

Resolving Conflicts During Sentence Processing in L1 and L2: Eye-Tracking Evidence from Gender Stereotypes and Zero Plurals in German

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This eye-tracking study examined how L1 and L2 readers of German resolve two sources of processing difficulty: (1) conceptual–lexical conflict between gender stereotypes and masculine/feminine role nouns, and (2) formal–structural conflict induced by zero-marked plurals that are morphologically identical to singular forms. **Methods:** We recorded eye movements from 69 L1 readers and 70 advanced L2 readers whose L1 mirrored German's gender/number system (*mainly Czech; B2/C1 level*). Participants read 32 single-line sentences, plus fillers, in which the subject noun phrase systematically manipulated gender or number (controlled for length, frequency, familiarity). The **gender manipulation (1)** crossed role-noun bias (balanced vs. male-biased; based on pretests) with grammatical form (masculine vs. feminine), whereas the **number manipulation (2)** crossed plural morphology (overt vs. zero) with context (singular vs. plural). Regions of interest were the subject NP and, for number, the verb. We analyzed early processing (gaze duration) and later processing stages (regression probability, conditional rereading time) using (generalized) mixed-effects models. **Results** show a clear dissociation between the two conflict types. In the gender manipulation (Figure 1), L1 and L2 readers showed similar patterns: gaze durations were longer for suffixed feminine than for masculine forms and increased further for feminine forms of male-biased nouns, reflecting competition between conceptual bias and grammatical form. Regression probability did not increase, indicating early lexical resolution. Rereading times mirrored gaze durations. In the number manipulation (Figure 2), early gaze durations reflected surface properties: plural forms and overt plural morphology elicited longer first-pass times. Crucially, conflict effects emerged only in late measures and differed between L1 and L2 readers: regression probability increased for zero plurals in plural contexts, with stronger effects in L2 readers. In addition, L2 readers, but not L1 readers, exhibited longer rereading times for zero-marked forms. Further analyses revealed that L1 readers focused regressions on determiners, whereas L2 readers searched for number cues across the region; proficiency modulated these effects. **Conclusion:** Our data reveal a stage-specific dissociation. Conceptual–lexical conflict modulates early processing but does not propagate to later stages and shows no qualitative L1–L2 differences, consistent with cross-linguistic similarity in gender marking. In contrast, formal–structural conflict manifests itself in late measures and reveals robust L1–L2 differences, particularly when overt morphological cues are absent. Theoretical implications of these findings and directions for future research will be discussed.

Examples of the gender manipulation (masculine vs. feminine forms for balanced and male-biased role nouns) and the number manipulation (singular and plural contexts for overtly and zero-marked plurals). Regions of interest are highlighted in gray. Regions of interest are highlighted in gray.

Gender (1)		
balanced	<i>masc</i>	Der Kollege präsentiert unsere Ergebnisse beim Meeting. 'The colleague.MALE presents our results at the meeting.'
	<i>fem</i>	Die Kollegin präsentiert unsere Ergebnisse beim Meeting. 'The colleague.FEMALE presents our results at the meeting.'
biased	<i>masc</i>	Der Techniker protokolliert den Zustand der Maschinen. 'The technician.MALE documents the condition of the machines.'
	<i>fem</i>	Die Technikerin protokolliert den Zustand der Maschinen. 'The technician.FEMALE documents the condition of the machines.'
Number (2)		
overt	<i>sg</i>	Der Fotograf verdient das meiste Geld mit Bildern von Hochzeiten. 'The photographer earns most of his money from wedding pictures.'
	<i>pl</i>	Die Fotografen verdienen das meiste Geld mit Bildern von Hochzeiten. 'The photographers earn most of his money from wedding pictures.'
zero	<i>sg</i>	Der Lehrer erstellt die Übungen für den Unterricht. 'The teacher creates the exercises for the lesson.'
	<i>pl</i>	Die Lehrer erstellen die Übungen für den Unterricht. 'The teachers create the exercises for the lesson.'

Figure 1: Results Gender Manipulation

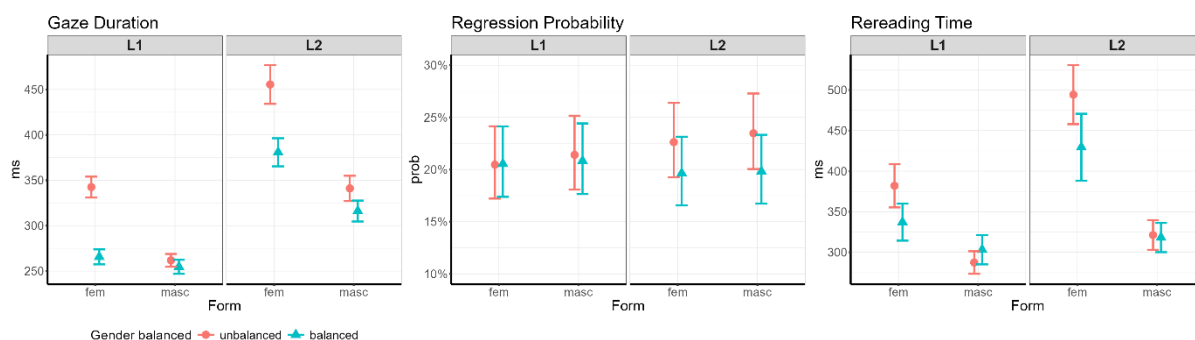


Figure 2: Results Number Manipulation

