



Getting Implicatures Wrong

Chris Cummins

c.r.cummins@gmail.com

Linguistics and English Language, University of Edinburgh

Quantity implicatures

- Classically, meaning conveyed when the speaker chooses not to use an informationally stronger alternative
 - Most-discussed example: “some” +> “not all”
I saw some of your children today
+> *I didn't see all of your children today*
- Again classically, a form of intentional communication
 - Hearer of “some” reconstructs that speaker’s intention is to convey “some but not all” (because if not...)

Experimental oddity

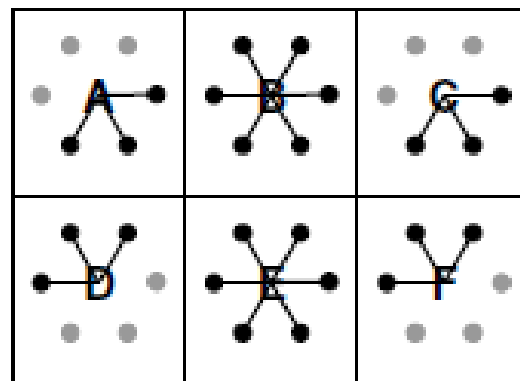
- We seem to be very adept at recovering the speaker's communicative intention
 - although of course we may also think other thoughts...
- Yet, in a series of experiments, adults are not near ceiling in (deriving implicatures) giving implicature-compliant responses

- “B is connected to some of its circles”

Is it true that B is not connected to all of its circles?

Is it possible that B is connected to all of its circles?

Is this sentence true for this picture?



A real problem? Or just an artefact?

- The experiments in question tend to use isolated fragments of (“possible”) language/dialogue
 - No real speaker
 - No real intention
 - No communication, ergo no miscommunication
- In real dialogue, we’d have access to much more context
 - Perhaps this causes the differences in interpretation to vanish

The case of numerical expressions

- “more than 80” \rightarrow “not more than 100”,
but \nrightarrow “not more than 81” (Cummins, Sauerland & Solt 2012)
- Reasoning related to structure of mental number line
 - 80, 100 highly accessible/salient, 81 is not
 - Median “upper bound” for “more than 100” higher than for “more than 110”, which is hard to explain otherwise!
- “Implicature” disrupted by prior context

“This case holds 80 CDs. How many do you have?”
“I have more than 80 CDs.”

 - Possible (general) explanation: alternative “more than 100” wouldn’t have been relevant in this case, hence its truth or falsity is not considered by the hearer

Non-salient numbers

- “more than 97” +> “not more than 100”, but not “not more than 98”
 - Same is true of “more than three” etc. in cardinal cases
 - Hard to explain why, except by appeal to the oddness of the resulting interpretation (which is a long way round)
- Idea: hearers infer relevance of the specific number
 - That is, they guess that there’s some unspecified prior context that causes the non-salient number to be used
 - If so, this would have methodological implications
 - Also could have theoretical implications, including for (yes!) the success or failure of communication

The issue: variability of interpretation

- “more than 100” can variously be interpreted as “not more than 110/125/150/200” or none of the above
 - No problem if that’s because the participants are imagining different discourse contexts
 - But perhaps a problem if they’re not
 - Speaker could say “more than 100” intending to convey one thing and convey another
 - Likewise if a doctor tells you that the chances of side-effects are “less than 5%”, meaning 1-5%, and you take that to be 4-5%
 - Or if you report that $p < 0.05$...

Miscommunication?

- Potentially very hard to detect miscommunication of this kind
 - Unlike speech act misrecognition or errors in reference, it's very unlikely that there will be a trigger for explicit repair negotiation
 - [*Some range of values*] is successfully conveyed in any event
 - Extreme example: “The UK’s national debt is £1500 billion”

Pilot study: inferring prior context

- Using materials drawn from BNC
- 31 MTurk participants asked to respond to four questions, each on a 5-point Likert scale
 - *...more than 60...*
 1. In the speaker's opinion, the actual number of [X] is less than 80
 2. The speaker said "more than 60" because that was the most informative statement possible.
 3. The speaker said "more than 60" because that was a convenient approximation.
 4. The speaker said "more than 60" because the specific number 60 was important for some reason.

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- Using materials drawn from BNC
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- 12 items: 2 x 2 (roundness x quantifier) x 2 instances, plus 4 instances of “more than” + small integers
- Two versions, balanced design – results pooled here

Pilot study: inferring prior context

- Overall, strong negative correlation between responses to Q1 and Q4, analysed by item ($r = -0.67$)
 - Perceived relevance of the number suppresses the implicature
 - Coheres nicely with a traditional pragmatic account

More than	Q1	Q2	Q3	Q4
Round numbers	3.46	3.44	4.08	2.98
Non-round numbers	3.63	3.68	3.29	3.11
Small numbers	2.02	3.43	3.29	3.58
At least				
Round numbers	3.37	3.68	3.90	3.10
Non-round numbers	3.27	3.87	3.21	3.27

Pilot study: inferring prior context

- Overall, strong negative correlation between responses to Q1 and Q4, analysed by item ($r = -0.67$)
 - Perceived relevance of the number suppresses the implicature
 - Coheres nicely with a traditional pragmatic account
- Large non-round numbers may be relevant but implicatures available anyway?



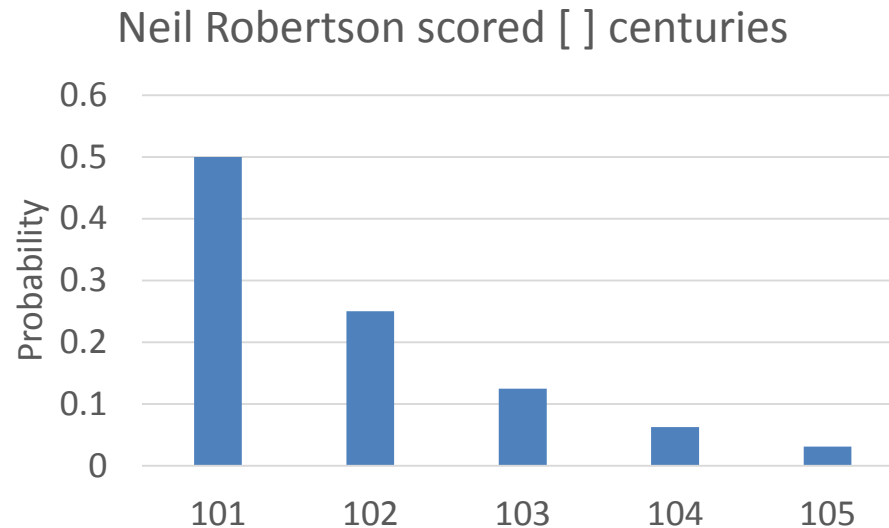
103 centuries



61 centuries

But what can we recover?

- Suppose my knowledge state looks like this:



- If I now say “more than 100”, what *is* my intention? Can we say? Must I even know?

Summary

- Some theoretically and practically interesting questions arise about miscommunication with implicatures
- I think the domain of numbers is an interesting one to explore with these questions in mind
- Pilot data seems to support a view in which hearers are
 - very adept at recovering speakers' intended meanings
 - but strongly disposed to infer contexts when interpreting sentences out of the blue, with complex consequences
 - and potentially exhibiting differences in their interpretations (only?) as a consequence of this disposition