The mechanics of implicit verb causality
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Previous research
- Implicit causality (IC): preference for pronominal reference ([1]):
  - NP1-bias: Mary (NP1) fascinated Peter (NP2) because...
  - NP2-bias: Mary (NP1) despaired Peter (NP2) because...
- Early effects (e.g., [2], [3]) suggest that IC bias is triggered by verb semantics
- The semantic nature of the bias is poorly understood: mere correlations between bias and argument structure/verb classes (e.g., [4]).
- How can IC bias be explained?

Methods
- Four discourse continuation experiments in German:
  - NP1 VERB-ed NP2 a) because / b). (‘full stop’)
  - participants were able to opt out from continuing discourses
- We annotated
  - IC bias
  - whether continuations after a full stop were explanations
  - explanation type (simple cause, external reason, internal reason)

Experiment 1A+1B: The precise nature of causal elaboration alternatives (N=52, 12+12 items)

How does the bias depend on what is preferably explained?
- We tested the effects of specifying preferred explanations in the prompt

Experiment 1A
- Stimulus arguments are placeholders for unspecified properties. They constitute simple causes of mental states in experiencers:
  - X impressed Y because . . . = It impressed Y that X . . .
    - (1) Mary impressed Peter a) because / b) . (‘full stop’)
    - Mary impressed Peter with her aggressive play a) because / b) .

Experiment 1B
- because clauses may specify presuppositions: external reasons with NP2-association
  - (3) Sarah congratulated Martin a) because / b) .
  - (4) Sarah congratulated Martin on the brilliant victory a) because / b) .

Predictions
- The specification of a preferred explanation should lead to:
  - an overall reduction of explanations in ‘full stop’ conditions
  - a reduced proportion of the preferred explanation type in the continuations:
    - Exp. 1A: fewer simple causes (SC); Exp. 1B: fewer external reasons (ER)
  - a shift in bias away from the associated argument:
    - Exp. 1A: NP1→NP2, Exp. 1B: NP2→NP1

Experiment 2: Semantic restrictions of ‘because’ (N=36, 20 stim.-exp. items + 20 agent-patient items)

How does because influence explanation and bias profiles?
- because cannot specify SCs with causative agent-patient verbs (contra [4]):
  - #Emma killed Paul because she stabbed him in the back
- stim.-exp.: Emma charmed Paul a) with/ by / b) because
- agent-patient: Emma killed Paul a) with/ by / b) because

Predictions
- Being causative, both verb classes should allow by/with to specify SCs
- With because, stim.-exp. verbs should trigger SCs with NP1 bias (Exp. 1A)
- Agent-patient verbs allow only IRs (NP1 bias) or ERs (NP2 bias): balanced bias

Experiment 3: Disambiguating ambiguous stimulus-experiencer/agent-patient verbs (N=52, 24 items)

How does disambiguating ambiguous stim.-exp./agent-patient verbs alter explanation and bias profiles?
- unintentionally allows only for stimulus-experiencer readings ([7])
- intentionally allows only for agent-patient readings ([7])
- Mary disturbed Peter a) because / b) intentionally because / c) unintentionally because

Predictions
- intentionally allows only ERs and IRs. IRs are NP1-associated: no change in bias
- unintentionally triggers more SCs: strengthened NP1 bias

Implications for online processing
- Verbs with unspecified content lead to expectations about upcoming explanations (‘focussing’), others do not, regardless of their IC bias
- An unexpected explanation can still be easy to integrate!
  - Sarah congratulated Martin because she was impressed that he won the race.

References:

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