Changing pronoun interpretations across-languages: discourse priming in Spanish-English bilingual speakers

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Different languages have different referential expressions and interpretation biases. For example, in English, referents that are more accessible are usually expressed as pronouns in discourse and pronouns often refer to a subject/first-mentioned referent, which is often the most salient in the previous discourse ((1) John$_i$ met Paul while he$_i$ was in high school)). In Spanish, native speakers show a preference for interpreting the null pronoun as referring to the subject antecedent (i.e., John in (1)), while explicit pronouns are more likely to refer to a non-subject antecedent (i.e., an explicit pronoun is interpreted towards the preceding object in (1) about 60% of time). We know that comprehenders can adapt their pronoun resolution biases to the likelihood of occurrence of a specific type of pronouns in the input. For example, previous research has demonstrated that pronoun resolution biases are sensitive to immediate priming and adaptation in monolingual and bilingual individuals (e.g., Fernandes et al., 2018). While pronoun interpretations can be primed in bilingual speakers using a single-language priming task (e.g., Contemori, 2019), it is not clear if pronoun interpretation biases can be primed cross-linguistically. Cross-linguistic priming effects have been shown at the phonological, semantic and syntactic level in bilinguals, demonstrating cross-language activation and shared abstract representations (e.g., Koostra & Muysken, 2017). However, existing research has not yet investigated the discourse level cross-linguistically using this methodology.

The goal of the present study is to understand if (i) bilingual speakers' statistics about likely referents are independent in the two languages or if (ii) probabilistic inference in tracking referents in one language (Spanish, the L1) can affect how referential expressions are resolved in the other language (English, the L2). In the present study, using a sentence comprehension experiment that implements the priming technique, unambiguous null pronouns referring to the second mentioned-referent are presented in Spanish (2) with the aim of decreasing first noun phrase (NP1) interpretations in English (John in (1)) in potentially ambiguous sentences like (3).

(2) Spanish priming sentence: Ana invitó a Alvaro al cine porque era un buen chavo.
Ana invited Alvaro to the movies because (he) was a good kid.
(3) Target English sentence/ambiguous pronoun: John met Paul while he was in high school

In a sentence comprehension task adapted from Contemori (2019), fifty-eight sequential Spanish-English bilinguals read English sentences containing an ambiguous pronoun ((3) and answered comprehension questions (in (3), Who was in high school?). Half of the sentences were preceded by a Spanish sentence that did not contain a pronoun ((4) baseline condition=Al final de el año escolar, Ryan compró un estéreo de Sheila/At the end of the school year, Ryan bought a stereo from Sheila. Who bought the stereo?). The other half of the ambiguous stimuli were preceded by a sentence with an unambiguous pronoun referring to the second-mentioned entity ((2) NP2 priming). The results of the comprehension questions showed a significant effect of immediate priming (p<0.04; Table 1), demonstrating that bilinguals were more likely to interpret an ambiguous pronoun as referring to the second NP (e.g., Paul in (1)) after encountering a NP2 priming sentence (2) than a baseline sentence (4).

The study shows that the English pronoun interpretation bias is susceptible to priming from Spanish, suggesting that Spanish-English bilinguals do not keep separate statistics about probability of pronominal forms interpretations occurring in the two linguistic environments. The results of a second experiment where the Spanish prime sentence contains an explicit pronoun (Ana invitó a Alvaro al cine porque él era un buen chavo), confirm the presence of cross-linguistic priming with sixty new bilingual participants. In the second experiment, the effect emerges with a different time-course during the comprehension task. Effects of the time-course of the priming effects are discussed within models of cross-language abstract representations.

Table 1. Proportion of NP1 choices (he=John) for the English sentences with ambiguous pronouns by priming type (SD in parenthesis)

	Spanish-English bilinguals
Baseline condition	0.7 (0.45)
(NP2) Priming condition	0.65 (0.47)
Total average NP1 choices	0.68 (0.46)

References

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