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

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Hanyang International Symposium on Phonetics and Cognitive Sciences of Language 2018
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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)

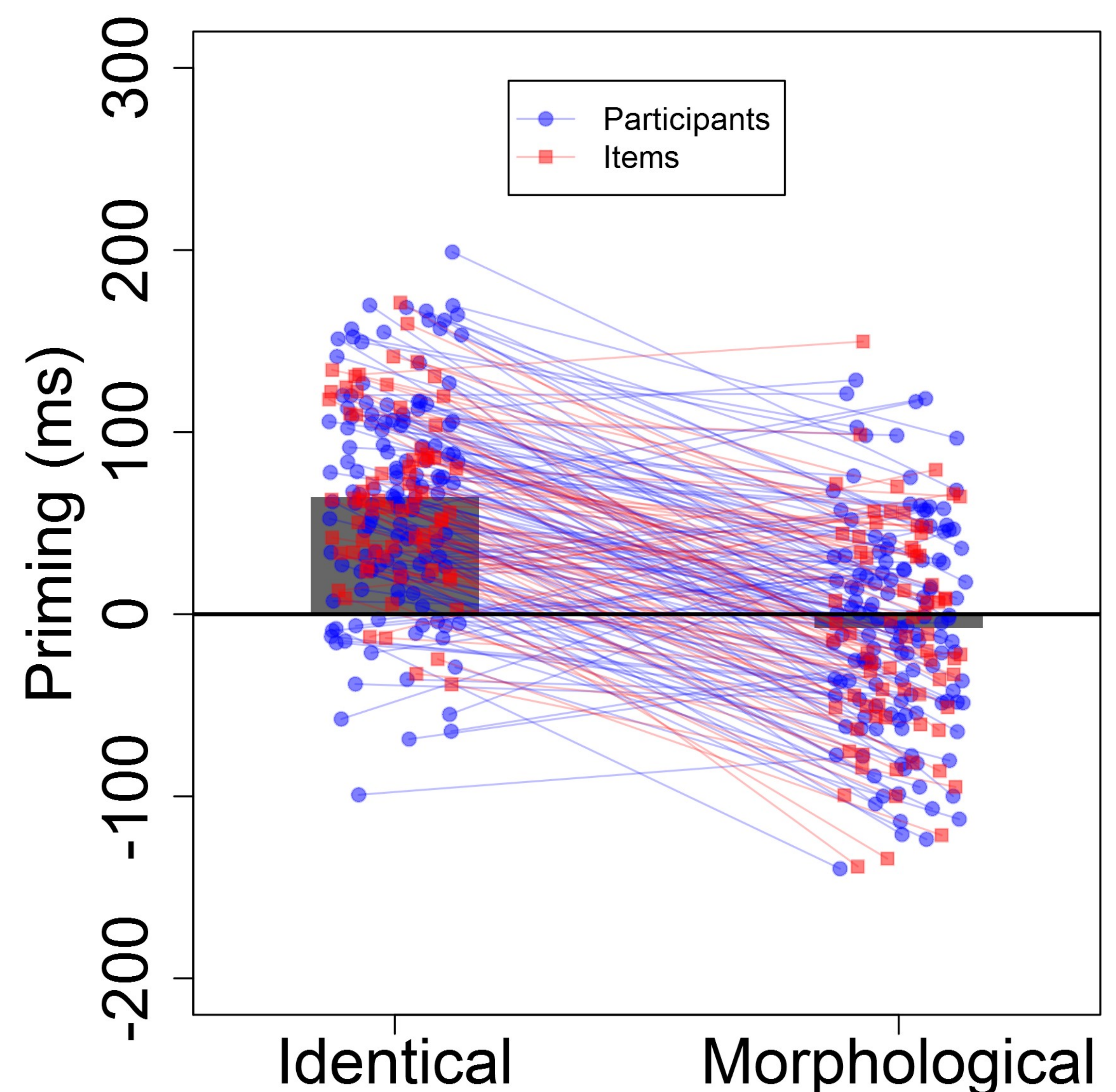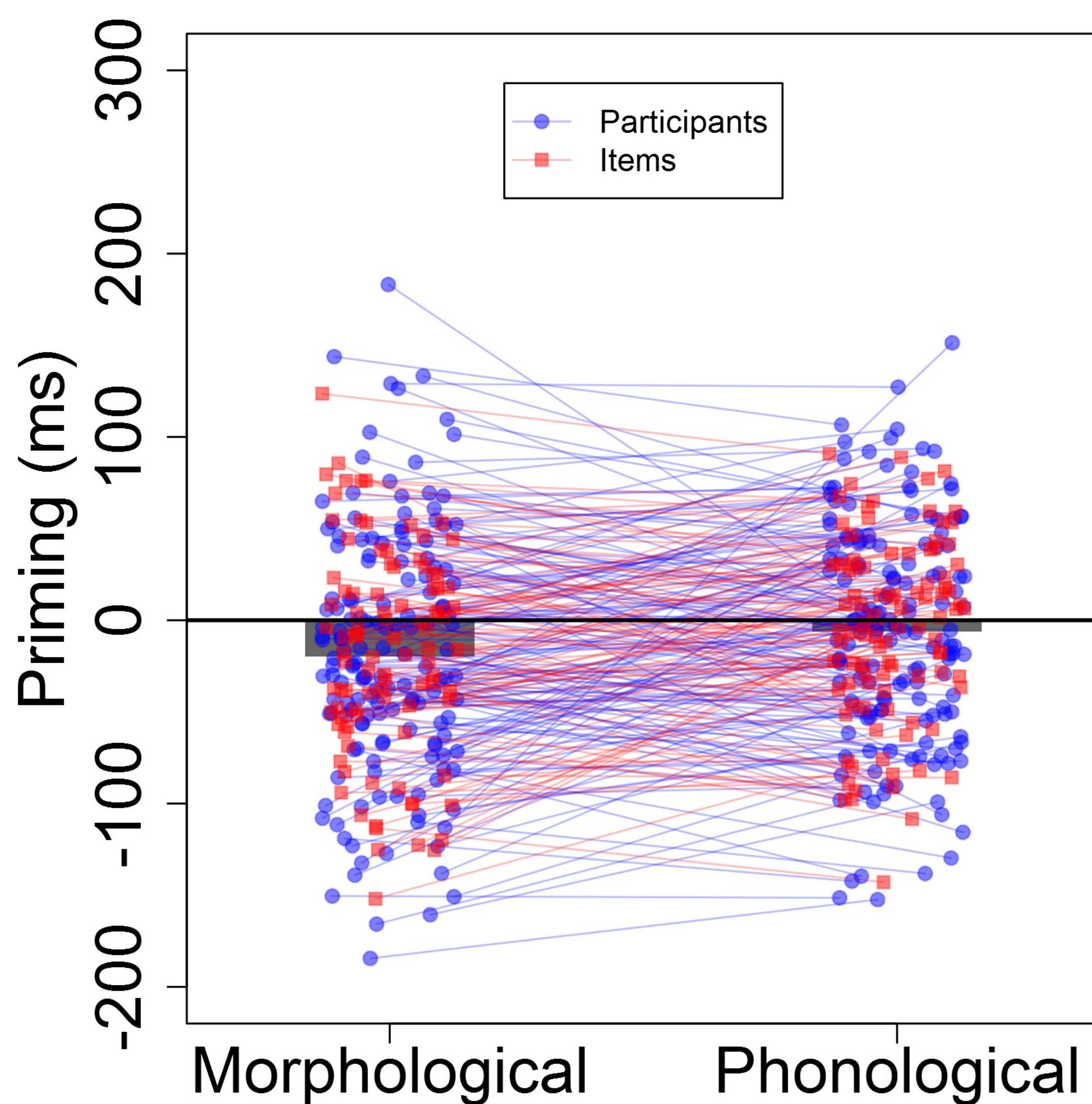| Single character	Two-character words
水(*shui³*, water)	水果(*shui²guo³*, fruit)
水(*shui³*, water)	水壶(*shui³hu²*, kettle)

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)

Target	Unrelated prime	Morphological prime	Phonological prime
shi³	*hua⁴*	*shi²*	*shi¹*
mei³	*gua¹*	*mei²*	*gua⁴*
zu²	*lang⁴*	*zu³*	*pin¹*
lian²	*yue¹*	*lian³*	*yue⁴*

Results (Exp 2, N=95)

Target	Unrelated prime	Morphological prime	Identical prime
shi³	*hua⁴*	*shi²*	*shi³*
mei³	*gua¹*	*mei²*	*mei³*
zu²	*lang⁴*	*zu³*	*zu²*
lian²	*yue¹*	*lian³*	*lian²*

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 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

References

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