TONOGENESIS IN NORTHERN MON-KHMER

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ABSTRACT

Tonogenesis in the Northern Mon-Khmer languages Kammu, Hu and U is described. Each of these languages has acquired tones in its own way, and mechanisms other than those generally used to explain the origin of tones are involved. The fact that these languages have undergone different types of tonogenesis, while other closely related languages have not acquired tones shows that presence or absence of tones cannot be taken as an indicator of genetic relationship between languages.

INTRODUCTION

In this paper, tonogenesis in the three languages (Northern) Kammu, Hu and U will be described. These languages are spoken in northern Laos, Thailand and Burma, and in Southwest China. This area is dominated by tone languages belonging to the Tai and Sino-Tibetan language families, and there is a strong tendency for languages in this area to acquire tones.

The places of these languages within the Kammuic and Palaungic branches of Mon-Khmer are as follows (**boldface** indicates tone languages):

Kammuic:
- Kammu
  - **Northern Kammu**
  - Southern Kammu
- Mlabri
- Mal
- .....

Palaungic:
- Lamet
- Waic
  - Parauk
  - **Blang**
  - .....
- Angkuic
  - **Hu**
  - **U**
  - Mok
  - .....
- **Danaw**
- **Riang**
- Rumai

From this table it is obvious that tones have developed independently in several of these languages.

KAMMU

This language has two tones, which are rather level, and can be described as high (´) and low (`), although the difference between them is rather small. (See Gårding and Lindell 1977 and Svantesson 1983 for Kammu tones.)

Fundamental frequency contours of the two tones are shown in Figure 1.

Tonogenesis is simple: voiceless and voiced initial consonants have merged, and given rise to high and low tone, respectively. This type of tonogenesis is expected and phonetically motivated, since numerous investigations have shown that voiceless consonants increase and voiced consonants decrease F_0 in the following vowel. Nevertheless, this type of tonogenesis is not encountered very often in actual languages (see Hombert 1978:78).

The Kammu tone system is an innovation which has started in a central area, in northern Laos. Dialects to the south of this area have not developed tones, so Kammu is an example of a language in the process of acquiring tones. Examples of Kammu tonogenesis:

Kammu	S Kammu	
hntá?	hnta?	"tail"
hntà?	hnda?	"thin"
ráaŋ	ɾaaŋ	"tooth"
ràaŋ	raaŋ	"flower"

HU

This language (Svantesson forthc.a.) belongs to the Angkuic branch of Palaungic. Like Kammu it has a two-tone system, with high (´) and low (`) tones, illustrated in Figure 2.

In the Angkuic languages, including Hu and U, initial voiceless and voiced stops have not merged, but have been retained as aspirated and unaspirated voiceless stops, respectively. The tones do not depend on voicing in initial consonants. Instead, Hu has combined two areal trends, loss of vowel length and acquisition of tones, so that words with an originally

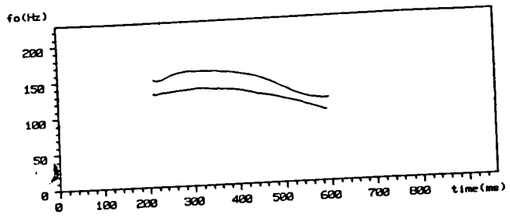

FIGURE 1. F_0 contours for Kammu tones: tíi "to beat", tìi "place". The words were said in isolation by a male speaker.

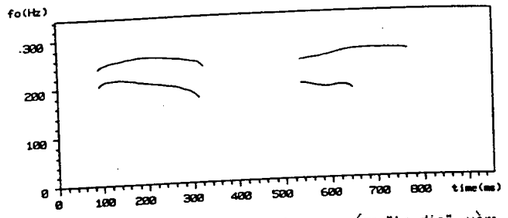

FIGURE 2. F_0 contours for Hu tones: yám "to die", yàm "to cry" (left); khát "sick", khàn "jaw" (right). The words were said in isolation by a female speaker.

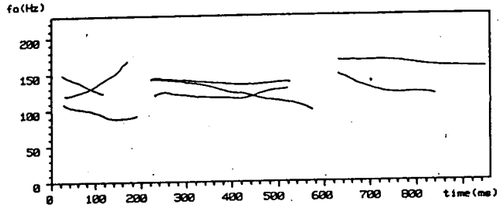

FIGURE 3. F_0 contours for U tones: khát "cold", sàt "five", lăt "fear" (left); phán "four", mphùn "seven", yâm "to cry" (mid); sí "rope", sì "tree" (right). The words were said in isolation by a male speaker.

short vowel have developed high tone, and words with an originally long vowel have low tone. Examples of this are given below. Cognates from Kammu and Lamet are given, since these languages preserve vowel length. Lamet is a Palaungic language which has developed tense (´) and lax (`) registers under conditions similar to those which have given rise to high and low tones in Kammu.

	Hu	Kammu	Lamet	
*short:	yám		yàm	"to die"
	phíɲ	píɲ	píɲ	"to shoot"
	θúk		khúk	"hair"
*long:	yàm	yàam	yàam	"to cry"
	thàɲ	táaɲ	táaɲ	"to weave"
	nasòk		yóok	"ear"

One possible phonetic explanation why short vowels are associated with high tone and long vowels with low is that a short vowel would get a higher average F_0 than a low one, provided that the usual intonation pattern is falling, that the long and the short vowels start at the same F_0, and that the F_0 slope is constant. Whether or not this is true for Hu is not known, but these assumptions do not seem unreasonable. It may also be the case that the originally long and short vowels have slightly different quality in Hu. According to Hartmut Traynmüller (pers. comm.) long low vowels have slightly lower intrinsic pitch than short low vowels, but the difference is too small to be audible.

U

U has a four-tone system, with a high level (´), a low level (`), a rising (ˇ) and a falling (^) tone (Svantesson forthc.b.). The falling tone does not occur on syllables with a final stop, and the rising tone is rare on open syllables and syllables ending in a sonorant. The tones are illustrated in Figure 3.

Proto-Angkuic lacked tones, and tones have developed independently in Hu and U as is proved by the following facts: final nasals changed into the corresponding stops after originally short vowels in U but not in Hu. This process, which thus took place after U and Hu separated, must have preceded loss of vowel length in U. Since syllables with originally short vowel followed by a *stop and a *nasal have different tones, tone development must have started before vowel length disappeared in U. In Hu, however, tones developed in connection with loss of vowel length.

The Angkuic consonant shift, which had taken place already in Proto-Angkuic (thus before tonogenesis) made all obstruents in the language voiceless, so that the oppositions voiceless/voiced and obstruent/sonorant are equivalent in the Angkuic consonant system. For this reason, a Kammu type of tonogenesis is impossible in Angkuic.

Based on these observations, the following scenario for U tonogenesis can be given. This is somewhat speculative, but each step can be motivated phonetically, and is accompanied by segmental changes which transfer functional load from segments to tones.

(1) A final sonorant (or open syllable) lowers F_0 and a final voiceless obstruent raises F_0 in the final part of the preceding vowel. It is well-known that voiceless consonants raise, and voiced consonants lower F_0 in the following vowel, and in some of the investigations cited by Hombert 1978:92 a similar but smaller effect on the vowel preceding a consonant was found.

The tones created by this rule became phonemic when final nasals were denasalized after short vowels, resulting in minimal or near-minimal pairs as:

U	Hu	
sáˀ	θák	"rice"
sàˀ	sáŋ	"bitter"
mpét	pét	"to spit"
phèt	phíɲ	"to shoot"

The Hu high tone shows that these words had short vowels. The first member of each pair had a final stop and the second a final nasal. When the nasal changed into a stop (k later became ˀ in U), merger was prevented by this tone development.

(2) Because of the raising and lowering of fundamental frequency in the final part of the vowel, short vowels get level (high or low) tone, and long vowels get contour tones (rising or falling). In tone languages with a vowel length opposition, it is not unusual that contour tones occur only on long syllables (in Thai, for instance, short vowels followed by a stop do not normally carry contour tones). After long and short vowels had merged, these tone patterns remained and became phonemic:

		FINAL:	
		*voiceless	*voiced
VOWEL:	*long	rising	falling
	*short	high	low

In this way, the vowel length opposition was replaced by a tone opposition in U, but in a different way than in Hu. The stage reached after this rule has applied is identical to the present state of the language, except that the falling tone is retained only when the initial cluster was completely voiced, i.e. consisted of sonorants only. Otherwise it has been modified by rules (3) and (4) below. Examples of the different tones created by rules (1)-(2):

U	Hu	Lamet	
*short vowel, *voiceless ending:			
khát	khát	kát	"cold" (Hu: "sick")
káˀ	kák	kàk	"to bite"
súˀ	θúk	khúk	"hair"
ʔáˀ	phaʔát	ʔés	"to swell"
*short vowel, *voiced ending:			
yàp	yám	yàm	"to die"
sàt	pəθán	phán	"five"
mphà	phíʁ	mpír	"to fly"
ŋàw	ŋál	ŋàl	"fire"
*long vowel, *voiceless ending:			
ntshăt	nθàc	máac	"sand"
qhăˀ	tʁàk	tráak	"buffalo"
sŭˀ	nasòk	yóok	"ear"
ʔăˀ	ʔàk		"crossbow"
*long vowel, *voiced ending:			
mâ	mà	màar	"field"
yâm	yàm	yàam	"to cry"
ŋâ	ŋáʔ	ŋàaʔ	"to itch"
mî	méʔ	mìiʔ	"you"

The falling tone was further changed in the following ways:

(3) When a vowel with a falling tone was preceded by a voiceless consonant (obstruent) or a cluster containing a voiceless consonant, it became a high level tone. There was probably an allophonic variation between a high falling and a low falling tone, conditioned by voiceless and voiced initial cluster. (Some words from another U language given by Zhōu and Yán 1983 seem to confirm this.) Reduction of initial clusters led to phonemization of the tone allophones, and the high falling tone then became high level:

U	Hu	Lamet	
thám	thàm	ktáam	"crab"
pán	pàɲ	pàaɲ	"white"
kíâ	càŋ	cèeŋ	"foot"
wáy	kaʔɔy	ʔlɔ́ɔy	"three"

A minimal pair is xáâ "thorn" vs. xââ "flower". The word for "thorn" is ráaŋ in Lamet, where the tense register shows that there was a h cluster, whereas Kammu ràaŋ "flower" with low tone points to a voiced initial.

(4) In open syllables (corresponding to final glottal stop in Hu and Lamet), the high level tone split into high and low tones, depending on vowel height, so that high vowels got high tone and non-high vowels got

low tone. This rule is phonetically well motivated, since high vowels have higher intrinsic pitch than non-high vowels, but this mechanism is seldom used to generate tones in actual languages (see Hombert 1978:96). Examples from U:

	U	Hu	Lamet	
*high vowel:	qí	pʁí?	prìi?	"nature"
	sí	pasí?	plsí?	"rope"
	ŋkú		ŋkùu?	"skin"
	nthú		ntú?	"hole"
*non-high vowel:	khà		káa?	"fish"
	salè	salé?	slɛ̀ɛ?	"rain"
	sì	θé?	khé?	"tree"
	sò	só?	só?	"dog"
	ŋkhù	ŋkhó?		"rice"

Under certain conditions, mid vowels have become high, so that the oppositions i/e and u/o have been partially replaced by tone oppositions í/ì and ú/ù (cf. the pairs sí/sì and ŋkú/ŋkhù).

CONCLUSION

Tones have developed independently in the three closely related languages Kammu, Hu and U, showing that presence or absence of tones in a language cannot be taken as an indicator of genetic relationship. Each of these languages has acquired tones in its own way, which shows that at least in areas where there is a strong areal pressure on languages to acquire tones, this can be done by other mechanisms than those generally used to explain the origin of tones.

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