

CHINESE TONES FROM AUSTRONESIAN FINAL CONSONANTS

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The question of the origin of Chinese tones has long been a matter of controversy among students of Chinese phonology. While some authors have argued that Chinese tones arose as a result of the loss of certain final consonants, others have related the emergence of tone to prosodic factors: but, whatever their assumptions concerning the genetic affiliation of Chinese may have been, none has been able to produce substantial etymological support for their interpretations. The present paper draws etymological and comparative support from reconstructed Austronesian, which this author believes to be genetically related to Chinese, to give a new account of the origin of Chinese tones.

1. The Chinese tone system and earlier accounts of its origin.

type	ex.	possible tones:			
		A	B	C	D
CV	pa	+	+	+	
CVW'	paw	+	+	+	
CVN	paŋ	+	+	+	
CVK	pak				+

Chart 1: Early Chinese tones and syllable types.

The structure of the Chinese tone system of the 4th-6th centuries AD is directly known to us through contemporary descriptions and lexicographical works. It consisted of three contrasting categories: 'Level' (tone A), 'Rising' (tone B), and 'Departing' (tone C), occurring with all syllable types, except those ending with an oral stop. Such syllables were not eligible for tonal

contrasts. For that reason they are said in the Chinese phonological tradition to carry a tone of their own: tone D, the 'Entering' tone. The resulting pattern, shown in chart 1, is shared with Vietnamese, Miao-Yao, and Thai. There is evidence from rhyming that Old Chinese (OC), a language spoken a millenium earlier, already possessed the A, B, and C categories, and that these categories had similar morpheme memberships. Rhyming, however, does not tell us whether the features which characterized these categories in OC were prosodic or segmental: if segmental, the fact that words in different tones had frequent contacts in the phonetic series suggests that these segments were probably laryngeals.

The first explanation of the origin of the arrangement in chart 1 was given by A.-G. Haudricourt (1954a) in an article dealing not with Chinese but with Vietnamese. He proposed that Vietnamese had been non-tonal until the first centuries AD, and that tone contrasts arose in it as a result of the effect of final laryngeal consonants, -ʔ and -h, lost since, but still preserved by related languages. Final -h itself was derived from earlier sibilants. According to Haudricourt, syllables ending with the glottal stop had a non-distinctive melodic rise, and syllables ending with -h had a non-distinctive fall; while syllables without a final laryngeal were characterized by a non-falling, non-rising melody. When the final laryngeals were lost, the accompanying melodies became three contrasting tones, as shown in chart 2:

-0 → tone A
 -ʔ → tone B
 -s → -h → tone C

Chart 2: Origin of Vietnamese tones according to Haudricourt (1954a).

Haudricourt assumed the same origin for tone contrasts in syllables with final nasals and semivowels, ie. -N, -W, → tone A, -Nʔ, -Wʔ → tone B, -Nh, -Wh → tone C, although he could only cite lexical comparisons to illustrate the development of tone contrasts in open syllables. The lack of tonal contrasts in syllables having oral stop endings was attributed to the impossibility for the final laryngeals to occur after stops.

In another article published the same year (1954b), and dealing with Chinese tones, Haudricourt took up the idea, first advanced by the Qing dynasty philologist Duan Yu-cai, of a late origin for tone C: arguing from the tonal correspondences in the earliest layer of Chinese loans into Vietnamese, he proposed that in Chinese also, tone C found its origin in final -s, later changing to -h, melodic fall, etc.; but while in Vietnamese the final consonants responsible for tone C were part of the stem, Haudricourt argued that final -s in Chinese was a suffix. Word stems originally in tones A or B

and suffixed with *-s* ended up with tone C in MC: and word-stems with stop endings lost their stop endings and also had tone C in MC. Although Haudricourt's proposals for Chinese were limited to tone C, they were treated by other authors as if the proposals made for Vietnamese tones A and B were applicable to Chinese.

While some of its aspects received support from Tibeto-Burman (TB) morphology (Forrest 1960), foreign transcriptions (Pulleyblank 1962, Yakhontov 1965) and Chinese dialects (Mei 1970, Sagart 1986), Haudricourt's theory was doubted by others on the grounds that it could not easily account for the origin of tones in syllables ending with nasals (Norman 1988), was insufficiently supported by Sino-Tibetan etymologies (Benedict 1975:191), or betrayed a Western bias for segmentals (Ballard 1988:23).

Other authors assigned tonogenetic role not to final consonants, but to prosodic features such as vowel length (Wang Li 1957), phonation type in vowels (Yuan Jiahua 1981), stress placement (Ballard 1985), or to a combination of vowel length and the effect of final laryngeals (Luo Meizhen 1988). No more than Haudricourt, these authors were able to produce substantial comparative support for their proposals.

A different tradition (Tong 1968, Benedict 1972), ultimately stemming from the early conception of an 'Indo-Chinese' language family, asserts that OC inherited its tones (and other features, such as monosyllabic morpheme structure) from a tonal ancestor. Benedict (1972) produced over 50 lexical comparisons supporting a correlation between the Chinese tones A and B (tone C being due in his view to sandhi) and a similar two-tone pattern within Tibeto-Karen. On this basis he reconstructed a two-tone system for Sino-Tibetan. However, comparing OC with TB languages, Coblin (1986) found numerous counterexamples to the proposed correlation; Mazaudon (1985) showed that even a tone correlation within Tibeto-Burman, had no been demonstrated; and Matisoff (1985:29) raised the possibility that tones arose separately in the different branches of TB.

2. Chinese tones from Austronesian final consonants.

An ongoing investigation is turning up regular sound correspondences, morphological parallels and a large set of shared lexical items between two reconstructed languages previously regarded as unrelated: OC (as reconstructed by Li 1971, 1976) and reconstructed Austronesian (RAN, as reconstructed by Dempwolff 1938 and Blust 1970, 1980, 1983-84, 1985, 1989). In the following, I will show that the hypothesis of a Sino-Austronesian genealogical relationship allows a simple and etymologically well-supported account of the origin of Chinese tones in most syllable types.

2.1. OC : RAN sound correspondences and morphological parallels.

Old Chinese morphemes are for the most part syllabic and correspond to the

final syllable of RAN words. The correspondences are summarized in charts 3 and 4.

Aside from sound correspondences, OC and RAN also have in common to possess infixal morphology. OC had two infixes: *-r-* and *-j-*. The *-r-* infix had an intensive or repetitive value in verbs and adjectives, thus paralleling the *la-*, *li-*, *lo-* (*ra-*, *ri-*, *ro-*, in some languages) infixes of the Central Philippines (Viray 1939). A common function of *-j-* was to attribute the semantic property in the word-base to a person, thing or location: if the word-base was a verb, the property was not assigned to its agent but to its patient, or to its instrument. In that function, *-j-* is similar to the *-in-* infix of Tagalog, which serves to focus a verb on its patient. As is normally the case in Austronesian languages, OC infixes were inserted before the first vowel of a word stem. Infixes should be disregarded in comparing OC with RAN.

RAN	OC (Li)
p	p
mp	ph
b	b
m	m
w	gw
t, T, c	t
nt, NT, nc	th
d, D, j	d
n, N, n	n
l	d, r (Pulleyblank, Yakhontov: l)
r	l (Pulleyblank, Yakhontov: r)
s	s
s	ts
z	dz
k	k, kw
ɲk	kh, kwh
g	g
R	g
q	?, ?w

Chart 3: initial correspondences.

2.2. Origin of Chinese tones.

Tones in Li's OC system are a backward projection of Middle Chinese tones, and are noted by means of 'x' (tone B) or 'h' (tone C) following the ending. Tone A is unmarked. In Li's view OC had no open syllables: all words ended with a consonant. This could be a voiced stop (*-b*, *-d*, *-g*, *-gw*) or *-r*, a nasal (*-m*, *-n*, *-ŋ*) or a voiceless stop (*-p*, *-t*, *-k*, *-kw*). Many students of OC phonology believe Li's final voiced stops to be spurious, and reconstruct open syllables