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Predicting Domain Knowledge Using Natural Language Processing Tools

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Abstract

Individuals who possess extensive domain knowledge use their knowledge when understanding, discussing, and remembering events. The purpose of this study was to assess the extent to which natural language processing (NLP) tools could be used to predict domain knowledge from typed descriptions of events. Participants watched videos of basketball and recalled them after viewing. Knowledge of basketball was assessed. NLP tools were utilized to assess whether linguistic features of participants' event descriptions could be used to predict domain knowledge. Moreover, the extent to which linguistic indices could be classified as relating to linguistic complexity or features of mental model construction was explored. Results from machine learning models suggest that domain knowledge (high, low) could be predicted with up to 90% accuracy. Additionally, 90% of predictors could be categorized. Higher knowledge individuals tended to describe events with more linguistic complexity and produced more words related to spatial, temporal, and social relations.

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