

Current Tools for Assisting Intelligent Agents in Real-time Decision Making

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Accessibility for Intelligent Agents

| | <i>build model</i> | <i>load model</i> | <i>set value</i> | <i>type of interface</i> |
|------------------------|--------------------|-------------------|------------------|--------------------------|
| Ergo | x | x | x | C library |
| GeNIe/SMILE | x | x | x | C++ library |
| Hugin | x | x | x | C library |
| Netica | x | x | x | C library |
| Analytica | | x | x | OLE |
| DATA | | x | x | DDE, OLE |
| DPL | x | x | x | DDE |
| DecisionPro | x | x | x | DDE, TCP/IP |
| Delta | x | | x | C library |
| Expert Choice | | | | (GUI only) |
| Criterion DecisionPlus | | x | x | OLE |

What is a Pronouncer?

“It suggests an extrinsic entity, and also that the advice given is formal and authoritative, giving the entity a normative status.”

Boman & Verhagen 1998

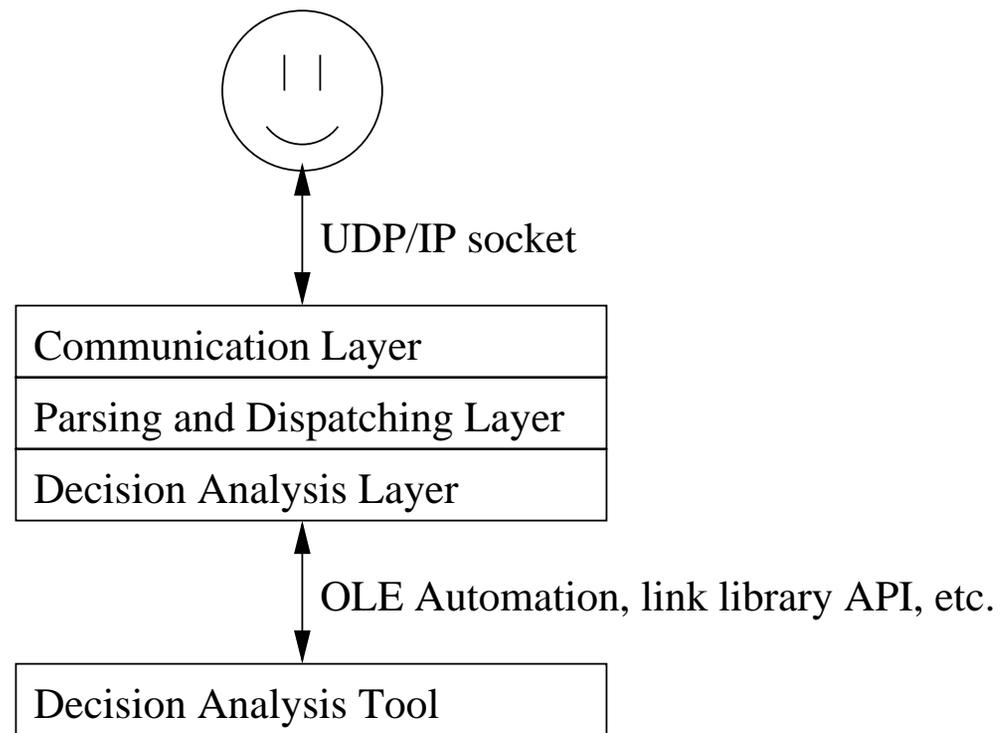
Basic Functionality

- load template models
- set/modify values
- evaluate model, and answer with a single recommended alternative

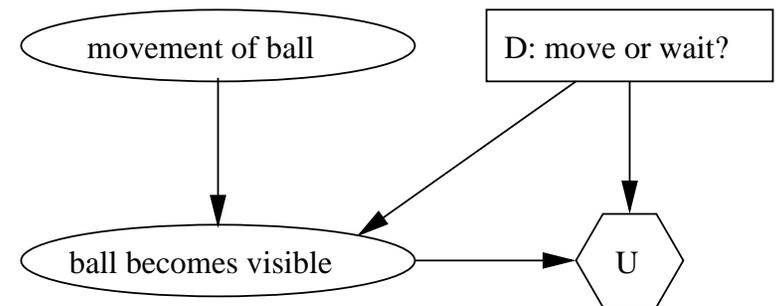
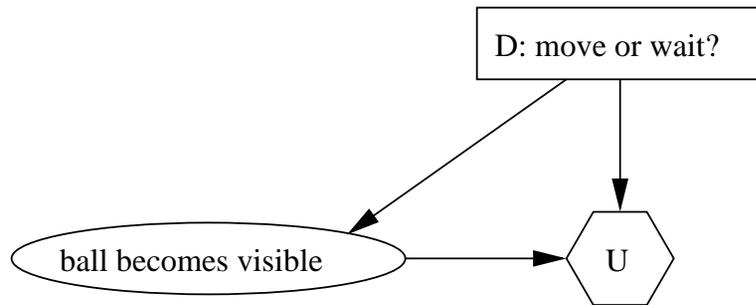
Examples of Extended Functionality

- structural modifications of models
- sensitivity analyses
- probabilistic learning

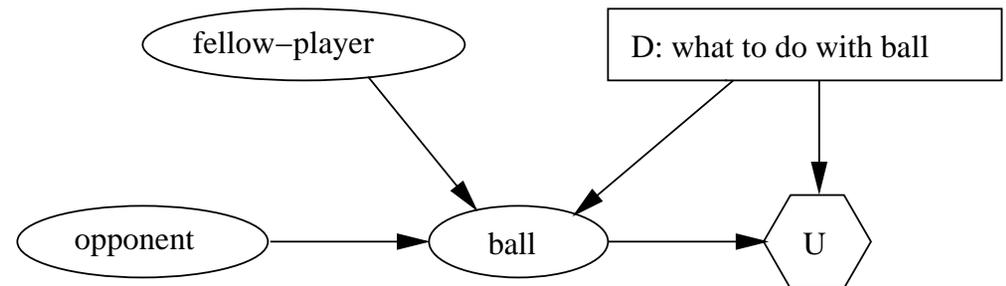
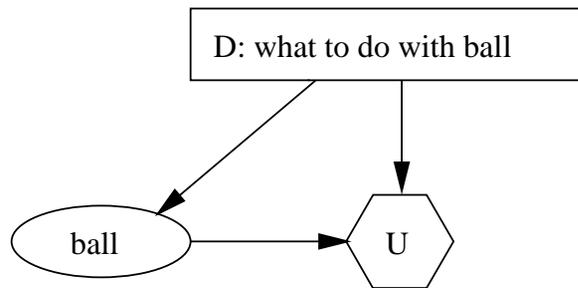
Architecture of Implemented Pronouncers



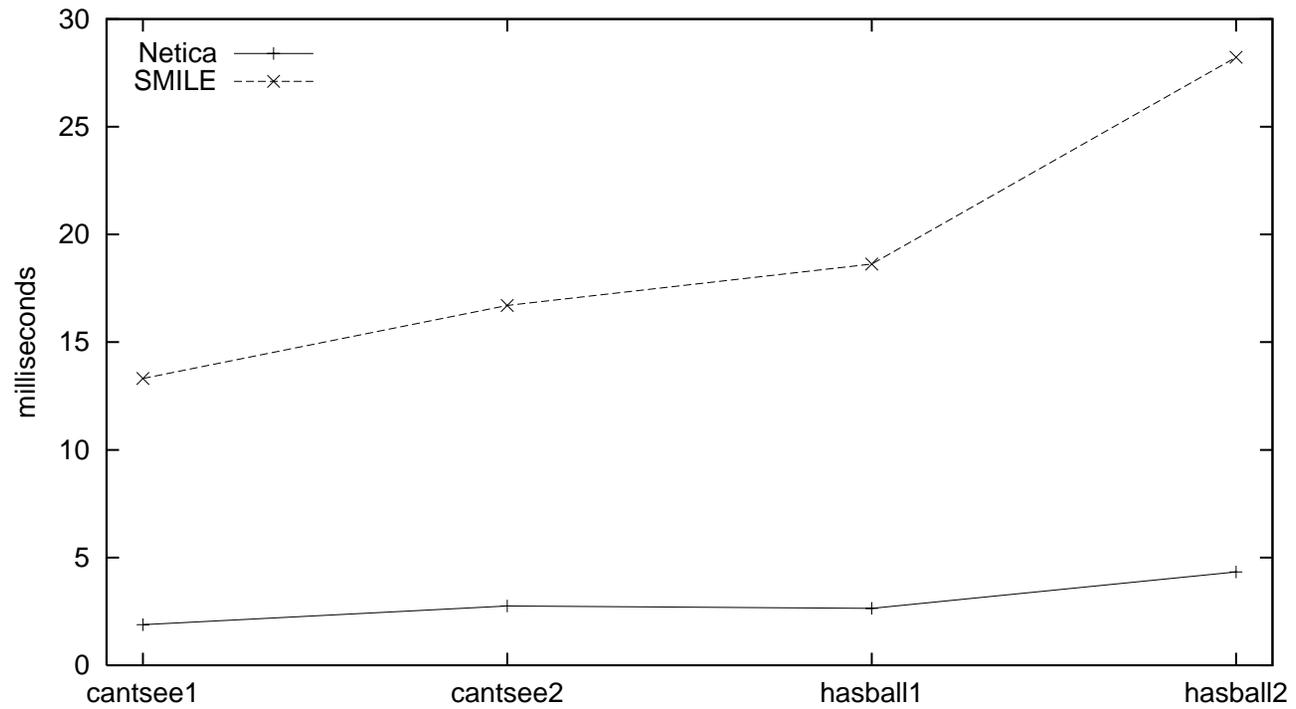
Scenario 1: Agent cannot see ball



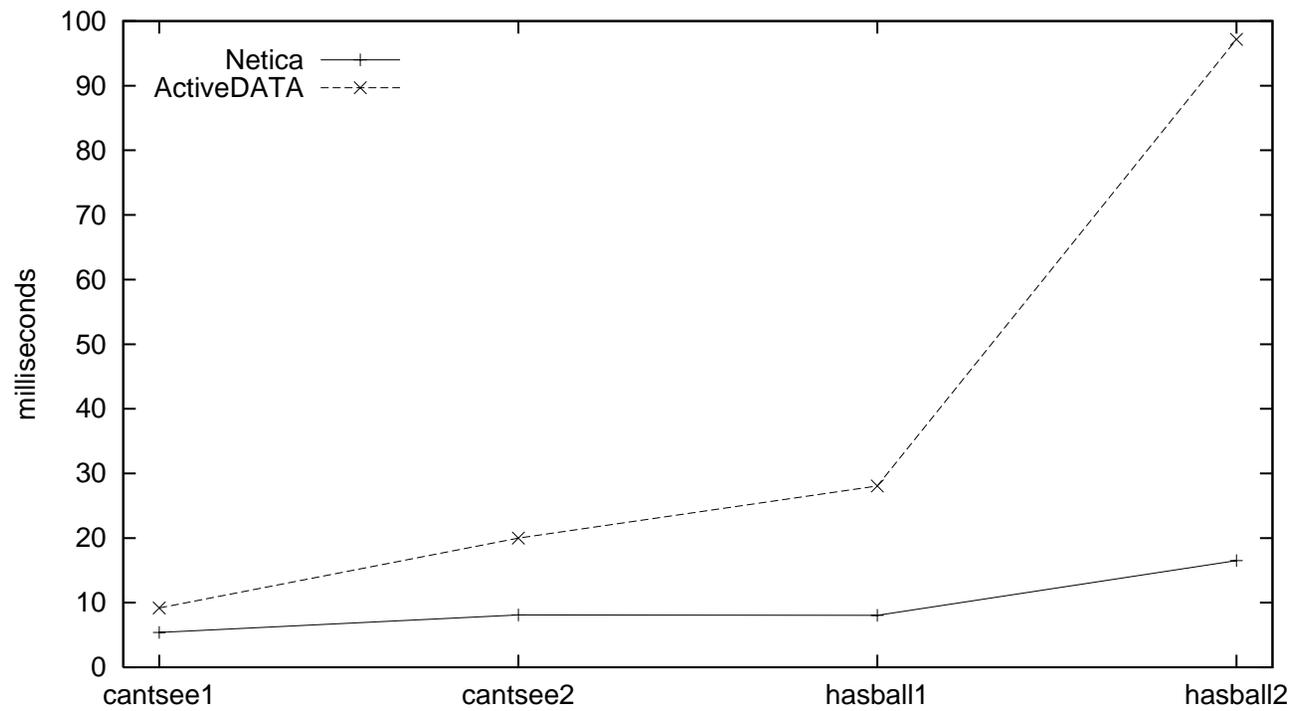
Scenario 2: Agent has ball



Performance on Solaris



Performance on Windows



Future Research

- test pronouncers in RoboCup (and other real-time domains)
- pronouncers using supersoft decision analysis (Delta)
- pronouncers using AHP (Criterium DecisionPlus)
- implement extended functionality
- test other approaches (e.g. anytime algorithms)