The effects of social gender ideologies on the interpretation and production of French grammatical gender marking

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Introduction This paper presents two experiments investigating the interpretation and production of gender marked expressions in French (eg. *le journaliste* (masculine) vs *la journaliste* (feminine)). Although traditional grammarians claim that French masculine gender makes no semantic contribution to the interpretation of a noun phrase, recent psycholinguistic studies have provided evidence that masculine marked human noun phrases map probabilistically to male referents [2, 7, 6]. This being said, psycholinguists are divided as to whether ideological constructs like stereotypes affect the interpretation and production of French gender marked noun phrases [7] or not [6]. The results of our experiments, which replicate [1] in French, provide further support that French speakers interpret masculine/feminine grammatical gender as probabilistically related to men/women, and we additionally find evidence that both interpretation and production of gender marking is sensitive to stereotypes. Furthermore, we find that the extent to which speakers rely on stereotypes vs grammatical gender to judge social gender is conditioned by other aspects of their ideologies: their views about traditional gender roles.

Experiment 1. Interpretation experiment

Methodology Two variables were manipulated (fully randomized 3*2 design): noun stereotypes (masculine, neutral, feminine) and grammatical gender (masculine and feminine). Besides 40 fillers, 36 common gender nouns were chosen from [8]'s norming study. 37 French native speakers (mean age: 36, σ=17) came to the University lab and participated in the experiment on IbexFarm. They were asked to read sentences and to judge using a 11-level point slider whether the person mentioned in the sentence was a man or a woman, educated or not, old or young. After that, they had to say whether they agree or disagree with 22 statements about relations between men and women on a 6-level point scale (Ambivalent Sexism Questionnaire, [5]).

Results Bayesian ordinal regression models (e.g [4], [3]) show effects for grammatical gender ($\hat{\beta}$ =8.72, 95% CrI=[6.69,10.92], P(β)>0=1), stereotypes (reflected by Misersky score: ($\hat{\beta}$ =1.59, 95% CrI=[-0.12, 3.22], P(β)>0=0.97) and an interaction between them ($\hat{\beta}$ =2.06, 95% CrI=[-0.18, 4.48], P(β)>0=0.97). An interaction between benevolent sexism and grammatical gender is found ($\hat{\beta}$ =0.98, 95% CrI=[-0.79,2.74], P(β)>0=0.87), as well as an interaction between Misersky and benevolent sexism ($\hat{\beta}$ =0.63, 95% CrI=[-0.65,1.97], P(β)>0=0.83) (Figure [1]).

Overall, grammatical gender drives the gender interpretation and stereotypes, with stereotypes playing a bigger role in the feminine grammatical gender condition. Interestingly, gender ideologies seem to modulate this: the higher the benevolent sexism score, the more participants take grammatical gender (and stereotypes) to be a reliable sign of a referent's social gender.

Experiment 2. Continuation experiment

Methodology (same as in Exp. 1) 36 French native speakers were asked to continue a sentence.

Results We found effects of stereotypes, grammatical gender, and gender ideologies (benevolent sexism) although being quite different, probably due to task differences (effects in Figure [2]).

Conclusion Our study provides additional arguments for both a probabilistic relationship between French grammatical and social genders and the idea that stereotypes influence noun phrase interpretation in this language. It also highlights the importance of taking participant gender ideologies into account in studies of the interpretation and production of gender marking crosslinguistically.

Figure 1: Interpretation score depending on grammatical gender, stereotypes and benevolent sexism scores (by taking the median) on the left and posterior distribution on the right (95 % CrI, feminine gender coded 1 and masculine gender 0 (DV), mean centered coding applied (IV), 4 chains, 3000 iter. each, weakly informative priors)
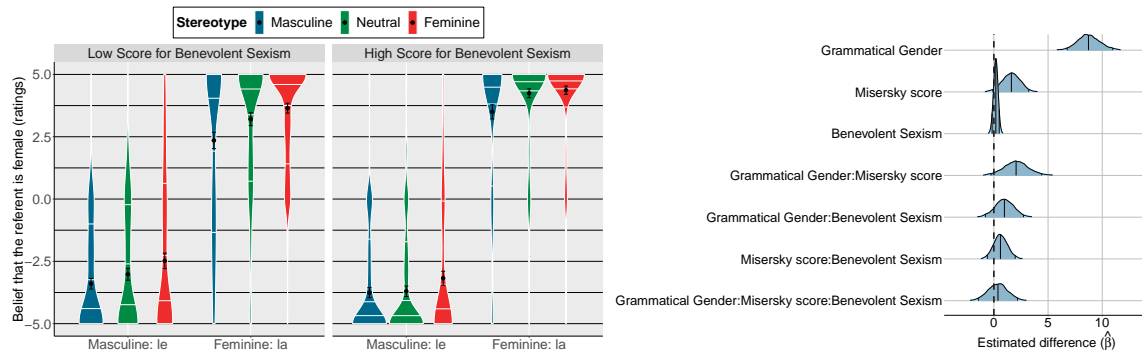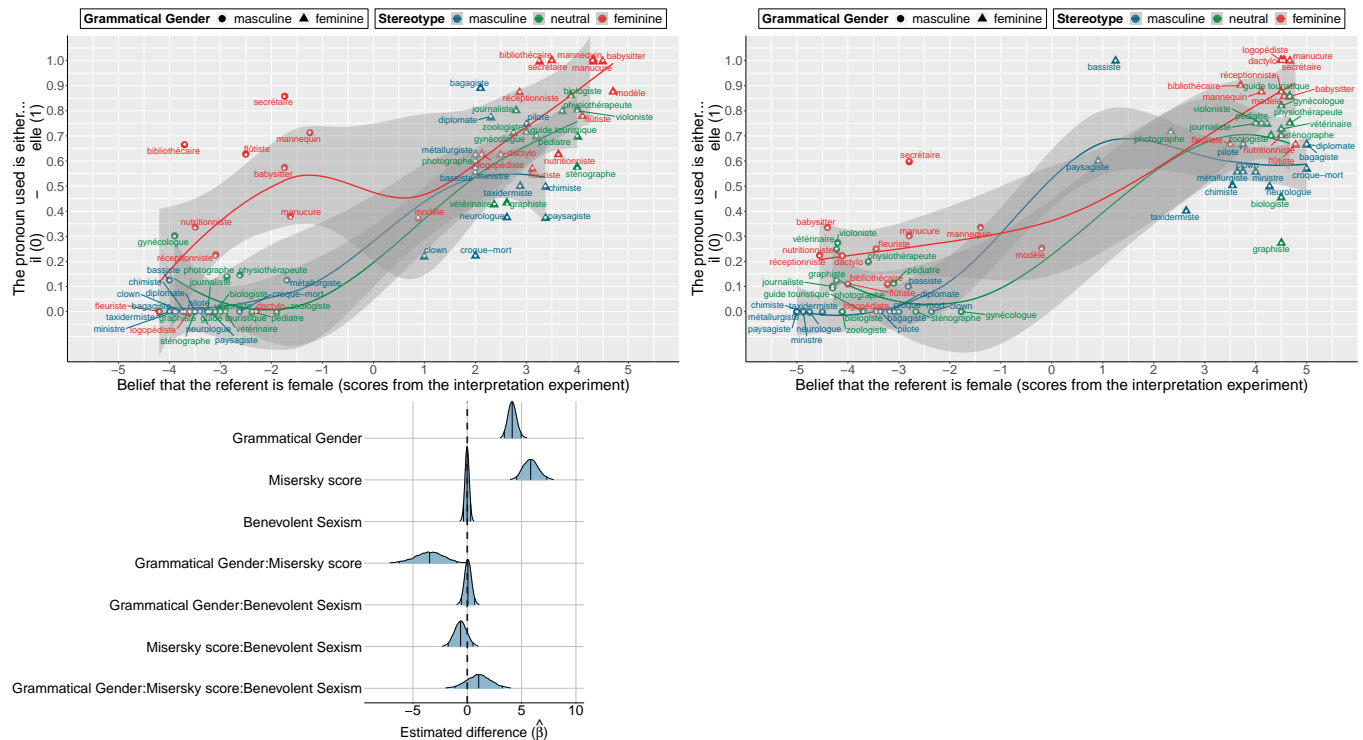

Figure 2: Pronoun production depending on grammatical gender and stereotypes for the low (left) and high benevolent sexism groups (right) by taking the median, posterior distribution (95 % CrI, feminine gender coded 1 and masculine gender 0 (DV), mean centered coding applied (IV), 4 chains, 3000 iter. each, weakly informative priors))

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Example of stimuli used in the experiments for the stereotypes

(1) **Masculine stereotype** Pour téléphoner, le/la diplomate appelle toujours en numéro masqué. Si personne ne répond, ...
To make a phone call, the diplomat always uses a hidden number. If nobody answered, ...

(2) **Feminine stereotype** Pour téléphoner, le/la secrétaire appelle toujours en numéro masqué. Si personne ne répond, ...
To make a phone call, the secretary always uses a hidden number. If nobody answered, ...

(3) **Neutral stereotype** Pour téléphoner, le/la journaliste appelle toujours en numéro masqué. Si personne ne répond, ...
To make a phone call, the journalist always uses a hidden number. If nobody answered, ...