Unconscious categorisation of L2 concepts may be based on the native semantic network

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Intro

Do bilinguals activate native (L1) **translation equivalents** of second language (L2) words (L1 Translation account)? A substantial body of literature seems to evidence such a process. Nonetheless, an alternative account (L1 Carry-Over) – one in which second language learning produces an L2 system strongly resemblant of the L1 – might equally explain these effects.

Here, we explored whether L1-driven priming can occur **in the absence of L1 lexical form overlap.** In doing so, we sought to determine whether such priming might feasibly be attributed to a higher level of processing, without necessitating L1 translation form activation.

The Mandarin Classifier System

Classifiers – (incl. between articles/quantifiers and nouns indicate semantic features (e.g., animacy, shape).

1a) this *pǐ*/匹 horse
1b)*this *pǐ*/匹 river

pǐ = the classifier for horses/mules

2a) this *tiáo*/条 river
2b) *this *pǐ*/匹 river

tiáo = the classifier for a long and often flexible object

Crucially, classifiers may increase the salience of certain shared features of these nouns.

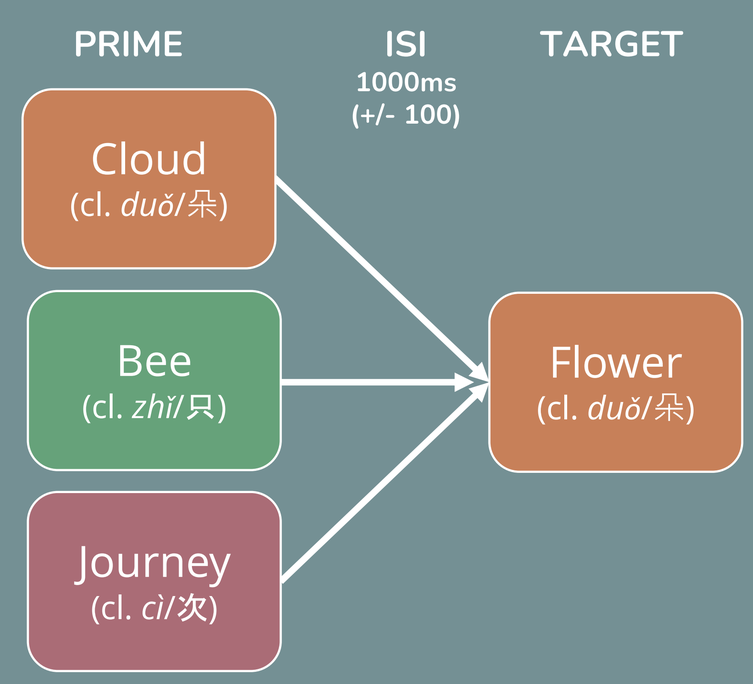
Methods

Critical conditions:

CLASSIFIER:
+ classifier
- semantic

SEMANTIC:
- classifier
+ semantic

UNRELATED
- classifier
- semantic



Participants:

- Mandarin-English bilinguals (N=28)
- Native English speakers with no Mandarin fluency (N=27)

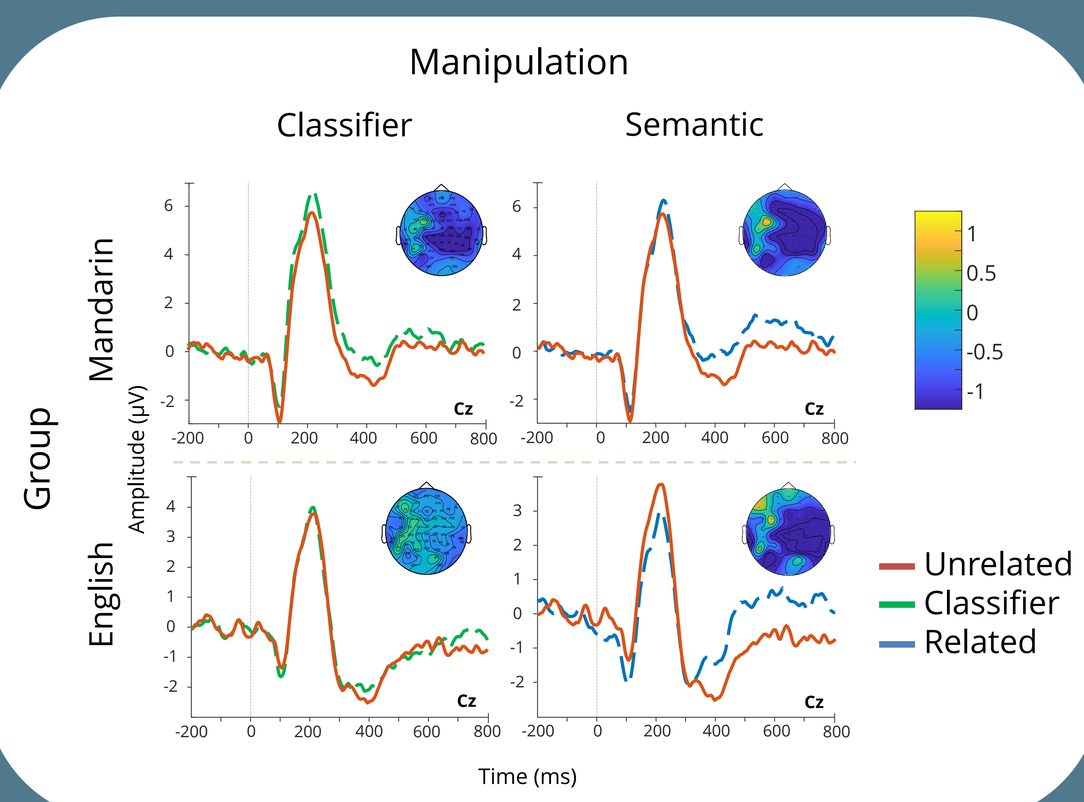
Hypothesis:

If the L2 network resembles the L1, the classifier condition should reveal a reduced N400 response (vs unrelated) for **Mandarin participants**, but *not* for native English controls.

Analyses:

1. Two one-tailed separate spatiotemporal cluster-based analyses comparing semantic vs unrelated, and classifier vs unrelated.
2. Two between-participant analyses comparing both the classifier and semantic effects.

Results



Classifier effect: Classifier > Unrelated: Mandarin (p = .001), English (p = .388). Effect driven by a cluster occurring between 200-600 ms across midline electrodes.

Semantic effect: Semantic > Unrelated: (p = .001), English (p = <.001). Effect driven by a cluster occurring between 360-600 ms (Mandarin), and 330-600 ms (English) across midline electrodes.

All between-participant analyses were non-significant.

Conclusion

- L1 lexical relationships may shape the L2 lexicon;
- Effects typically attributed to L1 translation activation might instead originate from relationships between L2 lexical items.

Crucially our findings **do not disprove the co-activation of lexical translation equivalents**, however, they do imply that a simplified account may exist that omits activation of L1 lexical form features (e.g., phonology, orthography). The plausibility of an alternative account may necessitate a degree of caution in the interpretation of L1-driven priming effects solely through an L1 translation activation lens.

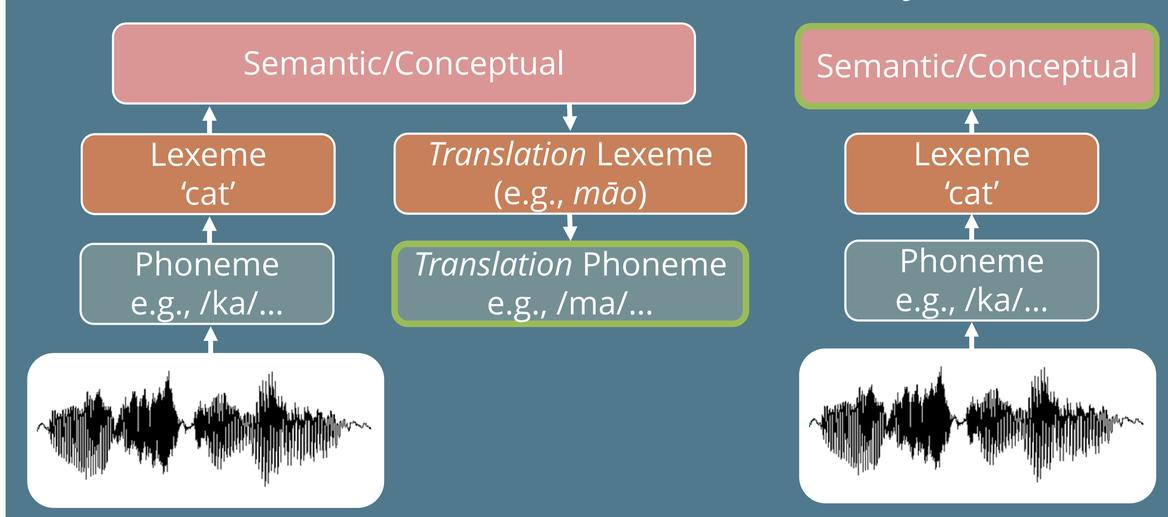


Figure 1: L1-driven phonological-overlap priming (e.g., cat (***m**āo*) – tomorrow (***m**íngtiān*) according to the L1 Translation and L1 Carry-Over accounts. Note that green indicates the point at which priming could occur.

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