

Agreement attraction in person: comprehension in Russian

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Agreement attraction effects in comprehension were first found in number (Nicol et al., 1997; Pearlmuter et al., 1999), and then in gender agreement (Slioussar & Malko, 2016; Tucker et al., 2015). Among these, many asymmetric effects were reported, as in Wagers et al. (2009, Expt. 3): within the ungrammatical conditions where the verb mismatches the subject in number, plural marking on a non-subject noun (the attractor) and on the verb facilitates reading of the verb, but singular marking does not. Wagers et al. (2009) suggested that facilitation occurs due to misretrieval of the attractor from memory, but this explanation is inconsistent with the observed asymmetry. Asymmetric attraction effects are traditionally attributed to feature markedness – only a marked member of the opposition can serve as an attractor. However, the current ACT-R implementation of the retrieval interference (Lewis & Vasishth, 2005) predicts a similar facilitation in ungrammatical sentences regardless of whether the attractor is singular or plural.

We tested whether the asymmetry would hold in the person domain, where 1st and 2nd person are proposed to dominate 3rd. We contrasted the predictions of the ACT-R model and the markedness account: while ACT-R predicts symmetric attraction effects, the feature markedness account predicts that both 1st and 2nd person should be stronger attractors than 3rd.

We conducted 3 self-paced reading experiments in Russian, each with a 2x2 design with the main factors of verb form (1st vs. 2nd, 2nd vs. 3rd, and 1st vs. 3rd person endings) and match/mismatch between the verb and the attractor. An example item from the experiment contrasting 1st and 2nd persons is given below (note that all conditions are ungrammatical):

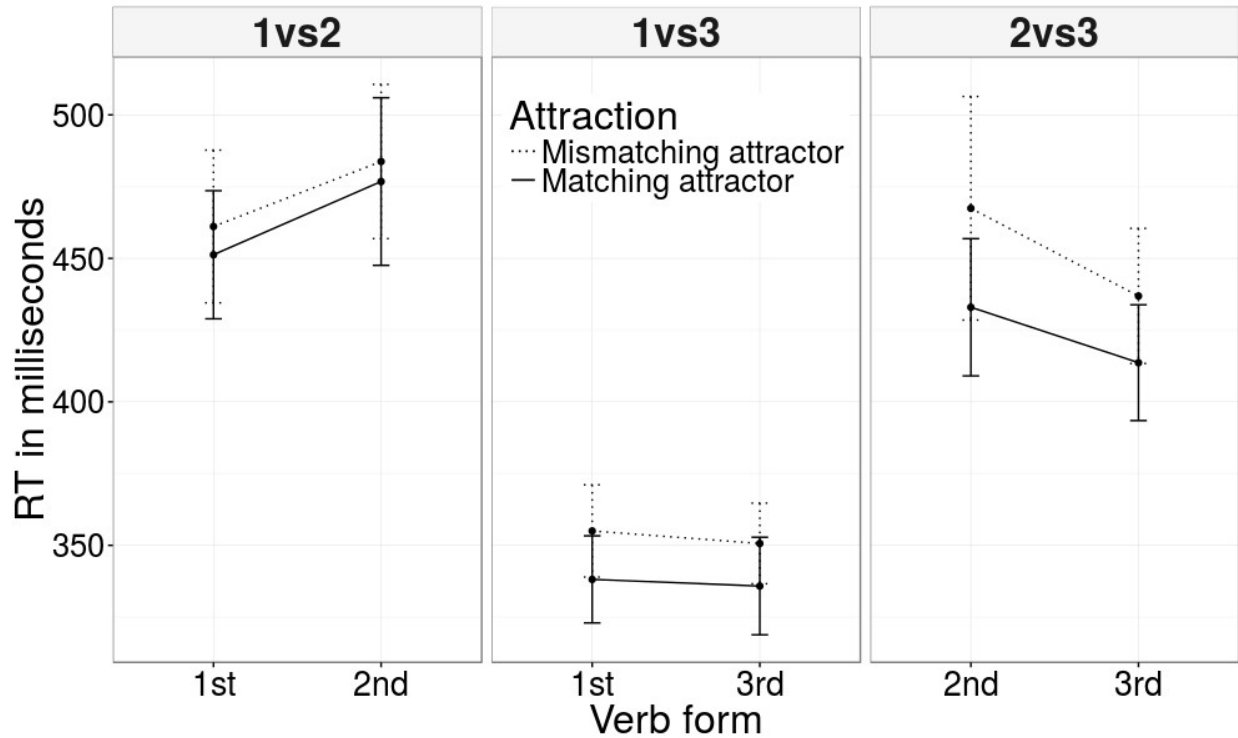
Ja, kak i **ty** / on, zavtra v bassein ne poj**desh** v takoj xolod.
I, just as you(match) / he(mismatch) tomorrow to the pool not go-2 in such a cold.
Ty, kak i **ja** / on, zavtra v bassein ne poj**du** v takoj xolod.
You, just as I (match)/ he(mismatch), tomorrow to the pool not go-1 in such a cold.

We expected to find a main effect of match (i.e., the agreement attraction effect – a speed-up in the match conditions), a main effect of person (a slow-down for longer verb forms), and an interaction between these if markedness indeed influences agreement attraction. The ACT-R model predicts no interaction.

There were 32 experimental items and 147 fillers in each experiment, 75% of all sentences were grammatical. Participants were asked comprehension questions for 1/3 of the sentences. 60 individuals participated in each of the experiments comparing 1st vs. 2nd and 2nd vs. 3rd person, conducted in a laboratory setting. The data for the experiment comparing 1st and 3rd person was collected on the internet using Ibexfarm, and we increased the number of participants to 107 to compensate for higher variance associated with online data collection.

In the experiments comparing 1st and 3rd as well as 2nd and 3rd person, we found a speed-up in the match conditions in the verb region and the region following the verb, respectively (in log milliseconds: *Est.* = -.013, *SE* = .007, *t* = -2.00, and *Est.* = -.015, *SE* = .007, *t* = -2.27). In the experiment comparing 1st and 2nd person no speedup due to agreement attraction was found (*Est.* = -.007, *SE* = .01, *t* = -0.65).

The results of the experiments comparing 1st and 3rd as well as 2nd and 3rd person are consistent with the predictions of ACT-R: we found a speed-up in the ungrammatical conditions where the distractor matched the person marking on the verb, there was no evidence that this speed-up was influenced by the value of the person feature (no evidence of markedness). However, in the experiment comparing 1st and 2nd person, we found no facilitation due to a matching distractor, and the overall pattern of results cannot be explained by the current version of the ACT-R model. The predictions of the markedness account were also not borne out, since we do not observe differences in attraction effects between 1st and 2nd versus 3rd person.



Literature:

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