Extracting, Representing, and Analyzing Mental Models

Kathleen Carley, Michael Palmquist


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Abstract

When making decisions or talking to others, people use mental models of the world to evaluate choices and frame discussions. This article describes a
methodology for representing mental models as maps, extracting these maps from texts, and analyzing and comparing these maps. The methodology employs a set of computer-based tools to analyze written and spoken texts. These tools support textual comparison both in terms of what concepts are present and in terms of what structures of information are present. The methodology supports both qualitative and quantitative comparisons of the resulting representations. This approach is illustrated using data drawn from a larger study of students learning to write where it is possible to compare mental models of the students with those of the instructor.

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