

## Multiple Meanings of Doubling Up: Mandarin Verbal Reduplication

Catherine Arnett (University of California, San Diego) and Eva Wittenberg (University of California, San Diego)  
ccarnett@ucsd.edu

Verbal reduplication has long been known to induce non-truth-conditional effects on how people conceptualize an event (e.g. [1]). Verbal reduplication is frequent in Mandarin Chinese (Ex. 1), and has either been analyzed as a (morpho)syntactic operation inducing a diminishing, ‘fast’ meaning [2], or as affecting iterativity [3]. However, there is little consensus in the literature whether this semantic effect is dependent on verb class, event type, and/or number of syllables. Further, Mandarin is traditionally thought to be morphologically poor, but reduplication patterns are morphologically complex and can provide insights on the morphology-semantics interface. Using monosyllabic verbs, we test predictions and deliver first empirical data from the theoretical literature about how reduplication affects the way Mandarin speakers conceptualize events in terms of event duration, object number, and iterativity.

- (1) 教(A) → 教教(AA)  
jiāo jiāo~jiāo  
teach teach~teach  
‘teach’ ‘teach a little’ (adapted from [4])

**Exp. 1** tests a prediction from [4] that Mandarin speakers perceive events expressed by reduplicated verbs as indicating a shorter duration than if the verb were not reduplicated. We controlled for dialectal variation, emotive content of the verbs, and semantic specificity. 115 participants picked the verb phrase indicating longer duration of an event ( $\pm$  reduplicated verb, i.e. *walk* vs *walk-walk*; Table 2). Differing from the predictions of [4], there was considerable variation between and within speakers: approximately 24% of the time participants judged the reduplicated answer choice as having a longer duration than its unreduplicated counterpart, with 66% of participants choosing a mix of the two answer types.

**Exp. 2.** Whether an event is perceived as bounded or not can depend on object number (see Ex. 2). Unbounded events are in turn often imagined as taking longer (e.g. [5]). Because Mandarin nouns are unspecified for number, and imagined object number is tied to boundedness, if reduplication conceptually affects boundedness, it should also affect object number. Since diagnostic tests for boundedness (Ex. 3) cannot be used for Mandarin, we asked 95 native speakers to indicate whether they imagined the object of the verb phrases in Exp. 1 to be singular or plural (see Ex. 4). Results show that for the verb phrases with reduplicated verbs, participants were more likely to choose the plural by 7.6% (generalized linear mixed model using lme4 [6];  $\beta = -0.76$ ,  $z = -5.54$ ,  $p < 0.001$ ).

**Exp. 3,** using pathless manner-of-motion verbs such as 溜 (‘stroll’; Ex. 5), tests the claim that reduplication can affect iterativity as well as duration (e.g. [7]). Following [8], participants were presented with the reduplicated (VV) and unreduplicated (V) forms of the verb and were asked to indicate which form represents the action done a) for longer, b) more, and c) more times (see Figure 1). Results (N = 65) suggest that iterativity and duration may be independent effects from each other.

**Conclusion.** These data provide an empirical backdrop against theoretical predictions made about the semantic effects of monosyllabic verbal reduplication in Mandarin. While our results confirm the idea that reduplication affects the conceptualization of iterativity, duration, and pace across event types and verb classes, they also highlight the variability within and across speakers. Moreover, these results cast doubt on theories which regard Mandarin as a language with little to no morphology [9]: The variability and complexity within Mandarin verbal reduplication can be better explained by analyzing them as constructions at the morphology-semantics interface [10].

- (2) a) Eat applesauce (mass, unbounded)  
 b) Eat an apple (count, singular, bounded)  
 c) Eat apples (count, plural, unbounded)
- (3) a) I ate applesauce for/\*in five minutes. (unbounded)  
 b) I at an apple \*for/in five minutes. (bounded) (See [5, 11])

Emotivity	Unreduplicated	Reduplicated	Translation
<b>Positive</b>	听音乐 <i>ting yinyue</i>	听听音乐 <i>tingting yinyue</i>	'listen to music'
<b>Negative</b>	听新闻 <i>ting xinwen</i>	听听新闻 <i>tingting xinwen</i>	'listen to the news'

Table 2: Example stimuli used in Experiments 1 & 2.

- (4) Example stimuli from Experiment 2:  
 根据这个短语《爬树/爬爬树》，下面两项哪一项是准确的？  
 'Given this phrase "climb tree/climb-climb tree", pick which answer below is correct.'
- a) 只爬了一棵树 'Only one tree was climbed'  
 b) 爬了两棵以上的树 'Two or more trees were climbed'
- (4) Example stimuli from Experiment 3:  
 A: 王大爷傍晚出门溜了。 'A: Uncle Wang went out at dusk for a **stroll**.'  
 B: 李大爷傍晚出门溜了溜。 'B: Uncle Li went out at dusk for a **stroll-stroll**'
- a) 谁溜的次数多? 'Who strolled/walked more times?'  
 b) 谁溜得多? 'Who strolled more?'  
 c) 谁溜的时间多? 'Who strolled for longer?'

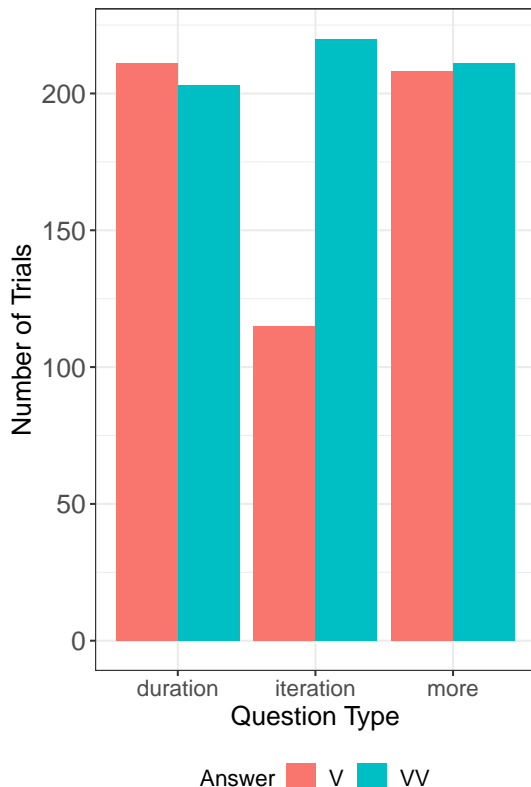


Figure 1: Results for Experiment 3. Duration, Iterations, and More refer to the three comparisons: longer, more times, and more.

**References** [1] Inkelas, S. et al. Reduplication: Doubling in morphology (Cambridge University Press, 2005). [2] Li, C. N. et al. Mandarin Chinese: a Functional Reference Grammar (University of California Press, Berkeley, 1981). [3] Fu, X. et al. Journal of Nanchang University 43, 143–150 (2012). [4] Melloni, C. et al. The lexeme in descriptive and theoretical morphology 4,325. (2019) (2018). [5] Wittenberg, E. et al. Journal of memory and language 94, 254–271 (2017). [6] Bates, D. et al. arXiv preprint arXiv:1406.5823(2014). [7] Chen, L. Mandarin. Chinese Language 中国语文 2, 110–122 (2005). [8] Wellwood, A. The meaning of more (Oxford University Press, 2019). [9] Hockett, C. F. (1958). [10] Jackendoff, R. et al. The Texture of the Lexicon: Relational Morphology and the Parallel Architecture (Oxford University Press, USA, 2020). [11] Bott, O. The processing of events (John Benjamins Publishing, 2010).