Semantic nature of the early context effect:
Evidence from processing differences between abstract and concrete words

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The initial lexical-semantic access in word processing can be examined with semantic context effects as identified by the high temporal resolution of Event-related Brain Potentials (ERPs). Besides the well-known context effects in the N400 component recent ERP studies demonstrate early context effects in the P1-N1 time period; however the semantic nature of these effects remains elusive. In the present ERP study the early context effect was assessed in abstract and concrete words known to differ in semantic properties. The words were presented visually in semantically related and unrelated single word context. The early context effect was analyzed in time and space by applying topographic and source localization methods on the word-related potentials. In abstract words the early context effect was enhanced compared to concrete words as indicated by a topographic difference in the P1-N1 transition period from 116 to 140ms. Furthermore, the context effect observed in abstract words was explained by higher activation in the left prefrontal cortex for related compared to unrelated words in addition to temporal generators similarly recruited in both conditions. The findings demonstrate that the early context effect is modulated by semantic word attributes and results from activation in temporo-prefrontal brain regions known to be critical to semantic processing. We conclude that the early context effect is due to semantic access taking place well before 200ms in word reading.