

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)

Single character	Two-character words
水(<i>shui</i> ³ , water)	水果(<i>shui</i> ² <i>guo</i> ³ , fruit)
水(<i>shui</i> ³ , water)	水壺(<i>shui</i> ³ <i>hu</i> ² , kettle)

Design

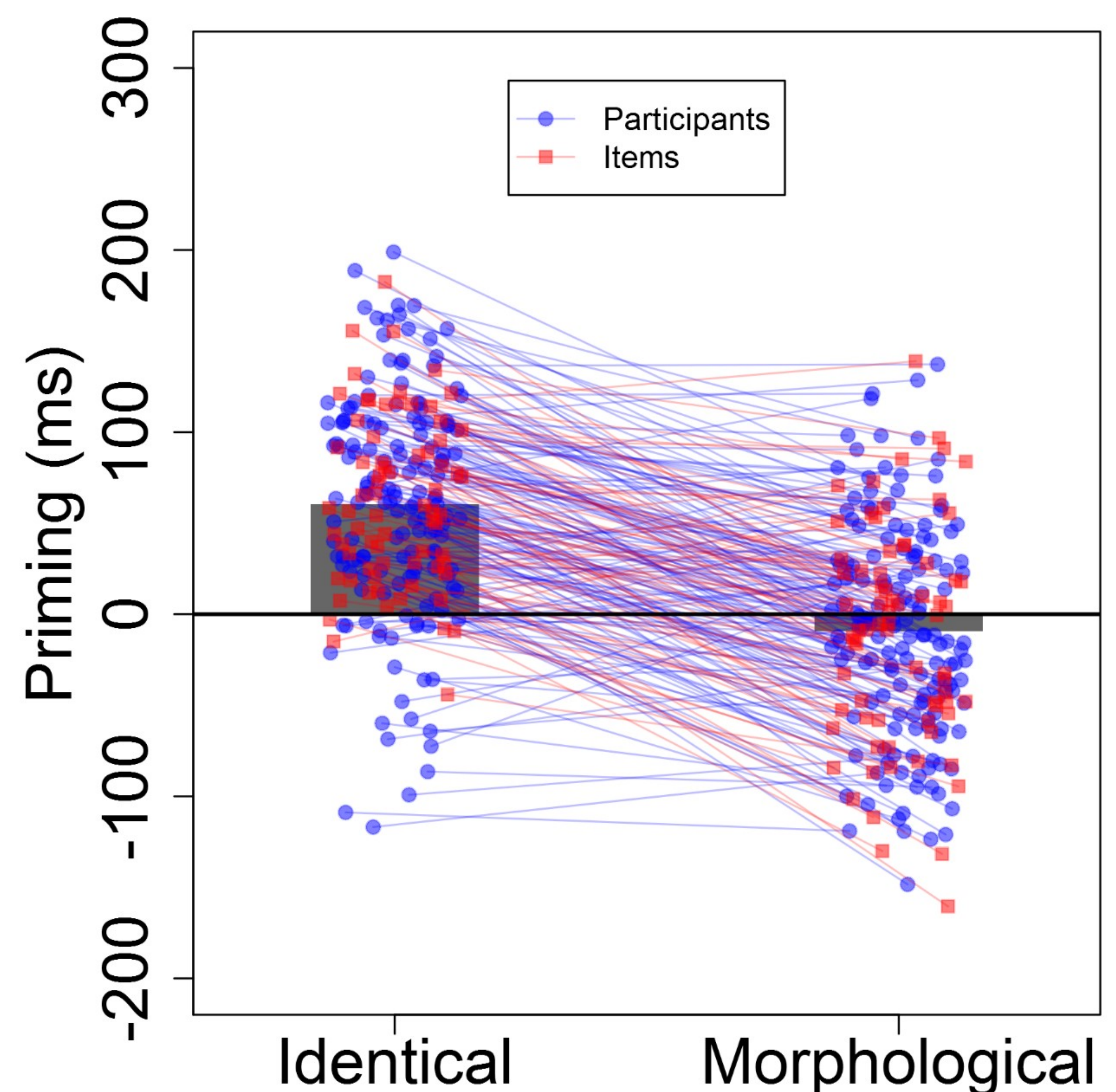
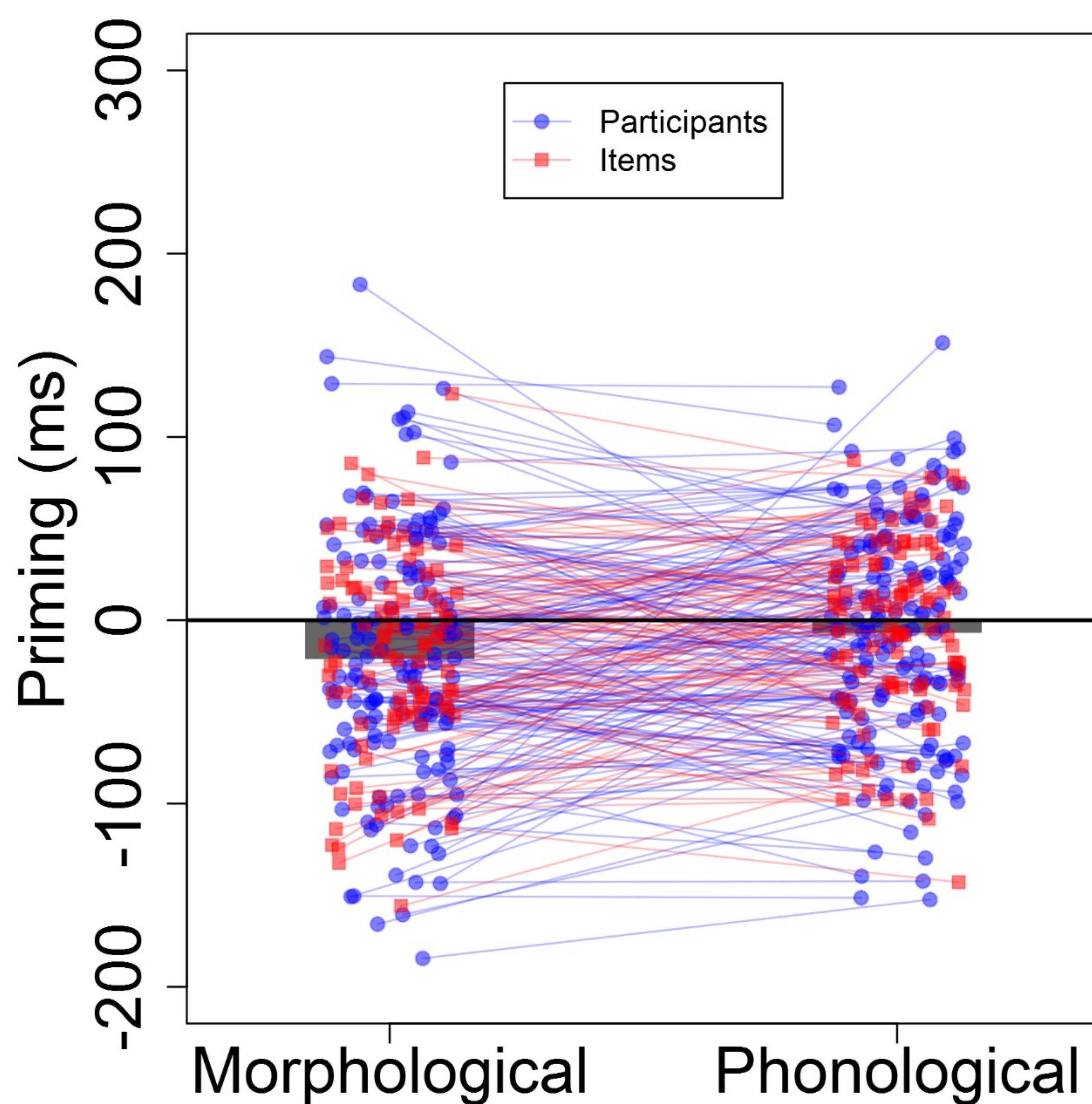
- Speeded lexical decision task: to judge whether each syllable heard is a real word or a nonword
- Experiment 1
 - 96 critical item sets with fillers (Tone 1 or Tone 4 targets and 288 nonwords)
 - 18-52 intervening trials
- Experiment 2
 - Additional condition: identical targets to check whether long-lag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

Results (Exp 1, N=152)

Target	Unrelated prime	Morphological prime	Phonological prime
<i>shi</i> ³	<i>hua</i> ⁴	<i>shi</i> ²	<i>shi</i> ¹
<i>mei</i> ³	<i>gua</i> ¹	<i>mei</i> ²	<i>mei</i> ⁴
<i>zu</i> ²	<i>lang</i> ⁴	<i>zu</i> ³	<i>zu</i> ¹
<i>lian</i> ²	<i>yue</i> ¹	<i>lian</i> ³	<i>lian</i> ⁴

Results (Exp 2, N=153)

Target	Unrelated prime	Morphological prime	Identical prime
<i>shi</i> ³	<i>hua</i> ⁴	<i>shi</i> ²	<i>shi</i> ³
<i>mei</i> ³	<i>gua</i> ¹	<i>mei</i> ²	<i>mei</i> ³
<i>zu</i> ²	<i>lang</i> ⁴	<i>zu</i> ³	<i>zu</i> ²
<i>lian</i> ²	<i>yue</i> ¹	<i>lian</i> ³	<i>lian</i> ²



Gray bars represent the mean priming effect (unrelated condition minus related condition)

Discussion

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

References

- Kouider, S., & Dupoux, E. (2009). Episodic accessibility and morphological processing: evidence from long-term auditory priming. *Acta Psychologica*, 130, 38-47.
Serenó, J., & Lee, H. (2015). The contribution of segmental and tonal information in Mandarin spoken word processing. *Language and Speech*, 58, 131-151.