




The role of cognateness in native spoken word recognition*

A Preprint

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Abstract

1 While listening to speech in an unfamiliar language, words and phrases in the native lan-
2 guage are activated, leading to common auditory illusions like Soramimi, a particular case
3 of homophonic translation. Homophonic translation has received little attention as a psy-
4 cholinguistic phenomenon. In this study, we explored the mechanisms underlying lexical
5 activation and selection in homophonic translation. Across three studies, English and Span-
6 ish native adults completed a translation elicitation task, in which they listened to a series
7 of Catalan or Spanish words (to which participants were unfamiliar), and then had to type
8 their best-guess translation in their native language. Both English and Spanish natives were
9 surprisingly good at translating unfamiliar words, efficiently exploiting the phonological sim-
10 ilarity between the presented (unfamiliar) words and their correct translation. When the
11 correct translation belonged to high-density phonological neighbours, participants' ability to
12 benefit from phonological similarity decreased. Finally, Spanish natives exploited phonolog-
13 ical similarity more efficiently: provided identical phonological similarity, Spanish natives
14 were more likely to guess the correct translation of the unfamiliar word than English na-
15 tives. Overall, we show that speech in an unfamiliar language triggers equivalent dynamics
16 of lexical selection than native speech, providing a psycholinguistic account for homophonic
17 translation.

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Keywords cognate • spoken word recognition • phonology • bilingualism • non-native speech processing • lexical access

1 Appendix 1: Model diagnostics

One way to diagnose the behaviour of Hamiltonian Monte Carlot (HMC, the algorithm used by Stan to explore the posterior distribution of a model) is to check whether the MCMC chains have converged. Figure 1 shows the values sampled by the MCMC chains of each of the fixed coefficients of each model reported in the manuscript. Evidence of chain convergence is provided by the same region of values being sampled across the final iterations of the chain, as it is the case for the three models depicted.

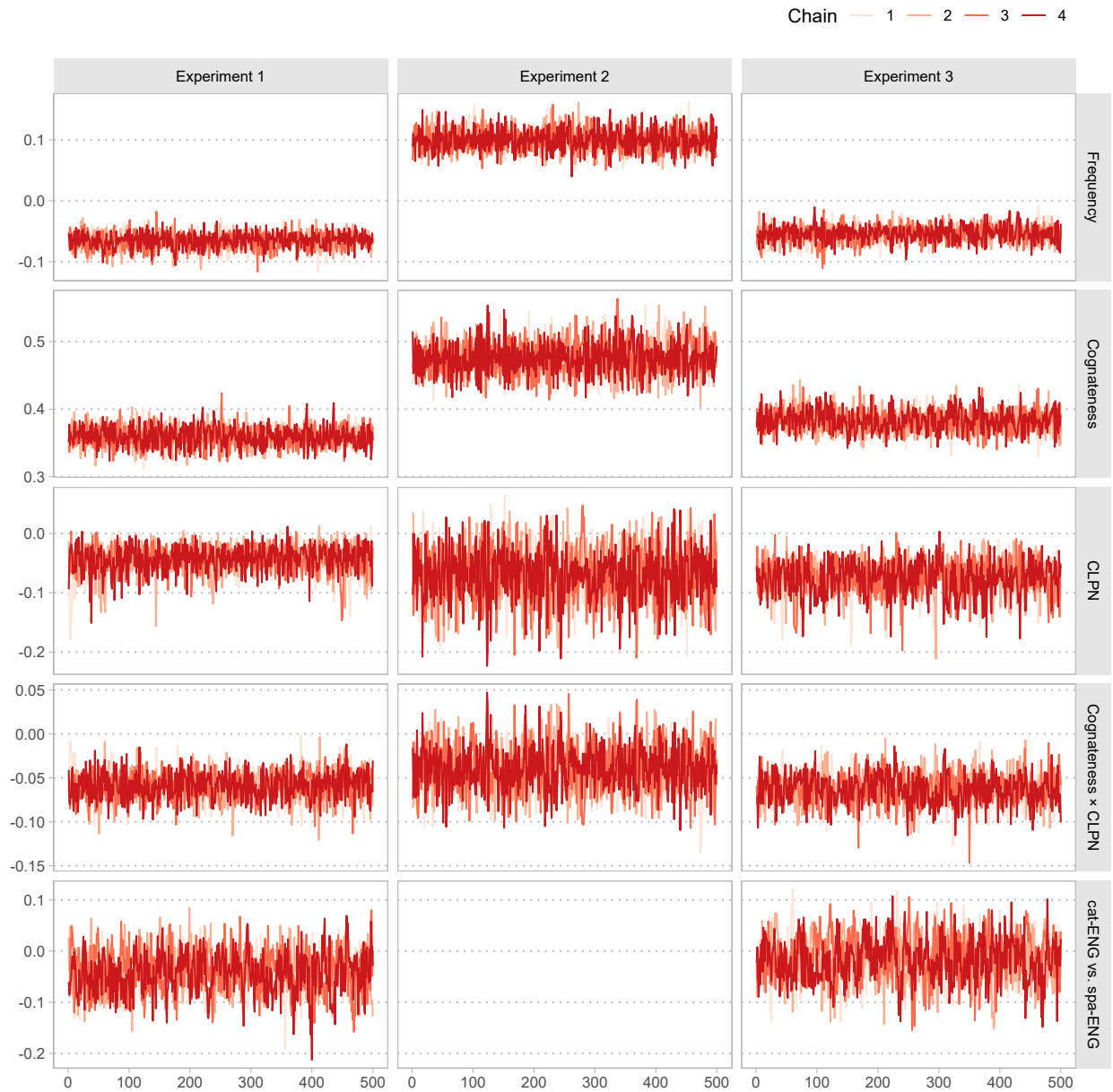


Figure 1

2 Appendix 2: Pooled analyses of Experiments 1 and 3

Across Experiments 1 and 3, we found strong evidence that participants efficiently exploited phonological similarity to provide accurate translations for words in an unfamiliar language, provided that few phonological neighbours of higher lexical frequency were present. Figure 2 summarizes the posterior distribution of the regression coefficients of the models in Experiments 1 to 3.

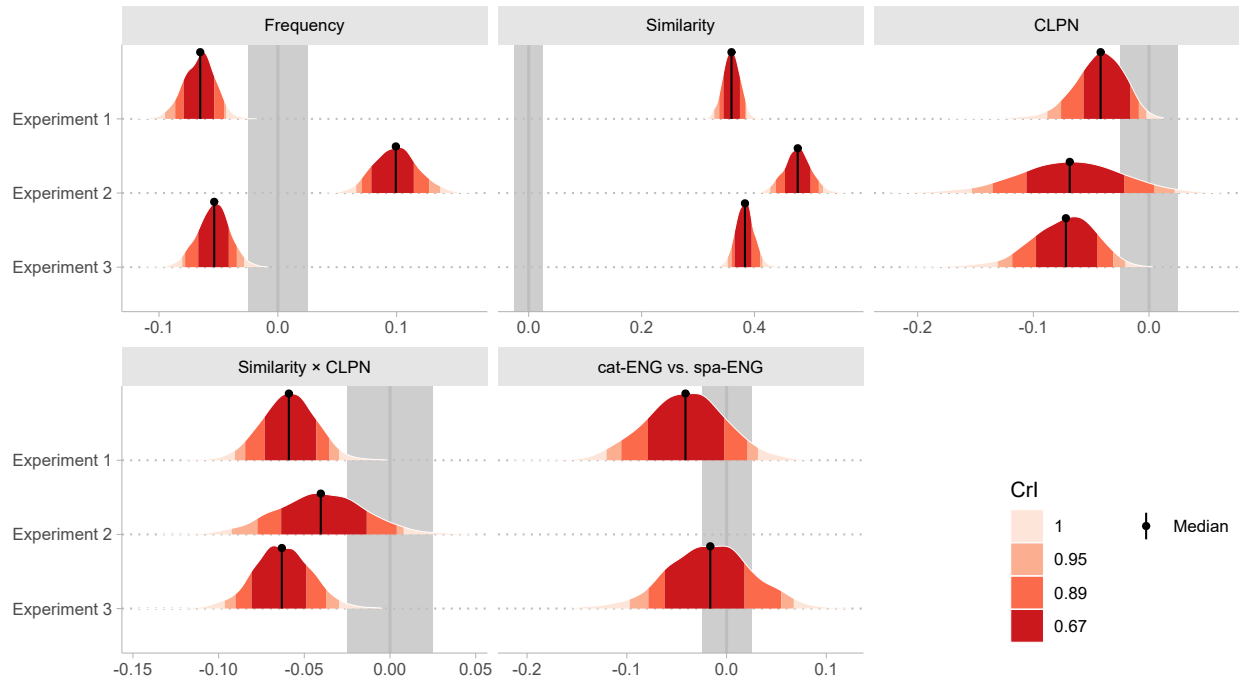


Figure 2