

Is the Stroke Neighbor Priming Effect Inhibitory or Facilitatory? An Investigation Using Chinese Hanzi and Japanese Kanji Characters

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Introduction

- Inhibitory neighbor priming effects have been observed in various alphabetic languages (e.g. English: Davis & Lupker, 2006; French: Segui & Grainger, 1990), as well as in the syllabic Japanese Kana script (Nakayama, Sears & Lupker, 2011). Such effects are considered as evidence of lexical competition.
- Few studies have been conducted to examine whether parallel effects exist in Chinese Hanzi and Japanese Kanji, logographic scripts that are structurally different from the Roman script (Nakayama, Sears, Hino & Lupker, 2014).
- The few previous masked priming studies using one-character Chinese logographic stimuli have suggested that priming effects using Chinese stroke neighbors (characters differing by only one or two strokes) can be either inhibitory (Wang et al., 2014) or facilitatory (Shen & Forster, 1999).

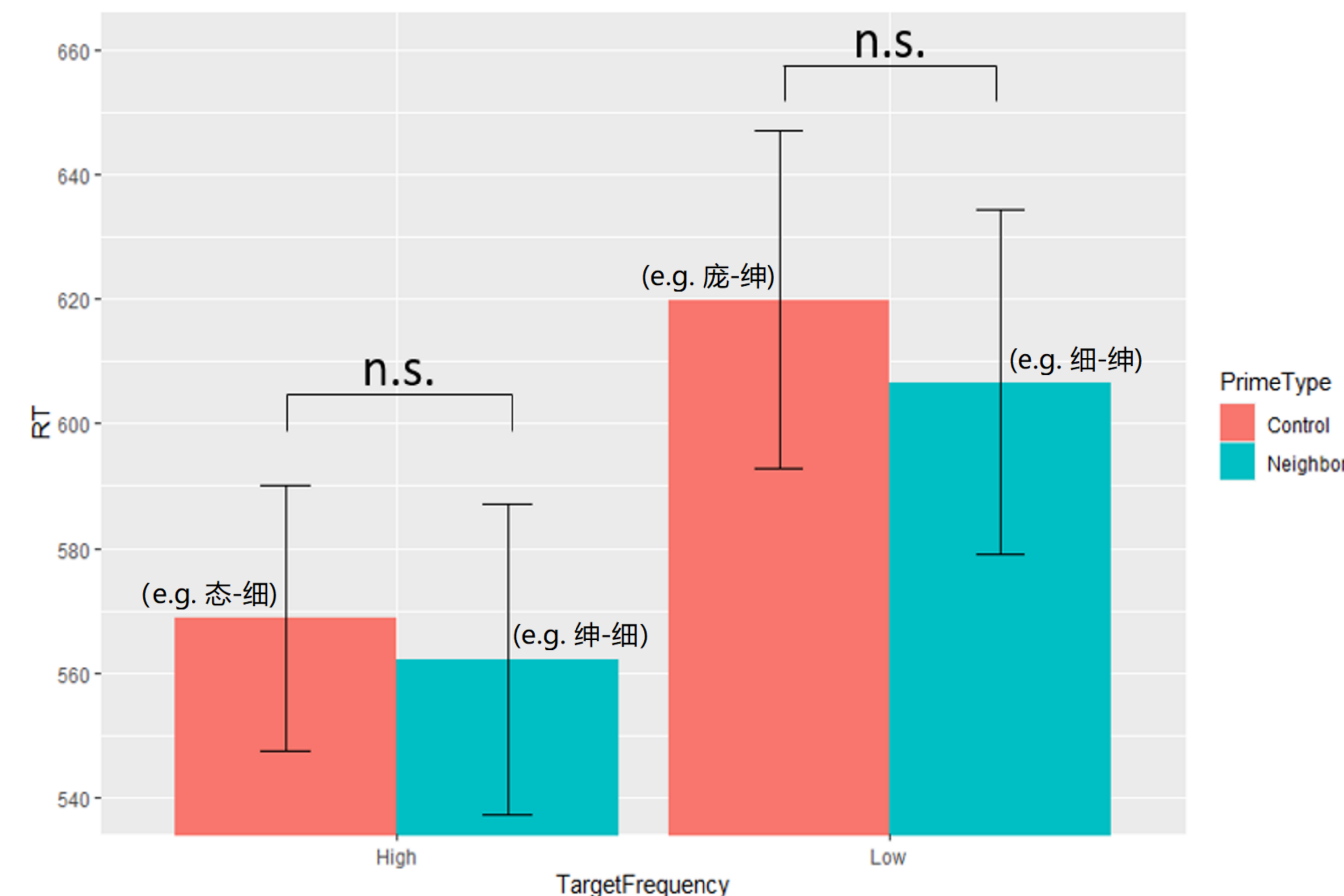
Research Question

- Is the stroke neighbor priming effect inhibitory or facilitatory?
- Will the same effect be observed when using Chinese Hanzi and Japanese Kanji characters?

Exp.1 Methods [Chinese Hanzi]

- Participants:** Fifty-two Chinese native speakers at Tohoku University participated in Experiment 1.
- Stimuli:** Fifty-six pairs of Chinese stroke neighbors were selected as critical stimuli. Following Wang et al. (2014), the relative word frequency of prime-target pairs was manipulated (high-low, low-high).
- Task and Procedure:** A masked priming lexical decision task (LDT) with a 50 ms prime duration.

Exp.1 Results [Chinese Hanzi]

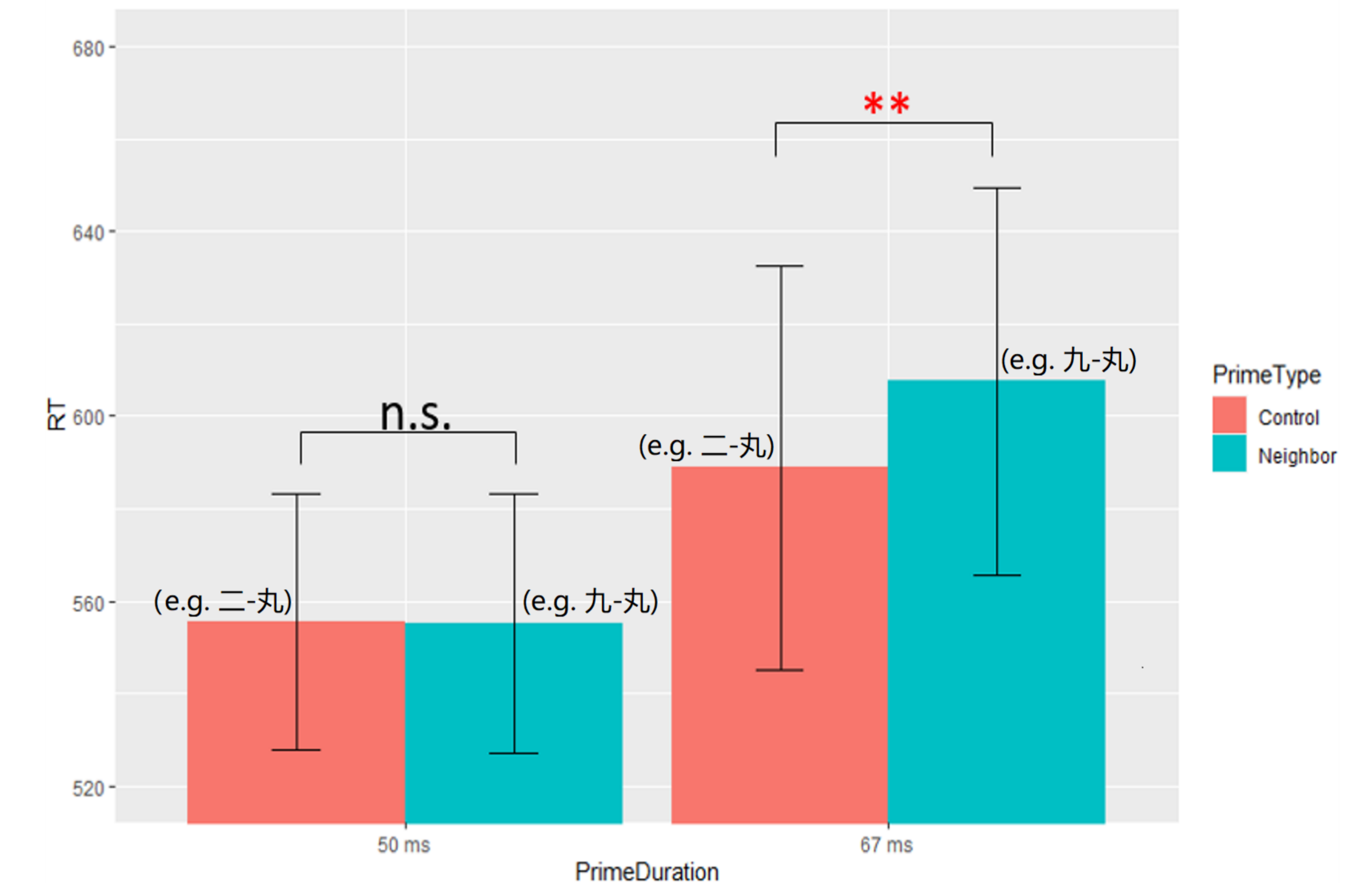


- There was a significant target frequency effect.
- Stroke neighbor priming effects in both conditions were null. Prime type did not interact with frequency.
- Neither the inhibition observed by Wang et al. (2014) nor the facilitation observed by Shen and Foster (1999) was replicated in Experiment 1.

Exp.2 Methods [Japanese Kanji]

- Participants:** Sixty Japanese native speakers at Waseda University participated in Experiment 2a; 34 different people from the same pool participated in Experiment 2b.
- Stimuli:** Sixty-eight pairs of Japanese stroke neighbors were selected as critical stimuli. Primes always had higher frequency than their targets.
- Task and Procedure:** A masked priming LDT was used. Prime duration was 50 ms in Experiment 2a. Prime duration was increased to 67 ms in Experiment 2b.

Exp.2a & 2b Results [Japanese Kanji]



- In Experiment 2a (Prime Duration= 50 ms), the null priming effect in Experiment 1 was replicated.
- In Experiment 2b (Prime Duration = 67 ms), an inhibitory stroke neighbor priming effect was obtained.

General Discussion

- With a 50 ms prime duration, the stroke priming effects were null for both Chinese Hanzi and Japanese Kanji character stimuli.
- When a longer prime duration (67 ms) was used, an inhibitory stroke neighbor priming effect was found for Japanese Kanji characters, which was consistent with the results observed by Wang et al. (2014) using Chinese Hanzi characters.
- The patterns of priming effects seem to imply that the processing of the prime may take a longer time to reach the lexical level. Therefore, a longer prime duration is needed to observe evidence for lexical competition.