Gender mismatch and possession type effects on interpretation of VP ellipsis
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1. Introduction
• Two mechanisms for pronoun interpretation (e.g. [4,9,10]):
  ○ Semantic-level binding or discourse-level coreference
• Applied to ambiguous VP ellipsis:
  (1) Mary drove her car, and Lisa did [...]. too.
  ○ Variable binding:
    "Mary drove Mary’s car, and Lisa drove Lisa’s car, too." Mary [λx(x’s car)] & Lisa [λx(x’s car)]
  ○ Coreference:
    "Mary drove Mary’s car, and Lisa drove Mary’s car, too." Mary [λx(x’s car)] & Lisa [λx(x’s car)]

• What guides the resolution of the ambiguity in utterances like (1)?
  ○ Baseline/inmate bound variable ("BV") preference
  ○ Convergent experimental evidence from children (e.g. [2]), aphasic patients (e.g., [13]), and unimpaired adults (e.g. [3,6])
  ○ Operations at semantic level (i.e. variable binding) are less costly than operations at discourse level (i.e. coreference) [10]
  ○ Lexical semantics of verb and possessed noun
  ○ Self/other-directedness [2], implicit causality [8] of the verb
  ○ Animacy of the possessed noun [1, Storbeck & Kaiser, 2018]

• Storbeck & Kaiser (2018) investigated how possession type modulates BV bias
  ○ Tested four possession types in forced-choice ellipsis interpretation task
    Part-whole (e.g. nose, feelings), [-animate]
    Ownership (e.g. jacket, newspaper), [+animate]
    Relational (e.g. opponent, colleague), [−animate]
    Kinship (e.g. father, aunt), [+animate]

2. Research Questions
• Discourse-based model makes explicit, testable prediction
  o If we eliminate the opportunity for independent discourse representation, BV interpretation should be the only available parse
  o We can test this with quantified noun phrases ("QuNPs", e.g. every x)
    QuNPs do not introduce discourse reference [9]
• Research question 1: Are model predictions born out with QuNPs?
  o (2a) Every woman drove her car, and Lisa did, too. (matrix-clause QuNP)
  ○ No opportunity for independent representation for the possessed noun
  ○ Model predicts coreference impossible for all possession types
  ○ Model predicts possession animacy effect should disappear
  o (2b) Mary drove her car, and every woman did, too. (elided-clause QuNP)
  ○ Processing of the matrix clause should be the same as in (1)
  ○ Model predicts possession animacy effect should persist

• Research question 2: What is the effect of gender mismatch on BV parses?
  o Does gender mismatch degrade BV interpretations [5,7,11]
  o Does degradation of BV parses occur even if QuNP rules out coreference
  o Does gender order interact with gender mismatch effects [5,7]
  o Does gender order interact with gender mismatch effects [5,7]

• What is the effect of gender mismatch on BV parses?

3. Experiments 1-4: Methods
• Our discourse-based model: possessed nouns differ in the (in)dependence of their discourse representations
  o Animacy predicts discourse (in)dependence
  o Animacy possession → independent discourse status
  o Inanimate possession → dependent discourse status

• Dependence of representation affects ambiguity resolution
  ○ Independent discourse status → coreference more likely
  ○ Dependent discourse status → variable binding more likely

4. Experiments 1-4: Results
• Exps. 1 & 3 (matrix-clause QuNP): strong BV bias in all conditions (all p<.001), no difference between animate and inanimate possession types (all p>.1)
• Exps. 2 & 4 (elided-clause QuNP): more BV responses with inanimates than animates (all p<.001), as in Storbeck & Kaiser (2018)
• Animacy effect disappears and persists where the model predicts
  ○ Concordant results in Exps. 1 & 3 go against "pragmatic inference" theory
  ○ Gender mismatch reduces BV responses with elided-clause QuNPs (Exp. 4, p<.001), but not with matrix-clause QuNPs (Exp. 3, p=.69)
  ○ No interaction between gender mismatch and order (p=.66)

5. General Discussion
• These studies support our discourse-based account of why animacy modulations preferences in resolving ambiguous VP ellipsis
  ○ Lack of an available independent discourse representation (due to matrix-clause QuNP) prohibits coreference → grammatical constraint?
  ○ Gender mismatch between overt and elided pronouns boosts coreference only where coreference is grammatical → processing constraint?
  ○ We attribute the gender-mismatch penalty to an integration conflict that arises when retrieving a memory representation of the antecedent VP which conflicts with the VP representation activated by the BV discourse representation
  ○ Fem.-masc. mismatch does not differ from masc.-fem. (contra [5,7])