

**Developers Day**  
**at the 2004 World Wide Web Conference**  
**Rules on the Web Track**  
**- *Report* -**

Co-chairs:

Benjamin Grosf

Mike Dean

Harold Boley

22 May 2004: WWW DevDay

26 May 2004: DAML PI Meeting

New York City

# Brief Description

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This track presents tools and applications for rules on the web, including Business Policies, Web Services

This includes use of rules in / for the (RDF, OWL) Semantic Web, rules for the XML Web, and rules in combination with Semantic Web Services and/or other Web techniques/protocols

# Tim Berners-Lee: cwm rules

<http://www.w3.org/2004/Talks/0522-tbl-n3> (slides)

"N3 Rules" subset

Aims to be the sed, awk, grep of the SW

Uses built-ins via RDF

- e.g., arithmetic relations (like greaterThan) as RDF properties
- Web access -- e.g., for homepage info (vegetarian example)
- crypto -- e.g., for security and trust
- formula interrogation -- e.g., for provenance

Explicitly closed-world "not" -- log:notIncludes

Examples: 1040 tax form, ...

Can handle provenance explicitly, since a rule is just data

"Functions should be built-in RDF properties,  
not magic rule language syntax"

# Benjamin Grosf, SweetRules: Tools for RuleML Inferencing and Translation

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See Talk !

# H. Boley, M. Ball, B. Spencer, OO jDREW: A Java-Based Rule Engine for OO RuleML

<http://www.jdrew.org/ooidrew> (applets)

Supports:

- POsitional-SLotted syntax
- (OO) RuleML XML markup
- RDF/XML markup (for types)

Type declarations refer to RDF Schema classes

Type intersection, during indexing/unification

(e.g., sale is specialization of both offer and promotion)

Use case: NBBizKB

Rules for integrity checking, info integration, ...

from two sources about New Brunswick enterprises

# Michael Kifer, FLORA 2

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Newest implementation of F-logic

Supports:

- Hilog higher-order syntax
- RDF blank nodes
- Schema querying

Users of Flora:

- Daimler-Chrysler!
- UMBC
- several other univ's

# Sean Bechhofer, Ian Horrocks, Hoolet

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First implementation of SWRL

Uses material implication rules with contrapositive rules

Restriction: named classes only

Straightforward translation into FOL (Vampire)

Can be improved via static analysis:

- efficiency
- datatypes

SWRL parser will be available on sourceforge on OWL-API

Mike Dean,

# Use of SWRL for Ontology Translation

<http://www.daml.org/2004/05/swrl-translation/Overview.html> (slides)

Uses/motivates the SWRL V0.6 built-ins

Example application: aggregate company and stock price info from NYSE, NASDAQ, London, currency exchange rates

Rules: Price from London ontology in pounds, and exchange rate; use SWRL multiplication builtin to convert to stock price in dollars

Define penny-stock

XSLT translator of SWRL to CLIPS (Jess) rules

Restrictions: named classes only, position of built-ins

Rules used for ontology translation:

Facilitate analysis of missing/conflicting values or augmentation



Dave Reynolds,

## Rule based inference support in Jena2

Rule processing designed to work purely on RDF triples with forward and backward engines

Has extensible set of built-in sensors -- "procedural callouts"

Structured values in object position of triples, for n-ary relations

Tabled, similar to XSB; but much simpler because:

No negation as failure; Datalog restriction

Allows flexible tradeoff of eager/lazy processing mode

5-10K downloads!

# N. Sadeh, F. Gandon, M. Sheshagiri, **ROWL: Rule Language in OWL & ... JESS**

ROWL (Rules in OWL) serialized in RDF,  
with OWL ontologies and annotations

Translation engine into Jess (mainly in XSLT, OWL metamodel)

10's of users

Forward-only rule ex.: "when I am in a meeting, then I am busy"

Service invocation rules -- activate any Java etc. procedure

"service triples" are associated

e-Wallet application uses preference/confidentiality rules

# Hoi Chan, Overview IBM CommonRules 4.0

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New features in V4.0:

1. GUI: "project builder" for ruleset combination
2. Persistent relationships in knowledge server for on-demand computing, e.g., for systems management about resources

Provides an API for storage of facts and rules

Have started to include RuleML and OWL support

# S. Decker, M. Sintek, A. Harth, TRIPLE: an RDF ... transformation language ...

RDF transformations -- often don't want just OWL semantics, but want to generate new RDF triples

Uses contexts: scopes around some RDF data

Status: implemented using Java, XSB over RMI

Half dozen univ. groups in Europe, plus ISI are current users AND extenders

Plans:

- get native Java engine
- more import filters, e.g., recently did MOF/CIM
- integrate with Jena2 and Protege-2000

# Announcements

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- SWRL now an official acknowledged W3C Member Submission
- RuleML-2004 Workshop at ISWC-2004 Conference: 8 Nov 2004

**“Rules and Rule Markup Languages for the Semantic Web”**

**<http://2004.ruleml.org>**

**Paper submission deadline: 12 July 2004**