The Impact of Grammatical Voice And Subject Noun Animacy on Verb Processing

Martin Paczynski¹, Gina Kuperberg¹,²

¹ Department of Psychology, Tufts University; ² Department of Psychiatry, Massachusetts General Hospital

Results

Grammatical Voice

Active Voice: The gardener/juice had soaked…
Passive Voice: The sailor/carpet was soaked…

Subject Animacy

Animate: The gardener…
Inanimate: The juice…

Voice X Subject Animacy

Our first aim was to identify the ERP correlates of passive voice processing costs incurred on the verb. Our second aim was to determine whether grammatical subject animacy modulated this processing cost. If animacy information guides thematic role assignment, inanimate grammatical subjects should facilitate passive processing, leading to a Grammatical Voice X Subject Animacy interaction.

Introduction

The non-canonical passive voice, in which the grammatical subject is assigned the Patient role, has been shown to increase thematic role assignment errors (Ferreira, 2003). Non-canonical argument ordering has also been shown to increase reading times (Traxler, et al. 2002) an indication of increased processing costs.

However, this non-canonical argument ordering penalty has been shown to be attenuated when the Patient argument is inanimate (Traxler et al., 2002, Trueswell et al., 1994) and several ERP studies have suggested that animacy information is used rapidly during the assignment of thematic roles (Weckerly & Kutas, 1999, Frisch & Schlesewsky, 2001).

Methods

- 27 participants, age 18-24
- Plausibility judgment task
- Participants read 160 experimental sentences (40 per condition), 160 filler sentences, presented word-by-word (450ms presentation, 100ms ISI)
- Half of both experimental and filler sentences contained semantic anomalies.
- ERPs measured with 29 active tin electrodes, continuously sampled at 200 Hz with a bandpass filter of 0.01-40 Hz.

Acknowledgments: This research was supported by Tufts University Grant-in-Aid

Conclusions

The passive related positivity appears to be neither the P345 nor the P600, based on its time-course and scalp distribution, respectively. This suggests a pattern of activation distinct from that previously reported for syntactically assigning or reassigning thematic roles.

Animacy affected verb processing independently of thematic roles assignment. Instead, our data suggest Animate Hierarchy (Aissen, 2003) based influences on both verb and verb argument processing.

References