

# Lexical access to unadapted English loanwords in Croatian: evidence from translation priming

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## Abstract

The influence of English as *lingua franca* has resulted in an influx of unadapted English words into numerous languages, including Croatian. However, cognitive processing of such words has not been studied yet. A translation priming experiment was designed to examine the processing of 64 unadapted English loanwords in Croatian. Croatian native speakers with different levels of English proficiency participated in the study. A significant translation priming effect was observed in both language directions, while language direction and proficiency did not show a significant effect on participants' reaction times. This suggests that the most frequent unadapted English loanwords are well integrated into Croatian despite their unadapted forms and processed highly efficiently by Croatian speakers of variable English proficiency levels.

Keywords: bilingualism, lexical access, English loanwords, translation priming, lexical decision task

## Introduction

In the study of bilingual lexical access, research has generally supported the non-selective approach, at least in the early stages of word recognition. A number of models of bilingual word recognition recognize the importance of factors such as age of acquisition (AoA), language exposure and use. Exposure to English has been rapidly increasing due to its role as a global language. Many Croatian speakers are daily exposed to English, which is why it has been recognized as a part of societal as well as individual bilingualism (e.g., Mihaljević Djigunović et al., 2006). English has also become the dominant donor language for many languages, including Croatian. As a result, many unadapted English words (e.g., 'shopping', 'e-mail') have become part of Croatian informal communication. In other words, all Croatian speakers are exposed to them, regardless of their proficiency in English.

Research on cognitive processing of unadapted English loanwords is still very scarce. This study aims to contribute to this line of research by investigating lexical access to unadapted English loanwords in Croatian speakers with different levels of language proficiency.

## Methods

A translation priming experiment was designed to examine the processing of 64 unadapted English loanwords in Croatian. The words were selected based on their frequency (Bogunović et al., 2022), and the existence of adequate Croatian translation equivalents. All English words were concrete nouns. Concreteness was established using ratings in Brysbaert et al. (2013).

A total of 37 Croatian native speakers (18 female, 19 male), students from the University of Rijeka, participated in the study. To test the participants' vocabulary knowledge, Lexical test (LexTale) (Lemhöfer & Broersma, 2012) was used.

Translation priming effect was examined with a lexical decision task. The participants completed the task in both language directions (L1-L2/L2-L1), each presented in a separate experimental block. List of experimental stimuli consisted of 128 prime-target pairs. The ratio of pseudowords was .50. Identical sets of words were used for primes and targets, with four lists counterbalanced across participants. There were 16 items in each of the four experimental conditions: L1-L2/equivalent; L1-L2/non-equivalent; L2-L1/equivalent; L2-L1/non-equivalent. The stimulus onset asynchrony was set to 250 ms.

## Results

To examine the effect of translation equivalence, language direction and proficiency on reaction time, a 2 (proficiency) x 2 (equivalence) x 2 (language direction) ANOVA with repeated measures on equivalence and direction variables was used. Three participants were excluded from further analysis due to low accuracy of answers.

ANOVA showed a significant effect of equivalence on reaction time,  $F(1,31) = 9.79$ ,  $p = 0.004$ . The participants responded significantly faster when primes and targets were translation equivalents ( $M = 557.49$ ,  $SD = 19.72$ ) compared to pairs which were not translation equivalents ( $M = 652.49$ ,  $SD = 37.60$ ). At the same time, language direction did not have a significant impact on reaction time,  $F(1,31) = 1.99$ ,  $p = .168$ . In other words, L1-L2 pairs ( $M = 629.92$ ,  $SD = 36.12$ ) had similar reaction times as L2-L1 pairs ( $M = 580.06$ ,  $SD = 25.70$ ). Finally, proficiency in English did not have a significant effect on reaction time,  $F(1,28) = .77$ ,  $p = .387$ ; i.e., participants with higher proficiency ( $M = 582.26$ ,  $SD = 36.07$ ) had similar reaction time as those with lower level of proficiency ( $M = 627.73$ ,  $SD = 37.18$ ).

In addition, the interaction between proficiency, equivalence and language direction was significant,  $F(1,31) = 4.25$ ,  $p = .048$ , but mainly due to one proficiency group. No significant difference between two proficiency groups and two language directions for equivalent pairs was found ( $p > .05$ ). In the case of non-equivalent pairs, participants with lower proficiency needed more time to respond to L1-L2 pairs ( $M = 791.66$ ,  $SD = 86.81$ ) compared to L2-L1

pairs ( $M = 598.91$ ,  $SD = 47.85$ ),  $p = .004$ . No such difference was observed in participants with higher proficiency,  $p > .05$ .

## Discussion and conclusions

A significant priming effect was observed in both language directions, which is in line with previous research (e.g., Basnight-Brown & Altarriba, 2007; Schoonbaert et al., 2009; Smith et al., 2019). However, the effect of language direction was not significant, meaning that the effects in both directions were of similar strength. This is unexpected, since previous studies have generally found a smaller translation priming effect in the L2-L1 direction (Chaouch-Orozco et al., 2022; review in Wen & van Heuven, 2017), even in balanced bilinguals (Basnight-Brown & Altarriba, 2007; see Duñabeitia et al., 2010, for different results).

Lexical representations of L2 words are thought to be comparable to those of L1 words only in balanced bilinguals. However, the participants in the present study were not balanced bilinguals. This suggests that the Croatian speakers are highly familiarised with the most frequent unadapted English loanwords. These words seem to be well integrated into the mental lexicon of Croatian speakers, regardless of their proficiency in English. This assumption is further supported by the fact that the effect of proficiency on reaction time was not significant. The interaction between proficiency, equivalence and language direction showed that lower proficiency speakers responded faster to L2-L1 non-equivalent pairs compared to L1-L2 pairs. One possible explanation could be that unadapted English loanwords are used in specific contexts, which is why L2 word recognition might have been delayed by semantically unrelated L1 primes. On the other hand, the fact that no such interaction was observed in higher proficiency speakers could be due to their exposure to English words in both L1 and L2 environments. Another possible explanation for the observed asymmetry could be a more frequent usage of English loanwords in spoken than in written language in Croatian.

Taken together, the results of this study show that the processing of unadapted English loanwords might follow different patterns compared to the processing of L2 non-loanwords. However, this line of research is still relatively underdeveloped, so future research could reveal more about the specific aspects of loanword processing.

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