

## How formal and conceptual cues of language lead to representations of gender

Language-based representations of gender provide an intriguing area for studying the interplay of linguistic and social processing. Gender is one of three social categories (besides age and ethnicity) which are considered highly essential and influential in social information processing. Gender is also highly present in language and communicated in various ways, formal as well as conceptual ones. How is gender information used in language processing and how is it being represented? Three studies investigated the effects of formal and conceptual gender cues in processing role names in German.

In Experiment 1 and 2 eye-tracking methodology was used in order to assess the exact time course in processing conceptual *and* grammatical gender cues. Participants read short passages about a social group that was specified concerning gender through the anaphoric noun phrase *these men* or *these women*.

(1) *Many Germans love to go on holiday to Scandinavia. For there these women find a partly untouched countryside.*

In Experiment 1, role names were formally marked for masculine gender (e.g., *Künstler, Mieter*; artists, tenants [masc. pl.]), in Experiment 2 they were gender unmarked (e.g. *Studierende, Deutsche*; students, Germans [masc./fem. pl.]). Role names denoted typically male, female or neutral roles (e.g., soldiers; florists; dog owners, respectively). The gender specifying anaphor was congruent or incongruent to the grammatical and/or to the typical gender of the role name.

Experiment 3 used correctness and customariness judgments and reading times to assess both the gender related content of the final representation and the online process of creating it. Participants read sentences that combined a masculine or feminine role name of male, female or neutral gender typicality with a male or female referent.

(2) *Mein Vater/Meine Mutter ist Lehrer/Lehrerin.  
My father/mother is a teacher [masc./fem.].*

Again, the referent gender was congruent or incongruent to the role names' grammatical and/or to their stereotypical gender.

The eye-tracking data indicate that effects of conceptual gender occur earlier than those of grammatical gender. Knowledge on gender typicality was apparently used in early stages of lexical access of the anaphoric expression. Grammatical gender was used at a later stage when the link between the anaphoric noun and the antecedent had to be established. Furthermore, reading time and questionnaire data indicate that in case of singular forms, grammatical gender tends to overwrite the effects of conceptual gender. There was furthermore a discrepancy between online and offline-measures. In reading times, combining masculine role names with female rather than male referents resulted in a slowdown while no such incongruity effect was found for feminine role names. In the questionnaire data, however, combining feminine role names with a male rather than a female referent was rated as less correct and less common than combining a masculine role name with a feminine referent.

Taken together the present studies show that conceptual and formal gender cues in language lead to gendered representations. Conceptual information such as knowledge about typical roles is used early in processing. Masculine and feminine grammatical gender appear to influence processing at different stages.