Background & the Present Analysis

Traditional analyses viewing tone 3 sandhi as categorical change fail to account for differences between sandhi tone 3 and tone 2. A new analysis claiming that tone 3 sandhi is a tonal reduction is proposed within the OT framework. In the present analysis both tone 3 sandhi and tone 4 sandhi are viewed as tonal reductions and the same basic set of constraints are used to accommodate both tone sandhi phenomena.

Tone 3 sandhi

In rule-based analyses, the basic rule of Mandarin tone 3 sandhi can be simply stated as 3----->[2]_/___3

When one third tone syllable is immediately followed by another, the first of the two changes from a falling-rising tone [214] into high rising [35] (Chen 2000).

However, some linguists (e.g. Hockett, 1950; Martin, 1963) claim that the changed third tone did not really become a tone 2 but rather a new tone (tone 5). Kratochvil’s experiment (1987) shows that the first T3 in a two tone 3 sequence is more often classified as T3 rather than T2. The third sandhi results in a tone lower than tone 2 (Zee, 1980; Xu 1997).

Tone 4 sandhi

4----->[4Half]_/___4

When a fourth tone follows another fourth tone, it retains its first half [53] but loses its second half [31].

OT account of tone 3 sandhi

Final-L/N-Final-S In a phonological phrase, the final syllable should be lengthened and the non-final syllable(s) should be shortened.

*ComCT/ShortS Complex contour tones should be prohibited in shortened syllables.

Tone 3 is a complex contour tone consisting of a falling part [21] and a rising part [14]; tone 4 can be viewed as a complex contour tone as well since it contains a high tone [53] and low tone [31].

Max(21) Input segments must have output correspondents in terms of the falling part of tone 3.

Max(14) Input segments must have output correspondents in terms of the rising part of tone 3.

Tableau 1 (A parenthesis represents a phonological phrase boundary and bold letters represent lengthening)

<table>
<thead>
<tr>
<th>Input /hao3 jiu3/</th>
<th>Final-L/N-Final-S</th>
<th>*ComCT/ShortS</th>
<th>MAX (21)</th>
<th>MAX (14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (hao[14] jiu[214])</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (hao[14] jiu[14])</td>
<td>*!</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. (hao[214] jiu[214])</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. (hao[214] jiu[214])</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OT account of tone 4 sandhi

Max(53) Input segments must have output correspondents in terms of the first part of tone 4.

Max(31) Input segments must have output correspondents in terms of the second part of tone 4.

Tableau 2

<table>
<thead>
<tr>
<th>Input /kan51 bao51/</th>
<th>Final-L/N-Final-S</th>
<th>*ComCT/ShortS</th>
<th>MAX (53)</th>
<th>MAX (31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (kan[53] bao[51])</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (kan[51] bao[51])</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

- Both tone 3 sandhi and tone 4 sandhi can be viewed as tonal reductions instead of categorical changes.
- A unified account of both tone sandhi phenomena could be achieved within the OT framework.

References


