Two late positivities during sentence comprehension: The influence of wrap-up and cognitive control

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During sentence comprehension, context can influence both the initial access of word meanings (300-500ms) and more prolonged, re-interpretive processes (500-1200ms). Here, we investigated the cognitive mechanisms underlying two, late post-N400 positivities, which are known to vary as a function of plausibility and lexical constraint. In this study (N = 70), we measured ERPs as participants read sentences with predictable, unpredictable, or anomalous critical words ("*Father carved the turkey with a knife/smile/beach…")*. For 33 participants, critical words appeared in the sentence-final position, where "wrap-up" effects are maximal. For 37 participants, a few words were added to each sentence to delay sentence wrap-up. Finally, to probe the role of cognitive control in generating these late ERP components, we used the AX Continuous Performance Task (AX-CPT) to assess individual differences in cognitive control abilities. Unexpected words produced a larger late frontal positivity, and anomalous words produced a larger *posterior* positivity, relative to predictable continuations. Critically, the amplitude of the frontal positivity was larger for critical words appearing in sentence-final positions. This suggests that, while sentence re-interpretation does occur incrementally, this process is enhanced at salient sentence boundaries. This pattern was reversed for the late posterior positivity, with larger anomaly responses occurring in sentence-medial positions. Finally, increased performance on the AX-CPT appeared to selectively enhance the magnitude of the late frontal positivity, suggesting that the re-interpretation of unexpected (but plausible) events may depend on frontally-mediated cognitive control abilities.