

# The effects of bilingual cross language activation on visual object search

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Zoë Bolz, Naomi Vingron, & Melissa L.-H. Võ

*Scene Grammar Lab, Department of Psychology, Goethe University Frankfurt, Germany*

People who use multiple languages regularly are known to concurrently activate information from all known languages, a psycholinguistic phenomenon known as non-selective activation. Evidence comes from words that overlap in orthographic form and meaning across languages (i.e., cognates) or share form but not meaning (i.e., interlingual homographs). Compared to words unique to one known language, processing of cognates is facilitated, while more ambiguous interlingual homographs (IH) impair processing.

This study investigates the interaction of non-selective activation with visual processing. Therefore, 33 German-English bilinguals performed an online visual search task manipulating cross-language ambiguity. The task involved finding a cued object in a circular 10-image array, with cues being English language unique words (LU), cognates (e.g., SAXOPHONE) or IH (e.g., HUT meaning HAT in German). Search difficulty was increased by semantic competitors for all cues (e.g., GUITAR for SAXOPHONE) or false targets (i.e., non-target meaning of the IH) for IH cues (e.g., HAT for HUT). Participants also reported their language usage and mixing habits.

Participants' visual search accuracy and RTs suggested no facilitation in processing of cognates compared to LU words. Nevertheless, results show shorter RTs on no-competitor compared to semantic competitor trials. Furthermore, more language mixing was associated with faster responses on LU compared to cognate trials.

Participants were less accurate and slower on IH compared to LU words, suggesting processing interference for IH. Accuracy was higher on false target trials compared to no-competitor trials but comparable to semantic competitor trials. These findings suggest non-selective activation impacts visual search performance.