

## Computation of number agreement in native and non-native speakers of German

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How similar are morphosyntactic computations in a native (L1) and a non-native language (L2)? We address this question by looking at agreement attraction errors, where speakers sometimes wrongly produce a plural verb when a singular subject phrase contains a plural attractor ("the smell of the stables are") [1]. In L1, agreement errors are strongly modulated by structural distance: for example, when a singular head noun is modified by two prepositional phrases (e.g. "the smell<sub>1</sub> of the stables<sub>2</sub> of the farmers<sub>3</sub>") errors occur more often with a plural second noun (hierarchically closer to the head) than with a plural third noun (hierarchically more distant from the head) [2]. This pattern has been taken to suggest that the structural distance between an attractor and a head noun affects attraction more than its linear distance to the verb. Here we investigate this claim for subject-verb agreement in German, using a design that allows us to distinguish structural and linear distance. Further, we examine whether the agreement errors of Russian speakers, a language that has similar agreement and case properties as German, show the same sensitivity to structural distance.

**Design.** We used a novel paradigm that shares aspects with both production and comprehension [3,4]. German natives ( $n=40$ ) and proficient Russian-German speakers ( $n=40$ ) read German sentence preambles in RSVP and then chose between plural and singular verbs (*ist* 'is' vs. *sind* 'are'). We manipulated the position of the plural attractor and the type of construction that modified the head noun. In the *embedded conditions*, 2<sup>nd</sup> nouns were hierarchically closer to the head noun than 3<sup>rd</sup> nouns. In the *coordinated conditions*, both nouns were hierarchically equidistant to the head noun. Based on previous results, we expected native speakers to show more difficulty computing correct (i.e. singular) subject-verb agreement with plural attractors in 2<sup>nd</sup> than in 3<sup>rd</sup> position, but only in the embedded conditions, where their linear positions corresponded to a difference in hierarchical distance. In contrast, if non-native speakers do not build fully specified syntactic representations online, the effect of noun position should either be absent or should not be modulated by the type of construction.

<i>Baseline.</i>	Der Geruch.nom.sg des Stalls.gen.sg des Landwirtsge.gen.sg	'The smell of the stable of the farmer'
<i>Embedded, 2 pl.</i>	Der Geruch.nom.sg <u>der Ställe</u> .gen.pl des Landwirts.gen.sg	'The smell of the <u>stables</u> of the farmer'
<i>Embedded, 3 pl.</i>	Der Geruch.nom.sg des Stalls.gen.sg <u>der Landwirte</u> .gen.pl	'The smell of the stable of the <u>farmers</u> '
<i>Coordinated, 2 pl.</i>	Der Geruch.nom.sg <u>der Ställe</u> .gen.pl <b>und</b> des Landwirts.gen.sg	'The smell of the <u>stables</u> <b>and</b> the farmer'
<i>Coordinated, 3 pl.</i>	Der Geruch.nom.sg des Stalls.gen.sg <b>und</b> <u>der Landwirte</u> .gen.pl	'The smell of the stable <b>and</b> the <u>farmers</u> '

**Results.** We analyzed the number of agreement errors and the latency of correct responses. Both L1 and L2 speakers made more errors when the sentence preambles contained plural nouns as compared with the baseline condition. However, native and non-native speakers differed in their decision latencies. For L1 speakers, plural nouns in 2<sup>nd</sup> position elicited longer decision times than plural nouns in 3<sup>rd</sup> position but only in the embedded conditions. However, L2 speakers' latencies did not show a difference between 2<sup>nd</sup> and 3<sup>rd</sup> plural nouns in either the embedded or coordinated conditions. These results suggest that although both native and non-native speakers made attraction errors, their decision times were differentially modulated by structural distance, consistent with the claim that native and non-native speakers compute agreement dependencies differently online [5].

**References:** [1] Bock & Miller (1991) *Cog. Psych.*; [2] Franck, Vigliocco, & Nicol (2002) *LCP*; [3] Staub (2009) *JML*; [4] Staub (2010), *Cognition*; [5] Clahsen & Felser (2006) *TiCS*.