



Inferences from, and about, context in a joint inference model of utterance interpretation

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Quantity expressions

- Focus of much experimental pragmatics work
 - Which components of meaning are semantic?
 - What pragmatic processes are involved in enriching these meanings?
- However, striking limitations in how context is instantiated/controlled in these experiments

The ubiquitous *some* (*but not all*)

- Reasonably clear that “not all” is a pragmatic enrichment
 - Otherwise, difficulties in giving intuitively appealing accounts of e.g. *If some of the students fail, I'll be disappointed*
- Much research looks at what process(es) are responsible
 - Gricean?
 - Relevance-theoretic?
 - Q-inference? (Horn 1989)
 - GCIs? (Levinson 2000)
 - Grammatical? (Chierchia 2004)
 - Rational Speech Act inferences?
 - Typicality effects?
 - Something else?

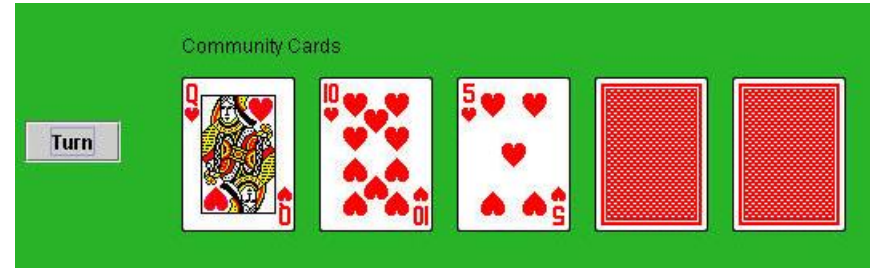
Testbed: underinformative statements

- Adult participants are conveniently (?) split on TVJs for underinformative statements with weak scalars
 - e.g. *Some elephants are mammals*
- This could index whether or not they draw the implicature
 - Hence, could compare yes-responders (-SI) with no-responders (+SI), and interpret differences as indicating the emergence of an SI
- But it might not...
 - A yes response doesn't mean that the participant hasn't drawn the SI, just that they haven't responded to the TVJ in a way that reflects it
 - Although adult participants differ in which binary judgement they render, given the opportunity they almost all express uncertainty ("not exactly true", "neither true nor false")
 - This suggests widespread awareness of at least the potential for an implicature, but disagreement about how to feed that into the TVJ

Permeability to other context features

- Whether *some* is taken to rule out 'all' seems to depend on a number of other contextual factors

- Speaker knowledgeability
(*Some of the cards are hearts*)



- Relevance of the stronger proposition to the current discourse purpose (Breheny et al. 2006; *Some of my relatives are visiting*)
- Face-threat of stronger alternative? (Bonneton et al. 2009; *Some people hated your poem*)
- Argumentative agenda?
 - Speaker might withhold the stronger information even while being cooperative: *Some of us are going for a drink later* as a no-pressure invitation

How to judge 'underinformative' sentences?

- Confronted with *Some elephants are mammals* out of the blue...
 - ...might first notice that this is underinformative and could be intended to convey 'not all elephants are mammals'
 - And then consider whether there's a reason why the speaker might have produced that utterance without intending the implicature
 - Might they be ignorant of whether all elephants are mammals?
 - Might the stronger statement be (more) face-threatening? (e.g. producing this in response to *Elephants aren't mammals!*)
 - Might this be enough for the current discourse purpose? (e.g. *Tell me a fact about some elephants; Complete the sentence Some elephants...*)
 - Could then judge the sentence true if we think there's some plausible reason for the implicature not to have been intended, false otherwise
- Reasonable to worry that there's a lot going on under the surface which bears on our interpretation of the experiment

Embracing the uncertainty...

- Note: this limitation is not an experimental artifact, but an expression of the way things really are
 - We don't generally know in advance about a speaker's knowledge state, perception of discourse relevance, or argumentative agenda
 - We can draw (or at least entertain) inferences about these things while also considering whether to draw quantity inferences

Some elephants are mammals

Speaker doesn't understand how taxonomy works

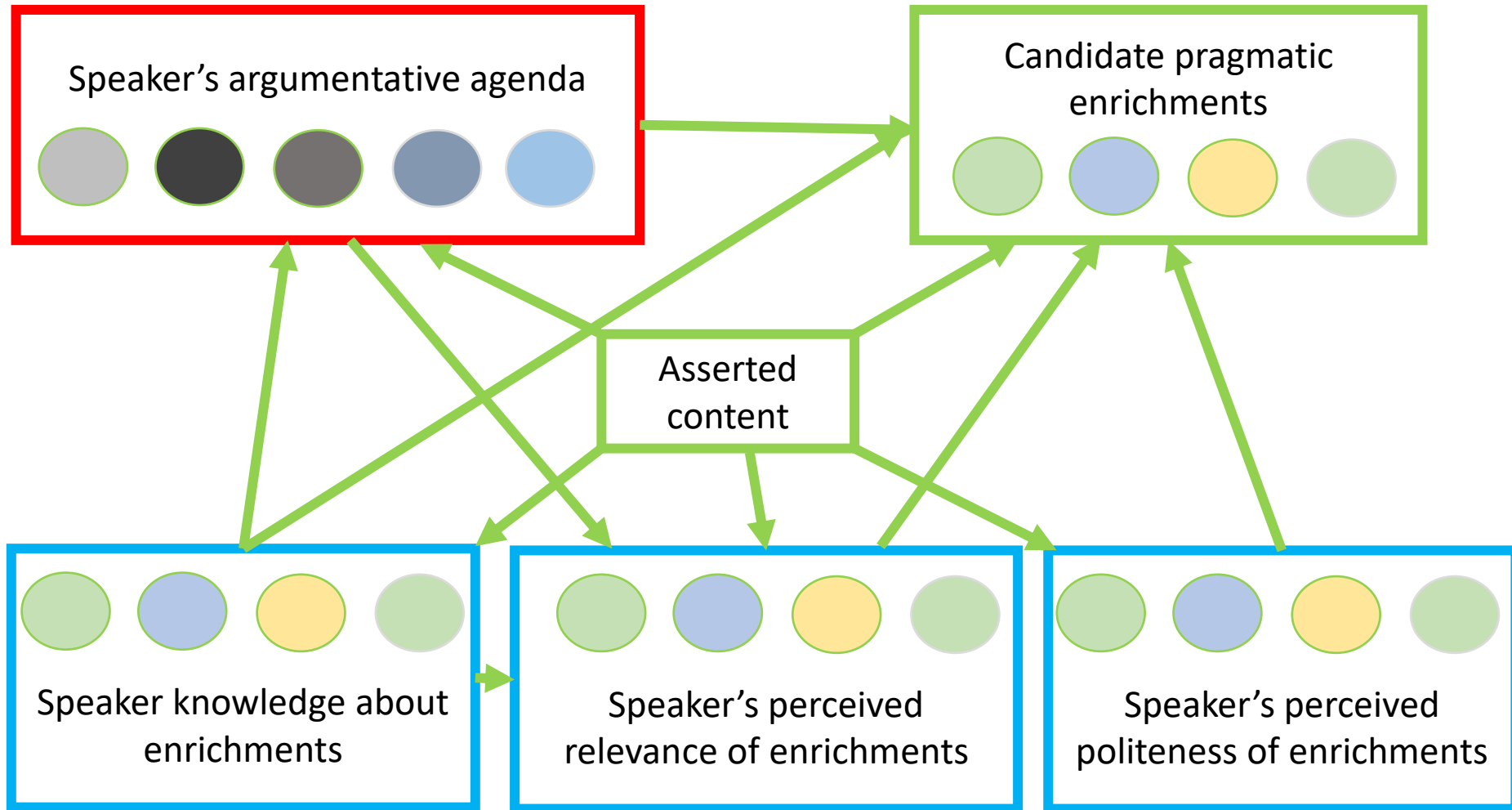
Speaker intends to convey that not all elephants are mammals

Speaker is experimental pragmatics researcher

Inference to the best explanation

- All these considerations – intention, knowledge state, relevance, politeness, argumentativity, etc. – are in play at the same time and bear upon production choices
- Any one of them (or combination of them) might in principle be responsible for the speaker's decision to use a weak scalar rather than a stronger alternative
- In principle we're looking for the (single) explanation of why the speaker said what they did
 - Could involve one factor: e.g. if I think you're conducting an experiment, I don't need to care about anything else
 - Could involve multiple factors, e.g. as in the politeness examples, where the speaker is weighing up the relevance vs offensiveness of the stronger alternative

Sketch of a model of interpretation



Sketch of the process

- An utterance is heard and its semantic content extracted
- A process of Bayesian update takes place over the propositions that are part of the nexus involving the pragmatic enrichments
 - This includes the candidate enrichment itself, e.g. the corresponding ‘not all’ meaning for a ‘some’ utterance
 - If the subjective probability of ‘not all’ exceeds a particular threshold, the hearer takes it to be true and considers the utterance to have conveyed this meaning as a quantity implicature
 - If it does not (e.g. because enough subjective probability is attached to competing explanations of the use of ‘some’, such as speaker ignorance), the implicature is not drawn (although note that the hearer’s perception of this probability will still have changed)

Many questions arising...

- ...but some of these perhaps important in general
 - How do we identify the relevant propositions, and how do we represent them?
 - What is the nature of the process of update, and in what order are these updates performed?
 - What role does the speaker's communicative intention play in such an account? (also applicable to RSA)
 - Do we need to capture this notion of 'subjective certainty' of implicatures? And is this possible in a threshold-based way? (Challenges include propositions with very low prior probabilities, e.g. *I heard all of the Verdi operas*)

My case for pursuing this

- This kind of model does offer some prospects for synthesizing disparate factors into a single coherent account
- It also invites interesting questions about the interplay of different factors
 - Can we, for instance, draw either/or inferences in potential quantity implicature contexts?
 - Note that these are (subjectively) pretty common in higher-level pragmatic processes: we might consciously wonder whether or not someone was joking, hinting, using hyperbole, etc.
 - Can this also happen at a sub-sentential level?

References

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