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

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Outline

- We report the findings of an experiment illustrating that **participants accept coconstrual relations in sentences with a Principle C violation** where pragmatic plausibility of coconstrued interpretation is high.

- The effect is concentrated to cases where the pronoun c-commands the R-expression from the **object position**, as opposed to the **subject position**.

Outline

- Possibility of coconstrual is depends **not only on structural factors**.

- It varies with **pragmatic plausibility**.

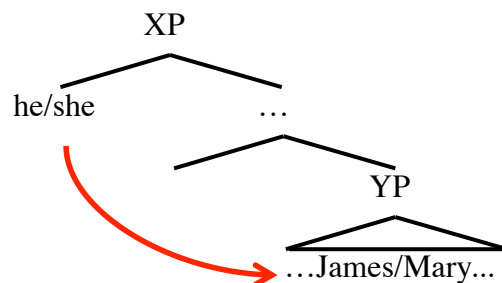- Processing of backwards pronominal dependencies **varies depending on the position of the pronoun.**

Backwards anaphora

- Backwards anaphora: the pronoun **precedes** the antecedent DP.

- Backwards anaphora is **not always licensed**.

  (1) When **he**$_i$ turned four, **Danny**$_i$ got a toy car.
  (2) *__He__$_i$ got a toy car when **Danny**$_i$ turned four.

Backwards Anaphora and Principle C

• Principle C generalization:

When an R-expression is c-commanded by a pronoun, the coconstrued interpretation is disadvantaged.

Principle C violations

(3) *He_i is putting on $John_i$'s coat.

(4) *He_i thinks that $Oscar_i$ is incompetent.

- Structural constraints **rule out dependent identity relations** in (3) and (4) (Chomsky 1981).

Principle C Violations + Context

(3') A: That's not John.

B: Well, **he**$_i$'s putting on **John**$_i$'s coat.

Higginbotham (1985:570)

(4') 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.

Evans (1980)

Pragmatic Expectations of Coconstrual

- Dependent readings may be blocked, but not intended co-referent ones (Evans 1980).

- When the pronoun c-commands the antecedent DP, an **expectation of non-coconstrual** is created.

- The context **adjusts pragmatic expectations**, resulting in an interpretation where the coconstrual is judged acceptable (Safir 2004, 2005).

Processing multiple dependencies

(4) (?) <u>More</u> people wanted *her* to go to Aspen…

…than [~~d many people wanted~~ **her$_i$** ~~to go~~] to **Mary$_i$**'s hometown.

(5) *The travel agent offered **her$_i$** a <u>better</u> deal than he offered **Mary$_i$** last year.

- In (4) the comparative is introduced **sentence-initially**, requiring the processor to immediately evaluate comparative alternatives, consequently **overshadowing the expectation of non-coconstrual** (Gor & Syrett 2015; Gor 2017).

Experiment goals

- To **systematically probe** theoretical proposal in Safir (2004, 2004) and collect experimental evidence on whether **pragmatic factors interact with structural factors**.

- To test whether **early vs. late introduction** of a dependency in the sentence would make a difference in terms of acceptability of coconstrual.

Experiment overview

- We target cases of Principle C violations in backwards anaphora manipulating
  - **plausibility of coconstrual** (Clifton 1993; Pickering and Traxler 1998);
  - **pronominal position** (subject vs. object).

- We demonstrate that **both factors influence acceptability of unexpected coconstrual relations**, supporting Safir (2004, 2005) and highlighting the role of non-syntactic information and processing in the search for pronominal antecedents.

Experiment Overview

- Experiment 1a: Norming Study
  - 25 participants, native speakers of English

- Experiment 1b: Forced Choice Study
  - 31 participants, native speakers of English

(two separate pools of participants)

Experiment Design

	Target Item (N=45)	Plausibility of Coconstrual	Antecedent
DTR	**Emily**$_i$ gave Tommy **her**$_{i/j}$ phone number.	high	subject
	Mr. Barker gave **Emily**$_i$ **her**$_{i/j}$ report card.	high	object
	Richard gave **Emily**$_i$ **her**$_{i/j}$ contact information.	low	object
ECM	**Emily**$_i$ allowed James to read **her**$_{i/j}$ personal correspondence.	high	subject
	Mr. Matthews allowed **Emily**$_i$ to resubmit **her**$_{i/j}$ paper.	high	object
	Mr. Adams allowed **Emily**$_i$ to borrow **her**$_{i/j}$ notes.	low	object

Experiment 1a: Norming Study

- Participants (n=25) were asked to

  - read a sentence

  - judge on a Likert scale (1 to 5) whether the possessive pronoun **her** referred to the sentence-internal antecedent **Emily** or another person
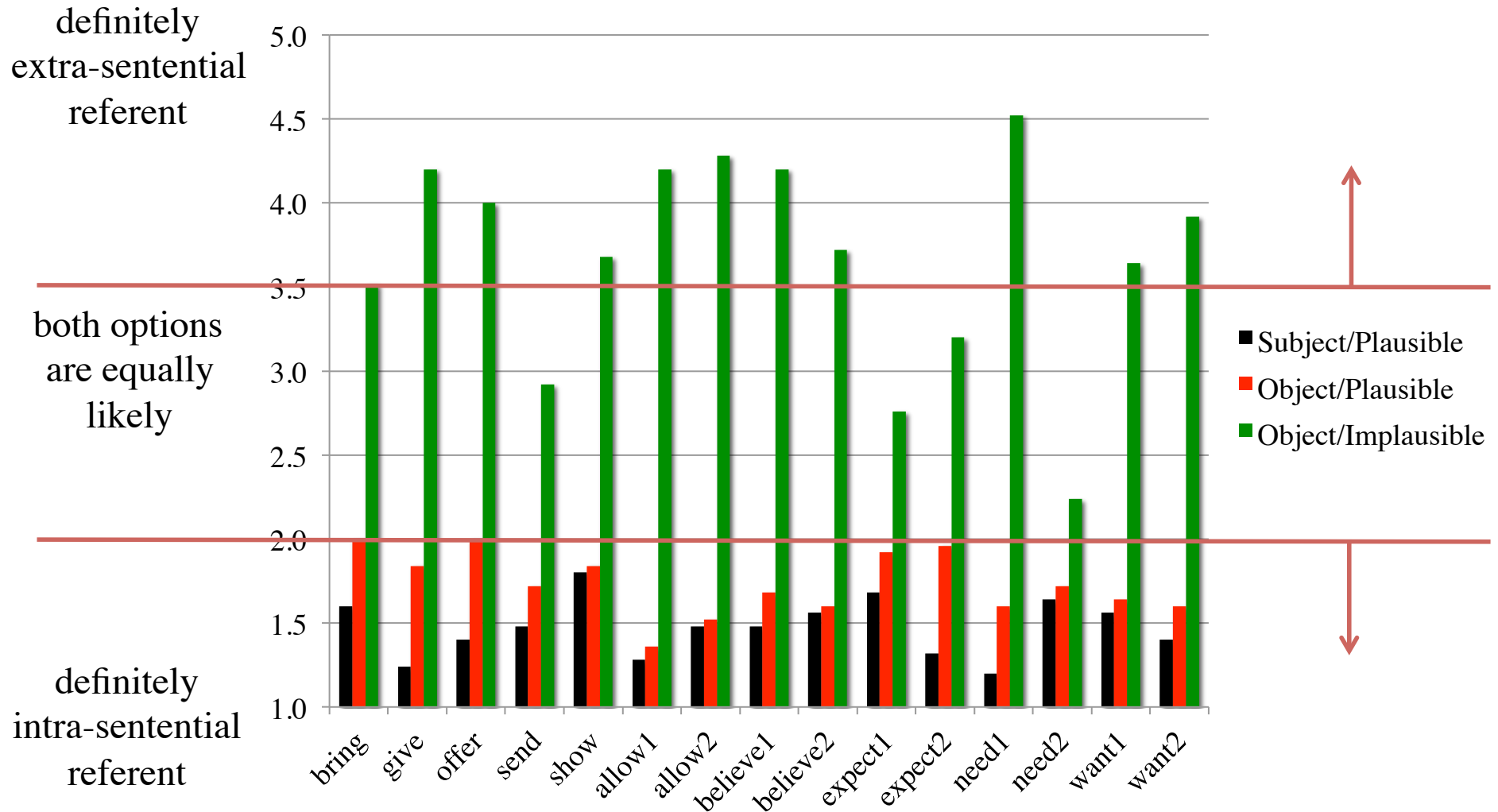
  - indicate their answer using a response pad

Consider the following sentence:

Emily offered Jack her class notes.

1	2	3	4	5
it is **definitely the case** that "*her*" means "*Emily's*"	it is **more likely** that "*her*" means "*Emily's*"	both options are **equally likely**	it is **more likely** that "*her*" means "*another girl's*", and **not** "*Emily's*"	it is **definitely the case** that "*her*" means "*another girl's*", and **not** "*Emily's*"

Use the response pad to indicate your answer.

Experiment 1a: Results

Experiment 1b: Design

	Target Item (N=33)	Plausibility of Coconstrual	Antecedent
Exp. 1a	Emily$_i$ gave Tommy her$_{i/j}$ phone number.	high	subject
	Mr. Barker gave Emily$_i$ her$_{i/j}$ report card.	high	object
	Richard gave Emily$_i$ her$_{i/j}$ contact information.	low	object
Exp. 1b	She$_{i/j}$ gave Tommy Emily$_i$'s phone number.	high	subject
	Mr. Barker gave her$_{i/j}$ Emily$_i$'s report card.	high	object
	Richard gave her$_{i/j}$ Emily$_i$'s contact information.	low	object

Experiment 1b: Force Choice Task

- Participants (n=31) were asked to

  - read a sentence

  - choose one of the two female referents for the pronoun: **intra-sentential or extra-sentential**

  - indicate their answer using a response pad

Experiment 1b: Sample Stimulus

The waiter brought her Pamela's choice wine.

Emily   Pamela

Predictions compared to earlier studies

(4) (?) <u>More</u> people wanted *her* to go to Aspen…

…than [~~d many people wanted~~ **her**$_i$ ~~to go~~] to **Mary**$_i$'s hometown.

Forced Choice Task: **31.8%** (choice of sentence internal referent)

(Gor & Syrett 2015; Gor 2017).

Experiment 1b: Results

	Controls (No Principle C Violation) (N=27)	Target Sentences (Principle C Violation) (N=33)	
		Pronominal Object	Pronominal Subject
high plausibility	97.1%	**30.79%**	12.02%
low plausibility	21.2%	2.93%	*(not included in design)*

Table 2. Percentage choice of sentence-internal referent for target and control sentences in Experiment 1b.

(significant effects of plausibility, pronominal position, and Principle C violation status (all $p < 0.01$))

Discussion: plausibility and pronoun position

- Our experimental findings argue in favor of approaches such as Safir (2004, 2005):
  - the possibility of coconstrual is **not a purely structural phenomenon**;
  - on the one hand, it is governed by **structural relations and c-command**;
  - on the other hand, it is governed by **pragmatic factors**.

- Moreover, availability of coconstrued interpretation may be **linked to the position of the pronoun** in the proposition and the timing the dependency is introduced.

Discussion: binding as filter on interpretations

- Backwards vs. forwards anaphora:

- Principle C is as **a hard-and-fast initial filter**, automatically ruling out antecedents in structurally illicit positions.

- Principle B acts as **a late filter** allowing for temporary consideration of illicit antecedents

(Conroy et al. 2009; Kazanina et al. 2007; Phillips 2013).

Open questions

- Backwards anaphora (Principle C) stimuli in earlier studies had **a pronoun as the subject of the clause**.

- Structural constraints are then **deployed early**, immediately upon the pronoun encounter during incremental processing.

- Forwards anaphora (Principle B) stimuli had **a pronoun in a non-subject position**.

Discussion: Principle B vs. Principle C

- We propose 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; Phillips 2013).

- This contrast is influenced by the **position of the pronoun** relative to other DPs in the proposition.

Discussion: Principle B vs. Principle C

- When the pronoun is introduced proposition-initially, the parser is **instantly required to act on it**.

- When a full DP is the subject and the pronoun follows, **the search for antecedent is activated later**:
  - it leaves time for **contextual plausibility** to build up
  - it influences **pragmatic expectations of coconstrual**

- As a result, it yields an interpretation where **coconstrual is found acceptable**.

Directions for future research

- Probe the influence of **other pragmatic factors** on acceptability of backwards pronominal dependencies

  - Given vs. new information
  - At-issue vs. non-at-issue information

- **Subject/Object Asymmetry** and its interaction with these pragmatic factors

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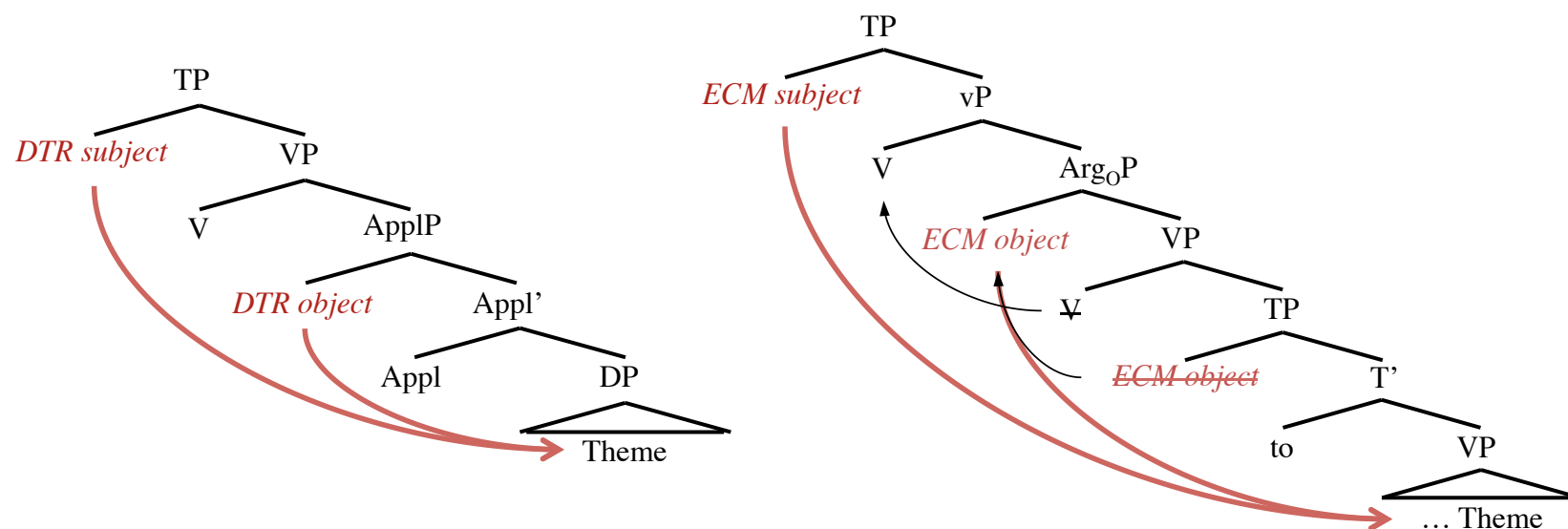
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APPENDIX

DTR & ECM: two DPs c-command the third

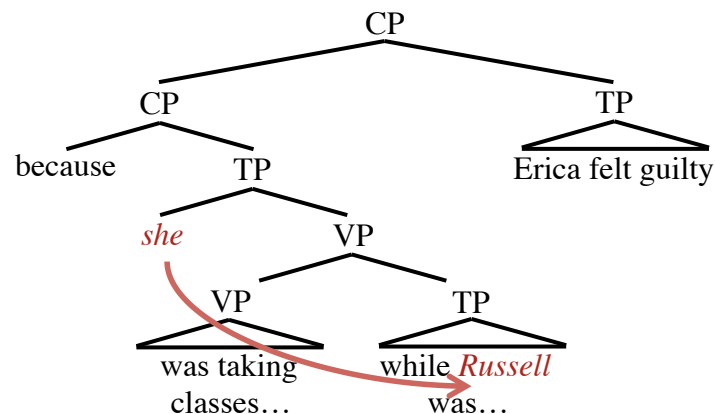Low applicative (Pylkkänen 2002/8)   Object shift (Lasnik 1999)
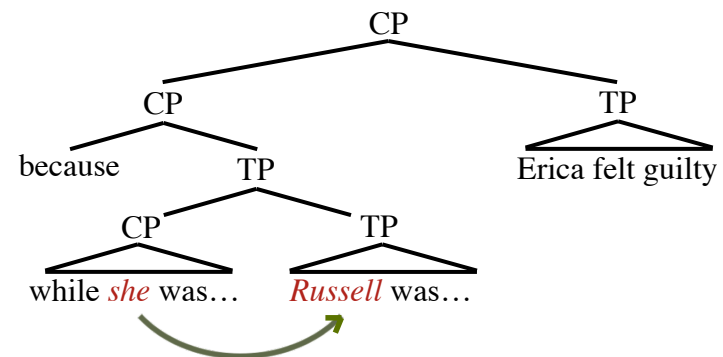
Principle C: Self-paced reading study

(6) Because … *she* was taking classes full-time, while *Russell* was working two jobs to pay the bills, Erica felt guilty.

(7) Because … while *she* was taking classes full-time, *Russell* was working two jobs to pay the bills, Erica felt guilty.

(Kazanina et al. 2007)

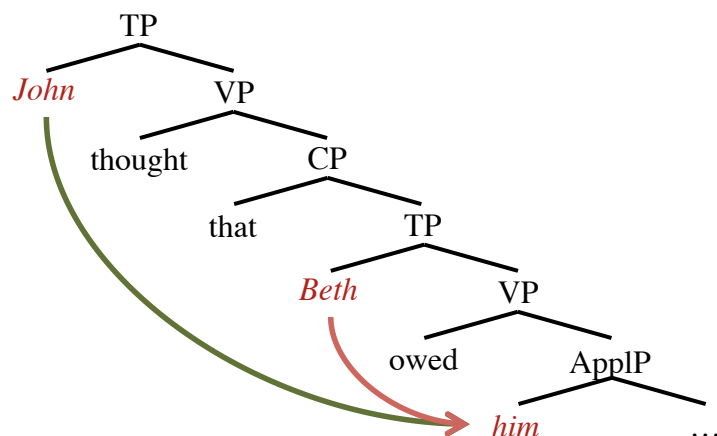Principle C violation,
gender mismatch, no slow-down

no Principle C violation,
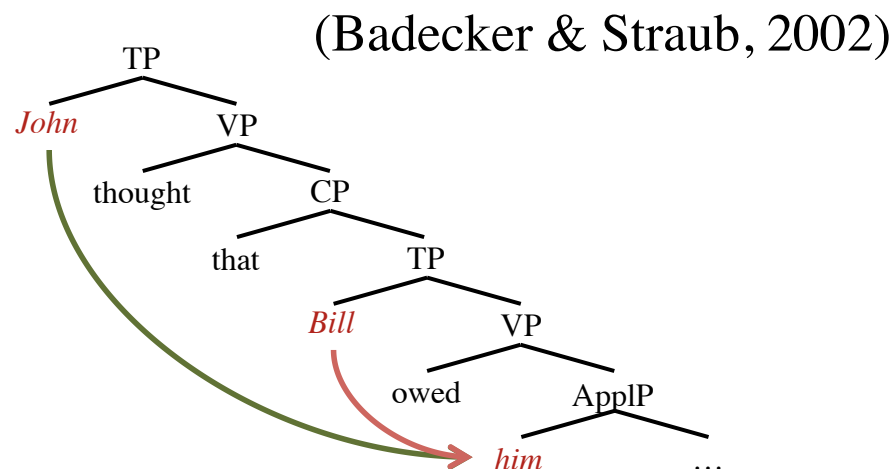gender mismatch, slow-down

Principle B: Self-paced reading study

(8)   *John* thought that Beth owed *him* another chance to solve the problem.

(9) *John* thought that *Bill* owed *him* another chance to solve the problem.

(Badecker & Straub, 2002)

no Principle B violation,
gender mismatch, no slow-down

Principle B violation,
gender match, slow-down

Background: Principle C in Comparatives

Subject comparative: the covert pronoun in the elided part of the standard c-commands the DP in the overt part of it.

(7) More people wanted her$_{*i/j}$ to go to Aspen than to **Mary$_i$**'s hometown.

(7') More people wanted her$_{*i/j}$ to go to Aspen than [~~d many people wanted her$_{*i/j}$ to go~~] to **Mary$_i$**'s hometown.

IP
DP
VP
AP
people wanted
IP
DegP
many
her
I'
-er
CP
to
VP
than
IP
go to Aspen
~~d many people~~
VP
~~wanted~~
IP
~~her~~$_{*i/j}$
I'
~~to~~
VP
Principle C violation
~~go~~ to **Mary$_i$**'s hometown

33