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“Visualizing the Dynamics around the Rule/Evidence Interface in Legal Reasoning”

Abstract:

In modern legal systems, the litigated issues are numerous, the reasoning is complex, and the decision-making processes are highly regulated. Moreover, those processes integrate legal rules and policies with expert and non-expert evidence. What is needed is a means of representing, studying, and partially automating such complex legal reasoning. This presentation demonstrates a visual framework that is based on a many-valued, predicate, default logic, and whose syntax and semantics allow the automation of key tasks within legal reasoning. The framework models rule-based reasoning and evidence evaluation in such a way that their logical similarities and dissimilarities become more apparent. As a result, we can begin to visualize the dynamics around the interface between rule-based reasoning and evidence evaluation. Moreover, the same framework models process decisions about procedure and evidence, and helps us to visualize how new structures for legal proof can emerge and evolve. This presentation emphasizes the visual aspects of this representational framework, and displays the graphical interfaces of software based upon it. Such graphical working environments can make the logic and dynamics more intuitive for people who are analyzing judicial or administrative reasoning, conducting empirical research, or teaching law.

A recent presentation showing some of the graphical interfaces is “A Default-Logic Framework for Legal Reasoning in Multiagent Systems,” presented at the American Association for Artificial Intelligence Fall Symposium in 2006. For a screen-cam video of the presentation, go to: <http://people.hofstra.edu/faculty/vern_r_walker/LegalReasoning.html>.