolarity and friction (i) in the Lhasa dialect in all circumstances; (ii) in Golok and Balti when following a consonant, except in the Balti cluster **str** and the Golok **rtr**, and in certain Skardu-Balti words, of which **trök**, **drol**, and **zdrol** are the only examples given in this article; (iii) initially in Golok in **rtr** and in Balti **ron** 'mount' (*bzhon*); in all

of one or other of the two terms of a prosodic system applicable to the syllable-initial 'piece', one term of which might conveniently be named *s*, from the characteristic indication of that type of piece in English orthography, and the other, by contrast, \bar{s} (non-*s*). These two syntagmatically different types of piece belong only to the initial part of the syllable containing them; but they can be used, even so, as a means of classifying prosodically the lexical items in which they occur: the (monosyllabic) lexical items *Sprigg*, *split*, *stew*, *squirm*, and *spit*, for example, would be classified as *s*-piece lexical items, and *brig*, *pig*, *plume*, *queue*, and *Quirk*, for example, as \bar{s} -piece lexical items, by reference to whichever of the two terms of that syllable-initial-piece prosodic system each lexical item exemplified.⁶

I have given introductory examples from English because the position is much less complex in English than in Tibetan: English has only one type of initial cluster, the assibilated, in terms of the definition of 'cluster' applied to the examples *Sprigg*, *sclerosis*, *spew*, *skew*, etc., as opposed to the non-assibilated examples *brig*, *prig*, *clue*, *glue*, etc., in the preceding paragraph; but Appendixes A and B show, for Balti, seven, named here the *l*, *r*, *s*, *g*, *b*, *n*, and *m* clusters, for Golok, five (*r*, *g*, *b*, *n*, and *m*), and for the Lhasa dialect, four (*g*, *b*, *n*, and *m*), though the *n* and *m* terms of the Balti cluster system and the *g* and *m* terms of the Lhasa cluster system are very rare, and it is

other circumstances **r** symbolizes a rolled consonant, commonly only one-tap, with dental contact in **str** and **rtr** and the Skardu examples **trok**, **drol**, and **zdrol**, but otherwise alveolar.

Lhasa-Tibetan disyllabic nouns have more than one pitch pattern, depending on whether they do or do not follow an emphasized word earlier in the sentence, and on whether they are or are not sentence-final (Sprigg, 1954, 143-6; Sprigg, 1955, 147-53 (or Palmer, 1970, 126-32; see also section IV below); my examples show the non-sentence-final pitch pattern, as being probably the most common of the three for nouns; but in any case this pattern implies the use of either of the other two in appropriate circumstances, and in effect summarizes all three.

I would emphasize, especially in connexion with section III, that the two pitch marks are not tone marks, and that the raised hyphen in a phonetic transcription is no guarantee that the lexical item that it marks has a 'high-tone' phonological classification, and vice versa.

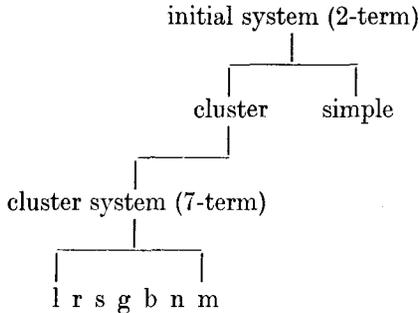
My informant for the Lhasa dialect was Rinzin Wangpo, born in Lhasa, with whom I worked in London and in Kalimpong, checking my findings with other Lhasa Tibetans in Kalimpong and at Gyantse, in the Tsang province of Tibet, in 1948-50, and especially with Penjor Phunthshok, of the Tsarong family (Taring, 1970, 122). For the Skardu dialect of Balti my informant was a young student, Zakir Hussein Baltistani, for the Khapalu dialect, Abdul Karim, a servant, at Rawalpindi, in 1964-5, and for Golok, an incarnate lama, Dodrupchan Rimpoche, for eight days, at the Namgyal Institute of Tibetology, Gangtok, Sikkim, in May 1965.

⁶ It is noteworthy that Firth, in the very early days of prosodic analysis, before the publication of his paper 'Sounds and prosodies' had given it that name, and Vogt, in his phonemic analysis of Norwegian, both insisted on treating their respective syllable-initial clusters as units, comparable to the *s* type of syllable-initial piece that I recognize here: 'Consonant groups, such as *st*, *str*, *sp*, *spl*, *sk*, *skr*, in initial position in English, are best regarded as group substituents, and no attempt should be made to identify the letter "t" (here part of a digraph or trigraph) with that of a similar letter used in another context' (Firth, 1936, 543, or 1957 reprint, 73); 'the clusters *sp*-, etc. . . . behave in all respects as single phonemes, to be classed with the stops We can give the name composite phonemes to phonemes of this kind. *sp*-, *st*-, *sk*- . . . form a striking parallel to the diphthongs which among the vowels constitute a similar class of composite phonemes' (Vogt, 1942, 14).

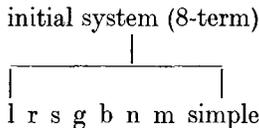
only medially within the word that these terms are represented phonetically by consonant clusters.⁷

II. INITIAL CONSONANT CLUSTERS AND SIMPLE INITIALS

Just as the initials of the English examples *prig*, *big*, etc., contrast, as exponents of the *s̄*-piece, with the initials of *Sprigg*, *squirm*, etc., as exponents of the *s*-piece, so all Tibetan dialects also contain initials that, viewed as a prosodically distinct non-cluster type of piece, contrast with the cluster type, but with the difference that the Tibetan dialects have at least four different types of cluster where English has only one (the *s*). There are two ways of treating the Tibetan clusters and the simple initials that contrast with them. One way would be to begin by recognizing a twofold contrast, of cluster versus simple, and analysing all examples into one or the other prosodic class by reference to a two-term system (cluster, simple); the next stage would be to make further distinctions within the cluster class. For Balti, for example, a further system, a seven-term sub-system, is to be stated for cluster-piece lexical items; and the relations of the two systems would be as shown in the following diagram :



Alternatively, the simple initial could be admitted on the same terms as each of the seven types of cluster, as one of eight types of initial, each type being treated as an equal term of a single eight-term system, which could be named the initial system, as in the following diagram :



There are occasions when, in any one dialect, it is convenient to group the cluster terms together in contrast with the simple term, as l-cluster initial, r-cluster initial, etc., as opposed to simple initial; but for dialect comparison

⁷ Some examples of the Golok *b* cluster should be distinguished from others because in their case the function of the *b* is not lexical but grammatical: past-tense (Sprigg, 1968c, 308). Thus, the Golok example **ṭti**: (*bltas*) (Appendix A, col. 1) is regarded as both lexically r-cluster and grammatically b-cluster, the former being symbolized in Written Tibetan by the *-l-*, and the latter by the *b-*, of *blt-*.

the latter analysis, a single system (the initial system), in which the simple type is a member term of the same system as each of the cluster terms, seems the more effective, and also makes possible a small economy in the number of systems that need to be recognized.

Before leaving this topic it is important to define more closely the types of syllable initial that are classified as 'simple'; for, though single initial consonants are an obvious candidate for this category, syllables containing more than one initial consonant are included with them, for reasons to be stated later in this section. Simple initials are, in fact, of two main phonetic types: (A), single initial consonants or non-syllabic vowels; (B), sequences containing a consonant, or two consonants, and $r/r̥$ or $j/j̥$.⁸

(A) *Single initial consonant (C-) or non-syllabic vowel (h- j- j̥- w-)*

Lexical items that, in a given dialect, invariably have single initial consonants or non-syllabic vowels are classified as 'simple-initial', and contrast with lexical items classified as l-cluster-initial (or, by abbreviation, l-cluster or l-initial), n-cluster-initial, etc., according to the number and nature of cluster-initial terms in the initial system of that dialect. Lexical items containing syllable-initial **p, ph, b, tʃ, tʃh, dʒ, h, v, w, and m**, for example, as in Balti **pən, pha:q, and ba**, Lhasa **-tʃam, -tʃha, and -dʒā:**, Golok **zā:**, **hag, worket,** and **βotʃa**, and Lhasa **-mi:** 'target, pig, cow; wife, tea, practise; field, pig, Tibetan (language), Tibetan tea; eye' (*'ben, phag, ba; leam, ja, sbyangz; zhang, phaq, bod-skad, bod-ja; mig*), are classified as simple-initial.

(B) *Initial sequences containing $r/r̥$ and $j/j̥$ (**Pr/r̥ Pj/j̥ ptr/r̥; ptʃ(h) bɔʒ**)*

To the simple-initial lexical items of section (A), comprising single consonants and non-syllabic vowels, should be added lexical items that have certain initial sequences of features: (i) plosive-fricative (**Pr/r̥**) and plosive-non-syllabic-vowel (**Pj/j̥**), (ii) plosive-plosive-fricative (**ptr/r̥**) and plosive-affricate (**ptʃ ptʃh bɔʒ**); e.g. (i) Balti (Khapalu) **kru kɾu gri** 'corner, cubit, knife' (*gru, khru, gri*); Golok **tɾt trō:** 'lead, village' (*(')khrid, grong*); Lhasa **-l̥a-bri:bə** 'artist' (*lha-bris-pa*); Lhasa **-kji: -kji -gje:bə** 'middle, dog, king' (*dkyil, khyi, rgyal-po*); Golok **ksu:b/βja** 'fowl' (*gsos-bya*); (ii) Golok **ptɾugu ptri:** 'offspring, wrote' (*phru(g)-gu, ('bri)/bris*); Lhasa **-kji-ptr/ɾu:** 'puppy' (*khyi-phrug*); Lhasa **-lo-ptʃ(h)e(:) -ma-ptʃə/-ma-bɔʒə** 'half-year, peacock' (*lo-phyed, rma-bya*). In fact I treat the initial-consonant sequences of section (ii) (**ptr/r̥ ptʃ(h) bɔʒ**) as though they were of the same type as **Cr/r̥** and **Cj/j̥** of section (i), i.e. as though they were ***pr/r̥ pj/j̥ bj**.⁹ These sequences are marked by a contrast of aspiration with non-aspiration, as their phonetic symbolization

⁸ The syllable-initial combinations considered in section (B) contain sounds of the types classified by Róna-Tas as 'oral plosives with -y- postradical' and 'oral plosives with -r- post-radical' (1966, 115-22), and by Burling as 'medials' (1967, 14, 17, 20, 23, 26, 29).

⁹ For the treatment of the alveolar or palatalized-alveolar plosive feature (**t d**) in these examples as a glide or junction feature (*vyañjanabhakti*) to be associated with labial plosion and alveolar friction (**p(t)r̥ p(t)r̥ p(t)ʃh p(t)ʃ b(d)ʒ**), see Sprigg, 1968a, 163-7, and Sprigg, 1968c, 309-10.

shows. In this respect they resemble the plosive-initial and affricate-initial examples of the single-consonant type included in section (A), e.g. **pen pha:q ba**; **-tʃam .tʃha .dʒā**; and it is by this criterion that I classify the lexical items containing them as simple-initial.

There is an additional criterion of the simple-initial category that has to be applied concurrently with that of the aspiration contrast; it is initial occlusion (**P-**). This supplementary criterion is necessary in order to exclude from the simple-initial category certain nasal-initial lexical items that share the aspiration contrast with the occlusive-initial members of the simple-initial category: (i) **NCV/V**, (ii) **NCC/C**; e.g. (i) Golok **mthəmogə mda**; **ntʃham ndʒa**: 'of the thumb, arrow; dance, meet' (*mthe-bo-'i, mda*; 'cham, mjal); Balti (Khapalu) **(χlɒ)mtʃhɒn (ba)mdʒok** 'embittered feeling, cow's tail hair' ([ʔ] *-mchin* 'liver', *ba-mjug*) (ii) Golok **mtʃəya mdri**: 'firm, rice' (*mkhregs-pa, bras*), **ŋkjak ŋgio mgjəy** 'freeze, go, quickly' (*'khyags, 'gro, mgyogs-pa*).

There is, however, a nasal-initial consonant sequence that does have a claim to be classified as simple-initial, even though it does not conform to the criterion of that category: contrast of aspiration with non-aspiration. This nasal sequence is Golok **mɲ-**, labial nasality followed by palatal nasality, but only in front-vowel and central-vowel syllables (**e ə**), e.g. **mɲe mɲə** 'fire, man' (*me mi*): in syllables such as these there is no contrast of **mɲ-** with **m-**, because there is no **m-** (for the reverse of this cf. Balti **me mi** and Lhasa **me .mɲ**). Apart from its nasality the **-ɲ** of these Golok lexical items corresponds to the **-j/j** of the sequences of plosive and non-syllabic vowel of section (i) above, e.g. Golok **kjə kji**: **kjə rkje** 'dog, by dogs, knife, neck' (*khyi, khyis, gri, ske*), and could be treated as ***mɲ-**. In syllables containing other types of vowel, though, **mɲ-** does contrast with **m-**, e.g. (open-vowel) **mɲan** 'name' (*ming*) versus **mā:βo** 'many' (*mang-po*); and even in syllables containing other front vowels (**ɛ: ɛ**) comparison with other dialects shows that the cluster-initial classification is better allowed to stand at least for this type of lexical item, e.g. **mɲe: mɲenmo** 'tan, supple' (*mnyed/mnyes*, or, perhaps, *mnyel, mnyen-pa*) (cf. Lhasa **ne:**, and **-kwə mɲe: bə** 'tanner', **-ɲem bə**, tone-1 lexical items, section VI(B), below). In fact it hardly seems worth while to set up a complicated criterion simply in order to admit the non-contrastive **mɲ-** into the simple-initial category when it is limited to such a narrow range of vowels (**e ə i**).

In initial sequences containing **-r** and **-j** other than those already considered the alveolar fricative or the non-syllabic front vowel is invariably voiced, and there is, consequently, no aspiration contrast (cf. also the English cluster, or s, initials of section I); e.g. Balti **trək drəl zbjanbu spjanķu zdron struɲmə** 'six, walk, bee, wolf, fable, sister' (*drug, 'grul, sbrang-bu, spyang-ki, sgrung(s), sring-mo*), Golok **ɽtri: ɽkjoən** 'son, mount' (*sras, skyon*). There is no difficulty, therefore, in classifying such examples as these as cluster-initial.

Golok lateral initial-consonant sequences **Pɭ** and **P(ə)l** are, however, not so easily classified; they include **kɭ gal bl**, e.g. **kɭŋa ga'lan blama blənpə** 'at the stream, region, lama, minister' (*klung-na, gling, bla-ma, blon-po*).

The aspiration feature of the initial of **kloŋa** in contrast with the non-aspiration of the initial of **ga'lan** certainly supports the classification of this pair of lexical items as simple-initial, on the same grounds as for Golok **tr̥t** and **tr̥s**: 'lead, village' ((^h)*khrid*, *grong*) above; but the aspirated pronunciation alternates with a mixed-feature pronunciation for that same lexical item, voicelessness-voice (**χl-**), as in **χloŋa**, the latter pronunciation being probably the more usual, since only **χl-** occurred in **χl̥mkhar** 'nāga castle' (*klu-mkhar*), the only other example. I assume the **k̥l**-initial pronunciation to be due to the influence of the orthography (cf. also my remarks on **bl** and **gal** below), and, accordingly, classify lexical items in initial **χl** (or **k̥l**) as cluster-initial. This classification destroys the possibility of pairing **k̥l** and **χl** with **gal** as aspirate and non-aspirate initials, and requires lexical items in **gal-** to be classified as cluster-initial too.

Much as alternative initials **k̥l** and **χl** have been observed for the same lexical item, the first lexical item of **χloŋa** or **kloŋa**, with friction (**χ**) alternating with plosion (**k**), so the initial plosion (**g**) of the g-cluster lexical item **ga'lan** 'region' (*gling*) is matched by friction (**ʁ**) in other, and corresponding, g-cluster lexical items: **ʁə'lanə ʁə'lə** 'ox, song' (*glang*, *glu*). The latter type of g-cluster initial, with friction rather than plosion, is supported by such other g-cluster examples as **ʁə'ni: ʁə'niŋ ʁ(ə)'marvo ʁə'jak** 'two, eye, red, yak' (*gnyis*, *miŋ*, *dmar-po*, *g.yag*). The same sort of alternation, suggesting either a spelling pronunciation or a tempo difference, has been observed for the initials of **βlo blama blənpə** 'mind, lama, minister' (*blo*, *bla-ma*, *blon-po*) too, all three of which correspond to initial *bl* of the orthography, though one has friction (**β**) where the other two have plosion (**b**). The frontness of the vowel in the first syllable of **blənpə**, as opposed to the backness (**ə/o**) observed in other Golok examples corresponding to *-on*, e.g. **ʁkjoən ʁŋon** 'mount, blue' (*skyon*, *sngon*), supports my conjecture that this is a spelling pronunciation or a bookish pronunciation modelled on the reading-style pronunciation **-əŋ**. I therefore propose to treat **gal** and **bl** as spelling-pronunciation features, corresponding to colloquial features **ʁəl** and **βl** or **βəl** (**βl** and **βəl** also occur in **βlaʃa βəlak** 'thigh, destroyed' (*brla-ʃa*, *brlags*)).¹⁰

It is only in Golok g-cluster initials containing laterals that there is a

¹⁰ Roerich (1958) records friction, not plosion, for Rebkong Amdo examples corresponding to Written Tibetan *glang*, *gling* (pp. 114, 148) and *blon-po* (p. 149), and 'la-ma, ^hla-ma' as Golok forms for *bla-ma* (p. 148).

Pulleyblank has pointed out, in correspondence, that the orthographic distinction *lh-* versus *l-* might be used to account for *kl-* versus *gl-*, the former being interpreted as **glh-*. The absence of an initial **pl-* to match *bl-* (and of **rlh-*, possibly, to match *rl-*), tells against this interpretation; but, on the other hand, their absence might be associated with the comparative rarity of *kl-*: Jäschke (1881) gives only 12 entries for *kl-* as against 31 for *gl-* (and 41 for *lh-* as against 130 for *l-*).

Pulleyblank's interpretation of *kl-* would also require me to classify the Golok alternative initials **k̥l** and **χl** not as simple-initial but as cluster-initial; so, too, would Róna-Tas (1966): he classifies *klu*, with *glu* and *bla-ma*, as 'liquids in radical position' (pp. 132-3); his post-radicals comprise 'zero, -y-, and -r-' but not an -l-.

contrast of full voicing (γel) with partial voicelessness (χl); those containing nasals or a non-syllabic vowel are fully voiced: $\gamma\text{en } \gamma(\text{ə})\text{m } \gamma\text{ej}$ (for examples see the preceding paragraph). In b-cluster initials containing laterals there is no such contrast at all in nouns; but my material, limited though it is, does show a contrast within the past-tense forms of verbs: partially voiced (ɬl), fully voiced (βel), e.g. $\text{ɬlā: } \beta\text{elak}$ 'quoted, destroyed' (*blangs, brlags*). At first sight, then, this type of contrast might seem somewhat unusual; but in the r cluster containing nasals there are a number of examples of it, whence my suggestion on p. 576 that the mixed-feature type of r cluster (voicelessness-voice) might be treated as a reflex of the *s cluster, and the fully voiced type as a reflex of the *r cluster and perhaps also *l: (i) mixed-feature ($\text{rɲ } \text{rɲ } \text{rɲm}$), (ii) fully voiced ($\text{rɲ } \text{rɲm}$); e.g. (i) $\text{rɲon } \text{rɲaɲma } \text{rɲugɣ } \text{rɲən}$ 'blue, Nyingma, pen, medicine' (*sngon, rnying-ma, smyu(g)-gu, sman*); (ii) $\text{rɲa } \text{rɲi: } \text{rɲa}$ 'five, silver, wound' (*lnga, dngul, rma*) (some fluctuation in category was noted for rma : it was also heard as rɲma). This contrast, in the initial clusters containing a nasal, between a mixed-feature (voicelessness-voice) category and a fully voiced category ($\text{rɲ } \text{rɲ } \text{rɲm}$ versus $\text{rɲ } \text{rɲm}$) dispels the air of irregularity that would otherwise characterize the mixed-feature initial χl as opposed to the fully voiced initial γel or βel .

This brief examination of the claims of syllable-initial $\text{kr } \text{kj } \text{bj } \text{ptr/ɣ } \text{bdz } \text{dr } \text{kj } \chi\text{l } \beta(\text{ə})\text{l}$, etc., to be treated as belonging to the cluster-initial type or to the simple-initial type prepares the ground for the next step, the classification of dialects as 'cluster' or 'non-cluster' dialects.

III. WORD-INITIAL CONSONANT CLUSTERS, AND 'CLUSTER' DIALECTS VERSUS NON-'CLUSTER' DIALECTS

Although syllable-initial consonant clusters are a feature of the Lhasa dialect, for example, as well as of the Balti and Golok dialects, there is an important respect in which it differs from them: its initial-consonant clusters are never word-initial (the hyphen preceding them in Appendix B is meant to act as a reminder that they occur only medially; cf. also Sprigg, 1955, 141-2, and 1968c, 310-11).¹¹ Those Lhasa-dialect lexical items which have syllable-initial consonant clusters in medial position have in word-initial position what are here treated as non-'cluster' initials, the **C-**, **Cr/ɣ-**, and **Cj/i-** of section II(A-B). Thus, the Lhasa-Tibetan lexical item corresponding to Written-

¹¹ From the earlier of the two passages referred to it will be seen that I have never had any hesitation in ascribing the clusters concerned to the initial of the second lexical item of the (medial) junction: an attempt by R. A. Miller (1954) to divide the clusters between the two syllables concerned, allocating part to the syllable final of the former lexical item and part to the initial of the latter, ignores decisive phonetic evidence (vowel features in vowel-final syllables, nasal-final syllables, and labial-stop-final syllables) as well as unmistakable clues in the corresponding Tibetan orthographic forms. For a discussion of the problem raised by these features, in which supporting orthographic evidence is taken into account, see Chang and Shefts, 1965, 1967.

Tibetan *zla* (Appendix A, col. 4) has a syllable-initial consonant cluster **nd** medially in **hō^hndə** '[Tibetan] calendar' (*hor-zla*), but, in word-initial position, a single consonant (**d**), as in **da^hwə** 'moon/month' (*zla-ba*). From this alternation of syllable-initial consonant clusters with syllable-initial simple consonants according to place in the word it would be possible to classify such lexical items as the Lhasa **ndə**/**da** as cluster/simple, as opposed to simple/simple, e.g. the lexical item **ta**/**də**, in which the simple-initial **t** of **ta** 'horse' (*rta*) alternates with the equally simple-initial medial **d** of **kje:ndə** 'pack-horse' (*khal-rta*); but I prefer to treat this alternation as on the phonetic level rather than on the phonological, and state both the **nd** and the **d** initial, for example, as complementary phonetic exponents of the **n**, or **n**-cluster, term of the Lhasa initial system, one of them, the consonant cluster **nd**, being a medial exponent, and the other, the single consonant **d**, being the word-initial exponent. This latter type of analysis, in which a cluster term of a (phonological) 'initial' system (**n**, in this case) can have among its phonetic exponents a single initial consonant as well as a consonant cluster, has, incidentally, the support of Tibetan orthography: the initial *lt* of *lta* (Appendix A, col. 1), for example, is constant in *lta* 'look' and in *da-lta* 'now'; but the phonetic interpretation of *lt*- alternates between **t** in the former word and **nd** in the latter, between a single initial consonant initially in the word *lta*, and a cluster medially in the word *da-lta*.

In Balti and Golok, as distinct from the Lhasa dialect, the **b**, **g**, **n**, and other appropriate cluster members of each dialect's initial system (except Balti **m** and **n**) invariably have a syllable-initial cluster as exponent in word-initial position, and commonly in medial position too, though depending on the type of junction; e.g. word-initial and medial **rt** in the Balti lexical item **rta** 'horse' (*rta*) and **rou^hrta** 'riding-horse' (*bzhon-rta*). In the rest of this article it is convenient to refer to Balti and Golok, and to other dialects of this type, as 'cluster' dialects, and to those dialects, like the Lhasa, Sherpa, and Sikkimese, whose syllable-initial consonant clusters are restricted to medial position, as non-'cluster' dialects.

IV. SYLLABLE-INITIAL CONSONANT CLUSTERS AND TONE

There is a further difference between 'cluster' dialects and non-'cluster' dialects: in the former a prosodic classification in terms of the appropriate cluster member of the 'initial' system is sufficient for any lexical item, as, for example, l-cluster-initial lexical item, r-cluster-initial lexical item, according to dialect, or, alternatively, in the case of those lexical items which have a non-cluster initial consonant or consonants in all circumstances, as simple-initial lexical items; but nearly all lexical items in the latter type of dialect, the Lhasa, for example, or the Sherpa, need not only the appropriate 'cluster'-initial classification (or, if appropriate, a 'simple'-initial classification) but a tonal classification as well, as 'high-tone' or 'low-tone' (only those lexical items which are grammatically classifiable as particles cannot be given a tonal

classification).¹² Thus, the Balti, Golok, and Lhasa-dialect forms corresponding to the Written-Tibetan lexical item *zla* 'moon, month' (Appendix A, col. 4) have 'initial' classifications l-cluster, r-cluster, and n-cluster respectively; but the Lhasa-dialect lexical item also has the tonal classification 'low-tone' (the reading-style pronunciation of the Written-Tibetan lexical item, incidentally, shares the n-cluster and 'low-tone' classifications with the Lhasa dialect, though differing somewhat in the phonetic exponents of n); e.g.

	<i>Balti</i>	<i>Golok</i>	<i>Lhasa</i>	<i>Written-Tibetan</i>
	ldza-	rdza-	_da-, -ndə	_nda-, -ndə
Initial	l-cluster	r-cluster	n-cluster	n-cluster
Tone			'low-tone'	'low-tone'

(B *ldzaa*, G *rdzaa*, L *_da-wə*, W-T *_nda-wə* 'moon, month'; L and W-T *-ho-ndə* '[Tibetan] calendar; *zla-ba*, *hor-zla*.)

It is a useful precaution to put the two tonal classifications in quotation marks at this stage because a 'high-tone' lexical item does not invariably have the higher of the two distinctive pitch levels, nor does the 'low-tone' lexical item invariably have the lower: Lhasa Tibetan is highly intonational; and (i), much as in English, the component syllables following the emphasized word of an emphatic clause have the lower pitch (Sprigg, 1954, 143-6); (ii), except as provided for under (i), the second and third syllables of disyllabic and trisyllabic nouns have the higher pitch level. Thus, a 'high-tone' lexical item can, under '(i)', have the lower pitch; and a 'low-tone' lexical item can, under '(ii)', have the higher pitch (Sprigg, 1955, 147-53, or Palmer, 1970, 126-32). It is, perhaps, preferable to use such terms as 'tone-1' and 'tone-2' rather than 'high-tone' and 'low-tone', which might be misinterpreted as being purely descriptive and as requiring a constant pitch level, either the higher or the lower, in all circumstances.

It seems to me probable that the initial-consonant clusters that can characterize the second syllable of nouns in the Lhasa dialect, and the resulting higher degree of consonantal differentiation for that syllable as compared with the first, is connected with the non-distinctive high pitch of that syllable: the greater range of initial-consonant features renders the pitch-level distinction, highly functional for the first syllable, less necessary for the second.

V. INITIAL-CONSONANT CLUSTERS AND MONOSYLLABIC LEXICAL ITEMS

My main concern in this article is to advance the thesis that initial-consonant clusters in Tibetan, or, rather, Tibetan syllable-initial features generally, are

¹² For tone as a feature (prosody) of the word as a whole rather than of the syllable see, for the verbal phrase, Sprigg, 1954, 151-3, and for the nominal phrase, Sprigg, 1955, 134-5, 148-9 (Palmer, 1970, 112-13, 126-7). Component lexical items of tone-1 and tone-2 words have then to be classified tonally not as syllables but via the tone of the word in which they are exemplified (cf. Sprigg, 1963b, 99). In the case of the disyllabic and trisyllabic noun it follows from the fact that the pitch-level distinction does not apply to the second and third syllables that it is only the first-syllable place that provides the means of classifying a lexical item as 'tone-1-word' or as 'tone-2-word' (or, briefly, 'tone-1' or 'tone-2'), i.e. a tonal criterion.

better treated not segmentally but unitarily, as applicable *en bloc* to monosyllabic lexical items, providing an, as it were, supra-segmental scheme of classification with the same status as tonal classification; consequently, one could set up some such equivalence in the prosodic classification of Tibetan lexical items, between dialects, as:

<i>type of dialect</i>	<i>prosodic classification</i>
'cluster'	cluster
non-'cluster'	tonal

Such an equivalence should make inter-dialect comparison easier, and thereby aid the reconstruction of Proto-Tibetan.

The dictionaries provide many lexical items that are current in both 'cluster' and non-'cluster' dialects; and I find it highly suggestive that certain of these lexical items can be pronounced, according to dialect, either tonally or clusterwise, or, indeed, both. The lexical item *zla* that I gave as an example in section IV will serve as an example here too: it can be pronounced (i) clusterwise and non-tonally, as in Balti and Golok, (ii) non-clusterwise in word-initial position but clusterwise medially, and tonally, as in the Lhasa dialect, or (iii) both clusterwise and tonally, as in the reading style of pronouncing Written Tibetan.

My next task is, clearly, to give some indication, even though only partial, of how dialect comparison and the reconstruction of Proto-Tibetan would look if approached from the more syntagmatic standpoint that I am advocating here; but before I do this, I ought first to make it clear that I do not believe such a task to be superfluous. I need to say this because Shafer would have said that we already know what Proto-Tibetan looks like: it is embalmed in the orthographic forms of Written Tibetan (his 'Old Bodish'; Shafer, 1950, 702-3, or 1955, 99). Though I have a high respect for Tibetan orthographic forms, so many of which can be justified from one or other of the contemporary Tibetan dialects, especially Balti and Golok, none of the dictionaries gives a reliable picture of the phonological structure of Written Tibetan during a given *état de langue* (Saussure, 1949, 142-3).¹³ Jäschke himself explicitly distinguishes two periods for his Written Tibetan entries (1881, p. iv), and specifies certain entries as being peculiar to the spoken language of Ladakh or other dialect areas, e.g. (p. 228): '*lda . . .* Ld. frq. for *kla . . . , gla . . . , zla . . .*'; no doubt he has also included other similar forms that he was unable to identify as such. The surest way of avoiding problems of this sort would be to confine one's orthographic analysis to the orthographic forms of some one single, and lengthy, text, on the assumption that the author or writer had been consistent within it, and that his orthographic forms had escaped emendation by copyists. A dictionary of the forms used in the Kangyur would be a case in point; but, even so, texts are not always internally consistent: F. W. Thomas, for

¹³ The hazards of treating Written-Tibetan orthographic forms as a corpus of reliable data receive due emphasis in Miller, 1968, 416-18.

example, gives considerable space to orthographic variation in the lexical items of his Nam text (Thomas, 1948, 118-24).

More important still, perhaps, in the earliest texts, before the development of an orthographic tradition transcending dialectal differences, one is entirely dependent on the phonological acumen of the author or translator, writing at a time when the theoretical bases of phonological analysis and orthographic representation were not subject to the continual scrutiny of linguists, or, rather, of different schools of linguistics, to which they are indeed subject at the present time. Even then, there are, no doubt, linguists who have, in the course of developing a systematic transcription or orthography for a particular Burmese or Tibetan dialect, or a Tibeto-Burman language, shared my experience of hesitating between one symbolization and another, or—worse—being guilty of inconsistencies in symbolization. Such experiences develop a salutary humility in the face of problems comparable to those met by the carvers of the Myazedi inscription, for example, and a sympathy with them in their inconsistencies; but it does not put one under any obligation to follow them when one has the advantage over them in phonological training.¹⁴

Having given my reasons for not accepting Tibetan orthographic forms without first testing them against reconstructions based on comparing contemporary spoken-dialect forms I now return to the task of discharging the obligation that lies upon me to illustrate the form that my more syntagmatic, and polysystemic, type of phonological analysis imposes on the phonetic forms of certain typologically extreme Tibetan dialects. In order to do this I need to apply to the syllable initial a number of prosodic systems in addition to the Balti eight-term 'initial' system (section II), the Golok six-term (r, g, simple, etc.), and the Lhasa five-term (g, n, simple, etc.) (Appendixes A and B), and, further, to classify lexical items each in accordance with the appropriate term of these systems. Among these further systems are prosodic systems to deal syntagmatically with (i) voicing features and (ii) 'occlusive' versus 'liquid' features (section VI(A)), with (iii) rounded, front-and-spread, and neutral features, and (iv) features of openness and closeness (section VI(B)). Finally, phonematic systems, restricted, in this article, to initial-consonant systems, are set up for such lexical items as are prosodically comparable.

VI. TONE, AND THE SYLLABLE-INITIAL VOICING PIECE AND 'OCCLUSIVE'-'LIQUID' PIECE

All the Balti l clusters in Appendix A and many of the Balti and Golok r, s, g, and b clusters (those in columns 1-10 and 17-20 of Appendix B) have

¹⁴ In a recent article (Sprigg, 1970) I tried to improve on the phonological analysis implicit in the traditional orthographic forms of certain Tibetan verbs, and to give them orthographic regularity, though at the cost of introducing orthographic combinations quite contrary to the orthographic tradition, e.g. 'z-, 'zh-, 's-, 'sh-, and 'r- where the traditional spelling is 'dz-, 'j-, 'tsh-, 'ch-, and 'dr-. For an earlier recognition of the orthographic relations of these pairs of verbal forms and its phonetic significance see Li, 1933, 1959; cf. also Chang, unpublished, pp. II.10; VIII.

either (i) voicelessness throughout the cluster or (ii) voice throughout the cluster; e.g. (i) (Appendix A) Balti **lt** and **lts**, (Appendix B) Golok **x/ks** and **ls**; (ii) (Appendix A) Balti **ld** and **ldz**, (Appendix B) Golok **yz** and **bz**. It is also noteworthy that this alternation in the voicing of the cluster as a whole in l, r, s, g, and b clusters is related to cluster-final plosion, affrication, and friction, but not to cluster-final nasality, lateral stricture, non-syllabic vowel (j), or rolled consonant: clusters of this latter type are either (i) mixed as regards voicing features, being partly voiceless and partly voiced, e.g. Balti **sn ʔm xl xj str**, Golok **xl ʔn ʔtr**, or (ii) (in Golok only) completely voiced, e.g. **xəj rl y(ə)m**. This voicing difference is the syntagmatic basis for distinguishing the former type prosodically, under the term 'occlusive' (though this is something of a courtesy title for the fricatives that are also included in this class), from the latter, to which the traditional term 'liquid' can be applied. Thus, there are 'occlusive' l, r, s, g, and b clusters and 'liquid' r, s, g, and b clusters (but no 'liquid' l clusters); and it is only in the 'occlusive' type that voice contrasts with voicelessness as a feature of the whole initial cluster.

The same occlusive-liquid distinction also applies to the Golok n and m clusters (Appendix B); and so does the voicing distinction appropriate to the occlusive type of cluster, but with the following differences: (i) (cols. 1-10) voicelessness in n and m occlusive clusters does not extend to the whole consonant cluster (as in l, r, s, g, and b clusters) but does extend beyond the consonant cluster to the following vowel or consonant, e.g. **nth mtsh ʔkj mʔr**, as opposed to the fully voiced clusters **nd mz mdr ʔgj** with fully voiced vowel or following consonant; (ii) (cols. 11-16) only nasality (**mʔ mʔ mn**) occurs as a liquid cluster-final feature, and only in m clusters, again without the voicing distinction, i.e. without voice in lexical contrast with voicelessness as a feature of the whole cluster.

(A) 'Voicing' system

When analysed prosodically the voicing distinction that characterizes 'occlusive' clusters, voice in contrast with voicelessness each as a feature of the whole cluster, yields a two-term 'voicing' system, the terms of which are named v (from *voice*) and \bar{v} (non-v, from voicelessness). This system is applicable not to the whole syllable but to the syllable-initial part, or piece; but even so, each of the terms can, of course, like the terms of the 'initial' system (section II), be used to classify monosyllabic lexical items according as they contain a v or a \bar{v} syllable-initial piece, whence v-syllable-initial-piece lexical items (or, briefly, v-piece lexical items) and \bar{v} -piece lexical items.

Corresponding to the v and \bar{v} classifications that are stutable for the 'cluster' dialects the Lhasa dialect has classification by tone, into 'tone-1' and 'tone-2' (or 'high-tone' and 'low-tone'; section IV), with the 'tone-1' classification corresponding to the \bar{v} , and the 'tone-2' classification to the v (the initial consonants being, for the Lhasa dialect, single in word-initial position but generally cluster when medial, though 1/-1 below is an exception).

Because of the difference that I mentioned at the beginning of this section (VI) between the phonetic exponency of *v* and *v̄* in, on the one hand, Balti *l*-, *r*-, *s*-, *g*-, and *b*-cluster lexical items, and Golok *r*-cluster, *g*-cluster, and *b*-cluster, and, on the other hand, *n* and *m* clusters, common in Golok but very rare in Balti, I give two sets of examples, at (1) and (2).

(1) *l*-, *r*-, *s*-, *g*-, and *b*-cluster initial piece

(a) Prosodic correspondences

I have restricted my examples of the 'voicing' and 'tone' correspondences of these five types of cluster piece to (i) the Balti *l*-cluster initial piece, with corresponding Lhasa *n*-cluster piece (with the exception of *l*/*-l* mentioned above), and (ii) a selection from the Balti *b*-cluster piece, with corresponding Lhasa *b*-cluster piece and, in a few instances, simple-initial piece (the first of the alternatives in pairs of Lhasa phonetic features is that which is appropriate to word-initial position, and the latter, also indicated by hyphen, to medial position; matching pitch features have not been symbolized here, but are as described in section IV; see also Appendix A):

(i) Balti *l*-cluster piece; Lhasa *n*-cluster piece or simple-initial piece (only *l*/*-l*)

B	<i>v̄</i> -piece	l̥t	l̥tʃ	l̥ts ¹⁵
	<i>v</i> -piece	ld	ldʒ	ldz
L	tone-1	t/-nd	tʃ/-ndʒ	l/-l
	tone-2	d/-nd	d/-ndʒ	d/-nd

Examples

Balti *v̄*-piece and Lhasa tone-1

B	l̥ta/l̥təs/l̥təs	look (pres./past/imperat.)	<i>lta/bltas/lto</i>
L	ta/tɛ:/tɛ:	„ („ / „ / „)	„ / „ / „ ¹⁶
	thandə	now	<i>da-lta</i>
B	l̥tʃaqs	iron (Khapalu dialect)	<i>lcags</i>
L	tʃa:	„	„
	gəndʒa	door-bolt	<i>sgo-lcags</i>
B	l̥tsap	teach	<i>slob/bslab(s)</i>
L	lɔp	„	„ / „
	kalɔp, kalop	advice	<i>bka'-slob</i>

Balti *v*-piece and Lhasa tone-2

B	ldaq	lick	<i>ldag/bldags/ldog</i>
L	da:	„	„ / „ / „
	tfela	tongue-lick	<i>lce-ldag</i>

¹⁵ Balti also has *l*-cluster initials **l̥t** and **ld** (Appendix A), e.g. **l̥tenl̥ten** 'heavy', **l̥tuŋ** 'small pond' (? *lteng-ka*, *gting*, *ldeng-ka*, *lding-ka*), **ldom tʃi** 'heavyish', 'bulky' (? *ldum*, *zlum*), doubtfully identifiable, in some cases, with entries in *lt*-, *ld*-, *gt*-, etc., in Jäschke, 1881, except for **l̥tukpa**, which seems readily associable with Written Tibetan *rliḡ-pa*, Lhasa **l̥gbe** (section B(2b), below).

¹⁶ The significance of this alternation in the vowel features of verb lexical items (with matching alternating initial-consonant features) is considered, from the point of view of Lhasa phonology as well as of Tibeto-Burman comparison, in Sprigg, 1963b, 102-5.

but, for the more usual corresponding Lhasa medial syllable-initial **nd**, cf.

B	ldən	created, complete	<i>ldan</i>
L	gandē:	joyful, filled with joy	<i>dga'-ldan</i>
B	ldʒoŋ	side, direction	<i>ljongs</i>
L	drɛndʒɔ:	Sikkim [rice country]	<i>'bras-ljongs</i>
B	ldzau	moon, month	<i>zla-ba</i>
L	dawə	„ „ „	„
	hondə	[Tibetan] calendar	<i>hor-zla</i>

(ii) Balti b-cluster piece ; Lhasa b-cluster or simple-initial piece

B	v -piece	ɪ/ps	ɪ/pʃ ¹⁷	
	v-piece	bz		bʒ
L	tone-1	s/-(p)s	ʃ/-(p/b)ʃ ¹⁷	
	tone-2	s/-(p)s		ʃ/-(p/b)ʃ ¹⁷

Examples

Balti **v**-piece and Lhasa tone-1

B	ɪ/psɪl	cloud (Western, 'shade', Jäschke, 1881, 593)	<i>bsil</i>
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L **si:bo** cool „

but cf. also, for Lhasa (no Balti cognate), **ps**

sogɪdu: (he) welcomes *bsu-gi-'dug*

tapsɔ mounted escort *rta-bsu*

B **pʃəlba** (verbal noun) diarrhoea *bshal-ba*

L **ʃɛ:** wash, purge *bshal*

tʃhɔbʃɛ: washing *chu-bshal*

Balti v-piece and Lhasa tone-2

B **bzo** shape, method *bzo*

L **sɔ** make „

ŋɔpsɔ: shoemaker *dn̄go-bzo-ba*

B **bʒi** four *bzhi*

L **ʃɪ** „ „

tʃɔp/bʃɪ four-cornered *gru-bzhi*

Reconstruction based on the above tables and on Appendixes A and B gives the following Proto-Tibetan prosodic categories, and their Balti, Golok, and Lhasa reflexes :

P-T	B	G	L
(i) *l cluster	l cluster	r cluster	n cluster
*o piece	'occlusion'	'occlusion'	'occlusion'
*v „	v piece	v piece	tone-2
*v̄ „	v̄ „	v̄ „	tone-1

¹⁷ My informant for the Skardu dialect stated a preference for **ps** and **pʃ** ; but in his unstudied utterances **ɪs** and **ɪʃ** seemed at least as common. In the Lhasa dialect **-bʃ** is a fast-tempo alternative to **-pʃ**.

(ii) *b cluster	b cluster	b cluster	b cluster
			'simple initial'
*f piece	'occlusion'	'occlusion'	'liquid'
*v ,,	v piece	v piece	tone-2
*v̥ ,,	v̥ ,,	v̥ ,,	tone-1

The reason for designating the set of correspondences shown in section (i) as *l rather than, for example, as *r or *n, following the Golok or the Lhasa type of cluster, are that (i) I have found it more convenient to use *r and *n for sets of correspondences that do not involve a lateral-initial cluster (of which Balti is the only contemporary dialect to provide an example), and (ii) the majority of the corresponding orthographic forms have *l*-initial clusters: *lt-*, *ld-*, *lc-*, and *lj-* (see, for *r, section (B2b), below, and, for examples appropriate to *n, Sprigg, 1968c, 310-11).

In (ii) a Proto-Tibetan category termed *f (from *friction*) has had to be distinguished from the *o term in order to accommodate correspondences in which the Balti and the Golok 'occlusive' piece correspond not to the Lhasa 'occlusive' piece but to the Lhasa 'liquid' piece. The criterion that I have used in the Lhasa dialect to distinguish 'occlusion' from the 'liquid' category is the potentiality of combining equally with word-initial aspiration and non-aspiration (**Ph** versus **P**); but word-initial friction combines only with non-aspiration, and has, therefore, been assigned, like nasality and lateral stricture, to the 'liquid' category.

There is another respect in which the features compared in section (i) differ from those compared in section (ii): in section (i) Balti and Golok v and v̥ correspond not only to Lhasa tone-2 and tone-1 tonal classifications respectively but also, apart from **l-**, to word-initial voice and voicelessness in the Lhasa initial consonant, which is either plosive or affricative; in section (ii), on the other hand, in which the Lhasa initials are entirely or partially fricative, only the correspondence with the tone classification applies, because the Lhasa initials are, when word-initial, voiceless, and, when medial, either voiceless or mixed, and without voicing contrast. In this latter respect the Lhasa dialect is, perhaps, less typical of the non-'cluster' dialects than Sherpa or Sikkimese: for these two dialects the correspondence of Balti and Golok v and v̥ with word-initial voice and voicelessness respectively applies to the fricative type of initial (section (ii)) as well as to the plosive or affricate type (section (i)); e.g. the tone-2 Sherpa and Sikkimese lexical item **zɔ** 'make' (*bzo*), cf. Balti **bzo** 'shape, method', but Lhasa tone-2 **sɔ**; the Sherpa and Sikkimese tone-2 lexical item **ʒu** 'four' (*bzhi*), cf. Balti **bʒi**, but Lhasa tone-2 **ʃu**; the Sikkimese tone-1 lexical item **sam** of **samlɔ** 'thinking' (*bsam-blo*), cf. Lhasa tone-1 **sam** of **samlɔ**; and Sikkimese tone-1 **ʃe:** of **ʃe:ʃeʔ** 'to say' (*bshad-pa*), cf. Lhasa tone-1 **ʃe:** of **ʃe:bə**.

(b) Phonematic correspondences

(i) A comparison of the three Balti v-v̥ pairs of clusters in section (ai) above clearly suggests a three-term C-system for Balti; I symbolize these

three terms as T, Σ, and S. The exponents of each term of this phonematic system comprise whatever phonetic features distinguish each of the three pairs of clusters from the other two :

T	dentality	plosion
Σ	palato-alveolarity	affrication
S	alveolarity	affrication

Each of these five features, it is worth noting, also forms part of the exponency of a prosodic term, the l term of the eight-term initial system (section II), which associates syllable-initial lateral stricture with dentality and plosion (**lt ld**), with palato-alveolarity and affrication (**ltʃ ldʒ**), and with alveolarity and affrication (**lts ldz**), with the result that each of those five features has been used twice, in the phonematic as well as in the prosodic statement; ¹⁸ the balance of the phonetic features, the lateral stricture and the voice and voicelessness features, are exclusive to the prosodic statement, the lateral stricture to the exponency of the l term, and the two last features to the exponency of v and v̄.

In the Lhasa dialect, on the other hand, the corresponding syllable-initial features shown in section (ai), dentality (**t/-nd d/-nd**), alveolo-palatality (**tʃ/-ndʒ dʒ/-ndʒ**), and alveolarity (**l/-l**), are exclusively part of the prosodic statement, serving, in intraverbal junction, to link the syllable final of certain preceding lexical items with the syllable initial of their own lexical items: **-nd- -ndʒ- -v̄:l-**, whence three prosodically different types of piece, termed, by reference to corresponding orthographic forms, the t, the c, and the l; e.g.

t	-nd-	chendē:	wise	<i>mkhyen-ldan</i>
		tshendo:	colour	<i>tshon-mdog</i>
		ʔndə	[Gregorian] calendar	<i>dbyin-zla</i>
c	-ndʒ-	ləndʒē:	minister	<i>blon-chen</i>
l	-v̄:l-	tfhi:lʔp	blessing	<i>byin-rlabs</i>

(cf. Sprigg, 1968b, 424, 433, 464-7, 501-8, 511-13, 515-17, 523). In consequence the second-syllable lexical item of all such compounds is given a prosodic classification, according to the type of piece it is exemplified in, and no phonematic system needs to be stated for any of the three shown here: (t-piece) *ldan*, *mdog*, *zla*; (c-piece) *chen*; (l-piece) *rlabs* (because of considerable diversity in phonetic form each Lhasa lexical item has been distinguished here by the corresponding orthographic form). Thus, the Balti lexical item corresponding to *ldan* is an example of the T term of the three-term C-system stutable for l-initial(-piece) lexical items, but the corresponding Lhasa lexical item is an example of the t prosodic term, while the form corresponding to *zla* is an example of the S phonematic unit in Balti but a further example of the t prosodic term in the Lhasa dialect.

There are, of course, a considerable number of Lhasa-Tibetan lexical items that I have not observed in that type of intraverbal junction in which they

¹⁸ On the admissibility, in prosodic analysis, of using a phonetic feature as an exponent of a phonematic unit as well as of a prosodic term see Firth, 1957, 16.

combine, as second syllable, with a lexical item that has the range of final nasal and nasalized sounds $n/\underline{n}/\underline{p}/\underline{m}/\underline{v}$; but it is a reasonable prediction that all those with a word-initial dental (t th d), alveolo-palatal ($tʃ$ $tʃh$ $dʒ$), or lateral (l) either already appear in an example of intraverbal junction unknown to me, or have the potentiality of appearing in newly compounded forms, in the same types of intraverbal junction, t-piece, c-piece, and l-piece respectively, as are exemplified above, and have, therefore, an equal claim with the Lhasa lexical items corresponding to *ldan*, *mdog*, and *zla* above to be classified as t-piece lexical items, or, correspondingly, as c-piece or l-piece, the three terms t, c, and l being members of a system comprising 11 terms in all (juncture system; cf. Sprigg, 1968b, 501-33; cf. also, for a corresponding system in Burmese, Sprigg, 1963b, 90-6). It is for this reason, a syntagmatic reason, that t, c, and l appear in the partial phonological formulae for the Lhasa dialect in the table below.

Since my Golok material is far from complete, I have not attempted to classify the Golok cognates of the Balti and Lhasa lexical items either prosodically or phonematically, and have had to be content with merely illustrating the corresponding syllable-initial phonetic features without detailed analysis.

The Balti-Lhasa correspondences, with some support from Golok, give me three sets of correspondences, which I have symbolized for Proto-Tibetan in the table below as the phonematic units *T, *Σ, and *S on the assumption that the Balti is more conservative than the Lhasa dialect.

The following table, then, symbolizes phonetically the exponents of each of the three terms of the Balti phonematic system combined with the exponents of the relevant terms of the two prosodic systems, the l term of the initial system and the v and \check{v} terms of the voicing system, and presents these phonematic and prosodic terms as reflexes of reconstructed Proto-Tibetan prosodic terms *l (of an eight-term initial system) and * \check{v} and *v (of a two-term voicing system) and phonematic terms *T, *Σ, and *S of the three-term phonematic system statable for the *lo-piece type of lexical item; ¹⁹ it also

¹⁹ In the Balti phonological formulae of this table the symbol 'o' (from 'occlusion') has been enclosed in parentheses because all Balti examples of the l-initial piece are also examples of the o, or 'occlusion', piece, as opposed to the 'liquid' piece, as defined at the beginning of this section (VI). Every Balti l-initial piece therefore implies that the lexical item in which it occurs is also, and equally, an example of the occlusion piece (but every example of the occlusion piece is not necessarily an example of the l-initial piece). The *o term of the Proto-Tibetan *lo formulae has not, however, been enclosed in parentheses; the reason for this is that it might well prove to be necessary to recognize a distinction between *o and a contrasting *liquid (*l) category with both of them applicable to the *l (initial) lexical item, whence *lo contrasting with *ll. The orthographic combination *lng-* of Written Tibetan supports the possibility that some such category as *ll (*l-cluster *liquid-feature) would be needed, though there is no such initial in Balti as * \underline{ln} , or indeed in any other contemporary dialect known to me (but see Jäschke, 1881, p. xix, under 'Kham'). If such a possibility as *ll (*l-initial *liquid) were reconstructed, its Balti, Golok, and Lhasa reflexes would be

	*l (initial):	B simple	G r	L simple, tone-1		
	*l (feature):	B liquid	G liquid	L liquid		
e.g.		B $\underline{y}\underline{a}$	G $\underline{r}\underline{ŋ}\underline{a}$	L $\underline{ŋ}\underline{a}$	five	<i>nga</i>

gives, as the Lhasa reflexes of *l, the n term and, in one case, the simple term (symbolized as z) of a five-term initial system, n, z, m, b, and g, as the Lhasa reflexes of *v̄ and *v, the tonal classifications 1 and 2 of a two-term tone system, and, as a further Lhasa reflex of *l, the h̄ term of a two-term aspiration system, h and h̄ (cf. Sprigg, 1968b, 625–46) (both word-initial and medial features are illustrated for the Lhasa dialect, in that order):

P-T	Balti	Golok	Lhasa
*lōv̄T	l(o)v̄T l̄t	ɪt	1nth̄ t/-nd
*lov̄T	l(o)v̄T ld		2nth̄ d/-nd
*lōv̄Σ	l(o)v̄Σ l̄tʃ	ɻ(j)tʃ	1nch̄ tʃ/-nd₃
*lov̄Σ	l(o)v̄Σ ld₃		2nch̄ d₃/-nd₃
*lōv̄S	l(o)v̄S l̄ts	ɿ	1zlh̄ 1/-1
*lov̄S	l(o)v̄S ldz	rdz	2nth̄ d/-nd

(spaces in the Golok column of this table mean that my Golok material does not include an appropriate example).

The specimen lexical items, with corresponding orthographic forms, that have been given in section (ai) above for the Balti and Lhasa prosodic correspondences may stand for the phonematic correspondences in the above table too; and so may the Golok rows of examples at Appendix A, where it should be noted that the Golok example **ɪti**: ‘looked’ (*bltas*) in col. 1 of that Appendix owes its **ɪ** to its being a past-tense form. My material does not, unfortunately, contain the present-tense form; but analogy would lead me to expect **ɻta** (cf. **ɻton** ‘show’ (*ston*) and **ɪtan** ‘showed’ (*bstan*), and Sprigg, 1968c, 308–9). I am obliged to admit, however, that the second syllable of the Golok cognate of *da-lta* ‘now’, **tada** or **tata**, has the simple initial **d** or **t**, not the expected r-cluster initial of ***taɻta**, and this in spite of the Balti **lt** of **alta** and the Lhasa **nd** of **.thanda**.

Analogy would also lead me to expect for the Golok initial **ɿ** of Appendix A, col. 3, e.g. **ɿop** ‘teach’ (*bslab(s)*, *slob*), an initial ***ɻts**, i.e. ***ɻtsop**, to match the Golok voiced initial **rdz** of col. 4; but my expectation has clearly been disappointed. Similarly, I should have expected Lhasa initial ***t/-nd** in col. 3 of Appendix A, i.e. ***tv̄p**, instead of **lv̄p** (tone-1), to match the **d/-nd** (tone-2) of col. 4. The Golok initial **ɿ** here suggests an earlier ***ɻl**, parallel to the existing **rl** of **rl̄s**: ‘wind’ (*rlung*), developing to **ɿ** via **ɻl̄** and **ll̄** (cf. **ɻn** **ɻp** **ɻm** in the final paragraphs of section II).

It is the Lhasa reflex **d/-nd** of ***lov̄S** (and the corresponding *zl-* of Written Tibetan) and the Golok and Lhasa reflexes of ***lōv̄S** (**ɿ**, 1/-1) that are difficult to reconcile with the other reflexes; so some indication of the sort of phonetic processes that I would suggest to account for them will not be out of place. In making these suggestions I shall be guided by two principles. One of these is the principle that I put forward in Sprigg, 1968c, in connexion with ‘r’ sounds, that Tibetan abhors the duplication of a feature (‘r’ sound, occlusion, friction) within the syllable initial, and attempts to dispose of one

or other duplicate, thereby also reducing the articulatory complexity of the syllable initial. The other guiding principle is that *vyañjanabhakti*, or glide consonants, are readily developed to link friction (**ɣ s z ʃ j**) with oral obstruction (**k g p b m n l**; Sprigg, 1968a, 1968c; cf. also Li, 1933, 147-8; 1959).

In the case of *lovS and its reflexes the problem is to account for a difference in order of features in the syllable initial: occlusive-fricative (**ldz**) in Balti, but fricative-occlusive, by implication, in the order of symbols in Written-Tibetan *zl-*. In contrast the corresponding Lhasa medial syllable initial **nd** is occlusive only; but it agrees with *zl-* in being occlusive-final, whereas the Balti and Golok clusters are fricative-final (**ldz rdz**). Classical Greek *zēta*, incidentally, provides a striking parallel, with alternative interpretations, as fricative-occlusive (**zd**) or as occlusive-fricative (**dz**) (Allen, 1968, 53-7).

A major reason for allowing myself to be guided by the two principles that I have mentioned is that it enables me to avoid having to resort to metathesis, a concept that encourages one to ignore the articulatory aspects of the problem. Instead I offer a reconstructed phonetic form that transcends the difference between the two orders of features and permits alternative lines of development (a) and (b) depending on which of the two duplications of a feature is treated as *de trop* and abandoned, the former in one set of dialects and the latter in the other:

$$\begin{array}{cccccccccc}
 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & \\
 *slz > *s(\bar{d})lz > *zdlz > \left[\begin{array}{l} (a) *dlz > *dl(\bar{d})z > ldz > rdz \\ (b) *zdl > *z(\bar{d})ld > *dl\bar{d} > *ld > *nd > \bar{d}/-nd \end{array} \right.
 \end{array}$$

(by giving a number to each stage I do not mean to imply that alternatives (a) and (b) in each column were necessarily synchronic).

(1) In this stage it is reasonable to assume a voiceless initial fricative (**s-**): it is voicelessness that combines with the liquid feature **m n ŋ r** in Balti **sm sn sŋ str**; (2) a *vyañjanabhakti* voiced plosive (**d**) must be assumed at this stage in order to account for the voicing of the **s-** of stage (1) to the **z-** of stage (3) (and, subsequently, the **z-** of *zl-*); for the voice of **z-** requires voice combined with plosion (**d g b**); (3) friction (**z**) is duplicated at this stage, but only temporarily; for one or other duplicate will be treated as superfluous; (4) the duplicated initial of stage (3), friction-occlusion-friction, has been simplified to either (a) occlusion-friction (**dlz**) or (b) friction-occlusion (**zdl**), the features on which Written-Tibetan *zl-* is assumed to be based; (5) a further *vyañjanabhakti* **d** arises in both lines of development (a) and (b); (6) the complex double-plosive initials of stage (5) are simplified, in line (a) to **ldz-** (occlusive-fricative), as in contemporary Balti, and, in line (b), to the occlusive-only, but still double-plosive, cluster **dl\bar{d}**; (7) in line (a) Golok develops **r** initial as its reflex of *l initial, becoming a homophone of its reflex of *r initial; in line (b) the double-plosive cluster of stage (6) is simplified to a single-plosive cluster, perhaps through the lateralization of the former cluster-initial **d-**, and presumably becomes a homophone of a former *ld- reflex of *lovT for the Lhasa dialect

(if the Lhasa dialect had, instead, followed development (a), it would at this stage, presumably, have developed into ***ndz-** or ***nz-**, homophonous with its reflex of *novS, e.g. **-nz** of **ʃenzom** 'smile' (*zhal-'dzum*)); (8) under the influence of **nd-**, the Lhasa and W-T reflex of *novT, the ***ld-** reflexes of *lovS and *lovT alike are nasalized to **nd-**, which survives in the reading-style pronunciation used for Written Tibetan; (9) the stage-8 features survive in the Lhasa dialect, but only medially, and in certain types of junction; in word-initial position they are simplified, perhaps through devoicing (**ṅd-**), to the partially-voiced single initial consonant (**d-**) of the present time.

The phonetic processes that I would reconstruct for ***loṽS** and its Balti, Golok, and Lhasa reflexes are somewhat similar :

$$\begin{array}{cccccc}
 & 1 & & 2 & & 3 & & 4 & & 5 \\
 *sls- & > & \left[\begin{array}{l} (a) *sl(t)s- > *ʃʃts- > ʃts- \\ (b) *sl- > \left[\begin{array}{l} (i) *ʃl- > *ʃ- > ʃ- \\ (ii) -l- \end{array} \right. \end{array} \right.
 \end{array}$$

The stages are : (1) friction is duplicated, and therefore due to be simplified. The (a) line of development then goes through stages 2-4 as follows : (2) a *vyañjanabhakti* **t** develops ; (3) the cluster is simplified to an occlusive-fricative sequence, getting rid of the fricative duplication in the process, perhaps through the lateralization of the former cluster-initial friction ; the cluster is now voiceless throughout ; (4) the cluster is now further simplified to the form it has in contemporary Balti. The (b) line of development goes through stages 2-5 : (2) the cluster is simplified, getting rid of the fricative duplication, to a fricative-obstructive sequence, the features presumably symbolized by the *sl-* of the orthography ; (3) in (ii) the Lhasa initial, and the reading-style pronunciation of Written Tibetan, are simplified to a single consonant, balanced by the additional complexity of a tonal classification (tone-1), while, in (i), Golok is taken to have rhotacized the cluster-initial **s** of stage (2), under the influence of its r-cluster initial, but probably without voicing it—indeed it would seem more likely to have extended voicelessness to the whole cluster ; (4) voicelessness is a feature of the whole cluster, in which the initial has been lateralized ; (5) the cluster has been simplified to the single voiceless initial consonant **ʃ**.

(ii) An examination of the Balti b-cluster-piece examples at (a)ii above suggests a two-term C-system for lexical items of that prosodic type. I have symbolized these two phonematic units as S and Σ ; their phonetic exponents are :

S	alveolarity	laminality (i.e. blade articulation)
Σ	palato-alveolarity	apicality (i.e. tip articulation)

As in section (i) above I again give a table illustrating the phonetic exponents of each of these two Balti phonematic terms in combination with the phonetic exponents of the b term of the initial system (section II) and of the v and ṽ terms of the voicing system.

Not all Lhasa cognates of Balti b-initial lexical items are also classifiable as b-initial, in terms of the Lhasa-dialect initial system referred to in section (i) above (n, z, b, m, g); some are simple-initial, symbolized as z-piece. Corresponding to the two terms, ∇ and v, of the Balti voicing system Lhasa has, again, the tonal classifications 1 and 2 (I have little doubt that Golok will be found to match Balti in this respect; my data are not sufficient to prove it); and corresponding to the Balti phonematic units Lhasa again has a prosodic term, another of the terms of the 11-term juncture system already referred to in section (i), conveniently symbolized as s. Lexical items of the s prosodic type can be further divided prosodically into y and \bar{y} according as their syllable-initial consonants are palatal or non-palatal, with matching vowel features, of degree of fronting and closeness (cf. Sprigg, 1968b, palatalization system, 583-93). The y corresponds to the Balti Σ term, and the \bar{y} to the S. These Balti and Lhasa correspondences, with such support as my limited Golok material affords, are symbolized for Proto-Tibetan, in the following table, by b, o, v, ∇ , S, and Σ .²⁰

P-T	Balti	Golok	Lhasa
*bo ∇ S	bo ∇ S	ɪ/ps	1b/zs \bar{y} s/-(p)s
*bo ∇ S	bo ∇ S	bz	2b/zs \bar{y} „
*bo ∇ Σ	bo ∇ Σ	ɪ/pf	1b/zsy f/-(p/b)f
*bo ∇ Σ	bo ∇ Σ	b₃	2b/zsy „

(again, as in section (i), a space in the Golok column means that my corpus does not, unfortunately, include an appropriate example). For Balti and Lhasa examples, and corresponding orthographic forms, see section (a_{iii}) above, and, for Golok, the following :

ɪsamβlo/psā:βlo	reflection	<i>bsam-blo</i>	Lhasa sam- (tone 1)
rtrolzā:	good custom	<i>srol-bzang</i>	
b₃l/i	four	<i>bzhi</i>	

In the second of these examples I have had to be content with intraverbal-junction features; but analogy would lead me to expect **bz** in word-initial position; cf. Balti **bzā:mo** 'good' (*bzang-po*), and Lhasa **saŋ-bo** and **kjε-psū:** 'profit' (*khe-bzang*).

(2) n- and m-cluster initial piece

Since (i) the Balti and Lhasa dialects do not have nasal clusters in word-initial position, (ii) nasal clusters in medial position in the Lhasa dialect, though not uncommon, do not distinguish voice and voicelessness, and (iii) the Balti nasal clusters in medial position do distinguish voice and voicelessness but number only six examples, it is more instructive to illustrate the exponents

²⁰ Formulae for the Balti b initial differ from those of the Balti l initial (section (i)) in the status of the o ('occlusive') term: in the l-initial formulae the o was placed in brackets because it is invariably implied by the l term; in the b-initial formulae, on the other hand, o is not necessarily implied by the b term, because there is a contrasting l ('liquid') type of piece, bl, e.g. **fl-**, in **fla/flas/flos** 'plait' ((b)stle/lhas) (cf. p. 563, n. 19).

of *v* and *ṽ* in the n-cluster and the m-cluster initial piece from Golok. I limit my examples here to the Golok m-cluster piece, with Lhasa m-cluster, n-cluster, and simple-initial correspondences (medial features are again indicated by a hyphen) :

	Golok m-cluster piece ; Lhasa m-cluster, n-cluster, or simple-initial piece					
G	<i>v</i> -piece	mth	mtsh	mtsh	mkh	mtṣ
	<i>v</i> -piece	md		mz	mg	mdr
L	tone-1	th	tsh /[-mz -dz]	tsh /[-mdʒ -dʒ]	kh	ṣṣ / -ndr
	tone-2	d / -nd	z		g / -mg	dr /[-ndr -mdr]

Examples

G	mthəməgə	of the thumb	<i>mthe-bo'i</i>
L	thəbø:	„ „ „	„
G	mtsho	lake	<i>mtsho</i>
L	tshə	„	„
	˘jə-mts(h)ə	blue-glittering lake	<i>g.yu-mtsho</i>
	˘kə-mzə:	armament	<i>go-mtshon</i>
G	mtshodmɛ	offering-lamp	<i>mchod-me</i>
L	tshə:	eat, drink	<i>mchod</i>
	˘tshə-mdʒə:	libation of tea	<i>ja-mchod</i>
G	mkhənpə	abbot	<i>mkhan-po</i>
	˘kjəm-bə	„	„
G	mtṣəyɑ	firm	<i>mkhregs-pa</i>
L	˘tṣag-(b)ə	„	„
G	mtṣəjɑ	cord	(<i>˘</i>) <i>phreng-ba</i>
L	˘tṣəjə-ə/˘phəjə-ə	„	„
L	˘tshə-ndrɛ:/ā: } ˘tshə-trɛ:/ā: }	rosary	<i>phyag-(<i>˘</i>)phreng</i>
G	mdɑ	arrow	<i>mdɑ'</i>
L	dɑ	„	„
	˘mə-ndə	gun	<i>me-mdɑ'</i>
G	mzə	cross-bred yak	<i>mdzo</i>
L	zə	„ „	„
	˘pə-mzə:	master tailor	<i>dbu-mdzad</i>
G	mgjəyɑ	quick	<i>mgjəyɑ-pa</i>
L	˘gjəg-(b)ə	„	„
	˘də-mgjə:	[stone weight]	<i>rdo-mgjəyɑ</i> (if this <i>mgjəyɑ</i> is the same)
G	mdrombo	guest	<i>mgron-po</i>
L	˘drəm-bə } ˘drom-bə }	„	„
	˘kə-ndrə: } ˘kə-ndrɛ: }	feast	<i>sku-mgron</i>

G	mdri:	rice	'bras
L	dre:	„	„
	˚fa˚mdre:	curry and rice	sha˚'bras
	˚fe˚ndre:	rice (honorific)	bzhes˚'bras

In my Golok material there are no examples of an initial cluster **mdʒ**. The Golok form corresponding to the initial *mj* of Written-Tibetan *mjal* 'meet', which I had expected to yield a Golok m-cluster ***mdʒ**, in fact yielded the n-cluster **ndʒ** (**ndʒa:**), which my informant spelt phonetically as 'ja'; and the limited time available to me did not allow me to test other likely lexical items (Jäschke, 1881, in fact lists only four other items with initial *mj*).

Golok m-cluster lexical items commonly correspond to Lhasa n-cluster items, as in three of the above examples (*mda*', *'phreng*, *mgron*), while *'bras* shows evidence for both n-cluster (**˚fe˚ndre:**) and m-cluster (**˚fa˚mdre:**) classifications. Only two lexical items in the above examples are unequivocally m-cluster in both Golok and Lhasa: *mchod*, *mgyogs*; one other, *mtsho*, shows evidence in the Lhasa dialect for both a m-cluster classification and for a simple-initial classification: **˚jo˚mts(h)ɔ** versus **˚gja˚dzɔ/˚gja˚tso** (rarely also **˚gja˚mzɔ**); the remainder, *mtse*, *mdzo*, *mkhan*, and *mkhregs*, give no support for any other classification, in the Lhasa dialect, than simple-initial because I have no record of any of them as appearing in intraverbal (or medial) junction, in which type of junction alone could there be criteria of the m or the n cluster in that dialect.

It will be observed that I have left out of account, in the previous paragraph, all lexical items that have initial labiality and plosion:

G	v-piece	mph	
	v-piece		mb
L	tone-1	ph/-mb	
	tone-2		b/-mb

Examples

G	mdamphenge	of a target	<i>mda</i> '-' <i>phen-gyi</i> (' <i>phen</i> /' <i>phangs</i> / <i>phong</i> 'throw')
L	gʃɿmbĩ:	target	<i>rgyab</i> ' <i>ben</i> (in which the nasality of the m is attributable to junction with the second of the two lexical items)
G	mbaŋtʃham	masked dance	' <i>bag</i> ' <i>cham</i>
L	˚bak˚tʃam	„ „	„
	˚fɛ˚mba	mask (honor.)	<i>zhal</i> ' <i>bag</i>

The reason for this is that in all other **m**-initial clusters the features associated with **m**- are non-homorganic (non-labial); but in the n cluster, on the other hand, the nasality is combined with the same place of articulation as the following consonant, including labiality. Tibetan orthography, incidentally,

supports this decision in favour of treating **mph-** and **mb-** as n-cluster, by symbolizing them with the *a chung* ('*ph-*', '*b-*').

(a) Prosodic systems

Reconstruction based on the above table gives the following Proto-Tibetan prosodic categories, with their Golok, Balti, and Lhasa reflexes :

P-T	G	B	L
*m cluster	m cluster	(m cluster) 'simple initial'	m cluster n cluster 'simple initial'
*o piece	'occlusion'	'occlusion'	'occlusion'
*v piece	v-piece	(v piece)	tone 2
*v̄ piece	v̄-piece	(v̄ piece)	tone 1

(I have placed certain Balti reflexes in parentheses to indicate that the number of lexical items that exemplify them is very small.)

(b) Phonematic systems

If I exclude for the moment those Golok m-piece lexical items which have rhotacized initials (**mtṛ mdr**), and their Lhasa and Balti cognates (Lhasa **tṛ/-ndr dr/-ndr dr/-mdr** ; Balti (Khapalu) **gr br**), I need to state a four-term initial-consonant system for Proto-Tibetan *m-cluster *o-piece lexical items : *T, *S, *Σ, and *K. The Golok reflexes of these terms I also symbolize as T, S, Σ, and K ; their phonetic exponents are :

T	dentality	plosion	laminality
S	gingivality	affrication	„
Σ	alveolo-palatality	„	dorsality
K	velarity	plosion	„

In the following table I have set its Golok reflex against each of the terms of the Proto-Tibetan *m-cluster *o-piece initial-consonant system, together with the pair of syllable-initial features (v-piece, v̄-piece) from which the Golok exponents of each phonematic term are drawn ; I have also added the syllable-initial features of cognates in the Balti and Lhasa dialects appropriate to word-initial position, and to medial position too where it is instructive to do so :

P-T	Golok	Balti	Lhasa
*moṽT	moṽT mtḥ	th	th 1 (tone)
*movT	movT md	d	d/-nd 2 („)
*moṽS	moṽS mtsh	tsh/-mtsh	tsh/-mz 1
*movS	movS mz	z	z/-mz 2
*moṽΣ	moṽΣ mtfḥ	tʃh/-mtfḥ	tʃh/-(m)dʒ 1
*movΣ	movΣ mg	dʒ/-mʒ	dʒ 2
*moṽK	moṽK mkh	-mkh	kh 1
*movK	movK mg	g	g/-mg 2 ²¹

²¹ The function of the *o and the o in the Proto-Tibetan and the Golok phonological formulae is to distinguish them from the contrasting categories *liquid (*l) and liquid (l) that would be

Examples are the lexical items given earlier in this section (2), with the addition of the following :

* <i>mo</i> ∇S	Balti	rgjamtsho	river	<i>mtsho</i> 'lake'
* <i>mo</i> ∇Σ	,,	χlomtʃhun	embitteredness	<i>mchin</i> 'liver'
* <i>mo</i> vΣ	,,	bamʒok (Skardu)	cow's tail hair	<i>mjug</i> 'tail'
		bamdʒok (Khapalu)		
	Lhasa	dzɔŋ⁻ma:	at the (tail) end	
* <i>mo</i> ∇K	Balti	χlɔmkhən	skilled in singing	<i>mkhan</i> 'skilled' ²²

If I had thought fit to include the rhotacized Golok m-piece initials **mtʃ** and **mdr** on the same terms as the non-rhotacized initials **mtsh**, **md**, **mtsh**, **mz**, etc., I should have needed a five-term initial-consonant system instead of the four-term system stated above; and the fifth term might have been symbolized as R. In that case its phonetic exponents would have been :

R alveolarity, affrication, apicality,

drawn from the following Golok initials, with the initials of Lhasa and Balti cognates for comparison, and set against formulae reconstructed for Proto-Tibetan :

P-T	Golok	Balti	Lhasa	
* <i>mo</i> ∇R	<i>mo</i> ∇R mtʃ	none	tʃ/-ndr , etc.	1 (tone)
* <i>mo</i> vR	<i>mo</i> vR mdr	$\left[\begin{array}{l} \mathbf{gr} \\ \mathbf{br} \end{array} \right.$	$\left[\begin{array}{l} \mathbf{-ndr} \\ \mathbf{-mdr} \end{array} \right.$	2 (tone)

Examples are as above, with the addition of the following from the Khapalu dialect of Balti, and their Golok and Lhasa cognates :

Balti	Golok	Lhasa	
grɔn feast	mdrombo guest	drɔm⁻bo guest	kɔ⁻ndrɔ: feast
brɛs rice	mdri: rice	drɛ: rice	ce⁻ndrɛ: rice

(Written Tibetan *mgron*, 'bras)

However, syntagmatic considerations oblige me to separate these Golok m-cluster initials in **mtʃ** and **mdr** from the other four types of m-cluster initial considered above (**mtsh** **md** **mtsh** **mz**, etc.): (i) apico-alveolar friction (**r** **ʃ**) combines only with apico-alveolar occlusion, not with lamino-dental plosion, lamino-gingival affrication, or any of the other non-nasal occlusive features of the m cluster; (ii) in reverse, apico-alveolar occlusion occurs only in combination with apico-alveolar friction; and (iii) the vowel that follows **mtʃ** and **mdr**

needed to deal with such other Golok m-initial clusters as **mɔ** **mɲ** **mn** (Appendix B, cols. 11, 12, 14) and reconstructions based on them; but, since the symbols T, S, Σ, and K would not be used for those Golok ml (and Proto-Tibetan *ml) phonological formulae, the phonematic symbols T, S, Σ, and K imply the prosodic terms o and *o, and make it possible to dispense with them in all formulae in which these phonematic symbols appear.

²² I should like to include Balti **-ms** and **-md** in this section, as exemplified by **snamsɔl** 'nostril' *sna-mtshul* and **snamdəl** 'whiskers' (? *sna-rdal*, *sna-rdol*); but the vowel quality of the first syllable, **ɔ** rather than **a**, shows that contemporary Balti at least treats the **m** as final in the first syllable, not as initial in the second.

is fully voiced in either case.²³ These three associations of features provide grounds for distinguishing a rhotacized syllable-initial piece (r piece) from all non-rhotacized (\bar{r}) types of piece, and, in this instance, the non-rhotacized type of m-cluster piece ($m\bar{r}$) analysed phonematically above. Similar considerations also apply to the prosodic analysis of the Lhasa and the Balti dialects, with the significant difference that apico-alveolar friction combines with velarity and labiality in Khapalu Balti (as well as with alveolarity), whence the Khapalu Balti initials **kṙ gr pṙ br**.²⁴

Balti, in fact, and especially Khapalu Balti, shows the analysis and comparison of these initials to be less straightforward than one would have expected from Golok, Lhasa, and Skardu-Balti cognates (Golok **mtṙ mdr**; Lhasa **tṙ dr -n/mdir**; Skardu **tṙ dr pṙ br**), and reinforces the syntagmatic grounds for distinguishing the rhotacized piece (r) from the non-rhotacized (\bar{r}).

Khapalu Balti distinguishes two places of articulation, velar and labial (but not alveolar), for voiceless rhotacized initials (**kṙ pṙ**), and three, velar, labial, and alveolar, for voiced rhotacized initials (**gr br dr**), e.g.

kṙnmṣ	elbow	[?mkhrig-ma	wrist]		
pṙa	kick	'phra		grṙn	feast mṙron
brṣ	rice	'bras		dra	equal 'dra

The problem is to determine which of these Balti initials correspond to the Golok m-cluster initials **mtṙ mdr**; and my Golok material is too scanty for me to do this with any certainty; however, the Khapalu-Balti apico-alveolar-initial lexical item **dra** 'equal' ('dra) is clearly a cognate of the Golok **-ndra** of **ṙkoandra** 'image, likeness' (*sku'-dra*), not a m-cluster but a n-cluster lexical item. This Khapalu-Balti lexical item, and others in **dr-**, regularly correspond to n-cluster lexical items in the Lhasa dialect, e.g. **kondrṣ** 'image' (*sku'-dra*), and the second lexical item of **ṙndri** 'ghost' (*shi'-dre*). Khapalu-Balti **dr-**initial lexical items are therefore excluded from further consideration here, as being in all probability related to Golok n-cluster lexical items (Tibetan orthography also provides support for not associating these Khapalu-Balti lexical items in **dr-**, and their Lhasa cognates (in **dr/-ndr**), with the Golok m-cluster type of lexical item: it has no such initials as **mdr* and **mthr*).²⁵

My material does not include Golok and Lhasa cognates for relevant Khapalu-Balti lexical items in the voiceless labial initial **pṙ**, e.g. **pṙa pṙi pṙst** 'kick, lessen, angle' ('phra, 'phri, (')phret); but for Balti lexical items in the voiced labial initial **br** the Lhasa cognates are n-cluster, and the Golok are m-cluster; e.g.

²³ But cf. the partially voiceless vowel of the non-rhotacized initials **mtḥ mtsh mtḥ mḥ**, contrasting with the fully voiced vowel of **md mz** and **mṙ** syllables.

²⁴ The Khapalu-Balti apico-alveolar rhotacized initials are **tṙ** and **dr**, e.g. **tṙok, tṙi, dre, dra** 'six, smell, demon, equal' (*drug, dri, 'dre, 'dra*); there is no **tṙ-** to match the two voiceless aspirated initials **kṙ** and **pṙ** (cf. also section II(B)).

²⁵ For an interpretation of 'dr- as 'r- see Li, 1959, 58-9, and Li, 1933, 147-8; cf. also Chang, unpublished, pp. IV.5-9.

Balti, simple-initial		Golok, m-cluster		Lhasa, n-cluster	
brəs	rice	mdri:	rice	ˌseːndre:	rice
brəmzəs	pock-mark	mdrumba	pock-mark	ˌʎaːndrɔm	smallpox
brok	dragon	mdruk	thunder	ˌtʃhaːndru:	gryphon

(*'bras*, *'bras*, *bzhes-'bras*; *'brum-rjes*, *'brum-pa*, *lha-'brum*; *'brug*, *'brug*, *bya-'brug*). In such a case as this, where the Lhasa dialect supports a *n-cluster reconstruction but the Golok a *m-cluster, one might be tempted to prefer the Golok, as being the more conservative (indeed the m-cluster piece is well on the way to being merged with the n-cluster piece in the Lhasa dialect); but a more significant factor is the labiality feature in the Balti initial **br** (both Khapalu and Skardu dialects being in agreement here): the two criteria of the Golok and the Lhasa m cluster are (i) that the nasality must be labial, and (ii) that the associated plosive, affricate, fricative, or nasal must be non-homorganic, i.e. non-labial; and the labiality of the Balti plosive-initial **br** therefore supports a *n-cluster reconstruction via a conjectural *homorganic* nasal-and-plosive initial ***mbr**, giving place to ***mbdr** (cf. also Sprigg, 1968a, 165-6, and Sprigg, 1968c, 310). The same argument would apply to the Balti voiceless initial **pr**, with orthographic support: *'phr-*, but no **mphr-*.

The only Khapalu-Balti rhotacized initials left to be accounted for are, therefore, the rhotacized velar initials, voiceless (**kṛ**) and voiced (**gr**). Here again my scanty Golok material does not include a cognate for any of my Balti lexical items in **kṛ-**; though the orthography (*mkhriḡ-ma*), if historically sound, supports a *m-cluster reconstruction from Khapalu-Balti **kṛunmō** 'elbow'. In the case of the Balti voiced-initial lexical item **gron** 'feast' (*mgron*), on the other hand, I have a Golok m-piece cognate in **mdrombo** 'guest' (*mgron-*) and a Lhasa n-piece cognate in **kondrō:**, **kondrȳ:** 'guest' (*sku-mgron*). Here, the labiality argument that I used against a *m-cluster reconstruction from Golok **mdri:**, Lhasa **ˌseːndre:**, and Balti **brəs** does not apply; and the velarity of the Balti form is consistent with a *m-cluster reconstruction via conjectural *non-homorganic* nasal-and-plosive initials ***mgr** and ***mgdr**.

If these arguments are accepted, Proto-Tibetan lexical items can be reconstructed that are both *m-cluster-initial and *r-piece. The reflex of *r would be r in the Golok, Lhasa, and Balti dialects; but the reflex of *m would be m in Golok, n in Lhasa, and simple-initial in Balti, and, since no paradigmatic (consonantal) differentiation would be possible in the initial of *mr lexical items, there would be no need to set up a reconstructed initial-consonant system for items of this prosodic type:

P-T	K-B simple, r	Lha. n-piece, r	Gol. m-piece, r
*mvr	vKr [?] kṛun(mō)	nvr ˌtṛagː(b)ɔ	mvr mtṛəya
*mvr	vKr gron	nvr ˌdrəŋ(ˌgā:)	mvr mdrombo
		(ˌkɔ)ˌndrȳ:	

(Khapalu-Balti 'elbow' (? *mkhriḡ-ma* 'wrist'); L, G 'solid' (*mkhregs-pa*);

B 'feast' (*mgron*), L 'guest-house' (*mgron-khang*), G 'guest' (*mgron-po*), L 'guest' (*sku-mgron*).

The examples that I have given in section (A) will, I hope, suffice to illustrate the 'occlusive' type of piece in the Balti, Golok, and Lhasa dialects, and for the Proto-Tibetan *o-feature-piece and *f-feature-piece correspondences, and also for the consequential Balti and Golok voicing systems and the Proto-Tibetan terms *v and *v̄ that are based on them; I now wish to consider the 'liquid'-feature, or 'liquid', type of piece (1 piece), and the Proto-Tibetan *l piece based on comparison of the l piece in the three dialects.

(B) 'Liquid' (-feature) piece; w, y, or ə piece

The 'liquid' piece (Appendix B, cols. 11–16) differs from the 'occlusive' type in the following two major respects: (i) 'liquid'-piece clusters in Balti belong neither to the completely voiced nor to the completely voiceless type but to a mixed type, in which both voicelessness and voice are represented, and in that order, e.g. **ɽŋ str xj**, while in Golok a majority of them will be seen to be completely voiced, e.g. **rl ʏ(ə)m mn**, though some of them contrast with the mixed type of voicing features, e.g. **ɽŋ rm** versus **ɽŋ ɽm**; but (ii), whether voiced throughout or mixed, 'liquid'-feature clusters show no voicing contrast to match the syntagmatic voice-voicelessness distinction on which the 'voicing' system (v, v̄) of the 'occlusive'-piece type of syllable is based (whence also Proto-Tibetan *v and *v̄ for *o and *f lexical items).

In dialect comparison too, as between Balti and Golok on the one hand and Lhasa on the other, it is noteworthy that lexical items classified in Balti and Golok as 'liquid'-feature-piece (or l-piece) cluster-initial lexical items differ from 'occlusive'-feature-piece (or o-piece) cluster-initial lexical items: the former correspond exclusively to tone-1 Lhasa lexical items, but the latter correspond to either tone-1 or tone-2. The 'liquid'-piece cluster-initial lexical items are also classifiable as r-, s-, g-, or b-cluster in Balti, and as also r-, g-, b-, or m-cluster in Golok; the Lhasa cognates are in all cases tone-1 and in most cases 'simple-initial', though consonant clusters in medial junction (**-ŋŋ -mŋ**) provide grounds for classifying a few of them as 'cluster-initial': g-cluster (**-ŋŋ**) and m-cluster (**-mŋ**), as opposed to 'simple-initial' (**ŋ- -ŋ**). I illustrate these correspondences in the following table, and have added to them examples in which a Golok 'cluster-initial' piece (r-cluster, g-cluster) corresponds, exceptionally, to a Balti 'simple-initial' piece (G **ɽŋ**, B **ʏ**; G **ʏ(ə)ŋ**, B **ŋj**):

	1	2	3	4	5	6	7	8	9	10		
G	ɽŋ		ɽŋ	mŋ	ʏ(ə)ŋ	ʏəŋ	ɽm	rl	ɽtr	ɽəj	cluster	
B		ɽŋ	ɽm				sm	ɽl	str	xj	,,	
	ʏ			ŋj	ŋj	m					simple	
L	-ŋ	-ŋ	-ŋ			-m	-m	-l	-s	-j	,,	tone-1
				-ŋ/-mŋ							m-cluster	,,
					-ŋ/-ŋŋ						g-cluster	,,

Examples

	Golok	Balti	Lhasa
1	rŋa	ɣa	ˉŋa (tʃøː)ˉŋø
2		rŋa/rŋəs/rŋos	ˉŋa/ˉŋeː/ˉŋøː
3	rŋiː	χmɔl	ˉŋyː (gʃø)ˉŋyː
4	mŋeː	ŋje/ŋjes	ˉŋeː (kwø)ˉmŋeː(bø)
5	ɣ(ə)ŋiː	ŋjɯs	ˉŋiː (tʃɔ)ˉŋŋiː
6	ɣøŋɯg	mɪk	ˉmiː (khɤm)ˉmiː
7	rŋmən	smən	ˉmɛː (cɔŋ)ˉmɛː
8	rlɔː	χlɔŋ	ˉlɔː (theː)ˉlɔː
9	rŋtrin(bø)	strɪn	ˉsum(bɔ)
10	røjɯ	xju(u)	ˉjɔ (gwyː)ˉjɔ

(‘ five ’ (*lnga*), ‘ fifteen ’ (*bco-linga*) ; ‘ reap ’ (*rnga/brngas/rngos*) ; ‘ silver ’ (also, for Balti and Lhasa, ‘ sweat ’ (*rngul*)) (*dnɣul*), ‘ Chinese silver ’ (*rgya-dnɣul*) ; ‘ tan ’ (Balti, ‘ massage ’) (*mnyed*), ‘ tanner ’ (*ko-mnyed-pa*) ; ‘ two ’ (*gnyis*), ‘ twelve ’ (*bcu-gnyis*) ; ‘ eye ’ (*mig*) (also *dmig*), ‘ eye of a needle ’ (*khab-mig*) ; ‘ medicine ’ (*sman*), ‘ emetic ’ (*skyug-sman*) ; ‘ air ’ (*rlung*), ‘ dust-storm ’ (*thal-rlung*) ; ‘ worm ’ (*srin*), ‘ worm ’ (*srin-bu*) ; ‘ turquoise ’ (*g.yu*), ‘ turquoise (honor.) ’ (*mgul-g.yu*)).

In the absence of fuller Golok material it would be hazardous to give firm reconstructions based on the above correspondences ; I wish, however, to propose certain tentative Proto-Tibetan prosodic systems, and try and account for anomalies. These prosodic systems include such terms as : (1) *l-feature, (2) *s-cluster, (3) *r-cluster, (4) *g-cluster.

(1) *Feature system : *l

The other two terms of the Proto-Tibetan *feature system, the *o term and the *f term, so named from ‘ occlusion ’ and ‘ friction ’ respectively, and their reflexes in Balti, Golok, and Lhasa, were stated in section (A) above ; corresponding reflexes for the third term of that system, *l (from ‘ liquid ’), are :

*l : Balti l, Golok l, Lhasa l ;

the examples given at (2a-c) below, for *s, *r, and *g clusters, will all serve equally well as examples of *l of the *feature system ; i.e. as examples of *sl, *rl, and *gl.

(2) *Initial system

The Balti, Golok, and Lhasa cluster initials and simple initials of Appendix B, cols. 11-16 and 21 provide reflexes for the five terms *s, *r, *g, *b, and *m of the seven-term *initial system that combine with the *l term of the three-term *feature system comprising *l, *o, and *f (so named from ‘ liquid ’, ‘ occlusive ’, and ‘ fricative ’), as *sl, *rl, *gl, *bl, and *ml. The *n term of the *initial system does not combine with the *l term of the *feature system ; but the remaining term of the *initial system, also designated *l following the orthography, has already been shown, in (Alai) above, to combine with the *o term of the *feature system, and can probably be held to combine with the *l term

of the *feature system too, whence *ll, as a means of accounting for the set of initial-consonant correspondences in Balti **ya**, Golok **r̥a**, and Lhasa **-ŋa** 'five' (*lnga*) of col. 1 of the examples shown earlier in this section (B) (further supported by such forms as Jäschke's 'Kham's lña', for a discussion of which see Róna-Tas, 1966, 27-9, 141-2; cf. also p. 563, n. 19). As examples of the *initial system in combination with the *l term of the *feature system I take *s, *r, and *g.

(a) *s

The Balti, Golok, and Lhasa reflexes of the Proto-Tibetan *s-cluster term of the *initial system for those lexical items which are also *l-feature are:

*l *s: Balti s, Golok r, Lhasa 'simple' + tone 1; e.g.

	Balti	Golok	Lhasa	English
1	snɯ(ma)		-ɲɯ(bə)	old
		ʃɲaŋ(ma)	-ɲl:(mə)	Nyingma [order]
2	smən	ʃmən	-mɛ:	medicine
3	snaa		-ʔa(mdʒo:) (?)	ear ²⁶
4	sŋən(po)	(mtsho)ʃŋon	-ŋom(bə)	blue, Blue Lake

(1, *rnying-pa*, *rnying-ma*; 2, *sman*; 3, *rna-ba*, *rna-mchog* ²⁶; 4, *sngon(-po)*, *mtsho-sngon*).

It is noteworthy that the Lhasa tonal reflex of *s is tone 1 when *s is combined with *l (feature), i.e. *sl, but not when *s is combined with *o (feature), i.e. *so (A1a). In the latter combination (*so) there is the further need to refer to the voicing system, according to which tone 1 is the Lhasa reflex of *ṽ (*soṽ) and tone 2 the reflex of *v (*sov). This difference emphasizes the importance of the feature system that can be set up for each of the three contemporary dialects in relation to the *feature system of Proto-Tibetan, and the importance of dealing with liquid-initial lexical items separately from occlusive-initial lexical items in Tibetan phonological analyses and, consequently, in Tibeto-Burman reconstruction.

(b) *r

The corresponding reflexes of *r cluster for lexical items that are also examples of *l feature, i.e. *rl, seem to be the following, though my scanty Golok material limits the number of cognates that I can draw on:

*l *r: Balti r, Golok r, Lhasa 'simple' + tone 1; e.g.

	Balti	Golok	Lhasa	English	Written Tibetan
	ʃŋə		-ŋə	roast	<i>rngod/brngos</i>
	ʃmakha	ʃ/rma	-ma	wound	<i>rma</i>
	ʃŋjəx			habit	(b) <i>snyog</i> 'crave for'

²⁶ Jäschke, 1881, gives '**nám-č'og* or '*ám-č'og*' as colloquial for *rná-ba* (with an orthographic form '*rná-mč'og*', p. 312); but **-ʔa** is too ill-supported to be treated as a cognate of Balti **snaa** and the reading-style form **-na** (Roerich, 1958, 134 gives '*zna*' for Golok); cf. Jäschke, 1881, 605, *snam-brag* and '*am-bag*', the only other comparable pair.

(Balti has no such initial as **ɾn**; my Golok material does not contain an example of **ɾ/rn-** either, though such an initial is to be expected: Roerich, 1958, 134, gives 'ɾna' for 'nose' (*sna*)).

It is, however, necessary to take note of two types of exception to these reflexes: (i) while the above Balti items are valid for both Khapalu and Skardu dialects, there are a number of lexical items for which Skardu has a *s* cluster but Khapalu a *r* cluster; e.g.

Skardu	Khapalu		
snɪt	ɾnɪt	wrinkle	<i>rnyid</i>
snjən	ɾnjən	relation	<i>gnyen</i>
snɑ/snəs/snəs	ɾnɑ/ɾnəs/ɾnəs	reap	<i>rnga/brngas/rngos</i>

(ii) corresponding to the Golok *r* cluster of **ɾnɪ**: 'silver' (*dnɟul*) Balti has the *g* cluster **ɣm-** of **ɣmɔl**.

(i) Of these two Balti dialects it is the Khapalu that is generally the more conservative in syllable-initial features. Other things being equal, then, it would seem preferable to follow the Khapalu dialect in discrepancies of this sort, and to explain the Skardu *s*-cluster forms as an extension of this sort of cluster to original *r*-cluster forms under the influence of analogy. Alternatively, it might seem better to allow Written-Tibetan orthography to decide such problems, on the assumption that the orthographic form antedates any confusion between the *s* cluster and the *r* cluster in Balti; for this purpose one would need to know the date of the sources cited by Jäschke and other lexicographers as authorities for a particular orthographic form, especially where Jäschke, for example, gives both *s* cluster and *r* cluster for the same lexical item, e.g. (p. 195) *rnyɪ* and *snɪɪ* 'snare', (p. 134) *rngas* and *sngas* 'bolster', and (p. 427) *smug-pa* and *rmugs-pa* 'fog'. There is also the further problem, illustrated by *gnyen* above, that the orthography is sometimes opposed to both *s* cluster and *r* cluster alike.

(ii) On the second point Lhasa-dialect **ɳwɪ**: and the spelling-style pronunciation of Written Tibetan as **ɳwɪl** both support the velarity of **ɾnɪ**: against the labiality of **ɣmɔl**, and, with the labiality, the *r* cluster; for the *g* cluster has no velar member (***ɣŋ**) in any dialect known to me, nor is there any means of symbolizing such a cluster within the conventions of Tibetan orthography (***gnɟ-** is not a permitted initial sequence).²⁷

I would myself account for the **ɣm-** of the Balti form **ɣmɔl** 'silver' (*dnɟul*), as well as for its Balti homophone **ɣmɔl** 'sweat' (*rngul*), by first distinguishing Balti back rounded syllables, under the prosodic term *w*, from both front spread syllables (or *y* syllables) and neutral syllables (or *ə* syllables) (cf. Sprigg, 1968b, 534–72): the vowels of *w* syllables are related to a different set of initial-consonant features from those of the *y* or the *ə* type of syllable, including

²⁷ Jäschke, 1881, however, gives 'ɣnɪl' [? error for 'ɳnɪl'] as the Khams form, and 'ɣnɪl' (or 'ɣmul') as the Balti (p. xix). No such initials as **ɳŋ** or **ɳŋ** appear in Ray's northern-Kham (Kanze) or southern-Kham (Batang) material (Ray, 1965); but Roerich, 1958, gives 'ɳnū, ɳnū, dnul', for Rebkong Amdo, his 'ɳ' symbolizing 'un son uvulaire spirantisé' (pp. 28, 115).

among those features uvularity ($\chi \text{ ʁ}$) as opposed to the velarity ($\chi \text{ ʏ}$) of y and ə syllables. The two Balti lexical items $\chi\text{m}\text{ol}$ are w syllables; and it would be tempting to state that the vowels of all Balti w syllables ($\text{u } \text{ɔ } \text{ɔ } \text{ɔ}$) combine with initial χm and not with initial $\text{ʁ}\eta$. That, however, is not the case; for Balti has $\text{ʁ}\eta$ - in the lexical item $\text{ʁ}\eta\text{ɔ}/\text{ʁ}\eta\text{ɔs}$ 'roast' (*rngod/brngos*), which is equally of the w type with the forms $\chi\text{m}\text{ol}$, thus proving that it is perfectly possible to have initial $\text{ʁ}\eta$, a r cluster containing velarity, in the w type of syllable. If $\text{ʁ}\eta\text{ɔ}$, then why not also $*\text{ʁ}\eta\text{ol}$?

Though $\text{ʁ}\eta\text{ɔ}$ and $\chi\text{m}\text{ol}$ are indeed both w syllables, they differ from each other in one important respect, degree of stricture: the vowel of the two forms $\chi\text{m}\text{ol}$ is between close and half-close, and is in any case closer than the vowel of $\text{ʁ}\eta\text{ɔ}/\text{ʁ}\eta\text{ɔs}$ (half-open). It is, therefore, necessary to make a further distinction, that of 'close'-vowel syllables, like $\chi\text{m}\text{ol}$, from 'open'-vowel syllables like $\text{ʁ}\eta\text{ɔ}/\text{ʁ}\eta\text{ɔs}$; but, since a two-term vowel harmony based on degrees of closure is a feature of Balti, one would wish to make a close-open prosodic distinction in any case.²⁸ I would account for the phonetic processes of the change by postulating two close-vowel lexical items $*\text{ʁ}\eta\text{ol}$ (*dnɣul, rngul*), which developed a heavily lip-rounded initial $*\text{ʁ}\eta\text{w}$ usual with velars but, in this case, carried to the point of labial closure simultaneous with the velar closure ($*\text{ʁ}\eta\text{mw-}$) or following closely on it ($*\text{ʁ}\eta\text{mw-}$); the three-consonant initial cluster was then simplified to the current two-consonant cluster $\chi\text{m-}$, still characterized by strong lip-rounding, in which the χ takes its voicelessness and friction from the former $*\text{ʁ}$, and its uvularity from the velarity of the former $*\eta$ combined with backness of vowel ɔ .

Such an articulatory process, confined to syllables with close back rounded vowels, would mean that the Balti r cluster $\text{ʁ}\eta$ - and g cluster $\chi\text{m-}$ in w -syllable lexical items would be prosodically distributed reflexes of a Proto-Tibetan $*\text{rD-}$ in $*w$ -syllable lexical items ($*\text{wrD-}$) as follows:

P-T	Balti	g cluster	r cluster
$*\text{wrD-}$	w (syllable)	c(close)	$\chi\text{m-}$
	}	o(pen)	$\text{ʁ}\eta$ -

The g cluster χm contrasts, in Balti close-piece w syllables, with the r cluster $\text{ʁ}\eta$; e.g.

w (syllable)	c(close piece)	}	g cluster	$\chi\text{m}\text{ol}$	silver, sweat
			r cluster	$\text{ʁ}\eta\text{ok}$	fog

(*dnɣul, rngul*; *rmugs-pa* 'fog, sluggish').

Although both initials have labial nasality (m) in common, and appear to contrast only in respect of χ versus ʁ , if my speculations are correct, it would be fruitless to limit one's interest to those features in isolation: it is as a cluster that χm is significant, owing the uvularity of the χ to a former velar nasal (η),

²⁸ Though not dealt with in detail the significance of degree of vowel closure is indicated in Sprigg, 1967, 189.

the nasality and voice of **m** also to the former velar nasal, the voicelessness and friction of the **χ** to a former voiceless apico-alveolar roll (**ʃ**), and, last but not least, the labiality of **m** to the closeness and lip-rounding of the following vowel (**o**). It is only in combination, as a cluster (g cluster), that **χm** makes sense as the reflex of Proto-Tibetan ***rD-** in the ***w** type of lexical item, while **ʃm-** is the Balti reflex of the contrasting initial ***rM-** in the same (***w**) prosodic type of lexical item, i.e. of ***wrM-**. It would be vain to expect to be able to account for **χmo-** as a Balti development of ***ʃηo-** in a type of syllable other than one with lip-rounding and a close-vowel tongue position among its features, i.e. a syllable that is, prosodically, **w** (in contrast with **y** and **ə**) and 'close' (in contrast with 'open').

While Balti, if analysed prosodically, offers two different types of cluster as reflexes of Proto-Tibetan ***rD-**, the complementarily distributed **g**-cluster and **r**-cluster reflexes **χm** and **ʃη** respectively, as in **χmoɔl** and **ʃηo/ʃηos**, Golok, as far as my material goes, has **r** cluster as its constant reflex. Balti, similarly, appears to have a constant cluster reflex, **r**-cluster, as reflex of ***r** in the case of ***rM-**, and a constant cluster reflex for ***r** in the case of ***rL-** too, though in this case the Balti reflex is **g**-cluster (the corresponding Lhasa reflexes are constant: tone 1 and simple initial). Presented in the form of a table these initial reflexes of Proto-Tibetan ***r**, constant for Golok and Lhasa but variable for Balti according as the prosodic class of the lexical item is (i) **y**, **ə**, or **w**, and (ii) open (**o**) or close (**e**), are :

Proto-Tibetan * r :	Golok :	r	ʃ/rm	ʃη	rl
	Balti : y :	r	ʃm	ʃηj	
		l			ʃt
	ə, wo :	r	ʃm	ʃη	
		g			xl
	wc :	r	ʃm		
		g		χm	χl
	Lhasa :	[tone 1]	-m	-ɲ/ŋ	-l
		[simple]			

Examples

P-T	Golok	Balti	Lhasa	English
* yrM-		ʃmɔkpa	-mɔgbə	hoof
* ərM-	ʃ/rma	ʃma(kha)	-ma	wound
* worM-		ʃmət	-mø:(mɔ)	(B) shout (L) curse
* wcrM-		ʃmɔkpa	-mɔgbə	fog
* yrD-		ʃŋjt ²⁹	-ɲi:	wither
* ərD-		ʃηa/ʃηəs/ʃηos	-ηa/-ɲɛ:/-ηø:	reap
* worD-		ʃηo/ʃηos	-ηo/-ηø:	roast

²⁹ Khapalu **ʃŋjtpa**, but Skardu **ŋjtpa**, 'wither, wrinkle'.

P-T	Golok	Balti	Lhasa	English
*werD-	rɲi:	χmɔl	ṅy:	silver
*yrL-		ʃtɪkpa	ṅgbə	testicles
*ərL-	rlā:	xlā:s(pa)	ṅgbə	vapour
*werL-	rlō:	χlɔŋ	ṅō:	air

(*rmig-pa*, *rma*, *dmod*, *rmugs-pa*, *rnyid*, *rnga/brngas/rngos*, *rngo/rngos*, *dnqul* (Balti and Lhasa also *rngul* 'sweat'), *rlig-pa*, *rlangs*, *rlung*).

The above examples illustrate more especially the importance of distinguishing the w syllable from the other two prosodic types, the y and the ə; in other cases it is the y syllable that can usefully be distinguished from the ə, especially in connexion with the Golok g cluster and the Balti g and r clusters.

(c) *g

It is the Proto-Tibetan *g cluster that gains from distinguishing the y syllable from the ə syllable in Balti and Golok. The grounds for making this distinction are syntagmatic: in Balti, for example, the range of initial consonants that can be associated with the front spread vowels i ɪ e ε is remarkably different from those appropriate to a ɑ ə ʌ; corresponding syntagmatic relations in Golok are difficult for me to determine from the limited material available to me, especially since lexical items spelt with *-ing* in Written-Tibetan orthography look as though they would have to be classified prosodically as ə-syllable; e.g. *mīng*, *shīng*, *rnyīng* 'name, wood, old': Balti y-syllable **mɪŋ**, **ʃɪŋ**, **snɪŋ** but Golok (?) ə-syllable **mɲaŋ**, **ʃaŋ**, **ɣnaŋ**. Apart from the uncertain prosodic status of such Golok lexical items as these there seem to be no obstacles in the way of considering prosodic categories y and ə in Balti and Golok to be reflexes, respectively, of Proto-Tibetan *y and *ə.

The Golok reflexes of *g are g-cluster for both y and ə classes of lexical item (and for the w class too, for that matter); but only the w-syllable Balti reflexes of *g are g-cluster, its y-syllable reflexes being either g-cluster or simple-initial, and its ə-syllable reflexes being either g-cluster or r-cluster, as in the following table (the Lhasa reflexes of *g are tone-1 in every case, and simple-initial apart from one g-cluster lexical item):

P-T *g *w :	Golok :	g	ɣəl		ɣəj	
	Balti :	g	χl	χn	xj	
	Lhasa :	tone 1	} -l	-n	-j	
		simple				
*ə :	Golok :	g	ɣəl	(? ɣən) ³⁰	ɣm	ɣəj
	Balti :	g	xl	xn		xj
		r			ɣm	
		(simple				j)
						(see below)

³⁰ My material unfortunately contains no Golok cognate in this category; but Roerich, 1958, gives 'ɣnam' for this lexical item (p. 134).

Lhasa :	tone 1	}	-l	-n	-m	-j
	simple					
*y :	Golok :	g		ɣəŋ	ɣəŋ	
	Balti :	g	xl			
		simple		ŋj	m	
Lhasa :	tone 1	}	-l		-m	
	simple					
„ :	tone 1					
	g			-ɲ/-ŋɲ		

Examples

P-T	Golok	Balti	Lhasa	English	Writ. Tib.
*wgL-	ɣə'lə	ɣlu(u)	-lo	song	<i>glu</i>
*wgN-		ɣnot(pa)	-nə:	harm	<i>gnod</i>
*wgY-	ɣə'jɯ	xju(u)	-jɔ	turquoise	<i>g.yu</i>
*əgL-	ɣə'lan(ə)	xlan	-lā:	ox	<i>glang</i>
*əgN-	(?) ɣə'nɒm	xnam	-nam	sky	<i>gnam</i> ³⁰
*əgM-	ɣmɒk	ɣmaɔ	-ma:	army	<i>dmag</i>
*əgY-	ɣə'jak	xjaɔ/jaɔ	-ja:	yak	<i>g.yag</i>
				(see below)	
*ygL-		xluŋ(bu)	-liŋ(gwɔ)	flute	<i>gling-bu</i>
*ygN-	ɣə'ni:	ŋjus	-ni:	two	<i>gnyis</i>
			(-təɔ)-ŋni:	twelve	<i>bcu-gnyis</i>
*ygM-	ɣə'niɔ	mɪk	-mi:	eye	<i>mig (/dmig)</i> ³¹

(my Skardu-dialect informant preferred j- to xj- for jaɔ/xjaɔ 'yak' (*g.yag*), but would accept only xj- in xjan 'precipice' (*g.yang*) and xja 'rust' (*g.ya*)).

I have treated 'simple initial' as the Balti reflex of *g in *ygN- and *ygM- above (ŋjus, mɪk); but this choice leaves unaccounted for a single Balti example of xɱ-: xmt 'swallow' (*mid*). Balti xmt cannot be treated otherwise than as an example of g cluster, supported, in the y type of syllable, by the g-cluster xl- of xluŋbu but opposed by the simple initials ŋj- and m- of ŋjus 'two' (*gnyis*) and mɪk 'eye' (*mig*, occasionally also *dmig*).³¹ It cannot, though, claim the support of the Balti g cluster xɱ- of the w type of syllable, as in xɱol 'silver', 'sweat' (*dnɔɔl, rɱɔɔl*), because I have treated xɱ- not as a reflex of *g but as a reflex of *r (section (b) above). I have allowed the problem to be decided by the tone of the Lhasa cognate (-mi:), which is not the required tone 1 but tone 2.

There is one other respect in which the division of the reflexes and their examples in the above table into the three prosodic types, w, ə, and y, is instructive; this too especially concerns the Golok, Balti, and Lhasa reflexes of *yg. It will no doubt have been observed that Golok initial ɣəŋ occurs

³¹ cf. Laufer, 1914, 106-7: 'The form *dmig* is still found in modern popular texts; for instance twice in the small work *Sa bdag klu gñan-gyi byed grol*, along with the orthography *mig* four times'.

twice in the *y* section of that table; it is, in fact, the only nasal initial in the Golok *yg* syllable, corresponding to both *gny-* and (*d*)*m-* of the orthography. In the Balti and the Lhasa *y* syllable, on the other hand, two nasals are distinguished; and this twofold distinction is the basis for the P-T terms symbolized as (**yg*) *N and *M, the only two nasal terms of what appears to be a three-term initial-consonant system statable for the **yg* syllable: *N, *M, *L.

In the *y* syllable, therefore, the Golok *g* cluster does not include labial nasality as a possibility, the only possible nasal being the palatal nasal (*ɲ*) shown in *ɣəɲ* above; but in the Golok *ə*-syllable *g* cluster not only is a labial nasal possible, e.g. *ɣmɔk* 'army' (*dmag*), but it seems virtually certain that a more extensive study of Golok than I had an opportunity of making would bring to light a contrasting dental-nasal *g* cluster (cf. Roerich, 1958: 'γnam' (p. 134)), and possibly a palatal-nasal *g* cluster too (cf. the 'ḡñā—cou. Tib. lit. ḡñā'-ba' given in Roerich, 1958, for the neighbouring Rebkong Amdo dialect (p. 122)), all three within the same prosodic class of lexical item (*ə*-syllable). This would provide three different Golok reflexes for three different nasal terms, symbolized, perhaps, as *M, *N, and *D, of a P-T initial-consonant system appropriate to a **ə* type of syllable, a quite different story from the **y* type of syllable, for which only two nasal terms could be reconstructed, and for which the Golok palatal-nasal *g* cluster *ɣəɲ* has to serve as reflex for **g*N and **g*M alike:

**yg*N- : Gol. *g ɣəɲ*, Bal. simple *ɲj*, Lha. *g* tone 1 *-ɲ/-ɲɲ*
 **yg*M- : ,, ,, ,, ,, ,, *m*, ,, simple ,, *-m*

In this respect the Golok *y*-syllable *g*-cluster contrasts sharply with *y*-syllable simple-initial lexical items: in the former, as I have shown, there seems to be only one possible nasal cluster (*ɣəɲ*), but in the latter two nasal consonants can be distinguished. On this basis two consonants *N and *M can be distinguished for *simple **y*-syllable initials in Proto-Tibetan, each with a distinct reflex, in Golok as well as in Balti and Lhasa:

P-T	Golok	Balti	Lhasa
* <i>y</i> simple N- : <i>y</i> simple N-	<i>ɲ</i>	<i>y</i> simple N- <i>ɲj</i>	<i>y</i> [tone 2 N- <i>-ɲ</i> simple
*, ,, M- : ,, m-clu. M-	<i>mɲ</i>	,, ,, M- <i>m</i>	,, ,, M- <i>-m</i>

Examples

P-T	Golok	Balti	Lhasa	English	Writ. Tib.
* <i>y</i> simple N-	<i>ɲɪmɔ</i>	<i>ɲjɪmɔ</i>	<i>-ɲɪmɔ</i>	day	<i>nyin-mo</i>
,, ,, M-	<i>mɲɔ</i> ³²	<i>mi</i>	<i>-mɪ</i>	man	<i>mi</i>
,, ,, ,,	<i>mɲɛ</i>	<i>me</i>	<i>-mɛ</i>	fire	<i>me</i>

³² Reasons for treating *mɲ* as m-cluster-initial, in *y*-syllable examples like these, rather than as simple-initial were given in section II(B) above; for *myi* and *mye*, as alternative (but non-contrastive) orthographic forms of *mi* and *me* cf. Laufer, 1914, 96-7.

Both the *simple and the *g-cluster types of *y-syllable lexical item agree, then, in needing two nasal phonematic units (*N, *M) as members of their *l-feature (liquid) consonant system. As I have explained, I have had to be cautious over proposing closed initial-consonant systems for prosodically comparable lexical items because the few days that I was able to give to working with my Golok informant were far from being enough to ensure that I had sufficient material for such a purpose; but I hope that I have succeeded, in some measure, in demonstrating that it is rewarding to treat the dialect material, the raw material of reconstruction, within a set of systems rather than a single system. A polysystemic analysis is concerned, within each dialect, with prosodic and phonematic systems; dialect comparison then extends that analysis to the reconstructed form. First to be established for the reconstructed language, in this case Proto-Tibetan, are the reconstructed prosodic systems; phonematic systems (initial-consonant, vowel, and final-consonant, for example) can then follow, each system being set up for, and only for, prosodically comparable lexical items.

This technique of analysis has been demonstrated here from syllable-initial features mainly because of the association of syllable-initial features with tone in Tibetan. I wished to demonstrate what appear to me to be the advantages of classifying lexical items in terms of prosodic systems based on their initial-cluster and other syllable-initial features in much the same way as is more commonly done in tonal analyses.

Though I have dealt in this article with prosodic equivalence between Tibetan dialects in tone and syllable-initial features, it seems to me likely that in other languages a corresponding equivalence could be stated for tone and syllable-final features. The treatment of Ancient Chinese *-t*, a simple final consonant, as equivalent to a tone by Karlgren, Pulleyblank, and others is very much to the point here, especially, from my point of view, if the final consonant in question could be shown to have characteristic vowel features associated with it that syntagmatically related vowel and final consonant as one of a set of types of syllable final;³³ so too, and with greater significance than for Tibetan, is the study of the syllable final in relation to tone in the Burmese-Lolo branch of Tibeto-Burman.³⁴

³³ Discussed in Bodman, 1969, 339-40.

³⁴ For Burmese see Sprigg, 1963b, 89, on the exclusive relationship of the 'k piece' to 'tone 1'; the first-syllable lexical item of the k piece, a k-piece lexical item, can then be classified as being also a tone-1 lexical item (k-piece lexical items are those which are, in certain types of environment, stop-final). For Lolo see Matisoff, 1970.

APPENDIX A

	l cluster							
	1	2	3	4	5	6	a	b
Bal.	ɬt	ld	ɬts	ldz	ɬtʃ	ldʒ	ɬt	lɖ
Gol.	(ɬt)		ɬ	rdz	ɬtʃ			
Lha. (a)	-t	-d	-l	-d	-tʃ	-dʒ	-l	
(b)	-nd	-nd		-nd	-ndʒ			
(c)		-l						
She.	-ɬ	-l	-l	-l ³⁵				

Examples

Bal.	ɬtəs	ldaq	ɬtsap	ldzaa	ɬtʃaqs	ldʒut	ɬtʃkpa	lɖom
Gol.	(ɬti)		ɬpp	rdzaa	ɬtʃak			
Lha. (a)	-tɛ:	-da:	-lɛp	-da-wə	-tʃa:	-dʒi:	-lɛg-bə	
(b)	-tha-ndə	-ga-ndɛ:		-hə-ndə	-mɛ-ndʒa			
(c)		-tʃɛ-la						
She.	-ɬa:	-la:	-lap	-ʔɔ-lə ³⁵				

(1(a) 'looked' (*bltas*), (b) 'now' (*da-lta*); 2(a) 'lick' (*ldag*), (b) 'joyful' (*dga'-ldan*), (c) 'tongue-lick' (*lce-ldag*); 3 'teach' (*bslab(s)*); 4(a) 'moon' (*zla-ba*), (b) '[Tibetan] calendar' (*hor-zla*); 5(a) 'iron' (*lcags*), (b) 'tinder-box' (*me-lcags*); 6 'weight' (*ljid*); a, 'testicles' (*rliq-pa*); b, 'heavyish' ((?) *ldum*, *zlum* 'round')).

³⁵ My Sherpa material includes the compound -ʔɔ-lə 'moon' (in a more careful style, -ʔɔy-la), the second lexical item of which cannot be given a tonal classification (see p. 555, n. 12 for the obligatory, and non-distinctive, upper pitch level of the second syllable of disyllabic nouns, which applies to Sherpa equally with the Lhasa dialect). W. W. Glover, (1970), however, quoting Schoettelndreyer, not only gives /'uklaaq/ for 'moon' (p. 66) but also /laa/ for 'month' (transcribed as /lâ/ in Schoettelndreyer and Hale, 1970, 375). If I am correct in assuming that the second lexical item in my -ʔɔ(y)-la/ə (Schoettelndreyer's -/laaq/) is the same lexical item as Schoettelndreyer's /laa/ (/lâ/) 'month', the lower distinctive pitch level symbolized by /laa/ (or /lâ/) would enable me to classify that lexical item as, in my terms, tone-2. The fact that Schoettelndreyer symbolized high pitch for it, as second syllable, in /'uklaaq/ but low pitch in /laa/ or /lâ/ would be no obstacle to my tonal classification, because high pitch is in any case obligatory for the second-syllable lexical item of a disyllabic noun. It is also the case that Lhasa Tibetan uses -da-wə *zla-ba* for 'moon' and 'month' alike (for the tonal significance of the symbol /q/ in /'uklaaq/ see Pittman, 1970, 5).

APPENDIX B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Bal.	ɣt	rd	ɣts	rdz			ɣk	rg	r cluster		ɣm										
Gol.	ɣt	rd	ɣts	rdz	ɣtʃ	rdʒ	ɣk	rg	ɣ/ɣb	ɣv/ɣβ	ɣm	ɣn	ɣm	ɣl	ɣtr						
Lha.	-t	-d	-ts	-(d)z	-tʃ	-dʒ	-k	-g	-p	-b	-ŋ	-ɲ	-m	-l	-s						
Bal.	st	zd					sk	zg	s cluster		sm	sn	sm	str							
Lha.	-t	-d					-k	-g	-p	-b	-ŋ	-n	-m	-s							
Bal.	xt	yd			xtʃ			xp	g cluster		xm	xn	xm	xl		xs	yz	xʃ	ɣʒ	xj	
Gol.	xt	yd			xtʃ			xp	ɣw	(ɣw)	ɣ(ə)ɲ	ɣ(ə)n	ɣ(ə)m	ɣəl	ɣəl	x/ks	gz	gz	ɣʒ	ɣʒ	ɣəj
Lha.					-ktʃ						-ŋɲ			xl, kɣ		-ks					
Bal.	ɦt	βd			ɦtʃ			βg	b cluster					ɦ/ɦl		p/ɦs	bz	p/ɦʃ	βʒ	βʒ	
Gol.	ɦt	-bd	pts		-pdʒ			βg						b/βl		ɦs		ɦʃ	βʒ	βʒ	
*	ɦt	bd	ps		ptʃ	βdʒ	ɦk				ɦn			ɦl, βəl	ɦr	ɦs		ɦʃ	βʒ	βʒ	
Lha.	-pt	-bd	-bz		-ptʃ		-pk	-bg			-pɲ			-bl		-ps		-pʃ			
Gol.	nɦ	nd	ntsh	nz	nɦʃh	nɰʒ	nkh	nɰg	n cluster		nɰ	nɰ									
Lha.	-nd	-nd		-nz		-nɰʒ		-nɰg	mpɦ mb		nɰ	nɰ									
Bal.		-nd						-nɰg	-mb												
Gol.	mɦ	mɰ	mɦsh	mz	mɦʃh	mɰʒ	mkh	mɰg	m cluster		mɰ	mɰ									
Lha.	mɦr	mɰr		-mz		-mɰʒ		-mɰg													
Bal.		-mɰ	-mɦsh		-mɦʃh	-m(d)ʒ		-mɰg			-mɰ										

* Past-tense verb forms.

REFERENCES

- Allen, W. S. 1968. *Vox graeca*. Cambridge: University Press.
- Bodman, N. C. 1969. 'Tibetan *sdud* "folds of a garment", the character 𑄎, and the st-hypothesis', *Bulletin of the Institute of History and Philology, Academia Sinica*, xxxix, 2, 327-46.
- Burling, R. 1967. *Proto-Lolo-Burmese*. (*International Journal of American Linguistics*, xxxiii, 1, Pt. II; Indiana University Research Center in Anthropology, Folklore, and Linguistics, Publication 43.) Bloomington: Indiana University; The Hague: Mouton.
- Chang, B. Shefts. Unpublished. 'Tibetan causative phonology'. [Contribution to the third Conference on Sino-Tibetan Reconstruction, Cornell, 1970.]
- Chang, K., and Shefts, B. 1965. 'A morphophonemic problem in the spoken Tibetan of Lhasa', *Journal of the American Oriental Society*, lxxxv, 1, 34-9.
- Chang, K., and Shefts, B. 1967. 'Spoken Tibetan morphophonemics: p', *Language*, xliii, 2, Pt. I, 512-25.
- Firth, J. R. 1936. 'Alphabets and phonology in India and Burma', *Bulletin of the School of Oriental Studies*, viii, 2-3, 517-46. [Reprinted in his *Papers in linguistics, 1934-1951*. London, etc.: Oxford University Press, 1957, 54-75.]
- Firth, J. R. 1948. 'Sounds and prosodies', *Transactions of the Philological Society*, 1948, 127-52. [Reprinted in his *Papers*, 121-38.]
- Firth, J. R. 1957. 'A synopsis of linguistic theory, 1930-1955', in *Studies in linguistic analysis. Special volume of the Philological Society*. Oxford: Blackwell, 1-32.
- Glover, W. W. 1970. 'Cognate counts via the Swadesh list in some Tibeto-Burman languages of Nepal', *Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics*, iii, ii, 23-130.
- Gordon, K. 1970. 'Sherpa tone and higher levels', *Occasional Papers* [cf. Glover], iii, i, 186-208.
- Jäschke, H. A. 1881. *A Tibetan-English dictionary*. London: Trübner. [Reprinted London: Kegan Paul, Trench, Trubner, 1934.]
- Laufer, B. 1914. 'Bird divination among the Tibetans', *T'oung Pao*, xv, 1, 1-110.
- Li, F. K. 1933. 'Certain phonetic influences of the Tibetan prefixes upon the root initials', *BIHP*, iv, 1, 135-57.
- Li, F. K. 1959. 'Tibetan *glo-ba 'dring*', in Egerod, S., and Glahn, E. (ed.), *Studia serica Bernhard Karlgren dedicata*. Copenhagen: Munksgaard, 55-9.
- Matisoff, J. A. 1970. 'Glottal dissimilation and the Lahu high-rising tone: a tonogenetic study' *JAOS*, xc, 1, 13-44.
- Miller, R. A. 1954. 'Morphologically determined allomorphs in spoken Tibetan', *Language*, xxx, 4, 458-60.
- Miller, R. A. 1968. Review of R. Shafer, *Introduction to Sino-Tibetan*, in *Monumenta Serica*, xxvii, 398-435.
- Palmer, F. R. (ed.). 1970. *Prosodic analysis*. (Language and Language Learning.) London: Oxford University Press.
- Pittman, R. S. 'Gurung, Tamang, Thakali, Sherpa, and Chepang prosodies', *Occasional Papers* [cf. Glover], iii, ii, 1-8.
- Ray, P. S. 1965. 'Kham phonology', *JAOS*, lxxxv, 3, 336-42.
- Roerich, G. de. 1958. *Le parler de l'Amdo*. (Serie Orientale Roma, xviii.) Roma: Istituto Italiano per il Medio ed Estremo Oriente.
- Róna-Tas, A. 1966. *Tibeto-Mongolica*. (Indo-Iranian Monographs, vii.) The Hague, etc.: Mouton.
- Saussure, F. de. 1949. *Cours de linguistique générale. Quatrième édition*. Paris: Payot.
- Schoetteldreyer, B., and Hale, A. 1970. 'A note on Sherpa vowels', *Occasional Papers* [cf. Glover], iii, i, 368-80.
- Shafer, R. 1950. 'Studies in the morphology of Bodic verbs', *Bulletin of the School of Oriental and African Studies*, xiii, 3, 702-24; xiii, 4, 1951, 1017-31.
- Shafer, R. 1955. 'Classification of Sino-Tibetan languages', *Word*, xi, 1, 94-111.
- Sprigg, R. K. 1954. 'Verbal phrases in Lhasa Tibetan—I', *BSOAS*, xvi, 1, 134-56.
- Sprigg, R. K. 1955. 'The tonal system of Tibetan (Lhasa dialect) and the nominal phrase', *BSOAS*, xvii, 1, 133-53. [Reprinted in Palmer, 1970, as pp. 112-32.]
- Sprigg, R. K. 1957. 'Junction in spoken Burmese', in *Studies in linguistic analysis*, 104-38.

- Sprigg, R. K. 1963a. 'A comparison of Arakanese and Burmese based on phonological formulae', in [Shorto, H. L. (ed.)], *Linguistic comparison in South East Asia and the Pacific*. (Collected Papers in Oriental and African Studies.) [London]: School of Oriental and African Studies, 109-32.
- Sprigg, R. K. 1963b. 'Prosodic analysis, and phonological formulae, in Tibeto-Burman linguistic comparison', in [Shorto, H. L. (ed.)], *Linguistic comparison*, 79-108.
- Sprigg, R. K. 1964. 'Burmese orthography and the tonal classification of Burmese lexical items', *Journal of the Burma Research Society*, XLVII, 2, 415-44.
- Sprigg, R. K. 1966. 'Lepcha and Balti Tibetan: tonal or non-tonal languages?', *Asia Major*, New Series, XII, 2, 185-201.
- Sprigg, R. K. 1967. 'Balti-Tibetan verb syllable finals, and a prosodic analysis', *AM*, NS, XIII, 1-2, 187-201.
- Sprigg, R. K. 1968a. 'A Tibeti mássalhangzókapcsolatok fonetikai problémái', *Magyar Tudományos Akadémia*, I. Oszt. Közl. 25, 161-7.
- Sprigg, R. K. 1968b. *The phonology of the grammatical constituents of verbal-phrase words in spoken Tibetan (Lhasa dialect)*. [Ph.D. thesis, University of London.]
- Sprigg, R. K. 1968c. 'The role of R in the development of the modern spoken Tibetan dialects', *Acta Orientalia Hungarica*, XXI, 3, 301-11.
- Sprigg, R. K. 1970. 'Vyañjanabhakti, and irregularities in the Tibetan verb', *Bulletin of Tibetology*, VII, 2, 5-19.
- Taring, R. D. 1970. *Daughter of Tibet*. London: John Murray.
- Thomas, F. W. 1948. *Nam*. (Publications of the Philological Society, XIV.) London: Oxford University Press.
- Uray, G. 1949. *Kelet-Tibet nyelvyárásainak osztályozása*. (Dissertationes Sodalium Instituti Asiae Interioris, 4.) Budapest: [Sodales Instituti Asiae Interioris].
- Vogt, H. 1942. 'The structure of the Norwegian monosyllables', *Norsk Tidsskrift for Sprogvidenskap*, XII, 5-29.