Grammatical Context Affects Online Scalar Implicature Computation

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Background: What is a Scalar Implicature?

Scalar implicatures, examples

The coffee is warm \(\rightarrow\) not hot
Alfred knows few of the guests \(\rightarrow\) not none
Sally ate some of the salad \(\rightarrow\) not all

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

However, the logical strength depends on context.

Sally ate some of the salad.

If Sally ate all of the salad, then she can have dessert.

If Sally ate some 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

\(\neq\) If Sally ate some of the salad, she can have dessert.
\(\neq\) 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 affects scalar implicature computation online.
- Scalar implicature calculation (or cancellation) is relatively slow (Breheny et al., 2006; Bott & Novick, 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


