How do different kinds of context affect people's interpretations of sentences? We (w/ Sarah Nathaniel, @rarskin @LanguageMIT) investigated this question at tinyurl.com/effectOfContext, a paper published in Cognition. A thread 1/11
The noisy-channel framework has been used to model how people interpret implausible sentences: people do so based on how likely the intended sentence is and how likely it is to be corrupted into the implausible one by noise.

Previous studies tested the framework by having participants read sentences and answer comprehension questions. Participants could either answer the question based on a literal interpretation of the sentence they saw, or could do so based on an inference.

Gibson et al. (2013) found that the more edits it takes to fix an implausible sentence, the more likely people will interpret the implausible sentence literally. This finding has been replicated in subsequent studies.
These studies had a common limitation: in each trial the participants were presented with just a single sentence, but in real life, sentences are rarely presented on their own: there is usually a context building up to that sentence.

Hence, in our study, we tested how different kinds of context would affect people’s likelihood to interpret a sentence literally. We had three conditions, where sentences were preceded by 1) a supportive context, 2) a non-supportive context, or 3) no context, respectively.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Supportive Context</th>
<th>Non-supportive Context</th>
<th>No Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context sentence</td>
<td>When the power outage happened, the daughter asked the mother for a candle.</td>
<td>The aunt told the nephew she would miss him while he was on vacation. The magician pulled his hat out of the trunk.</td>
<td></td>
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<tr>
<td>Test sentence</td>
<td>The mother gave the candle the daughter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension Question</td>
<td>Did the daughter receive anything?</td>
<td></td>
<td></td>
</tr>
</tbody>
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Test sentences included 2 syntactic alternations: active/passive, direct-object (DO) / prepositional-phrase-object (PO). Act/pass sentences were likely made implausible by exchanges (a lower prob corruption), PO by insertions, and DO by deletions (a higher prob corruption). 7/11

Main result: When people read an implausible sentence, they were less likely to interpret it literally when it was preceded by a supportive context (dark blue in the figure), than when it was preceded by a non-supportive context (light blue), or no context (gray). 8/11
We also replicated previous findings that people were more likely to interpret implausible active/passive sentences literally, than implausible DO/PO sentences, due to differences in edit probabilities.

Our results suggest that previous work, where sentences were shown in isolation, underestimated the prevalence of nonliteral interpretations, since most sentences are part of a context, which can affect how they are interpreted.

FYI, this paper started as a final project in Ted's psycholinguistics class. We are sincerely grateful to the editor and the four anonymous reviewers who helped us make our paper what it is.