

Experimental evidence of pragmatic plausibility and processing in acceptable Principle C violations

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INTRODUCTION: Binding Principle C (Chomsky 1981) has been taken to be a categorical constraint. However, Safir (2005) explains examples such as (1) by appealing to non-syntactic factors, arguing that while structural constraints rule out dependent identity relations in (1), the context adjusts pragmatic expectations of disjoint reading, resulting in an interpretation where the *coconstrual* is judged acceptable.

(1) Everyone has finally realized that Oscar is incompetent: his boss, his colleagues, even Oscar himself. **He_i** too has finally realized that **Oscar_i** is incompetent.

Gor & Syrett (2015) and Gor (2017) have further argued that coconstrual under Principle C violations is judged acceptable in subject (2a) (but not object (2b)) comparative constructions, because in the former, the comparative is introduced sentence-initially; requiring the processor to immediately evaluate comparative alternatives, consequently overshadowing the violation of binding constraints (cf. Grant et al. 2012; Wellwood et al. ms.).

(2) a. More people wanted **her_{i/j}** to go to Aspen...
 ...than [~~many people wanted **her_{i/j}** to go~~] to **Mary_i**'s hometown.
 b. The travel agent offered **her_{i/j}** a better deal than he offered **Mary_i** last year.

At the same time, Conroy et al. (2009), Kazanina et al. (2007), and Phillips (2013) have argued that Principle C is as a hard-and-fast initial filter, automatically ruling out antecedents in structurally illicit positions (in contrast to Principle B and forward anaphora). However, all of the backwards anaphora stimuli they considered had a pronoun as the first nominal element in the sentence, preceding all other intra-sentential R-expressions, which results in structural constraints being deployed early, immediately upon the pronoun encounter during incremental processing. Their sentences also lacked context.

Here, we target cases of Principle C violations in backwards anaphora, manipulating both context (coconstrual plausibility: Clifton 1993; Pickering and Traxler 1998) and pronominal position relative to other DPs in the sentence. We demonstrate that both factors influence acceptability of ungrammatical coconstrual relations, supporting Safir (2005) and highlighting the role of non-syntactic information and processing in the search for pronominal antecedents.

EXPERIMENT 1 (Norming Study): 25 native speakers of English gave judgments of coconstrual plausibility in forward anaphora baseline sentences.

Design. We targeted ditransitive and ECM predicates, since in both structures the matrix subject and the matrix object c-command a DP that follows. For each predicate, a triplet of test sentences was designed, varying in coconstrual plausibility and the structural position of the antecedent (Table 1).

Table 1. Sample triplets of test items for DTR predicate *give* and ECM predicate *allow*

	Target Item (N=45)	Plausibility of Coconstrual	Antecedent
DTR	(3) Emily_i gave Tommy her_{i/j} phone number.	high	subject
	(4) Mr. Barker gave Emily_i her_{i/j} report card.	high	object
	(5) Richard gave Emily_i her_{i/j} contact information.	low	object
ECM	(6) Emily_i allowed James to read her_{i/j} personal correspondence.	high	subject
	(7) Mr. Matthews allowed Emily_i to resubmit her_{i/j} paper.	high	object
	(8) Mr. Adams allowed Emily_i to borrow her_{i/j} notes.	low	object

Procedure and Results: Participants were asked to judge on a Likert scale (1 to 5) whether the possessive pronoun *her* referred to the sentence-internal antecedent *Emily* (items bolded in Table 1) or another person (*Pamela*). Triplets where all three sentences received average rankings nearing the edges of the distribution (< 2 and > 3.5) were transformed into stimuli for Experiment 2, where the pronoun and R-expression were reversed, yielding a Principle C violation (cf. (3)-(5) vs. (9)-(11)).

(9) **She_{i/j}** gave Tommy **Emily_i**'s_i phone number.
 (10) Mr. Barker gave **her_{i/j}** **Emily_i**'s_i report card.
 (11) Richard gave **her_{i/j}** **Emily_i**'s_i contact information.

EXPERIMENT 2 (Forced Choice Task): 31 native speakers of English read each target sentence and chose one of the two female referents for the pronoun (*Pamela* vs. sentence-internal *Emily*).

Results: As expected, target items with low-ranked potential coconstrual in the norming study, yielded a low percentage of sentence-internal referent chosen. By contrast, target items with highly-ranked potential coconstrual yielded percentages that were higher than predicted by the c-command relations in the grammar and experimental noise. The effect was concentrated to cases where the pronoun c-commanded the R-expression from the object position (Table 2). Binomial logistic regression model and pairwise comparisons revealed significant effects of plausibility, pronominal position, and Principle C violation status (all $p < 0.01$).

Table 2. Percentage choice of sentence-internal referent for target and control sentences in Experiment 2.

	Target Sentences (Principle C Violation) (N=33)		Controls (No Principle C Violation) (N=27)
	Pronominal Subject	Pronominal Object	
high plausibility	12.02%	30.79%	97.1%
low plausibility	<i>not included in design (rejection of coconstrual expected)</i>	2.93%	21.2%

DISCUSSION: Our experimental findings bear directly on theoretical work on coconstrual relations and argue in favor of approaches such as Safir (2005) by demonstrating that the licensing of coconstrual is not a purely structural phenomenon governed by dependency relations and binding. Particularly, we argue that licensing of coconstrual varies with pragmatic plausibility and is sensitive to processing effects.

We also provide an alternative explanation for the reported contrasts between Principle C and Principle B observed in both adult and acquisition studies (Conroy et al. 2009, Kazanina et al. 2007, and Phillips 2013). There, Principle C was analyzed as an *initial filter* such that comprehenders do not even try to link the pronouns to R-expression in their c-commanding domain, while Principle B acts as a *late filter* allowing for temporary consideration of ungrammatical antecedents. We propose that this distinction stems from the *position* of the pronoun relative other DPs in the sentence. When the pronoun is the first nominal element encountered, the parser is instantly required to search for the antecedent, activating Principle C constraints early. When instead a full DP occupies the subject position and the pronominal object follows, the search for the antecedent is launched later, allowing for contextual plausibility to build up, influencing pragmatic expectations of coconstrual and, as a result, yielding an interpretation where coconstrual is found acceptable.

REFERENCES. Chomsky, N. 1981. *Lectures on government and binding*. Clifton, C. 1993. Thematic roles in sentence parsing. *Canadian Journal of Experimental Psychology* 47. Conroy, S., E. Takahashi, J. Lidz, & C. Phillips. 2009. Equal treatment for all antecedents: How children succeed with Principle B. *Linguistic Inquiry* 40. Gor, V., & K. Syrett. 2015. Picking up after sloppy children: What pronouns reveal about children's analysis of English comparative constructions. In the *Proceedings of the 39th Boston University Conference on Language Development*. Gor, V. 2017. Acceptable But Ungrammatical in Comparison: Overriding Principle C Effects in Comparatives. For the *Proceedings of 47th Annual Meeting of the North East Linguistic Society*. Grant, M., C. Clifton, L. Frazier. 2012. The role of Non-Actuality Implicatures in processing elided constituents. *Journal of Memory and Language*. 66(1). Kazanina, N., E. Lau, M. Lieberman, M. Yoshida, C. Phillips. 2007. The effect of syntactic constraints on the processing of backwards anaphora. *Journal of Memory and Language*. 56(3). Phillips, C. 2013. Some arguments and non-arguments for reductionist accounts of syntactic phenomena. *Language and Cognitive Processes* 28. Pickering, M.J., & M.J. Traxler 1998. Plausibility and recovery from garden paths: An eye-tracking study. *Journal of Experimental Psychology* 24. Safir, K. 2005. Abandoning 'Coreference'. In *Thought, Reference and Experience: Themes from the Philosophy of Gareth Evans*, ed. by J. L. Bermudez. Wellwood, A., R. Pancheva, V. Hacquard, & C. Phillips. (ms.) The anatomy of a comparative illusion.