CROSS-LINGUISTIC INVESTIGATION OF THE CHOICE OF PRONOUNS

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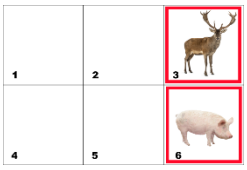
When referring, speakers must decide whether to use a noun or a pronoun. Research has shown that speakers are less likely to choose pronouns (over nouns) when referential candidates are more similar (e.g., Fukumura et al., 2011; 2013). A critical question concerns the level of representation at which such an effect might arise. The *linguistic competition* account predicts that the choice of using a pronoun is determined by the accessibility of the linguistic antecedent that the pronoun is replacing; speakers use fewer pronouns when the potential antecedents are more similar (e.g., semantically and/or phonologically), reducing the antecedent's accessibility and pronoun use. Alternatively, the *non-linguistic competition* account predicts that speakers use fewer pronouns when some non-linguistic properties of the referents make them more similar, lowering the referent's accessibility and the rates of pronouns.

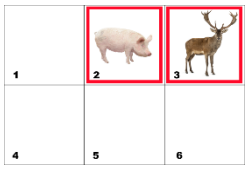
We contrasted these accounts in six experiments (32 participants, 48 items in each experiment) in English, Italian, and French. Whereas English pronouns can be chosen on the basis of the referent's non-linguistic information, French pronouns agree with the antecedent's grammatical gender. While Italian allows null pronouns, English and French do not. These cross-linguistic variations might differentially influence the level of representation that affects pronoun use. Participants saw a display presenting two objects on a computer monitor, and read aloud a context sentence (*The pig above the deer is on Number 6*). The target then changed location, whilst the competitor remained still. Participants described the change (*Now [the pig/it] is on Number 2*), so the addressee could identify the target and its new location. We varied the antecedents' semantic categorical similarity (*pig* and *deer* vs. *pig* and *bed*) and phonological similarity (*pig* and *pin* vs. *pig* and *can*). As English pronoun *it* was referentially ambiguous, object pairs always had the same grammatical gender in Italian and French (so French pronouns were also always ambiguous). Additionally, we varied the context in which the objects appeared; in the non-linguistically similar condition, both target and competitor were in a red box, signalling to participants that either could move in the display. In the non-linguistically dissimilar condition, only the target was in a red box, signalling that only the target could move.

We analysed the choice between pronominal expressions and repeated nouns as well as onset latencies using mixed-effects analyses (Baayen et al., 2008; Barr et al., 2013). In all languages, neither semantic similarity (category congruence) nor phonological similarity reliably reduced the rates of pronouns. Instead, pronoun use was affected by the referents' non-linguistic similarity; we found fewer pronominal expressions when both target and competitor were in the box than when only the target was in the box ($p < .05$). In all languages, participants were slower to produce repeated nouns (following "Now") when the antecedents were more similar, though in English and Italian, this was reliable only when the antecedents were semantically more similar ($p < .05$). By contrast, the referents' non-linguistic similarity (box manipulation) had no effect on noun onset latencies. An experiment in French further showed an effect of the antecedent's grammatical role (i.e., speakers produced more pronouns when the referent occurred in the subject position rather than in a non-subject position in the context sentence, $p < .05$), demonstrating that our task was sensitive to other variables that affect pronoun use. Hence, whereas the choice of a pronoun was affected by the referents' non-linguistic similarity, not by the antecedents' similarities, lexical competition for repeated nouns was affected by the antecedents' similarities, but not by the referents' non-linguistic similarity.

To conclude, the choice of using a pronoun is cross-linguistically affected by the referent's similarity, but not by the antecedent's linguistic similarities, in support of the non-linguistic competition account.

Example Stimuli

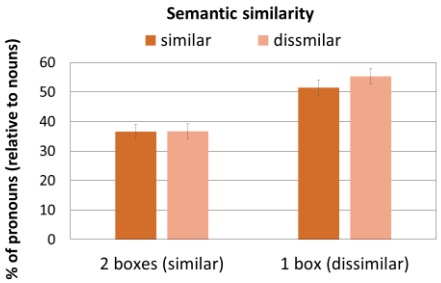


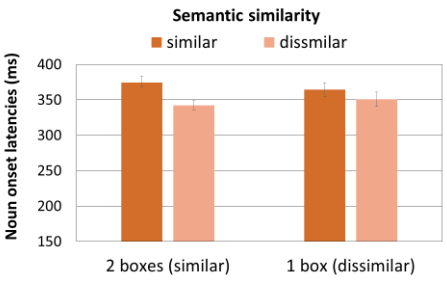


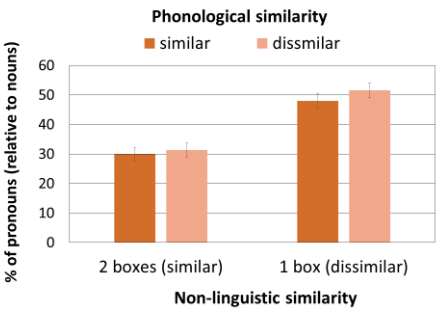
The pig above the deer is on Number 6. *Now [the pig/it] is on Number 2*

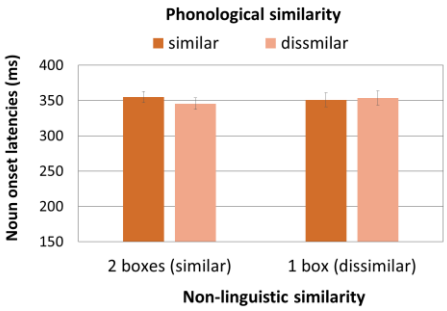
CHOICE OF EXPRESSIONS **RTs FOR REPEATED NOUNS AFTER "NOW"**

ENGLISH

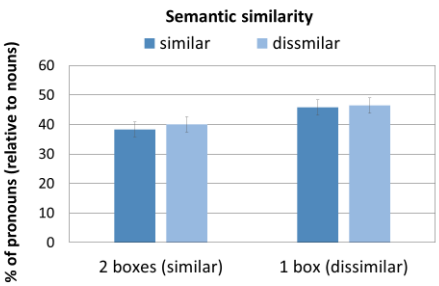


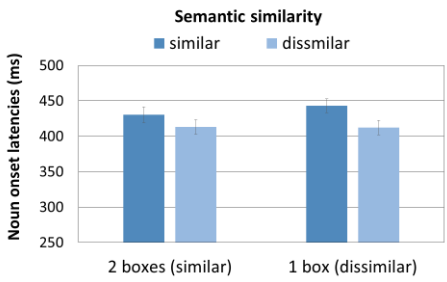


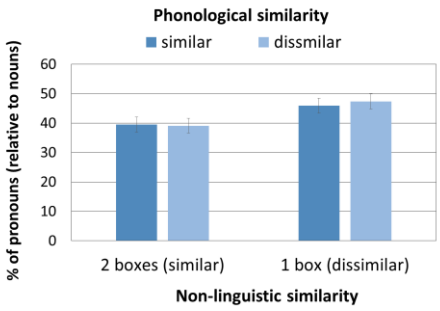


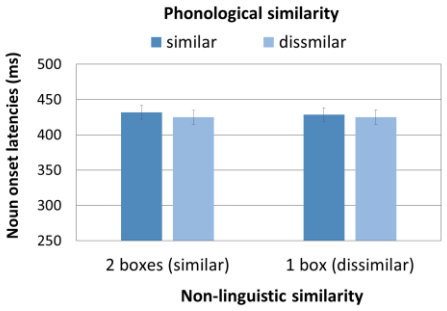
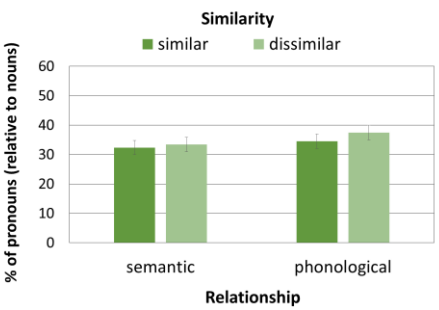
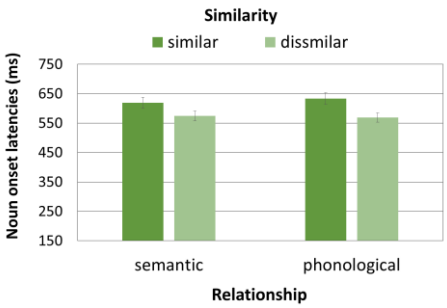


ITALIAN









FRENCH