



Probability and processing speed of scalar inferences is context-dependent

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Background

Listeners infer what is implicated by the speaker by making use of various linguistic and contextual cues. [1,2]

Does the contextual support provided by **implicit QUD** and a **lexical cue** (absence of partitive "of") modulate robustness of scalar inferences?

Does the contextual support provided by **implicit QUD**, a **lexical cue** (absence of partitive "of") and **responder type** modulate speed of scalar inferences?

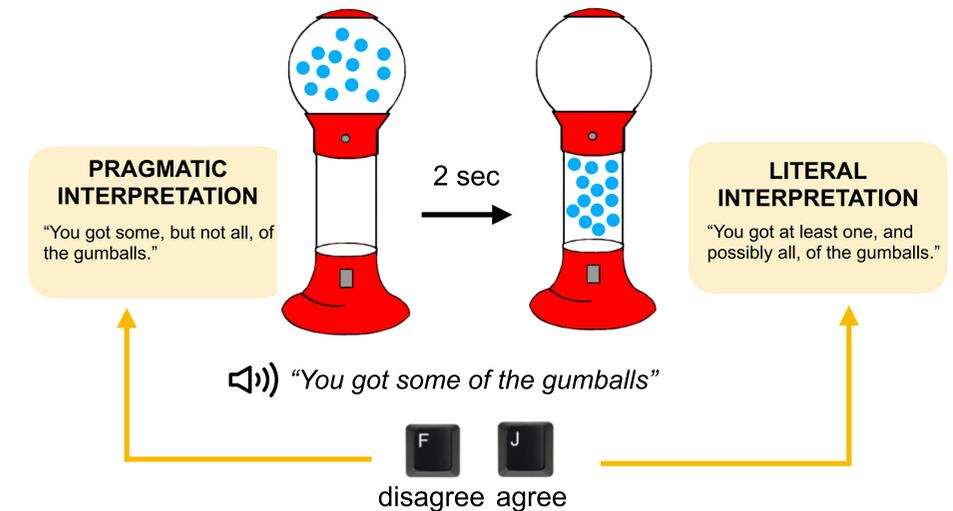
Costly-inference account: literal information is processed before pragmatic information [3-5]

Prediction: literal responses should always be faster than pragmatic responses, regardless of the contextual information participants are provided with.

Constraint-based accounts: robustness and speed of inference should be modulated by its contextual support [6,7]

Prediction: the more the context supports the inference, the faster participants should be to provide a pragmatic response and the slower they should be to provide a literal response.

Method: Gumball Paradigm



Exp. 1: Partitive

Participants (n=800, MTurk) heard the statement: **"You got some of the gumballs"**

Participants were assigned to one of two groups and read a cover story designed to establish an implicit QUD:

all-QUD	any-QUD
You are at a candy store and are testing a row of gumball machines. These are special gumball machines that say how many gumballs you got. However, this report is sometimes faulty.	The store worker tells you that machines sometimes jam and don't deliver any gumballs. His boss has threatened to fire him if the gumball machines stay jammed, and he really needs this job. He cannot see the machines from the register, but he can normally tell if they are working by the machines' statements.
The store worker tells you that his boss has threatened to fire him if the gumball machines are left empty, and he really needs this job. He cannot see the machines from the register, but he can normally tell how full they are by the machines' statements.	The store worker tells you that machines sometimes jam and don't deliver any gumballs. His boss has threatened to fire him if the gumball machines stay jammed, and he really needs this job. He cannot see the machines from the register, but he can normally tell if they are working by the machines' statements.
He asks you to tell him if the statement is right or wrong, so that he will know if a machine is empty and needs to be refilled.	He asks you to tell him if the statement is right or wrong, so that he will know if a machine isn't working and need to be fixed.

After you hear the statement, you have 4 seconds to notify the store worker, so please make a decision as quickly as possible.

independent variables: quantifier (*some/some of, none of, all of, number*), set size (0-13)

experiments, raw data, scripts: https://github.com/leylakursat/QUD_relevance preregistration: <https://osf.io/xkh8g> (Exp. 1), <https://osf.io/49uqm> (Exp. 2)

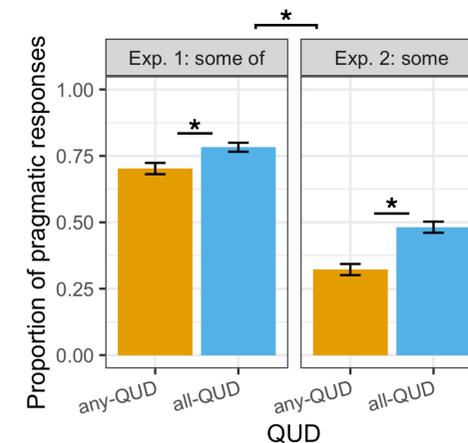
Exp. 2: Non-partitive

Participants (n=800, MTurk) heard the statement: **"You got some gumballs"**

Discussion

- Identified conditions under which pragmatic responses are provided more quickly than literal responses; evidence against costly inference account
- Replicated previous findings showing that both a QUD that makes the stronger alternative more contextually relevant and the presence of the partitive increase the rate of scalar inferences.
- Doesn't provide direct evidence for constraint-based account: contextual cues to pragmatic meaning may guide listeners' overall expectations for likely meanings, which in turn affect how much processing effort must be invested to arrive at a particular response

Results

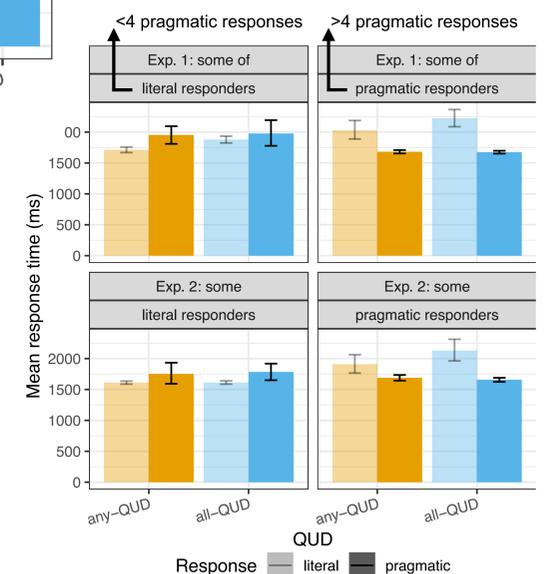


Response Times

- literal responses faster than pragmatic for literal responders, pragmatic responses faster than literal for pragmatic responders
- literal responses faster under the any-QUD than the all-QUD

Judgments

- more pragmatic responses under the all-QUD and with partitive sentences



References

[1] Zondervan (2010). [2] Marty & Chemla (2013). [3] Bott & Noveck (2004). [4] Huang & Snedeker (2009). [5] Huang & Snedeker (2011). [6] Degen & Tanenhaus (2015). [7] Degen & Tanenhaus (2019).