

### Cue-based retrieval interference during ellipsis: ERP evidence

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Ongoing comprehension requires access to products of past processing. Consequently, understanding how the 'right' representations are retrieved from memory and what variables affect this process is fundamental for any theory of language. Under cue-based retrieval accounts, retrieval is subject to interference because it occurs by content – that of the antecedent *and* the retrieval cues [1-3]. But how does “other information,” especially between the words that form the dependency, modulate processing of the retrieval cues themselves? One way to test this is to manipulate how *diagnostic* a cue is to a unique antecedent in memory, or *cue-diagnosticsity* – the relative degree of match between cues and the antecedent versus other items in memory [2,4].

We asked if the syntactic structure of information in memory at the point of retrieval affects measures of retrieval interference (RI) in a gender-agreement attractor paradigm. We observed the online processing of noun-phrase ellipsis (NPE; see Table), where antecedents must be retrieved and interpreted in a new sentence position. In Spanish, the determiner *otro/a* can head elided NPs and must agree with the NP [5]. We recorded ERPs while participants ( $n=29$ ) read NPE sentences (see Table; 120 items, 60 unelided fillers); between the antecedent and the retrieval site was an object-extracted relative clause (RC) (cf.[4]). The determiner ('otra'/'otro') correctly or incorrectly agreed with the antecedent ('la camiseta') and occurred in the context of a matching/mismatching local agreement attractor ('la falda'/'el vestido'). The attractor was never a licit antecedent. Importantly, and in contrast to [4], antecedent had the same syntactic role in every clause - that of object.

Critical words (CW) elicited a sustained anterior negativity (Incorrect–Correct) between 100-500msec that was modulated by the attractor. A repeated-measures ANOVA showed a Cue (correct, incorrect) x Attractor (same, different) x Anteriority (anterior, posterior) 3-way interaction. Follow-up analysis on CW Anterior channels revealed an interaction between Cue and Attractor ( $F(1,28) = 4.63, p < .05$ ) in this time window, whereby the Correct conditions differed (A more negative than B) and the Attractor-different conditions differed (D more negative than B). The following word (FW) elicited a posterior positivity between 700-900msec (Incorrect-Correct; P600-like effect), also modulated by the attractor. Another Cue x Attractor x Anteriority interaction was found. Follow-up analysis on FW Posterior channels showed an interaction between Cue and Attractor ( $F(1,28) = 4.81, p < .05$ ) and a main effect of Cue ( $F(1,28) = 23.08, p < .001$ ) in this time window; the Correct conditions differed (B more positive than A), and the Attractor-same conditions differed (C more positive than A).

This pattern provides further evidence that RI occurs under grammatical circumstances and that gender-agreement and structural information form a composite retrieval cue, affecting how diagnostic a cue is to its target. In contrast to [4], where the antecedent had different syntactic roles in the RC and elided clause, RI from decreased cue-diagnosticsity manifested as interactions on the CW and FW. We take this to suggest that structural aspects of the current contents of memory determine what 'counts' as diagnostic and therefore modulate the ERP signature of RI.

Condition	Sentence
A. Correct cue, Attractor-same / C.*Incorrect cue, Attractor-same	Marta se compró la <b>camiseta</b> con la que la <u>falda</u> iba bien _y Miren cogió <b>otra/*otro</b> [...] para salir de fiesta. <i>Marta bought the t-shirt that the skirt went well with and Miren took another to go to the party.</i>
B. Correct cue, Attractor-different / D.*Incorrect cue, Attractor-different	Marta se compró la <b>camiseta</b> con la que el <u>jersey</u> iba bien _y Miren cogió <b>otra/*otro</b> [...] para salir de fiesta. <i>Marta bought the t-shirt that the sweater went well with and Miren took another to go to the party.</i>

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