"Demanding an Explanation: Implicit Causality Biases in Discourse Interpretation"

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3. Using coherence to moderate next-mention biases

We generalize Rohde, Kehler, & Elman’s (2007) pronoun model to next-mention: Biases towards upcoming coherence relations (CRs) combine with biases for which event participant will be mentioned again, conditioned on coherence

\[ P(\text{next mention} = \text{referent}) = \underbrace{P(CR=\text{Explanation})} \times P(\text{next mention} = \text{referent}|CR) \]

4. Story continuation experiment

**2 x 3 design:** verb type (IC vs. Non-IC) x continuation type (full stop vs. because vs. dialog prompt – dialog results not discussed here)

**Task:** construct natural continuation to context sentence and prompt

**Materials:** 40 IC verbs (20 IC-1, 20 IC-2) and 40 Non-IC verbs

**Evaluation:** judges annotated for next mention & coherence relation

8. Non-IC Results

Again, next-mention biases statistically indistinguishable when only Explanations are considered ‘because’ (or freely generated) \( F(1,61)<1, p<0.982; F(1,38)=1.4598, p<0.2348. \)

9. A new IC bias

IC verbs create an expectation regarding the direction the discourse is likely to take – specifically a bias towards an upcoming Explanation

Findings for full stop prompt: IC verbs yield more Explanation continuations than do Non-IC verbs

10. Conclusions

Like Rohde et al.’s results, overall statistics conceal a consistent system of stronger biases once coherence relations are conditioned on.

In contrast to previous results:

- Connective alone does not affect referent salience – mediated by coherence
- There are actually two strong biases that differentiate IC and Non-IC verbs: \( P(\text{CR=Explanation}) \) is high for IC-1 and IC-2
- \( P(\text{next mention} = \text{NP1} | \text{because}) \) is high for IC-1 and low for IC-2
- The presence of a second bias had gone unnoticed because previous studies had not categorized their data by coherence.

References

As, T. K. (1994) A verb is worth a thousand words: The causes and consequences of interpersonal events implicit in language. Journal of Memory and Language 30:1, 99–120.


References

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**Materials:** 40 IC verbs (20 IC-1, 20 IC-2) and 40 Non-IC verbs

**Evaluation:** judges annotated for next mention & coherence relation

**Prompt:** because

\[ p(\text{next mention} = \text{NP1} | \text{because}) = p(\text{next mention}=\text{NP1} | \text{Explanation}) \]

**Prompt:** full stop

\[ p(\text{next mention} = \text{NP1} | \text{because}) = p(\text{next mention}=\text{NP1} | \text{Explanation}) \]

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