The effects of task on processing real-world, animacy and syntactically violated sentences

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In three experiments, we examined the effects of task on processing verbs and sentence-final nouns in non-violated sentences (….the boys would eat toast and jam.), animacy violated sentences (...the eggs would eat toast and jam.) and morphosyntactically violated sentences (…the boys would eats toast and jam.). ERPs were recorded as readers self-paced through each sentence word-by-word, and then made acceptability judgments (Exp1), counted the number of violations introduced (Exp2), or answered comprehension questions (Exp3). The pattern of effects on verbs was qualitatively similar across the three tasks: real-world violations evoked an N400 effect, animacy violations evoked a small or no N400 effect but a P600 effect, and syntactic violations evoked no N400 effect and a larger P600 effect. Whereas N400 modulation across conditions was not influenced by task, the magnitude of the P600 effect to the animacy and syntactic violations decreased across the three tasks. Sentence-final nouns following all three types of violations (vs. no violation) evoked an N400 effect between 300-500ms using all three tasks. However, in a later 600-900ms time-window, only sentence-final words following animacy and syntactic violations evoked a sustained negativity effect, which again decreased across the three tasks. These findings suggest that (a) P600 effects can be evoked by both syntactic and animacy violations, regardless of task; (b) task nonetheless interacts with the additional processes reflected by the P600; (c) sustained negativities on sentence-final words following mid-sentence anomalies are likely to reflect an absence of processing rather than prolonged semantic processing.