AMBIGUITY AVOIDANCE INDEPENDENT OF NON-LINGUISTIC SIMILARITY

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A controversial issue concerns whether and how speakers avoid ambiguous utterances for their addressee (Ferreira et al., 2005). Here we examined whether and how speakers avoid gender ambiguous pronouns. Research has shown that English speakers use fewer pronouns when the context contains multiple characters of the same sex (e.g., Arnold & Griffin, 2007; Fukumura et al., 2011; 2013). According to the *ambiguity avoidance* account, this occurs because the presence of a same-gender competitor makes pronouns ambiguous. Yet recent research suggests that same-gender competitors lead to fewer pronouns even in Finnish, a non-gendered language, where pronouns do not encode the referent's gender so gender cannot influence pronoun ambiguity (Fukumura et al., 2013). Hence, the *non-linguistic competition* account claims that it is the similarity between the referents that affects pronoun use: Gender congruence increases competition between the referents, reducing the referent's accessibility and the likelihood of pronoun use.

To tease apart these accounts, two referential communication experiments examined if gender congruence affects the choice of pronouns in French and that of null pronouns in Italian (relative to nouns). Unlike English and Finnish, both French and Italian have grammatical gender; crucially, whereas French pronouns express gender, Italian null pronouns do not (gender is carried by an adjective or past participle, only if they are present). In each experiment, 32 participants saw a display showing two entities on a computer screen, and read aloud a context sentence (1a-d) to their addressee. The target then changed location, whilst the competitor remained still. Participants described the change (2a-b), such that the addressee could identify the target and its new location. The referential candidates were either human (biological gender: 1a & 1b) or inanimate (grammatical gender: 1c & 1d), and in both conditions, the referents had either the same (1a & 1c) or different gender (1b & 1d).

The *ambiguity avoidance* account predicts that not only biological gender congruence but also grammatical gender congruence should lead to fewer pronouns in French, as both make pronouns ambiguous. By contrast, under this account, neither biological nor grammatical gender congruence should result in fewer null pronouns in the Italian target utterances, where gender is not overtly expressed (e.g., *è al numero 3*). The *non-linguistic competition* account predicts that pronoun use is affected by the referents' non-linguistic similarity; hence, biological, but not grammatical, gender congruence, results in fewer French pronouns and fewer Italian null pronouns, because grammatical gender congruence does not affect the referents' non-linguistic similarity (Vigliocco et al., 2005).

Mixed-effects analyses examined the choice of expressions (Baayen et al., 2008; Barr et al., 2013). In French, a main effect of gender congruence showed fewer pronouns in the same gender than in the different gender condition ($p < .05$). Crucially, gender congruence did not interact with gender type (biological vs. grammatical) ($p > .05$), and the effect of gender congruence was significant in the both biological and grammatical gender conditions. In Italian, neither biological nor grammatical gender congruence affected the rates of null pronouns ($ps > .05$). These results support the ambiguity avoidance account: Speakers avoid pronouns when biological or grammatical gender congruence renders pronouns referentially ambiguous, and this happens regardless of whether gender congruence affects the non-linguistic similarity between the referential candidates.

To conclude, speakers avoid gender ambiguous pronouns independent of non-linguistic similarity, and ambiguity avoidance and competition are driven by different constraints that affect pronoun use.

Example materials (40 items in each experiment)

(1) Context sentences

French

a. Le marin au dessus du roi est sur le numéro 2.
b. Le marin au dessus de la reine est sur le numéro 2.
c. Le pain au dessus du tournesol est sur le numéro 2.
d. Le pain au dessus de la rose est sur le numéro 2.

(2) Target descriptions

a. Maintenant le marin / il est sur le numéro 3.
b. Maintenant le pain / il est sur le numéro 3.

Italian

a. Il marinaio sopra il re è sul numero 2.
c. Il marinaio sopra la regina è sul numero 2.
b. Il pane sopra il girasole è sul numero 2.
d. Il pane sopra la rosa è sul numero 2.

a. Adesso il marinaio / è al numero 3.
b. Adesso il pane / è al numero 3.

English translations:

a. *The sailor above the king is on Number 2.*
b. The sailor above the queen is on Number 2.
c. *The bread above the sunflower is on Number 2.*
d. The bread above the rose is on Number 2.

a. Now the sailor/he is on Number 3.
b. Now the bread/it is on Number 3.

Example displays

Human (biological gender)

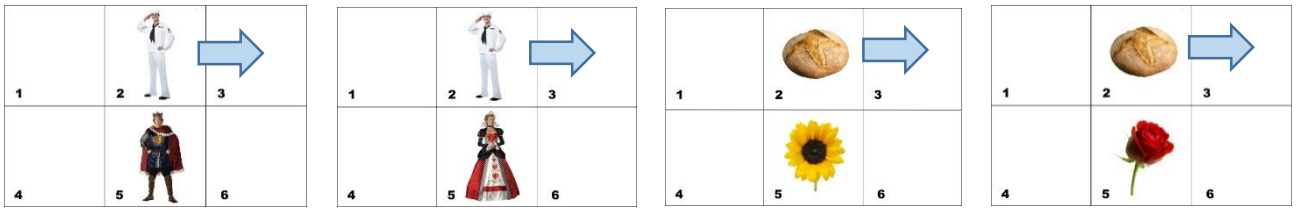
a. Same gender

b. Different gender

Inanimate (grammatical gender)

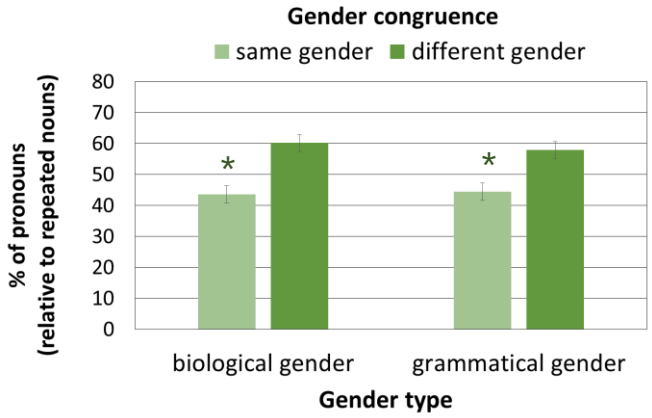
c. Same gender

d. Different gender



Results

French Experiment



Italian Experiment