VOICE REGISTER THEORY AND THE SPLITTING OF TONAL SYSTEMS

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In Andre Haudricourt's valuable 1961 article, "Two-way and three-way splitting of tonal systems in Far-Eastern languages," there is an impressive presentation of correlations between tone patterns and types of voicing, aspiration and glottalization of initial consonants. It cites earlier work on the subject by Roman Jakobson (1931) and Bernhard Karlgren (1915). His 1965 article added further insights. All of this work is convincing.

Missing from the materials however is a theory to suggest how voice register, accent and contraction may have been involved in the shift from phonemic contrast of initial consonants to tonemic contrasts. In the now appreciable literature on voice register (see especially Henderson 1952, Catford 1964, Ladefoged 1964, Lee 1965, Li 1966, Miller 1967, Pike 1967, Shorto 1967, Stewart 1967, Smith 1968, Egerod 1971, Gregerson 1976, Thurgood 1977, Pittman 1978) there is strong theoretical support for what the authors above (and various others) have done. It sheds light on the presumed mechanisms by which the various tonal developments have come about.

Voice register, in linguistics, is a two-term (more rarely three-term) contrast which is due to the configuration of the vocal tract, especially between the larynx and the mouth, and the harmonics of the air waves passing through this pharyngeal cavity as they are affected by the vocal cords and pharyngeal musculature. A large number of languages in Asia and Africa exploit two principal sets of harmonics (registers) for lexical and grammatical contrasts. A much smaller number, including some in Burma, exploit three.

In applying this theory to Haudricourt's data we begin with an assumption of ancient CVCVC(V) word bases. We also suggest that each syllable of such word bases could be articulated with the harmonics of either the upper or the lower register. The hypothesis goes on to assume that, under the influence of differential syllable stress, some syllables were reduced or lost altogether, but that a distinctive feature of register contrast remained, being realized as a distinctive feature of tone on the remaining syllable(s).

Using a convention of KV (voiceless stop plus vowel) to represent the upper register, and GV (voiced stop plus vowel) to represent the lower register, the total possible combinations of the two registers in CVCVC word bases is eight: KKK, KGK, KGG, KKG, GGG, GKG, GKK, GGK (omitting the V symbols for abbreviation convenience). It turns out,

however, as Benade pointed out in 1960, that the contrast between KGG
and KKG is very difficult to maintain, as is the contrast between GKK
and GGK. KGG and KKG therefore almost always merge, as do GKK and
GGK, leaving only six common combinations.

All fifteen six-box Asian languages charted by Haudricourt fit
into this description. The "initials" dimension specified on the left
side of each chart represents the first/second register contrast of
the initial syllable of each word base. The upper row in each case
represents first (upper) register, the lower row represents second
(lower) register. The "tones" dimension across the top of each chart
represents the three possible sequences of register in an ancient
CVCVC word base: A. No register change; B. Single register change;
C. Double register change. Cantonese, Po-Pei Chinese, Vietnamese,
Shan, Lü, White Tai, Tho, Lungchow Tai, Wu-Ming Chuang, Lai-Ping
Chuang, Lung-Sheng Chuang, Chih-Lung Chuang, Western Miao, Central
Miao, and Sui-Ngam fit into this pattern.

The fundamental picture can most easily be visualized by an
interpretation of Haudricourt"s chart of Sgaw-Karen, based on an
assumption of ancient word bases of only two syllables without
final consonants: CVCV.

	Upper register, second syllable	Lower register, second syllable
Upper register, first syllable	KK	KG
Lower register, first syllable	GK	GG

Chart 1: Interpretation of Haudricourt's chart of Sgaw-Karen.

The dimensions of the six-box charts can best be visualized as follows:

	A. No register change	B. Single register change	C. Double register change
Upper register first syllable	K K K	K K/G G	K G K
Lower register first syllable	G G G	G K/G K	G K G

Chart 2: Interpretation of Haudricourt's six-box charts. (Read K/G as "K or G")