THE INFLUENCE OF IMPLICIT CAUSALITY ON THE ESTABLISHMENT OF COREFERENCE: AN EVENT-RELATED POTENTIAL STUDY OF READING

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INTRODUCTION

For repeated names, there was an interaction of consistency and prominence in both time windows. When the antecedent was not prominent, the amplitude of the P600 was greater to repeated names that were inconsistent with the bias of the verb, 

\[ F(1,13) = 5.35, p < .05 \]

ANOVAs were done on the mean amplitude of the N400 (250-450ms) and the P600 (500-800ms) to the critical repeated names and pronouns (see examples). For pronouns, there was a main effect of verb congruency in the late time window: the amplitude of the P600 was greater to pronouns that were inconsistent with the bias of the verb, relative to those that were consistent, 

\[ F(1,13) = 6.09, p < .05 \]

The locus of the effect of implicit causality for sentences containing repeated name coreference depended on the prominence of the antecedent. When the antecedent of the repeated name was not prominent in the discourse representation (a situation in which repeated name coreference has been shown to be felicitous; P.C. Gordon, et al., 1999), we observed an effect of implicit causality that was similar to that seen for pronouns: the amplitude of the P600 was larger to names that were inconsistent with the bias of the verb. When the antecedent of the repeated name was prominent in the discourse representation, and repeated name coreference was expected to be infelicitous, we observed an effect of verb implicit causality instead on the N400, the amplitude of which was reduced to names that were consistent with the bias of the verb. Van Berkum et al. (2006) interpreted their result with pronouns as suggesting that readers viewed the incongruent pronoun as a morphosyntactic violation; that is, the pronoun was seen to be of the wrong gender based on the foregrounding of one antecedent relative to the other by the implicit causality of the verb. This explanation seems unlikely to account for the P600 effect we observed for repeated names, as repeated names do not carry morphosyntactic information. Instead, the P600 effects that we observe in the current experiment seem similar to those observed recently by several groups (Kemmerer, et al., 2006; Kuperberg, et al., 2003; van Herten, et al., 2005), in which strong semantic expectations exert an influence over syntactic processing. In the present experiment, this is observed in cases in which semantic integration can proceed without hindrance, that is, cases in which the pronoun or repeated name is used felicitously. The infelicitous use of a repeated name to corefer with a prominent antecedent resulted in a disruption of semantic integration processing (similar to that observed previously as a repeated name penalty; Ledoux, et al., in press; Swaab, et al., 2004), the magnitude of which was influenced by verb consistency.

WORKS CITED

Van Berkum, J.J.A., Kemmerer, D., Kuperberg, G.R., van Herten, M., et al. (2006), in which strong semantic expectations exert an influence over syntactic processing. In the present experiment, this is observed in cases in which semantic integration can proceed without hindrance, that is, cases in which the pronoun or repeated name is used felicitously. The infelicitous use of a repeated name to corefer with a prominent antecedent resulted in a disruption of semantic integration processing (similar to that observed previously as a repeated name penalty; Ledoux, et al., in press; Swaab, et al., 2004), the magnitude of which was influenced by verb consistency.

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