

Attraction is Subject-ive: Dissociating Illusions and Intrusions in Agreement Attraction

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The *agreement attraction effect* is the perceived acceptability of a verb agreement error in the presence of a feature-matching attractor (**The **key**_[SG] to the cabinets_[PL] **are**_[PL] on the table*) (Bock & Miller 1991; Bock & Cutting 1992). Wagers *et al* (2009) propose that comprehenders initially predict a verb, given the features of the subject. If the verb mismatches the predicted form, then a cue-based retrieval is triggered to find a licensing NP (McElree *et al* 2003; Lewis & Vasishth 2005). Thus, the "grammatical illusion" is caused by misretrieval of the interfering NP that partially matches the retrieval cues. Although attention has been paid to retrieval cues (e.g., Dillon *et al* 2013; Lago *et al* 2015; Schlueter *et al* 2018), less attention has been paid to the nature of representations in agreement attraction (see Franck *et al* 2006).

I examine the processing of agreement errors for sentences with clausal subjects. Clausal subjects are unspecified for number, which triggers default singular verb agreement, unlike NP subjects (McCloskey, 1991). In Experiment 1, I show that sentences in which an NP subject contains an attractor are improved ([_{NP} *The **rumor**_[SG] [_{CLAUSE} *that the environmentalists_[PL] protested while getting sunburnt]*] **were**_[PL]...), indicating agreement attraction. However, this is not the case for sentences with clausal subjects containing attractors ([_{CLAUSE} *That the environmentalists_[PL] protested while getting sunburnt]* **were**_[PL]...). This is because the comprehender expected to form an agreement relation between a NP and the verb in the NP subject condition, but not the clausal subject condition, meaning that a plural NP can only induce a grammatical illusion in the first case.*

Experiment 1: Experiment 1 ($N = 60$) was a binary speeded acceptability judgment task with a 300ms RSVP. We manipulated Subject Category (Clause/NP) and Grammaticality (Grammatical/Attraction/Ungrammatical), in a 2x3 Latin Square design (18 items; 24 fillers; Table 1). In a logit mixed effects model, there was a main effect of Grammaticality ($\beta = 3.17$, $SE = 0.62$, $z = 5.1$, $p < 0.001$), Subject Category ($\beta = 1.09$, $SE = 0.34$, $z = 3.2$, $p = 0.001$), and a marginal interaction ($\beta = -0.78$, $SE = 0.42$, $z = -1.89$, $p = 0.06$). Pairwise comparisons revealed that ratings for the NP,Attraction conditions were higher than the NP,Ungrammatical condition, but not for the Clause,Attraction and Clause,Ungrammatical conditions ($\beta = 0.66$, $SE = 0.29$, $z = 2.31$, $p = 0.05$; $\beta = -0.12$, $SE = 0.36$, $z = -0.35$, $p = 0.93$). Agreement attraction is observed only for attractors in NP subjects.

Experiment 2: Experiment 2 ($N = 40$) used a word-by-word self-paced reading task with the same items, to determine whether there was an intrusion effect. A mixed effects model fitted on preliminary results showed that, in the spillover region after the critical verb (*actually*), there was a main effect of Grammaticality raising log RTs for Ungrammatical conditions ($\beta = 0.08$, $SE = 0.04$, $t(581) = 2.27$, $p = 0.02$), but no other effects. Pairwise comparisons revealed no difference between the Attraction and Grammatical conditions (all $ps > 0.05$), implying an illusion effect.

To account for this discrepancy between intrusion and illusion effects, I propose that comprehenders encode the nature of the agreement dependency between the subject and verb. If a formal NP-V relation is predicted, then misretrieval of the attractor ameliorates the unacceptability, because an agreement relation can be constructed with the misretrieved NP. With clausal subjects, the comprehender does not attempt to create an NP-V agreement relation, and thus misretrieving an NP does not increase acceptability.

Table 1: Materials for Experiments 1 and 2; **Critical regions;** spillover region.

<u>Clause/NP</u>	<u>Grammatical/Ungrammatical/Attraction</u>				
(The rumor) that the	environmentalist environmentalist environmentalists	protested while getting sunburnt	was were were	<u>actually</u> slightly amusing to the oil mogul	

Figure 1: Mean proportion acceptance by condition in Experiment 1

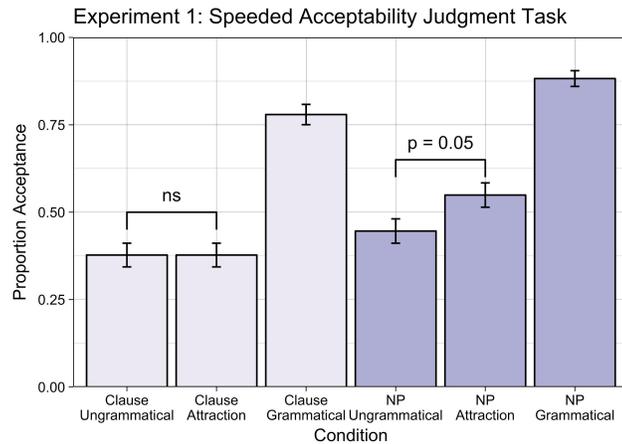
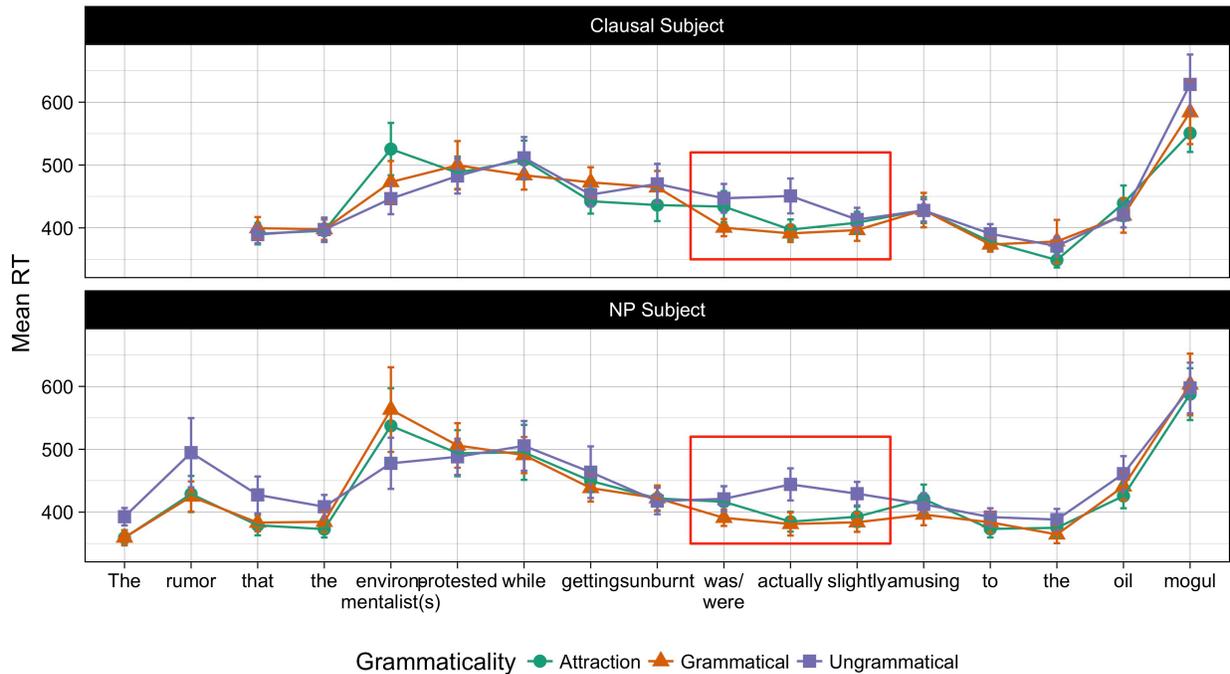


Figure 2. Word-by-word log mean reading times per condition in Experiment 2.

Results from Experiment 2



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