The impact of definiteness information on comprehender expectations
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Introduction

How quickly can definiteness information be incorporated into predictions about an upcoming noun?

Anna wore a necklace to her friend’s party.
She told everyone that the/a necklace was new.

Definiteness signals the discourse status of a referent: “the” signals that the following noun is likely anaphoric, while “a” signals the introduction of a new discourse referent

Some models incorporate all contextual information into expectations immediately1, but recent work suggests that some predictions take time2.

Exp. 1: Offline cloze task

• 30 items consisting of context sentence and continuation sentence cut off after critical article
  Anna wore a necklace to her friend’s party.
  She told everyone that the/a necklace
  124 participants on Amazon M-Turk
  • Cloze probability of target noun introduced in context sentence: - 49% after definite article
    - 9% after indefinite article

Exp. 2: ERP study

• 60 items consisting of context sentence and continuation sentence
• stimuli visually presented word-by-word, 500ms SOA
• 32 participants (college-age students)

Noun

No N400 effect at noun!

Anna wore a necklace to her friend’s party.
She told everyone that the/a necklace was new.

Sustained frontal positivity

Exp. 3: Offline cloze task

• Goal: find cloze probabilities of definite versus indefinite article in our materials
  • The same 60 items used in the ERP study, cut off before the critical article
    Anna wore a necklace to her friend’s party.
    She told everyone that
  • 42 participants on Amazon M-Turk
  • Results:
    - the definite article has a higher cloze than the indefinite article in our materials

Hypothesis: The N400 effect on the article is caused by the expectation of something definite being violated when the indefinite article is encountered.

Summary

• Comprehenders use definiteness information to predict the upcoming noun offline
• Lack of N400 effect at noun indicates that comprehenders did not incorporate the definiteness information into their expectations in online processing.
• Why?
  - definiteness on the article has not been encoded when the noun is presented (unlikely, as this encoding seems to be immediate3)
  - integrating definiteness information with predictions requires more time

Predicting definiteness?

Article

Anna wore a necklace to her friend’s party.
She told everyone that the/a necklace was new.

There is an N400 effect at the article4
Are comprehenders expecting definiteness?

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References