

# Swoogle

search and metadata for the semantic web

---

Presented by ebiquity lab

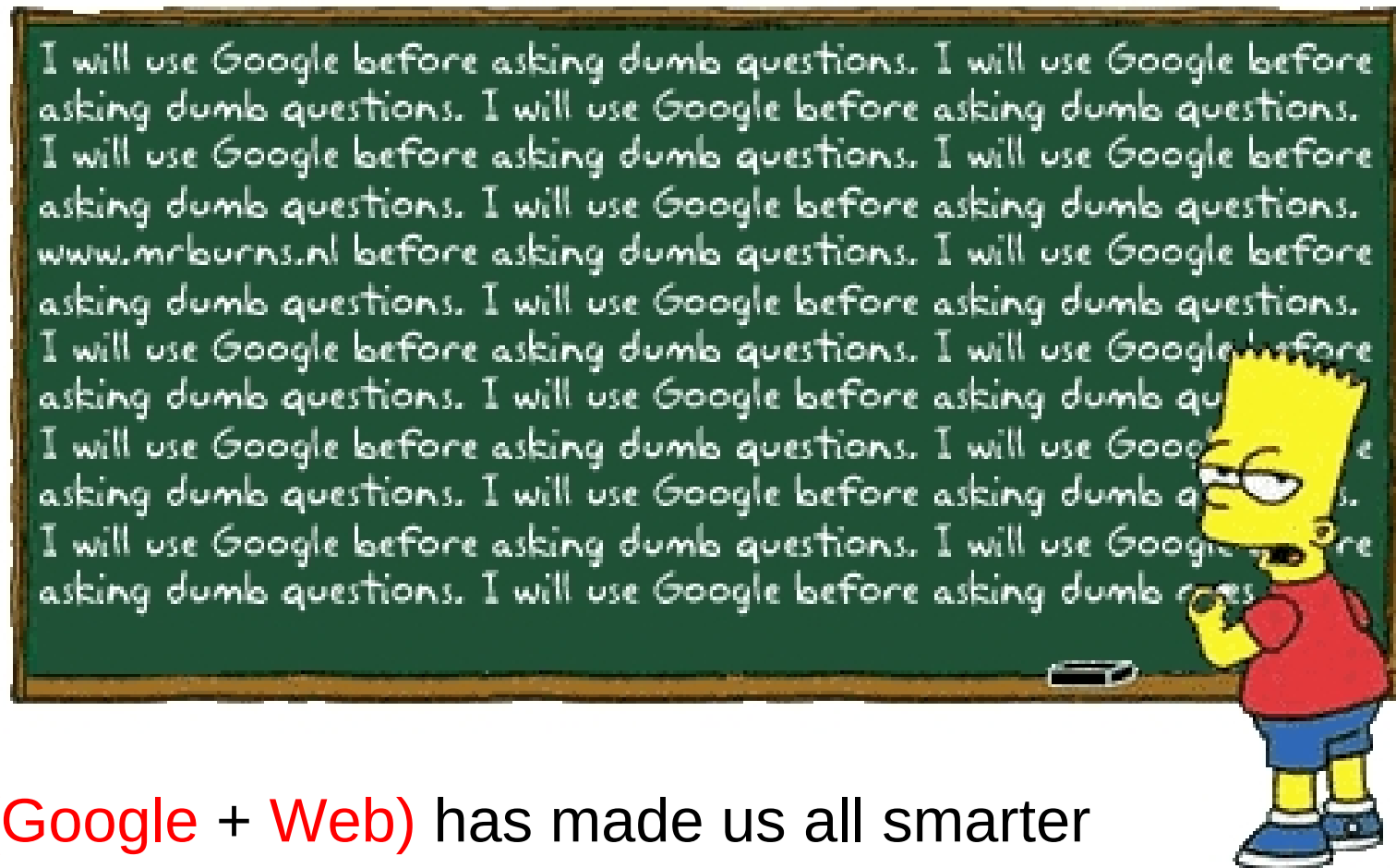
University of Maryland Baltimore County



Partial research support was provided by DARPA contract F30602-00-0591 and by NSF by awards NSF-ITR-IIS-0326460 and NSF-ITR-IDM-0219649.

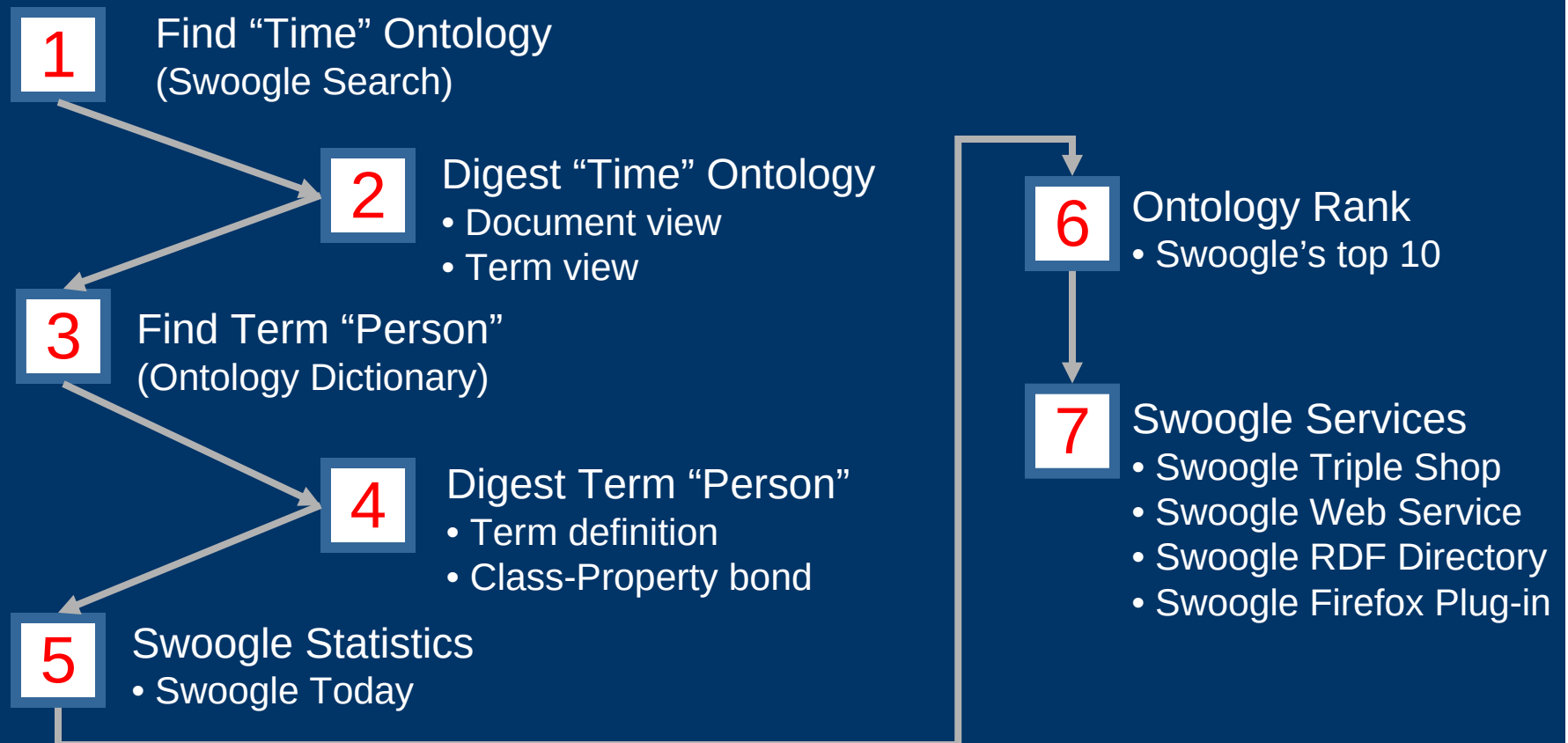


# Motivation



- (Google + Web) has made us all smarter
- something similar is needed by people and software agents for finding information on the semantic web

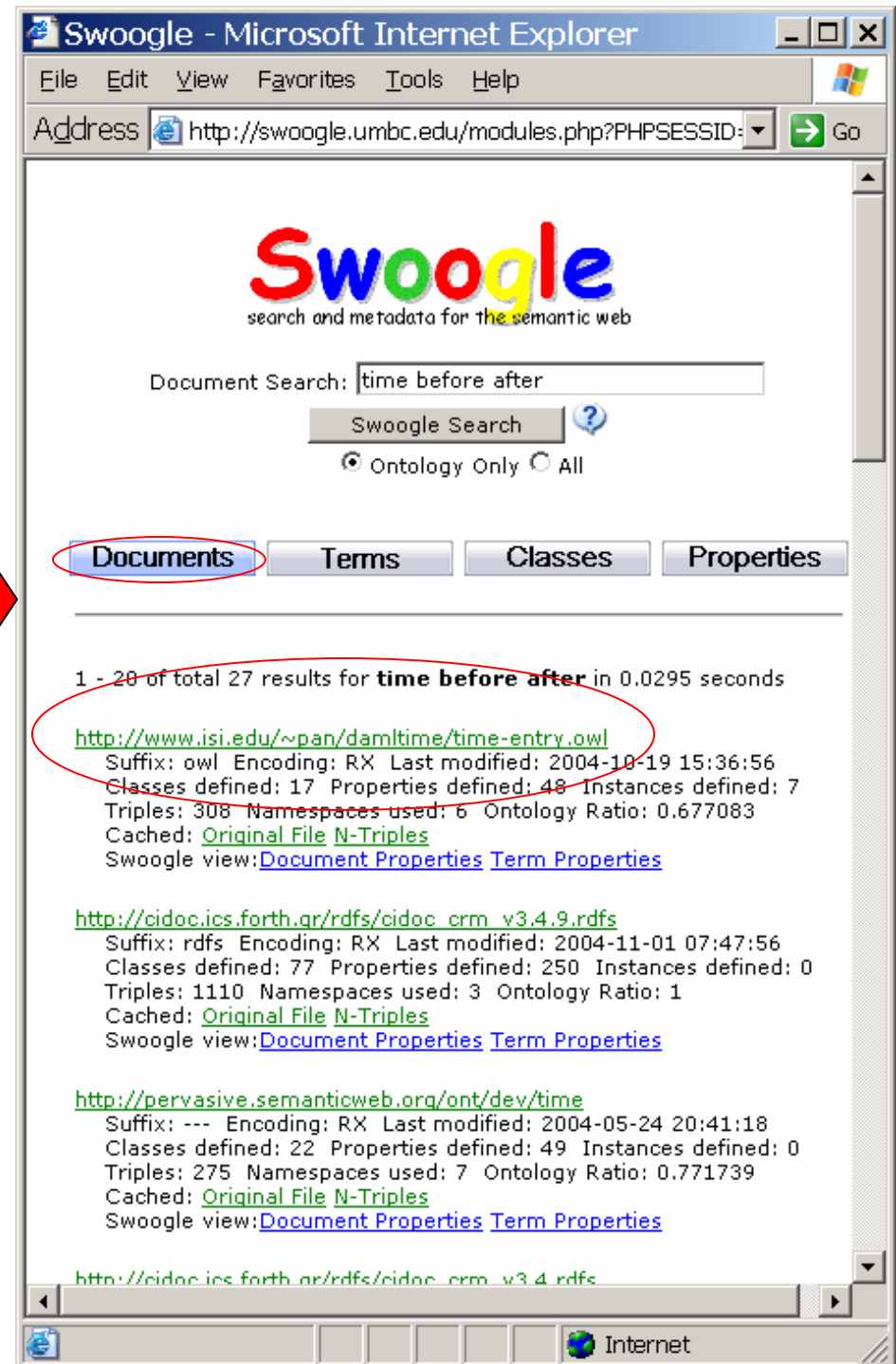
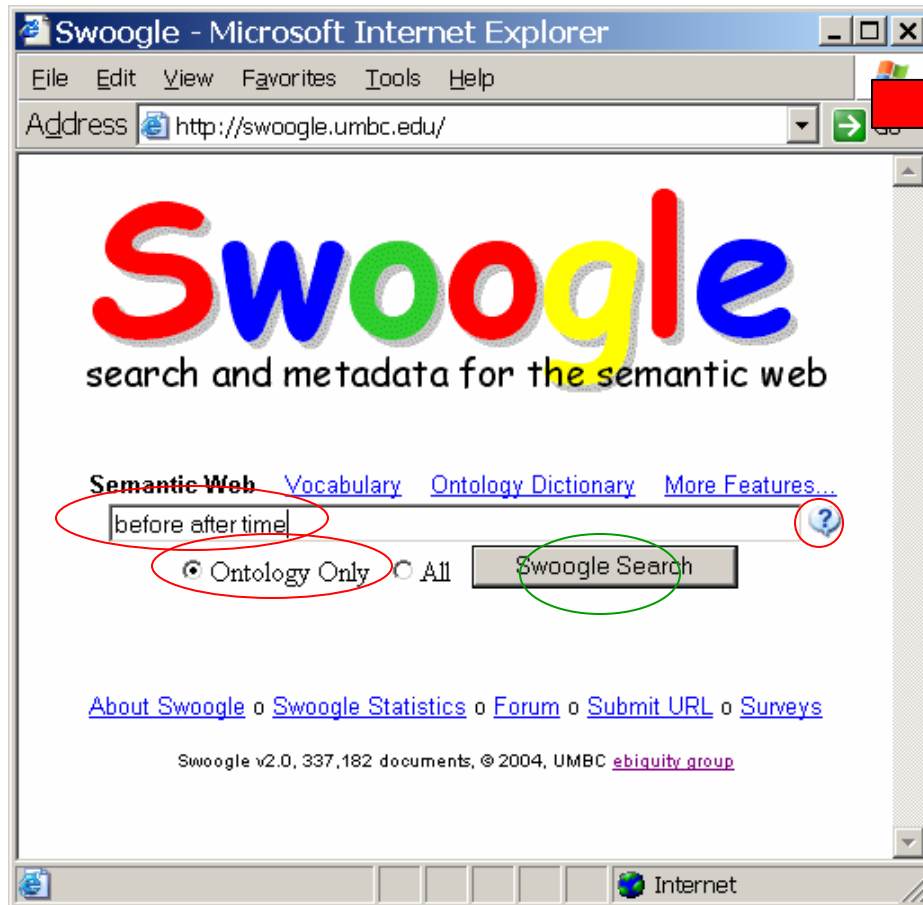
# Swoogle Demo



Demo  
1

## Find “Time” Ontology

We can use a set of keywords to search ontology. For example, “time, before, after” are basic concepts for a “Time” ontology.



# Digest “Time” Ontology (document view)

Swoogle - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://swoogle.umbc.edu/modules.php?name=Swoogle\\_Search&file=viewDocument&url=http://www.isi.edu/~pan/damtime/time-entry.owl](http://swoogle.umbc.edu/modules.php?name=Swoogle_Search&file=viewDocument&url=http://www.isi.edu/~pan/damtime/time-entry.owl) Go

**Swoogle**  
search and metadata for the semantic web

[Document View](#) [Terms View](#)

<http://www.isi.edu/~pan/damtime/time-entry.owl>

Apply: [Hyperdam](#) [Dumppont](#) [RDF validator](#) [ObjectViewer](#) [Pellet](#) ?

| Basic properties   |                                 |                     |            |
|--------------------|---------------------------------|---------------------|------------|
| Encoding:          | RX                              | OWL-Syntax:         | DL or Full |
| Triples:           | 308                             | Namespaces:         | 6          |
| Classes Defined:   | 17                              | Properties Defined: | 48         |
| Instances Defined: | 7                               |                     |            |
| weight:            | 308                             | Swoogle Rank Score: | 0.633507   |
| Type:              | Ontology/Instance mixture (67%) |                     |            |

| Relations with other semantic web documents |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Imports:                                    | none                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Imported by:                                | <a href="http://ontology.ihmc.us/ActionHistory.owl">http://ontology.ihmc.us/ActionHistory.owl</a><br><a href="http://ontology.ihmc.us/ActionStatus.owl">http://ontology.ihmc.us/ActionStatus.owl</a><br><a href="http://daml.semanticweb.org/services/owl-s/1.0/Process.owl">http://daml.semanticweb.org/services/owl-s/1.0/Process.owl</a><br><a href="http://ais.pku.edu.cn/Projects/PAIMDS/owl-s/Process.owl">http://ais.pku.edu.cn/Projects/PAIMDS/owl-s/Process.owl</a><br><a href="http://www.daml.org/services/owl-s/1.1/ProfileHierarchy.owl">http://www.daml.org/services/owl-s/1.1/ProfileHierarchy.owl</a>                                                                                                                       |
| References:                                 | <a href="http://www.isi.edu/~pan/damtime/timezone-ont.owl">http://www.isi.edu/~pan/damtime/timezone-ont.owl</a><br><a href="http://www.w3.org/1999/02/22-rdf-syntax-ns">http://www.w3.org/1999/02/22-rdf-syntax-ns</a><br><a href="http://www.w3.org/2002/07/owl">http://www.w3.org/2002/07/owl</a><br><a href="http://www.w3.org/2000/01/rdf-schema">http://www.w3.org/2000/01/rdf-schema</a><br><a href="http://www.isi.edu/~pan/damtime/time-entry-case1.owl">http://www.isi.edu/~pan/damtime/time-entry-case1.owl</a><br><a href="http://ontology.ihmc.us/ActionStatus.owl">http://ontology.ihmc.us/ActionStatus.owl</a><br><a href="http://www.isi.edu/~pan/damtime/time-entry.owl">http://www.isi.edu/~pan/damtime/time-entry.owl</a> |
| Referenced by:                              | <a href="http://www.mindswap.org/~bparsia/ontologies/sws/Process.owl">http://www.mindswap.org/~bparsia/ontologies/sws/Process.owl</a><br><a href="http://www.cs.vu.nl/~pmika/owl-s/time-entry-fixed.owl">http://www.cs.vu.nl/~pmika/owl-s/time-entry-fixed.owl</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

[See all](#)

Swoogle - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://swoogle.umbc.edu/modules.php?name=Swoogle\\_Search&file=viewDocument&url=http://www.isi.edu/~pan/damtime/time-entry.owl](http://swoogle.umbc.edu/modules.php?name=Swoogle_Search&file=viewDocument&url=http://www.isi.edu/~pan/damtime/time-entry.owl) Go

<http://www.w3.org/2000/01/rdf-schema>

<http://www.isi.edu/~pan/damtime/time-entry-case1.owl>

<http://ontology.ihmc.us/ActionStatus.owl>

<http://www.isi.edu/~pan/damtime/time-entry.owl>

**Referenced by:** <http://www.mindswap.org/~bparsia/ontologies/sws/Process.owl>  
<http://www.cs.vu.nl/~pmika/owl-s/time-entry-fixed.owl>

[See all](#)

**Extends:** none

**Extended by:** <http://www.isi.edu/~pan/damtime/time-entry.owl>  
<http://www.mindswap.org/~bparsia/ontologies/sws/Process.owl>  
<http://pericles.cimds.ri.cmu.edu:8080/owl/Process.owl>  
<http://www.cs.vu.nl/~pmika/owl-s/Process-fixed-OfEd.owl>

[See all](#)

**Prior versions:** none

**Newer versions:** none

**Similar docs:** EQ: <http://www.isi.edu/~pan/damtime/time-entry.owl>  
, EQV: ?, EQVL: ?, SIM: ?

**Mapped to:** none

| Anotation  |                                |
|------------|--------------------------------|
| Label:     | none                           |
| Version:   | none                           |
| Authors:   | unknown                        |
| Topics:    | unknown                        |
| Comment:   | An entry sub-ontology of time. |
| Endorsers: | none                           |

[Add Anonations](#)

| Other properties |                                                                             |
|------------------|-----------------------------------------------------------------------------|
| Dates:           | Age: 169 days; Modified: 2004-10-19 15:36:56; Crawled: 2005-03-21 12:13:10; |
| Size in bytes:   | unknown                                                                     |
| cache:           | Cached: <a href="#">Original File N-Triples</a>                             |
| Swoogle URI ID:  | 58909                                                                       |

[Swoogle Search](#) ©

Copyright © 2004, eBiquity Research Group, UMBC v2.0

# Summary: Document Metadata

---

- Web document metadata
  - When/how discovered/fetched
  - Suffix of URL
  - Last modified time
  - Document size
- SWD metadata
  - Language features
    - OWL species
    - RDF encoding
  - Statistical features
    - # of Defined/used terms
    - # of Declared/used namespaces
    - Ontology Ratio
  - Ontology Rank
- Ontology annotation
  - Label
  - Version
  - Comment
- Relations
  - Links to other SWDs
    - Imported SWDs
    - Referenced SWDs
    - Extended SWDs
    - Prior version
  - Links to terms
    - Classes/properties defined
    - Classes/properties used

## Digest “Time” Ontology (term view)

Swoogle - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://swoogle.umbc.edu/modules.php?name=Swoogle\\_Search&file=viewDocumentTerms](http://swoogle.umbc.edu/modules.php?name=Swoogle_Search&file=viewDocumentTerms) Go

**Swoogle**  
search and metadata for the semantic web

Document View Terms View

<http://www.isi.edu/~pan/damlttime/time-entry.owl>

Apply: [Hyperdaml](#) [Dumppont](#) [RDF validator](#) [ObjectViewer](#) [Pellet](#) ?

| Defined Classes          |                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local name               | URI                                                                                                                                                               |
| Interval                 | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#Interval">http://www.isi.edu/~pan/damlttime/time-entry.owl#Interval</a>                                 |
| TemporalUnit             | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalUnit">http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalUnit</a>                         |
| ProperIntervalThing      | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#ProperIntervalThing">http://www.isi.edu/~pan/damlttime/time-entry.owl#ProperIntervalThing</a>           |
| CalendarClockDescription | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#CalendarClockDescription">http://www.isi.edu/~pan/damlttime/time-entry.owl#CalendarClockDescription</a> |
| ProperInterval           | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#ProperInterval">http://www.isi.edu/~pan/damlttime/time-entry.owl#ProperInterval</a>                     |
| TimeZone                 | <a href="http://www.isi.edu/~pan/damlttime/timezone-ont.owl#TimeZone">http://www.isi.edu/~pan/damlttime/timezone-ont.owl#TimeZone</a>                             |
| IntervalThing            | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#IntervalThing">http://www.isi.edu/~pan/damlttime/time-entry.owl#IntervalThing</a>                       |
| TemporalThing            | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalThing">http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalThing</a>                       |
| InstantThing             | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantThing">http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantThing</a>                         |
| InstantThingPair         | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantThingPair">http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantThingPair</a>                 |
| Event                    | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#Event">http://www.isi.edu/~pan/damlttime/time-entry.owl#Event</a>                                       |
| DurationDescription      | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#DurationDescription">http://www.isi.edu/~pan/damlttime/time-entry.owl#DurationDescription</a>           |
| InstantEvent             | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantEvent">http://www.isi.edu/~pan/damlttime/time-entry.owl#InstantEvent</a>                         |
| IntervalEvent            | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#IntervalEvent">http://www.isi.edu/~pan/damlttime/time-entry.owl#IntervalEvent</a>                       |
| TemporalEntity           | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalEntity">http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalEntity</a>                     |
| Instant                  | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#Instant">http://www.isi.edu/~pan/damlttime/time-entry.owl#Instant</a>                                   |
| CalendarClockInterval    | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#CalendarClockInterval">http://www.isi.edu/~pan/damlttime/time-entry.owl#CalendarClockInterval</a>       |

| Defined Properties |                                                                                                                               |                    |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Local name         | URI                                                                                                                           | Type               |
| before             | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#before">http://www.isi.edu/~pan/damlttime/time-entry.owl#before</a> | TransitiveProperty |
| inside             | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#inside">http://www.isi.edu/~pan/damlttime/time-entry.owl#inside</a> | ObjectProperty     |

Done Internet

Swoogle - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://swoogle.umbc.edu/modules.php?name=Swoogle\\_Search&file=viewDocumentTerms](http://swoogle.umbc.edu/modules.php?name=Swoogle_Search&file=viewDocumentTerms) Go

intOverlappedBy <http://www.isi.edu/~pan/damlttime/time-entry.owl#intOverlappedBy> ObjectProperty

| Populated Classes  |                                                                                                                                           |       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Local name         | URI                                                                                                                                       | Count |
| ObjectProperty     | <a href="http://www.w3.org/2002/07/owl#ObjectProperty">http://www.w3.org/2002/07/owl#ObjectProperty</a>                                   | 28    |
| Restriction        | <a href="http://www.w3.org/2002/07/owl#Restriction">http://www.w3.org/2002/07/owl#Restriction</a>                                         | 20    |
| DatatypeProperty   | <a href="http://www.w3.org/2002/07/owl#DatatypeProperty">http://www.w3.org/2002/07/owl#DatatypeProperty</a>                               | 20    |
| Class              | <a href="http://www.w3.org/2002/07/owl#Class">http://www.w3.org/2002/07/owl#Class</a>                                                     | 17    |
| TemporalUnit       | <a href="http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalUnit">http://www.isi.edu/~pan/damlttime/time-entry.owl#TemporalUnit</a> | 7     |
| FunctionalProperty | <a href="http://www.w3.org/2002/07/owl#FunctionalProperty">http://www.w3.org/2002/07/owl#FunctionalProperty</a>                           | 2     |
| TransitiveProperty | <a href="http://www.w3.org/2002/07/owl#TransitiveProperty">http://www.w3.org/2002/07/owl#TransitiveProperty</a>                           | 1     |
| Ontology           | <a href="http://www.w3.org/2002/07/owl#Ontology">http://www.w3.org/2002/07/owl#Ontology</a>                                               | 1     |

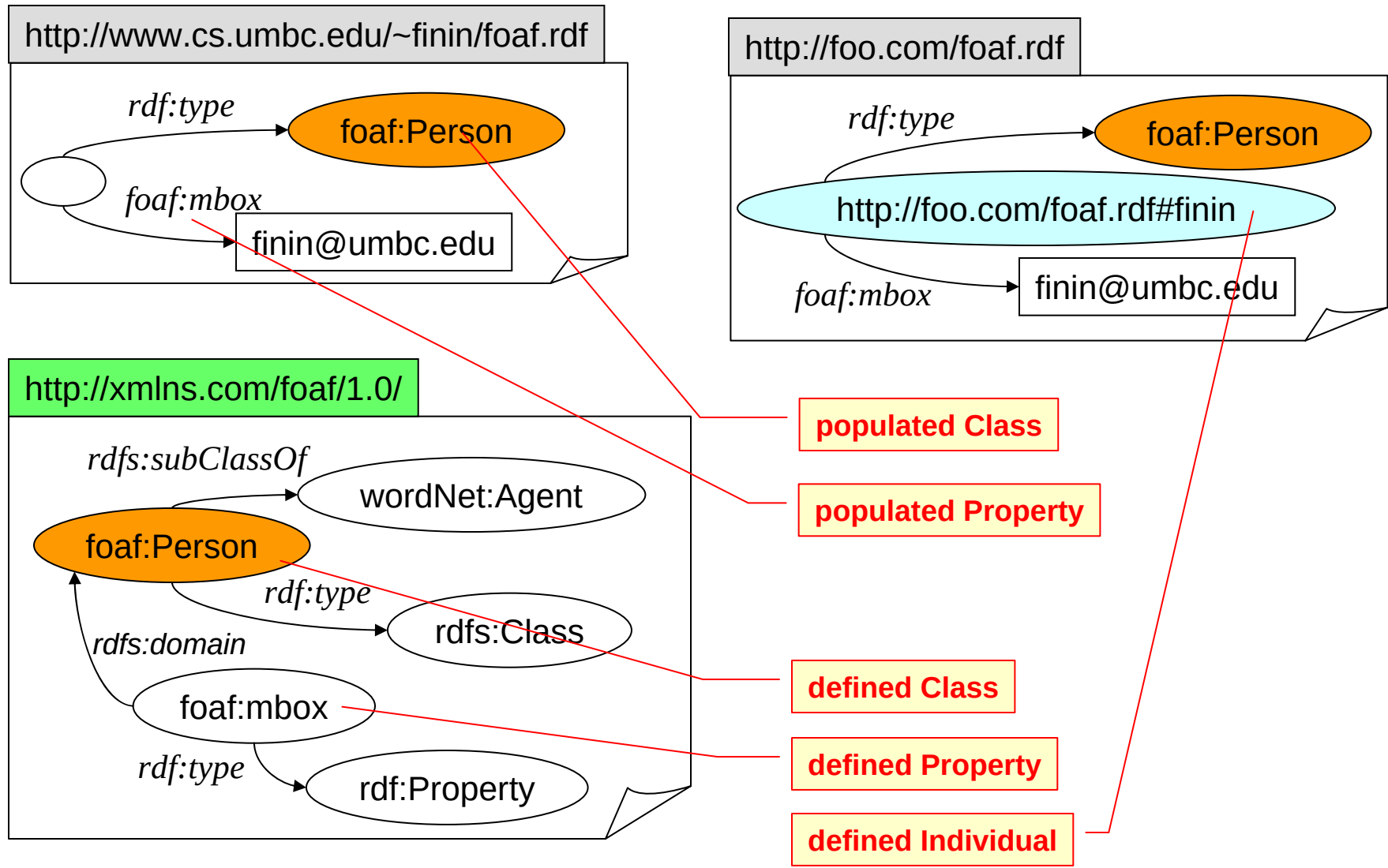
| Populated Properties |                                                                                                                     |       |
|----------------------|---------------------------------------------------------------------------------------------------------------------|-------|
| Local name           | URI                                                                                                                 | Count |
| type                 | <a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#type">http://www.w3.org/1999/02/22-rdf-syntax-ns#type</a>       | 96    |
| domain               | <a href="http://www.w3.org/2000/01/rdf-schema#domain">http://www.w3.org/2000/01/rdf-schema#domain</a>               | 41    |
| range                | <a href="http://www.w3.org/2000/01/rdf-schema#range">http://www.w3.org/2000/01/rdf-schema#range</a>                 | 41    |
| subClassOf           | <a href="http://www.w3.org/2000/01/rdf-schema#subClassOf">http://www.w3.org/2000/01/rdf-schema#subClassOf</a>       | 33    |
| onProperty           | <a href="http://www.w3.org/2002/07/owl#onProperty">http://www.w3.org/2002/07/owl#onProperty</a>                     | 20    |
| maxCardinality       | <a href="http://www.w3.org/2002/07/owl#maxCardinality">http://www.w3.org/2002/07/owl#maxCardinality</a>             | 19    |
| rest                 | <a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#rest">http://www.w3.org/1999/02/22-rdf-syntax-ns#rest</a>       | 17    |
| first                | <a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#first">http://www.w3.org/1999/02/22-rdf-syntax-ns#first</a>     | 17    |
| subPropertyOf        | <a href="http://www.w3.org/2000/01/rdf-schema#subPropertyOf">http://www.w3.org/2000/01/rdf-schema#subPropertyOf</a> | 7     |
| inverseOf            | <a href="http://www.w3.org/2002/07/owl#inverseOf">http://www.w3.org/2002/07/owl#inverseOf</a>                       | 7     |
| unionOf              | <a href="http://www.w3.org/2002/07/owl#unionOf">http://www.w3.org/2002/07/owl#unionOf</a>                           | 5     |
| disjointWith         | <a href="http://www.w3.org/2002/07/owl#disjointWith">http://www.w3.org/2002/07/owl#disjointWith</a>                 | 2     |
| cardinality          | <a href="http://www.w3.org/2002/07/owl#cardinality">http://www.w3.org/2002/07/owl#cardinality</a>                   | 1     |
| comment              | <a href="http://www.w3.org/2000/01/rdf-schema#comment">http://www.w3.org/2000/01/rdf-schema#comment</a>             | 1     |
| oneOf                | <a href="http://www.w3.org/2002/07/owl#oneOf">http://www.w3.org/2002/07/owl#oneOf</a>                               | 1     |

[Swoogle Search](#) ©

Copyright © 2004, eBiquity Research Group, UMBC v2.0

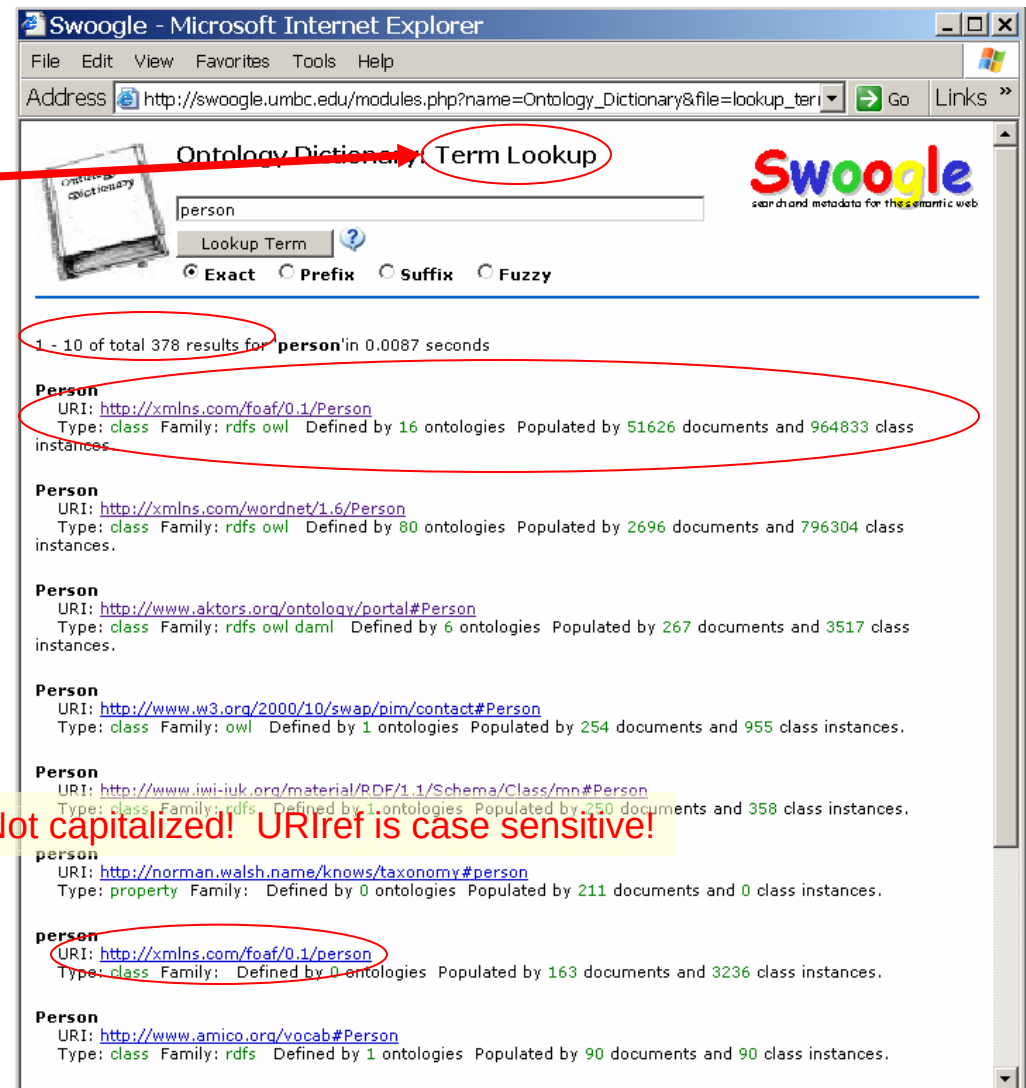
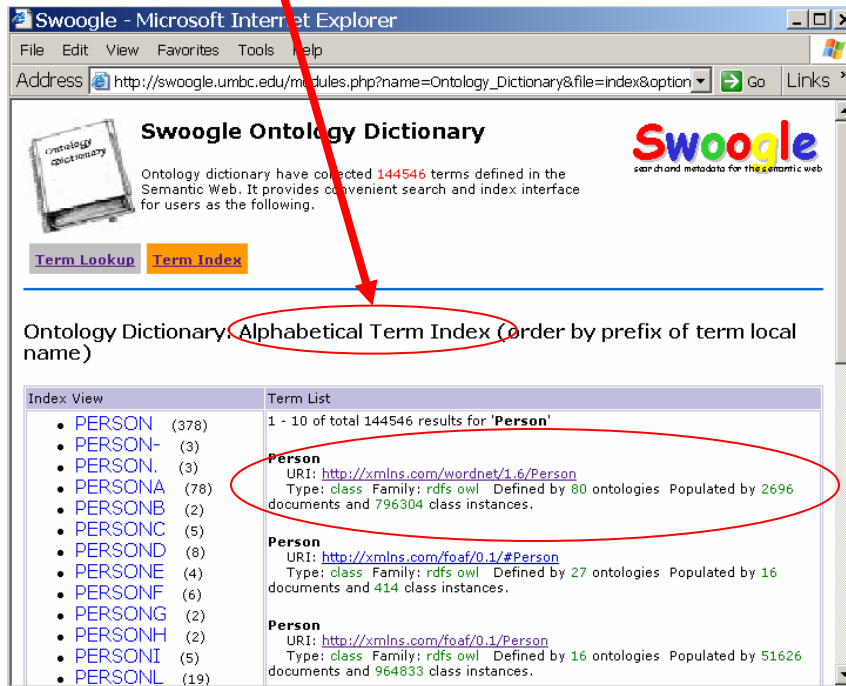
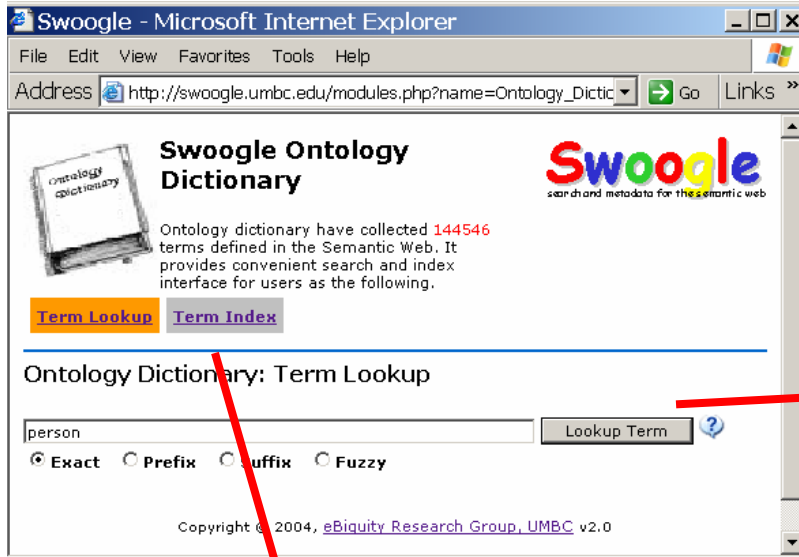
javascript:openhelpwindow('documentTools.php') Internet

# Document-Term Relation





## Find Term “Person”



# Demo 4

## Digest Term "Person"



Term Definition:

<http://xmlns.com/foaf/0.1/Person>

- Related Terms (same namespace)
- Related Terms (same local name)

Class Properties (Fused)

Instance Properties (from ontology)

Instance Properties (from instances)

Fused Definition of <http://xmlns.com/foaf/0.1/Person>

It is defined as **class** by 15 SWDs with 8 predicates

| # | Predicate-Value                                                                                                                 | Related Ontology         |
|---|---------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 | <a href="http://www.w3.org/2003/06/sw-vocab-status/ns#term_status">http://www.w3.org/2003/06/sw-vocab-status/ns#term_status</a> |                          |
|   | ↳ testing                                                                                                                       | <a href="#">6 source</a> |
| 2 | <a href="#">owl:disjointWith</a>                                                                                                |                          |
|   | ↳ <a href="#">foaf:Organization</a>                                                                                             | <a href="#">6 source</a> |
|   | ↳ <a href="#">foaf:Document</a>                                                                                                 | <a href="#">5 source</a> |
|   | ↳ <a href="#">foaf:Project</a>                                                                                                  | <a href="#">5 source</a> |

Instance Properties (from ontologies) of <http://xmlns.com/foaf/0.1/Person>

By analyzing ontologies, this class is rdfs:domain of 167 different properties

| # | Property                                                                                              | range                         | Related Ontology         |
|---|-------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------|
| 1 | <a href="http://xmlns.com/foaf/0.1/workplaceHomepage">http://xmlns.com/foaf/0.1/workplaceHomepage</a> | <a href="#">foaf:Document</a> | <a href="#">6 source</a> |
|   |                                                                                                       | <a href="#">rdfs:Resource</a> | <a href="#">2 source</a> |
| 2 | <a href="http://xmlns.com/foaf/0.1/interest">http://xmlns.com/foaf/0.1/interest</a>                   | <a href="#">foaf:Document</a> | <a href="#">6 source</a> |
|   |                                                                                                       | <a href="#">rdfs:Resource</a> | <a href="#">2 source</a> |
| 3 | <a href="http://xmlns.com/foaf/0.1/knows">http://xmlns.com/foaf/0.1/knows</a>                         | <a href="#">foaf:Person</a>   | <a href="#">8 source</a> |

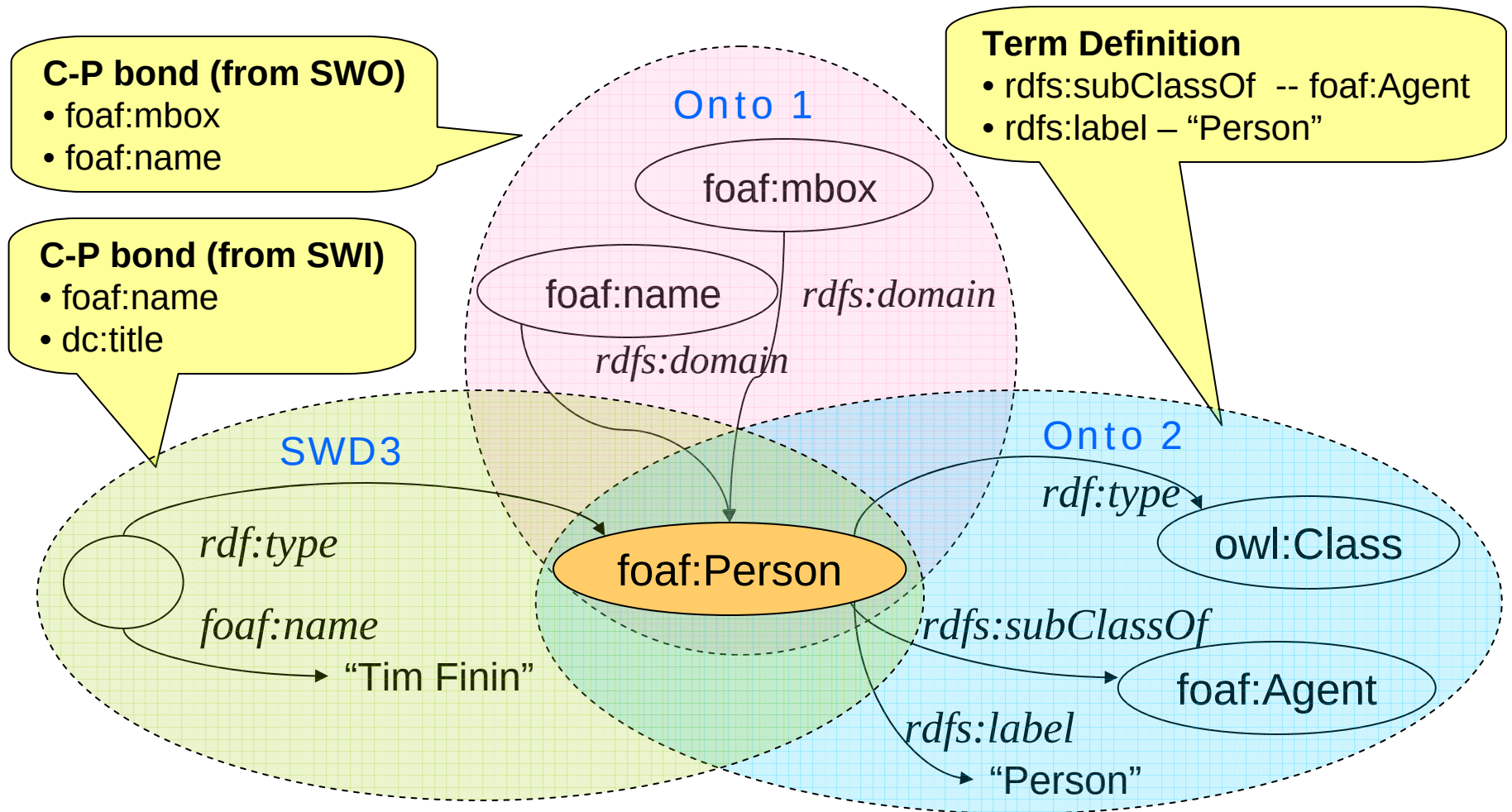
Instance Properties (from instances) of <http://xmlns.com/foaf/0.1/Person>

By analyzing the instances, this class is domain of 562 different properties

| # | property                          | related document              | max card | example object                                                                                  |
|---|-----------------------------------|-------------------------------|----------|-------------------------------------------------------------------------------------------------|
| 1 | <a href="#">foaf:mbox_sha1sum</a> | <a href="#">47675 sources</a> | 12       | 2a55fdaa3421f9c7aa02f31daf964b378ed9caf1                                                        |
| 2 | <a href="#">foaf:nick</a>         | <a href="#">42998 sources</a> | 7        | Mai                                                                                             |
| 3 | <a href="#">foaf:weblog</a>       | <a href="#">37081 sources</a> | 5        | <a href="http://d.hatena.ne.jp/antipop/">http://d.hatena.ne.jp/antipop/</a>                     |
| 4 | <a href="#">foaf:name</a>         | <a href="#">33090 sources</a> | 4        | ???                                                                                             |
| 5 | <a href="#">rdfs:seeAlso</a>      | <a href="#">31905 sources</a> | 329      | <a href="http://dac.lolipop.jp/bookmarks/foaf.rdf">http://dac.lolipop.jp/bookmarks/foaf.rdf</a> |
| 6 | <a href="#">foaf:knows</a>        | <a href="#">29957 sources</a> | 3187     | 179dce4:fe896e1b771:-7fe3                                                                       |

Hence, C-P bonds will emerge from instance data instead of ontology definition

# Summary: Term Metadata



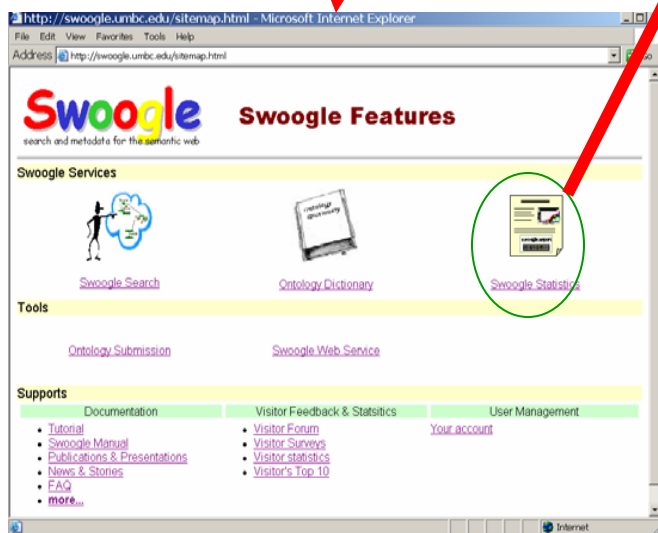
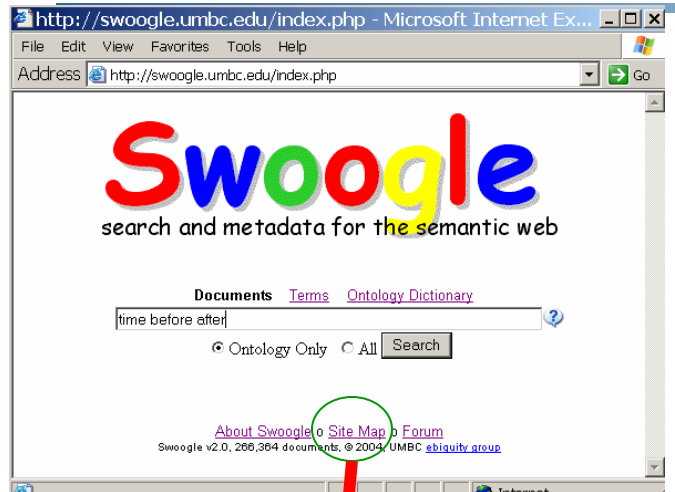
# Swoogle Statistics

---

- Summarize the dataset collected by Swoogle
  - Swoogle Watch
    - Swoogle Today
    - Distribution of visited URLs
    - Document discovery log
    - Term discovery log
  - Semantic Web Watch
    - SWD distribution by last-modified month
    - SWD distribution by website
    - SWD distribution by suffix
  - Ontology Watch
    - Term (class/property) usage
    - Namespace usage

Demo  
5(a)

# Swoogle Today



Swoogle

Swoogle - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://swoogle.umbc.edu/modules.php?name=Swoogle\\_Statistics](http://swoogle.umbc.edu/modules.php?name=Swoogle_Statistics) Go Links e »

## Swoogle

search and metadata for the semantic web

### Navigation

- Home
- Swoogle Features
- Documentation
- Ontology Dictionary
- Swoogle Statistics
- Ontology Submission
- Visitor Forum
- Visitor Surveys
- Visitor Statistics
- Visitor's Top 10
- Your Account

### Who's Online

There are currently, 8 guest(s) and 1 member(s) that are online.

You are logged as **dingli**.

### Swoogle Today

2004-11-10

|                    |                     |
|--------------------|---------------------|
| total files        | 874353<br>(100.00%) |
| total swd          | 275179<br>(31.47%)  |
| non-swd            | 528941<br>(60.50%)  |
| other              | 70233<br>(8.03%)    |
| ontology           | 4099<br>(0.47%)     |
| defined classes    | 91547               |
| populated classes  | 10834<br>(11.83%)   |
| defined properties | 51323               |
| used               | 16077               |

### Swoogle Statistics

#### Swoogle Watch

Distribution of visited URLs

Full Figure Archived Figures

---

Document discovery log

Full Figure Archived Figures

---

Term discovery log

Full Figure Archived Figures

---

Swoogle's Top 10

### Semantic Web Watch

SWD distribution by last-modified month

Full Figure Archived Figures

---

SWD distribution by website

Full Figure Archived Figures

---

SWD distribution by suffix

Full Figure Archived Figures

See also: [The "Semantic Web" sites](#)

[Explanation](#)

## SWD per Website (Top 500 website)

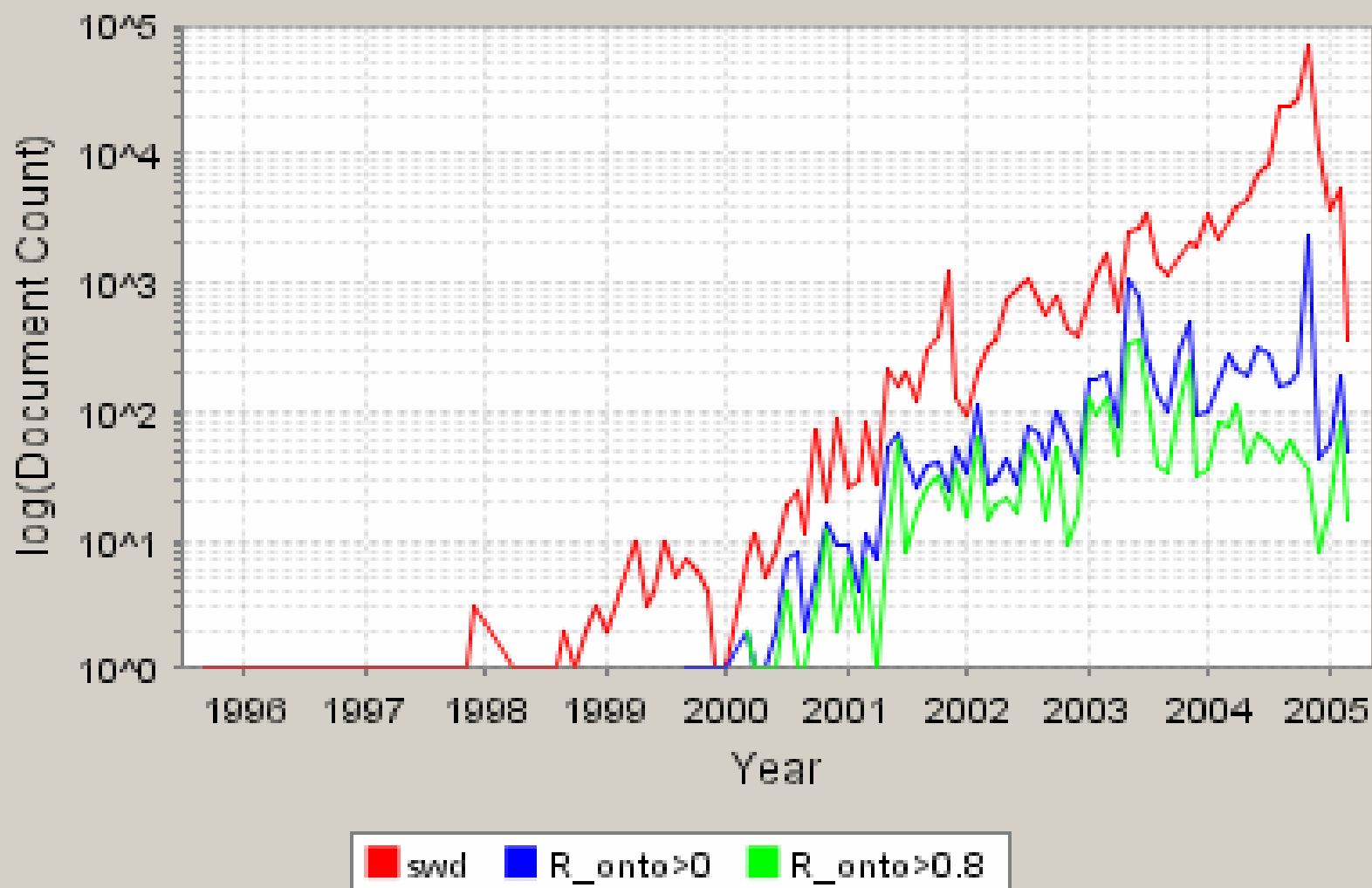
(generated at: Thu, 6 Jan 2005 12:49:49 -0500)

There are 130882 websites that hosting 336456 SWDs

| rank | host name            | swd count | swd percentage | google estimation | nswd count | nswd/swd |
|------|----------------------|-----------|----------------|-------------------|------------|----------|
| 1    | blog.livedoor.jp     | 15599     | 4.64 %         | 73000             | 2589       | 0.1660   |
| 2    | www.ecademy.com      | 10052     | 2.99 %         | 0                 | 82         | 0.0082   |
| 3    | www.uklug.co.uk      | 8717      | 2.59 %         | 0                 | 1          | 0.0001   |
| 4    | www.livejournal.com  | 8338      | 2.48 %         | 0                 | 2295       | 0.2752   |
| 5    | xml.tabulets.com     | 7826      | 2.33 %         | 0                 | 2167       | 0.2769   |
| 6    | www.deadjournal.com  | 7224      | 2.15 %         | 0                 | 6761       | 0.9359   |
| 7    | testers.cpan.org     | 5678      | 1.69 %         | 0                 | 21         | 0.0037   |
| 8    | blog.goo.ne.jp       | 5374      | 1.60 %         | 25600             | 350        | 0.0651   |
| 9    | www.amagle.com       | 5090      | 1.51 %         | 10500             | 5799       | 1.1393   |
| 10   | yaplog.jp            | 4420      | 1.31 %         | 10900             | 4015       | 0.9084   |
| 11   | blogs.dion.ne.jp     | 3723      | 1.11 %         | 14300             | 2735       | 0.7346   |
| 12   | www.w3.org           | 3071      | 0.91 %         | 11700             | 3735       | 1.2162   |
| 13   | ameblo.jp            | 2983      | 0.89 %         | 0                 | 90         | 0.0302   |
| 14   | mirrors.webthing.com | 2895      | 0.86 %         | 2650              | 2023       | 0.6988   |
| 15   | www.mypress.jp       | 2891      | 0.86 %         | 12400             | 1018       | 0.3521   |
| 16   | blog.drecom.jp       | 2552      | 0.76 %         | 6770              | 850        | 0.3331   |
| 17   | www.kwark.org        | 2543      | 0.76 %         | 43                | 468        | 0.1840   |
| 18   | iw.stanford.edu      | 2501      | 0.74 %         | 1730              | 18         | 0.0072   |
| 19   | tinysofa.iszerviz.hu | 2471      | 0.73 %         | 12200             | 1089       | 0.4407   |
| 20   | testers.astray.com   | 2291      | 0.68 %         | 0                 | 1          | 0.0004   |

## SWD distribution by Last Modified Time

generated by swoogle.umbc.edu at 6-APR-2005

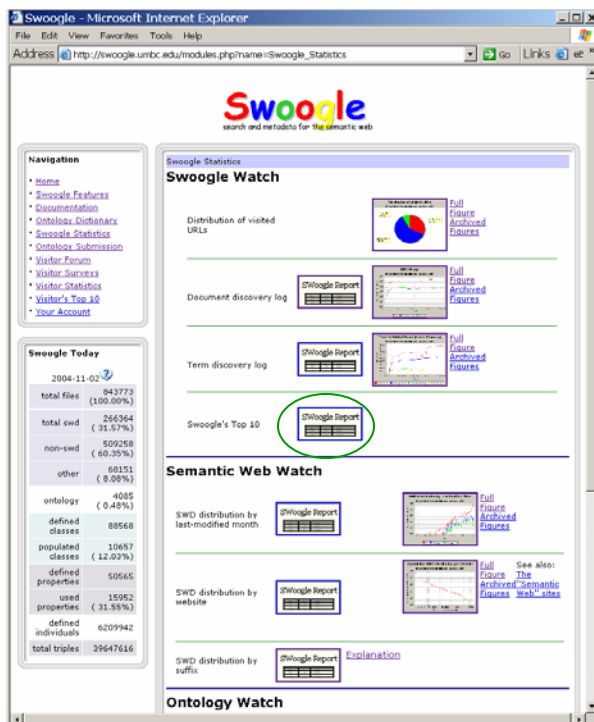


# Demo 6

## Swoogle' top 10

Swoogle ranks SWDs with  
"ontology rank"

This report is dynamically  
generated based on the  
latest data, and it will take 5  
to 10 seconds.



### Swoogle

search and metadata for the semantic web

## Swoogle's Top Ten Lists

Ten most recent SWDs

### Ten highest ranked SWDs

*The ten semantic web documents with the highest rank.*

|         |                                                                                                         |
|---------|---------------------------------------------------------------------------------------------------------|
| 610238  | <a href="http://www.w3.org/2000/01/rdf-schema">http://www.w3.org/2000/01/rdf-schema</a>                 |
| 543190  | <a href="http://www.w3.org/2002/07/owl">http://www.w3.org/2002/07/owl</a>                               |
| 542049  | <a href="http://www.w3.org/1999/02/22-rdf-syntax-ns">http://www.w3.org/1999/02/22-rdf-syntax-ns</a>     |
| 446218  | <a href="http://purl.org/dc/elements/1.1">http://purl.org/dc/elements/1.1</a>                           |
| 23330.9 | <a href="http://xmlns.com/foaf/0.1/index.rdf">http://xmlns.com/foaf/0.1/index.rdf</a>                   |
| 17704.9 | <a href="http://www.w3.org/2003/01/geo/wgs84_pos">http://www.w3.org/2003/01/geo/wgs84_pos</a>           |
| 12277.5 | <a href="http://purl.org/rss/1.0/schema.rdf">http://purl.org/rss/1.0/schema.rdf</a>                     |
| 11737.7 | <a href="http://xmlns.com/wot/0.1/index.rdf">http://xmlns.com/wot/0.1/index.rdf</a>                     |
| 508.825 | <a href="http://www.w3.org/2003/06/sw-vocab-status/ns">http://www.w3.org/2003/06/sw-vocab-status/ns</a> |
| 485.197 | <a href="http://www.daml.org/2001/03/daml+oil">http://www.daml.org/2001/03/daml+oil</a>                 |

### Ten highest ranked OWL SWDs

*The ten OWL documents with the highest rank.*

|         |                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------|
| 18.5942 | <a href="http://inferenceweb.stanford.edu/2004/07/iw.owl">http://inferenceweb.stanford.edu/2004/07/iw.owl</a>               |
| 9.17022 | <a href="http://www.mindswap.org/~qlapizco/simpleABC.owl">http://www.mindswap.org/~qlapizco/simpleABC.owl</a>               |
| 8.92034 | <a href="http://www.mindswap.org/~qlapizco/technical.owl">http://www.mindswap.org/~qlapizco/technical.owl</a>               |
| 8.51312 | <a href="http://ebiquity.umbc.edu/v2.1/ontology/publication.owl">http://ebiquity.umbc.edu/v2.1/ontology/publication.owl</a> |
| 7.17088 | <a href="http://ebiquity.umbc.edu/v2.1/ontology/person.owl">http://ebiquity.umbc.edu/v2.1/ontology/person.owl</a>           |
| 5.51434 | <a href="http://www.w3.org/2004/02/wsa/ServiceModel.owl">http://www.w3.org/2004/02/wsa/ServiceModel.owl</a>                 |
| 5.50607 | <a href="http://www.w3.org/2004/02/wsa/ExtensionsModel.owl">http://www.w3.org/2004/02/wsa/ExtensionsModel.owl</a>           |
| 5.50536 | <a href="http://www.w3.org/2004/02/wsa/ResourceModel.owl">http://www.w3.org/2004/02/wsa/ResourceModel.owl</a>               |
| 5.49187 | <a href="http://www.w3.org/2004/02/wsa/PolicyModel.owl">http://www.w3.org/2004/02/wsa/PolicyModel.owl</a>                   |
| 5.47067 | <a href="http://www.w3.org/2004/02/wsa/MessageModel.owl">http://www.w3.org/2004/02/wsa/MessageModel.owl</a>                 |

### Swoogle Today

2004-11-02

|                     |          |           |
|---------------------|----------|-----------|
| total files         | 843773   | (100.00%) |
| total swd           | 266364   | (31.57%)  |
| non-swd             | 509258   | (60.35%)  |
| other               | 68151    | (8.08%)   |
| ontology            | 4085     | (0.48%)   |
| defined classes     | 88568    | (12.03%)  |
| populated classes   | 10657    | (12.03%)  |
| defined properties  | 50565    | (31.55%)  |
| used properties     | 15952    | (31.55%)  |
| defined individuals | 6209942  |           |
| total triples       | 39647616 |           |



# Swoogle Services

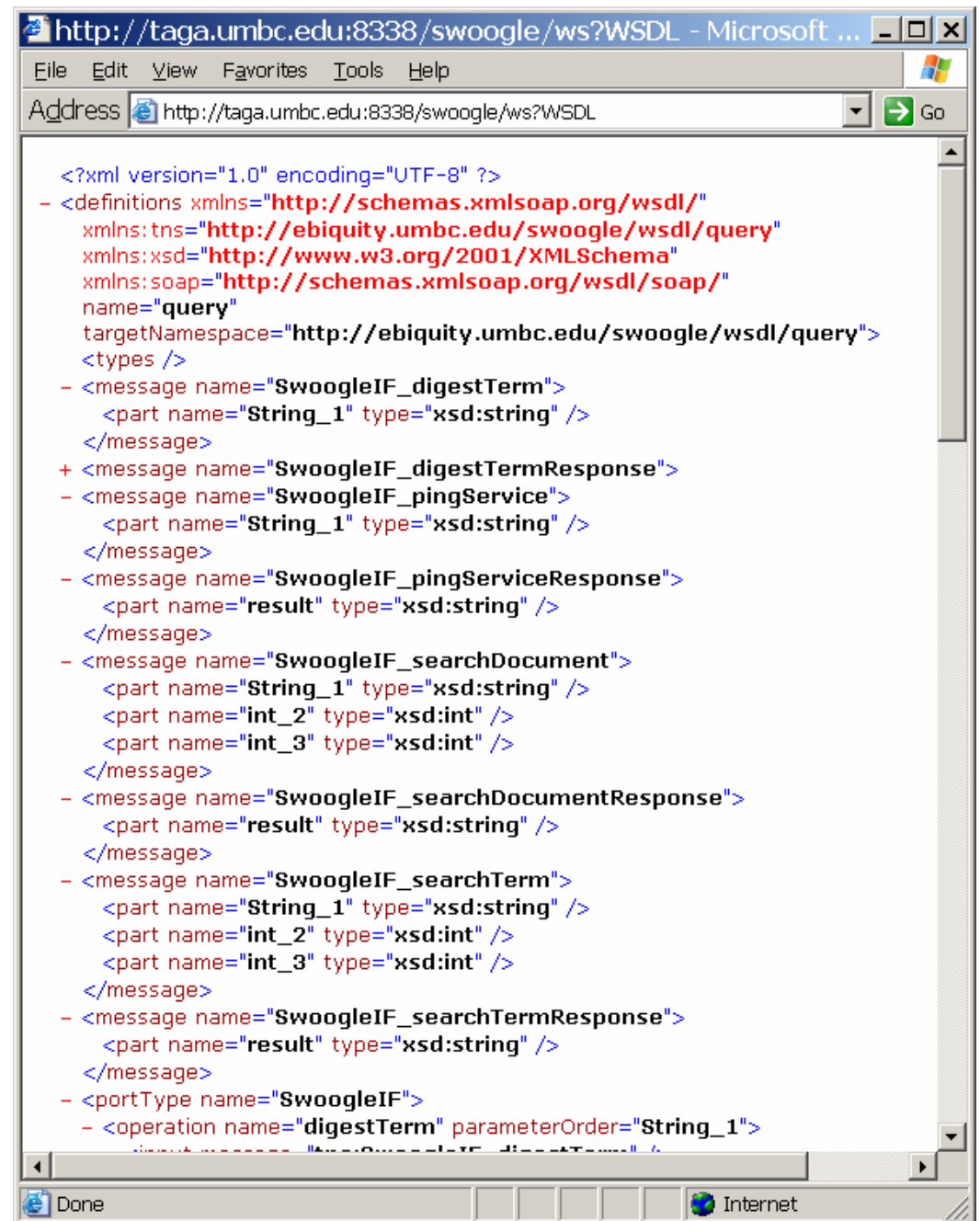
---

- Swoogle Triple Shop
  - Save user selected RDF documents in cart
  - Query cart using SPARQL or RDQL
- Swoogle Web Service
  - <http://swoogle.umbc.edu/webservice/>
  - Document Search ; Term Search ; Term Digest
- Swoogle RDF Index (Beta): publishing available RDF documents under a web directory.
- Swoogle cache service (Beta): snapshot and achieving the change of RDF documents
- Swoogle provenance service (Alpha): tracking provenance for any given RDF graph.

## Query result is encoded in OWL

```
<?xml version="1.0" encoding="WINDOWS-1252"?>
<rdf:RDF xmlns:swoogle="http://swoogle.umbc.edu/swoogle#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:dc="http://purl.org/dc/elements/1.1/">
  <swoogle:Response>
    <rdfs:comment>This result is generated by SWOOGLE2 at
http://swoogle.umbc.edu.</rdfs:comment>
    <swoogle:queryLimit>10</swoogle:queryLimit>
    <swoogle:queryTime>1.024</swoogle:queryTime>
    <swoogle:totalResults>689</swoogle:totalResults>
    <swoogle:querySuccess>true</swoogle:querySuccess>
    <swoogle:hasResult>
      <rdf:Seq>
        <rdf:li>
          <swoogle:Document
rdf:about="http://www.cs.umbc.edu/~finin/finin.rdf"/>
          </rdf:li>
          <rdf:li>
            <swoogle:Document
rdf:about="http://www.cs.umbc.edu/~hchen4/harrychen.rdf"/>
            </rdf:li>
            <rdf:li>
              <swoogle:Document
rdf:about="http://www.csee.umbc.edu/~finin/finin.rdf"/>
              </rdf:li>
              <rdf:li>
                <swoogle:Document
rdf:about="http://www.csee.umbc.edu/~yzou1/ccpp9.rdf"/>
                </rdf:li>
                <rdf:li>
                  <swoogle:Document
rdf:about="http://www.cs.umbc.edu/~finin/foaf.rdf"/>
                  </rdf:li>
                ...
            
```

## WSDL for Swoogle Web Service

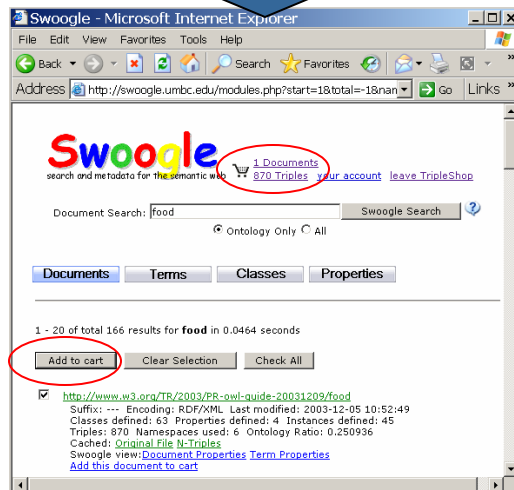


Demo  
7(b)

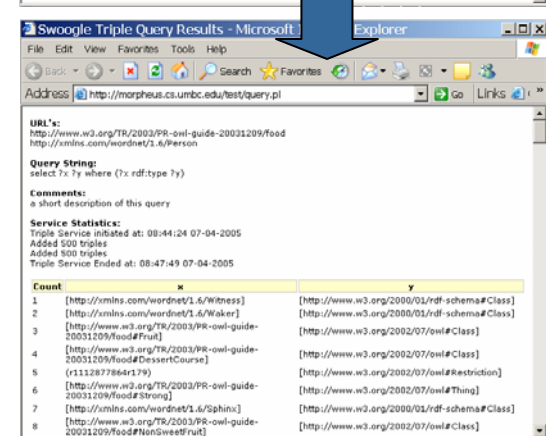
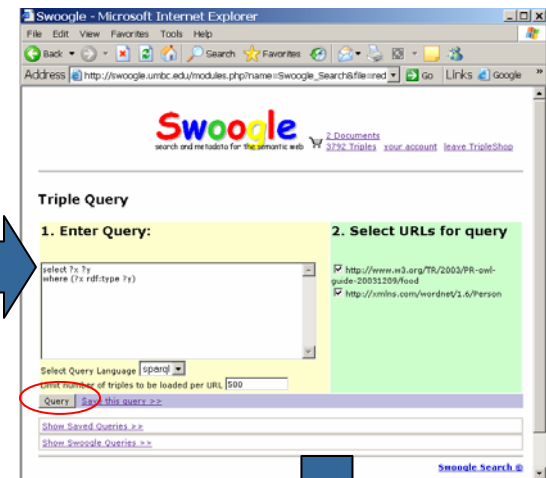
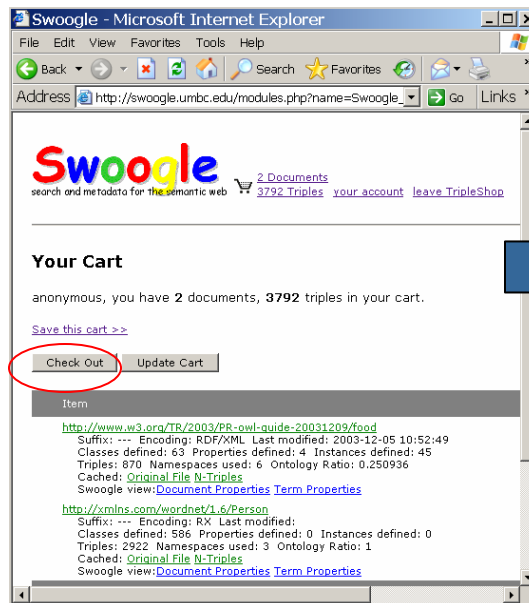
# Swoogle Triple Shop

## Motivation

Shop RDF documents and query them.  
No hassle in installing other RDF tools.



## Shopping SWDs during search

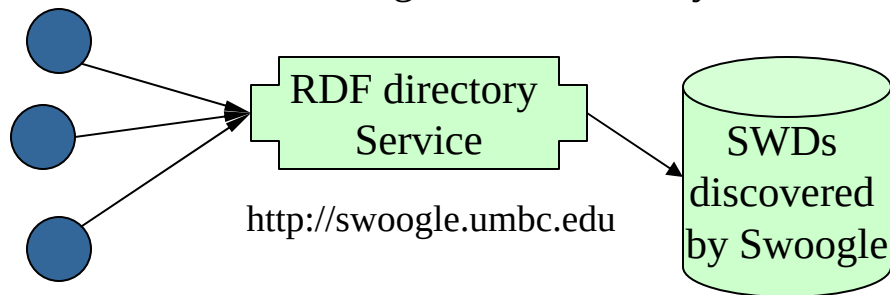


# Swoogle RDF Site Map

## Motivation

- Publish URLs of RDF documents for agents.
- Reduce crawling traffic.
- Similar to Google's "site" query
- Output RDF/XML for agents and HTML for human

## Mode 1: Global Swoogle RDF Directory Service



## Mode 2: Local RDF Directory Service

