Coda Constraints on Tone

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Among the well known syllable structure constraints on tone are those imposed by the presence of an oral stop (T). So-called "stopped" or "checked" CVT syllables may either restrict the number of contrasting tones and/or affect the surface realization of the tones which do contrast. In the first category are languages such as Xiamen (Chen 1987) and Lahu (Matisoff 1988), which have five underlying tones on non-stopped or "smooth" syllables, but only two on stopped syllables. Curiously, almost all of the stopped-syllable examples of this type have come from Chinese and Southeast Asia (Chen 2000:5). This immediately raises the question of whether such limitations are an areal feature which should be attributed to the specific Southeast Asian type of tonogenesis originally described by Haudricourt (1954), and/or to potentially universal effects which stop codas may have on preceding pitch. In other words, does the stopped-syllable phenomenon have an area-specific diachronic explanation, or do final stops have universal phonetic properties that are responsible for the skewing between stopped and smooth syllable tones? If they do, are the universal tonal effects due to the laryngeal properties of final stops, or to the shortening effect (voiceless) stops frequently have on preceding vowels?

I distinguish the following logically distinct approaches or hypotheses concerning the analysis of tone on a stopped syllable:

1. A two-system approach: the tone(s) on stopped syllables form a separate tonal subsystem distinct from the tones on smooth syllables. This has been the approach taken by many specialists of Chinese and Southeast Asian languages.

2. A subset approach: the tone(s) on stopped syllables can be identified with the tone(s) on smooth syllables (although they may have slightly different realizations); cf. e.g. Yip (2002:174-5) re Cantonese.

3. An underspecified approach: in cases where only one tone is allowed on stopped syllables, one might hypothesize that CVT syllables are toneless, akin to neutral tone phenomena in Chinese (cf. Osburn 1975 for Falam Lai). The tone they receive on the surface may be either distinct or identical to one found on smooth syllables, as in (i) vs. (ii). Or, perhaps CVT remains toneless to the surface, hence falling outside the tone system.

In this paper I will address the above issues from the perspective of the Kuki-Chin subbranch of Tibeto-Burman. These languages are particularly appropriate given the following relationships between tone and syllable structure in Proto-Kuki-Chin (PKC):

(i) Four proto tones are reconstructed which contrasted on smooth syllables (VanBik 2006), which have the following shapes: CVV, CV(V)N, CV(V)L, CV(V)G (N = *m, *n, *ŋ; L = *l, *r; G = *w, *y).

(ii) One tone (*t3) is reconstructed on short stopped syllables (CVT) and one (different) tone (*t2) on long stopped syllables (CVVT). (T = *p, *t, *k, *ʔ, plus glottalized sonorants).

My presentation will be primarily based on four languages which I have personally studied, which have the following tonal reflexes of VanBik's *t1-t4:

PKC	Falam Lai	Hakha Lai	Thlantlang Lai	Kuki-Thaadow	Smooth σ's	CVT	CVVT
*t1	H	HL	HL	HL	✓	*	*
*t2	HL	L	L	HL	✓	*	✓
*t3	L	LH	H	L	✓	✓	*
*t4	LH	HL	HL	H	✓	*	*

As seen, these (monosyllabic) languages have two tone levels, which combine to form contours. While each has three or four tones on smooth syllables, none allows a tonal contrast on CVT or CVVT.

Depending on the language, the one tone on CVT can be L, H or LH, while CVVT can be L or HL. Given the different reflexes, it is hard to see how the choice of tone can be due to universal phonetics. It is striking that Hakha Lai allows only a rising (LH) tone on CVT, the most "marked" tone of the four, which generally requires greater duration cross-linguistically (Ohala 1978), at the same time restricting the longer CVVT syllables to the "unmarked" L tone.

Whereas the Kuki-Chin distributions are not phonetically transparent, their phonological analysis is. By considering the tonal alternations in which CVT and CVVT participate, one can show that hypothesis 2 above is the correct one for these languages. Hypothesis 1 is eliminated by consideration of Hakha Lai (whose derived CV syllables have toneless behavior distinct from CVT or CVVT) and Falam Lai, where Osburn's (1975) analysis of CVT as toneless fails to capture its identical behavior to other L syllables, including those where the L tone is phonologically or morphologically derived. Thlantlang Lai and Kuki-Thaadow show that the respective /H/ and /L/ are needed to form [LH] and [HL] contours by African-style tone-spreading rules. Since the tones on CVT and CVVT are easily identifiable with tones independently needed on smooth syllables, there also is no need to set them up as an independent system of stopped tones.

The claim I explore in this paper is that the tones found on stopped syllables must always be a subset of those found on smooth syllables. This also predicts that CVT will never be toneless (e.g. a "neutral tone") unless /Ø/ is also allowed on smooth syllables. Kuki-Chin shows the same "tightly structured nature of the syllable in monosyllabic languages" (Matisoff 1973:78) but otherwise diverges from the Chinese-Vietnamese-Thai multi-level, multi-contour type systems against which the subset claim must be carefully tested.

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