

Bidirectional interactions between symmetric and asymmetric grammatical gender systems in bilingual language comprehension and production

1. Research objective

Research has shown that both languages of a bilingual are always active, and it is impossible to switch off one of them. The co-activation of languages has an important impact on how they are produced and comprehended. The aim of this project is to investigate this phenomenon with respect to grammatical gender. In languages with grammatical gender, each noun is classified into one of several classes. For example, the Polish noun *drzewo* ('tree') is neuter and *książka* ('book') is feminine. Studies have found that bilinguals activate the grammatical gender information of their first language when using a second language. If the gender of a noun is the same in the first and second language, the processing of that noun is facilitated. Yet, what happens when languages differ in the number and type of gender classes? Can grammatical gender in a second language affect gender processing in the first language?

The aim of the project is to explore bidirectional interactions between two grammatical gender systems during language production and comprehension in/by? Polish native speakers learning German or Danish. Polish is similar to German (both languages distinguish three gender classes: masculine, feminine, and neuter) but differs from Danish (which distinguishes only two classes: common and neuter). The project also focuses on the role of the following factors that can potentially modulate the interactions between grammatical gender systems: language proficiency level, linguistic context (bare noun, noun phrase, sentence), and cognate status.

2. Research description

Participants will be tested in a series of psycholinguistic tasks targeting production and comprehension at word and sentence levels (e.g., picture naming and visual world eye-tracking). For example, in order to investigate the co-activation of grammatical gender during production, participants will be asked to name an object presented on a computer screen as quickly as possible. One part of the objects will have the same gender in the first and second language, e.g., *stół* in Polish and *Tisch* in German ('table', both are masculine), while the other part will differ in gender between the languages, e.g., *kwiat* in Polish (masculine) and *Blume* in German (feminine, 'flower'). In addition, the stimuli will include cognates, i.e., words that share form and meaning across languages (e.g., *park* in Polish and *Park* in German, 'park'). Response time and accuracy will be analysed statistically. For example, comparing Polish-German and Polish-Danish bilinguals will allow us to determine how the symmetry between the two gender systems affects language processing. Participants will also complete a language profile questionnaire and language proficiency test.

3. Rationale and anticipated results

The study was designed to clarify how linguistic (e.g., symmetry between gender systems) and individual factors (e.g., language proficiency level) affect the co-activation of grammatical gender during bilingual language processing. The innovative character of the project consists in focusing on symmetric and asymmetric gender systems and on L1 and L2 at the same time. We predict weaker interactions between asymmetric gender systems than between symmetric ones as well as weaker effects of the second language on the first than in the reverse direction. We expect that the degree of these interaction will be modulated by proficiency in the second language (a positive relationship for L1 processing and a negative relationship for L2 processing) and cognate status (stronger interactions for cognates). The project will contribute to the ongoing debate about language co-activation in bilinguals, thereby advancing our knowledge of bilingual processing. Based on the data from language pair that have not been studied before, the project will shed new light on the processing and architecture of the grammatical gender system in the bilingual mental lexicon.