



Revisiting the Influence of Phonological Similarity on Cognate Processing: Evidence from Cantonese-Japanese Bilinguals

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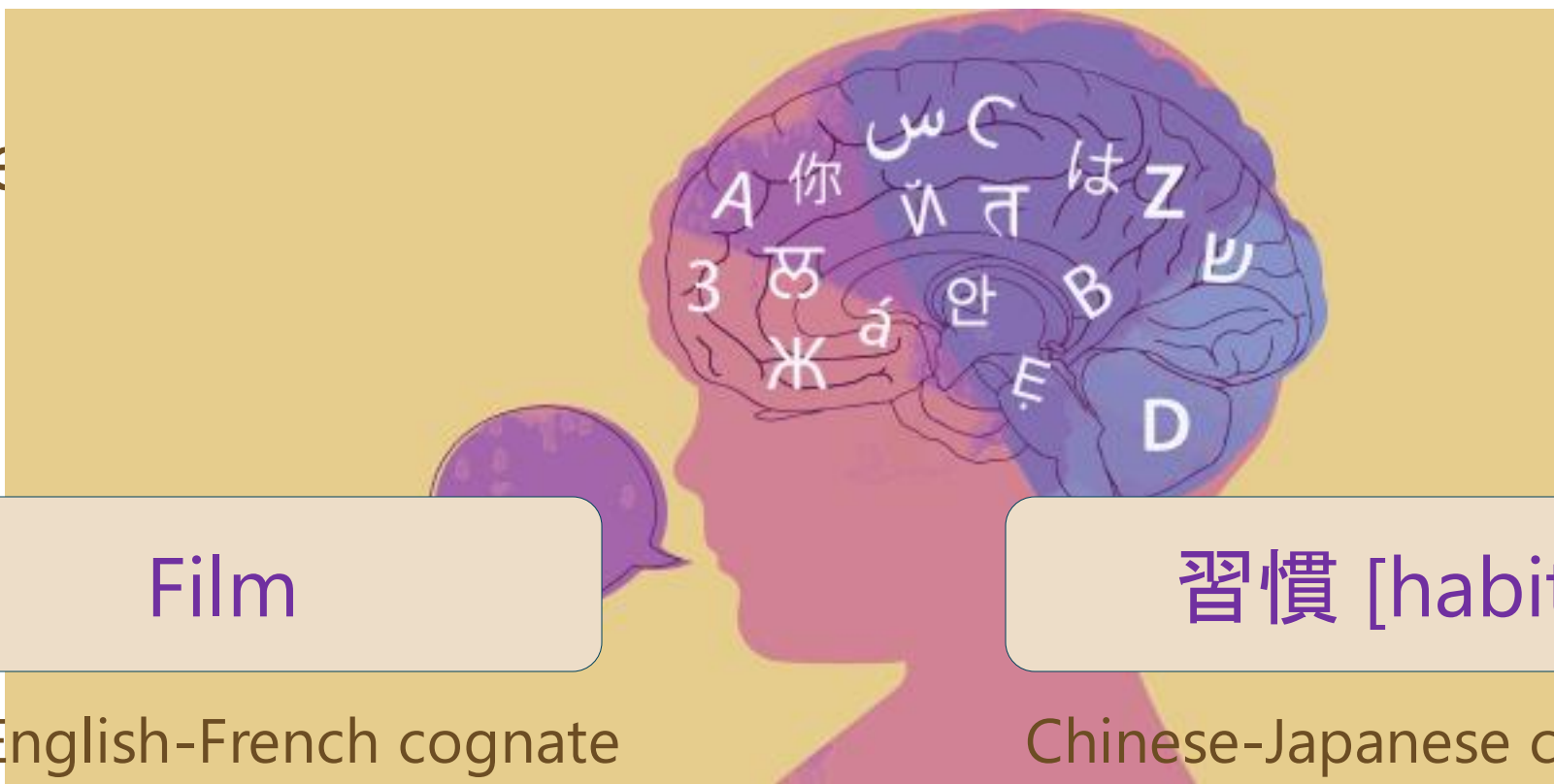
ESCOP 2025

3rd September 2025

Cognate

- Words
not necessarily

g, but
a et al., 1999)



Film

習慣 [habit]

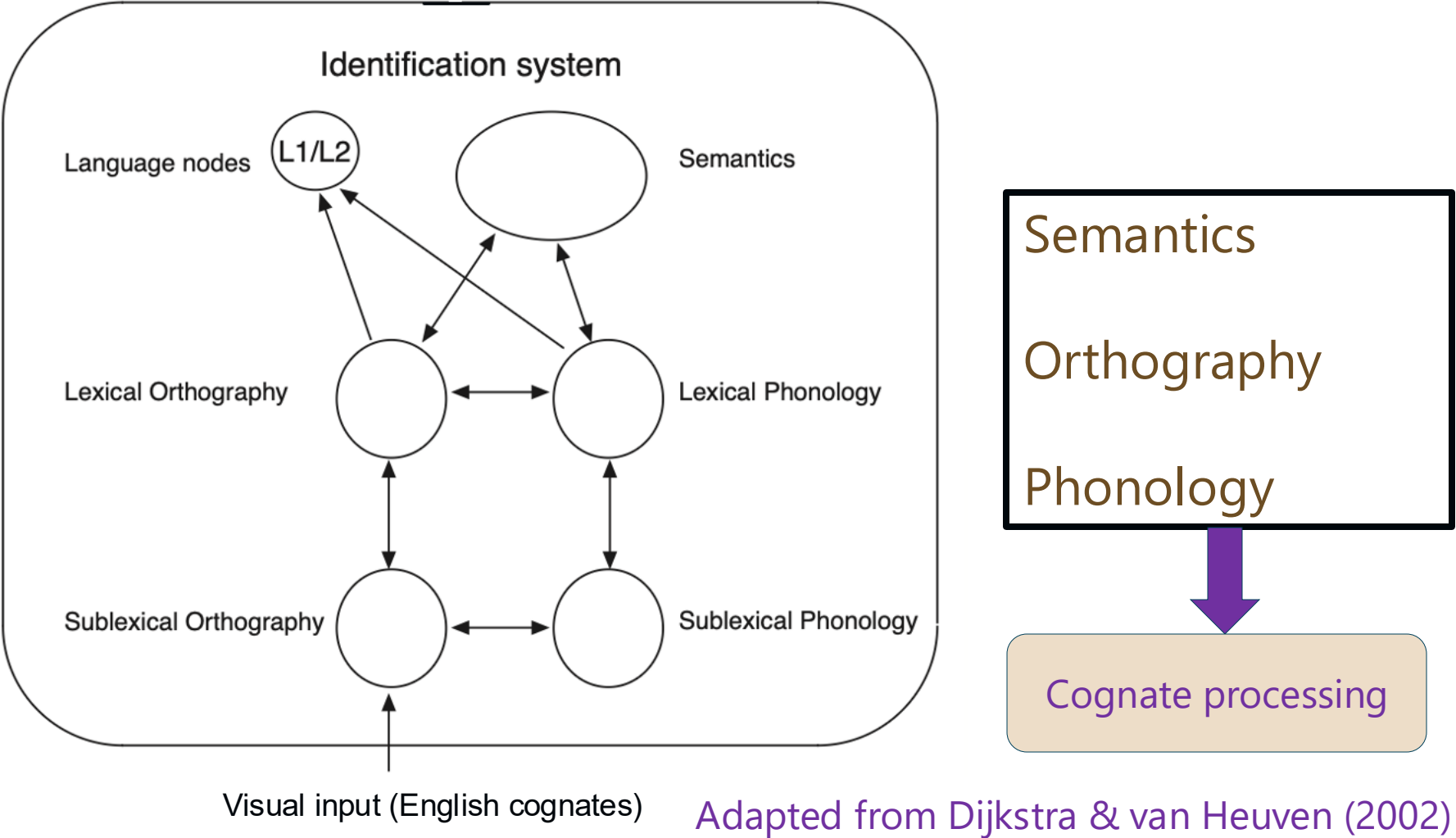
Dutch-English-French cognate

Chinese-Japanese cognate

Cognate Facilitation Effect

- Bilinguals recognize cognates faster (or more accurately) than non-cognates (e.g., Gollan et al., 1997; Nakayama et al., 2013, 2014; Peeters et al., 2013; Voga & Grainger, 2007; Xiong et al., 2020)
- Most prior research has focused on alphabetic scripts, with little work on logographic scripts (but see Xiong et al., 2020)

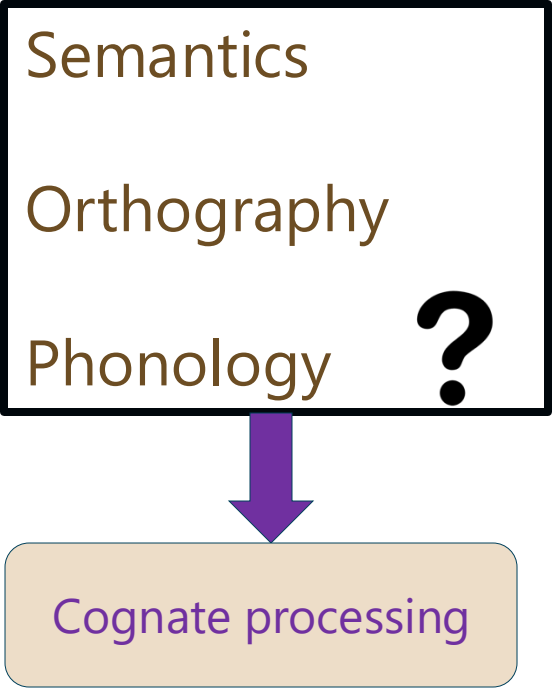
The Bilingual Interactive Activation+ (BIA+) model



Adapted from Dijkstra & van Heuven (2002)

Phonological Similarity Effects on Cognate Processing Involving Alphabetic Scripts

Facilitative	Inhibitory
<u>Both languages alphabetic:</u> Carrasco-Ortiz et al. (2021) Dijkstra et al. (2010) Haigh & Jared (2007) Lemhöfer & Dijkstra (2004) <u>One language alphabetic:</u> Allen & Conklin (2013) Allen et al. (2021) Miwa et al. (2014)	<u>Both languages alphabetic:</u> Dijkstra et al. (1999) Frances et al. (2021; visual: inhibitory; auditory: facilitative)



Challenges in Assessing Phonological Similarity Using Alphabetic Scripts



Characteristics of Chinese and Japanese



Kanji	日本語
Hiragana	にほんご
Katakana	ニホンゴ

態度 [attitude]	On-reading	/taai3.dou6/	/tai.do/
入口 [entrance]	Kun-reading	/jap6.hau2/	/iri.guchi/

Phonological Similarity Measures

Cognate	Cantonese pronunciation	Japanese pronunciation	Objective phonological similarity	Subjective phonological similarity (1: very different; 7: very similar)
態度 [attitude]	/taai3.dou6/	/tai.do/	14	6.13
人生 [life]	/jan4.sang1/	/jin.sei/	9	4.28
入口 [entrance]	/jap6.hau2/	/iri.guchi/	4	1.56

Research Question

1. How does phonological similarity influence cognate lexical decision in Cantonese-Japanese bilinguals?

Hypotheses

1. How does phonological similarity influence cognate lexical decision in Cantonese-Japanese bilinguals?

→ **Phonological similarity would facilitate cognate lexical decision**

L2 proficiency

L1/L2 word frequency

Method

Participants

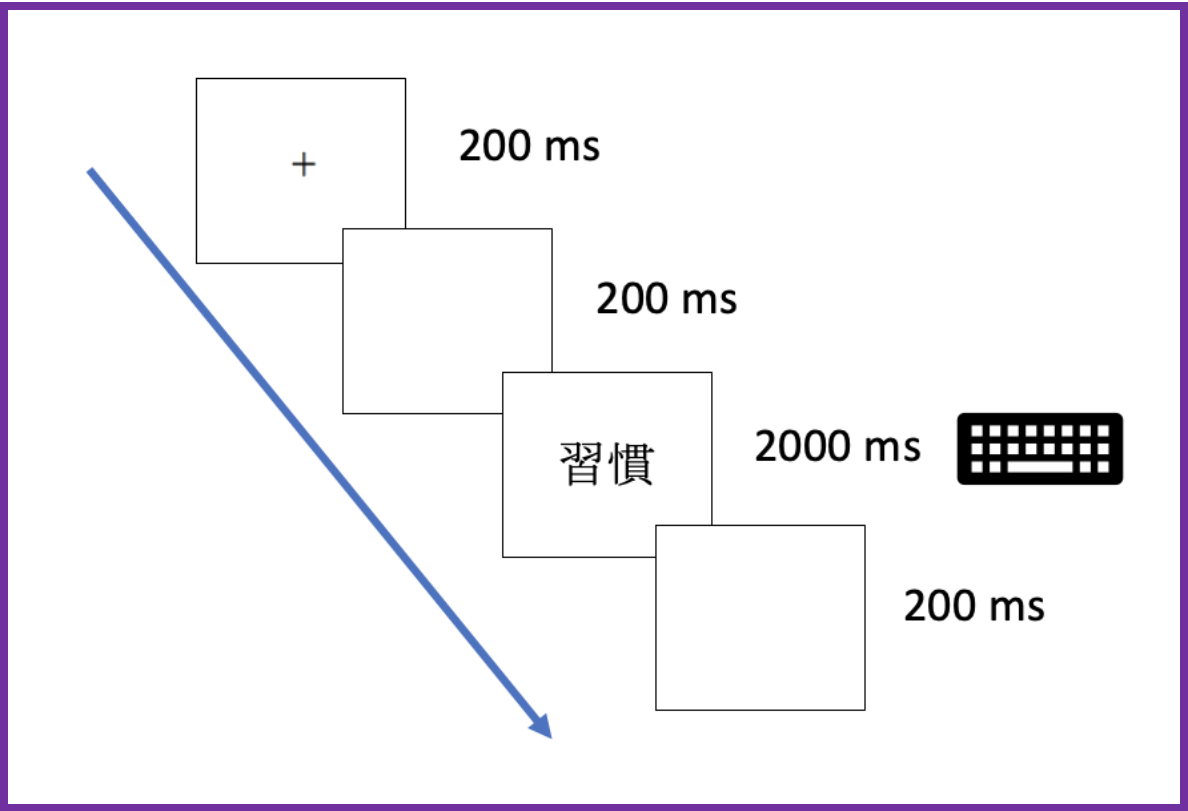
- $N = 55$ Cantonese–Japanese late bilingual adults
- Mean age: 24 years
- Japanese Language Proficiency Test: 37 passed N1, 18 passed N2

Stimuli of L2 (Japanese) Lexical Decision Task



Phonological similarity between Cantonese and Japanese

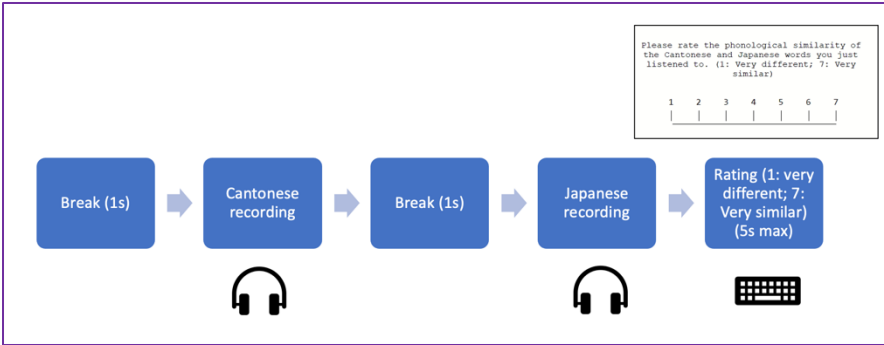
Procedure



1. Japanese (L2) lexical decision task

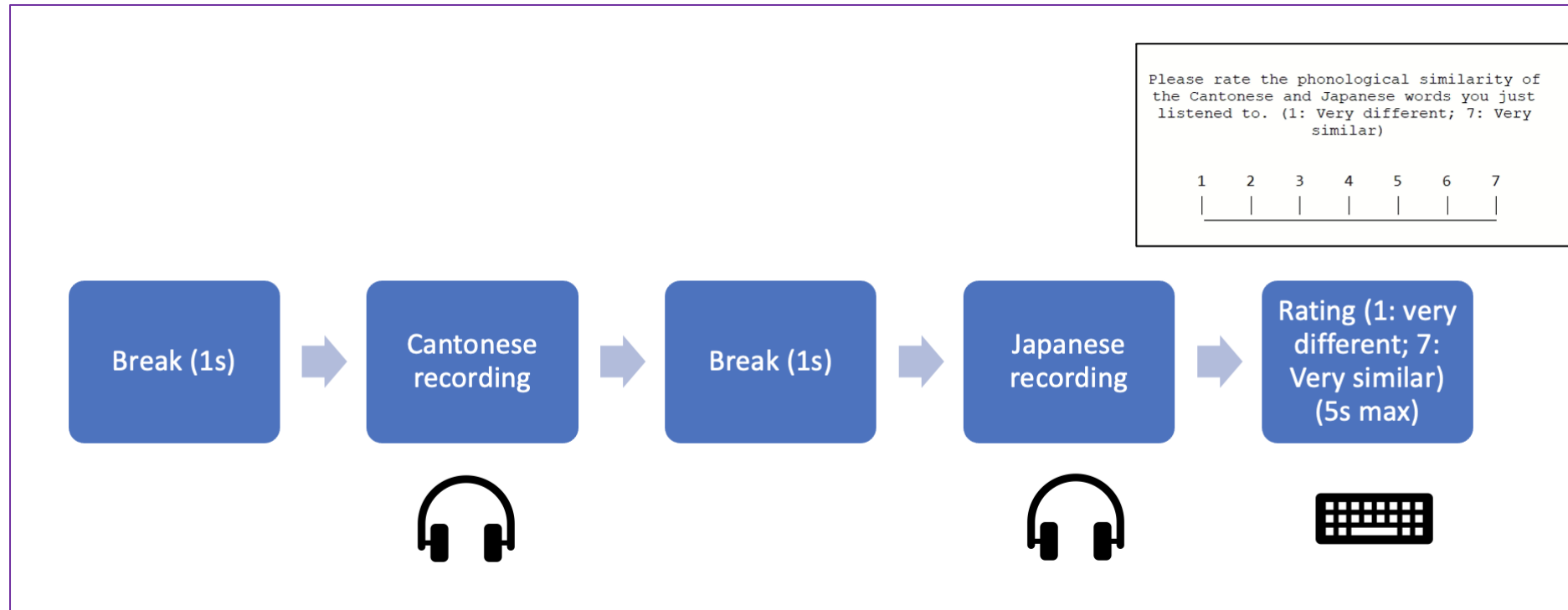
1	生物
2	最中
3	火山
4	羽根
5	書類
6	行方
7	弁当
8	名前
9	硬貨
10	部屋

2. Japanese reading task



3. Phonological similarity rating task

Procedure



3. Phonological similarity rating task

Data Analyses

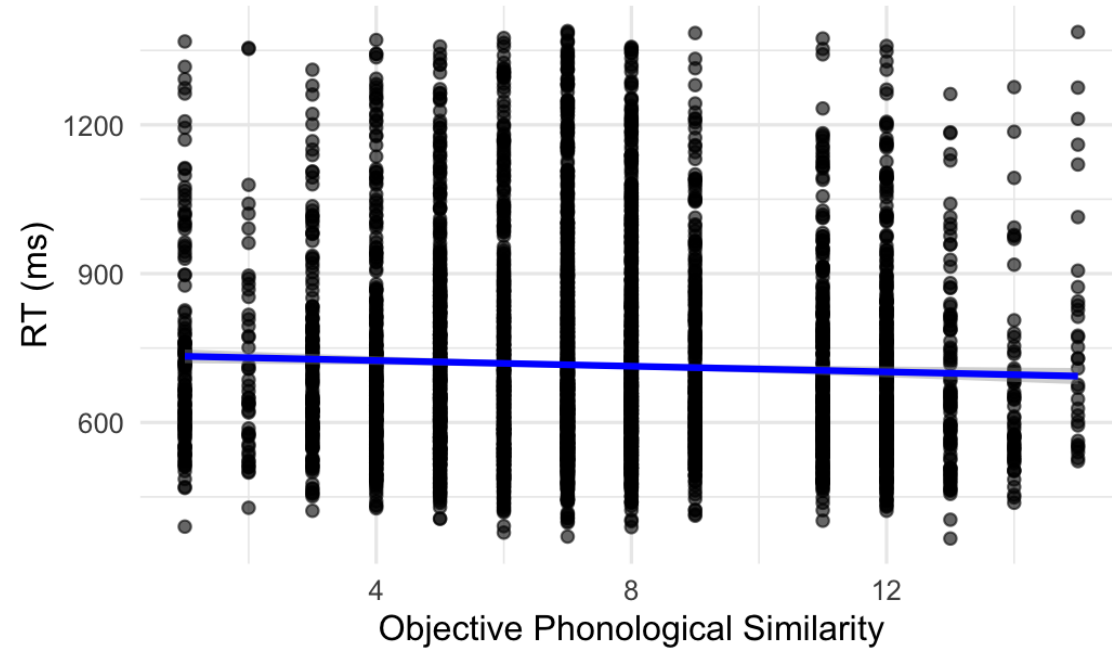
Linear mixed-effects model

1. *Inverse RT ~ **objective** phonological similarity * L2 proficiency + (1|subject) + (1|item)*

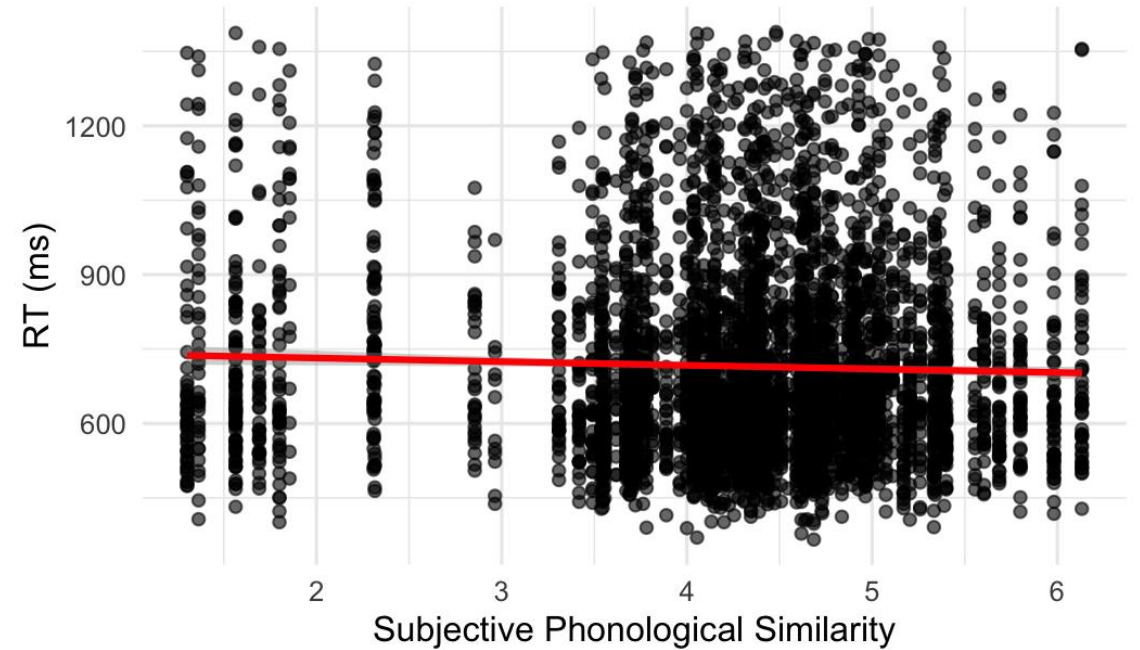
2. *Inverse RT ~ **subjective** phonological similarity * L2 proficiency + (1|subject) + (1|item)*

Results

Main Findings



$BF = 0.0002$



$BF = 0.001$

Additional Results

- Cognate facilitation effect: average RT of cognates ($M = 724.9$ ms, $SD = 206.5$ ms) < non-cognates ($M = 746.2$ ms, $SD = 191.5$ ms)
- Cognate facilitation effect was larger for participants with higher L2 proficiency
- Cognate RT was negatively associated with Cantonese word frequency, Japanese word frequency, and L2 proficiency
- Positive correlation between objective and subjective phonological similarity: $r(118) = .52$

Discussion

Why Phonological Similarity Has Minimal Impact in Logographic Scripts?

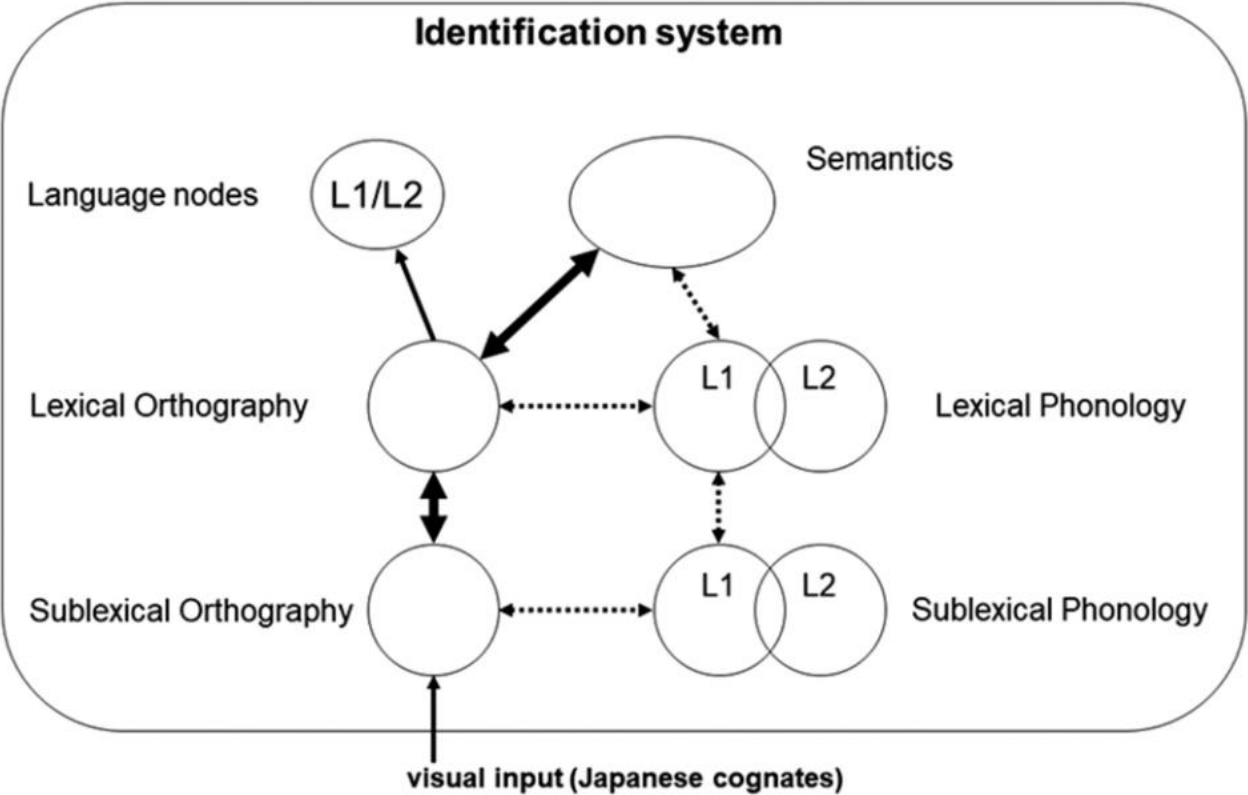
- The graphic complexity of logographic scripts (Chang et al., 2018; Miton & Morin, 2021)



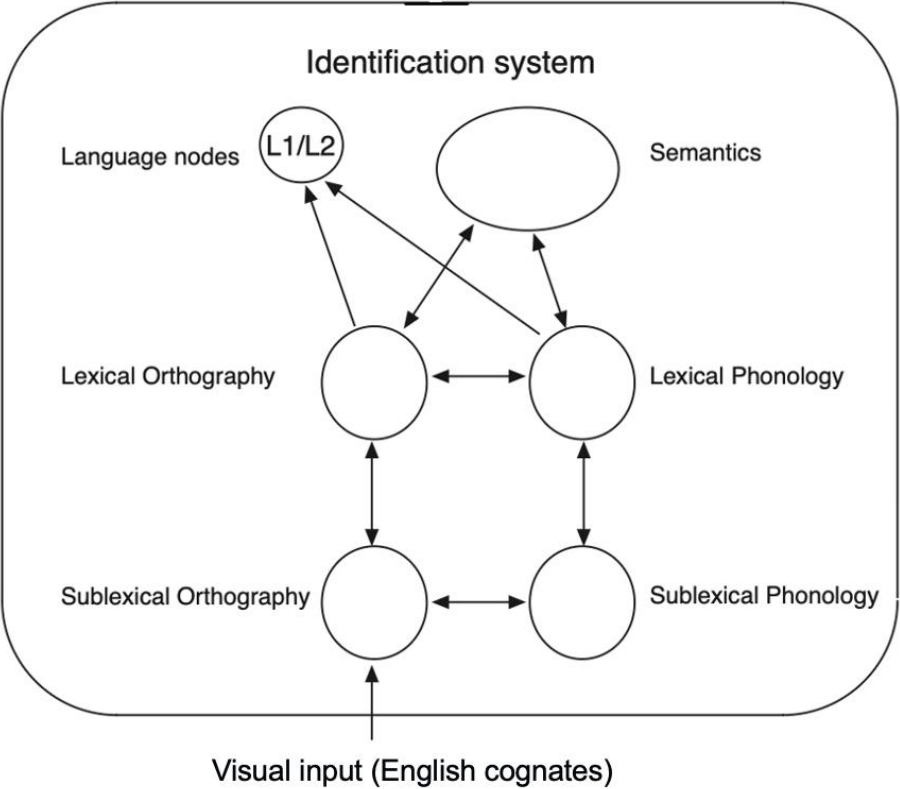
Phonological Similarity Effects on Cognate Processing Involving Logographic Scripts

Minimal effect	Inhibitory
<u>Masked priming + lexical decision:</u> Jiao et al., 2024 (with ERP) Zhang et al., 2019 Wang & Li, 2025 <u>Masked priming + word naming:</u> Liu et al., 2023	<u>Phoneme monitoring task:</u> Liu et al., 2024 (esp. for lower-proficiency Japanese learners)

An Extended Version of the BIA+ Model for Chinese–Japanese Cognates



Liu et al., 2023



Adapted from Dijkstra & van Heuven (2002)



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Questions?



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