The role of individual differences in the context-dependent interpretation of *some*

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INTERPRETING *SOME* IN CONTEXT

The quantifier *some* is often interpreted with a *not all* implicature:
Speaker A: "Did you find all the books?"
Speaker B: "I found some books."
(upper-bound reading: *some but not all* of the books)

However, the *not all* implicature does not arise in contexts where it is irrelevant whether *all* applies (Roberts, 2004; Zondervan et al., 2008):
Speaker A: "Did you find any books?"
Speaker B: "I found some books."
(lower-bound reading: *some and possibly all* of the books)

Most studies have focused on *some* in isolation by testing whether participants generate an implicature for underinformative sentences like *Some turtles have shells*, thus treating them as infelicitous.

In contrast, relatively few studies have looked at *some* in context to test whether participants interpret *some* either with or without the implicature depending on the demands of the context (e.g. Degen & Goodman, 2014, *paragraph-length picture-sentence verification*; Politzer-Ahles & Fiorentino, 2013, *self-paced reading*).

Current study: We directly test to what extent the interpretation of *some* is conditioned by context in brief story vignettes using story-sentence matching.

INDIVIDUAL DIFFERENCES IN INTERPRETING *SOME*

Previous research has revealed robust individual differences in whether *some* is interpreted with the *not all* implicature in underinformative sentences (e.g. Hunt et al., 2013; Noveck & Posada, 2003).

However, it remains unknown to what extent individuals vary regarding the ability to interpret *some* either with or without the implicature as called for by the demands of the broader context, and which skills may be crucial for generating a context-dependent interpretation of *some*.

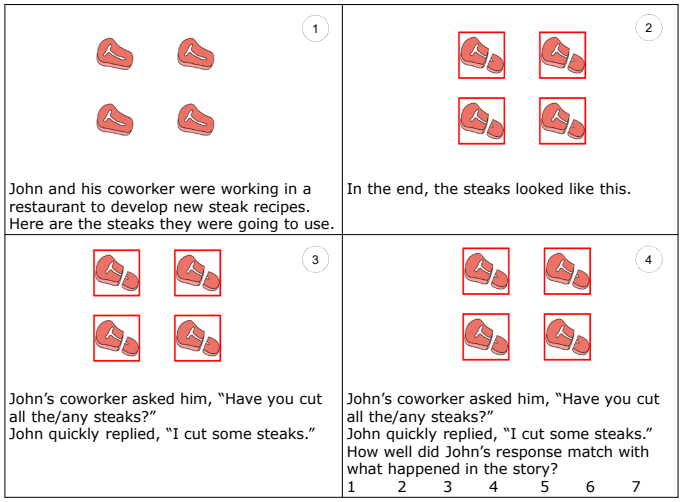
Current study: Ours is the first study to our knowledge to test for the presence and possible origins of individual differences in the context-dependent interpretation of *some*. We examine individual variation in:

- **Processing skills:** Sufficient processing skills (e.g., working memory capacity) may be required to generate implicatures (Dieussaert et al., 2011; Marty & Chemla, 2013; cf. Antoniou et al., 2016), and to interpret *some* in context, which requires one to encode and maintain information from throughout the story to interpret *some*.
- **Sensitivity to context:** We assess individuals on a domain-general measure of context sensitivity for the first time, as the ability to detect and utilize contextual cues is crucial to generating a context-dependent interpretation of *some.*
- **Pragmatic abilities:** Whether or not an individual interprets *some* with the implicature has been argued to be linked to an individual's socio-cognitive skills (Nieuwland et al., 2010).
- **Language skills:** Those with better language skills may be better able to select among the two ambiguous meanings of *some* in context, and language skills are known to influence sentence comprehension success (e.g. Boudewyn et al., 2012; Van Dyke et al., 2014). We investigate whether individual differences in language skills impact the interpretation of *some* in context for unimpaired adults for the first time, to our knowledge (Katsos et al., 2011; Pijnacker et al., 2009).
- **Attentional control:** Although not often tested in this literature (cf. Antoniou et al., 2016), sufficient attentional control may be required to suppress one interpretation of *some* and pursue the other interpretation depending on the context.

STIMULI & TASK

Task: Story-sentence matching task, using a short story setting

Context manipulation:
- Upper- or lower-bound context set up by having "all" or "any" in the question preceding the character's response with *some*
- 32 targets (16 in each condition) split into 2 Latin-square lists were presented using Paradigm software (Tagliaferri, 2005)
- 32 fillers were tested in the same context manipulations, but were made patently true or false by using "only some" rather than "some" in the response



Prediction: Effect of context
If participants are indeed sensitive to context, then the mean ratings in the upper-bound context should be lower than in the lower-bound context.

INDIVIDUAL DIFFERENCE MEASURES

Processing skills/Sensitivity to context (composite score based on correlation; r=0.44)
- Working memory: Counting Span task (Conway et al., 2005)
- Sensitivity to context: Dot Pattern Expectancy (Cohen et al., 1999)

Pragmatic abilities
- Autism-Spectrum Quotient (Baron-Cohen et al., 2001)

Language skills (composite score based on correlation; r=0.42)
- Peabody Picture Vocabulary Test, 4th edition (Dunn & Dunn, 2007)
- Author and Magazine Recognition Tasks (Acheson et al., 2008)

Attentional control
- Number Stroop task (Bush & Shin, 2006)

PARTICIPANTS & ANALYSES

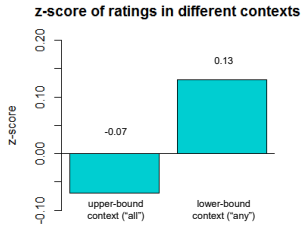
Participants:
N=23 native speakers of English (6 males, mean age=19.1), data collection ongoing

Analysis:
Linear Mixed Effects Modeling (ID measures included in separate models)
- Dependent variable: Rating (z-transformed)
- Fixed effects: *Context, Processing skills, Pragmatic abilities, Language skills, Attentional control*
- Random effect: Participant, random intercept

PRELIMINARY RESULTS (N=23)

Effect of context on the interpretation of *some*
Mean ratings in the upper-bound context (with "all") are lower than in the lower-bound context (with "any") (t(1,713)=6.039, p<0.001)

No effect of Context was found among fillers (t(1,736)=0.542, p=0.588)



Context sensitivity modulated by individual differences
Individual differences significantly interact with the Context effect:

Processing skills/sensitivity to context:
- Participants with higher processing skills made a bigger distinction between the two contexts (t(713)=4.638, p<0.05)

Pragmatic abilities:
- Participants with higher pragmatic abilities made a bigger distinction between the two contexts (t(713)=-2.734, p<0.05)

Language skills:
- Participants with higher language skills made a smaller distinction between the two contexts (t(713)=-2.544, p<0.05)

Attentional control:
- Participants with higher attentional control made a smaller distinction between the two contexts (t(713)=-2.787, p<0.05)

DISCUSSION

Our results suggest that the interpretation of *some* in context is indeed subject to robust individual differences. Our findings suggest that individual differences may impact the processing of *some* in context in the following ways:

Detecting and utilizing contextual information may require sufficient processing skills and pragmatic abilities:

- Sufficient processing skills/sensitivity to context may be required to successfully attend to context cues and utilize contextual information in generating an interpretation for *some*
- Higher pragmatic abilities may be necessary to take context into consideration when interpreting *some*

Canceling the implicature in the upper-bound context to yield an interpretation that matches the story may require sufficient language skills and attentional control:

- Those with higher language skills may be better able to cancel the *not all* implicature in order to arrive at a "match" interpretation of *some* in the upper-bound ("all") context (Barbet & Thierry, 2016)
- Flexibly switching between the two interpretations of *some* (with vs. without the implicature) may require sufficient attentional control

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