

Ellipsis and the QuD: sluicing with nominal antecedents

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Sluicing “New Words”

Definition: Sluicing is a form of ellipsis that targets **clauses** under interrogative wh-phrases.

- (1) a. $\overbrace{\text{Joe was murdered by someone,}}^{\text{antecedent clause}}$ but we don't know who $\overbrace{\text{he was murdered by.}}^{\text{elided clause}}$
b. # Joe was murdered, but we don't know who he was murdered **by.** “New Words” can't be elided. (Chung, 2006)

No New Words generalization (Chung, 2006, ex. 29):

Every lexical item in the numeration of the sluice that ends up (only) in the elided IP must be identical to an item in the numeration of the antecedent CP.

This constraint has been adopted by various proposals from different theoretical perspectives since, including Merchant (2007, 2013) and AnderBois (2014).

Identity theories

(Merchant, 2001; Chung, 2006, 2013; Merchant, 2013; Rudin, 2018)

Central claim: Sluicing is acceptable only if the elided material is **identical** to some antecedent constituent in the linguistic context semantically and/or syntactically.

Capture (1): “New Words” violate syntactic and possibly semantic identity.

QUD theories

(AnderBois, 2014; Barros, 2014)

Central claim: Sluicing is acceptable only if the sluice denotes a **Question under Discussion (QUD)** that is salient in the context.

Challenge: Capturing (1) requires the QUD *{Who did it}* to be unavailable in this context, which is *a priori* implausible.

Inquisitive Semantics approach to ‘QUD availability’:

- QUDs are made salient by “inquisitive elements” (existential quantifiers, indefinites, disjunctions, or conditionals) in the antecedent clause.
- In the absence of inquisitive elements, as in (1), the theory relies on “issue bridging” whereby a suitable QUD is inferred.
- Restricting the context’s “issue-raising capacity” to the antecedent is unnecessarily restrictive and problematic (Kotek & Barros, 2018).

Roberts (1996/2012) approach to ‘QUD availability’:

- QUDs are inferred based on both **top-down** context constraints and **bottom-up** information from the target utterance.
- Bottom-up cues are reasonably well understood; top-down constraints remain largely mysterious.

Our approach: measure ‘QUD availability’ experimentally (Expt 3)

Research strategy

Research question: Are “New Words” really impossible to elide?

Expt 1: Are the canonical cases as clear-cut as assumed in the literature? Are there cases that involve the ellipsis of “New Words” and are nonetheless reasonably acceptable?

Expt 2: What about sluices with nominal antecedents?

Expt 3: Can variance in nominal-antecedent sluices be explained in terms of QUD availability?

Experiment 1

Goal: Test No New Words generalization.

Methods: 27 native English speakers from Mechanical Turk performed a standard **acceptability judgment task** (1-5 Likert scale) and a free-response **paraphrase task** in which they paraphrased the sluice in their own words.

Stimuli:

- 10 “No New Words” minimal pairs modeled after (1), see Figure 1.
- 20 “inferred meaning” items, see Figure 2.
- 10 regular sluicing items to establish upper and lower acceptability bounds.

Caveat: Selection bias! The novel items (Figure 2) were specifically selected for being intuitively acceptable despite involving the ellipsis of “New Words.”

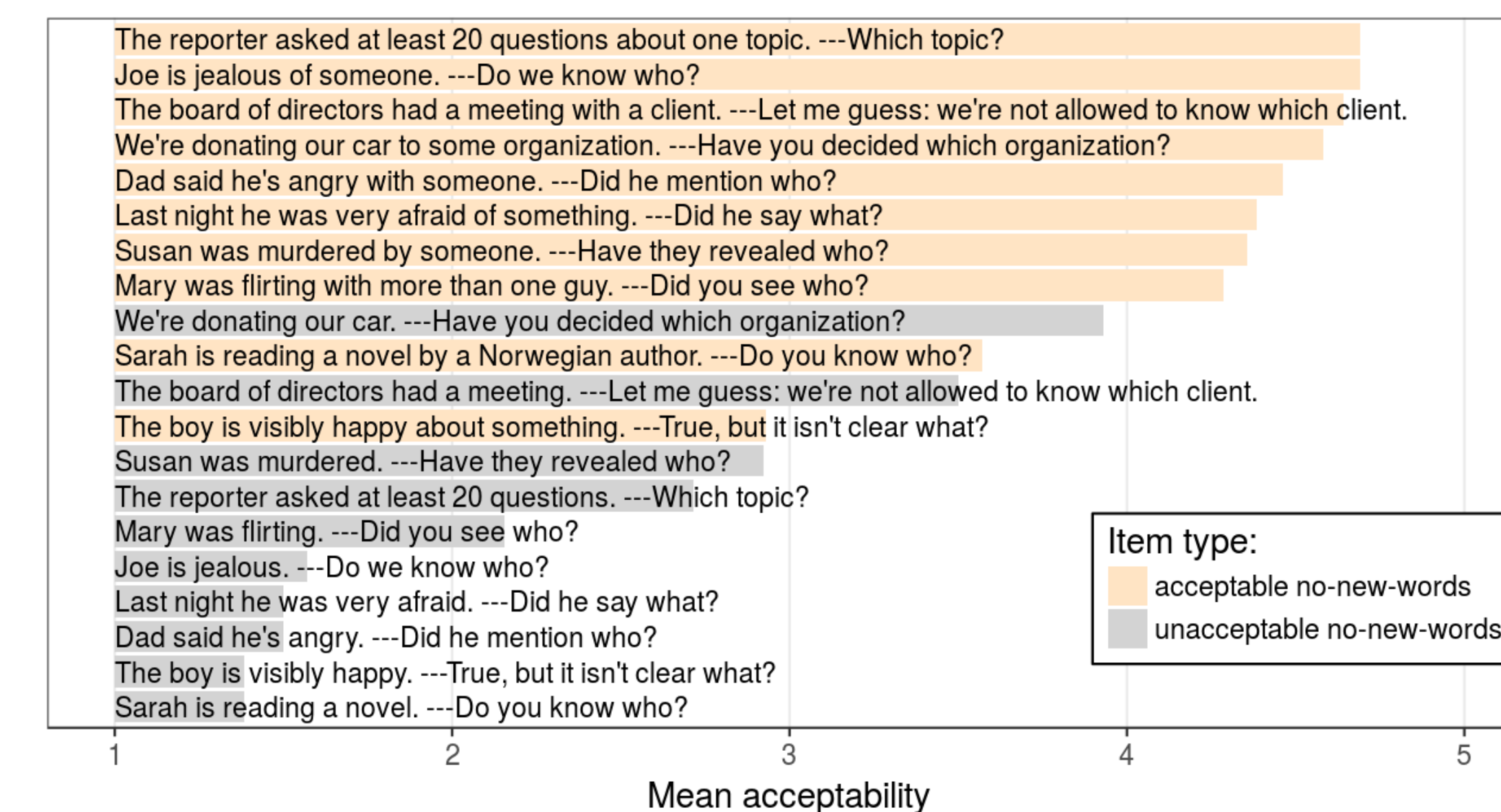


Figure 1. Mean acceptability of “New Words” items across conditions.

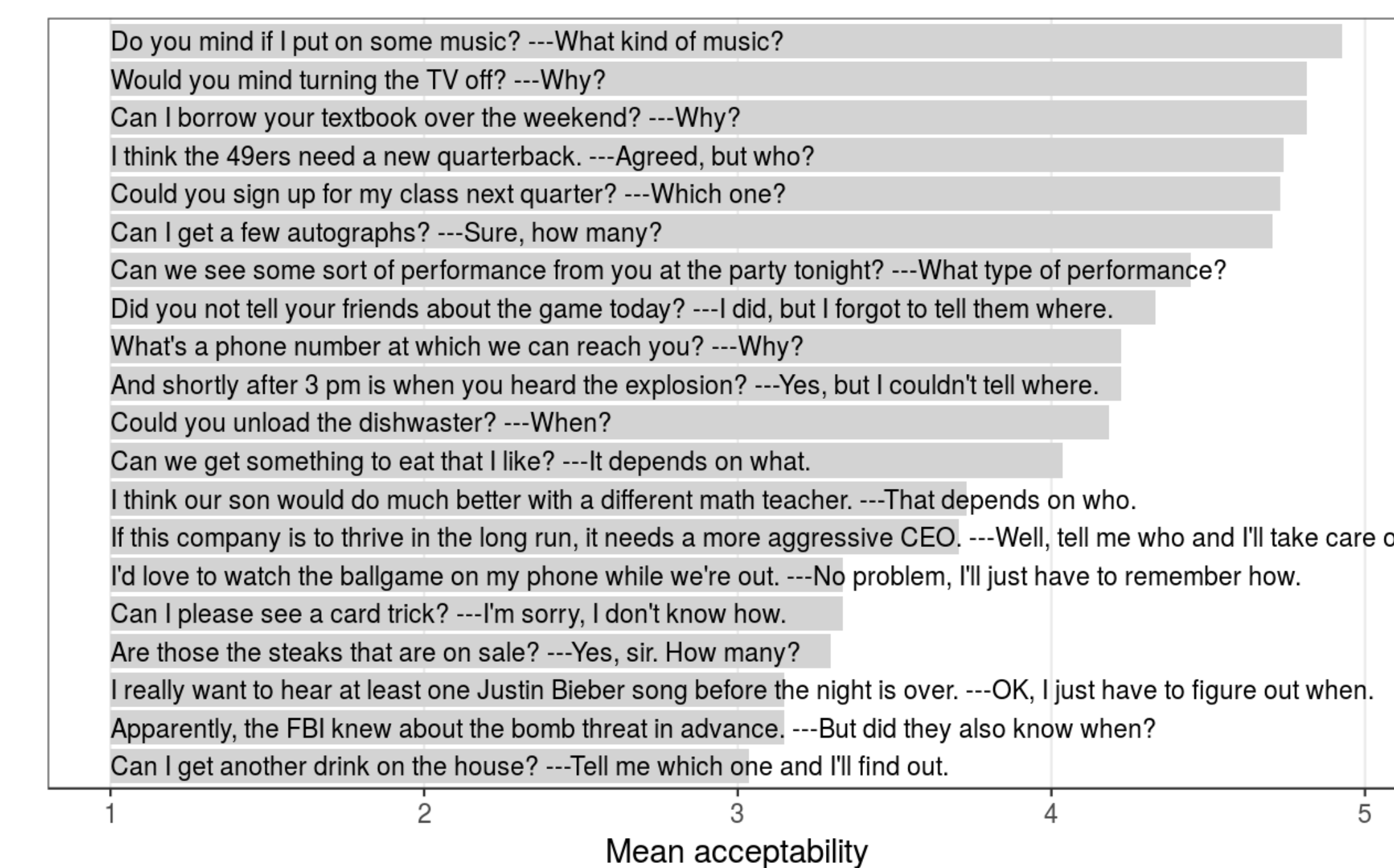


Figure 2. Mean acceptability of items in “inferred meaning” condition.

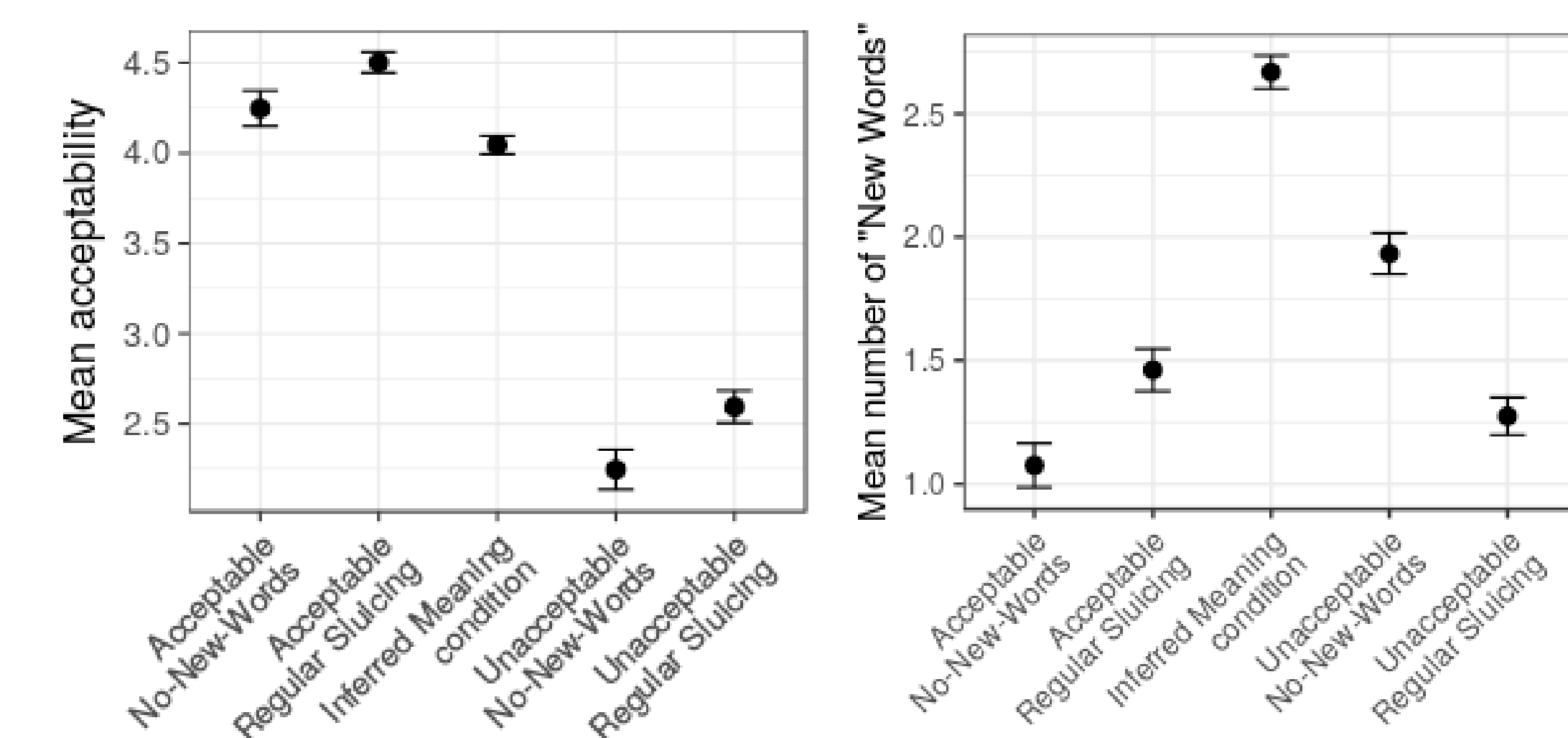


Figure 3. Group-level mean acceptability (left) and number of “New Words” (right).

Experiment 2

Goal: Test acceptability of sluices with **nominal antecedents**.

Methods: 63 native English speakers, **acceptability judgment task**.

Stimuli: 30 sluices with nominal antecedents, like the following.

- A: I can't see your parents in the audience. Did you not tell them about your performance today?
B: I did, but I forgot to tell them {when|where|what about|how long|why}.

Results: Figure 4 shows the acceptability of all items.

1. **Some nominal-antecedent sluices are impeccable.** Many of them pattern with acceptable fillers (white bars), all of which are cases the literature agrees are acceptable.
2. **Some nominal-antecedent sluices are terrible.** Many of them pattern with unacceptable fillers, i.e. cases that the literature agrees are unacceptable.
3. **High variance:** As a group, nominal-antecedent sluices span the entire range of possible acceptability ratings.

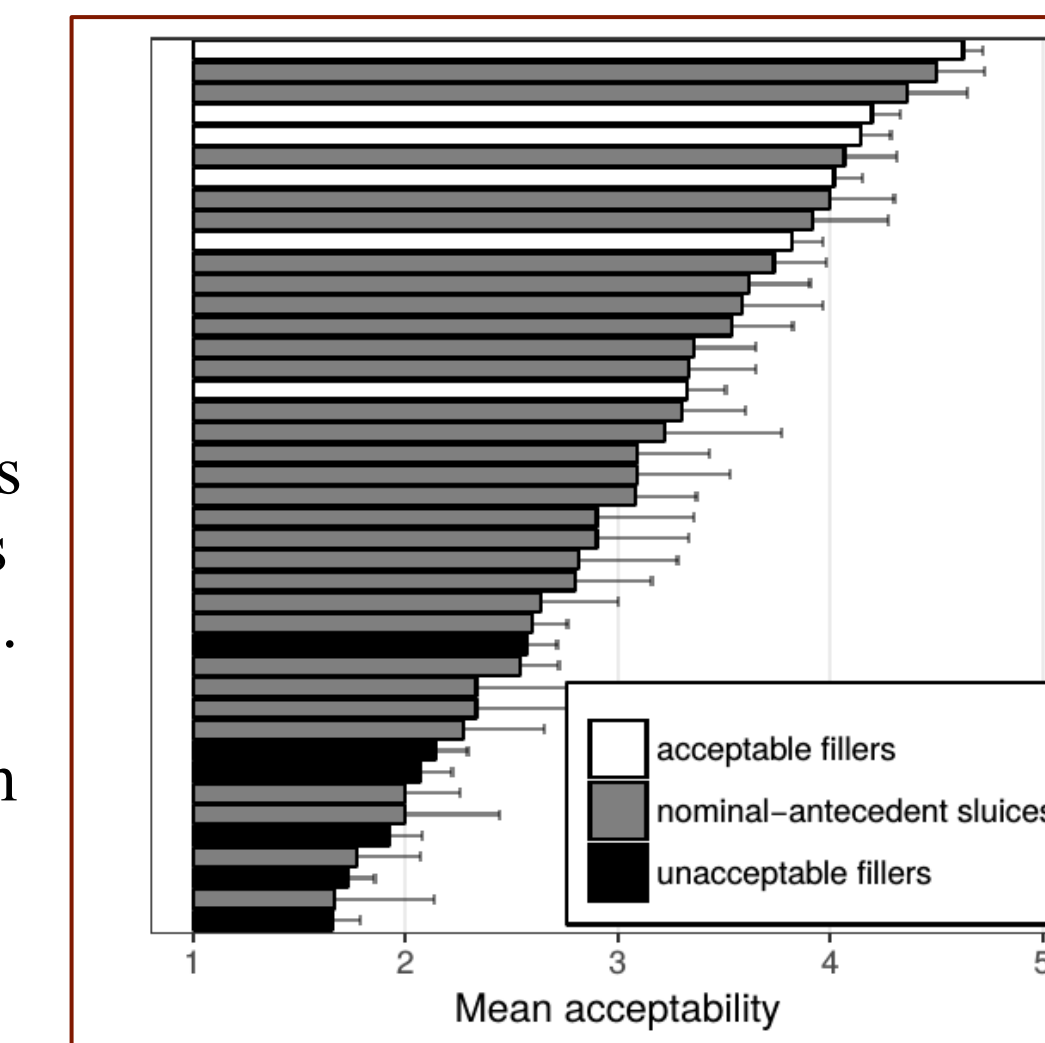


Figure 4. Acceptability (x) of nominal-antecedent sluices (gray) along with acceptable (white) and unacceptable (black) fillers.

Norming experiment

Goal: Estimate meaning of sluices from Expt 2.

Methods: 31 participants saw the same stimuli as in Expt 2, but instead of judging their acceptability, they **provided paraphrases** of the sluiced question in their own words.

Purpose: the most frequent paraphrase of each sluice was used in a forced-choice passage-completion task in Expt 3.

Experiment 3

Methods: 63 native English speakers, **forced-choice passage completion**, using sluice paraphrases from Expt 3.

Stimuli: 30 sluices with nominal antecedents, like the following.

- A: I can't see your parents in the audience. Did you not tell them about your performance today?
...when it was going to start.
...where I was performing.
...what it was about.
...how long it would last.
...why they should be in the audience.

Results: QUD availability explains acceptability. QUD availability explains some of the variance in acceptability, whereby more predictable questions are more acceptable when sluiced. However, residual variance suggests there's **more to sluicing than QUD availability**.

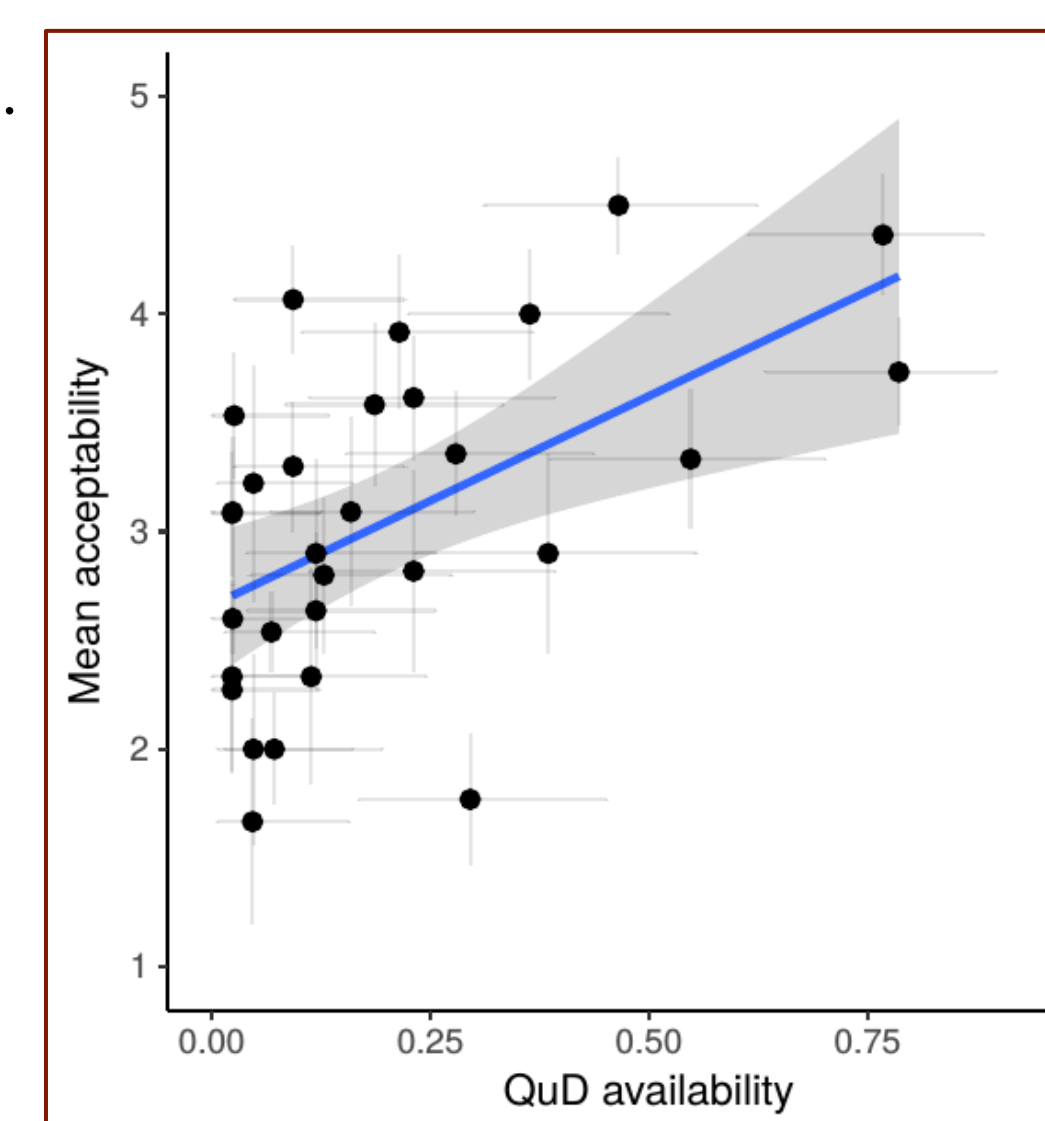


Figure 5. Acceptability (y) as a function of item-by-item “QUD availability” (x). Acceptability increases as a function of QUD availability ($\beta = 1.826, p = 0.037$).

Conclusion

We set out to test the “**No New Words**” generalization, which prohibits the ellipsis of material not present in the antecedent clause. Expt 1 found that canonical cases often found in the literature do follow the **bimodal distribution** the generalization predicts (Figure 1), but there are also cases that achieve **high levels of acceptability** (Figure 2) despite eliding words beyond those provided by the antecedent clause (Figure 3).

We then compared two classes of theories of sluicing with respect to their predictions for nominal-antecedent sluices: those that require **identity** between the elided material and its antecedent; and those that require the sluiced question to be a salient **QUD**. Our experimental results **favor QUD theories** over Identity theories:

- 1) We found a high amount of **variability** in the acceptability of sluices with nominal antecedents, with some cases achieving **peak acceptability** (Expt 2).
- 2) Some (but not all) of the variance in acceptability can be explained in terms of ‘**QUD availability**’ (Expt 3).

Final Remarks

1. While the contrast in (1) remains to be explained (Figure 1), the “No New Words” generalization is overly restrictive (Figures 2 and 4).
2. QUD availability may be necessary, but it doesn't seem to be sufficient: the QUD {Who murdered Joe?} is clearly inferrable from “Joe was murdered,” yet sluicing is unacceptable.
3. Speculative analogy: **Partee's marbles** (Heim, 1982) similarly suggest that ‘referent inferrability’ alone is insufficient for felicitous pronominal reference.
 - (2) a. I dropped ten marbles and found all but one. It is probably under the sofa.
 - b. I dropped ten marbles and found only nine of them. # It is probably under the sofa.

- AnderBois, S. (2014). The semantics of sluicing: beyond truth conditions. *Language*, 90(4), 887–926.
- Barros, M. (2014). Sluicing and identity in ellipsis. Doctoral dissertation.
- Beecher, H. (2007). Pragmatic inference in the interpretation of sluiced prepositional phrases. In *Proceedings of the Fifth University of Cambridge Postgraduate Conference in Language Research* (pp. 9–16).
- Chung, S. (2006). Sluicing and the lexicon: the point of no return. In *Proceedings of the annual meeting of the Berkeley Linguistics Society* (pp. 73–91).
- Chung, S. (2013). Syntactic identity in sluicing: how much and why. *Linguistic Inquiry*, 44(1), 1–44.
- Heim, Irene. (1982). The Semantics of Definite and Indefinite Noun Phrases. Doctoral Dissertation.
- Kotek, H., & Barros, M. (2018). Ellipsis licensing and redundancy reduction: a focus based approach. *Glossa: A Journal of General Linguistics*.
- Merchant, J. (2001). The syntax of silence: sluicing, islands, and the theory of ellipsis. Oxford University Press on Demand.
- Merchant, J. (2007). The syntactic representation of implicit arguments? Handout from ‘Funny indefinites’ workshop, Zentrum für Allgemeine Sprachwissenschaft, Berlin.
- Merchant, J. (2013). Polarity items under ellipsis. In L. L. Cheng, & N. Corver (Eds.), *Diagnosing Syntax*. Oxford University Press.
- Roberts, C. (2012). Information structure in discourse: towards an integrated formal theory of pragmatics. *Semantics and Pragmatics*, 5(6), 1–69.
- Rudin, D. (2018). Head-based syntactic identity in sluicing. *Linguistic Inquiry*, 1–53.

Acknowledgements

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