

## SWOOP

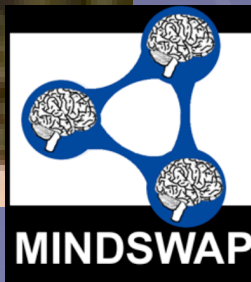
Aditya Kalyanpur with Evren Sirin,  
Bijan Parsia, Ron Alford, Nada  
Hashmi

and the rest of the UMCP  
MINDSWAP group

<http://www.mindswap.org>



And now for something completely different...



# MINDSWAP Tools

- <http://www.mindswap.org/downloads/>
- MINDSWAP (tool/demo) Goals
  - End to end capability
    - Demonstrate use of open systems
    - Demonstrate capabilities of RDF(S)/OWL
  - Open source, virtually unlimited license
  - Easily Extensible
  - “Out not right”
    - 80% is plenty J

# SWOOP Motivation

- Current Ontology Development Process
  - Rely on traditional KR-based ontology engineering methodologies
  - Steep learning curves
  - “Power Tool” based

*Need for rapid and easy editing*



# SWOOP Features

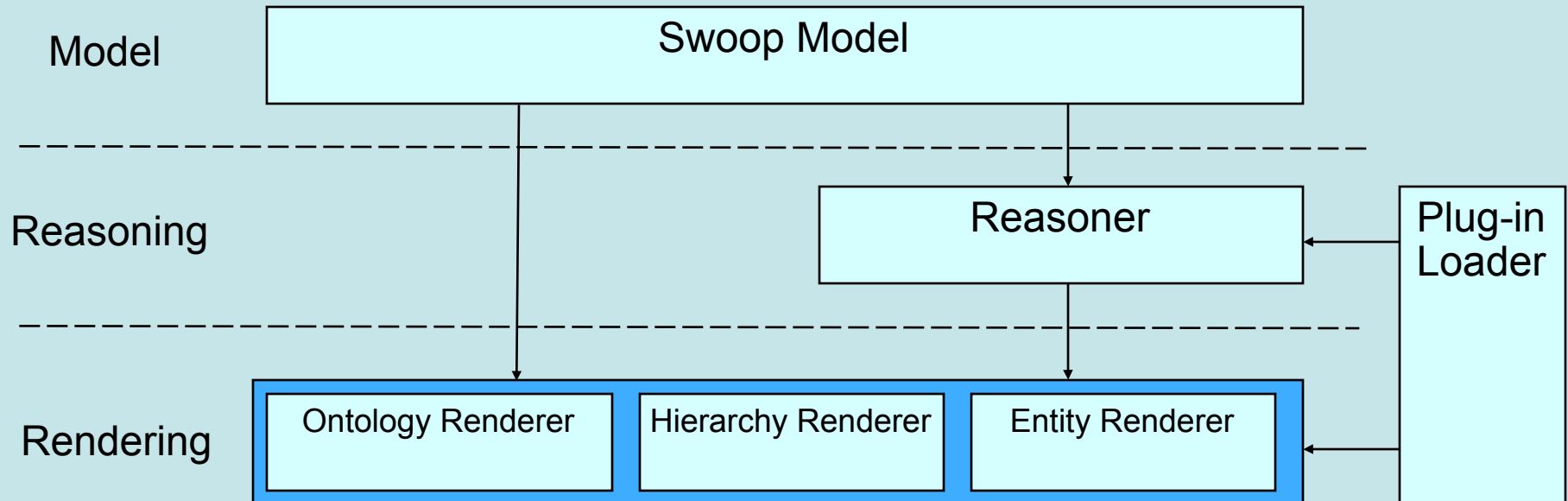
- Web browser look & feel:
  - **Browser “metaphor”**
    - Consistent hyperlink UI
    - Bookmarks
    - Back/forward buttons
    - Constant URI display (w/history)
  - **Inline editing**
    - with change tracking (Undo, save changes, etc.)

***SWOOP LOOK AND FEEL DEMO***

# Swoop Architecture

- Based on Model-View-Controller paradigm
- Model
  - Ontology display based on arbitrary “reasoner”
  - RDFS as default
- Multiple Views
  - Ontology, entity, hierarchy views
  - Support rendering + editing
- Plug-in based system
  - Load new reasoner or renderer automatically

# Swoop Architecture



# Adding Reasoner Plug-ins

- Interface w/about 30 OWL-related fns

ancestorClassesOf(OWLClass)  
ancestorPropertiesOf(OWLProperty)  
complementClassesOf(OWLClass)  
descendantClassesOf(OWLClass)  
descendantPropertiesOf(OWLProperty)  
directTypesOf(OWLIndividual)  
disjointClassesOf(OWLClass)  
domainsOf(OWLProperty)  
equivalentClassesOf(OWLClass)  
equivalentPropertiesOf(OWLProperty)  
getAnnotationProperties()  
getClasses()  
getDataProperties()  
getEquivalents(OWLEntity)  
getIndividuals()  
getObjectProperties()

getOntologies()  
getOntology()  
getProperties()  
instancesOf(OWLDescription)  
inversePropertiesOf(OWLObjectProperty)  
isConsistent(OWLClass)  
isInstanceOf(OWLIndividual, OWLDescription)  
loadImports()  
rangesOf(OWLProperty)  
setLoadImports(boolean)  
setOntology(OWLOntology)  
subClassesOf(OWLClass)  
subPropertiesOf(OWLProperty)  
superClassesOf(OWLClass)  
superPropertiesOf(OWLProperty)  
typesOf(OWLIndividual)

- Partial implementations are okay

# Example- Pellet Reasoner

- Pellet is an OWL reasoner
  - <http://www.mindswap.org/2003/pellet>
- Built for a Web interface
  - *(demo)*
- Turned into SWOOP Plug in
  - *(demo)*

# Designed for OWL Rec.

- Species validation
  - Uses Manchester OWL API
- Presentation syntax tabs
  - Concise Format
  - Abstract Syntax (from OWL API)
  - RDF/XML (from BBN HyperDAML)
  - Turtle/N3
  - (plug-in architecture for new tabs)
- Multiple Ontologies
  - Browsing, Mapping, Comparison

***SWOOP Multi-ontology DEMO***

# SWOOP Future Plans

- XMLS (xml:schema->OWL ontology converter)
- Instance Support
- Class description-based Search (unnamed classes)
- SMORE plug-in (markup support)
- DIG interface for reasoners
- Version control
- E-connections (multiple ontology mapping)
- Named-graph support

# SWOOP Release

- **MINDSWAP Tools:**
  - <http://www.mindswap.org/downloads>
- **Project Website:**
  - <http://www.mindswap.org/2004/SWOOP>
- **Subversion Repository:**
  - <https://svn.mindswap.org/swoop/>
- **Mailing List / Forum:**
  - <http://lists.mindswap.org/mailman/listinfo/swoop>
- **SWOOP documentation**
  - “Read the source”