The Common Ground of Constraint Satisfaction

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Many approaches to human-level intelligence come together on the common ground of constraint satisfaction and optimization.

- Many forms of reasoning have been modeled as constraint satisfaction, e.g. temporal, spatial, analogical, diagnostic, qualitative.

- Components of different forms of reasoning have been modeled as constraint satisfaction, e.g. for case-based, rule-based, and agent-based reasoning.

- Various facets of human behavior have been modeled as constraint satisfaction, e.g. vision, language, planning.

- A number of intelligent architectures have been brought to bear on constraint satisfaction, e.g. neural networks, genetic algorithms, evolutionary algorithms, cognitive architectures.

- Several facets of intelligence have been brought to bear on constraint satisfaction, e.g. learning, reasoning under uncertainty, game playing.

- The development of constraint modeling and reasoning systems that interact with humans about human preferences and priorities will benefit from increased interaction with cognitive psychology and other communities.

Constraint satisfaction and optimization thus can serve as a lingua franca for expressing and integrating approaches to human-level intelligence, and provide a common ground for their study.

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