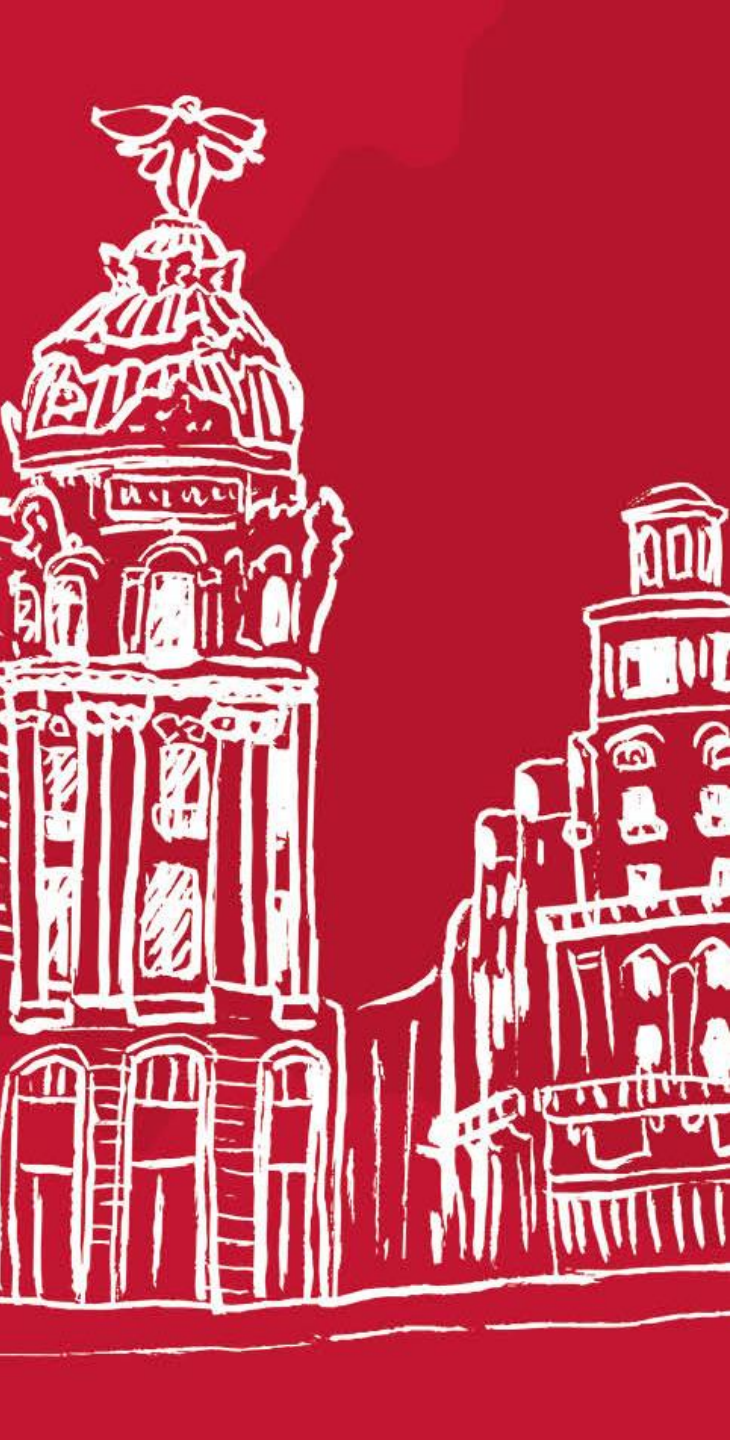



# The role of cognateness in nonnative spoken word recognition

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# Introduction

**Some non-native words are harder to recognise than others**:

Form-similar translation equivalents (i.e., cognates) are translated more accurately than non-cognates.

**Form similarity** can be scored across many dimensions. Which ones provide more information to non-native listeners?

In a **non-native word translation task,** we tested the effect of:

- *Phonological similarity* between the presented and the target word (inverse normalised Levenshtein distance)
- *Phonological neighbourhood density* of target word
- *Lexical frequency (Zipf score)* of correct translation

We then simulated data from the **TRACE model** and compared it against human data.

# Methods

**Participants**

28 English natives translated Spanish words

34 English natives translated Catalan words

29 Spanish natives translated Catalan words

**Materials**

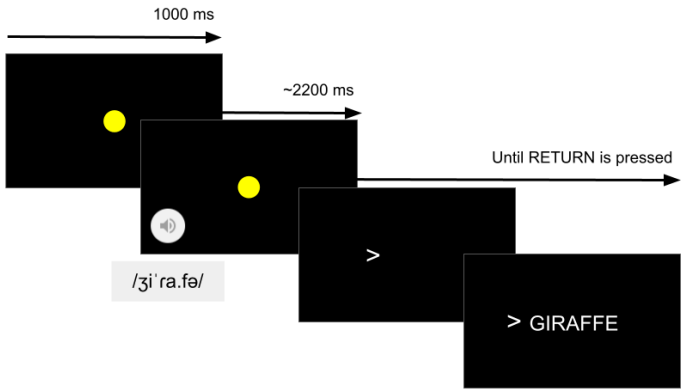
103 Spanish and 86 Catalan words were recorded, and presented to participants auditorily.

**Procedure**

Participants completed an online task. In each trial, they listened to a word in a non-native language (Spanish or Catalan), and then were promted to type their best guess translation.

**Data analysis**

Multilevel Bayesian regression model: P(correct response) conditional to phonological similarity and phon. neighbourhood density.

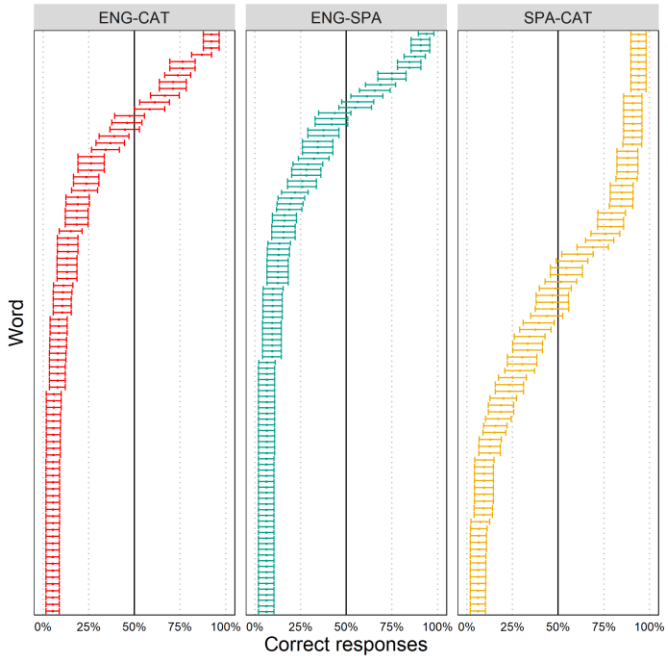


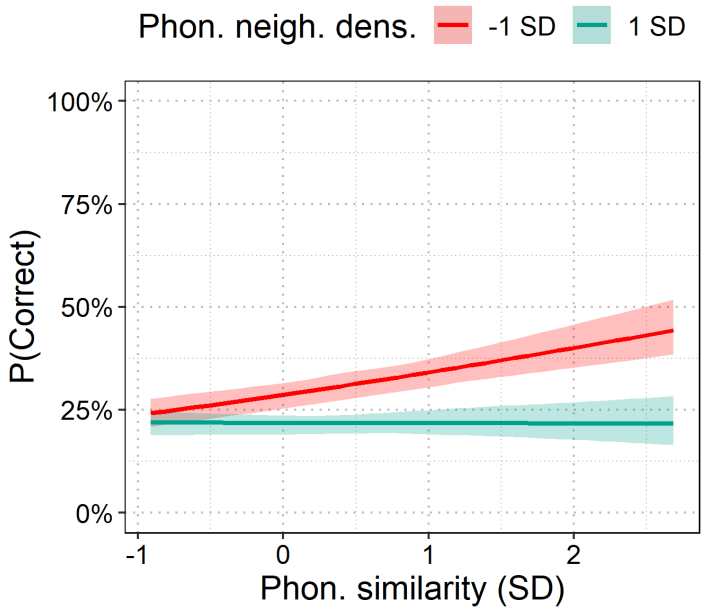
# Results

Overall **accuracy**: 25.18%, 95% CI = [22.39, 28.27]. As expected, Catalan words presented to Spanish natives were translated more accurately than Catalan or Spanish words presented to English natives.

There is a 95% probability that the effect of the **phon. similarity** × **phon. neighbourhood density** interaction is non-zero, $\beta = -3.09\%$, 95% CI =[−4.73, −1.45]. Translation accuracy was increased by phonological similarity only when the number of phonological neighbours was low.

There is a 95% probability that the main effect of **phonological similarity** is non-zero, $\beta = 3.02\%$, [1.12, 5.00] . All other predictors failed to exclude zero from their 95% CI.



# Conclusion

In a non-native word translation task, participants benefitted from **phonological similarity** when translating to words from sparse phonological neighbourhoods, but **not** when translating to words from **dense phonological neighbourhoods**.

Preliminary results show that data simulated from an adaptation of the **TRACE** model (Catalan input, English lexicon and phoneme system) may be **compatible with our participants' responses**.

In next steps, we will investigate more deeply what configurations of TRACE fit human data best.