

The effects of context, animacy, and form on reference resolution in temporal adjuncts

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Adjunct control is the referential relation between the implicit “PRO” subject of a non-finite adjunct clause and its understood antecedent, as in (1). In recent years, it has been argued [1, 2] that adjunct control in temporal adjuncts may be either syntactic, with control by the matrix subject as in (1a), or non-syntactic, as in (1b). In contrast to previous assumptions [e.g. 3], even control by the object as in (2) is sometimes available for some speakers [4, 5].

- (1) a. The window_i broke [after PRO_i being hit with a rock].
b. The window broke [after PRO hitting it with a rock].
- (2) Hermione is looking after the birds. Hermione takes out the food. Ron tapped Hermione;
[while PRO_i feeding the owl].

Although object control is possible, subject control is often strongly preferred [1, 2, 5]. What factors lead readers to accept object-control interpretations that mismatch this structural bias? Janke and Bailey [5] had participants read stimuli such as (2) and asked them who performed the action in the adjunct clause (here, who fed the owl). Participants selected the object’s referent (Hermione) more often when the critical sentence was preceded by a context establishing that referent as a strong topic. This suggests that one possible factor leading to object-control interpretations is discourse prominence. However, because this study used only a forced-choice task, in reading (2), participants may have thought that Hermione was the most likely owl feeder, but that that sentence was an unnatural way to express that thought.

Landau [1] also argued that contextual support is needed for object control to be available in temporal adjuncts, but goes beyond prominence as a possible source of that support. He proposes a controller-worthiness scale in which there are three types of control available in temporal adjuncts: direct predication involving a syntactic dependency between the controller and PRO, logophoric control, which involves non-syntactic reference to a perspective-holder in the discourse, and topical control, which involves non-syntactic reference to an established topic. Although subject control can involve any of the three types of control, non-subjects are syntactically inaccessible to PRO, so only the non-syntactic control options are available. This leads non-subject control to be dispreferred compared to subject control. Furthermore, since inanimate objects cannot be perspective holders, they can only control PRO as weak topics. Landau therefore argues that non-subject control should be less acceptable by inanimate objects compared to animate ones.

This study addresses two main research questions: (i) given contextual support in the form of coherence either alone or in combination with prominence, how likely and acceptable are object-control interpretations; and (ii) what effect does animacy of the object have?

In three acceptability judgment experiments, participants read items such as (3). Coherence/prominence biased readers to expect reference to a single entity. Experiment 1 manipulated the form of the subject in the adjunct clause (PRO, pronoun matching the matrix subject in gender, or pronoun matching the matrix object), contextual bias (toward coreference with the subject or object), and animacy of the biased referent. Participants were asked to read each item and to indicate who performed the action in the adjunct clause using a 5-point scale from “definitely (matrix subject)” to “definitely (matrix object)”. They then gave acceptability ratings for each possible interpretation using a 5-point scale from “completely unnatural” to “completely natural”. Experiment 2 was identical to Experiment 1, except that prior context was not given. Experiment 3 used items that did not contain prior context or coherence biases. Responses were analyzed using linear mixed-effects models.

- (3) **Context:** Sergio is a big fan of Alyssa and has watched her soccer games since he was a kid. Although they’ve never met, Sergio recently got better tickets so he could get her attention for the first time.
- a. **Subject bias:** Sergio got Alyssa’s attention after {sitting/he sat/she sat} in a . . .
 - b. **Object bias:** Alyssa noticed Sergio after {sitting/she sat/he sat} in a front-row seat.

Results— In Experiment 1, when coherence and prominence biased toward coreference with the subject, PRO was interpreted the same as a subject-oriented pronoun both in terms of reference choice and acceptability judgments. When bias was toward the object, participants showed a significant preference for PRO to corefer with the object, albeit to a lesser extent than with object-oriented pronouns. Animacy had no effect on PRO items. These results confirm previous findings that although subject control given a supporting context is still rated the highest, object control is readily available in temporal adjuncts given a strongly-biasing context. Interestingly, pronouns also showed effects of coherence/prominence, even when contextual bias conflicted with gender. Participants appeared to be at least partially ignoring the gender on the pronoun or the use of pronouns in the prior context (perhaps assuming that there was a typo or some other error [6]) in favor of coherence.

The results of Experiment 2 were largely the same as in Experiment 1, but with unsurprisingly weaker biases in reference choice across both pronouns and PRO. However, despite the lack of a prominence bias from the discourse, when coherence biased toward object control interpretations, having PRO corefer with the object was still more acceptable than having a subject-oriented pronoun do so. In addition, animacy affected the interpretation of PRO in Experiment 2, although in the opposite direction to that predicted by Landau’s [1] controller worthiness scale: inanimate items received higher ratings for object control than animate items. This was likely due to many of the embedded verbs being more likely to take inanimate subjects (e.g. *melt*). In an exploratory analysis of just those items in which the embedded verb was compatible with both animate and inanimate subjects, animacy had no effect on object-control ratings.

In Experiment 3, even without a biasing context, object control of PRO was still sometimes available, and animacy of potential antecedents still had no effect on PRO’s interpretation.

Conclusion— The results confirm and extend the findings of Janke and Bailey [5]. Participants were more likely to allow object control in temporal adjuncts when that interpretation was favored by prominence and coherence. In fact, object control interpretations aligned with contextual biases were rated almost as highly as subject control interpretations. However, discourse prominence was not strictly necessary; coherence biases alone also led readers to accept object control, and it was even somewhat acceptable without a biasing context at all. In contrast with the predictions of the controller-worthiness scale proposed by Landau [1], we found no effect of animacy of the object on object control availability or acceptability. This suggests that non-syntactic object control may be available in temporal adjuncts whenever there is sufficient bias toward such an interpretation, regardless of animacy. This necessitates revisions to Landau’s theory or adoption of an alternative [5, 7].

References

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