

Grammatical Context Affects Online Scalar Implicature Computation



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Background: What is a Scalar Implicature?

Scalar implicatures, examples

The coffee is warm → not hot
Alfred knows few of the guests → not none
Sally ate some of the salad → not all

The statement of a logically weak term (warm, few, some) implicates that a stronger term (hot, none, all) does not hold.

However, the logical strength depends on context.

Sally ate <u>some</u> of the salad.	If Sally ate <u>all</u> of the salad, then she can have dessert.
Sally ate <u>all</u> of the salad.	If Sally ate <u>some</u> of the salad, then she can have dessert.
Upward-Entailing (UE)	Downward-Entailing (DE)

Thus:

Sally ate some of the salad
= Sally ate some but not all of the salad.

but

If Sally ate some of the salad, she can have dessert.
≠ If Sally ate some but not all of the salad, she can have dessert.

This is because *all* is not logically stronger than *some* in all contexts

Question

- Grammatical context affects offline judgments (Chierchia et al., 2001).
- Does grammatical context affect implicature processing rapidly online?

- Previous evidence that discourse context affects implicature immediately at *some* (Breheny, Katsos & Williams, 2006).
- But weakly constrained manipulation.

Experiment 1

Self-paced reading

Scalar Implicature Condition (N=14)

UE (10): John ate/some of the cookies/this morning/before breakfast,/and the rest/are on the counter.

DE (10): **if** John ate/some of the cookies/this morning/before breakfast,**then** the rest/are on the counter.

Predictions: Longer RTs for *the rest* in the DE vs. UE condition.

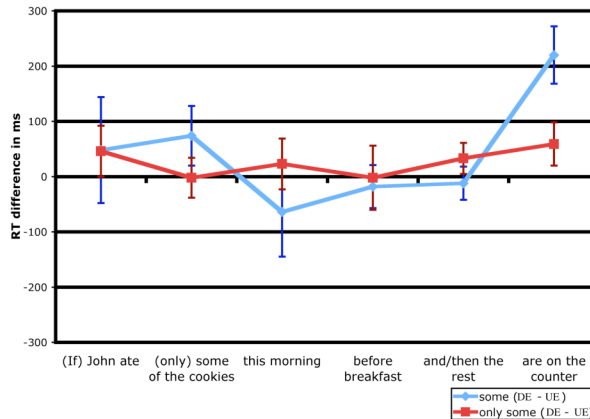
Entailment (Control) Condition (N=14)

Worry: RT differences in experimental stimuli could be due to processing of conditionals (if/then statements).

UE (10): John ate/**only** some of the cookies/this morning/before breakfast,/and the rest/are on the counter.

DE (10): **if** John ate/**only** some of the cookies/this morning/before breakfast,**then** the rest/are on the counter.

Predictions: No differences between UE or DE.



Discussion

- No signature of cost of calculation (*contra* Breheny, Katsos & Williams, 2006).
- Calculation completed prior to *the rest*.

Experiment 2

Question: How rapid is implicature calculation?

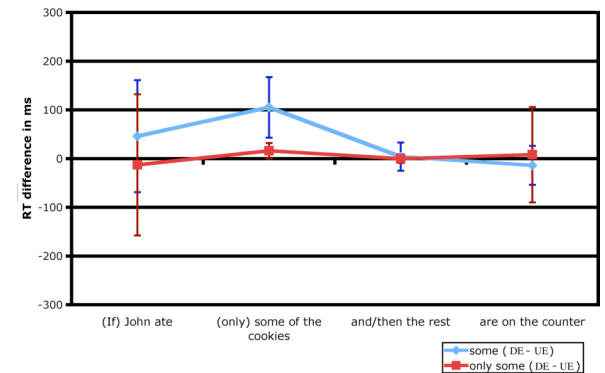
Sentences shortened by removing segments between *the rest* and some (e.g., John ate some of the cookies, and the rest are on the counter).

Subjects

Scalar Implicature Condition (N=22)

Entailment (Control) Condition (N=24)

Predictions: No differences between UE or DE in either condition.



Conclusions

- Grammatical context does affect scalar implicature online in processing.
- Scalar implicature calculation (or cancellation) is relatively slow (*cf.* Breheny et al., 2006; Bott & Noveck, 2004)
- No evidence of immediate scalar implicature computation (*contra* Breheny et al., 2006)

Questions:

- Is scalar implicature calculation or cancellation slow?
- (How) did Breheny et al. elicit rapid calculation?

References

- Breheny, R., Katsos, N., & Williams, J. (2006). Are generalized scalar implicatures generated by default? An on-line investigation into the role of context in generating pragmatic inferences. *Cognition*, 100, 434-463.
- Bott, L., & Noveck, E. A. (2004). Some utterances are underinformative: The onset and time course of scalar inferences. *Journal of Memory and Language*, 51, 437-457.
- Chierchia, G., Crain, S., Guasti, M. T., Gulmini, A., & Meroni, L. (2001). The acquisition of disjunction: Evidence for a grammatical view of scalar implicatures. In A. H. J. Do, L. Dominguez & A. Johansen (Eds.), *Proceedings of the 25th annual Boston University conference on language development* (pp. 157-168). Somerville, MA: Cascadia Press.