

Semantic Web: Applications

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[Agenda]

- Semantic Web Overview
- FOAF
- SKOS
- SIOC
- Digital Library

[Semantic Web Overview]

- To make information understandable for machine
- Now already widely known in research area and small business
- Participants: HP, Oracle, Boeing, IBM, Siemens, Nokia, Merck, Sun, Citigroup, British Telecom, etc.

[Machine readable data]

- Mozillar stores user's information(addressbook, history, bookmark, etc.) in RDF
- Abode embeds XMP in thier pdf and picture's files
- Tribe.net publics Foaf File for every users

Foaf:

The way to describe yourself



[Foaf]

- Stand for “Friend Of A friend”
- By Dan Brinkley and Libby Miller in year 2000
- To describe people and what they do
- More information:
<http://xmlns.com/foaf/spec/>

[Foaf:How?]

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">
  <foaf:Person rdf:ID="me">
    <foaf:name>Natcha Jutasirivongse</foaf:name>
    <foaf:mbox rdf:resource="mailto:natchalein@gmail.com"/>
  </foaf:Person>
</rdf:RDF>
```

[Foaf: More Properties]

- Foaf:mbox_sha1sum
 - an encrypted mail
- Foaf:img
 - Pictures that represents you
- Foaf:Homepage
- Foaf:weblog
- Foaf:interest
- Foaf:publications
 - Your publications
- Foaf:holdsAccount
 - Your online Account (eg. msn)
- Foaf:dnaChecksum

[Foaf:knows]

```
<foaf:person>
```

```
....
```

```
<foaf:knows>
```

```
<foaf:Person>
```

```
<foaf:name>Spiderman</foaf:name>
```

```
<foaf:mbox rdf:resource="mailto:Spider@abc.com"/>
```

```
</foaf:Person>
```

```
</foaf:knows>
```

```
</foaf:person>
```

[Why not more specific?]

- Relationships between people are complicated
- Combine Foaf:knows with other properties, you will be able to specify the relationship

[Generate and public Foaf file]

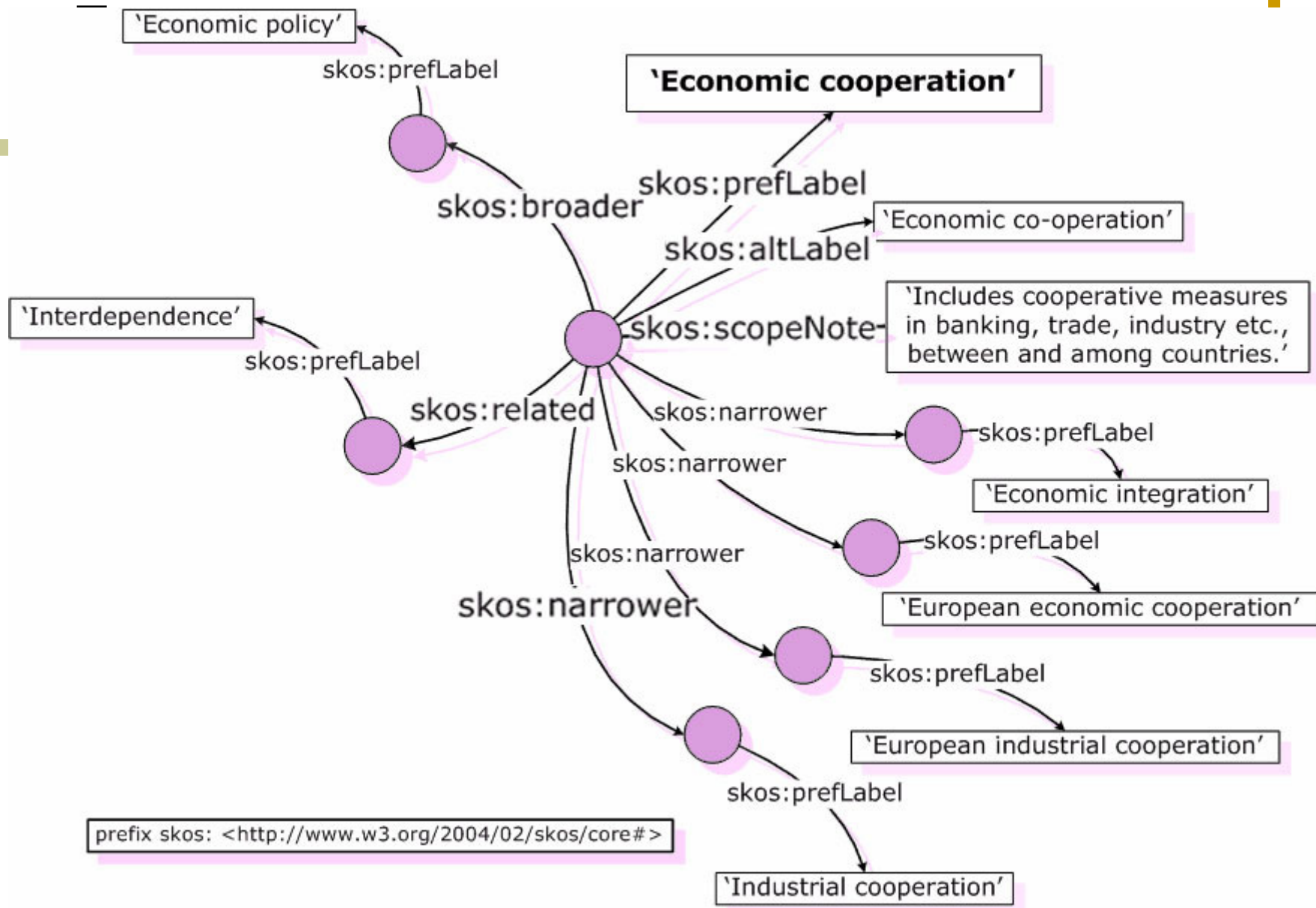
- Generate Foaf profile:
 - FOAFaMatic:<http://www.ldodds.com/foaf/foaf-a-matic.html>
 - MSN2Foaf:<http://www.ideaspace.net/users/wkearney/misc/foaf/msn2foaf-2.tar.gz>
(original:<http://chimpen.com/msn2foaf/>)
 - Flickr2Foaf:
<http://f14web.com.ar/inkel/2005/08/25/flickr2foaf.en.html>
- Public Foaf profile:
 - Save as Foaf.rdf and put it in your website



SKOS : The concept

[SKOS]

- Stand for “Simple Knowledge Organisation Systems”
- Model for expressing the basic **knowledge organization systems** (KOS) such as thesauri, classification schemes, subject heading systems and taxonomies
- Now W3C working drafts





SIOC

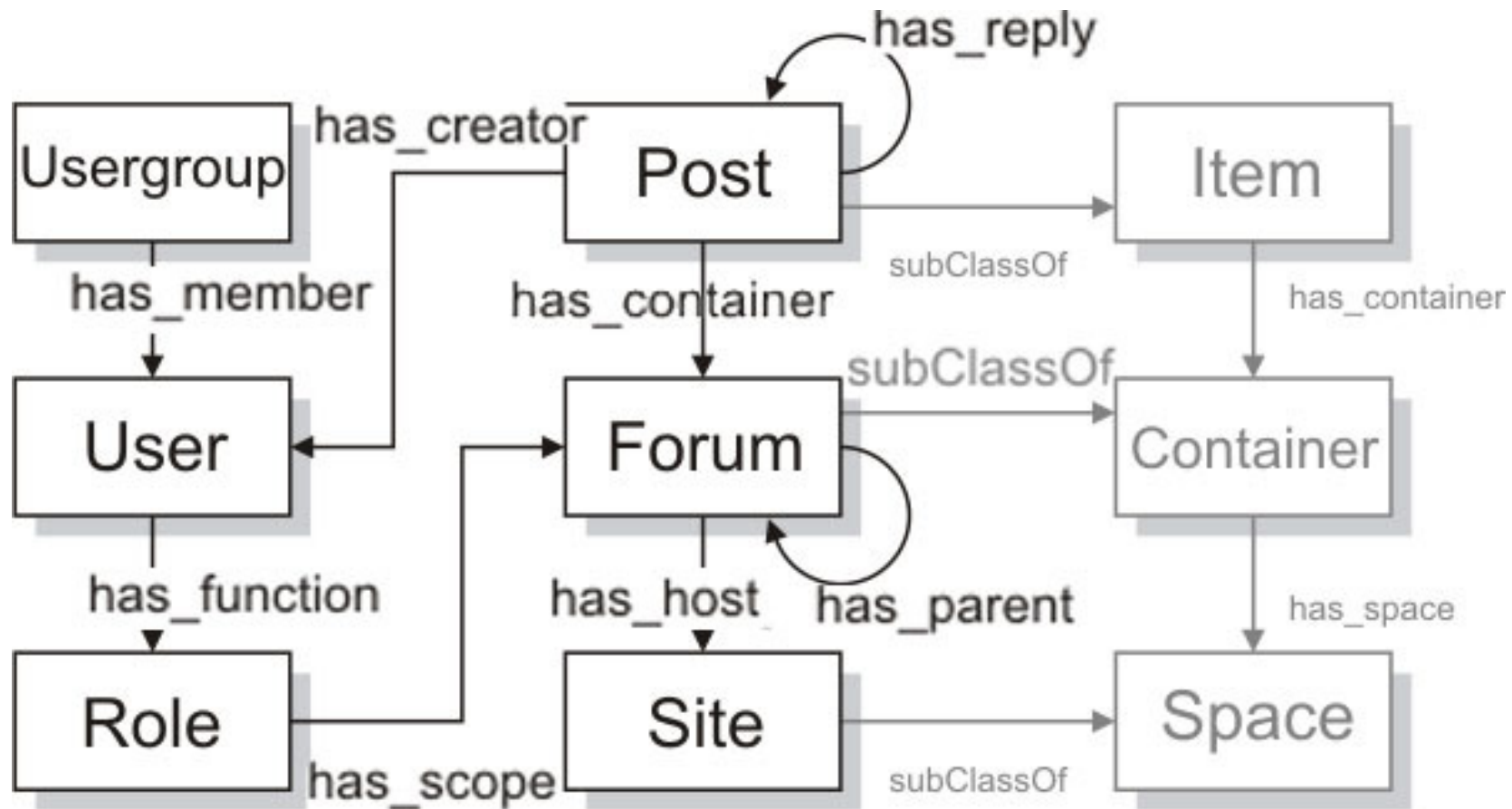


S)O(
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S)O(S)O(
S)O(

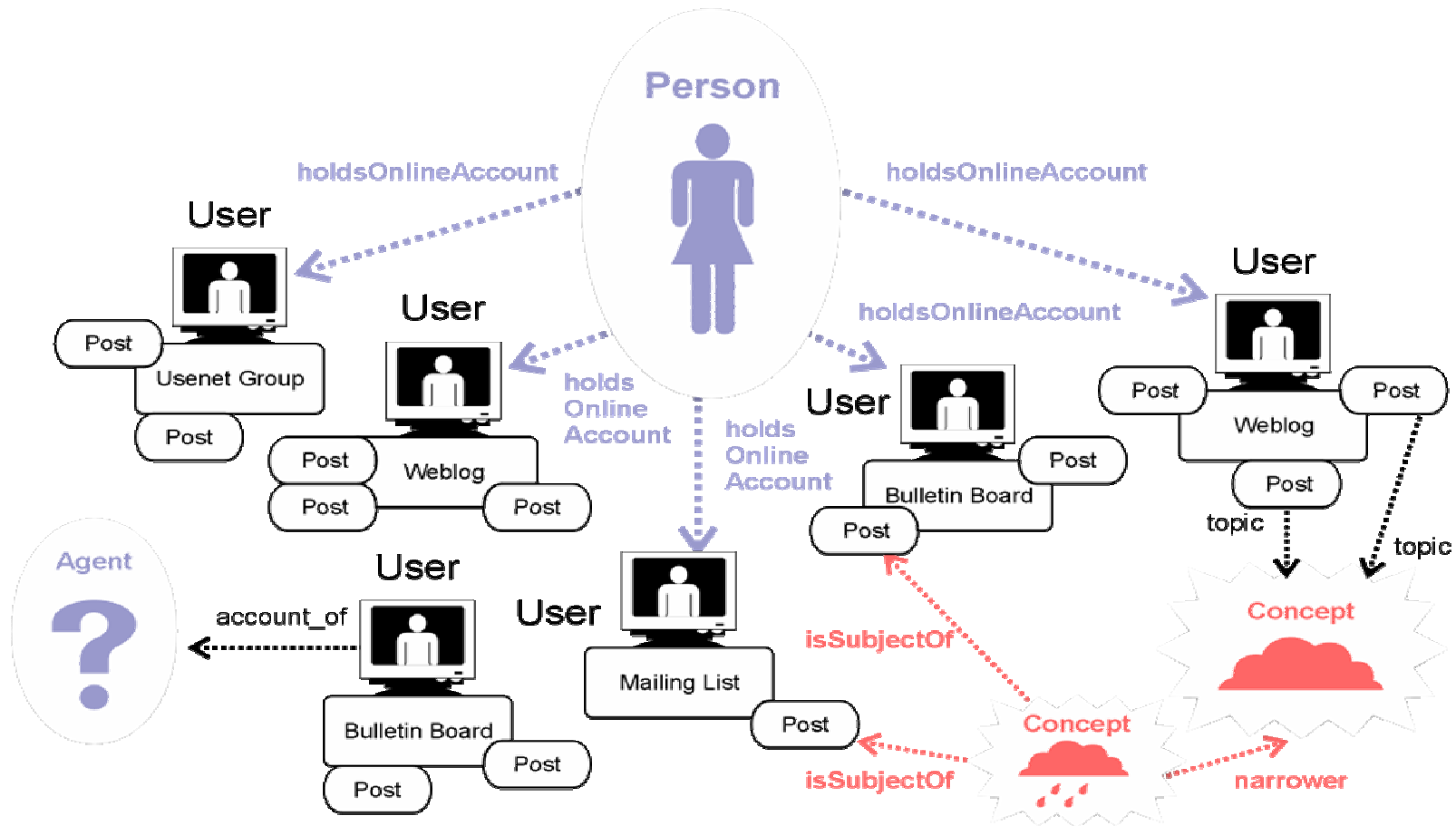
[SIOC]

- Stand for Semantically-Interlinked-Online-Communication
- Goal: connect online community sites and internet-base discussions (blog, webboard, mailing list, etc.)

[SIOC:Ontology]



[Put them together]



[Digital Library]

- A **digital library** is a library in which collections are stored in digital formats (as opposed to print, micorform, or other media) and accessible by computers –Wikipedia

[Semantic Digital Library]

- Resource is machine-understandable
- Resource not only books or media but also people

[Digital Library example]



Painter: Vincent van Gogh
About: Sunflower

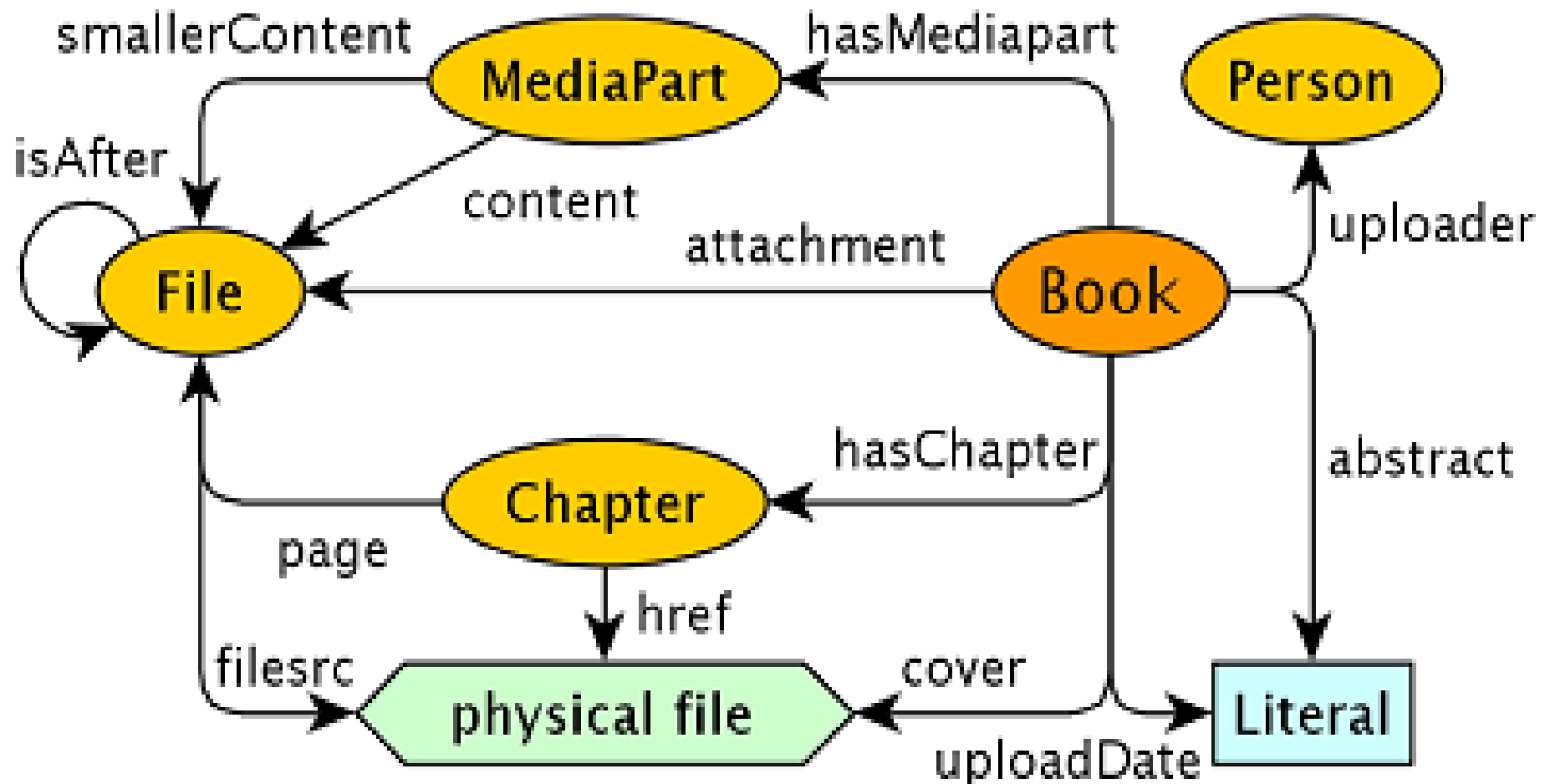
- Search for “Van Gogh” AND “yellow” and “flowers”

[JeromeDL]

- By the Main Library of Gdansk University of Technology and DERI.International
- A social semantic digital library

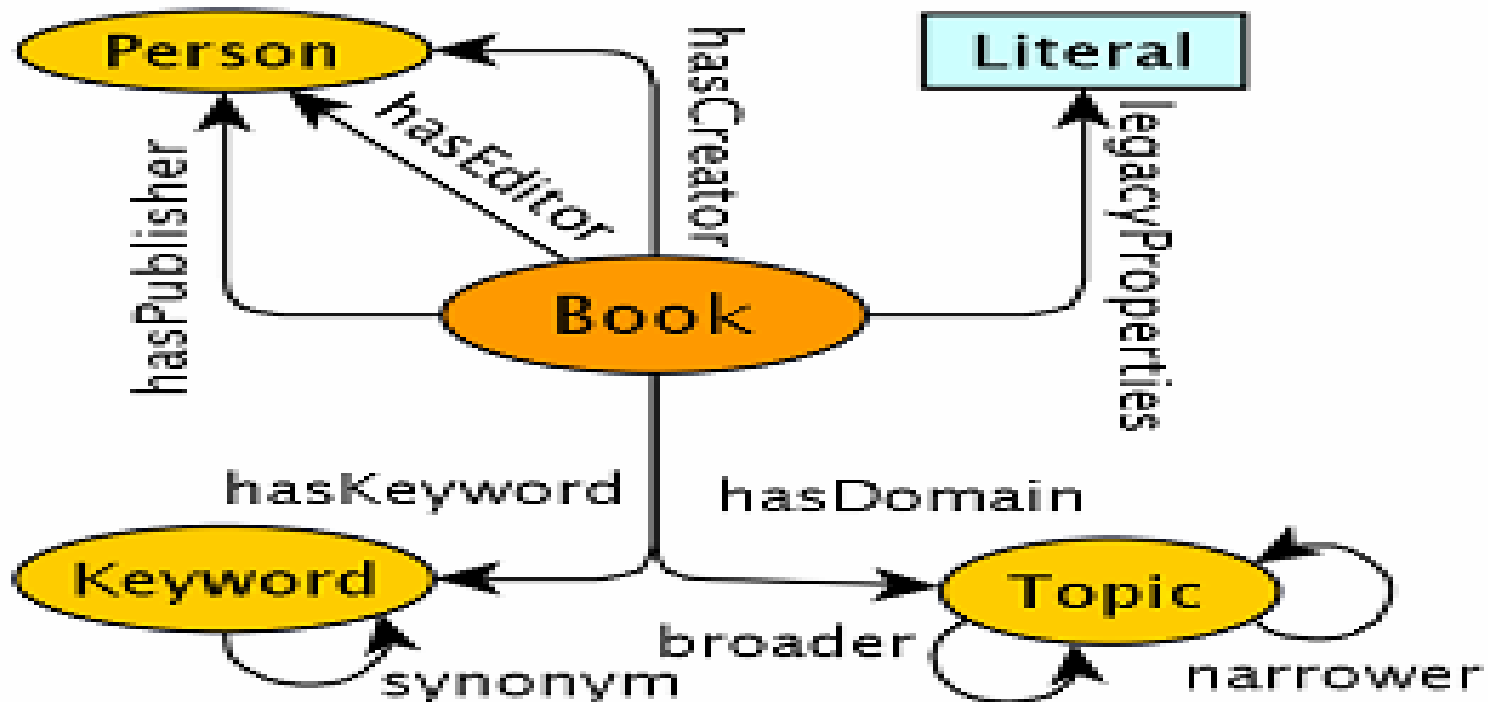


[JeromeDL:Structure]



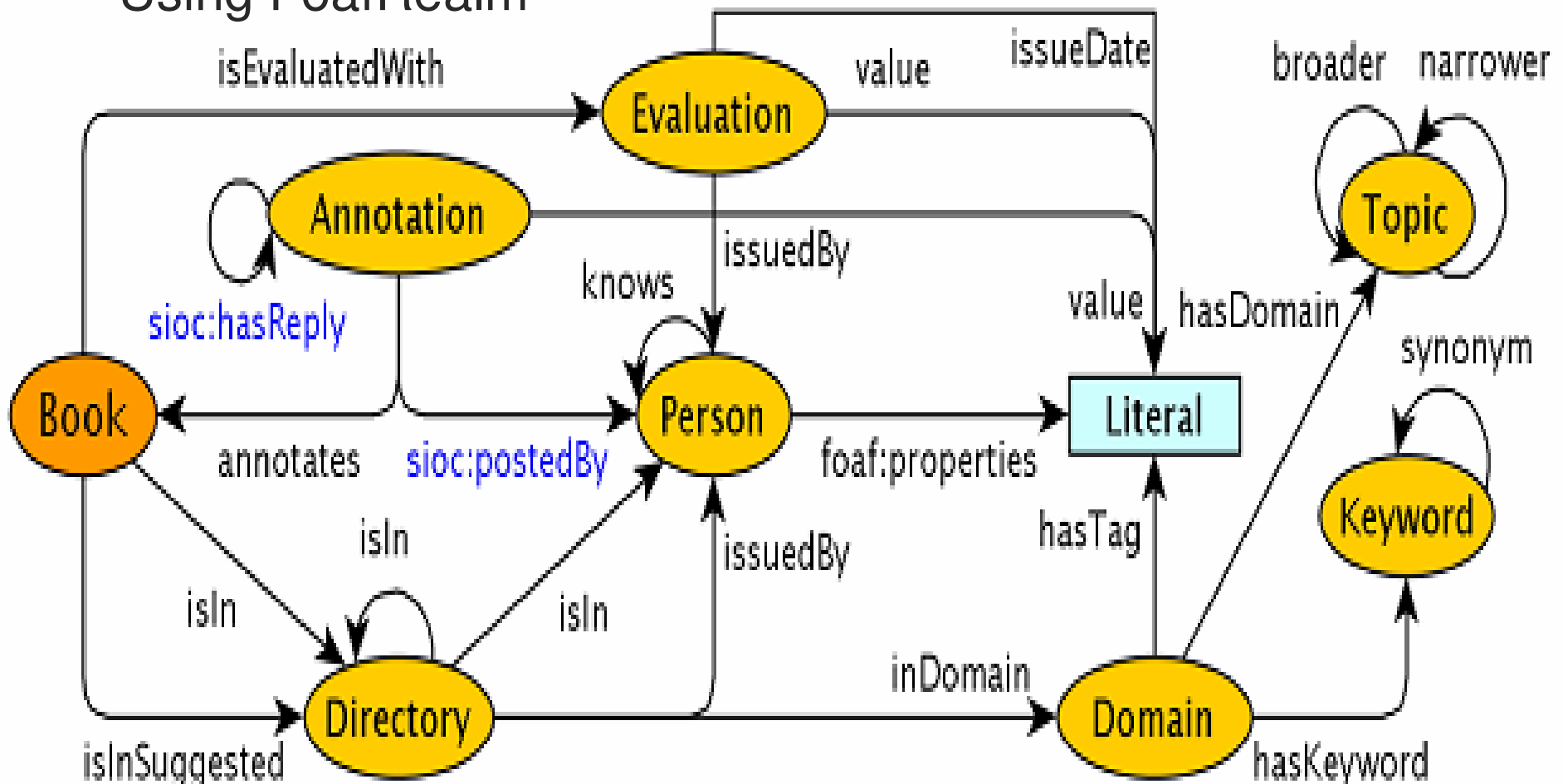
[JeromeDL: Bibliography]

Bibtex, Marc21->MarcOnt



[JeromeDL:community]

Using FoafRealm



[More Applications]

- Semantic Browser
 - s

Frequent terms

1. fever [943]
 2. viral reproduction [318]
 3. cell [151]
 4. response to virus [99]
 5. antigen binding [61]
- + more frequent terms

Hierarchy of all relevant terms

Find Term

? fever

- GO Gene Ontology [982]
 - GO biological process [979]
 - GO response to stimulus [969]
 - GO multicellular organismal process [947]
 - GO biological regulation [947]
 - GO developmental process [360]
 - GO viral reproduction [318]
 - GO cellular process [208]
 - GO metabolic process [139]
 - GO immune system process [99]
 - GO multi-organism process [93]
 - GO reproductive process [74]
 - GO establishment of localization [74]
 - GO growth [24]
 - GO maintenance of localization [15]
 - GO biological adhesion [8]
 - GO localization [7]
 - GO reproduction [3]
 - GO differentiation [2]

1000 Articles found for query "fever"

GO terms Highlighted keywords: fever [Is your query a hot topic?](#)

go to page: [1](#) | [2](#) | [3](#) | [4](#) | [5](#) | [6](#)

CLONAL RECONQUEST OF ANTIBIOTIC-SUSCEPTIBLE SALMONELLA ENTERICA SEROTYPE TYPHI IN SON LA PROVINCE, VIETNAM.

In the last three decades, high rates of resistance to common first-line antimicrobial agents have been reported in *Salmonella enterica* serotype Typhi (Typhi), the causative organism of typhoid fever (TF), in many regions of the world, especially in South East Asia. Analysis of Typhi strains isolated from outbreaks and sporadic cases of TF in Son La province, northwest Vietnam, in 2002 revealed that 94.5% (85/90) of the isolates were fully susceptible to amoxicillin, chloramphenicol, cotrimoxazole, tetracycline, and nalidixic acid. There was a clear decline in the occurrence of multi-drug resistant (MDR) Typhi isolates collected in this province in 2002 (4.4%) compared with the period 1995-1999 in the same province (30.8-100%). By using molecular (IS200 profiling, PstI-ribotyping, XbaI-pulsed-field gel electrophoresis, and haplotyping) and phage-typing methods, we showed that the Typhi isolates from Son La province in 2002 were genetically related; however, they were unrelated to the previous MDR clones established in Vietnam.

[Weill FX](#), [Tran HH](#), [Roumagnac P](#), [Fabre L](#), [Minh NB](#), [Stavnes TL](#), [Lassen J](#), [Bjune G](#), [Grimont PA](#), [Guerin PJ](#)

Centre National de Référence des Salmonella, Centre Collaborateur OMS de Référence et de Recherche pour les Salmonella, Unité de Biodiversité des Bactéries Pathogènes Emergentes, INSERM U389, Institut Pasteur, Paris, France; National Reference Laboratory of Enteric Pathogens, Department of Bacteriology, National Institute of Hygiene and Epidemiology, Hanoi, Vietnam; Department of International Health, Institute of General Practice and Community Medicine, University of Oslo, Norway; Max-Planck Institut für Infektionsbiologie, Berlin, Germany; Division of Infectious Disease Control, Norwegian Institute of

Textmined

6 Terms:

- fever (100%)
- nalidixic acid transport (79%)
- transcription factor binding (73%)
- chloramphenicol transport (73%)
- multidrug transport (72%)
- tetracycline metabolic process (72%)

[Conclusion]

- Foaf
- SKOS
- SIOC
- Digital Library

[References]

<http://xmlns.com/foaf/spec/>

<http://wiki.sioc-project.org>

http://en.wikipedia.org/wiki/Simple_Knowledge_Organisation_System

<http://isegserv.itd.rl.ac.uk/cvs-public/~checkout~/skos/press/dc2005/presentation.ppt>

<http://www.w3.org/2006/Talks/1109-Athens-IH/>

<http://www.jeromedl.org/media/jeromedleswc2007.pdf>

<http://www.w3.org/2004/02/skos/>

http://wiki.corrib.org/images/1/12/01_intro_tutorial_semdl_www2007.ppt

John Davies, Rudi Studer, Paul Warren. *Semantic Web Technologies*. John Wiley & Sun, England. 2006



Thank you