

Close vs. cloze:

The role(s) of contact and expectancy in English pronoun preferences

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Reflexives vs. Personal Pronouns

In English, **reflexive pronouns** and **personal pronouns** can both be used to refer to someone previously mentioned in the sentence.

Choice between pronoun forms is often determined by Binding Principles A & B:

- (1) a. Michele congratulated **herself** / ***her**.
- b. Michele's brother congratulated **her** / ***herself**.

Pronoun choice in LPPs

Strict complementarity breaks down in locative prepositional phrases (LPPs):

(2) Michele set a glass next to **her** / **herself**.

Million-dollar question: What drives pronoun choice in LPPs, and how does this bear on our theory of grammar?

Empirical puzzle

When it comes to LPP pronoun choice: “Judgments tend to waver ... and obscure factors enter into preference one way or another.”

– Chomsky, 1981: 290

The Contact Effect

- (3) Chloe poured some glitter next to **her** / **herself**. > sort of 50/50
- (4) Chloe poured some glitter on **her** / **herself**. > reflexive all the way

Across verbs and verb types, **reflexives** are relatively better when the LPP expresses contact than otherwise, while **personal pronouns** are the opposite.

(Bryant 2022a-b; cf. Kuno 1987)

Thematic approach

The reflexive is used when it and its antecedent link to two thematic roles – e.g., Agent and Patient – within a single event description.

(Kuno 1987, Wilkins 1988, Bryant 2022b; cf. Jackendoff 1972, 1987, van Hoek 1997)

(5) What Chloe **did to** Richard was pour some glitter on him.

?What Chloe **did to** Richard was pour some glitter next to him.

> Contact Effect is rooted in competence.

Expectancy approach

Lederer (2013: 483): “the reflexive is used to signal that the direction of the event is counter to the direction of expectation”

- (6) a. John threw the can away from him / himself.
 - b. John pulled the book away from himself / ??him.
- (Lederer 2013: 516-518)

Functionalist view

Complex reflexives like English *herself* are used in place of simple personal pronouns when co-construal with the subject is least expected.

(e.g., Haiman 1983, Faltz 1985, Comrie 1999, König & Siemund 2000, Smith 2004, Haspelmath 2008)

Another case of Zipf's law: more coding for less frequent meaning.

> Contact Effect is rooted in performance.

Main question

Can performance pressures account for the Contact Effect?

- > Does the relative expectancy of subject co-construal predict variance in reflexive and personal pronoun acceptability in English LPPs?
- > Does the variance captured by expectancy subsume the variance captured by spatial relation type (contact vs. non-contact)?

Experiments:

Acceptability rating task + Cloze task

Target sentences

Stimuli were 24 sets of sentence triplets like the one below.

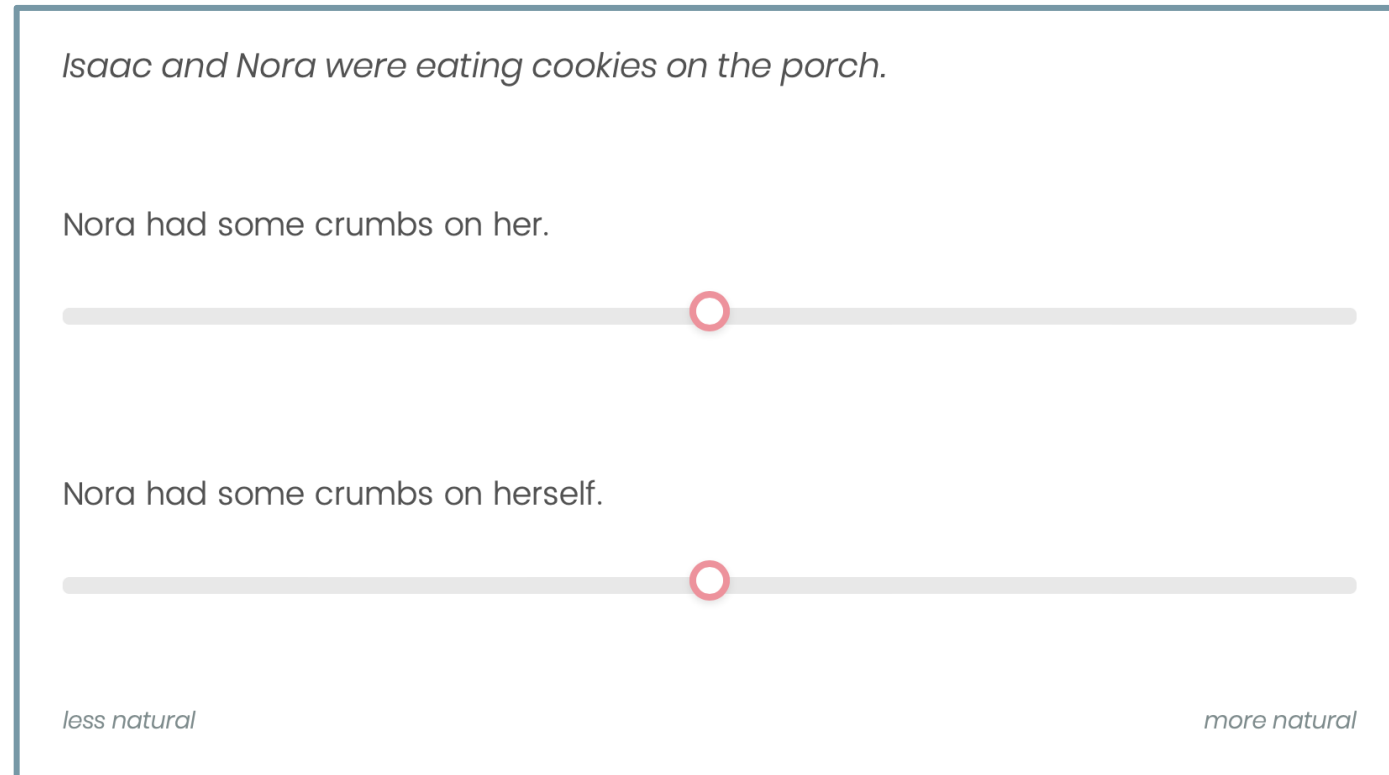
CONTACT	NON-CONTACT
Nora dropped some crumbs on her / herself / _____.	Nora dropped some crumbs around her / herself / _____.
Nora had some crumbs on her / herself / _____.	Nora had some glitter around her / herself / _____.
Nora found some crumbs on her / herself / _____.	Nora found some crumbs around her / herself / _____.

Target sentences

Stimuli were 24 sets of sentence triplets like the one below.

	CONTACT	NON-CONTACT
Motion	Nora dropped some crumbs on her / herself / _____.	Nora dropped some crumbs around her / herself / _____.
Possession	Nora had some crumbs on her / herself / _____.	Nora had some glitter around her / herself / _____.
Perception	Nora found some crumbs on her / herself / _____.	Nora found some crumbs around her / herself / _____.

Ratings survey (N=60)



(cf. Bryant 2022a-b)

Cloze survey (N=120)

Isaac and Nora were eating cookies on the porch.

Nora had some crumbs on

Predictions

- > The less often continuations are co-construed with the sentence subject, the better the **reflexive** relative to the **personal pronoun**.
- > If expectancy drives the Contact Effect, subject co-construal should be less frequent in contact sentences than in non-contact sentences.

Results

Responses were hand-coded for subject Match: reflexives and personal pronouns matching the subject in gender and number were coded as '1' while all other responses were coded as '0.'

Match Rate across trials: 8%

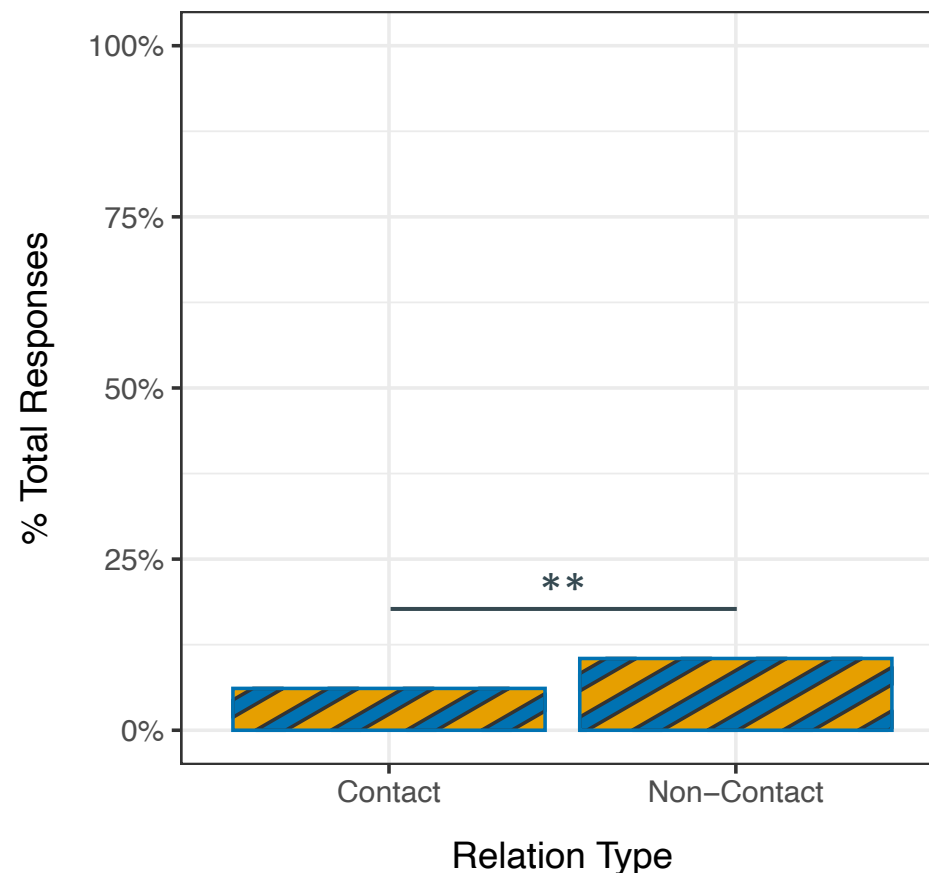
Range of within-item Match Rates: 0% – 55%

Results: Match Rate ~ Relation Type

The likelihood of Match was significantly higher in non-contact sentences than in contact sentences.

Match ~ Event Type + Relation Type + (1|Subject) + (1|Item), family = binomial(link = "logit")

Relation type: $\beta=0.94$, $p=0.003$



Results: Match Rate vs. Relation Type

Model comparison reveals that Relation Type accounts for a significant amount of variance above and beyond Match Rate.

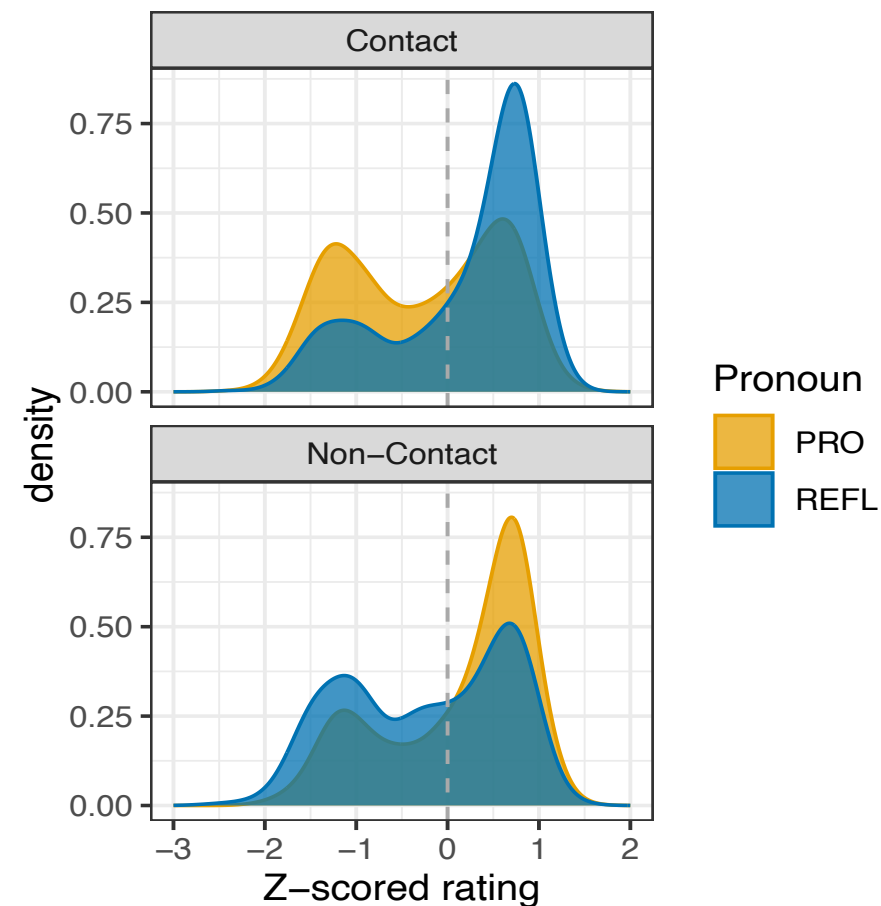
Model 1a: Rating ~ Pronoun * Event Type + Pronoun * Match Rate + (1 Subject) + (1 Item)				
Model 1b: Rating ~ Pronoun * Event Type + Pronoun * Match Rate + Pronoun * Relation Type + (1 Subject) + (1 Item)				
	AIC	BIC	Chisq	Pr
Model 1a	6960.4	7026.0		
Model 1b	6869.9	6947.4	94.511	< 2.2e-16 ***

Results: Relation Type

The interaction between Pronoun and Relation Type was significant, replicating earlier findings.

Rating \sim Pronoun * Event Type + Pronoun * Match Rate +
Pronoun * Relation Type + (1 | Subject) + (1 | Item)

Pronoun * Relation Type: $\beta = -0.76$, $p < 0.001$



Results: Match Rate vs. Relation Type

Model comparison reveals that Match Rate also accounts for a significant amount of variance above and beyond Relation Type.

Model 2a: Rating ~ Pronoun * Event Type + Pronoun * Relation Type + (1 Subject) + (1 Item)				
Model 2b: Rating ~ Pronoun * Event Type + Pronoun * Relation Type + Pronoun * Match Rate + (1 Subject) + (1 Item)				
	AIC	BIC	Chisq	Pr
Model 2a	6889.3	6955.0		
Model 2b	6869.9	6947.4	23.473	7.995e-06 ***

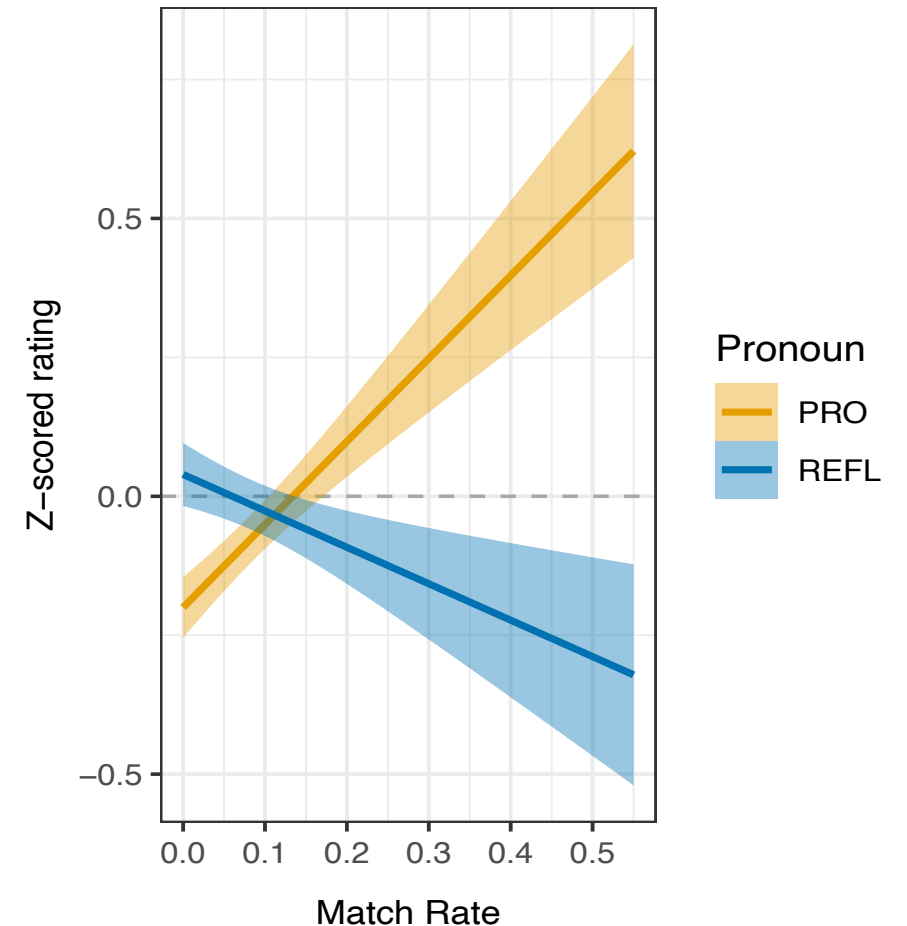
Results: Match Rate

The interaction between Pronoun and Match Rate was *also* significant.

The higher the Match Rate, the better the **personal pronoun** relative to the **reflexive**.

Rating \sim Pronoun * Event Type + Pronoun * Rel. Type +
Pronoun * Match Rate + (1 | Subject) + (1 | Item)

Pronoun * Match Rate: $\beta = -1.40$, $p < 0.001$



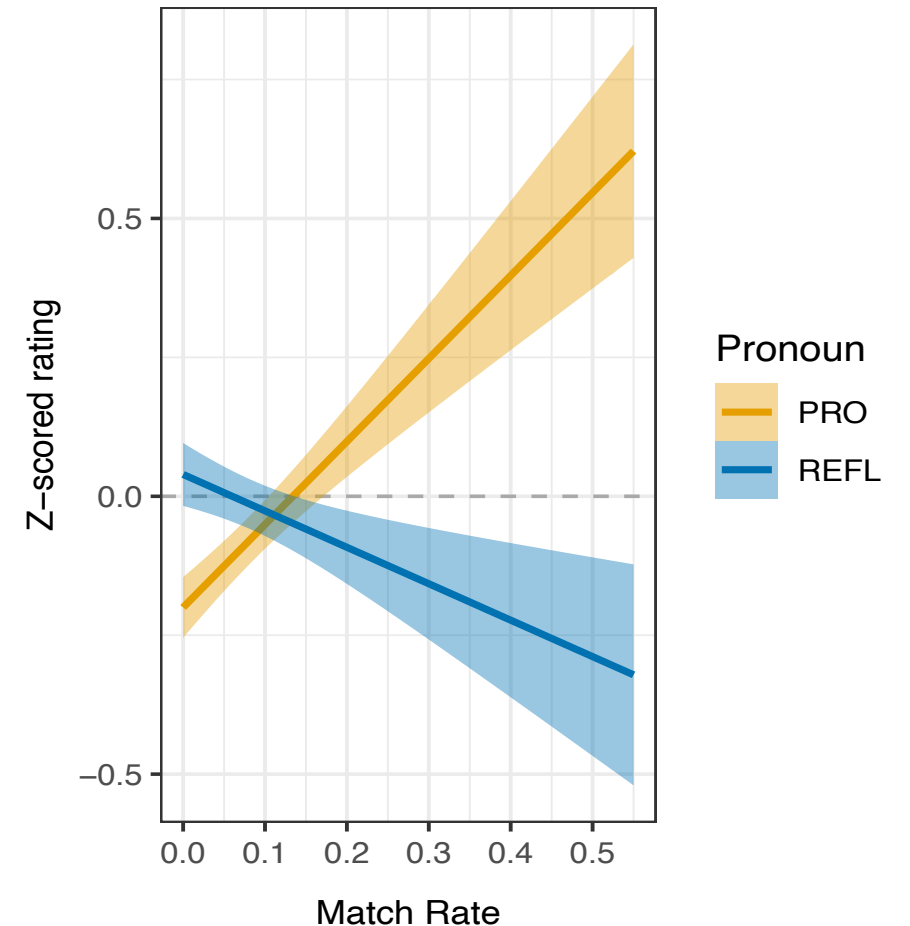
Results: reflexive vs. personal pronoun

The effect of Match Rate was strongly asymmetrical.

It was a significant predictor of **personal pronoun** ratings but not **reflexive** ratings.

Reflexives: $\beta = -0.31$, $p = 0.223$

Personal pronouns: $\beta = 1.17$, $p < 0.001$



Results: pronoun choice in production

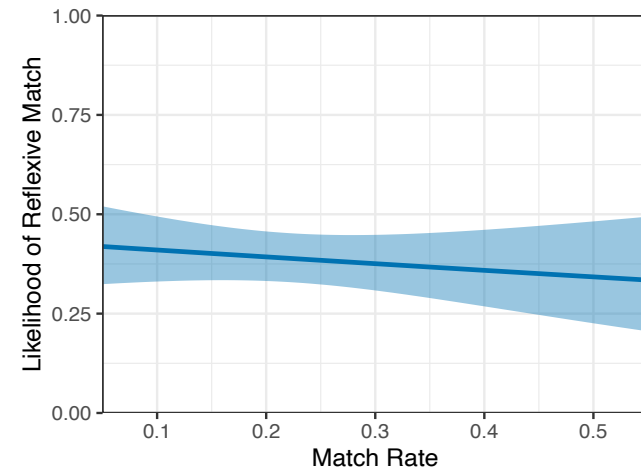
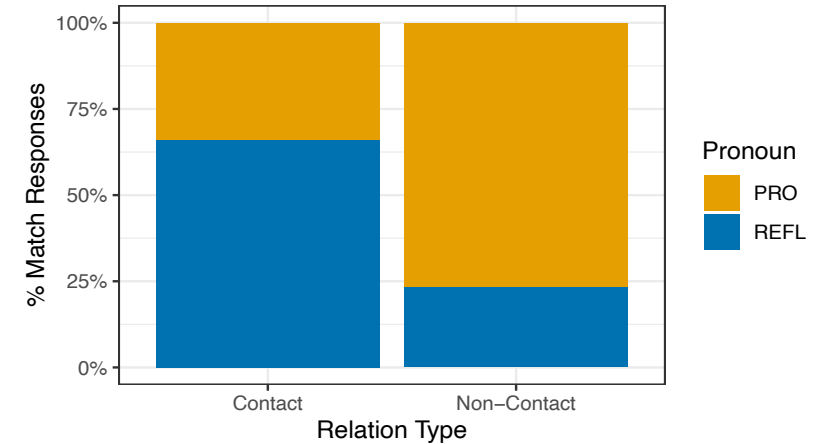
Relation Type was a significant predictor of pronoun choice.

Match Rate was not.

Pronoun ~ Event Type + Relation Type + Match Rate +
(1|Subject) + (1|Item), family = binomial(link = "logit")

Relation Type: $\beta = -2.67$, $p < 0.001$

Match Rate: $\beta = -0.97$, $p = 0.619$



Discussion

Contact Effect \neq expectancy

Expectancy did not account for the variance in LPP pronoun acceptability captured by spatial relation type.

Therefore, the Contact Effect cannot be reduced to expectancy.

This rules out the most likely performance-based account of the Contact Effect.

Contact Effect $\stackrel{?}{=}$ thematic relations

This doesn't rule in a grammatical account, including the thematic approach. But it does make a competence-based explanation more likely.

Future experimental work is needed to figure out if a thematic approach is on the right track.

Expectancy matters, too!

Expectancy has an independent effect on acceptability, but only for the personal pronoun.

- Asymmetry is unexpected under a Zipfian account.
- Consistent with a form-specific approach to pronoun comprehension.
(cf. Kaiser et al. 2009)
- Link between personal pronoun use and referent accessibility in working memory.
(cf. Arnold 2010 and citations therein)

Production/comprehension asymmetry?

Expectancy may not drive pronoun choice in English LPPs in production.

If not, it could be that grammatical constraints on English reflexive use wash out the effects of expectancy on personal pronoun use.

Thank you!

This project was supported by the
Rutgers University Center for Cognitive Science.

Takeaways

- The Contact Effect cannot be reduced to expectancy, lending support to accounts rooted in competence rather than performance.
- Expectancy is an independent driver of personal pronoun acceptability in English LPPs, but not reflexive acceptability.
- English reflexives and personal pronouns rely on distinct interpretive mechanisms within LPPs.
- Reflexive licensing conditions may wash out the effect of expectancy on personal pronoun use in production.

References

- Arnold, J. E. 2010. How speakers refer: The role of accessibility. *Language and Linguistics Compass*, 4(4), 187-203.
- Bryant, S. 2022a. Location, Location, Location: Anaphor selection in English locative prepositional phrases. In *Proc. of the 96th Annual Meeting of the Linguistic Society of America*.
- Bryant, S. 2022b. *Lost in space: Pronoun choice in English locative prepositional phrases*. PhD diss., Harvard.
- Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Comrie, B. 1999. Reference-tracking: Description and explanation. *Sprachtypologie und Universalienforschung*, 52: 335-46.
- Faltz, L. 1985. *Reflexivisation: A Study in Universal Syntax*. New York: Garland.
- Haiman, J. 1983. Iconic and economic motivation. *Language*, 39: 781-819.
- Haspelmath, M. 2008. A frequentist explanation of some universals of reflexive marking. *Linguistic Discovery*, 6(1).

References

- Jackendoff, R. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.
- Jackendoff, R. 1987. The status of thematic relations in linguistic theory. *Linguistic Inquiry*, 18: 369-411.
- Kaiser, E., Runner, J. T., Sussman, R. S., & Tanenhaus, M. K. 2009. Structural and semantic constraints on the resolution of pronouns and reflexives. *Cognition*, 112(1), 55-80.
- König, E., & P. Siemund. 2000. The development of complex reflexives and intensifiers in English. *Diachronica*, 17: 39-84.
- Kuno, S. 1987. *Functional Syntax: Anaphora, Discourse and Empathy*. Chicago: University of Chicago Press.
- Lederer, J. 2013. Understanding the Self: How spatial parameters influence the distribution of anaphora within prepositional phrases. *Cognitive Linguistics*, 24(3): 483- 529, De Gruyter Mouton.
- Smith, M. 2004. Light and Heavy Reflexives. *Linguistics*, 42(3): 573-615.
- Wilkins, W. 1988. Thematic Structure and Reflexivization. In *Thematic relations*, 191-213. Leiden: Brill.

Extras

Procedure: Acceptability rating task

60 adult English-speaking monolinguals were recruited online via Prolific Academic.

Instructions asked participants to compare two ways of saying the same thing by rating how natural each option sounds.

Each participant saw 24 target questions (3 per condition), 6 control questions, and 20 filler questions, randomly presented.

Procedure: Cloze task

120 adult English-speaking monolinguals were recruited online via Prolific Academic.

Instructions asked participants to complete the sentence by filling in the blank.

Each participant saw 24 target questions (3 per condition) and 6 control questions, randomly presented.

Acceptability survey results: verb type

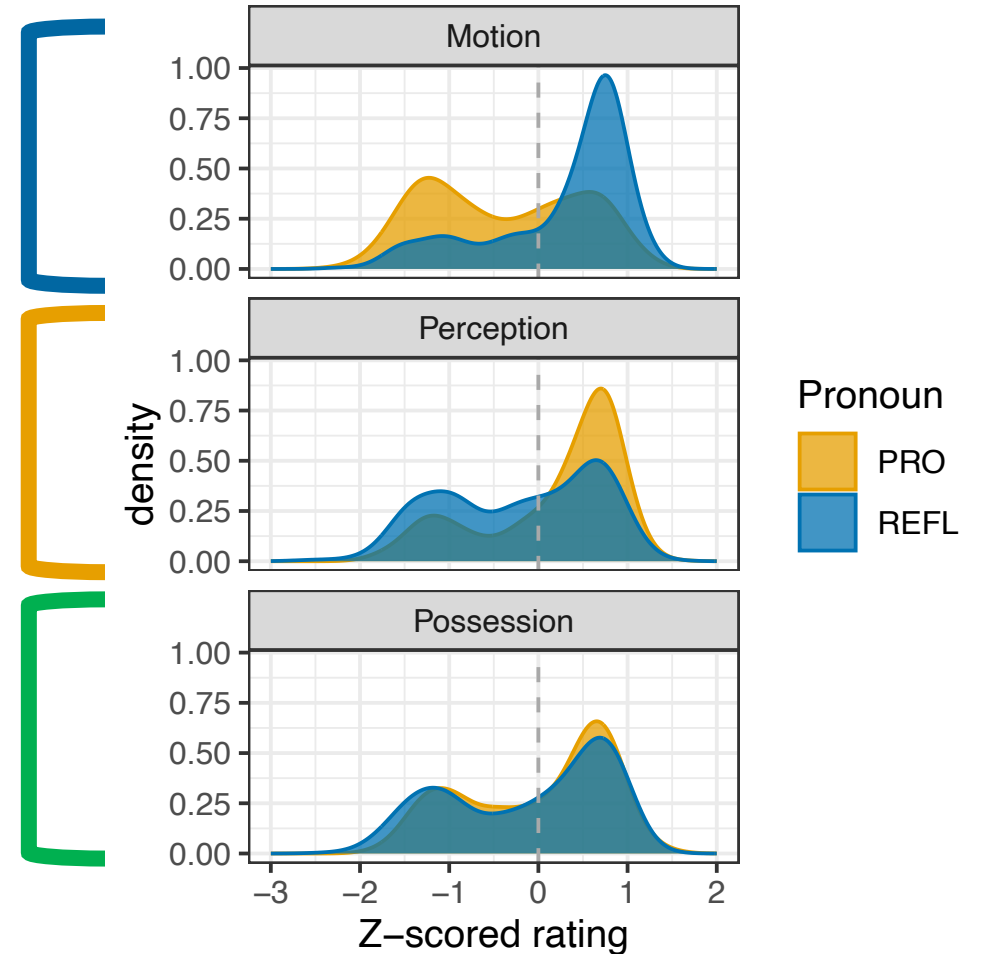
Reflexives were preferred overall in motion sentences, while **personal pronouns** were preferred overall in perception sentences.

Things were **split** for possession sentences.

Response: Refl – Pro

Possession vs. Motion: $\beta=0.77$, $p<0.001$

Possession vs. Perception: $\beta=-0.29$, $p<0.001$



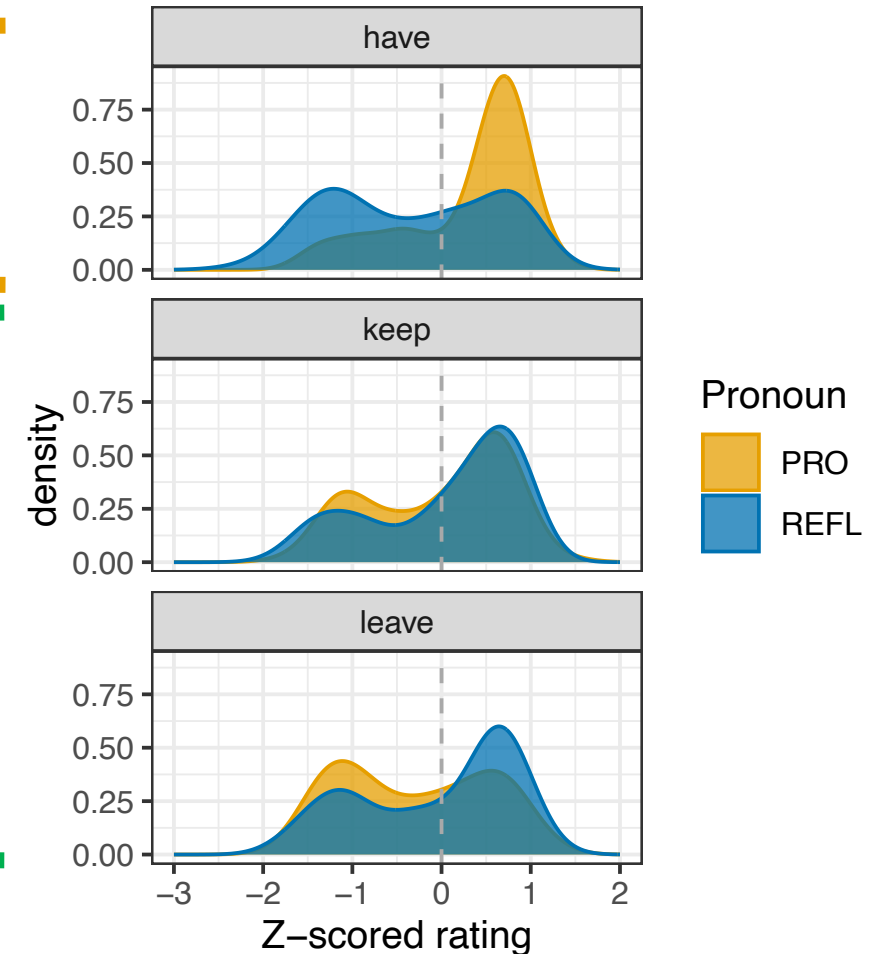
Acceptability survey results: possession

Significant differences across possession sentences types: **personal pronouns** were generally preferred in *have* sentences, while preferences were more **split** for *keep/leave* sentences.

Response: Refl – Pro

Keep vs. Leave: $\beta=0.16$, $p=0.1$

Keep vs. Have: $\beta=-0.72$, $p<0.001$



Previous approach: (Bryant 2022b)

Bryant (2022b, $N = 118$): Relative expectation was measured using binary forced-choice resolution of the ambiguous LPP complement "one of them."

Richard and Chloe made a mess decorating Valentine's Day cards in their kitchen.

Chloe noticed some glitter on one of them.

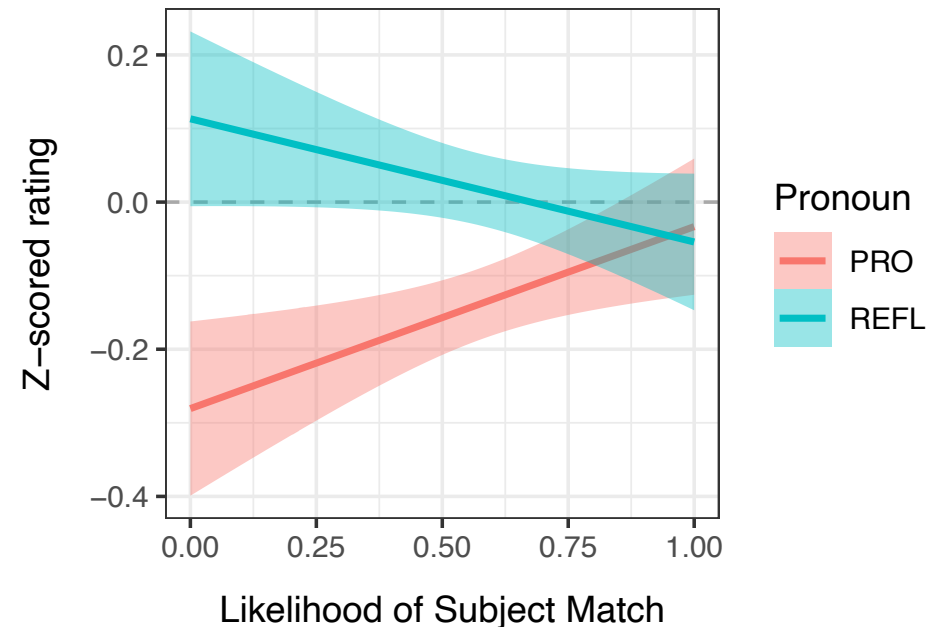
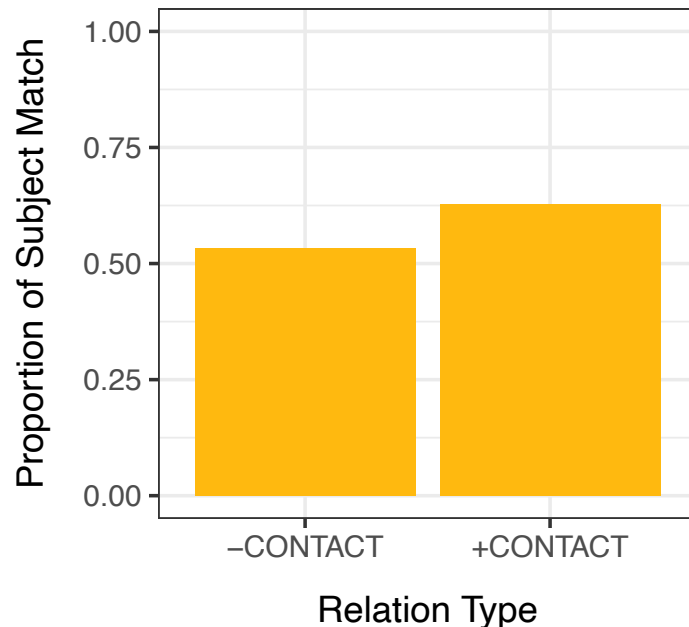
Who do you think it was?

Richard

Chloe

Previous approach: (Bryant 2022b)

- No correlation between the likelihood of subject matches and relation type.
- Significant interaction between the likelihood of subject matches and acceptability ratings in the predicted direction.



A bit of history

Reflexive pronouns derived from personal pronouns + the intensifier *self*.

(e.g., Faltz 1985, König & Siemund 2000, van Gelderen 2000, Keenan 2002, Gast & Siemund 2006)

- (7) a. Michele spoke with the mayor himself.
b. I myself think linguistics is awesome.
c. "Mrs. Dalloway said she would buy the flowers herself." (Woolf, *Mrs. Dalloway*)

A bit of history

No Principle B before the 16th century: coreference between a subject and personal pronoun object was permitted.

(8) he cladde **hym** as a poure laborer

'He dressed [himself] as a poor laborer.'

(Canterbury Tales, quoted in Faltz 1985: 243)

(9) he **hine** vncuð made.

'He made himself unknown/unrecognizable.'

(Caligula 3302, quoted in van Gelderen 2000: 72)

A bit of history

Intensifier form was uniformly used with typically “other-oriented” actions.

(10) **him self** he hynge.

‘He hanged himself.’

(Canterbury Tales, quoted in Faltz 1985: 243)

(11) he makede **him-seluen** muchel clond.

‘He made for himself much pain’

(Caligula 5839, quoted in van Gelderen 2000: 73)

Nowadays

Disjoint reference is the norm for English direct objects.

(Haspelmath 2008 for corpus counts, Burnsky et al. 2022 for evidence from eye-tracking)

In time, pronoun choice for subject-object pairs became grammatically fixed.

Expectancy could still play a role in LPPs, where the grammar gives us a choice.