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Semantic Web Applications

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Main References



Gómez-Pérez, A.; Fernández-López, M.; Corcho, O. **Ontological Engineering**, Springer 1st edn. 2003
2nd edition



Ontoweb WP1: D1.1 and D1.2

WP2: D2.1 and D2.2

<http://www.ontoweb.org/>

SIG4 on Industrial Applications



<http://knowledgeweb.semanticweb.org>



Industry deliverables



Ontological Engineering

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 - Cultural Tour
 - Real Instituto Elcano
 - Overdraft Notification
 - Semantic Visualisation
 - IuriService
- **Angel López Cima**
 - Semantic Web portals
- **Jesús Barrasa, Asunción Gómez-Pérez**
 - Fund Finder



Ontological Engineering

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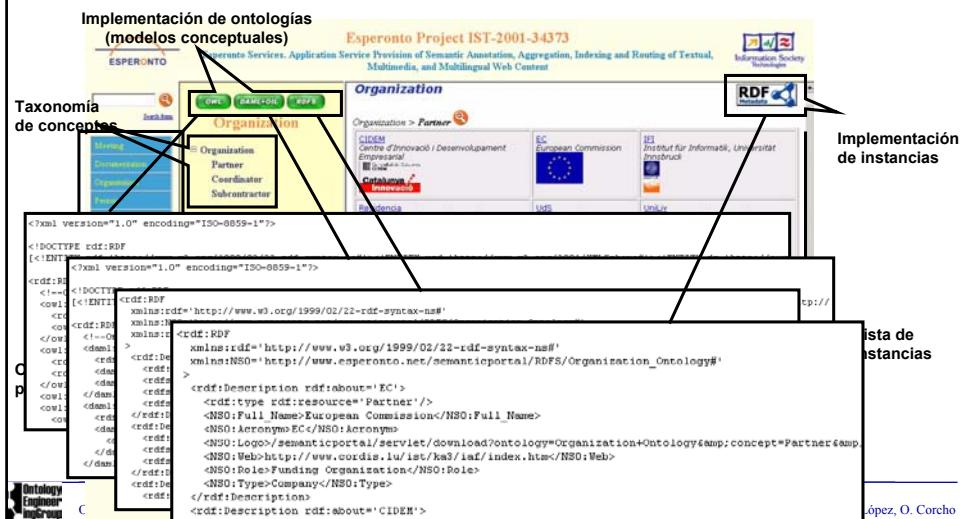
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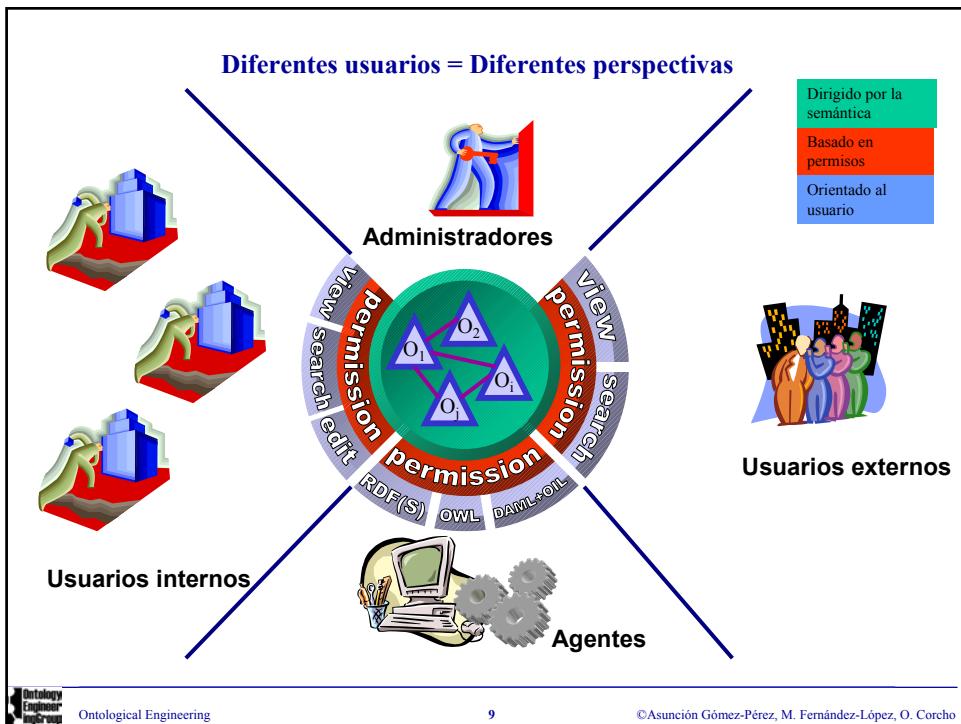
Portales semánticos

- **Aplicación Web que proporciona un punto de acceso único para seleccionar, clasificar y acceder, de manera semántica, a distintos tipos de información (Web sites, documentos, datos, etc.) para distintos tipos de usuarios (empresas, marketplaces, etc.).**



Portales semánticos

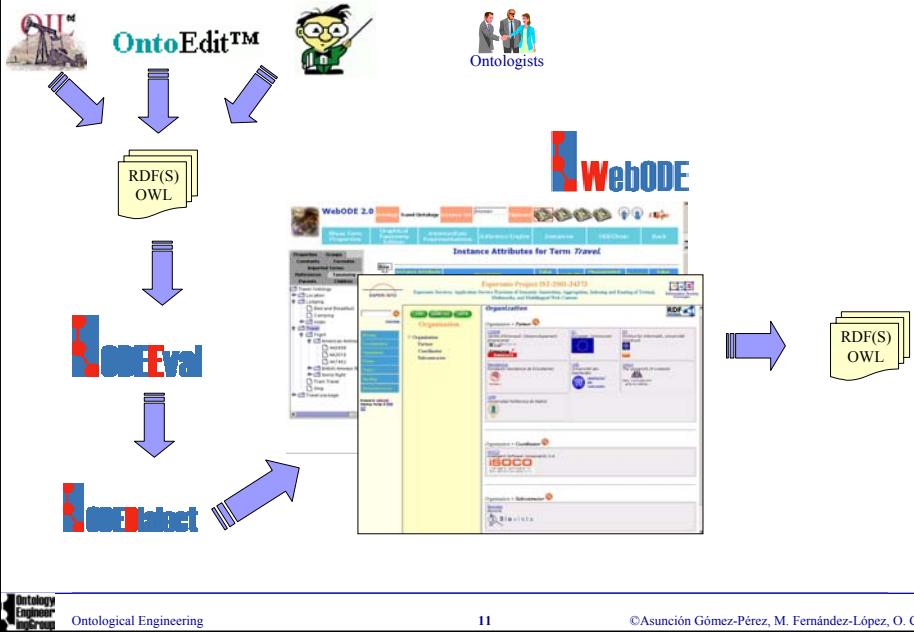
- **Tipos de portales. Más información en**
<http://www.dcs.shef.ac.uk/~kiffer/SemanticallyEnabled.html>
 - Duontology (**iSOCO**) → Real Instituto Elcano, Residencia de Estudiantes
 - No hay población de ontologías
 - La visualización no está dirigida por la estructura de la ontología, sino por reglas de visualización
 - Los cambios en la ontología o instancias se trasladan al portal automáticamente
 - KAON portal (**AIFB**) → OntoWeb portal
 - Población de ontologías
 - Formularios basados en ontologías o sindicación de contenidos
 - Workflow de publicación, con usuarios con distintos roles: editor, revisor, etc.
 - Sólo publica una ontología
 - La misma vista para todos los usuarios
 - Los cambios en la ontología fuerzan la regeneración del sitio Web
 - ODESeW (**UPM**) → Esperanto portal, OntoGrid portal, KnowledgeWeb portal
 - Población de ontologías
 - Formularios basados en ontologías
 - Usuarios y grupos con distintos permisos de lectura/escritura
 - Se publican varias ontologías
 - Los cambios en la ontología se trasladan al portal automáticamente
 - OntoRoadMap (**UPM**)
 - Basado en esquemas de bases de datos relacionales generados desde ontologías
 - Difícil mantenimiento



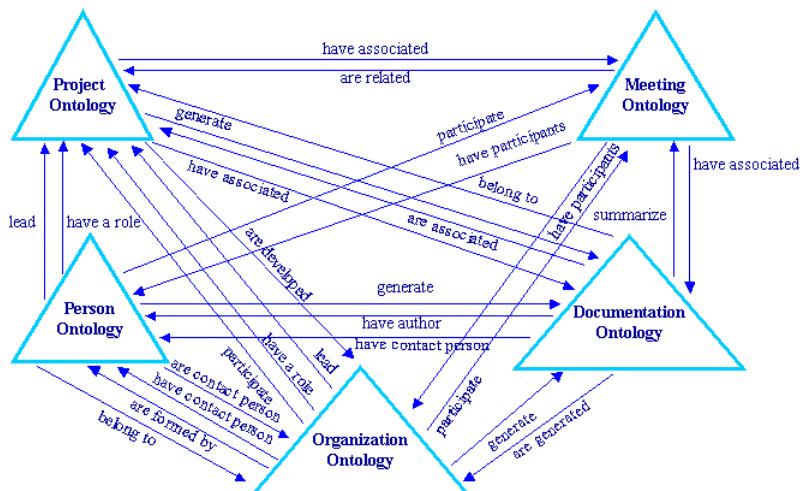
Proceso de generación de un portal

- 1. Construir ontologías**
- 2. Desplegar las ontologías en el sistema ODESeW**
- 3. Crear y actualizar tipos de usuarios y grupos**
- 4. Definir la política de permisos a nivel de usuario y grupo de usuarios**
- 5. Definir el orden de visualización de determinados atributos**
- 6. Seleccionar y componer los atributos con el objetivo de presentarlos de manera distinta a como aparecen en la ontología**

Modelado de ontologías



Modelado de ontologías



Despliegue de ontologías en ODESeW

The screenshot shows the ODESeW portal interface. On the left, there is a sidebar titled "Available Ontologies" containing links to "Biology Ontology", "Fund Finder", "MESH ontology", "SSSW03", and a URL "http://www.esperonto.net/fundFinder/fundingOpp# top level ontology of universals". To the right of this is another sidebar titled "ODESeW Ontologies" listing "Documentation Ontology", "Meeting Ontology", "Organization Ontology", "Person Ontology", and "Project Ontology". Below these are two small boxes with arrows pointing from left to right. On the far right, there is a vertical menu with links to "Meeting", "Documentation", "Person", "Organization", "Project", "Site Map", and "Restricted Access". At the bottom right, it says "Powered by ODESeW Ontology Group at UPM".

Se seleccionan las ontologías que se publicarán en el portal

Personalized Browsing

The diagram illustrates the implementation of ontologies and instances for personalized browsing. It shows a conceptual model (modelos conceptuales) and its implementation (Implementación de instancias). The conceptual model is shown as a tree structure with concepts like "Organization", "Partner", "Coordinator", and "Subcontractor". The implementation is shown as an RDF graph with nodes and predicates. A specific node is highlighted with a yellow box and labeled "RDF instance". The diagram also shows a screenshot of the Esperonto Project IST-2001-34373 application, which provides semantic annotation, aggregation, indexing, and routing of textual, multimedia, and multilingual web content.

Implementación de ontologías (modelos conceptuales)

Implementación de instancias

lista de instancias

Visualización dirigida por la semántica (invitado)

Deliverable List

- WP1: Ontologies**
- D1.1: State of the art in ontologies from the SW perspective [\[PDF\]](#)
 - D1.2: Kernel Ontology Specification. Knowledge architecture [\[Restricted\]](#)
 - D1.3: Ontology Workbench Specification [\[Restricted\]](#)
 - D1.4: Ontology Alignment Solution [\[Restricted\]](#)
- WP2: Window on Semantic Web languages**
- D2.1: State of the art on Semantic Web languages [\[PDF\]](#)
 - D2.2: Report on SW languages evolution [\[PDF\]](#)
- WP3: Annotation services**
- D3.1: State of the art on annotation tools and services [\[PDF\]](#)
 - D3.2: Methodology for the development of wrappers and annotation tools [\[Restricted\]](#)
 - D3.3: Annotation services for static resources
 - D3.4: Annotation services for dynamic resources
 - D3.5: Annotation services for multimedia content
 - D3.6: Annotation services for web services
- WP4: Semantic indexation and routing**
- D4.1: State of the art on indexation, routing techniques and negotiation techniques [\[PDF\]](#)
 - D4.2: Semantic Index Solution [\[Restricted\]](#)
 - D4.3: Routing solution [\[Restricted\]](#)
- WP5: Multilinguality**
- D5.1: State of the art on multilinguality for ontologies, annotation services and user interfaces [\[PDF\]](#)
 - D5.2: Multilinguality and ontologies [\[Restricted\]](#)
 - D5.3: Multilinguism and annotation services [\[Restricted\]](#)
 - D5.4: Multilingual user interface [\[Restricted\]](#)
- WP6: User Interface and visualisation services**
- D6.1: State of the art on visualisation technologies feasible for the Semantic Web [\[PDF\]](#)
 - D6.2: Ontology visualisation core services
 - D6.3: Semantic Web content visualisation services [\[PDF\]](#)
 - D6.4: Semantic Index and Routing Monitor service
- WP7: Definition and integration**
- D7.1: System specification [\[Restricted\]](#)
 - D7.2: Cooperation protocol definition [\[Restricted\]](#)
 - D7.3: Application development guidelines [\[Restricted\]](#)
 - D7.4: Integration test plan [\[Restricted\]](#)
- WP8: Test case 1. Fund finder for R&D**
- D8.1: Test case system specification [\[Restricted\]](#)
 - D8.2: Test case ontology specification [\[Restricted\]](#)

Permission Service

Workpackage

has associated

Deliverable



Visualización dirigida por la semántica (Extranet)

Deliverable List

Workpackage	Deliverable	upload date	PDF
WP1: Ontologies	D1.1: State of the art in ontologies from the SW perspective	11/08/2002	[PDF]
	D1.2: Kernel Ontology Specification. Knowledge architecture	09/24/2003	[PDF]
	D1.3: Ontology Workbench Specification	09/26/2003	[PDF]
	D1.4: Ontology Alignment Solution	09/12/2003	[PDF]
WP2: Window on Semantic Web languages	D2.1: State of the art on Semantic Web languages	02/17/2003	[PDF]
	D2.2: Report on SW languages evolution	06/29/2003	[PDF]
WP3: Annotation services	D3.1: State of the art on annotation tools and services	02/28/2003	[PDF]
	D3.2: Methodology for the development of wrappers and annotation tools	09/15/2003	[PDF]
	D3.5: Annotation services for multimedia content	09/26/2003	[PDF]
WP4: Semantic indexation and routing	D4.1: State of the art on indexation, routing techniques and negotiation techniques	02/11/2002	[PDF]
	D5.1: State of the art on multilinguality for ontologies, annotation services and user interfaces	02/28/2003	[PDF]
WPS: Multilinguality	D5.2: Multilinguality and ontologies	09/25/2003	[PDF]
	D5.3: Multilinguism and annotation services	09/25/2003	[PDF]
	D6.1: State of the art on visualisation technologies feasible for the Semantic Web	03/07/2003	[PDF]
WP6: User interface and visualisation services	D6.2: Semantic Web content visualisation services	09/25/2003	[PDF]
	D6.3: System specification	07/29/2003	[PDF]
WP7: Definition and integration	D7.1: System specification	01/16/2003	[PDF]
	D7.2: Cooperation protocol definition	04/03/2003	[PDF]
	D7.3: Application development guidelines	09/18/2003	[PDF]
WP8: Test case 1. Fund finder for R&D	D7.4: Integration test plan	04/07/2003	[PDF]
	D8.1: Test case system specification	08/29/2003	[PDF]
	D8.2: Test case ontology specification	09/25/2003	[PDF]
WP9: Test case 2. Cultural tour	D9.1: Test case system specification	07/21/2003	[PDF]
	D9.2: Test case ontology specification	09/26/2003	[PDF]
WP10: Test case 3. Scientific discovery	D10.2: Test case ontology specification	07/10/2003	[PDF]
	D11.1: Quality Plan and Development Plan	02/12/2003	[PDF]

Workpackage

has associated

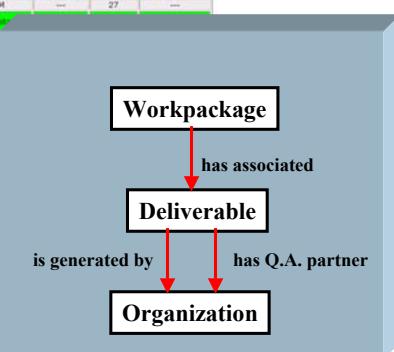
Deliverable



Visualización dirigida por la semántica (Intranet)

Status of the Deliverables

Workpackage	Deliverable	Generated by	Q.A. Responsibility	Delivery date	Project Month	Status
WP1: Ontologies	D1.1: Study of the set of ontologies from the SPIN perspective	URP	UPLV	21/01/2003	3	Final
	D1.2: Knowledge organization system for ontology architecture	URP	URP	06/04/2003	7	Final
	D1.3: Ontology alignment solutions	URP	URP	06/04/2003	7	Final
	D1.4: Ontology alignment solutions	URP	URP	06/12/2003	21	Final
WP2: Window on Semantic Web languages	D2.1: State of the art on Semantic Web languages	URP	URP	02/03/2003	2	Final
	D2.2: Report on SWL languages evolution	URP	URP	06/09/2003	30	Final
	D2.3: State of the art on annotation tools and services	ISOCC	URP	02/09/2003	2	Final
	D2.4: Methodology for the development of browsers and editors	ISOCC	URP	09/10/2003	10	Final
WP3: Annotation services	D3.1: Annotation services for dynamic resources	URP	URP	—	—	—
	D3.2: Annotation services for dynamic resources	ISOCC	URP	—	23	—
	D3.3: Annotation services for multimedia documents	URP	ISOCC	09/09/2003	22	Final
	D3.6: Annotation services for web services	ISOCC	URP	—	27	—
WP4: Semantic indexation and routing	D4.1: Study of the SPN on indexation, routing techniques and annotation services	URP	URP	—	—	—
	D4.2: Semantic Index Solution	UPLV	URP	—	—	—
	D4.3: Routing solution	UPLV	URP	—	—	—
	D4.5: Study of the use of multilinguals for ontologies, annotation services and user interfaces	URP	URP	—	—	—
WP5: Multilinguality	D5.1: Multilinguals and ontologies	URP	URP	—	—	—
	D5.2: Multilinguals and annotation services	URP	URP	—	—	—
	D5.4: Multilingual user interface	URP	CED	—	—	—
	D5.5: Multilinguals in indexation (techniques, results, etc.)	URP	URP	—	—	—
WP6: User interface and visualisation services	D6.1: Semantic Web portal	ISOCC	URP	—	—	—
	D6.2: Ontology visualisation (UI services)	ISOCC	URP	—	—	—
	D6.3: Semantic Web portal visualisation services	ISOCC	URP	—	—	—
	D6.4: Semantic Index and Routing Monitor service	ISOCC	URP	—	—	—
WP7: Definition and integration	D7.1: Services specification	URP	URP	—	—	—
	D7.2: Collaboration protocol definition	URP	URP	—	—	—
	D7.3: Collaboration guidelines	URP	URP	—	—	—
	D7.4: Ontology system specification	URP	URP	—	—	—
WPR: Test case 1. Fund for						



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- Yuhui Jin, Stefan Decker, Gio Wiederhold. *OntoWebber: Model-Driven Ontology-Based Web Site Management*. The 1st International Semantic Web Working Symposium (SWWS'01), Stanford University, Stanford, CA, July 29-Aug 1, 2001.



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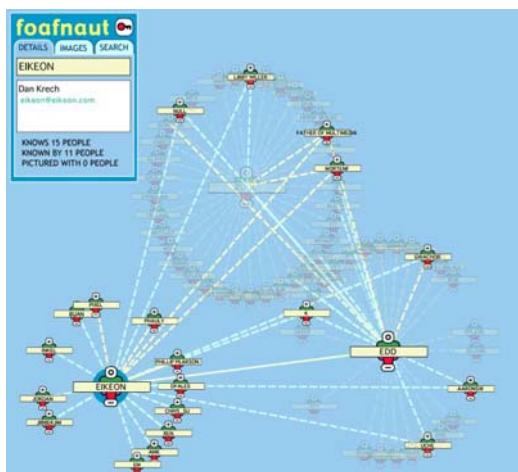
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FOAF:a semweb case study

The *Friend of a Friend* (FOAF) project is about creating a Web of machine-readable homepages describing people, the links between them and the things they create and do.

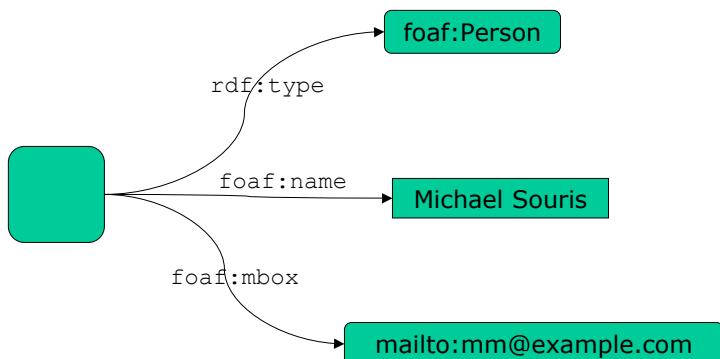
Distributed RDF/XML records describing people, who they know, projects they work on...



FOAF - motivations

- Augment e-mail filtering by prioritizing mails from trusted colleagues
- Locate people with interests similar to yours
- ‘Find an expert’ in knowledge communities
- Social network analysis
- Photo co-depiction

A simple foaf model



.. which can be serialized in XML

```
<rdf:RDF  
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"  
  xmlns:foaf="http://xmlns.com/foaf/0.1/">  
  
  <foaf:Person>  
    <foaf:name>Michael Souris</foaf:name>  
    <foaf:mbox rdf:resource="mailto:mm@example.com" />  
  </foaf:Person>  
  
</rdf:RDF>
```

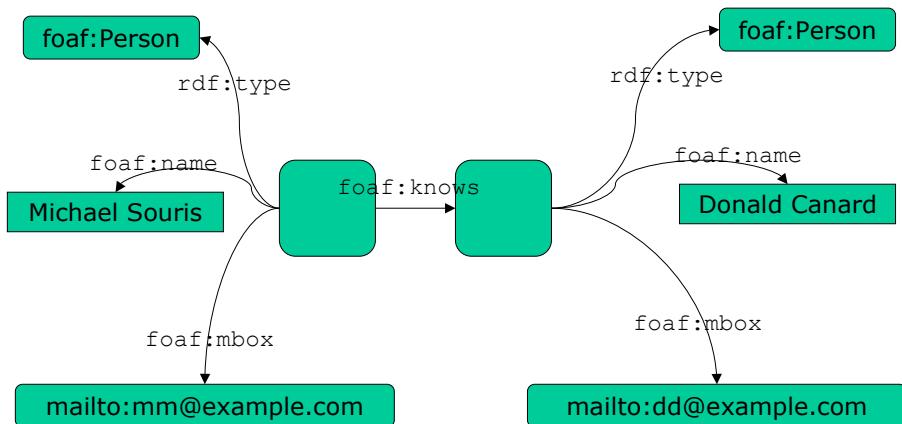


.. and N3

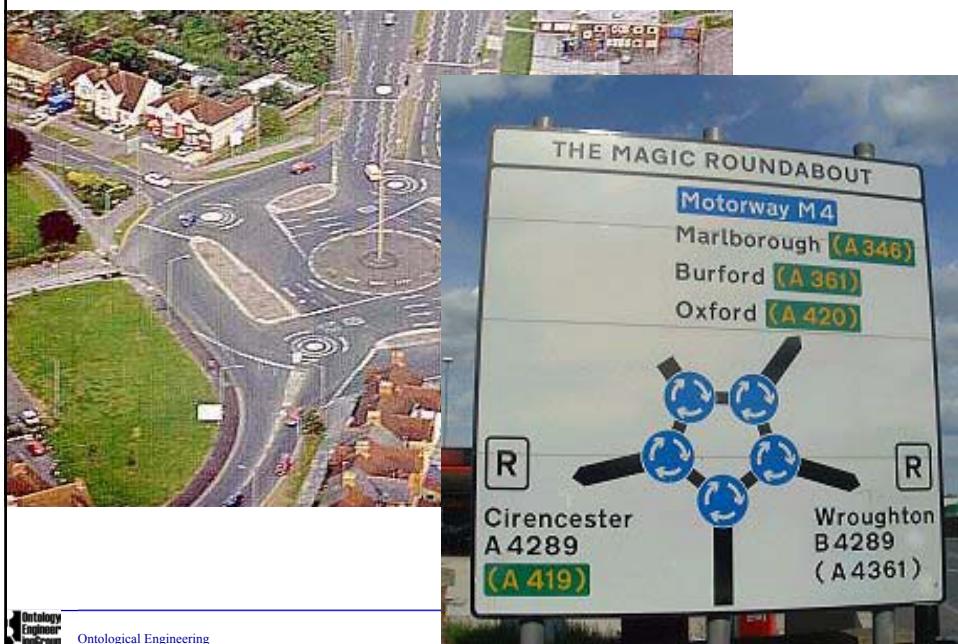
```
@prefix rdf <http://www.w3.org/1999/02/22-rdf-syntax-  
ns#>  
@prefix foaf <http://xmlns.com/foaf/0.1/>  
  
[] a foaf:Person;  
  foaf:name "Michael Souris";  
  foaf:mbox <mailto:mm@example.com> .
```



A more complex foaf model



Conclusions





Semantic Web Applications

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