

Cognate processing in L1 and L2 sentence context: A first ERP study

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When reading a book, newspaper or website in a foreign language, words that are similar in form and meaning to words in one's native language (so-called "cognates") are easier to comprehend than words that do not share form and meaning across languages. For instance, a French learner of English will easily understand the English sentence "*I took a taxi from the restaurant to the hotel*" because *taxi*, *restaurant*, and *hotel* share orthographic form and meaning between French and English. Indeed, both behavioral and ERP studies have shown that cognates are processed more quickly than matched control words (e.g., [1][2][3]). It is still under debate, however, whether such facilitation for cognate words occurs in both native language (L1) and second language (L2) sentence reading. In addition, it is unknown whether the same orthographically and semantically identical cognates are processed in a similar or in a different way in an L1 and an L2 context. Our study was the first to record ERPs to cognates and control words in a sentence context, both when bilinguals read sentences in their L1 and L2.

Twenty French-English late bilinguals were presented with one block of English and one block of French sentences. The order of presentation of the blocks was counterbalanced across participants. Sentences were seven words long, low-constraint, and presented in word-by-word serial visual presentation. The French sentences were exact translations of the English sentences. Every sentence contained a cognate or a matched control word as the target word. The target words were matched on log word frequency, word length, neighborhood density, and concreteness across conditions. They were always the middle word in the sentence. The same participant saw only one version of the sentence (cognate or control) within and across the language blocks. ERPs time-locked to the visual onset of cognates and control words were compared both in the L1 and the L2 sentence context.

Our results showed a significant difference in the amplitude of the P200 component for cognates compared to controls in L2, but not in L1. In addition, when cognates in L1 sentence context were compared to the same cognates in L2 sentence context, a similar P200 effect was found. This is a striking finding, because the compared cognates had exactly the same orthographic form and the same meaning across language blocks, and they were presented in sentences that were exact translation equivalents.

We conclude that the cognate status of a word influences its recognition in an L2 sentence context. Furthermore, our study shows that cognate effects in L2 sentences show up earlier than expected on the basis of ERP studies presenting cognates in isolation [2][3]. Our most important finding is that words that have exactly the same orthographic form and meaning across languages, are nevertheless processed differently depending on the language of the sentence they are encountered in. We argue that the different phonology of cognate words across languages plays an important role in explaining this difference.

Example stimuli

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| 1. English - cognate | Flora saw the statue in the harbor. |
| 2. English - control | Flora saw the flag in the harbor. |
| 3. French – cognate | Fleur vit la statue dans le port. |
| 4. French – control | Fleur vit le drapeau dans le port. |

References

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