Reduplication is Conditioned by Perception?
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Whether an invariant element in reduplicative outputs occurs for a phonological or a morphological purpose is an intriguing question. On one hand, phonological constraints have been proposed to analyze the fixed elements in reduplication, for example, phonological fixed segmentism under the effects of the Emergence of the Unmarked (TETU, Alderete et al. 1999). On the other hand, morphosemantic requirements have also been proposed to motivate the invariant elements in reduplication as in Morphological Doubling Theory (MDT, Inkelas and Zoll 2005; Inkelas 2008). I argue for a third possibility based on evidence from tonal mismatches in Cantonese vocative reduplication: the invariant reduplicative complex is conditioned by perceptual factors. Perceptual influences have been used to account for various phonological phenomena but rarely for reduplication (e.g. place assimilation (Jun 2004), metathesis (Blevins and Garrett 2004), vowel reduction (Crosswhite 2004)); therefore, the study is a valuable addition to the research on perceptual factors in phonology.

Cantonese has six long contrastive tones: T55, T25, T33, T21, T23 and T22. The tone code ‘5’ indicates the highest pitch and ‘1’ the lowest (Chao, 1968:26). The following examples illustrate the mismatch patterns in Cantonese vocative reduplication (Yu 2009):

<table>
<thead>
<tr>
<th>Input</th>
<th>Reduplicative output</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>T55</td>
<td>T21 T55</td>
<td>ba55→ba21ba55, ‘father’</td>
</tr>
<tr>
<td>T33</td>
<td>T33 T25</td>
<td>tai33→tai33tai25, ‘wife’</td>
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As can be observed in the table above, the reduplicative complex has a sequence of T21 followed by T25, except when the base has T55 or T33. TETU might suggest the fixed tones T21 and T25 are the two most unmarked tones in Cantonese; however, this claim is not supported by frequency and loanwords patterns. MDT might suggest this case is a part of an affixational process sorely due to morphosemantic requirements in Cantonese; however, this fails to account for the tendency to preserve phonological similarity between the fixed tones in the two copies.

I argue that there are two crucial motivating factors for the tonal patterns in Cantonese vocative reduplication: (a) high perceptual similarity of the two tones (i.e. T21 and T25) in the reduplicative complex (Fleischhacker 2005); (b) a language-specific preference for disyllabic iambic patterns, which requires a sequence of a low pitch followed by a high pitch in disyllabic names (Yip 1992). I provide support for these claims through an AX discrimination experiment on native speakers of American English (n=15), with no bias of Cantonese linguistic knowledge. Participants took significantly longer reaction time to discriminate T21 and T25 than other relevant tone pairs. The results suggest that the tone pair T21 and T25 is more perceptually confusable than other tone pairs that also fulfill the iambic template requirement, indicating that T21 and T25 can be the optimal candidate if the factor of high perceptual similarity crucially determines the reduplication process.

The current study provides a new insight of perception-based motivation for reduplication, and also adds to the more general literature on the importance of perceptual factors in phonology.
References