

Zero ≠ absence: evidence from Chinese tone

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1. In Hyman (1999), the old Trubetzkoy's privative opposition is applied in a creative way to tonology, namely, an unmarked term of a tonal system is not submitted to tonal rules and is underlyingly zero.

The introduction of zero tone in tonology accounts for the famous third tone (T3) sandhi in Mandarin Chinese (MC) in a more elegant way.

Yip (2002) considers MC T3 as a L(.H) tone with a floating H part. Two T3 will give a sequence of L.L tones. To avoid the sequence of two L tones, Yip propose a high ranked constraint called OCP (L), which only applies to L tone and give L.L > LH.L. However, this solution is *ad hoc* because one can ask why the OCP does not apply to H tone.

Hyman introduces zero, the unmarked term, as a phonological form in tonology. In a tonal system with H/L contrast, if the marked term is L, it implies a phonetic H realization of the unmarked term which is phonologically zero. If this is true, MC phonetic H tone is zero associated to a vocalic position, and should not be submitted to OCP, thus H.H is wellformed, and the third tone sandhi is triggered by the adjacency of two marked terms: L.L.

2. If the H tone in MC is underlyingly zero, then the status of neutral tone (T0) must be reconsidered. T0, as the notation shows, is often considered as a "zero tone". It is always realized on weak syllables with a phonetic pitch depending on the previous lexical tone. However, according to Wang (1980: 198), the neutral tone is not a tonal phenomenon, but a prosodic one.

Studies on T0 can be summarized into three hypotheses: 1) T0 has an underlying form (Duanmu 1999; Lin 2006); 2) T0 has no underlying form and depends on the previous lexical tone (Duanmu 2007; Liu 2008); 3) One feature of T0 is underlying, a second feature depends on the preceding lexical tone (Yip 1980).

All the three can explain T0's behavior after a lexical tone, yet two phenomena didn't draw enough attention: (i) in a sequence of several neutral tones (only one study in the literature, Wang 1997), the first one depends on the previous lexical tone, while others simply have a low (L) pitch; (ii) when a lexical tone is reduced to a neutral tone by de-stressing, it behaves exactly in the same way as a primary neutral tone (mentioned in Duanmu 2007).

These two phenomena would lead to two contradictions: (i) in MC, two successive L tones violate the OCP (Yip 2002), trigger of the famous 3th tone sandhi, if T0 is an underlying L tone, why several T0s as L tone are tolerated; (ii) when a lexical tone is reduced to T0, if T0 does have an underlying form, why should a lexical tone abandon its own underlying form to pick the underlying form of T0?

My claim is that neutral tone is the superposition of two phenomena: tone and prosody. Underlyingly, T0 is the absence of tone, i.e. no tonal association, realized as an L prosodic pitch. Since tone is absent, it could take the floating tonal element of the previous lexical tone (for instance, floating H tone of T3). Thus we would be able to explain in a sequence of several T0s, why only the first T0 after a lexical tone depends on this latter and why all other successive T0s take the L pitch.

This hypothesis would also predict why a reduced lexical tone behaves exactly like a T0: a syllable which has lost its lexical tone is a syllable without tone, just like T0, which is the absence of tone, they should behave in the same way.

3. The distinction of zero and absence as two underlying phonological units gives thus a unified solution to tonal sandhi and neutral tone in MC, without resorting to *ad hoc* rules or constraints neither to idiosyncrasy.