

In this paper, a floating tonal reduplicant suffix is proposed to re-analyze Changzhi Chinese suffix tone sandhi (Hou 1983), which has been presented as major evidence for Contour Tone Units (CTU). As shown in (1), all stem contour tones ((1a) – (1d)), except one stem level tone in (1e), overwrite the underlying tone of adjectival (ti^{HMH}) and diminutive ($tə^{HMH}$) suffixes. In Yip (1980, 1989), this process was analyzed as spreading contour tones as units.

(1) Suffix Tone Sandhi with categorical transcriptions

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|--|--------|---|----------|
| a. $sua\eta^{MLM} ti^{HMH} \rightarrow sua\eta^{MLM} ti^{MLM}$ | 'sour' | b. $xua\eta^{MH} ti^{HMH} \rightarrow xua\eta^{MH} ti^{MH}$ | 'yellow' |
| c. $ya\eta^{HMH} ti^{HMH} \rightarrow ya\eta^{HMH} ti^{HMH}$ | 'soft' | d. $la\eta^{HM} ti^{HMH} \rightarrow la\eta^{HM} ti^{HM}$ | 'rotten' |
| e. $a\eta^H ti^{HMH} \rightarrow a\eta^H ti^{HMH}$ | 'dark' | | |

On the other hand, Duanmu (1990, 1994) argues against CTUs, assuming instead that tone sandhi in Changzhi is a 'tonal copying' process: stem tones are copied onto the suffixes. Despite different analytical foundations, both analyses share the assumption that the stem in (1e) is tonally unspecified in UR; the level tone H does not undergo tonal spreading/copying since the tone is assigned by a Default Tone Rule ordered after (thus counter-feeding) the tonal spreading/copying rule. However, such an assumption results in an ordering paradox, as appears if we consider Changzhi general tone sandhi rules, partially summarized in (2) (see Appendix a). If H is not specified lexically, general tone sandhi rules must be ordered after the Default Tone Rule to derive the outputs in (2). Nevertheless, the ordering contradicts the output of (1e) since (1e) does not undergo general tone sandhi as in (2a). As a result, both of the rule-based analyses fail to account for Changzhi suffix tone sandhi.

(2) a. /H-HMH/ \rightarrow [MH-HM] b. /H-H/ \rightarrow [HM-H] (Duanmu 1994:587)

The alternative approach proposed here assumes that a floating tonal reduplicant T-RED accompanies the suffixes $-ti^{HMH}$ and $-tə^{HMH}$ in Changzhi. This approach seems to make the existence of the suffixes $-ti^{HMH}$ and $-tə^{HMH}$ trivial, but the syllables in fact can serve as tone-bearing units for the floating tonal reduplicant (see below). The plausibility of this approach relies on the existence of reduplicational (Urbanczyk 2006 and refs. cited therein) and floating tonal affixes (Hyman to appear and refs. cited therein). The floating tonal reduplicant in Changzhi is the combination of both. Yip (1995) argues against Duanmu's tonal copying analysis, which is similar to the current proposal, since 'total' reduplication in Changzhi has tonal patterns which are different from (1). Nevertheless, it is now possible to distinguish the floating tonal reduplicant from the total reduplicant morphologically. Since they are different morphemes, they can have different reduplication patterns. In this approach, the tone sandhi patterns in (1) can be accounted for under the framework of Base-Reduplicant Correspondence (McCarthy and Prince 1994, 1995) of Optimality Theory (Prince and Smolensky 1993/2004) with two core rankings. First, a general BR tonal faithfulness constraint **FAITH-T-BR** and **MAX-T-STEM** outranks **MAX-T-AFFIX**: base tones must be fully reduplicated and overwrite tones on suffixes as in (1a). This ranking demonstrates a 'root-controlled' process frequently observed in many vowel harmony systems, in which the faithfulness status of roots is more privileged. Second, **FAITH-T-BR** outranks a general markedness constraint **TONESANDHI**: tonal reduplication resists general tone sandhi since the latter leads to an unfaithful mapping between base tones and reduplicants (e.g. **LINEARITY-T-BR** is violated after the application of (2a)). Crucially, since **FAITH-T-BR** outranks **MAX-T-AFFIX**, if **FAITH-T-BR** can be satisfied by overwriting one single toneme on the suffix, it is unnecessary to delete all the suffix tonemes (incurring gratuitous violations of **MAX-T-AFFIX**). In other words, in (1e), the reduplicated base level tone H overwrites either the first or the last high toneme of the suffix HMH; no additional deletion is required to derive H-H to satisfy tonal reduplication in (1e). Without changes on the tonal sequence in (1e), it has been mistaken

for the underapplication of suffix tone sandhi. Eventually, this approach has two conclusions: **i.** tone sandhi in (1) is a reduplication process and the assumption of CTUs is unnecessary in Changzhi, and **ii.** H in (1e) is copied onto the suffix without changing the tonal sequence.

Appendix

a. General disyllabic Changzhi tone sandhi with a categorical transcription¹

Tone2 Tone1	MLM	MH	HMH	H	HM
MLM	MLM- HM	MLM-MH	MH-HM	MLM- HM	MLM-HM
MH	MH- HM	MH-MH	MH- HM	MH- HM	MH-HM
HMH	HMH-MLM	HMH-MH	MH-HM	HMH- HM	HMH-HM
H	H-MLM	H-MH	MH-HM	HM-H	HM-HM
HM	HM-MLM	HM-MH	MH-HM	HM-H	HM-HM

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¹ Transcriptions in Duanmu (1994) and Yip (1989) follow the five-tone system. They are transformed into categorical transcriptions for a better understanding of the tonal patterns.