Pronouns attract in number but (much) less so in person. Evidence from Romanian.

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Agreement attraction happens when a verb erroneously agrees with an intervening _distractor_ instead of the **target** (*_The_ **key** _to the_ _cabinets_ _are on the table_) [1]. Attraction has been widely observed in number and gender features [e.g., 2], it is less clear whether agreement attraction can also occur with person features, like 1st (_I, we_) and 2nd person (_you_). Previous research [3] concluded on the basis of a self-paced reading task that (1st, 2nd and 3rd person) pronouns in Russian lead to a person agreement attraction effect (though small in size) but did not examine the size of the effect in comparison to number. The current study investigates number and person attraction comparatively. We provide evidence on the basis of two 2 forced-choice experiments in Romanian that person features cause less attraction than number features.

Existing theories of agreement attraction do not explicitly consider person features. However, cue-based retrieval theories of agreement attraction [4, 6, 7] may suggest that interference should not be limited to particular features; this would imply that person features should create attraction through interference just like number or gender features. On the other hand, so-called 'representational' theories of agreement attraction [8] do not so clearly predict attraction with person features. Unlike number, 1st and 2nd person can neither percolate to the head noun, nor contribute to (the person of) the resulting complex DP featurally, as there are no lexical nouns with 1st or 2nd person features in Romanian (or in any other language that we know of).

In **Experiment 1** (N=62 Romanian speakers), a speeded forced choice continuation task [9], we sought to first establish whether **3rd person pronouns** can create number agreement attraction in Romanian by comparing them with two other types of distractors: **bare Ns** (the only form in which simple nouns can occur after prepositions in Romanian) and **full DP intervenors** (i.e., Det-Noun-Adj). Participants had to choose between a 3rd singular and a 3rd plural verbal form. **Materials**: There were 24 items with 6 conditions (see Table 1): MATCH (Match/ Mismatch) x INTERVENOR TYPE (Bare N/ Full DP/Pronoun). These were combined with 72 fillers. **Results** (see Table 2 & Fig 1). We ran a parsimonious mixed-effects logistic regression with accuracy as a dependent variable. In the (mis)match conditions, there were fewer errors with bare Ns and 3rd person pronouns than with full DP intervenors. This suggests that bare Ns and pronouns may not be ideal attractors: bare Ns are not subject-like, being typically used as non-referring Ns [10, 11, 12], and pronouns differ from full DPs through their lack of specified lexical context [13].

Having established that pronoun intervenors attract in number (to a certain extent), we further tested **person and number attraction** in **Experiment 2** (N=51) another speeded forced choice continuation task. **Materials**: There were 24 items with 4 conditions (see Table 3): MATCH (Match/ Mismatch) x PERSON (1/2 or 3). These were combined with 72 fillers. **Results** (see Table 4 & Fig 2). We ran a parsimonious mixed-effects logistic regression with accuracy as a dependent variable. Contrary to [3], we found that 1st and 2nd person pronouns behaved differently (i.e., led to significantly fewer errors) than 3rd person pronouns.

We conclude that (a) (3rd person) pronoun intervenors do allow number attraction, though less so than full DPs, (b) (1st and 2nd) pronoun intervenors create significantly less attraction than 3rd person pronouns; in the present experiment, we observed no reliable person attraction at all. Our results are easily explained by representational accounts of attraction, while cue-based theories would require further modifications to allow retrieval processes to distinguish between interference from person and number features. Our results dovetail with the widely observed asymmetry between 1st/2nd and 3rd person pronouns [14-18, a.o.] and the Feature Hierarchy Hypothesis [19], according to which Person is cognitively more significant than Number. In an agreement attraction context, it seems that the more salient a feature is, the more accurate people are.

Experiment 1 (Num attraction with 3rd Pron, Ns, DPs)   Table 1. Example items per conditions

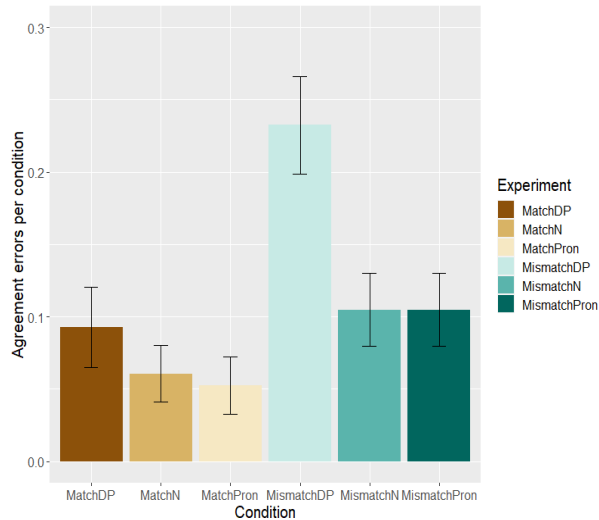| Conditions	Example sentences
Match/ Mismatch x Bare Noun/Full DP/3rd Person Pronoun Intervenor	Pisica/Pisicile de lângă fete/ fetele brunete/ ei adesea au /are Cat-the/ Cats-the near girl/ girls.the brunette/ they often have.3pl/have.3sg

Figure 1. Agreement errors per condition (Experiment 1)

Table 2. Results of a generalized linear mixed effects model (Experiment 1)

Parameter	Estimate	Std. error	z	p
Intercept	-3.195	0.289	-11.056	<2e-16***
IntervenorA (N&Pron vs Full DP)	-0.323	0.106	-3.042	0.00235**
Matching	-1.227	0.349	-3.509	0.00045***
IntervenorB (Pron vs N)	-0.048	0.147	-0.327	0.744
IntervenorA:Matching	0.224	0.174	1.291	0.197
Matching:IntervenorB	-0.089	0.351	-0.254	0.799

Helmert coding schemes:
Intervenor A (N&Pron vs Full DP): N=1, Pron=1, Full DP=-2
Intervenor B (Pron vs N): Noun=1, Pron=-1, Full DP=0

Experiment 2 (Num & Person Attraction with Pron)   Table 3. Example items per conditions

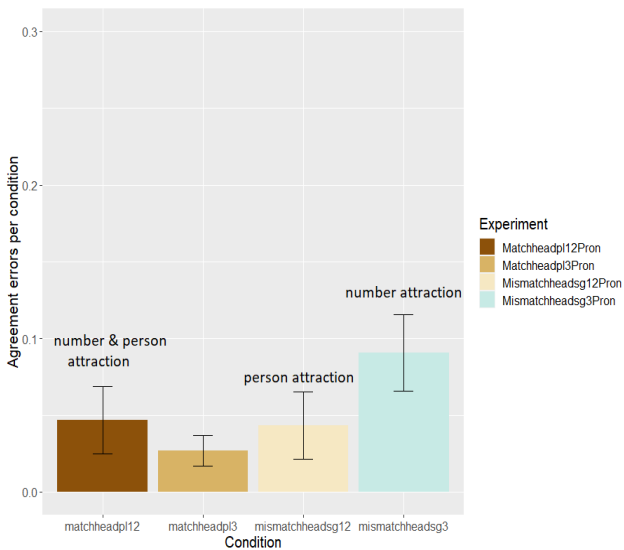| Conditions	Example sentences
Number (Mis)match x 1st/2nd PL OR 3rd PL Pron Interv	Pisica/Pisicile de lângă noi/voi/ei adesea avem/aveți/au /are Cat-the/Cats near we/you/they often have.1pl/2pl/3pl/3sg

Figure 2. Agreement errors per condition (Experiment 2)

Table 4. Results of a generalized linear mixed effects model (Experiment 2)

Parameter	Estimate	Std. error	z	p
Intercept	-4.296	0.443	-9.710	< 2e-16 ***
Intervenor	-0.615	0.505	-1.217	0.224
Matching	-0.644	0.399	-1.613	0.107
Intervenor:Matching	1.664	0.701	2.375	0.0176

References: [1] Bock & Miller, 1991. *Cognitive Psychology* [2] Slioussar & Malko, 2016. *Frontiers in Psychology*. [3] Laurinavichyute & Vasishth. 2016. Agreement attraction in Person is symmetric. Poster CUNY. [4] Badeker & Kuminiak, 2007. *JML* [5] Slioussar, 2018. *JML* [6] Dillon et al., 2013. *JML*. [7] Wagers et al., 2009. *JML* [8] Eberhard et al., 2005. *Psychol. Rev.* [9] Staub, 2009. *JML* [10] Chierchia, 1998. *Natural Language Semantics.* [11] Dobrovie-Sorin. 2013. In *A Reference Grammar of Romanian.* [12] Tănase-Dogaru. 2014. *BWLP*. [13] Ritter, 2008. *NLLT*. [14] Silverstein, 1985. In *Features and Projections.* [15] Harley & Ritter, 2002. *Language* [16] Nevins, 2007. *NLLT*. [17] Mancini et al., 2011. *Brain Research* [18] Mancini et al., 2014. *Lingua*. [19] Carminati, 2005. *Lingua.*