Emergent Word Tone in Kham:
A Tibeto-Burman Halfway House

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The Tibeto-Burman languages of Southeast Asia have long been characterized as solidly monosyllabic. And rightly so. Words, phrases, and sentences consisted of phonologically discreet monosyllabic morphemes marching along to the cadence of one tone per syllable. On occasion, of course, questions were raised as to the efficacy of the traditional view. Tone sandhi with its polysyllabic government was found to occur here and there; and weak or unstressed syllables were swept into the orb of stronger ones so that tonal units encompassed more than a single syllable, and a purely syllabic prosody was not always possible (Bradley 1971, Lehman 1973). But from a diachronic point of view such languages were still monosyllabic and the steps could be reconstructed (or at least imagined), with a considerable degree of confidence, showing their evolution from their former "pure" state.

The polysynthetic Tibeto-Burman languages of the Himalayan region, however, were considerably more problematic. In the Bodish languages especially, the word (a lexcial item together with its full array of affixes) was found to be the domain of constrastive tone. The question which naturally emerged was: Could these word-tone systems have evolved from an earlier monosyllabic tone system? Given the Southeast Asian-centricity of Tibeto-Burman tonal studies up to that point, the expected answer was probably in the affirmative. But that made for its own set of problems. The real difficulty lay in positing

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reasonable hypothetical steps to account for the shift from one tone type to the other and still account for certain *features of the modern languages. So for lack of a compre-*hensive theory, we had to be content with broad speculative principles and describe a given language as one type or the other, quietly relegating the anomalies to an appendix.

Believing in principle that the tone shift from syllable to word was at least possible, Matisoff (1973) suggested the possible mechanism of "syllable reduction through human laziness." After a language reaches a stage in its development where there are polysyllabic compound words, and each syllable still has its own tone, the language then comes to a stage where the syllables in compounds tend more and more to be pronounced laxly. Vowels lose their stress and are reduced to schwa. These unstressed syllables also lose their tone and attach themselves to the adjacent syllable in the compound. Eventually polysyllabic units become the domain for tone.

Others, notably Mazaudon (1976), maintains that although Matisoff's mechanism may be a possible origin for languages which have shwa syllables (i.e. unstressed syllables which have lost both their vocalic and tonal distinctiveness) it is "not a satisfactory explanation for languages of the Bodish group, where all the syllables have the same stress, all the segments, vowel or consonant, have the full array of the distinctive possibilities in each syllable, and yet there is only one tone per word" (p. 85). Because the modern Bodish languages fail to give evidence of the kind of syllabic decay one would expect in a Matisoff type scenario, she opted for the view that "it is at least likely that the tone systems were never more complete than they are now."

Kham [Kham-Magar] of Nepal is a language of the Himalayan region, and though not classified as Bodish, it does share in

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the Bodish feature of full vocalic distinctiveness on each syllable of the word--in other words, a "non-shwa" language. However, unlike the Bodish languages, Kham in certain respects resembles the monosyllabic tonal languages of Southeast Asia, and in other respects the word-tone languages of the Himalayan region. As such, it seems to lie at a midway point between the two types--an emerging word-tone system--and offers a number of valuable insights into the possible dynamics of such a change.

My first description of the phonology of Kham was in a short paper done in 1971 and mimeographed in Kathmandu, Nepal. My basic view then, as now, differed in no significant way from the view held by other scholars in the Himalayan area: a "four-box" system in which the two binary oppositions of pitch and voice register intersect to form a contrastive four tone system.

	tense	lax
Tone-1	hi level ('CV)	hi level ('CVh)
Tone-2	mid level (CV)	mid falling (CVh)

Figure 1. The contrastive four-box system in Kham tone.

Built into the Kham description, however, were a number of complexities which were apparent deviations from the TB norm. Most of these complexities involved further binary oppositions subordinate to the basic two illustrated in Figure 1: those of pitch and register. For example, one of the oppositions I discussed was the distinction between the "stem pitch" and the "suffix pitch" of a given tone. This binary opposition was

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set up primarily to account for the anomalous behavior I found in Tone-1--a high pitch on a stem, versus a low pitch on a suffix (if in speech the suffix happened to occur).

	tense	lax
T-1 stem	hi level	hi level
suffix	lo level	lo level
T-2 stem	mid level	mid falling
suffix	mid level	mid falling

Figure 2. Stem and suffix pitches on each of the four Kham tones.

According to that view, tone was potentially complex, and only those words which were morphologically whole, viz. those which were made up of a stem and suffix, were capable of manifesting both parts of the tonal character. Whenever a word occurred in a grammatical string without an attached suffix, the tonal character of the unrealized suffix pitch would be felt on the following stem in the form of allophonic modification or tone sandhi. As intimated earlier, this modification was evident only in Tone-1, as can be illustrated in examples 1 and 2 below. In example 1, the word consists of both a Tone-1 stem ('zihm) and a Tone-1 suffix (-'da), thereby manifesting both parts of the Tone-1 tonal character--a high-low opposition. In example 2, however, even though the Tone-1 stem 'zihm occurs without a morphological suffix, the influence of the "would-be" low-pitch suffix causes a pitch perturbation on the following high-pitch stem 'cyu: such that it is realized on a lower level that it would be under normal, unimpeded conditions.

1) 'zihm-'da 'to the house'
2) 'zihm 'cyu:-'keo 'he looked at the house'

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Furthermore, under the same analysis, in order to account for certain complex interrelationships between stems and their suffixes, I also set up the distinctions between "dominant" and "recessive" stems, "tonal" versus "atonal" suffixes, as well as "distinctive" versus "non-distinctive" prefixes. Though fairly accurate in accounting for the actual mechanics of the language, the rules were complex and the description was full of apparent anomalies. Set up under purely synchronic considerations I was unwittingly attempting to make the language fit a word-tone mold, and ended up distorting the real dynamics. Einstein once stated as an axiom of quantum physics that "it is the theory which decides what we can observe." Our view of data is colored by our orthodoxy; there are no "pure facts." Linguistics is no exception. Those anomalous monstrosities of my earlier description, newly interpreted in the light of new theory, suddenly become the expected manifestations of a language in change--a tonal evolution moving along hand in hand with overall grammaticalization (see Watters 1975).

One of the most important points obscured by my earlier analysis is that the two pitches associated with a given tone (stem pitch and suffix pitch) were in fact at one time separate monosyllabic "words," each with its own tone. Even nowadays, Kham, though having become an agglutinative, polysynthetic language with multiple affixes commonly piling up on stems of every class, still retains (in certain respects) much of its monosyllabic tonal character. For example, even in the presence of multiple affixes, the inherent tonal status of each affix is still quite easy to identify by applying the appropriate tests. Furthermore, in examples like 1 and 2 on the previous page there is no contrastive phonological difference between the stem-suffix combination of 1, and the stem stem combination of 2. The transition in both cases is marked by a downstep in pitch. In other words, so far as phonetic

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transitions between tones is concerned, a stem is regarded the same as a suffix--except in one point. It is this one point which gives the first clear piece of substantiating evidence as to the direction of the tonal shift: one from syllable to word.

The real difference between the pitch of a stem and the pitch of a suffix becomes apparent only on what <u>follows</u>. A suffix pitch has a "boundary function" in the string of phonetic pitch patterns that a stem pitch does not have. This phenomena can best be described by illustrating it with a few examples:

3) '<u>zihm</u> '~~cyu~~:-'<u>keo</u> 'he looked at the house'

4) '<u>zihm</u>-'<u>da</u> '<u>cyu</u>:-'<u>keo</u> 'he looked toward the house'

In example 3, the pitch continues to drop on the word following the naked stem '<u>zihm</u>, whereas it is restored to its normal level following the stem-suffix combination of example 4. Rather than conclude from this, as I did before, that tone in Kham is complex, it would be more revealing to conclude that tone in Kham moves along in a recurring sequence of bounded tone phrases, each phrase being terminated by an affix. A new phrase cannot begin, as in example 4, until the preceding one has been properly terminated.

In regard to this tone phrase, another highly significant fact is that the actual pitches within the phrase can best be described not in terms of absolute phonetic values, but rather in terms of "transitions." Under such a scheme, Tone-1 is defined simply as a pitch "phonetically higher than the one succeeding it." As such, its presence is manifested by a following downstep transition, strikingly similar to that of the West African terrace-tone systems. In fact, it's not at all uncommon to encounter unbroken chains of downstepping

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pitches extending over four or five syllables in a single tone phrase. Tone-2, on the other hand, can best be defined as the "absence of such terracing," with a basically mid level contour.

Interpreting these facts within the perspectives of the language and with a view to its historical development, the point came at which *Kham developed a simple tonal opposition where a heightened pitch contrasted with a "normal" non-heightened pitch. (Unfortunately, I have not yet been able to determine the antecedent for the development of this first tonal opposition.) As the contrastive device was extended so as to encompass more and more monosyllabic stems, the possibility of two or more heightened pitches occurring in juxtaposition within the same phrase came to be highly probable. Where such did occur, a system potentially bursting at the seams with the "seeds of dissimilation" was fully realized. The juxtaposed monosyllabic words retained their contrastive status by simply responding in a most natural way--a series of downstepping pitches, the height of the first being higher than that of the second.

In this respect I was particularly delighted at Jim Matisoff's mention of the metaphysical concept of Yin and Yang, polar opposites, and mirror images (1978). The polar opposite of a heightened pitch is a lowered pitch, a reciprocal relationship of high versus low. This particular pair occurred anywhere two "heightened" pitches occurred in juxtaposition. Furthermore, they were frequently synergetic with the polar opposites in grammar--monosyllabic stems and their syntactic relators. The results were reciprocal and the relationship symbiotic. Not only did the polar opposites of contrastive pitch provide the necessary binding force to unite a stem and its relator into a cohesive, well balanced unit, but the converse was also true. The fusion of a stem and its relator

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formed a logical chunk, a cohesive unit upon which the dissimilatory effects of downstepping pitches could be expended, and beyond which those effects exercised no further sway.

With the foundations of word-tone based upon pitch dissimilation across the grammatical oppositions of stem and suffix, the system was eventually extended so as to include morphologically complex words as well, but with the dichotomy still intact. In other words, the tonal rules governing compound stems are different than they are for multiple suffixes. In compound stems there are no suffix pitches--rather, the rules of assimilation come into play. The pitch which is realized on each syllable of the compound stem is merely an extension of the tone of the preceding syllable, having been preempted by it. The preemption of a tone, however, is not equivalent to its annihilation. The inherent status of the preempted tone shows up on the following syllable. Like toppling dominoes, the process continues until the stem is terminated. Then, and only then, do the tonal rules for suffixes come into play--the rules of dissimilation. This process of extension can be illustrated in examples 5 and 6, both compound stems. In example 5, the high level pitch of 'me is extended so as to include 'ma (with a slight downdrift). In example 6, the mid level pitch of sya is extended so as to include 'lo.

5) 'mẹ'ma 'woman'

6) ~~sya~~'~~lo~~ 'leather'

It is important to note that what I refer to as the "foreign policy" of a compound stem (i.e. its relationship to other stems in a syntactic phrase) is determined by the first syllable in the compound, whereas its "domestic policy" (its relationship to suffixes) is determined by the final

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syllable in the compound. Thus, in sya'lo 'leather' (example 6), the whole compound becomes mid-level by virtue of sya, and even the pitch transition to the following word is determined by the mid-level status of sya. Consequently, where the following word is a Tone-2 word (mid-level), the transition from word to word will be level. Where the following word is Tone-1 (hi-level), the transition from word to word will be a step-up. With an attached suffix, however, the case is quite different; domestic policy is in force. The transition from stem to suffix is determined by the inherent tonal status of the final stem in the compound. Thus, in sya'lo, the inherent Tone-1 status of 'lo determines that the transition from stem to suffix will be a downstep.

Given the added dimension of voice register, the whole tonal arena becomes a lot more interesting, but especially so on compounds. First, however, I need to make a few general statements on the interplay between contrastive pitch and voice register in non-compounded words. The so-called "tense" register is phonetically speaking the least marked of the two registers, perceived as "normal" and hence the starting point or base of my description. As such, it exerts a "zero" modification on pitch contour. Lax register, on the other hand, is perceived as the modifying register, contributing a deepened pitch interval on otherwise "normal" pitch contours. For example, under lax phonation the downstep pitch in Tone-1 (manifested of course on the following syllable) bridges a greater gap on the musical scale than it does under tense or "normal" phonation. Likewise, the normal mid-level pitch of Tone-2 is modified to a mid-falling pitch when occurring with lax register (see Figure 2). On bisyllabic and trisyllabic stems, this same mid-falling pitch is "stretched out" and manifests itself as a mid-low, and a mid-lower-low, respectively.

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In compounds, tonal hybrids whose member stems are tonally incongruous are as likely to occur as not. Where the registers fluctuate between tense and lax, perturbation occurs, but in a rather simple, straightforward way. If the first syllable is inherently lax and the second one tense, the laxness of the first spills over onto the tense syllable making it fully lax. The reverse situation, however, is slightly different. Where the first syllable is tense and the second one lax, the laxness of the second is tempered to something midway between the two registers. As might be expected, the tempering of the lax syllable has a concomitant tempering of the "deepened pitch interval" discussed earlier. The tempering of the pitch interval, in fact, is often the primary clue to a tempered register, being much easier for the ear to perceive.

In the following examples, the compounds chosen are hybrids, and the rich interplay of pitch and voice register from one stem to the other is evident. The governmental rules of contrastive pitch pattern (i.e. its "domestic" and "foreign" policies) act as a gyro-compass, holding the compound on an even keel from one end of its journey to the other as it plows through the heavy seas of changing voice register with its rising and falling pitch perturbations.

7) 'dāh'pā 'young man'

8) 'dāh'pā-lai 'to the young man'

9) rihsil'tih 'a water bird'

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In example 7, the domestic policy of Tone-1 dictates that the hi-level pitch of 'dah be extended so as to include 'pa. At the same time, the laxness of 'dah spills over onto 'pa causing it to become lax. The resulting pitch interval on the following downstep (as seen on -lai in example 8) is deeper than it would be if both syllables had been tense. In example 9, the domestic policy of Tone-2 dictates that the whole compound assimilate to Tone-2--mid level under "normal" tense phonation, and mid-falling under lax phonation. The laxness of rih spills over onto sil, making it behave like an inherently bisyllabic lax morpheme with a mid to low two-step falling pitch. The inherent tenseness of sil then tempers the laxness of 'tih (which, remember, is now Tone-2 under the domestic government of rih) so that its mid-falling pitch is tempered to an only slightly-falling pitch. If we were to add a suffix to example 9, as in:

10) rihsil'tih-lai 'to the water bird'

foreign policy would come into play on the tempered 'tih so that its inherent Tone-1 status would be manifested by a tempered downstep on -lai.

Because the rules governing compounding are assimilatory, whereas the rules governing the combination of stems and suf-

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fixes (as well as multiple suffixes) are dissimilatory, it becomes a matter of paramount importance in morphologically complex words to know when the threshold from stem to suffix has been crossed. Not all affixes following a stem are regarded by the system as suffixes. Some are regarded as extensions of the stem. For example, all nominalizing affixes applied to verb stems operate under rules for stem compounding. That is, they are treated as extensions of the stem to which they are affixed--the threshold into the domain of suffix pitches has not yet been crossed. This can be seen in the following examples:

11) 'jəi'zyao 'he who made it'

12) ~~dəi~~'~~zya~~'~~kao~~ 'the time at which he was receiving it'

In both examples the first syllables are verb stems, and the affixes which follow are used as nominalizers. As such, both strings are treated as compound noun stems. Only in the event that a suffix is added to these compounds (such as a case marker) is it possible for a suffix pitch to occur. (By virtue of the Tone-1 status of the final syllable in both examples, the following suffix pitch in both cases would be a downstep.)

Word-tone in Kham with all its built-in capacity for handling compounds provided a solid phonological framework for the syllabification of certain prefixed *TB consonants. Before the inception of word-tone, however, large numbers of prefixed *r-, *b-/p-, and *s-/z- dropped from most daughter dialects of proto-Kham, leaving traces here and there of their earlier existence. Prefixed *s-, however, seems to have been still in vogue at the inception of word-tone in Kham. There are a number of cases in which a prefixed *s- developed in two separate directions on the same word in the same daughter language. For example, in the word *s-tən (Tib ston-pa) 'show,'

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the *s- became fully syllabic with sətəi̯- 'show,' but left only evidence of its loss in the lax phonation of the following stem vowel in təi̯h- 'to show or shine a light.' With the syllabification of *s- to sə-, its "privilege of occurrence" was once again extended across the entire lexicon bringing about a revival of its original function, that of transitivizing non-transitive verb stems. The prefix is now productive.

The fate of prefixed *g- appears to bear similarities to that of *s-. Certainly the loss of *g- is evident in the modern Kham dialects, being compensated for by lax phonation on the following stem vowel: *g-sat > səih- 'kill,' etc. Benedict cites Wolfenden as assigning a 'directive' sense to Tibetan prefixed *g-. It may be this same *g-, which having undergone syllabification in Kham now occurs as gəh-. The fact that its loss produced lax phonation while its retention produced a lax syllabic prefix tends to reinforce the hypothesis that the two are related. Though its occurrence is now restricted to certain imperatives, the prefix still retains a directive sense, and like *s- has again acquired grammatical productivity.

Tonally, these productive syllabic prefixes function in exactly the same way as the first syllable of a compound stem. Such prefixes are what I formerly referred to as "distinctive" prefixes since they affect the tone of the following stem morpheme. The "distinctive" prefixes, then, are the *TB prefixed consonants which have undergone syllabification. The "non-distinctive" ones are those evolved from an earlier genitive system, as described in my 1975 paper on the evolution of pronominal verb morphology. Their existence apparently predates the inception of tone in Kham.

Other prefixed consonants abounded in proto-Kham, notably *b-/p- and *r-. The *b-/p- prefix has been preserved intact

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in only one dialect, but leaves traces of its earlier existence in other dialects by causing front vowels to be rounded with a preceding on-glide, as in: *p-cil > cyül- 'pinch,' and *p-se > syö- 'to bud (of grain).' Some of the prefixed *b-/p- consonants can be traced to a TB *m- prefix, such as TB *(m-)syil > Kham *p-sil 'to scrub,' and TB *m-sin > Kham *p-sin 'liver.' In other cases, the Kham *b- goes back to a TB *b- as in TB *b-liy > Kham *b-zi 'four.' Eventually, the privilege of occurrence for *b- was extended analogically so as to include many words beginning with a palatal fricative or affricate initial. (This combination appears to have been also common in Tibetan as evidenced by: b-tsings-pa 'string,' b-tser-ba 'wring,' b-tsos 'boil,' b-zig 'rot,' etc.) In Kham even words with an *s- animal prefix began taking on the *b- prefix:

TB *r-wat 'leech' > Kh *s-rwat > *b-s-rwat > *b-ruht 'insect'
TB *rwang > Kh *s-rwang > *b-s-rwang > *b-rahng 'horn'

Prefixed *r- is the most widely occurring prefix still in use in a number of the daughter dialects of proto-Kham. Its most extensive retention is in the same dialect that retains *b-/p-. Since its loss in other dialects, however, is without phonetic reflex, it is difficult to ascertain whether some of the modern r- prefixes are recent innovations in that dialect, or whether they have recourse back to the proto-language. In some dialects, most notably the Taka dialect, the *r- is retained only in those words which have an obligatory prefix. These are usually words such as inalienably possessed body parts, such as ŋa-r-na 'my ear,' or words which form the nominal element of a verb-noun opposition, such as o-r-khyo: 'its length.' (These classes of words can also be used in an impersonal or generic sense in which case the prefixed r- is dropped.) The *r- is also retained on nouns which are used as

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classifiers in counting objects, such as tə-r-be:h 'one basket-ful.' In other words, in the Taka dialect, *r- is retained in certain words because of the syllable-final status given to it by the obligatory prefix, whether pronominal or numeral. Many of the prefixed r-'s in modern Kham occurred in *TB as well. But it appears that a generalization in both its meaning and privelege of occurrence has occurred off-and-on throughout the history of the language, thus producing a prefixed r- on many words where there is no evidence for its occurrence in *TB.

One last point. In my tone analysis of 1971, I found it necessary to set up a hierarchical scale of dominance for both stems and suffixes in order to account for certain complex interrelationships between them.

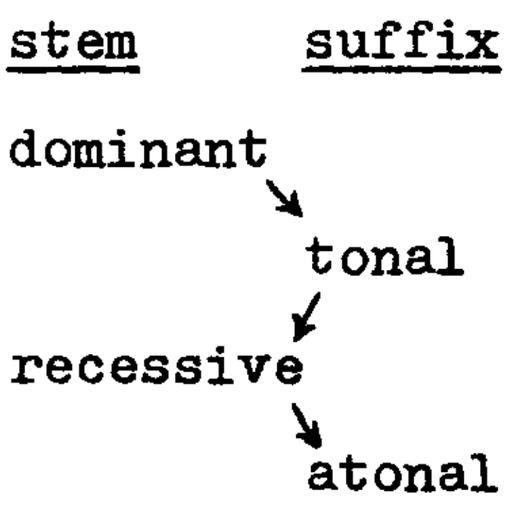

Figure 3. The hierarchical relationship between the pitches of stems and suffixes (1971).

I noted that the inherent pitch of certain word stems was "recessive," such that when occurring with a suffix having its own tonal character, the pitch normally occurring on the stem when elicited in isolation was simply lost, swallowed up by the tonal character of the suffix. Only "dominant" stems were capable of retaining their original status, resisting the strange proclivity of being swallowed up. Recessive stems could win out only in the presence of an atonal suffix. At the time of the write-up, however, I had not drawn on a broad sampling of the language, but chose at random a few common words which would most conveniently illustrate my tone frames.

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Hence the assumption that dominant and recessive stems were equally well represented in the language. Later, while doing extensive revision on the tonal parts of my dictionary, I discovered that the so-called recessive stems were in fact in the extreme minority. Dominance turned out to be the norm. How then was I to account for this strange recessive quirk in certain stems such that they would mimic the tonal character of an attached suffix (in a sort of regressive assimilation)?

After considerable investigation I discovered that these "recessive" stems were the stems most commonly used as members of compound nouns, usually the first member. Through constant use as such they apparently relinquished their tonal autonomy and took up a chameleon role--so much so that even suffixes came to exercise the same control over them as did the stems to which they were always being compounded. Recessive stems, then, are those which have been neutralized in tone. Some of these stems, such as rih- 'water,' are highly consistent in conforming to the tone of the stems to which they are compounded. Other stems are quite unpredictable as to the tonal character they will acquire when compounded with other stems. One such stem is sya- 'meat, animal.' The problems of recessiveness are admittedly complex, and I haven't yet plumbed the depths of its significance.

It is difficult to know whether the neutralization of tone (as in recessive stems) is a stabalizing factor ultimately contributing to a retention of the prefix, or if it is equivalent to its destressing, eventually contributing to its loss or reduction. Certainly at this point, the trend seems to be in favor of the former. Just as syllabification was encouraged along by the inception of word-tone, so also the consolidation of several incongruous stem tones into a new polysyllabic whole is made possible by the neutralization of tone on some of the stems.

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In summary, contrastive pitch in Kham developed from a heightened pitch on certain monosyllabic words, and later developed into a downstepping pitch pattern similar to the West African terrace-tone. One special feature coming out of this downstep pitch in Kham was that where it occurred on a suffix, the correlation of low-pitch plus suffix began to act as a terminating point in the downstepping sequence, thereby allowing the next tone phrase to begin on a new pitch.

To allow for the formation of new compounds, the feature of downstepping pitch was suspended so as not to occur between multiple stems of a single compound. Polysyllabic stems, as opposed to the earlier phrase-like concatenations, came to be a regular feature of the language. Furthermore, the phonological framework built up to accomodate the polysyllabic stems became the positive force in abetting the syllabification of certain prefixed consonants common also to proto-TB. In some cases, the syllabification of the prefixes brought about a revival of their use and function.

Before the inception of the foundations of word-tone, many of the early prefixed consonants were lost and left behind only phonetic reflexes on the remaining stem. Many of the modern lax register stems, for example, can be accounted for in this manner. That the prefixed consonants emerged from the reduction of an earlier syllable, however, is not entirely clear in Kham. Nevertheless, I am quite sure that such a reduction can be safely assumed for a good deal of them. Presumably, because the early language lacked the phonological framework to properly handle polysyllabic stems (i.e. it had not yet developed the modern tonal compounding rules), compounds like *sya-rus 'animal bone,' or *buw-rwat 'insect' were rapidly reduced to *s-rus > 'ruhs and *b-rut > rwi:h respectively. Since the inception of word-tone, however, the language bias has been in favor of polysyllabic stems and a

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number of the earlier *prefixed > reduced syllables have once again been actually re-prefixed with a new set of syllabic prefixes. For example:

TB *rus > Kh *sya-rus > *s-rus > *ruhs > syaruhs 'bone'
TB *rwaŋ > Kh *sya-rwaŋ > *s-rwaŋ > *rəhŋ > syarəhŋ 'horn'

As yet, there is no indication of the syllabic decay of any of these new prefixed elements. On the contrary, some of the more extensively used ones have undergone a neutralization and levelling of tone. Rather than being a precursor to reduction and decay (as it may seem), the neutralization instead appears to have a further stabalizing effect on grammaticalization of the language by consolidating under a single tone several incongruous stem tones. This, it seems, may prove to be the final step for Kham in becoming a full-fledged word-tone language of the Bodish type.

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