

The Construction of Valence: ERPs to neutral words in discourse modulated by emotional content of previous word or sentence

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We used event-related potentials (ERPs) to examine the influence of emotionally-valent adjectives on processing subsequent words in two-sentence scenarios (e.g. "The students gave the professor enthusiastic/biting/periodic evaluations. Their feedback was read by him."). The first sentence included a positive ("enthusiastic"), negative ("biting") or neutral ("periodic") adjective which modified a direct object ("evaluations") at the sentence-final position; the second sentence began with a neutral noun-phrase anaphor referring back to the direct object ("Their feedback"), and ended with a pronominal anaphor referring back to one of the characters in the first sentence ("him"). To ensure deep processing, participants produced a single sentence, extending the narrative they had just read. To determine the immediate effect of emotional valence, ERPs were measured on the adjective in the first sentence. Both negative and positive adjectives evoked a larger late positivity than neutral adjectives. Negative adjectives also evoked a larger centrally-distributed negativity between 350-450ms than neutral adjectives, while nouns following positive adjectives evoked a widely-distributed N400 effect. The influence of emotional valence persisted across clause boundaries: (1) Anaphors referring back to emotionally-modified nouns evoked a larger late positivity than those referring back to neutral nouns, and (2) sentence-final pronouns that followed negatively valenced first sentences evoked a larger centrally-distributed positivity, beginning at 300ms, than those following neutral or positive first sentences. These findings indicate that emotional valence has immediate impact on online neural mechanisms of language processing, both within and across clause boundaries.