
DAML Project Activities

SRI International

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- **Semantic Web Services**
- **Security (for SWS)**
- **OWL-S Editor**
- **Time and Space Ontologies**
- **Axiomatic Semantics**
- **Composition of Services**

■ Goals and Deliverables 2004:

- Consolidated security ontologies
 - ◆ Including use cases
 - ◆ Integration with SWRL
- Document and ontologies describing tie-in with WS-* standards
- Client-Server framework for matching and enforcing privacy and authentication policies
 - ◆ Using semantic security services for encryption, signing, etc.

■ Current functionality

- Ontologies supporting security annotations of web services, including
 - ◆ high-level requirements and capabilities such as protocols supported, credentials provided, etc.
 - ◆ enforced authorization, privacy and confidentiality policies
- Deployed semantic security services

■ Current IP status

- All ontologies, papers, and use cases are publicly available
- Deployed security services are publicly accessible

■ Project status at end of 2004

- Suite of ontologies and use cases demonstrating security annotations and policies for OWL-S services

■ Goals and Deliverables for 2004

- Implementation of OWL-S editor as plug-in to Protégé-2000

■ Current functionality

- Design / prototyping stage
 - ◆ Design of look-and-feel of OWL-S plugin
 - ◆ Preliminary tests with prototypical implementations

■ Current IP status

- Mozilla Public License 1.1

■ Software Deliverables on SemWebCentral

- OWL-S editor project established
- All deliverables will be available on SemWebCentral

■ Project status at end of 2004

- OWL-S editor supporting editing of all four modes (service, profile, atomic/composite process, grounding)
- GUI for composite process editing
- Consistency checks between modes

Jerry Hobbs
(recent developments)

- **“Entry” subontology of Time with essential elements, in OWL**
- **Treatment of temporal aggregates**
 - “every 3rd Wednesday”
- **Treatment of temporal arithmetic**
 - Jan 31 + 1 mo. + 1 mo. = Jan. 31 + 2 mo.?
 - Integration with OWL-S
- **Ontology of topological aspects of space**
 - Dimension, topological shape

Axiomatic Semantics of OWL Full

- **First-order axiomatic OWL theory formulated in Kestrel's Specware environment.**
- **Theory + SNARK is OWL-Full Reasoner.**
 - **Conjectures and test cases proved by SRI's theorem-prover SNARK.**
- **SNARK searches for inconsistencies in OWL theory or (potentially) OWL ontologies.**
- **Establishes conclusions not expressible in OWL (e.g., with quantifiers).**
 - ◆ Supported by Kestrel under Lockheed Martin UBOT project and SRI under SRI's DAML project.

Automatic Composition of SAP Business Services

- **Formulate axiomatic theory of business services.**
- **Capabilities of services**
 - **Extracted from OWL-S services descriptions.**
 - **Advertised by axioms in theory.**
- **Task expressed as theorem in theory.**
- **Composition of services to achieve task extracted from proof of task theorem.**
 - ◆ **Tentatively supported by SAP**

