Using Protégé for Modeling Clinical Practice Guidelines: The Experiences of the EON Project

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The EON project at Stanford was a 6-year project, funded by the National Library of Medicine, to develop a component-based architecture for creating decision-support systems for guideline-based care. As part of the architecture, the project created a suite of models and software components, including a set of middleware servers that perform the computation necessary to support specific tasks in guideline-based patient care. One such server, the guideline execution server [1], takes as inputs formalized clinical guidelines and relevant patient data to generate situation-specific recommendations. A second server, the Tzolkin temporal data mediator [2], extends the traditional relational database server to include capabilities to resolve queries involving complex temporal relationships and to create temporal intervals representing abstractions derived from primitive time-stamped data. A third component, known as WOZ [3], provides explanation services for other components. The technology developed in the EON project forms the basis for the ATHENA decision-support system for the management of hypertension, which had been deployed and validated at a number Department of Veteran Affairs sites [4].

All EON application, data mediation, and explanation servers access data models and knowledge bases created and maintained in the Protégé knowledge-engineering environment [5]. In the workshop presentation, we will describe the types of domain and problem-solving knowledge required in building such decision-support applications, the features of Protégé that helped us to face the modeling challenges, and the limitations of the system.

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