**Activation of Syntax-Sensitive Structures in the Reading Brain**

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**Abstract:** Recent evidence shows that participants can discriminate a well-formed 4-word sentence from the same words arranged in an illegal order within 400 ms. This observation raises the question of how the syntactic structure for such word sequences could be constructed so rapidly. To elucidate the neural underpinnings of this process, we conducted an MEG study where participants were presented with either short well-formed sentences (+syntax), or the same words in a syntactically illicit order (-syntax). In both conditions, all words were presented simultaneously. Using an ROI-based source-level analysis, we found significantly more activation in the +syntax condition relative to the -syntax condition in the posterior left temporal lobe, as well as in the pars triangularis in the left IFG. These differences began at relatively early latencies (350ms post stimulus onset), in line with previous ERP results, and provide a glimpse of where syntax is first processed in the brain.

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