Spatial/Kinematic Domain and Lattice Computers

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Abstract

An approach to analogical representation for objects and their motions in space is proposed.

This approach involves lattice computer architectures and associated algorithms and is shown to be abstracted from the behavior of human beings mentally solving spatial/kinematic puzzles. There is also discussion of where in this approach the modeling of human cognition leaves off and the engineering begins.

The possible relevance of the approach to a number of issues in Artificial Intelligence is discussed. These issues include efficiency of sentential versus analogical representations, common sense reasoning, update propagation, learning performance tasks, diagrammatic representations, spatial reasoning, metaphor, human categorization, and pattern recognition.

Lastly there is a discussion of the somewhat related approach involving cellular automata applied to computational physics.

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