



Conversational expectations

Language use and comprehension is governed by interlocutors expectations about how communicative interactions should proceed (Grice, 1975; Levinson, 2000).

- Be truthful
- Be relevant
- What is not said is the obvious
- Be informative
- Be brief
- What is said abnormally is not normal

When an utterance fails to meet these expectations we can draw inferences.

I ate some of the cookies	→	Not all of the cookies
My soup is warm	→	Not hot
Pass me the yellow banana	→	There's another non-yellow banana
John went to the restaurant and he ate a meal	→	John doesn't usually eat at restaurants

Informativity inferences

When knowledgeable speakers produce **trivial utterances (neither blatantly underinformative nor explicitly overinformative)**, addressees are licensed to derive *informativity-based inferences*.

1. "The library walls are blue"
 - a) The situation has changed
 - b) The walls used to be different

Why utter (1)? To inform an addressee about the current state of the world? The triviality of (1) may invite the addressee to reason about why a speaker chose to produce such a trivial utterance. **What were the speaker's goals and intentions?** To convey something changed?

Speaker knowledge is a key factor in deriving inferences. Greater rates of inferencing from knowledgeable speakers (Rees, Reksnes, & Rohde, preprint). It is an open question of how readily triviality-driven inferences are derived and whether they incur a cost.

Research questions

1. How readily are informativity-based inferences computed? Early or late in processing?
2. Is there a cost to computing informativity-based inferences?

Predictions

If informativity-based inferences are costly to compute this may be reflected by a slowdown either early in processing (reading time at the utterance) or later on when prompted (response time).

Study 1

Self-paced reading study with sentence verification. After reading the sentence participants responded to the prompt question "Was it the same before?" **"No" responses are consistent with an inference response.**

Results N=200

There was **no difference in reading times** when analysing the log transformed reading times (Fig 1; $p's > .146$). Participants were **slower to provide an inference response than a no-inference response** independently of speaker knowledge (Fig 2; $p < .001$ & $p = .372$)

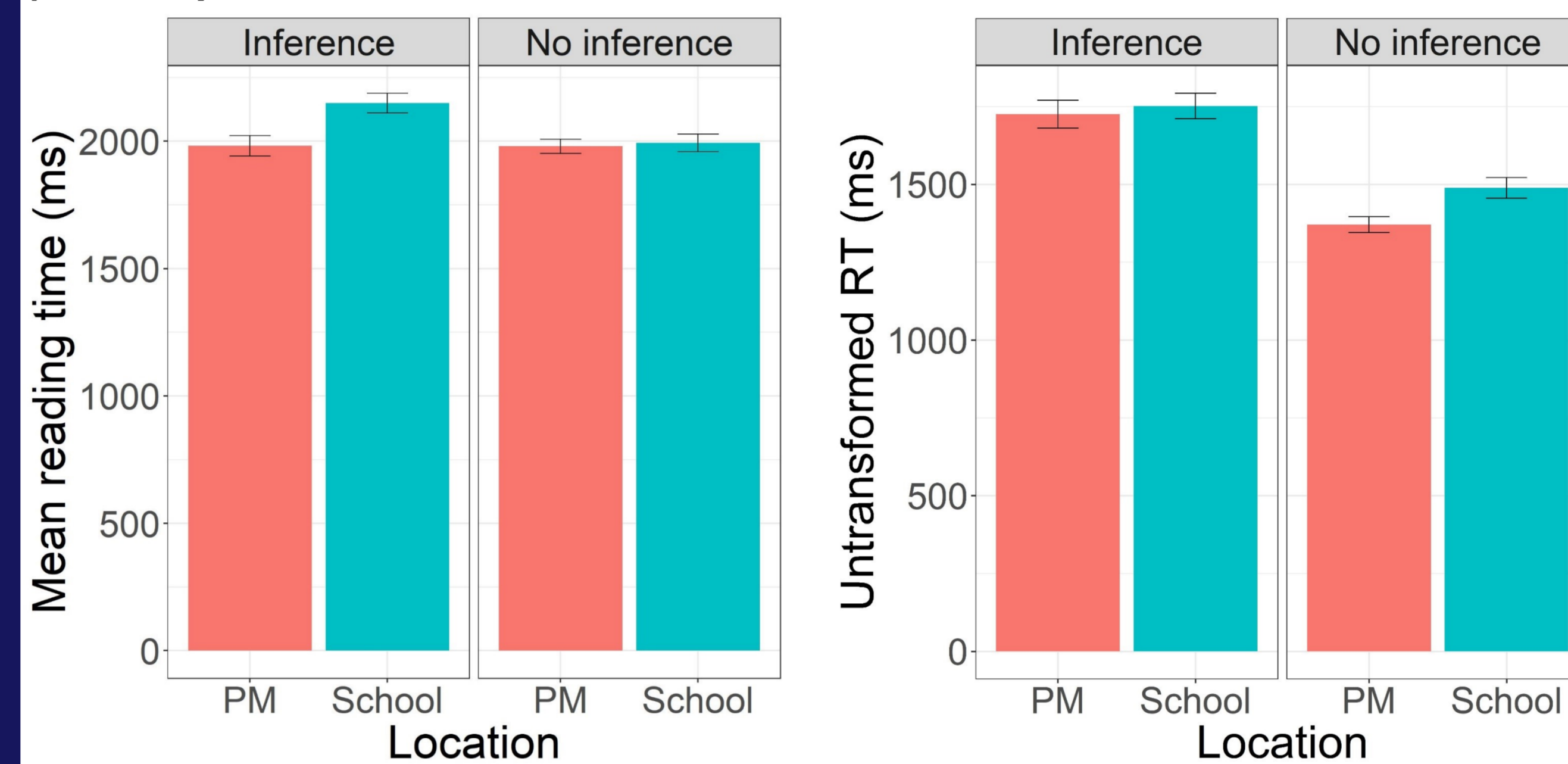


Fig 1. Reading time by location based on response participants went on to give

Fig 2. Response times by location based on response given

Study 2

Is the cost seen in Study 1 an artefact of having to respond "No"? We adjusted the prompt question to "Was it different before?" Now **"Yes" responses are consistent with an inference response.**

Results N=213

As in Study 1 there is a numerical difference in reading times which is not borne out statistically ($p's > .344$; Fig 3). However, we see a marked change in response times; **participants are now no slower at providing an inference response than a non-inference response** ($p's > .344$)

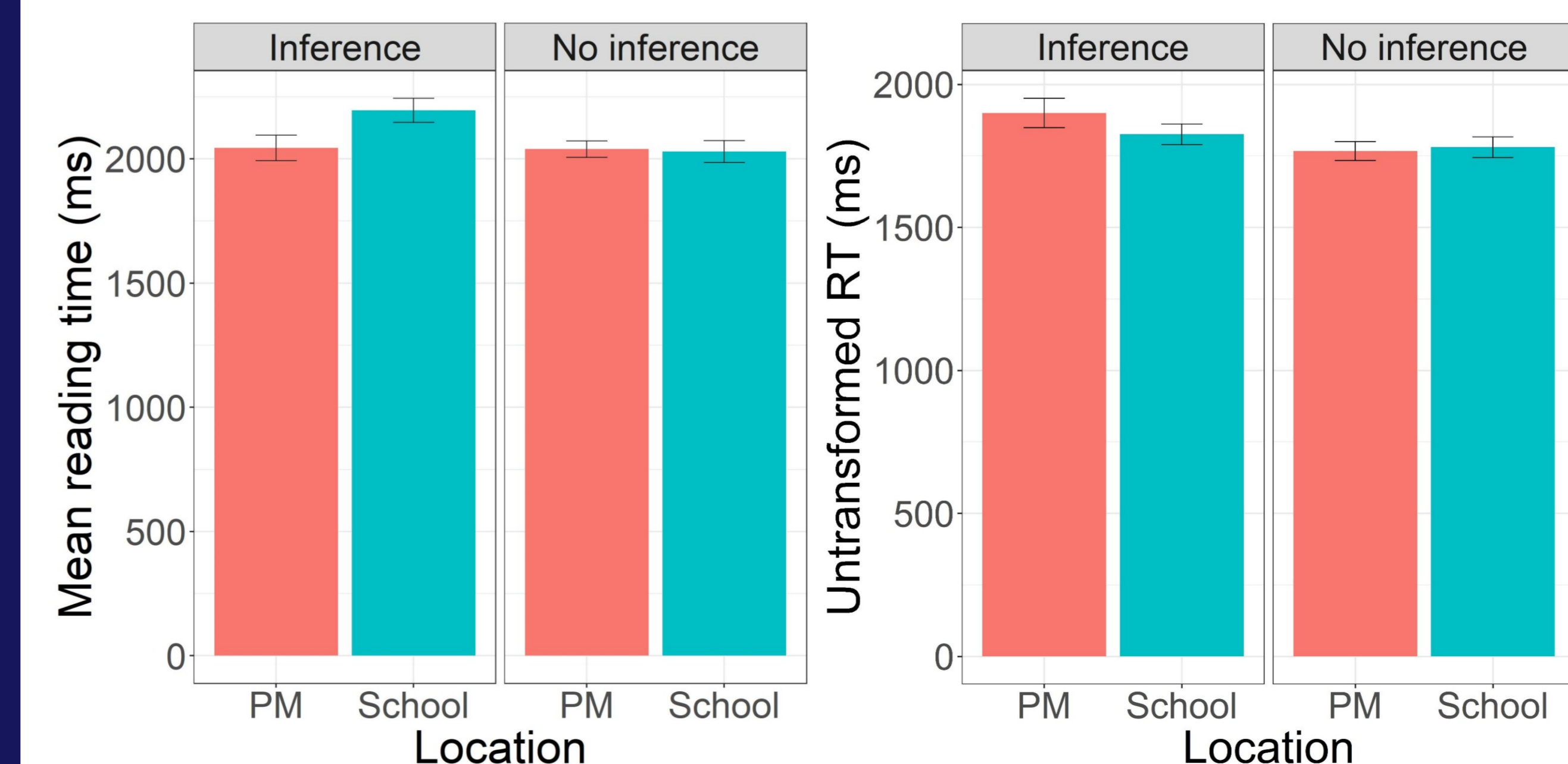


Fig 3. Reading time by location based on response participants went on to give

Fig 4. Response times by location based on response given

Cross study comparison

Note that the only difference between Study 1 & 2 is how an inference response is indicated. In **Study 1 an inference corresponds to No** and in **Study 2 an inference corresponds to Yes**. A cross study analysis shows that participants are **much slower to respond "yes" when this is consistent with an inference response** ($p's < .001$). We take this as evidence that informativity-driven inferences are costly to compute.

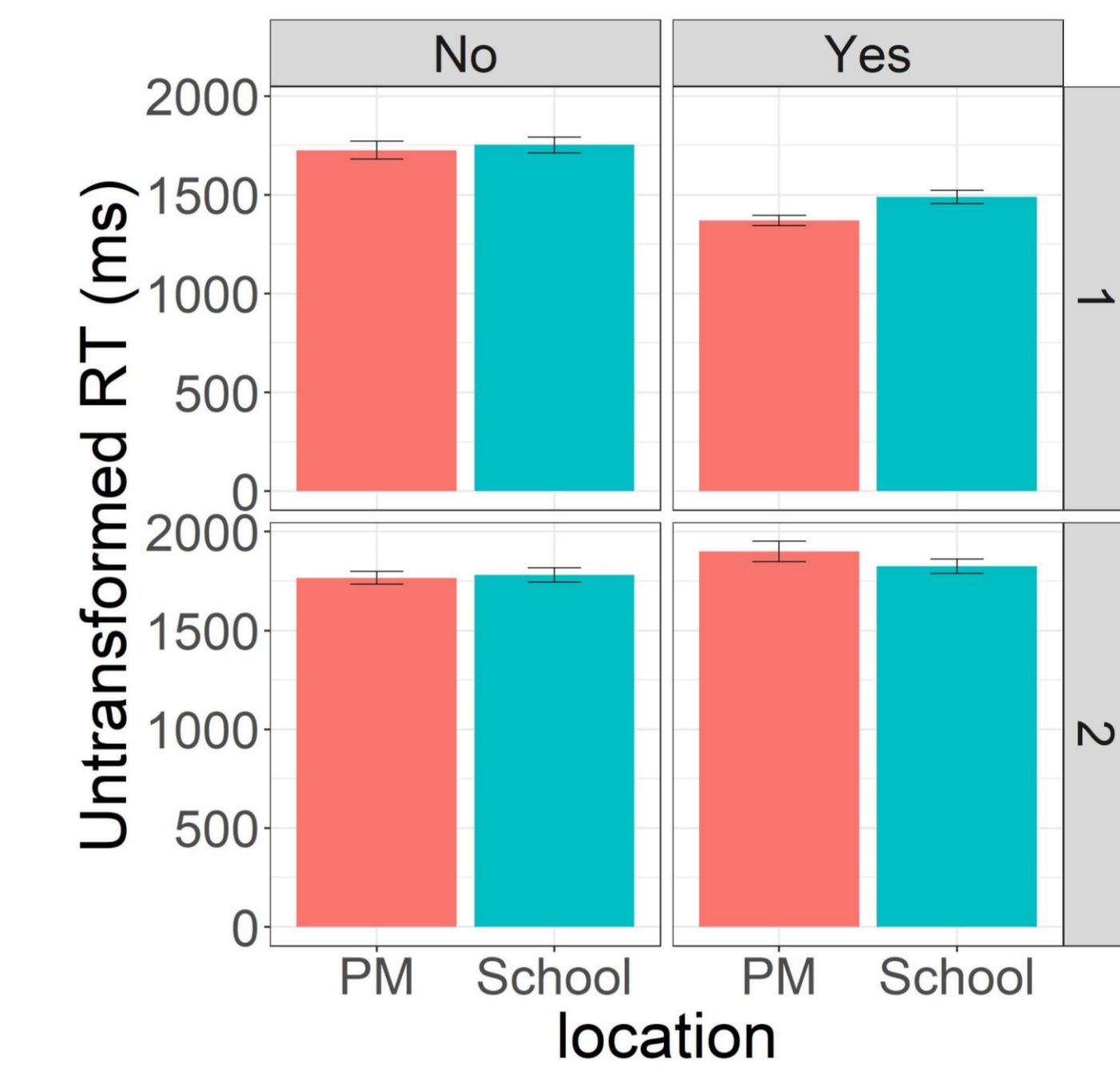


Fig 5. Response times across experiments

Conclusions

- Inferences arise from *trivial utterances*, utterances that are neither blatantly underinformative nor explicitly redundant.
- **Reading time data** suggests that informativity-based inferences are **either 1) not costly to compute or 2) are not usually computed automatically.**
- **Response time data** suggests that informativity based inferences **are costly to compute**
- **Study 1** suggests informativity-based inferences are costly to compute. But this **could be due to inference responses being "no"**
- **Study 2 swaps inference responses to "yes" and shows no difference** in response times for inference and no inference responses.
- **Cross-study analysis confirms that there is a cost associated with computing informativity-driven inference**

Selected references

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