Predicting discourse status: N400 effects of determiner expectation

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Introduction

- At which levels of linguistic representation are predictions generated?
- Do comprehenders predict discourse status?

Background

ERP Study (N=32, college age students) was designed to examine the impact of definiteness on noun prediction. We instead discovered a surprising result...

Anna wore a necklace to her friend’s party.

She told everyone that the necklace was new.

- The N400 effect on the determiner tracks predictability.
- Are participants predicting discourse status?
- Determiners were not the focus of the experiment, so the distribution of the predicted determiner was imbalanced (mean cloze: definites 83%, indefinites 2%) and continuations were not designed to be felicitious for the alternate determiner.

ERP Study

Definiteness signals discourse status.
- Referents of definite NPs with “the” are usually old
- Referents of indefinite NPs with “a” are usually new

Does N400 amplitude track the predictability of definiteness on the determiner, even before the subsequent noun has been presented?

Design:
- 60 items consisting of context sentence and continuation sentence
- Balanced by condition (half predicted the definite, half predicted the indefinite).
- stimuli visually presented word-by-word, 500ms SOA
- N=34 (college-age students)

Results

Definite determiner predicted:
Emily dropped a book on the way to class. A friendly janitor picked up
Predicted: the leaflet that had fallen out of it and gave it back to her.
Unpredicted: a leaflet that had fallen out of it and gave it back to her.

Indefinite determiner predicted:
Sara looked in her bag for something to sign the forms. She found
Predicted: a pen in the bottom of her bag.
Unpredicted: the pen her ex-boyfriend had given her.

<table>
<thead>
<tr>
<th></th>
<th>Predicted</th>
<th>Unpredicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite</td>
<td>0.509</td>
<td>0.116</td>
</tr>
<tr>
<td>Indefinite</td>
<td>0.626</td>
<td>0.140</td>
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</tbody>
</table>

Summary

- N400 effect at determiner consistent with prediction of discourse status of upcoming referent
  - Cannot be driven by contrast between ‘the’ and ‘a’ per se, as fully crossed
  - Also cannot be attributed to implausibility since unpredicted determiner never felicitous
  - Not enough power to determine whether the predictability effect varies by determiner definiteness
- Questions to be answered with future work:
  - What linguistic factors are responsible for the contextual predictability of definiteness?
  - Are they different for definites and indefinites?

References