

Contextual Animacy in RC Processing

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Complicating animacy

- +/- animacy distinction is an oversimplification:
 - Languages that grammatically encode animacy may encode many levels
 - Polysemous words can have senses that differ in animacy
 - Inanimate objects are regularly anthropomorphized in common speech

Contextual animacy online

- Nieuwland & Van Berkum (2006):
 - With sufficient context, no mismatch penalty between real-world inanimate and animate argument

The psychotherapist advised {the yacht / the soldier}

- Penalty for a continuation that matches the real word meaning, rather than animacy-mismatch

The peanut was {salted / in love}

Open questions

- What do these penalties reflect?
 - Updated representation of the entity
 - Re-encoding in memory
 - Updated predictions about lexical probability
 - Updated expectations about connections between NPs and structural positions?
- Can contextual information influence lower-level parsing decisions?

Animacy in language processing

- The robust ORC penalty is attenuated for inanimate RC heads
- Expectation-based explanation: animate RC heads lead to an expectation for SRCs over ORCs
 - Replicates production data
 - Relates to structural roles more commonly held by animates

Research questions

If a noun is treated contextually as animate, but known in the real-world to be inanimate, will the parser update expectations on a structural level?

Will it lead to more expectations for SRCs?

Or are structural expectations dependent on a more stable lexical representation?

Hypotheses

Is the parser more likely to posit a subject RC gap for a contextual animate?

1. **Contextually sensitive animacy:** Contextual cues for animacy alter the representation of the entity that is recruited for parsing.
→ ORC penalty for contextual animates.
2. **Strict lexical animacy:** Animacy recruited for parsing is strictly lexical and contextually independent.
→ No ORC penalty for contextual animates.

Overview of design

Target sentence w/ RC, following biasing contexts

- Maze task, recording response times (RT) at each word
- Manipulating:
 - Pre-target-sentence context: cartoon, real-world (between subjects)
 - RC head: real-world animate, real-world inanimate (within subjects)
 - Target sentence structure: ORC, SRC (within subjects)
- 48 items, 74 subjects
- 48 fillers with contexts: $\frac{1}{3}$ SRC, $\frac{1}{3}$ ORC, $\frac{1}{3}$ other, mixed animate/inanimate RC heads

Example Item

Cartoon Context:

In a recent episode of a television show about struggling restaurants, the host went to the kitchen of a local seafood restaurant and interviewed some of the employees: a chef, a bowl, and a plank of wood. Relationships among the employees were strained after a recent violent episode where the chef insulted the bowl, and the bowl tried to hit him in the face. The bowl was visibly upset when the host asked about what happened, and after a little bit of conversation, fists started flying again while the cameras were rolling. Even the host got involved in the fray.

ORC: It was tense when the floor.

host_{RW-anim}

that the chef struck __ in the kitchen fell onto the

bowl_{RW-inanim}

SRC: It was tense when the

host_{RW-anim}

that __ struck the chef in the kitchen fell onto the floor.

bowl_{RW-inanim}

Real-word Context:

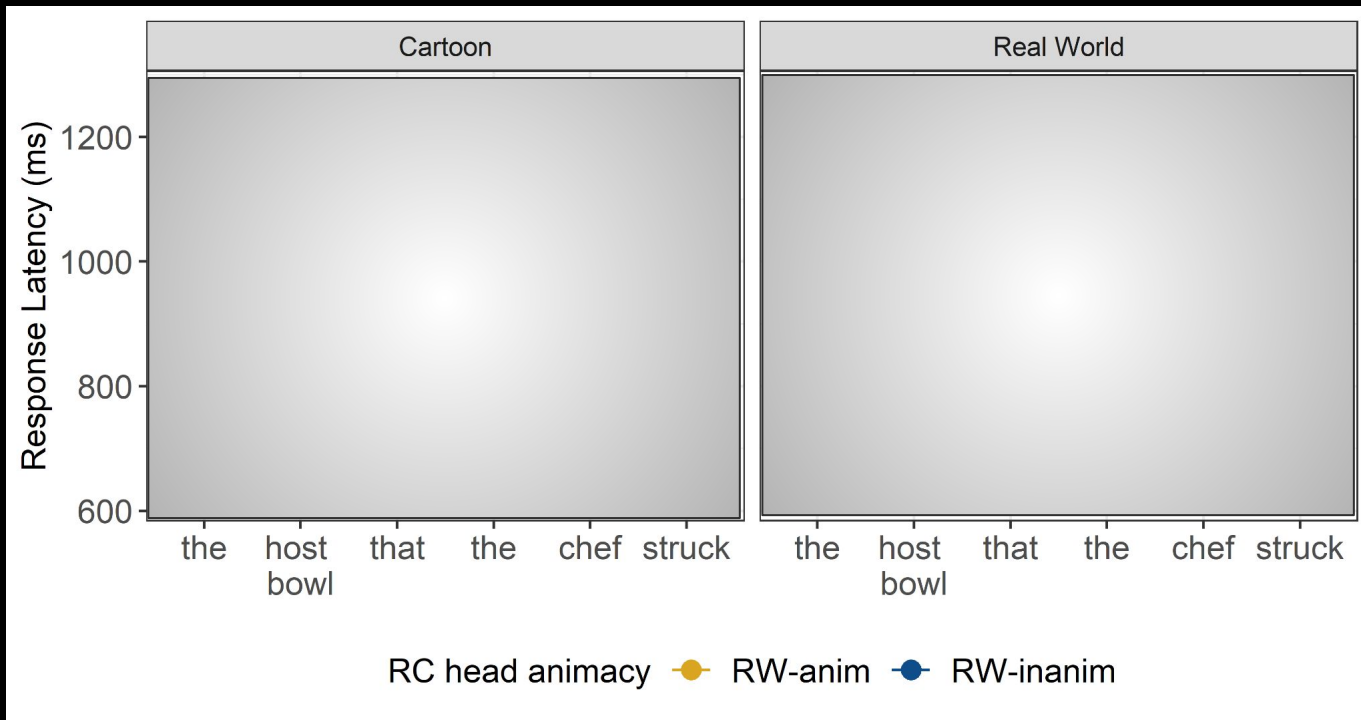
In a recent episode of a television show about struggling restaurants, the host went to the kitchen of a local seafood restaurant and interviewed some of the employees: a chef, a server, and a social media intern. Relationships among the employees were strained after a recent violent episode where the chef insulted the server, and the server started throwing dishes. The server was visibly upset when the host asked about what happened, and after a little bit of conversation, dishware began being thrown at various faces again while the cameras were rolling. Even the host got involved in the fray.

Example Item

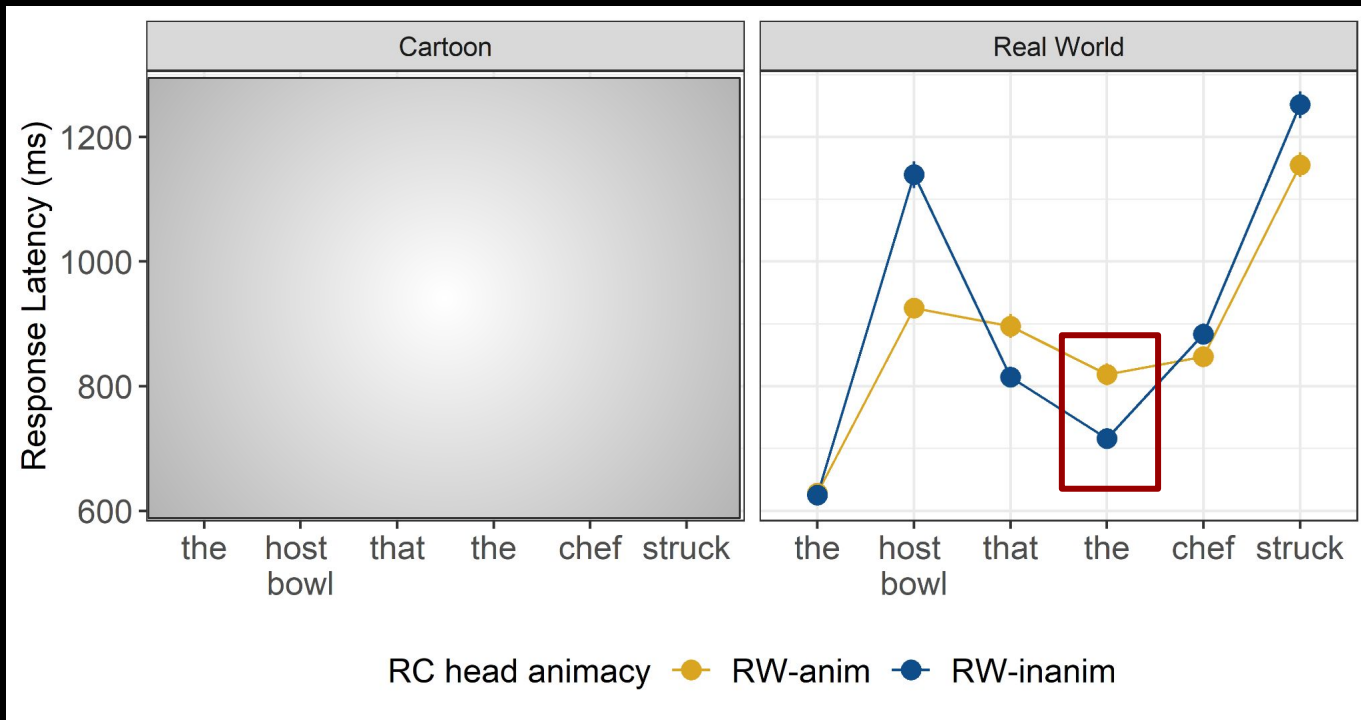
Cartoon Context:

In a recent episode of a television show about struggling restaurants, the host went to the kitchen of a local seafood restaurant and interviewed some of the employees: a chef, a bowl, and a plank of wood. Relationships among the employees were strained after a recent violent episode where the chef insulted the bowl, and the bowl tried to hit him in the face. The bowl was visibly upset when the host asked about what happened, and after a little bit of conversation, fists started flying again while the cameras were rolling. Even the host got involved in the fray.

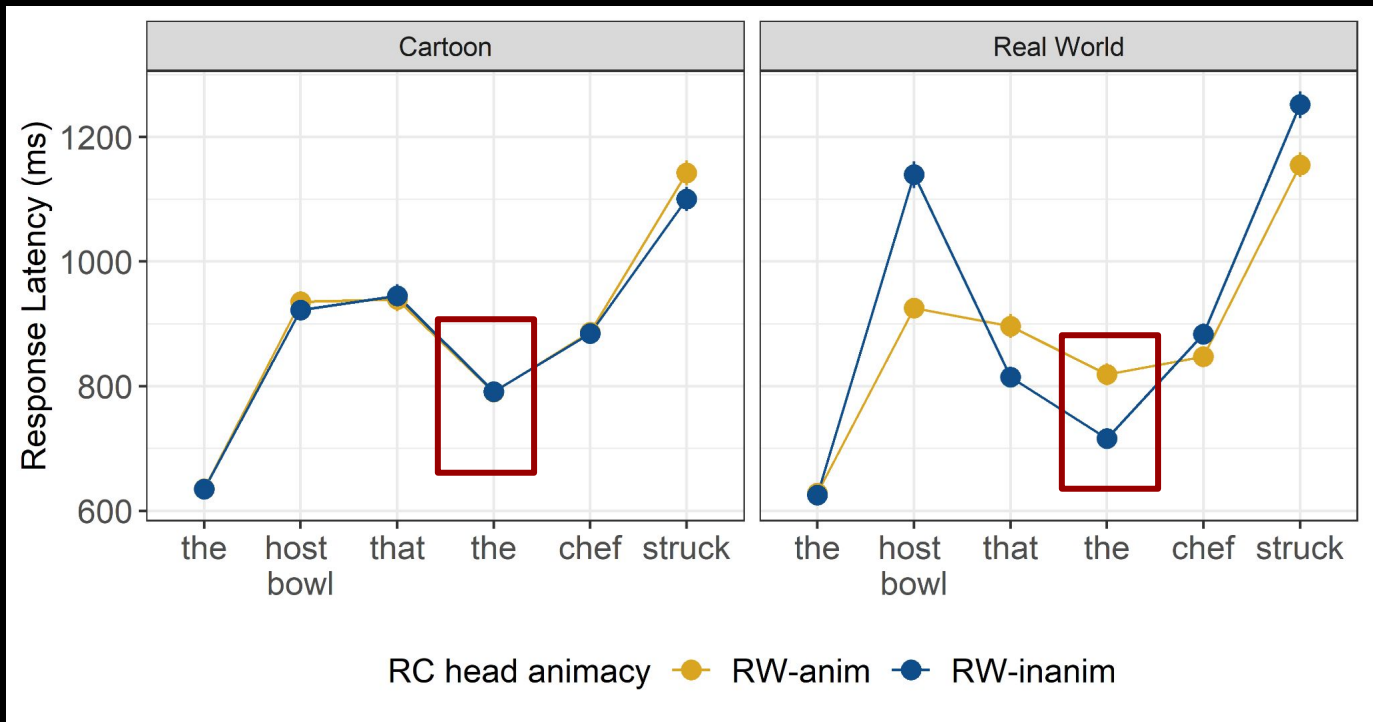
Results



Results



Results



Takeaways

- Animacy-based differences in processing collapse in the presence of anthropomorphizing context
- Contextually manipulating animacy affects more than just lexical expectations, structural expectations as well

Come talk to us more!

- More in depth discussion of the design and results across all regions
 - Including an SRC penalty!
- Consequences of these results for theories of animacy and (RC) processing
- More examples of anthropomorphization
- More about the grant funding this work, NSF #2019804: *Animacy and resumption at the border of cognition and grammar*

... and whatever questions you have!

Thank you!