

Model design in R: Class 3

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Today's class

- Go through a concrete example with data from a recent SemPrag paper.

Implicatures

(1) Mary saw some of the students

↪ Mary didn't see all of the students

- Neo-Gricean theory:
 - ⟨some, all⟩ form a scale
 - Pragmatic principles lead to negation of stronger alternatives
- Grammaticalist theory:
 - Implicatures result from silent application of EXH operator
 - Pragmatics only decides between various parses with EXH

Embedded implicatures

- (2) Every teacher saw some of the students
 \rightsquigarrow Not every teacher saw all of the students
 \rightsquigarrow No teacher saw all of the students

☞ 3 possible readings, ordered by entailment

- Literal: no EXH
- Global: EXH > every > some
- Local: every > EXH > some

Local \rightarrow Global \rightarrow Literal

Embedded implicatures

Different quantifiers \Rightarrow different entailment patterns:

(3) No teacher saw some of the students

Literal = Global \rightarrow Local

(4) Exactly two teachers saw some of the students

Global \rightarrow Literal, Local independent from both

Usually, we're mostly interested in the controversial Local reading.

Experiment

Goal: compare the rates of local readings under each quantifier.

- under *every*: Local false, Literal/Global true
- under *no*: Local true, Literal/Global false
- under *exactly two*: both options possible
 - ☞ Let's go with Local true, Lit/Glob false.

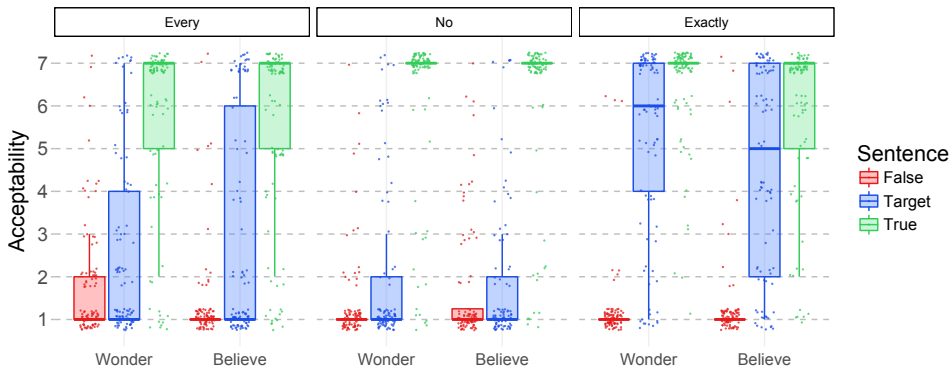
By the way: instead of the usual “some but not all” implicature, we're interested in distributed ignorance under attitude verbs:

- (5) Sarah wonders whether Ann, Bill or Chris broke the vase
- (6) Sarah believes that Ann, Bill or Chris broke the vase
 - ↪ Sarah considers it possible that Ann broke the vase.

Methods

- Acceptability judgment task on a 7-point Likert scale
- Quantifier and Verb are between-subject
- Each participant only see one target item, one false control, and one true control
- 96 MTurk participants per condition
- After removing retakes and non-native speakers: 543 unique participants.

Results



Every: Local false, No/Exactly two: Local true.

How to parametrize our analysis?

		(inter)	X_1	X_2	X_3	...	X_8
every	False	1					
	Target	1					
	True	1					
no	False	1					
	Target	1					
	True	1					
exactly	False	1					
	Target	1					
	True	1					

NB: Because of ordinal data, we're stuck with an intercept.

One possible parametrization

		(inter)	Local	Range	Q:no	Q:ex2	...
every	False	1	0	0	0	0	...
	Target	1	-1	1	0	0	...
	True	1	0	1	0	0	...
no	False	1	0	0	1	0	...
	Target	1	1	0	1	0	...
	True	1	0	1	1	0	...
exactly	False	1	0	0	0	1	...
	Target	1	1	0	0	1	...
	True	1	0	1	0	1	...

- Quantifier follows the default R coding with *every* as baseline.
- Interactions simply correspond to the 4 possible products between Local/Range and the two levels of Quantifier.
- See associated script for implementation and results (or [paper](#))