Coherence illusions in discourse processing: eye-tracking and acceptability studies on presupposition resolution with 'again'

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Background: Language processing frequently requires the resolution of dependency relations between different linguistic items. Memory research has primarily focused on syntactic dependencies, where matching distractors can elicit "grammaticality illusions" and facilitate the processing of ungrammatical structures (Wagers *et al.*, 2009; Phillips *et al.*, 2011). Both misrepresentation accounts, e.g., Marking and Morphing (Eberhard *et al.*, 2005), and misretrieval accounts, e.g., Cue-Based Retrieval (Lewis and Vasishth, 2005), predict this facilitatory effect in ungrammatical contexts; however, they diverge in their predictions for grammatical contexts. To date, the empirical evidence for these grammatical contexts remain weak or inconsistent. Moreover, little is known about interference effects beyond the syntax domain. To address this gap, our study investigates whether interference effects and "coherence illusions", comparable to those found in syntax, arise during dependency resolution at the discourse level. In particular, we focus on presupposition resolution triggered by 'again', following recent research on presuppositions with 'too' (Schmitz *et al.*, 2025).
Method: We conducted two eye-tracking studies, along with acceptability studies for each, on short Dutch discourses. Each discourse described two events that could either match or mismatch the presupposition of 'again'; one of them (distractor) appeared in the scope of negation (EX1) or linked to a different discourse referent (EX2) making that event inappropriate for resolution.
Results & Discussion: Bayesian analyses of both eye-tracking data and offline acceptability revealed that when the target mismatched (incoherent discourse), matching distractors facilitated processing and increased acceptability. These results are in line with predictions from both Marking and Morphing and Cue-Based Retrieval and favor the notion of 'coherence illusions' in discourse. In target-match (coherent) conditions, the pattern is more complex: both studies showed a similar speed-up effect of matching distractors. This favors the MM account, although it would have to be generalized to discourse structures. The offline acceptability data aligned mostly with CBR, though comprehension data (EX2) suggest that stylistic preference may have been a confound. Critically, both eye-tracking experiments revealed a novel negative interaction in regression measures: readers regressed more whenever only the target or only the distractor matched the presupposition, regardless of coherence. Speeded acceptability and comprehension data of EX2 further suggested that facilitation effects were driven by trials where readers confused discourse referents. We interpret this as evidence for failed binding in memory: when two events share features but differ in referent or polarity, readers lose track, triggering confusion.
Conclusion: Our results demonstrate that discourse-level representations are susceptible to interference effects, coherence illusions, and the binding problem. Moreover, we show that presupposition resolution is a productive domain for studying memory in language and that discourse processing can be used as a means to advance memory models beyond syntax.

References

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