Using a Language Transformer Model to Capture Creativity in Improvised Narratives

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Abstract

Humans often communicate through spoken or written narratives, and assessing story creativity is typically thought to be a highly subjective and uniquely human ability. To challenge this assumption, we explored whether a language transformer model (BERT) could generate metrics to assess narrative creativity automatically. We collected 790 audio-recorded improvised stories based on varying prompts and used a subset of their transcripts (18) in this preliminary study. Stories with a higher average BERT semantic embedding distance between all sentences were rated as more imaginative ($r = 0.48$, $p = 0.044$) and more complex ($r = 0.52$, $p = 0.028$) by the average of seven creative storytelling experts. Additionally, sentence-level embedding distances predicted human ratings better than word-level embedding distances ($p < 0.05$). Together, these findings highlight BERT as a useful tool for automatically assessing narrative creativity and invite further fine-grained investigation of the features that describe creativity in natural communication.

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