

The brain dissociates between different levels of prediction during language comprehension

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Comprehenders continually use context to generate probabilistic predictions. We asked whether and how these predictions influence neural processing of incoming words. Mini-discourse contexts varied in their constraint for a specific lexical item or event structure. Event-related potentials were recorded to nouns that fulfilled lexical predictions, that violated lexical predictions but were plausible, or that violated the preceding verb's selectional restrictions ('They cautioned the SWIMMERS / TRAINEES/ DRAWER' following a context about lifeguards and sharks). Semantic facilitation was reflected by a selective reduction of the N400 on predictable nouns. Plausible nouns that violated lexical predictions selectively elicited a late anteriorly-distributed positivity, whereas nouns that violated selectional restrictions elicited a late posteriorly-distributed positivity. These dissociable neural signatures of prediction violations at different levels of representation provide support for a hierarchical generative architecture in which bottom-up information is continually evaluated against top-down predictions at multiple levels of representation to support ongoing comprehension.