Animacy and possession type guide interpretation of ambiguous VP ellipsis

Pronoun interpretation can occur via two mechanisms: discourse-level coreference or semantics-level binding (e.g. Heim, 1982; Reuland, 2001). These mechanisms yield different interpretations of the ellipsis in a sentence like (1) Bill washed his car, and John did [...] too. If the overt his represents Bill, this sentence can mean either that (1a) John washed his own car (semantic-level bound variable [*BV] → elided his = John) or (1b) John washed Bill’s car (discourse-level coreference [*CR] → elided his = Bill).

What guides selection of one interpretation over the other? Prior work suggests variable binding is preferred (e.g. Frazier & Clifton, 2000), as it operates purely on the semantic level and does not access discourse-level memory (Reuland, 2001). Lexical semantics also matter: self-directed verbs and inalienable possessions (e.g. scratch, her arm) elicit more BV interpretations than other-directed verbs and alienable possessions (e.g. move, his apple) (Foley et al., 2003). However, possessives also express relations such as kinship (e.g. her father) and other human associations (e.g. his boss). In many languages, different possessives require different morphosyntax (Haspelmath, 2017), suggesting these classes are cognitively distinct. Therefore, they could be processed differently, even when they share morphosyntax, as in English. While the relative ease of processing BV vs. CR interpretations is well-investigated, insufficient attention has been paid to how possession type modulates BV/CR preference.

We hypothesize that possession type influences BV/CR ambiguity resolution. We propose that possessed nouns differ in the extent to which they are processed as independent discourse referents vs. dependent on the discourse representations of their possessors, and that animacy is one factor modulating this distinction. In examples like (1), we suggest that animate possessions are more likely to receive independent status in the discourse (Dahl & Fraurud, 1996) and are consequently more available for coreference when the ellipsis is interpreted; in contrast, inanimates are less privileged, more likely to be dependent on their possessors’ discourse representations, and thus more likely to elicit BV interpretations.

Exp.1 tested how different possession relations modulate adult L1 English speakers’ BV/CR bias. We tested four possession types: inalienable (e.g. nose), ownership (e.g. bicycle), [animate] relational (e.g. opponent), and kinship (e.g. father). Inalienable and ownership nouns were inanimate; relational and kinship nouns were all animate and human. Target format is shown in Table 2. Below each target were two choices, representing BV (2a) and CR (2b) interpretations. Participants (n=48) were asked to select the answer they felt was most compatible with the meaning of the sentence. Nonsense verbs served to minimize effects of verb semantics on BV/CR preference (Foley et al., 2003; Ong & Brasoveanu, 2014).

Exp.1’s results (Fig.1) demonstrate that possession type influences BV/CR preference. Inalienable and ownership nouns elicited equally high rates of BV interpretation (77.5% and 73.6%; glmer, p=0.24). Inanimate conditions triggered more BV responses than either of the animate conditions (47.6% and 31.3%; p<0.001), reflecting an overarching effect of animacy. Further, relational nouns elicited more BV responses than kinship nouns (p<0.001), which we attribute to kin referents being more privileged/independent in discourse. Exp.2 replicated a strong BV bias for ownership nouns (80.2%); Exp.3 replicated lower and significantly different rates of BV interpretation for relational and kinship nouns (33.9% and 27.3%, p<0.01).

These results support our hypothesis about the role of animacy and possession type, but could BV/CR preference be determined simply based on real-world plausibility, e.g. in (1), the likelihood that John has his own car? We found no support for this theory in Exp.4, in which participants (n=28) rated “how likely an average person is to have” each of the nouns in Exp.1. Ratings of possession likelihood did not correlate with nouns’ BV bias (r=0.13, p=0.38, Fig.2). In sum, our results show that possession type strongly affects BV/CR preference, with inanimates eliciting more BV interpretations than [human] animates. We suggest that this pattern occurs at least in part because animates more readily receive independent representation in discourse, and this increased prominence makes them more likely to be available for coreference.
(1) Bill washed his car, and John did, too.

<table>
<thead>
<tr>
<th>Syntax/ Semantics</th>
<th>(1a) Bound variable</th>
<th>(1b) Coreference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill [λx(x washed x’s car)], and John did [λx(x washed x’s car)], too.</td>
<td>Bill [λx(x washed his_{Bill} car)], and John did [λx(x washed his_{Bill} car)], too.</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Bound variable and coreferential interpretations of the sentence “Bill washed his car, and John did, too.” at the syntax/semantics and discourse levels.

(2) [Name 1] [nonce verb in simple past] his/her [noun], and [Name 2] did, too.

e.g. Helen chabbed her jacket, and Amanda did, too.

<table>
<thead>
<tr>
<th>(2a) Bound variable</th>
<th>(2b) Coreference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amanda chabbed her own jacket.</td>
<td>Amanda chabbed Helen’s jacket.</td>
</tr>
</tbody>
</table>

Table 2. Example of target format in Experiment 1.