

Strawman for SWSL: SCLP Rules + Ontologies to Describe E-Services

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Outline of Presentation

- Intro: Review the “NO Procedural Process Model” proposal and discussion from Oct. 2003 SWSI F2F (see separate text file)
- Rest is Further Thinking and clarification
 - KR Approach
 - What we’ll be able to do with it
 - Strategy for combining/extending it with other approaches

Outline of Proposed KR Approach

- LP Rules as core of near-term Knowledge-based Service Descriptions
 - + Procedural Attachments: Effectors, Sensors, Events
 - + DLP Ontologies
 - + OO default inheritance, e.g., using Courteous Inheritance
 - Model C++, Java, C#, UML
 - + Hilog/F-Logic-y “meta-”logical expressiveness
 - Close relationship to Flora, via underlying LP representation
- Other Aspects / Extensions – less immediately:
 - FOL
 - Constraints
 - (DL – DLP)
 - ? What else needed ?
 - Procedural Process Models
 - ? Which model ? Concurrent Transaction Logic? (Am open-minded.)
 - Best guess: Start with capabilities of BPEL, WS Choreography design
 - ? What will be the “extension points” of the KR / Process Model?

Goals wrt Key SWS Tasks

- The point of SWS is knowledge reuse
 - Especially the Knowledge-based service descriptions
- ... Across the Key Tasks in our Requirements:
 - Advertising/Discovery/Matchmaking;
Contracts (selection, negotiation); Enactment,
Composition; Monitoring, problem resolution,
exception handling; Verification;
Trust/Security/Privacy Policies
- Underlying: Hypothetical Reasoning

Where Rules + Ontologies alone are useful

- LP Rules + ~DL Ontologies alone are useful -- enough to be worthwhile – in almost all of the main Tasks areas, with reuse between Tasks as well as between Applications:
- ADM: partial contracts, subsumption
 - E.g., see papers from WWW-2003 EC session
- Contracts/selection/negotiation: pricing, policies, contingent provisions
 - E.g., cf. SweetDeal approach
- Monitoring, problem resolution, exception handling
 - E.g., cf. SweetDeal approach
- Enactment
 - Via procedural attachments, esp. effectors, events
- Composition: e.g., via composing service-description knowledge bases by union'ing their rules/ontologies
- Trust Policies:
 - Most major practical approaches are rule-based already:
 - RBAC, XACML, P3P, etc.
- Underlying: Hypothetical Reasoning
 - A major strength of Rule-based KR