

BETTER OR WORSE THAN EXPECTED? ERPS REVEAL DYNAMIC MODULATION OF PREDICTIVE PROCESSING MECHANISMS DURING LANGUAGE COMPREHENSION

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Current views of language comprehension have been importantly shaped by compelling electrophysiological evidence that language processing can be facilitated by expectations for semantic, lexical, and perceptual features of likely upcoming words. This evidence for facilitative effects of prediction is complemented by findings of processing consequences when predictions are disconfirmed. Prediction thus requires processing resources, whose deployment may be difficult for some people (e.g., older adults) and may be disadvantageous in some processing circumstances. Our research shows that multiple language comprehension mechanisms are implemented in parallel and that the brain adapts its use of these mechanisms, not only over the long-term, in response to changing neural and cognitive abilities with age, but also over the short-term, in response to situational and task demands. For example, when the utility of prediction for comprehension is reduced, by repeatedly substituting unexpected synonyms for strongly expected words, electrophysiological signatures of predictive comprehension are diminished. However, when participants are given an additional task for which prediction can be beneficial, indices of predictive processing reappear for those same stimuli. Our results thus show that the brain evaluates the utility and/or success of a predictive mode of comprehension on the fly and dynamically adjusts comprehension strategies vis-a-vis the situational and task context, such that resources can be allocated to most effectively achieve comprehension aims. We link these results to emerging understandings of domain-general mechanisms of cognitive and neural control.