A Fresh Look at the Paradoxal Nature of Chinese Contour Tones

In the literature on Chinese tonology, there are two positions concerning the nature of contour tones. Chen (2000) and Yip (2002) believe that Chinese contour tones have a dual nature: they are decomposable into discrete pitch levels, and form a structural unity. Woo (1969) and Duanmu (1990, 1994), on the contrary, advocate the universal character of contour tones: if they are a concatenation of two level tones in African languages, they should behave in the same way in Asian tonal languages.

Tianjin tone sandhi illustrates well this "dual nature" of contour tones: based on Optimality Theory, Yip (2002) and Chen (2000) posit that it is triggered by the Obligatory Contour Principle (OCP), banning two adjacent identical contours or tonal segments, e.g., HL.HL→L.HL, LH.LH→H.LH, and LH.HL→L.HL. However, we don't understand why these sequences are not subject to tone sandhi in Mandarin, if the OCP is a universal principle rather than a violable constraint.

The goal of this research is to propose a tonal representation capable of naturally accounting for the paradoxal nature of contour tones. We work under the assumption of a universal tonal periodic skeleton HLHL postulated by Carvalho (2002), analogous to the syllabic skeleton CVCV proposed by Lowenstamm (1996). We conjecture that Chinese tones are constrained by a portion of this periodic skeleton: a tonal template HLHL. We posit moreover that Chinese contour tones can be analyzed as a succession of two level tones defined by an intratonal government relationship H/L encoding the notion of register. It follows from the hypothesis of tonal periodic skeleton that, just as CV is unmarked compared with .VC., the falling tone HL is unmarked by comparison with the rising tone LH, because the latter one supposes two empty positions on its right and left sides.

Starting from the principles of government and the hypothesis according to which the intratonal head of the governing syllable governs its melodic homologue in the governed syllable, two constraints are proposed to elucidate the paradoxal sandhi behaviour in Mandarin and in Tianjin: *templatic constraints* and *no tail+head homorganic sequences*.

Concerning *templatic constraints,* we suppose that there is a concordance between the number of modulations on lexical tones and the number of modulations on disyllable words in Mandarin as well as in Tianjin. In Mandarin for example, there is a citation tone HLH, but not in Tianjin. Consequently, the number of modulations should not be superior to the number of syllables + 1 in dissyllabic sequences in Mandarin. Given the absence of concave or convex lexical tones in Tianjin, the number of modulations should be equal to that of syllables in dissyllabic sequences. Hence we have H<u>L</u>.<u>H</u>L→L.<u>H</u>L, L<u>H</u>.<u>L</u>H→H.<u>L</u>H in Tianjin but not in Mandarin (the underlined one indicates the tonal head). On the other hand, *elision* explains why there is sandhi in the Tianjin sequence L<u>H</u>.<u>H</u>L→L.<u>H</u>L as well as in the Mandarin sequence H<u>L</u>H+<u>H</u>→H<u>L</u>.<u>H</u>: the tail of the first syllable has the same tone as the head of the second syllable. In both cases, there is loss of the governed tonal position.

(1) Four citation tones in Mandarin (the vertical link indicates the tonal head): the register is low if and only if the head is low; it is high if and only if the head is high.

a. **H** L **H** L

σ

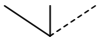
Tone 1 : level tone (55)

b. H **L** **H** L

σ

Tone 2 : rising tone (35)

c. **H** **L** **H** L



σ

Tone 3 : falling-rising tone (21[4])

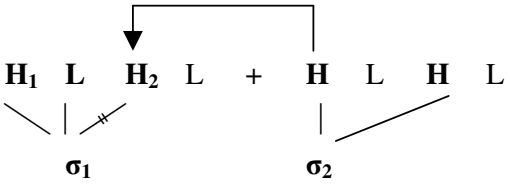
d. **H** **L** [H L]

σ

Tone 4 : falling tone (51)

(2) Proper government in Mandarin

a. 214+55 → 21.55



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