

Prosodic and syntactic disambiguation of German generic masculine nouns

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We present two experiments on the perception of generic masculine forms in German. They suggest that the alleged male bias in the interpretation of these generics found in previous research can to some extent be traced back to methodical choices and stimulus design.

Motivation. In several languages with morphological gender marking such as German, a masculine plural DP like (1a) can denote a male or a gender-mixed group, whereas the feminine (1b) only denotes a female group. Referring to mixed groups with masculine forms has been criticized from a feminist perspective for leading to women being cognitively underrepresented (e.g., Pusch 1984). This has been supported empirically: Gygax et al (2008) and follow-up studies (e.g. Körner et al. 2002) found that in sentence pairs like (4), continuations with male DP anaphors (2a) are judged as plausible more often than the continuation with the female (2b). However, the partitive (2b) is ambiguous between (A) being *coreferent* with the antecedent (3a) and (B) constituting a *subset* of a larger gender-mixed group described by (3a) (see Figure 1). Since in case (A) it would be pragmatically more precise to use the feminine (3b), the continuation (2b) might be degraded for pragmatic reasons and not because the antecedent is interpreted as all-male. Only under the subset interpretation (B), the lower plausibility ratings for female anaphors clearly evidence a gender bias. We present two experiments which explicitly test whether this ambiguity matters. Exp. 1 controls the interpretation of the anaphoric DP prosodically and exp. 2 syntactically.

Exp. 1 (preregistered) investigates whether subjects might have accommodated an unmarked prosody (Féry 2006) in the previous studies, i.e. placing the strongest pitch accent on the last content word and, thus, marking the anaphor as given by deaccentuation. Givenness would favor a coreferent interpretation. We presented the stimuli of Körner et al. (2022) auditorily and compared this *unmarked* prosody (2a) to a *contrastive* one (hat contour marking a contrastive topic, see Büring (1997), (2b)). This contour should evoke a subset of male individuals contrasting with *die /FRAUen*, both contained within the gender-mixed group of *Sozialarbeiter*. This predicts a higher rate of rejecting female continuations with unmarked prosody (PROSODY:GENDER). 69 subjects heard 36 sentence pairs (and 36 fillers) and judged whether the second sentence was a sensible continuation of the first one (binary task). The analysis of the data (Fig. 2) with mixed effects logistic regressions (Bates et al. 2015) shows that contrastive prosody marginally increases the acceptability of feminine continuations (PROSODY:GENDER interaction, $\chi^2 = 3.2, p = 0.07$), which are however rejected more often overall (GENDER main effect, $\chi^2 = 126.05, p < 0.001$). This tentatively supports our hypothesis that subjects accommodated a neutral prosody when interpreting the anaphor in previous studies, but it also confirms a male bias in masculine plurals.

Exp. 2 disambiguated the anaphoric DP syntactically by using the unambiguous partitive *unter ihnen* ‘among them’ (1b). In a written acceptability rating study, 47 native German speakers judged 16 items (1) and 72 fillers on a 7-point Likert scale (7 = totally natural). We analyzed the data with CLMMs (Christensen 2022) in R and found a marginally significant main effect of GENDER. There was a tendency for sentences with ‘men’ being preferred over ‘women’ ($\chi^2 = 3.65, p < 0.057$) (see Fig. 3). The effect is consistent with those found by Gygax et al. (2008) and subsequent studies but much weaker. This tentatively suggests that the bias toward a non-mixed interpretation of the generic masculine forms can be reduced by ruling out the possibility of a coreferent interpretation.

Discussion. Our studies suggest that the male bias of German generic masculine plural forms repeatedly found in previous studies is partially explained by properties of the experimental design, especially the ambiguity of the anaphor between a coreferent and a subset interpretation. When this ambiguity is ruled out by prosodic or syntactic means, the male bias is reduced. However, we still find it in both experiments, which suggests that the bias is not only caused by design confounds.

- (1) a. die Lehrer 'the teachers' (2) a. der Männer 'the.GEN men' (3) a. Sozialarbeiter 'social workers'
 b. die Lehrerinnen 'the teachers.FEM' b. der Frauen 'the.GEN women' b. Sozialarbeiterinnen 'social workers.FEM'
- (4) Die **Sozialarbeiter** liefen durch den Bahnhof. Wegen der schönen Wetterprognose trugen **mehrere der (Frauen|Männer)** keine Jacke
the social.workers walked through the station because.of the nice weather.forecast wore several of.the women men no coat
 'The social workers were walking through the station. Since sunny weather was forecast several of the (women|men) weren't wearing a coat.'
- (5) a. Wegen der schönen Wetterprognose trugen mehrere der Frauen keine Jacke.
 b. Wegen der schönen Wetterprognose trugen mehrere der /FRAUen keine JAcke.
- (6) a. 'The **customers** were waiting at the checkout.'
 b. 'Because of the long queue, **the (women|men) among them** were very annoyed.'

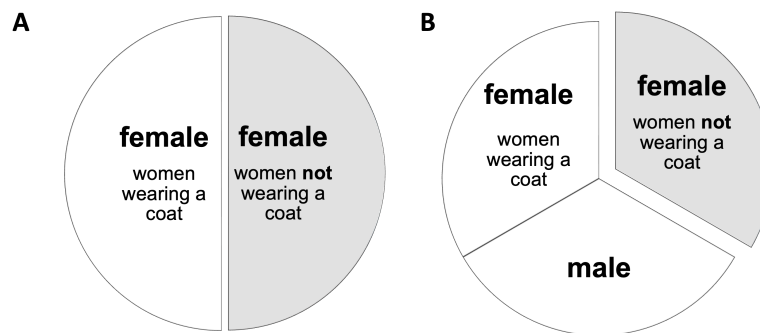


Fig. 1 Visualization of the *coreferent* (A) and the *subset* (B) reading of *der Frauen*

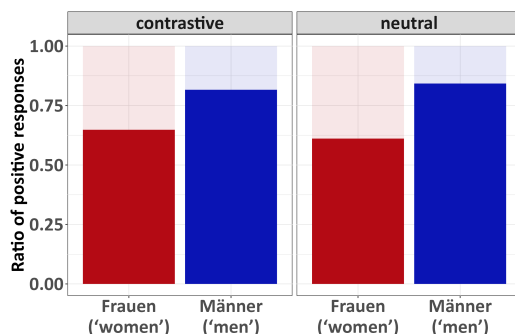


Fig. 2 Ratio of positive answers in exp. 1.

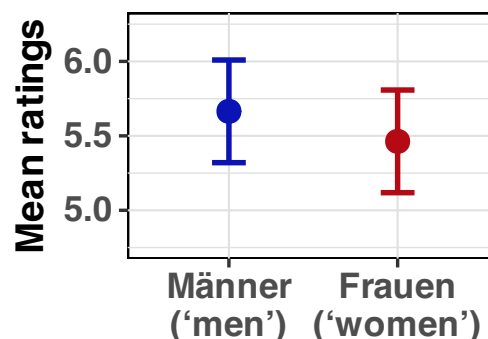


Fig. 3 Mean ratings and 95% CIs of exp. 2.

Selected references: Büring, D. (1997). *The meaning of topic and focus*. Routledge. • Féry, C. (2006). Laute und leise Prosodie. In H. Blühdorn et al. (Eds.), *Text—Verstehen* (pp. 164–186). De Gruyter. • Gyga, P. et al. (2008). Generically intended, but specifically interpreted: When beauticians, musicians, and mechanics are all men. *Language and Cognitive Processes*, 23(3), 464–485. • Körner, A. et al. (2022). Gender representations elicited by the gender star form. *Journal of Language and Social Psychology*, 41(5), 553–571. • Pusch, L. (1984). *Das Deutsche als Männersprache*. Suhrkamp.