

## SANDHI SANS DERIVATION: THIRD TONE PATTERNS IN MANDARIN CHINESE

Traditionally represented as “3→2/ \_\_3”, a categorical tone change from a low-dipping tone (T3) to a high-rising tone (T2), Mandarin third tone sandhi (T3S) presents a theoretical challenge. Most analyses of T3S are derivational (e.g. Duanmu 2000, Xu 2001). Non-derivational accounts, often based on ad-hoc constraints and dubious assumptions regarding T3S domains, quickly run into problems. We propose a non-derivational OT account rooted in a toneme deletion analysis, appealing to well-established principles of tonal markedness and their interaction with the OCP.

Our analysis departs from existing accounts in non-trivial respects and brings to light new empirical discoveries. Rather than assuming that T3 is underlyingly low (Yip 2000), we follow Lin (1993), Chen (2000), and Yin (2003) in arguing that underlyingly, T3 is its complex citation form, consisting of three tonemes: /M(id), L(ow), H(igh)/. We furthermore propose that T3S is realized in two different ways. Before another T3 in the same prosodic domain (the environment of canonical T3S), MLH changes to MH via deletion of L. Elsewhere, MLH changes to ML via deletion of H, an instance of so-called “half T3S”. The only environment where the full T3 contour surfaces is the most prosodically prominent syllable of an utterance. Thus, T3-bearing syllables in prominent positions do not undergo sandhi, a fact that has been largely overlooked.

Our analysis is structured around the following proposals.

i) Sequences of two non-prominent T3s are accounted for with seven well-motivated constraints: **\*COMPLEXCONTOUR**, forcing reduction of three-toneme contours >> **MAX-T**, protecting tonemes from deletion otherwise >> **\*BOUNDARY-H**, resulting in H tonemes being most marked at prosodic boundaries >> **OCP(TONE)**, preventing toneme deletion from yielding identical adjacent surface tones >> **{\*H>>\*L>>\*M}**, a cross-linguistically motivated hierarchy of tonal markedness constraints (Pulleyblank 1986, Akinlabi 1997), ensuring that H and L-tonemes are more susceptible to deletion than M-tonemes. Both canonical and half T3S emerge as natural consequences.

(1)

/ (MLH MLH) /	*COMPLEXCONTOUR	MAX-T	*BOUNDARY-H	OCP(TONE)	*H	*L	*M
a. (MLH MLH)	*!*		*	*	**	**	**
b. (MH M)		***!			*		**
c. (ML MH)		**	*!		*	*	**
d. (ML ML)		**		*!		**	**
e. (LH ML)		**			*	**!	*
f. $\varnothing$ (MH ML)		**			*	*	**

ii) In order to account for sequences of three or more T3s, prosodic structure must be factored in. Following Shi (1986) among others, we assume that the basic prosodic structure of an utterance maps onto its syntax. Given the prosodic domains shown in (2) (e.g. *(Li)(mai jiu)* ‘Li buys wine’), we appeal to **\*BOUNDARY-H**, which ensures that H-tonemes in complex contours at prosodic boundaries are the most unstable tonemes in Mandarin.

(2)

/ (MLH)(MLH MLH) /	*COMPLEXCONTOUR	MAX-T	*BOUNDARY-H	OCP(TONE)	*H	*L	*M
a. (MLH)(MLH MLH)	*!***		**	**	***	***	***
b. (MH)(MH ML)		***	*!	*	**	*	***
c. (ML)(ML ML)		***		*!*		***	***
d. $\varnothing$ (ML)(MH ML)		***			*	**	***

iii) Utterances with longer T3 sequences including prosodically prominent syllables (e.g. *(Lao Li)(mai hao jiu)* ‘Old Li buys good wine’) behave as predicted by our grammar. We propose that the full underlying contour of prominent T3-bearing syllables is preserved in such cases due to an undominated positional faithfulness constraint: **MAX-T** ( $\sigma$ ), which guards against toneme deletion in prosodically prominent positions.

## REFERENCES

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