

L2 exposure/use, prime frequency and the degree of semantic overlap modulate cross-language priming effects

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Studies examining non-cognate translation priming with lexical decision tasks (LDT) report a priming asymmetry (larger L1 prime-L2 target priming compared to L2-L1). This potentially reflects (qualitative and/or quantitative) differences in representation and processing of L1 and L2 words. For the Revised Hierarchical Model (Kroll et al., 2010), the asymmetry, at least at earlier stages of L2 development, occurs due to differential access to conceptual information by L1 vs. L2 words. Multilink (Dijkstra et al., 2019) explains the asymmetry as a result of slower L2 word processing. For both models, (first/second) language use and (L1/L2) prime frequency would have a crucial role on the representation and processing of cross-language word pairs (translation equivalents) in the bilingual lexicon. Both factors would serve as proxies of either stronger lexico-semantic connections (RHM), or the baseline degree of activation of words (Multilink), both resulting in larger cross-language priming. Importantly, both models assume holistic, largely overlapping conceptual representations between translation equivalents. Thus, potential effects of differential semantic overlap between translation equivalents would have consequences under both models (e.g., van Hell & de Groot, 1998).

The present study explores the role of L2 use, word frequency, and the degree of semantic overlap on cross-language priming. We tested 200 late Spanish-English bilinguals in two groups (L2-immersed vs. non-immersed) in an LDT with overt priming. Their L1/L2 use was assessed through the Language and Social Background Questionnaire (Anderson et al., 2018). All participants were similarly (highly) proficient in the L2. We employed 300 non-cognate, concrete (highest semantic overlap condition) and abstract (medium overlap) translation equivalent pairs, and 110 cross-language semantic associative pairs (lowest overlap) with various frequencies. The large number of observations reflects our effort to draw robust conclusions supported by large statistical power (Brybaert, 2020). We expected priming to be modulated by L1/L2 use, prime frequency, and semantic overlap.

We employed linear mixed-effects models and a conservative model selection method aimed at minimising Type I errors (e.g., the significance threshold was set at .01, following Scandola & Tidoni, 2020). Our results show (1) priming in all overlap conditions, but, crucially, larger for concrete words. (2) Overall slower RTs with more L2 use, suggesting increased cross-language competition. (3) Larger L1-L2 priming with less L2 use. (4) Larger priming with more frequent related primes, especially with less L2 use and concrete words.

These results highlight the importance of L2 exposure/use and prime frequency in the study of cross-language lexical priming. Also, they suggest that future research should further explore the degree of conceptual overlap between cross-language related words, which could imply a step forward in our current understanding of lexico-semantic effects in bilingual visual word recognition.

References

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- 2) The word limit of the text including examples, excluding references and title is 450 words.
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