Fractal Patterns in Complex Reading Tasks

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Abstract: Reading of text is a process streched out in time, where the perception and meaning of components (i.e., words, sentences) is strongly context dependent. The temporal dynamics in text reading are investigated using a self-paced reading procedure: Participants read a short story (approximately 14,000 words) presented either word-by-word, phrase-by-phrase, or sentence-by-sentence. The three reading conditions differ systematicly in terms of syntactic features that are accessible for the reader, as well as in variability of spatial length and semantic coherence. Spectral analysis of reading times yields distinct fractal patterns for each of the three reading conditions.