

## Cross-linguistic influence in L<sub>n</sub> processing: Gender agreement in Norwegian possessives

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Different languages in a speaker's mind can influence each other, a phenomenon commonly called cross-linguistic influence (CLI). Since most studies examining CLI have focused on either production or off-line comprehension, it is less clear to what extent previously acquired languages also affect processing of the L<sub>n</sub> (Lago et al., 2019). Moreover, since most studies have only compared bilinguals to monolinguals, it is not always possible to disentangle CLI from general effects of the multilingual experience (Sorace & Serratrice 2009). This study aims to fill these gaps in the literature by including online processing (self-paced reading) measures, and by comparing various groups of bilinguals who all speak Norwegian as an L<sub>n</sub>, but different L1s. Thus far we have collected data for 42 English L1 speakers, 51 Dutch L1 speakers, 47 Italian L1 speakers, and 32 Spanish L1 speakers. 41 L1 speakers of Norwegian serve as a comparison group.

We focus on possessive pronominal agreement, which has been shown to be a vulnerable phenomenon in L2 English production studies (e.g. Collins et al. 2009, Anton Méndez 2011). Norwegian possessive pronouns are typically postnominal and come in two sets. In local binding, the pronouns *sin* (masculine), *si* (feminine), and *sitt* (neuter) are used, which agree in gender with the possessee noun. In non-local binding, the pronouns *hans* (masculine) and *hennes* (feminine) are used, which agree with the possessor. The L1s in our sample differ with respect to their pronominal agreement systems: while Romance possessive pronouns agree only with the possessee, English and Dutch pronouns agree only with the possessor. If CLI occurs, we thus expect different patterns for the different groups.

The materials consisted of sentences such as (1) and (2) for the local and the non-local condition respectively. The sentences were manipulated, such that the gender of the pronoun was always the same, but the gender of the possessor and the possessee varied. In the baseline versions, the gender of the possessor, possessee and pronoun all coincided, leading to a felicitous sentence. The first manipulation contained a gender violation resulting in an infelicitous sentence (*faren* in 1 and *Lucy* in 2a). In the second manipulation (2b), the wrong pronoun type was used (*hans* instead of *sin*), leading to a locality violation.

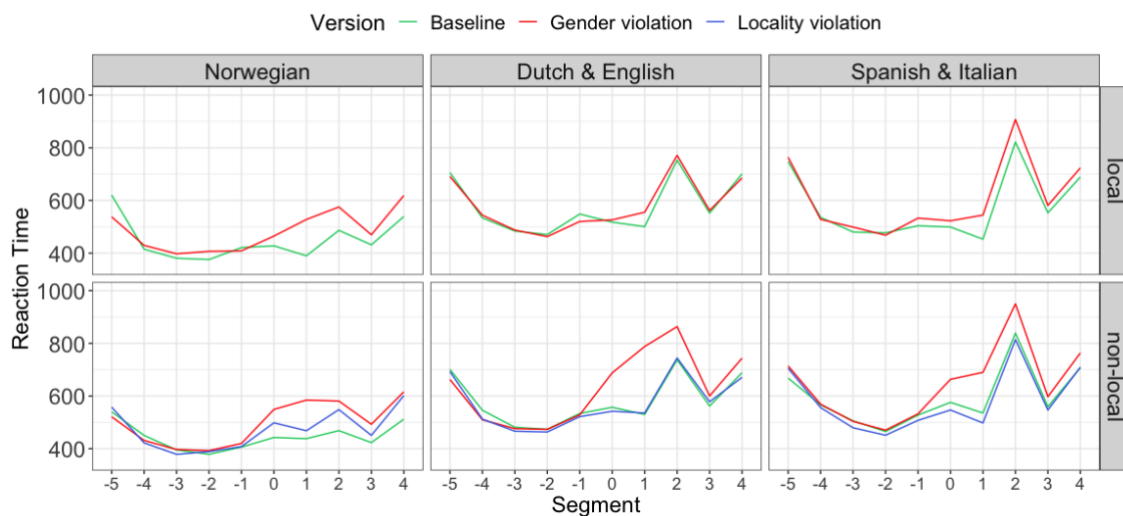
The participants carried out a speeded judgment task, a self-paced reading task items (7 per condition), a language background questionnaire, a numeric working memory task (N-back), a Norwegian and an English proficiency task and a metalinguistic task on possessives in both Norwegian and English. All tasks were carried out online using the experimental software platform Gorilla.

The results (figure 1) show that Norwegian native speakers slow down with gender violations in all conditions. All groups behave similarly in the locality violation (2b), which served as a control condition. Crucially, only L1 English and Dutch speakers show a stronger effect to gender violations in the non-local condition (2a) than in the local condition (1), which is likely an effect of influence from their L1. Proficiency in Norwegian was included as a covariate and was significant (p=0,01), while proficiency in English was not significant. The findings we will be discussed against the backdrop of current models of cross-linguistic influence and multilingual language processing.

**Examples** (Arrows indicate gender agreement relations)

1. *Local binding*  
**Emma** liker ikke å danse foran andre. Men hun danser med **mora/faren** **si**  
 Emma likes not to dance in front of others. But she dances with mother/father POS.F  
 på dansetimen hver tirsdag.  
 at dance class each Tuesday.  
 “Emma<sub>i</sub> doesn’t like to dance in front of others. But she<sub>i</sub> dances with her<sub>i</sub> mother/father at dance class each Tuesday.”
  
2. *Non-local binding*
  - a. Mia møter ikke **Lucas/Lucy** så ofte. Men hun møter **faren** **hans**  
 Mia meets not Lucas/lucy so often. But she meets father POS.M  
 på sykehuset hver mandag.  
 at the hospital every Monday.  
 “Mia<sub>i</sub> doesn’t meet Lucas<sub>j</sub>/Lucy<sub>j</sub> so often. But she meets his<sub>j</sub> father at the hospital every Monday.”
  - b. Lucas møter ikke **familie** så ofte. Men han møter **faren** **hans**  
 Lucas meets not family so often. But he meets father POS.M  
 på sykehuset hver mandag.  
 at the hospital every Monday.  
 “Lucas<sub>i</sub> doesn’t meet his family so often. But he<sub>i</sub> meets his<sub>i</sub> father at the hospital every Monday.”

**Figure 1:** Reaction time per segment by condition and group (0 = pronoun segment)



**References**

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