

COMPREHENDING EVENTS IN CONTEXT: LANGUAGE COMPREHENSION IS LANGUAGE LEARNING

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Comprehending language requires us to decode rapidly-unfolding sequences of letters or sounds in noisy environments. Some have proposed that, to meet this challenge, we use our stored linguistic and real-world knowledge to predict upcoming information ahead of bottom-up input. Others, however, have argued that prediction is counterproductive: why predict, only to be proved wrong? This controversy may stem from several assumptions about the nature of prediction: that prediction necessarily equals lexical prediction, that it is necessarily an all-or-nothing phenomenon, and that inaccurate predictions necessarily lead to inefficient comprehension. I will summarize evidence from multimodal neuroimaging studies suggesting that these assumptions are wrong. First, we can predict at the level of syntactic and coarse semantic features, which can map on to one another ahead of the bottom-up input, thereby predicting event structure(s), without necessarily committing to specific lexical forms. Second, these predictions are probabilistic, generated with various degrees of certainty. Third, the neurocognitive mechanisms engaged when these predictive semantic-syntactic mappings are violated depend on the certainty with which they were generated, and equate to the neural costs of unifying an incoming word into its context. I discuss two general implications of this framework: (1) the spatiotemporal patterns of neural activity evoked by an incoming word in context depend on the representational level and the certainty of our prior predictions; (2) language comprehension is language learning: the costs of our prediction errors are what drive us to adapt to our wider statistical environment in a continuous attempt to refine these predictions.