Human relationships matter: Discourse-level processing of nominal possessives
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Not all referents mentioned in a discourse are equally prominent/salient in our mental representations, e.g. animates are typically more prominent than inanimates [1,2]. Explaining why differences in prominence arise is a core task for theories of discourse representation and processing. However, prior work has neglected a frequent structure with potential to inform current theories: nominal possessives (e.g. Sam’s car, Sam’s doctor). Unlike simpler nominals (a car/doctor), nominal possessives reference two entities: a possessor (Sam) and a possession (car/doctor). We test three hypotheses about animate and inanimate possessions’ prominence.

H1: Animating referents are taken to be more prominent in discourse and memory, e.g. animates are more frequently pronominalized [3], mentioned earlier [4], and persist in memory more than inanimates [5]. According to the Animacy Hypothesis, animate possessions (Sam’s doctor) are more prominent in discourse than inanimate ones (Sam’s car) for the same reasons and to the same extent that simpler nominals exhibit animacy effects (a doctor vs. a car).

H2: Posessives are referentially and semantically more complex than simpler nominals, and increased representational complexity promotes accessibility in memory [6]. Additionally, possessives can be discourse-new or given [7], unlike simpler indefinites, and given referents tend to be more prominent [8] (we leave definites for future work). On this basis, we consider the Possessive Hypothesis: possessives are more prominent than simpler indefinite nominals.

H3: Work in social cognition and neuroscience associates interpersonal relationships and health [9,10]. Relatedly, evolutionary theories claim that better memory for animates arose from selection pressures to identify threats, mates, and social groups [11]. As animate possessions denote interpersonal relationships, we consider the Interaction Hypothesis: possessed animates are especially prominent in discourse, in excess of additive effects of animacy and possession.

Method: We used a sentence continuation task, which is commonly regarded to reflect the prominence of competing discourse referents [12]. Participants (n=40) wrote continuations to prompt sentences (24 targets, 32 fillers). Targets followed the frame: [name] [nonce verb] *his/her* [animate/inanimate]. (see Table 1). We manipulated two properties of the direct object: animacy (human role nouns vs. alienable objects) and possession (possessed vs. indefinite).

Analysis: Given prior claims that realization in subject position reflects prominence [12,13,14], we analyze how often the direct object from the prompt sentence is mentioned as the subject of the continuation. We also analyze how often the preceding object is mentioned anywhere in the continuation (see e.g. Centering Theory [15]), as a more holistic measure.

Predictions: The Animacy Hypothesis predicts that participants will mention animate objects more often than inanimates and that animacy effects in possessives will parallel those in indefinites; the Possessive Hypothesis predicts possessed objects will be mentioned more than indefinites. The Interaction Hypothesis predicts superadditive effects for possessed animates.

Results: Figure 1 shows mentions of the preceding direct object in subject position of continuations. Animate preceding objects are more likely than inanimates to be mentioned in subject position (glmer, p<.001), but, crucially, we also find an animacy:possession interaction (p=.04). A planned comparison shows that possessed animates are more likely than indefinite animates to be continuation subjects (p=.02). Possession’s special effect on animates is also demonstrated in the analysis of how often preceding objects are mentioned anywhere in continuations (see Figure 2). We again see an animacy:possession interaction (p<.01): possession boosts the likelihood of mention for animate objects, but not for inanimates. Pronominalization patterns (not shown here) reveal a strong subjecthood preference, supporting previous arguments for a dissociation between likelihood of mention and pronominalization [16].

These data support the Interaction Hypothesis: possessed animates are especially prominent, as measured by their likelihood of re-mention. Their privileged status in discourse may relate to non-linguistic theories on the importance of interpersonal relationships [9,10,11].
Table 1. Example targets by condition. Names and animate objects mismatched with respect to stereotypical gender (with gender order counterbalanced) to minimize referential ambiguity [17].

<table>
<thead>
<tr>
<th></th>
<th>Indefinite Animate</th>
<th>Possessive Animate</th>
<th>Indefinite Inanimate</th>
<th>Possessive Inanimate</th>
</tr>
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Continuation subject refers to preceding...
- Subject
- Object
- Other

Figure 1. Does the continuation’s subject refer back to the preceding subject, object, or something else? (outcomes are mutually exclusive; proportions within conditions sum to 1)

Continuation contains mention of preceding...
- Subject
- Object

Figure 2. Does the continuation mention the preceding subject or object in any position? (outcomes are not mutually exclusive; proportions within conditions do not sum to 1)

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