Mandarin monosyllables trigger long-lag identity priming but not long-lag morphological priming

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Background

- Mandarin has substantial homophony and uses lexical tones to distinguish words
- Tone sandhi: systematic phonological alternation from Tone 3 to Tone 2 (T3+T3→T2+T3)
- Long-lag priming studies: only identical or morphological facilitation in Indo-European languages (Kouider & Dupoux, 2009)
- To what extent do these patterns of results extend to other languages with very different typological properties, such as Mandarin Chinese?
- Do morphologically-related Tone 3 - Tone 2 pairs in Mandarin elicit facilitative long-lag priming?
- Prediction: facilitation only for morphologically related pairs (Tones 3 and 2)

Design

- Speeded lexical decision task: to judge each syllable heard is a real word or a nonword
- Experiment 1
  - 96 critical item sets with fillers (Tone 1 or Tone 4 targets and 288 nonwords)
  - 18-52 intervening trials
- Experiment 2
  - Additional condition: identical targets to check whether long-lag priming works at all in Mandarin monosyllables
  - A replication of experiment 1 to test the observed pattern

Results (Exp 1, N=153)

<table>
<thead>
<tr>
<th>Target</th>
<th>Unrelated prime</th>
<th>Morphological prime</th>
<th>Phonological prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>shi³</td>
<td>hua⁴</td>
<td>shi²</td>
<td>shi¹</td>
</tr>
<tr>
<td>mei³</td>
<td>gua¹</td>
<td>mei²</td>
<td>gua⁴</td>
</tr>
<tr>
<td>zu²</td>
<td>lang⁴</td>
<td>zu³</td>
<td>pin¹</td>
</tr>
<tr>
<td>lian²</td>
<td>yue¹</td>
<td>lian³</td>
<td>yue⁴</td>
</tr>
</tbody>
</table>

Results (Exp 2, N=95)

<table>
<thead>
<tr>
<th>Target</th>
<th>Unrelated prime</th>
<th>Morphological prime</th>
<th>Identical prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>shi³</td>
<td>hua⁴</td>
<td>shi²</td>
<td>shi³</td>
</tr>
<tr>
<td>mei³</td>
<td>gua¹</td>
<td>mei²</td>
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<td>lian²</td>
</tr>
</tbody>
</table>

Discussion

- Experiment 1: no morphological facilitation between Tone 3 and Tone 2, but inhibition
- Experiment 2: robust identity priming effect, no morphological facilitation, and no significant inhibition

Suggests interesting possibilities about the nature of lexical representations and priming across languages:
- Long-lag morphological priming may depend on the activation of a particular morpheme with few or no homophones
- Identity priming in the present study may be episodic
- Monosyllables and disyllables in Mandarin

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References