Universität Bielefeld

SFB 673

A speaker-referring OT pragmatics of quantity expressions

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OT pragmatics

- Hendriks and de Hoop (2001)
  - (unidirectional) hearer-referring
  - treats (in the first instance) anaphora resolution (e.g. 'one')
- Blutner (2000, 2006, i.a.)
  - argues need to appeal also to speaker
  - proposes bidirectional OT account to pair forms and preferred interpretations
  - which doesn't directly address processing
  - Two approaches (strong and weak bidirection) to recovering e.g. Hornian markedness implicatures

Speaker-referring OT pragmatics?

- Treating authorship of utterances as a problem of constraint satisfaction
- Hearer's task then diverges from that of speaker
- cf. Dual Optimization (Smolensky 1996) – separate optimization of production and comprehension

Numerically quantified expressions

- Potentially fruitful domain for speaker-referring OT account:
  - Numerous semantically appropriate options to be selected among
  - Convenient metric for quantifying some constraint violations, namely the number system itself
  - Use of such expressions involves balancing semantic, pragmatic and psychological factors, typically explored separately

Proposed constraints

- Informativeness
- Granularity
- Numeral salience
- Quantifier simplicity
- Numeral priming
- Quantifier priming

} Markedness constraints

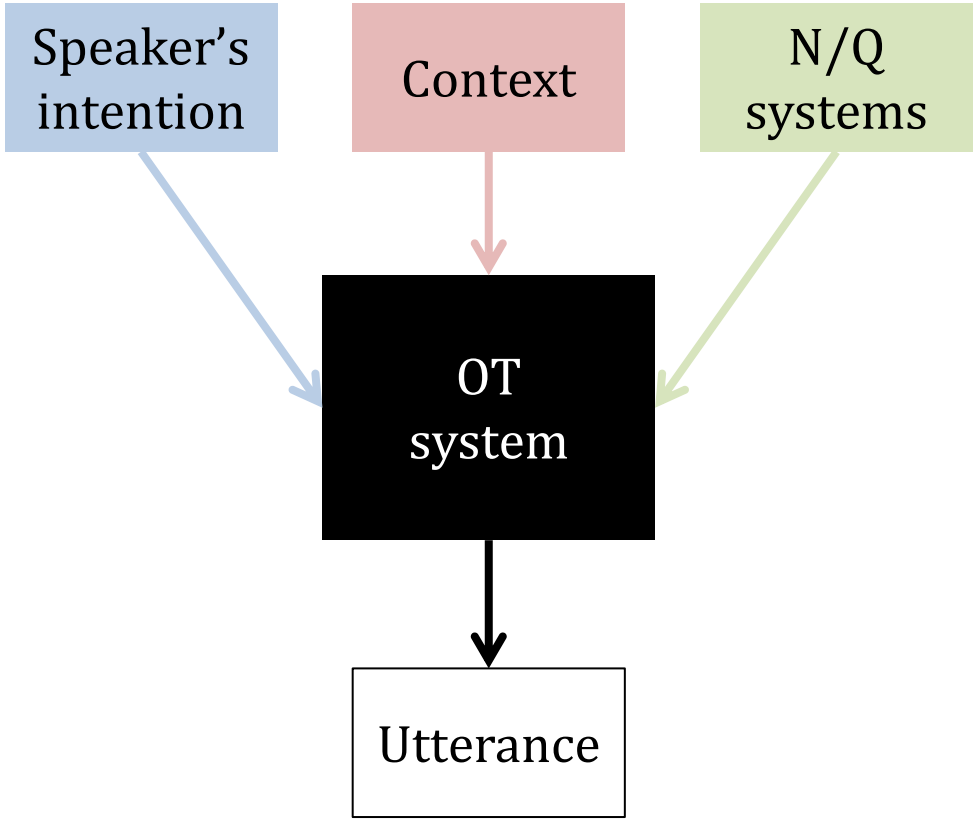
- Defensible individually on a range of psychological and philosophical grounds (Cummins 2011)

Some applications

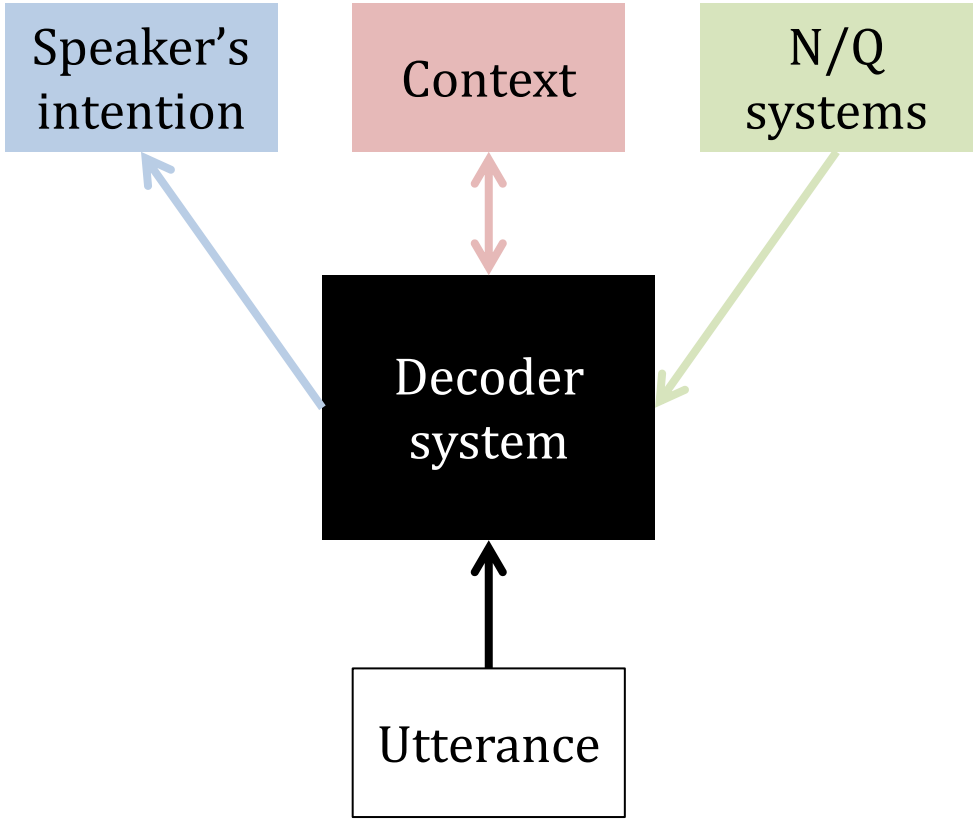
- Pragmatic account of differences between comparative and superlative quantifiers observed by Geurts and Nouwen (2007)
- Non-bidirectional account of the preferred approximate interpretation of round number words (vs. Krifka 2009)
- Novel predictions about interpretation of expressions with 'more than *n*' etc. (Cummins, Sauerland and Solt 2012)

- However:
  - To the extent that these involve interpretations, they suppose some account of how the hearer is able to decipher the expressions

Speaker-hearer asymmetry



Speaker-hearer asymmetry



Example speaker task

- *Describe a situation with 95-97 people present*
- Options include
  - More than 94
  - More than 93
  - More than 90
  - More than 80
  - etc.

- Idea (can be made precise): numeral salience favours "more than 90", informativeness favours "more than 94"
  - "more than 90" harmonically bounds "more than 80"

Example speaker task + ε

- *Describe a situation with 105-107 people present*
- Options include
  - More than 104
  - More than 103
  - More than 100
  - More than 90
  - etc.

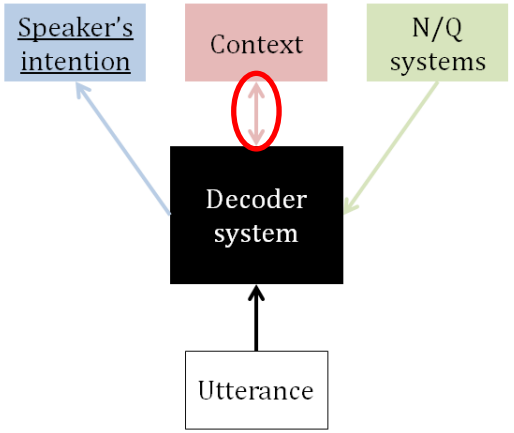
- Numeral salience now favours "more than 100"
  - "more than 100" now harmonically bounds "more than 90"
  - Utterance of "more than 90" **conveys** "not more than 100"

Unless….

- *Describe a situation with 105-107 people present*
  ***in a context** where 90 is salient in the discourse*

- Numeral priming now favours "more than 90"
  - Utterance of "more than 90" in such a context **does not convey** "not more than 100"
  - So if you think it's that kind of context…

"Sachin Tendulkar has now scored more than 11,953 runs…"



‘Constraining’ the hearer

- How does the hearer select the pragmatically useful alternatives to consider?
  - e.g. “more than 90” implicates “not more than a million”, but…

- In the numeral case, could appeal to scale granularity
  - Consider whether it’s possible to infer that the statement at the next scale point (in the appropriate direction) would be false

“There were more than 90 people” +> “not more than 100”

“He was more than 6 months old” +> “not more than 9 months”

“It takes less than 45 minutes” +> “more than 30 minutes”

‘Constraining’ the hearer

- In the quantifier case, could consider substitutions

  “Mary had at least three drinks”

  +> S cannot assert that “Mary had more than three drinks”

  +> S cannot assert that “Mary had (exactly) three drinks”

  => S considers it possible, but not certain, that Mary had exactly three drinks

‘Constraining’ the hearer

- In the quantifier case, could consider substitutions

  “Mary had more than three drinks”

  … “at least” would be informationally weaker

  … “(exactly) three” is already contradicted

  … so no implicature

- To consider a stronger expression, need to change the number – but that may not be allowed!

What kind of pragmatics?

- Considering specific alternatives…
- …but inferring their falsity only under specific conditions
- Intermediate between default and contextual accounts (?)

- Follows Levinson's (2000) intuitions about the need for heuristics
- Doesn't obviously collide with the experimental evidence showing an apparent lack of default reasoning

Conclusion

- Speaker-referring OT account yields new predictions about usage of numerically quantified expressions
- Predictions about interpretation can be derived
  - These borne out in early experimental investigations
- Potential to generalise to other domains
- With suitable heuristics, basis for a plausible processing model
  - Subject to possibility of psychological instantiation, and …

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