SIMILARITY-BASED INTERFERENCES IN CHINESE CLASSIFIER-NOUN DEPENDENCIES

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Introduction Similarity-based interference has greatly motivated the cue-based retrieval theory of dependency processing (e.g., Lewis & Vasishth, 2005). However, previous work has focused on morphosyntactic cues in subject-verb and anaphoric dependencies in Indo-European languages (e.g., "The key to the doors is rusty"). It remains unclear what other types of cues guide retrieval beyond these dependencies. Here we report two self-paced reading (SPR) and two A-Maze [3, 4] experiments in Mandarin Chinese (MC) investigating whether interference arises in classifier-noun dependency processing, as predicted by cue-based retrieval. In MC, a noun in certain contexts must take a classifier that matches in semantically defined features. In *topicalized existential* constructions, the classifier can appear after its dependent noun, as in "shu you wu-BEN" (book have five-CL, "*there are five books*"). At "BEN", a syntactically licensed dependent noun (i.e., target) must be retrieved from memory; during this process, other nouns held in memory (i.e., distractors) may cause interference.

Design We crossed target mis/match and distractor mis/match in a 2x2 design. **Exp1** (SPR) studies *retroactive* interference, whereby the distractor appears after the target, as in (1a). The target (in bold) is "novel/snacks", and the distractor (in italics) is in an intervening free relative. The target and the distractor either match or mismatch with BEN. The nouns "novel" and "textbook" (in green) has the [+BEN] feature while "desk" and "snack" (in red) do not. **Exp2** (A-Maze) aims to replicate Exp1. **Exp3** (SPR) studies *proactive* interference, whereby the distractor appears before the target, as in (1b), with the distractor nested in a prenominal RC. **Exp4** (A-Maze) aims to replicate Exp3. Cue-based retrieval predicts that a matching distractor can cause slowdowns at the classifier (*inhibitory* interference) in target match conditions but causes speedups in target-mismatch conditions (*facilitatory* interference).

(1) a. **xiaoshuo/dianxin** zai jiaocai/zhuozi pangbian de zuzu you san-BEN
novel/snack at *textbook/desk* around DE fully have three CL
b. jiaocai/zhuozi pangbian de **xiaoshuo/dianxin** zuzu you san-BEN
textbook/desk around DE **novel/snack** fully have three
"*There are in total three novels/snacks around under the textbook/desk*."

Results We fitted Bayesian hierarchical models on log RTs of the classifier and two spillover regions (SP1 and SP2) and used Bayes factors (BF_{10}) for hypothesis testing (a BF_{10} larger than 1 provides evidence for the alternative hypothesis while a BF_{10} smaller than 1 provides evidence for the null hypothesis). In all experiments, there is a main effect of target match whereby match conditions have faster RTs. For **Exp1** (N=80), there is evidence for an interaction at SP2 (BF_{10}>100 under all priors). Follow-up nested analysis suggest that in *target match conditions*, there is inconclusive evidence regarding the effect of distractor match, while in *target mismatch conditions*, distractor match causes speedups (BF_{10}>21 under all priors). **Exp2** (N=100) replicates the basic pattern of Exp1 and provides additional evidence *against* the presence of a distractor match effect in target match conditions (BF_{10}<0.18 under all priors). **Exp3** (N=95) and **Exp4** (N=205) yielded similar results, whereby BF_{10} provides evidence against the presence of an interaction effect under large priors and inconclusive evidence under a tight prior.

Discussion Our results are largely in line with existing work on similarity-based interference, in that we found in consistent facilitatory interference in target mismatch conditions but no interference effects in target mismatch conditions in retroactive settings (e.g., Wagers et al., 2009). These results suggests that semantic cues from classifiers can be employed during retrieval, which is susceptible to interference, at least in the target mismatch conditions, and that similar memory mechanisms may underlie the processing of different dependency types. In addition, we did not find any evidence for proactive interference, which is consistent with previous studies that generally found proactive interference to be weaker, presumably due to decay (e.g., Van Dyke & McElree, 2011).