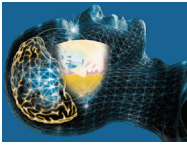




# Discourse Context Attenuates Animacy Violations, but not of Gender-specific Pronouns.

Adam R. Blalock<sup>1,2</sup>, Megan A. Boudewyn<sup>1,2,3</sup>, Tamara Y. Swaab<sup>1,2</sup>

<sup>1</sup>Dept of Psychology, University of California, Davis (UCD), <sup>2</sup>Center for Mind and Brain, UCD, <sup>3</sup>Center for Neuroscience, UCD



## Introduction

- Previous research has shown that discourse context rapidly constrains the processing of incoming words (e.g. Nakano et al., 2003; Nieuwland & van Berkum, 2006).
- Less is known about time-course of discourse representation constraining, and about coreferential processing within cartoon-like discourse context
- In this study we manipulated animacy consistency in cartoon-like discourse to examine the time-course by which supportive discourse context modulates local animacy violations

## Methods

- 20 right-handed, native English speakers listened to 4-sentence stories (see Table 1):
- We manipulated:
  - 1) Subject noun animacy (peanut vs. fellow)
  - 2) Discourse congruence (elated vs. salted)

### Table 1: Sample story set.

“A lucky peanut/fellow had a big smile on his face. The peanut/fellow was amazed about his good fortune. Just now he had won the jackpot of two million dollars. The peanut/fellow was elated, and who could blame him.”

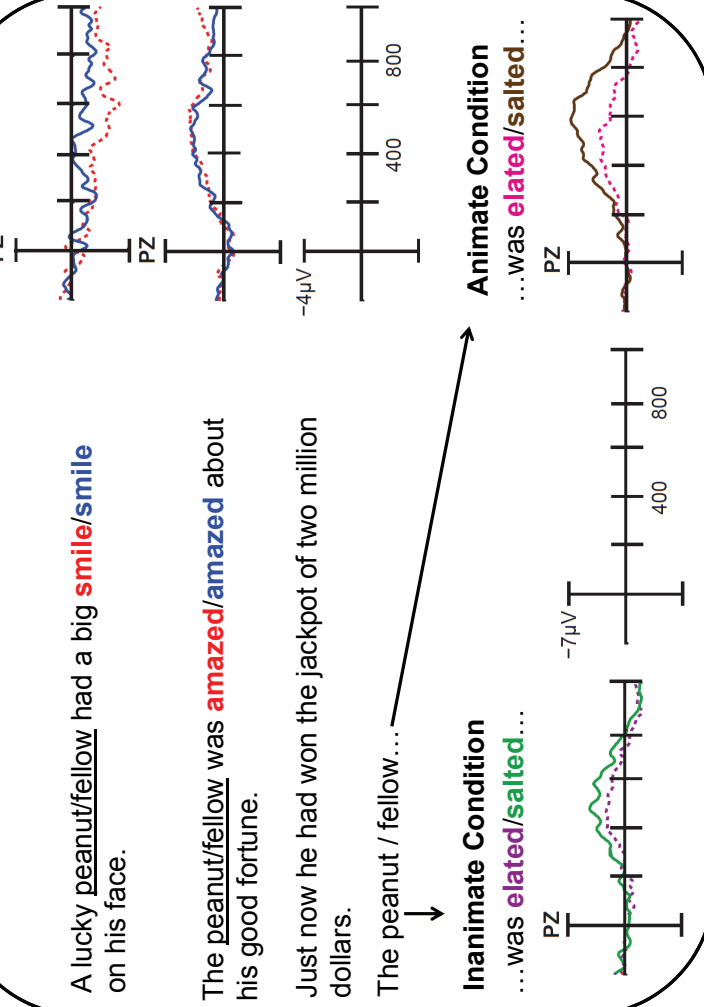
## References

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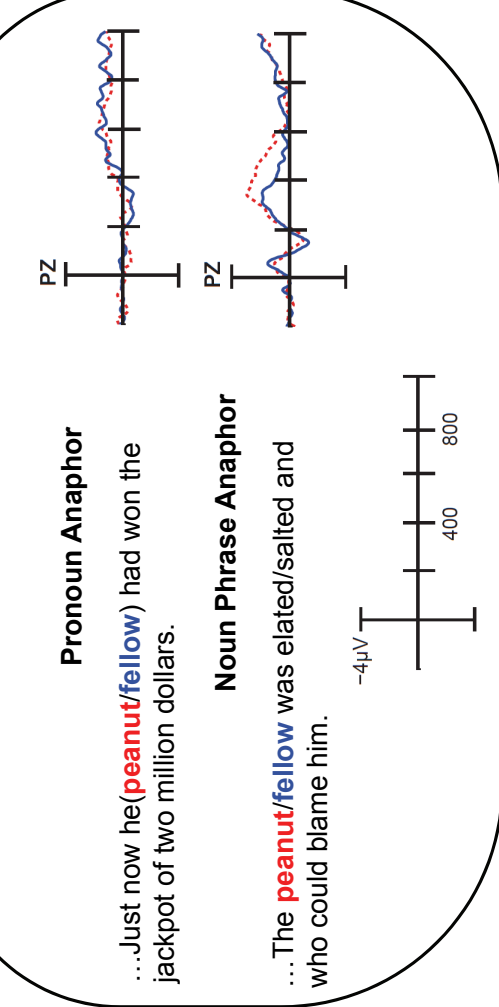
Van Berkum, J. J. A. & Nieuwland, M. S. (2006). When peanuts fall in love: N400 evidence for the power of discourse. *Journal of Cognitive Neuroscience*, 18(7), 1098-1111.

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### Figure 1: Discourse Context Effects



### Figure 2: Coreference Effects



## Results

### Discourse Context Effects:

- A P600 effect was found to the animacy-violating noun (smile) in the first sentence ( $p < .01$ )
  - This effect dissipated by the animacy-violation in the second sentence (amazed) ( $F_s < 1$ )
  - In the fourth sentence, significant N400 effects of discourse congruence were found in response to the critical adjective (elated vs. salted), for both Inanimate and Animate conditions ( $p_s < .01$ )
  - Discourse congruence effects in sentence four were reduced for the Inanimate condition relative to the Animate condition ( $p < .05$ )
- ### Coreference Effects:
- No effects reached significance at the pronoun anaphor ( $F_s < 2.2$ )
  - In the 4<sup>th</sup> sentence the N400 was reduced for the animate relative to the inanimate NP anaphor ( $p < .01$ )

## Discussion

### Discourse Context Effects:

- Animacy-violating critical words in the first sentence resulted in a P600 effect. This is consistent with findings of Kuperberg et al. (2003), Nakano et al. (2010) and indicates difficulty in assigning a thematic role to the animacy-violating word early on in the story.
  - In the second sentence, the absence of N400/P600 effects indicates that sufficient discourse context has built up in order to facilitate the processing of what would otherwise be a local animacy violation.
  - When animacy constraints were again violated in the inanimate condition in the 4<sup>th</sup> sentence, a reduced N400 was found, indicating facilitation for animacy-violating, but discourse-congruent words.
- ### Coreference Effects:
- The animacy-violating pronoun did not differ from the animacy-consistent pronoun.
  - However, the noun-phrase anaphor continued to show animacy effects (i.e. impervious to discourse congruence), as in Weckerly & Kutas (1999), Nakano et al. (2003).
  - This in a novel finding and may indicate that the processor is preparing for a context appropriate interpretation.
  - It also shows that repetition of the noun phrase anaphor does not reduce this animacy effect in the subject position.