

Introduction

Traditional accounts posit that ellipsis sites are resolved under syntactic or semantic identity with an overt antecedent [1-6, *inter alia*]. The possibility of exophoric ellipsis [7] calls the exclusively linguistic nature of ellipsis interpretation into question.

If anaphoric ellipses are similarly sensitive to manipulations in the nonlinguistic context, previous accounts must be revised.

Below, two experiments show that anaphoric ellipsis is sensitive to manipulations in the nonlinguistic context in a restricted way.

Experimental Paradigm

Rating tasks on **Amazon Mechanical Turk**. Participants viewed comic strip context, read a 1-2 utterance dialogue between the characters, and provided a rating of the last utterance. Subjects were paid USD 1.50; the task took approximately 15 minutes.

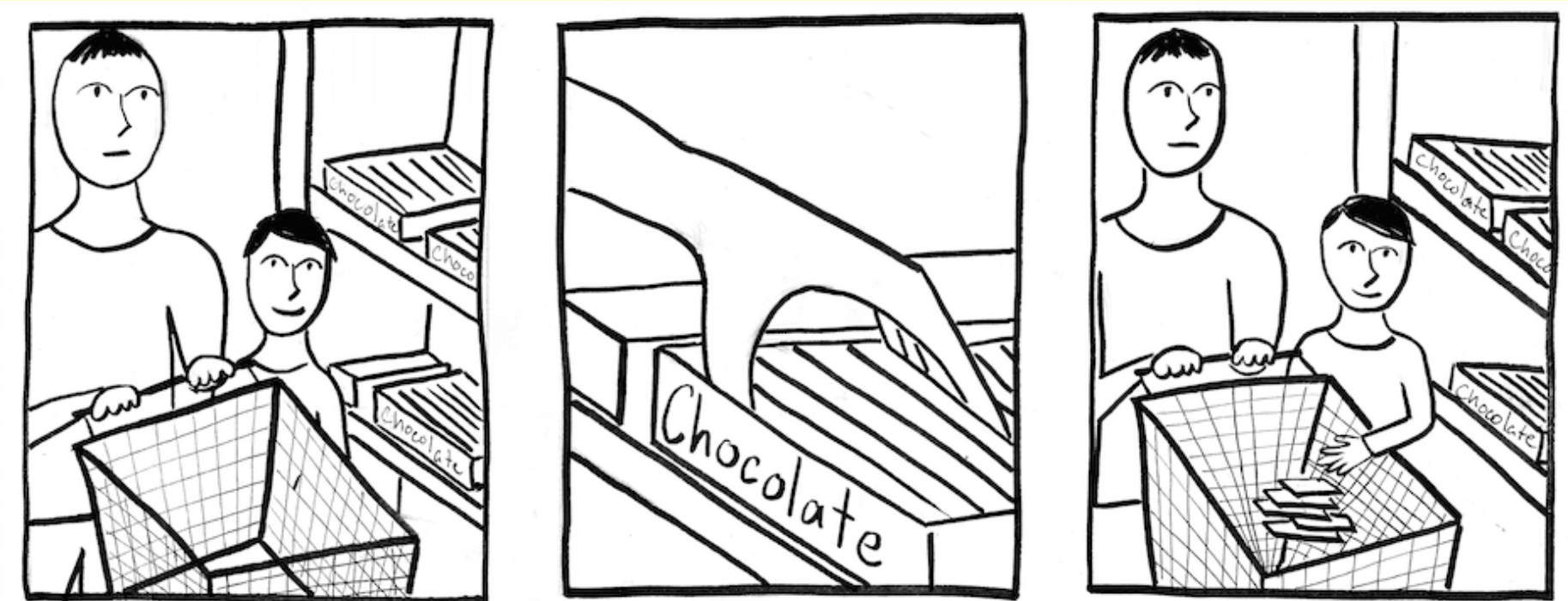
3 (Comic Strip Context) x 3 (Antecedent) x 2 (Interpretation) designs
6 critical scenarios and 10 fillers per subject

Comic Strip Contexts

Unavailable
No numeral
Information



Available
Numeral
information
retrievable



Salient
Numeral
information
highly salient



Antecedents

Exophoric [no antecedent]
Unmodified Son: I want to buy candy bars!
Modified Son: I want to buy five candy bars!

Response and Interpretation

Response from second character and rating solicited from participants varied by experiment

Experiment 1

Question Does changing contextual availability of numeral affect likelihood of numeral being included in VPE interpretation?

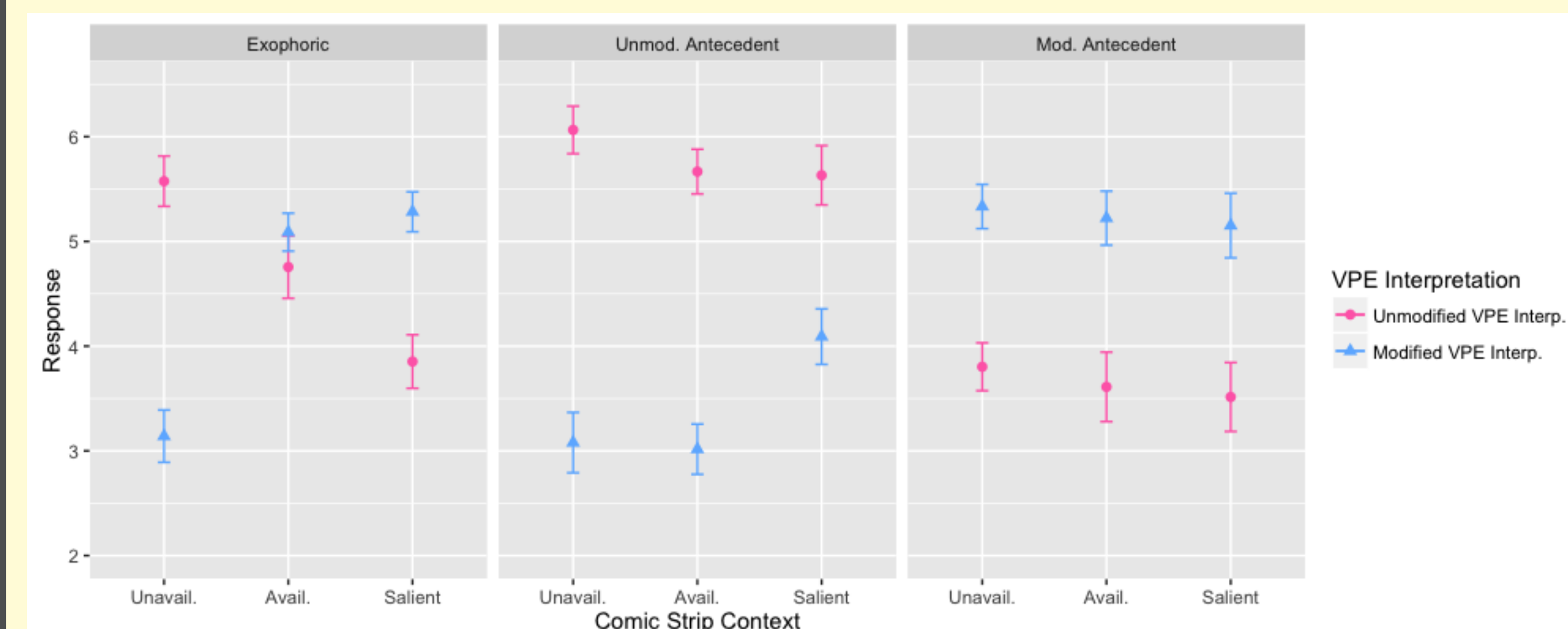
Participants 152 native English speakers (66 male) aged 18-50 (mean=31.8, sd=7.7) included in analysis (41 excluded)

Reply Utterance Father: We can't.

VPE Interpretation Prompts On a scale from 1 to 7, where 1 is the least likely and 7 is the most likely, how likely do you think it is that the father meant...

Unmodified We can't buy any candy bars.
Modified We can't buy five candy bars, but maybe we could buy fewer.

Results



Experiment 1 results. Error bars denote standard error.

Analysis

Overall mixed-effects model on z-transformed data shows significant three-way interaction between Comic Strip Context, Antecedent, and VPE Interpretation ($p < .001$)

By-Antecedent mixed-effects analysis:

Exophoric Sig. interaction b/w Comic Strip Context and VPE Interp. ($p < .001$)
Paired comparisons: Ratings of Unmod. Interpretation decrease as a function of numeral salience in the context, while ratings of Mod. Interpretation increase (all p 's $< .05$)

Unmod. Ant. Sig. interaction b/w Comic Strip Context and VPE Interp. ($p < .05$)
Paired comparisons: No effect of Comic Strip Context on ratings for Unmod. Interpretation (all p 's $> .3$)
Mod. Interpretation rated higher with Salient Context than with Unavailable ($p < .01$) or Available ($p < .001$) Contexts

Mod. Ant. No reliable role of Comic Strip Context in determining ratings

Discussion

- Contextual salience affects exophoric ellipsis interpretation
 - Exophoric* ellipsis interpretable under correct conditions
 - Subjects perceived *numeral salience* gap in Comic Strip Contexts
- Context can affect anaphoric ellipsis interpretation by promoting use of information not present in antecedent, but not by suppressing information present in antecedent
 - Unmodified Antecedents* show antecedent-unfaithful, numeral-modified VPE Interpretation is more strongly considered when numeral information is salient in context
 - Modified Antecedents* show that contextual manipulation has no effect when numeral is included in antecedent
- Antecedent-faithful interpretation is always preferred

Experiment 2

Question Is the effect from Exp. 1 unique to ellipsis, or is the Modified Interpretation also more available for a fully-realized response?

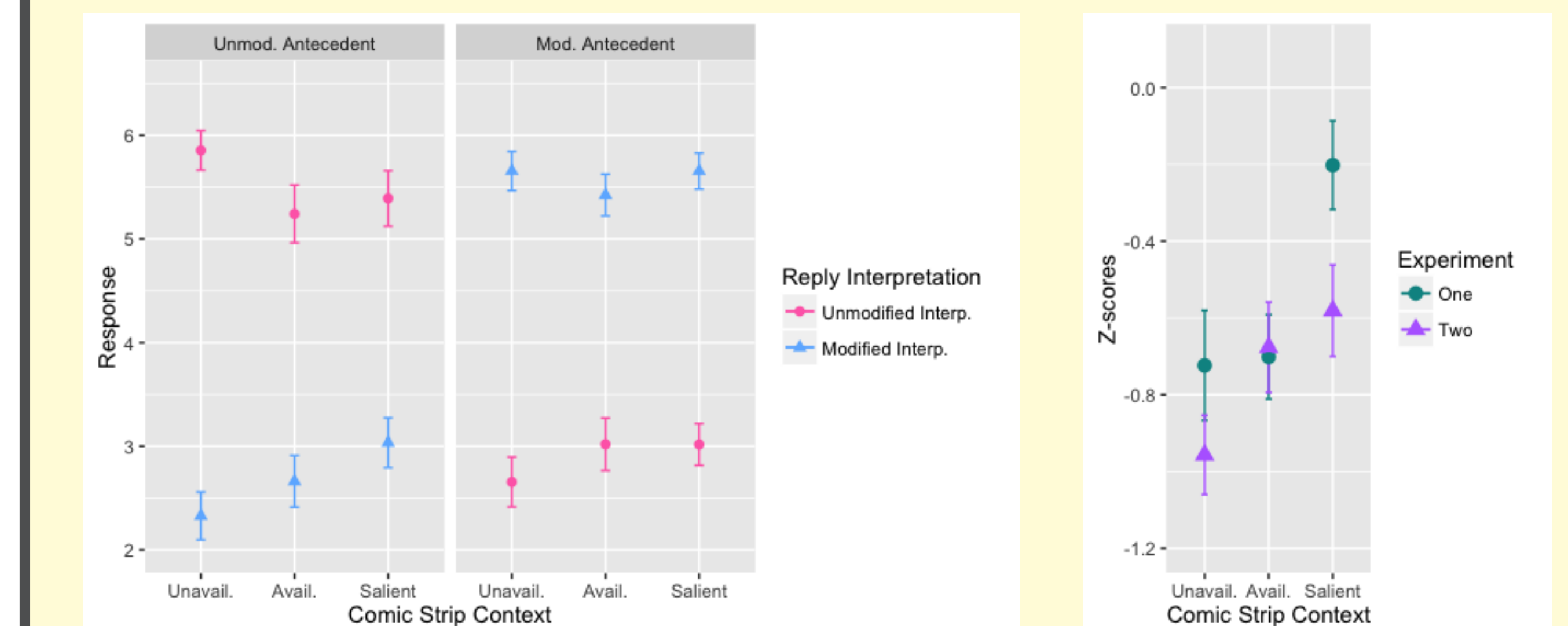
Participants 186 native English speakers (87 male) aged 18-50 (mean=31.9, sd=7.1) included in analysis (26 excluded)

Reply Utterance Identical VP to Antecedent utterance

Unmodified Father: We can't buy candy bars.
Modified Father: We can't buy five candy bars.

Interpretation Prompts Same as Experiment 1

Results



Left: Exp. 2 results. Right: Comparison of z-transformed scores for Unmodified Ant., Modified Interp. between Exp. 1 & 2. Error bars denote standard error.

Analysis

Mixed-effects analysis of z-transformed scores in Unmodified Antecedent, Modified Interpretation conditions from Experiments 1 & 2:

Marginal interaction of Experiment and Comic Strip Context ($p < .1$)

Paired comparisons: Modified Interpretation was considered more strongly in Experiment 1, Salient Context than any other condition considered here (all p 's $< .01$)

Discussion

Interpretations incorporating highly salient information from the non-linguistic context are more available for elliptical utterances than their spelled-out non-elliptical counterparts.

Conclusion

VPE interpretation is more nuanced than previously considered.

Salient non-linguistic information not included in an antecedent VP can be used in interpretation through accommodation mechanisms available with ellipsis, but not fully-realized utterances.

However, interpretations derived using these mechanisms are subordinate to those that are strictly faithful to the antecedent.

References

[1] Hankamer, J. & Sag, I. (1976). Deep and surface anaphora. *Linguistic Inquiry*, 7(3):391-428. [2] Fiengo, R. and May, R. (1994). *Indices and Identity*. MIT Press, Cambridge, MA. [3] Chung, S., Ladusaw, W. A., and McCloskey, J. (1995). Sluicing and logical form. *Natural Language Semantics*, 3:239-282. [4] Dalrymple, M., Sheiber, S. M., and Pereira, F. C. N. (1991). Ellipsis and higher-order unification. *Linguistics and Philosophy*, 14:399-452. [5] Hardt, D. (1993). *Verb phrase ellipsis: Form, meaning, and processing*. Ph.D. Thesis, University of Pennsylvania. [6] Merchant, J. (2001). *The Syntax of Silence*. Oxford University Press. [7] Miller, P. and Pullum, G. K. (2013). Exophoric VP ellipsis. In Hofmeister, P. and Norcliffe, E., eds., *The Core and the Periphery: Data-driven Perspectives on Syntax Inspired by Ivan A. Sag*. Univ. of Chicago Press.