

Does grammatical gender shape conceptual representation? A replication across the lifespan

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Background: A central question in language processing research is whether linguistic aspects, such as the morphosyntactic feature of grammatical gender, shapes the way we view the world. Some evidence has pointed to, yes, it does. In their seminal study Boroditsky et al. [1] found that grammatical gender impacted noun perception. For example, German and Spanish speakers were given a noun and asked to provide adjectives to describe that noun. Importantly, they used items like *key*, which in German is masculine (*der Schlüssel*) and feminine in Spanish (*la llave*). They found that German speakers used more “male-related” adjectives like *hard* or *jagged* while Spanish speakers used more “female-related” adjectives like *lovely* or *intricate* to describe the noun (*Schlüssel/llave*). They argue that this evidence supports the notion that grammatical gender shapes conceptual representations and thus the way we view objects. Despite being a very impactful study (with over 1200 citations), neither the original study nor the quantitative results were ever fully published, and this finding has proved difficult to replicate [2]. It also remains unclear whether the perception of nouns changes across the lifespan based on life experience and/or differences in semantic networks [3].

Method: The present provides a transparent replication of the original Boroditsky et al. study, with college-aged adults (18-25) and older adults (56-85). Using Prolific we have collected data from younger and older L1 English speakers (n=40), L1 Spanish speakers (n=40), and L1 German speakers (n=36). Participants read 54 critical nouns and provided three adjectives to describe each noun. In English these nouns had no grammatical gender, in German and in Spanish half of the nouns had masculine grammatical gender and the other half had a feminine grammatical gender, and the gender was opposite across German and Spanish (e.g., the English word *Table* is masculine in German *Tisch* and feminine in Spanish *Mesa*). If the grammatical gender of the noun shapes the way it is perceived, we would expect English speakers to describe nouns equally with masculine and feminine adjectives while German and Spanish speakers would describe masculine nouns with more masculine adjectives, and feminine nouns with more feminine adjectives. In terms of age, we hypothesize that older adults may have more rigid representations of nouns due to increased exposure and more rigid semantic networks leading them to produce more gender congruent adjectives.

Results and Discussion: One issue that arises is how to judge whether an adjective is masculine or feminine? For example, are adjectives like *smart*, *valid*, or *regular* more masculine or feminine? We have preliminarily analysed the German and English data using a subjective categorization of each adjective. Ordinal models revealed no evidence of grammatical gender effects in English speakers (across both age groups) or older German speakers. However, age significantly moderated the influence of grammatical gender in German speakers, with younger adults exhibiting greater differentiation between masculine and feminine nouns. Cross-language comparisons between English and German younger adults yielded only marginal evidence for grammatical gender effects. Together this suggests very weak evidence that grammatical gender shapes the way nouns are described. However, by the time of the conference we plan to have analysed the complete dataset, using more objective adjective judgements from LMMs.

References

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