

Events along the garden path: No N400 effect and a P600 effect to
semantically reversible events in discourse

Gina Kuperberg and Kristina Fanucci

During language comprehension, we can draw upon semantic knowledge, stored at multiple levels/grains of representation, to generate 'best guesses' (predictions) about the message being conveyed, even before incremental combinatorial analysis is complete (Paczynski & Kuperberg, 2012). Predictions can facilitate semantic access, reflected by an attenuation of the N400 event-related potential (ERP), but if they mismatch the message that is output by full combinatorial analysis, the resulting prediction error triggers additional analysis, reflected by a semantic P600 effect (Kuperberg, 2007). Here we asked whether we predict on the basis of simple schema-based associations, or more structured event representations? We measured ERPs as participants viewed four types of two-clause sentences, linked by the causal connector, 'because': (1) Coherent (e.g. Katrina took her temperature because she was feverish...); (2) Unassociated incoherent (...because she was re-elected...); (3) Schema-associated incoherent (...because she was healthy...), and (4) Event-associated incoherent (Katrina was feverish because she took her temperature...). Unassociated critical words produced N400 effects, but no P600 effects. Schema-associated critical words generated both N400 and P600 effects. Event-associated critical words failed to evoke an N400 effect, but produced a robust P600 effect. These data suggest that comprehenders predicted whole event sequences (<have fever><take temperature>), ahead of encountering the critical word, and independently of its combinatorial integration. We suggest that the activation of these stored event sequences was further boosted by the Event-associated and the Schema-associated, but not the Unassociated, critical words, and that these coherent event-sequence representations conflicted with the combinatorially-determined representation to trigger a P600.