

An experimental investigation of the denotation of German masculine nouns

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In German, nouns are obligatorily marked for grammatical gender (*masculine, feminine, or neuter*). Regarding nouns denoting (sets of) humans, it is hotly debated whether nouns in the masculine form (which is, in most cases, morphologically unmarked, with the feminine form being derived via the suffix *-in*) denote (sets of) male as well as female or non-binary individuals having the relevant property, or whether they denote (sets of) male individuals exclusively (see, e.g., Diewald 2018 and Trutkowki & Weiß 2023 for opposing views). There is clear empirical evidence (see, e.g., Gygax 2008 and the overview in Nübling & Kotthoff 2018) that the masculine form is strongly associated with male humans and is often used to refer to (sets of) males exclusively. However, there is also evidence that the masculine form can be used to refer to (pluralities consisting of) individuals of all genders. To capture this pattern, Becker (2008) assumes that nouns in the unmarked masculine form indeed just denote (sets of) individuals having the respective property, irrespective of their gender, but that in many cases the more specific reading on which they denote only male individuals is triggered via a conversational implicature.

We ran two experiments within an acceptability rating study (5 = completely acceptable; 1 = completely unacceptable) with 20 participants to test Becker's hypothesis. Data were analyzed by means of an ANOVA. Experiment 1 tested the hypothesis that, being an implicature, it should be possible to cancel the exclusively male interpretation of a masculine noun introducing a referent as in (1a). In contrast, no cancellation should be possible subsequent to a feminine noun introducing a referent, leading to a stronger decrease in acceptability for the incongruent version in (1b). A similar difference was predicted between the congruent (2a) and the incongruent (2b) hyponym-hyperonym pairs in (2).

- (1) a. Die älteste Uhr der Welt gehört einem Mechaniker. Genauer gesagt ist es eine Mechanikerin.
The world's oldest clock belongs to a mechanic. To be more precise, it is a female mechanic.
- b. Die älteste Uhr der Welt gehört einer Mechanikerin. Genauer gesagt ist es ein Mechaniker.
The world's oldest clock belongs to a female mechanic. To be more precise, it is a mechanic.
- (2) a. In der Mitte des neuen Stadtplans befindet sich ein Rechteck. Genauer gesagt ist es ein Quadrat.
In the middle of the new map, there is a rectangle. To be more precise, it is a square.

- b. In der Mitte des neuen Stadtplans befindet sich ein Quadrat. Genauer gesagt ist es ein Rechteck.
In the middle of the new map, there is a square. To be more precise, it is a rectangle.

We tested the acceptability of twelve test items each with a stereotypically male (cf. (1)), stereotypically female, and neutral profession, based on the classification in Gabriel et al. (2008). 12 baseline items involving inanimate objects in hyponym-hyperonym pairs figured as a fourth level of the factor stereotype. The items were assigned to two lists according to a Latin Square design.

Our predictions were only partially confirmed (see Table 1): Congruent items (1a/2a) were judged significantly more acceptable than incongruent items (1b/2b), yet congruent test items were judged as less acceptable than congruent baseline items. There was no effect of stereotype.

Experiment 2 tested whether explicitly mentioning women in the preceding context triggers the implicature that the variant marked for masculine grammatical gender refers to male individuals exclusively. Participants read test items such as (3a-b), where women were either explicitly mentioned in the opening sentence (relevant context/A), or where the opening sentence contained a general statement (irrelevant context/B).

- (3) a-b. [Mittlerweile gibt es auch einige Frauen, die im technischen Sektor arbeiten (A)][Die Arbeit im handwerklich-technischen Sektor erfährt endlich eine gesellschaftliche Aufwertung (B).] Das ist auch gut so, denn besonders im Bereich Automechanik werden dringend Fachkräfte gebraucht. Inzwischen ist beinahe ein Viertel der Mechaniker, die in Kfz-Werkstätten angestellt sind, weiblich.
By now, there are quite a few women who work in the technology sector.(A) /Work in the technology sector is finally more appreciated by society (B). That is a good thing since especially in the area of car mechanics, skilled workers are urgently needed. By now, almost a quarter of the mechanics working in car workshops are female.

The final sentences were predicted to receive lower ratings in the relevant than in the irrelevant context variants: The relevant contexts should trigger the implicature that the noun marked for masculine grammatical gender is interpreted as referring to male individuals exclusively, which leads to a contradiction. The irrelevant contexts should not automatically trigger this implicature. The predictions of Experiment 2 were confirmed: Test items were judged significantly less acceptable in the relevant than in the irrelevant context (mean = 3.58, se = .196; mean = 4.16, se = .177).

While the results of Experiment 2 are compatible with Becker's hypothesis, the results of Experiment 1 raise the question of whether the implicature that nouns in the masculine form denote (sets of) male individuals exclusively is on the verge of becoming grammaticalized. To further investigate this option, we are currently running replications of Experiments 1 and 2 in which speakers of different age groups are tested.

Table 1. Experiment 1: Mean Acceptability ratings (standard errors of mean in parentheses) for the three stereotypes plus baseline condition, separately for congruent and incongruent noun pairs

	<i>Male Stereotype</i>	<i>Female Stereotype</i>	<i>Neutral Stereotype</i>	<i>Baseline: Hypo-/ Hyperonym</i>
<i>Congruent</i>	2.44 (1.14)	2.24 (1.12)	2.38 (1.01)	4.24 (0.62)
<i>Incongruent</i>	1.71 (1.06)	1.85 (1.03)	1.88 (1.13)	2.14 (0.97)

References

- Becker, Thomas (2008). Zum generischen Maskulinum: Bedeutung und Gebrauch der nichtmavierten Personenbezeichnungen im Deutschen. *Linguistische Berichte* 213, 65-75.
- Diewald, Gabriele (2018). Zur Diskussion: Geschlechtergerechte Sprache als Thema der germanistischen Linguistik – exemplarisch exerziert am Streit um das sogenannte generische Maskulinum. *Zeitschrift für Germanistische Linguistik* 46.2, 283–299.
- Gabriel et al. (2008): Au pairs are rarely male: Norms on the gender perception of role names across English, French, and German. *Behavior Research Methods* 40(1), 206-212.
- Gygax, Pascal et al. (2008). Generically intended, but specifically interpreted: when beauticians, musicians, and mechanics are all men. *Language, Cognition and Neuroscience* 23.3, 464–485.
- Nübling, Damaris & Helga Kotthoff (2018). *Genderlinguistik. Eine Einführung in Sprache, Gespräch und Geschlecht*. Tübingen: Narr Francke Attempto.
- Trutkowski, Ewa & Helmut Weiß (2023). Zeugen gesucht! Zur Geschichte des generischen Maskulinums im Deutschen. *Linguistische Berichte* 273, 5-40.