Requirements and Use Cases for a Semantic Web Rule Language

http://www.isi.edu/~stefan/rules

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Rationals

- Identify Prototypical Use Cases
- Build Consensus
- Identify Objectives and Requirements
- Structure Specification Process
- Provide Input for Language Design
What is in a Rule?

• Controversial: Knowledge Representation vs. Programming

• Rule Types:
  – Derivation
  – Reaction
  – Transformation
  – Integrity Constraints
Derivation Rules

• Extended Inference
  – Augmentation of OWL with additional inference rules
    • a Debtor is a Person whose (cumulative) liabilities exceed his (cumulative) assets.
    • 2 siblings have the same father, i.e. sibling(S1, S2), father(S1, F) => father(S2, F)
Transformation Rules

• Ontology and Data conversion
  – Conversion of attribute values (fahrenheitTemperature to celsiusTemperature, birthDate, to currentAge)
  – Conversion of instances
    • Person enrolled at a university -> student
Reaction Rules

• Financial service monitoring
  – If any 3 of the named analysts report a strong buy on the same stock within the same day and before the market closes, then buy 1000 units of that stock.
Integrity Constraints

• Does a given dataset comply to a set off rules (e.g., with an ontology)?
Candidate Requirements

• Support for RDF
• Support for OWL
• Procedural Attachments
• Aggregation functions
Unresolved Questions

• Are the Examples Representative?
• Relationship to OWL?
• Multiple Languages (Layering)?
• Datamodel?

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