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Semantic Web Applications

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Main References

Gómez-Pérez, A.; Fernández-López, M.; Corcho, O. **Ontological Engineering.** *Springer* [illegible] 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

Acknowledgements

- **Richard Benjamins, Jesús Contreras, Silvestre Losada, Mercedes Blázquez (iSOCO)**
  - **Cultural Tour**
  - **Real Instituto Elcano**
  - **Overdraft Notification**
  - **Semantic Visualisation**
  - **IuriService**
- **Angel López Cima**
  - **Semantic Web portals**
- **Jesús Barrasa, Asunción Gómez-Pérez**
  - **Fund Finder**

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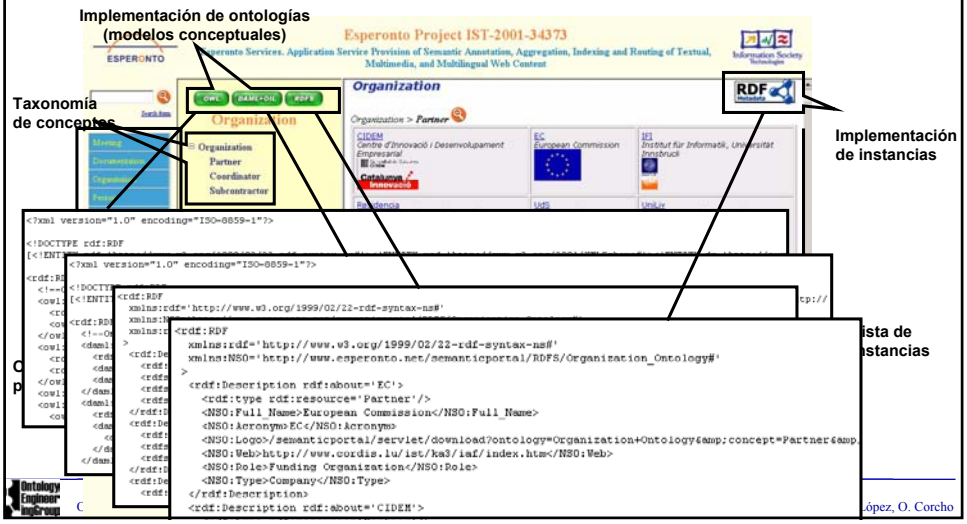
Portales semánticos

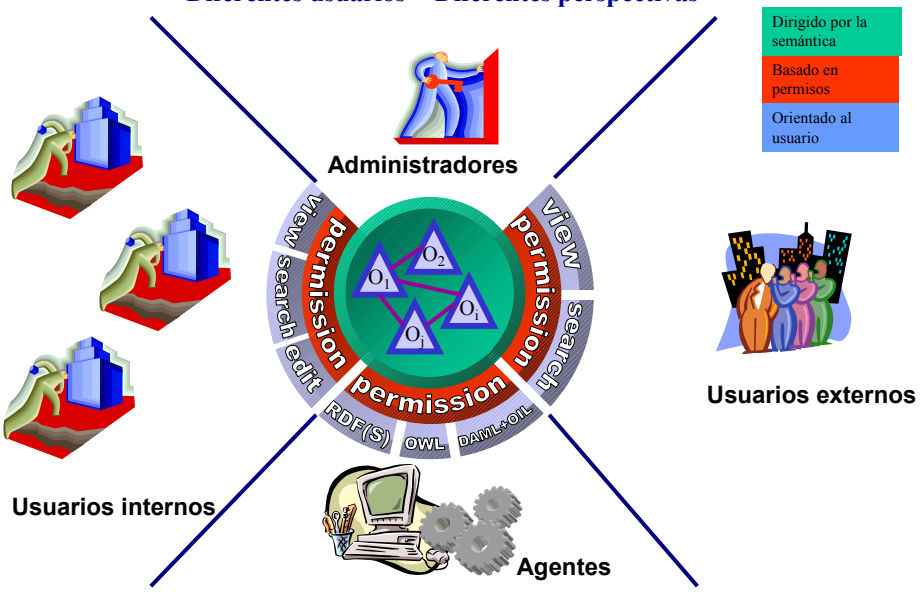
- **Aplicación Web que proporciona un punto de acceso único para seleccionar, clasificar y acceder, de manera** semántica**, a** distintos tipos de información **(Web sites, documentos, datos, etc.) para** distintos tipos de usuarios **(empresas, marketplaces, etc.)".**



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) → Esperonto 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

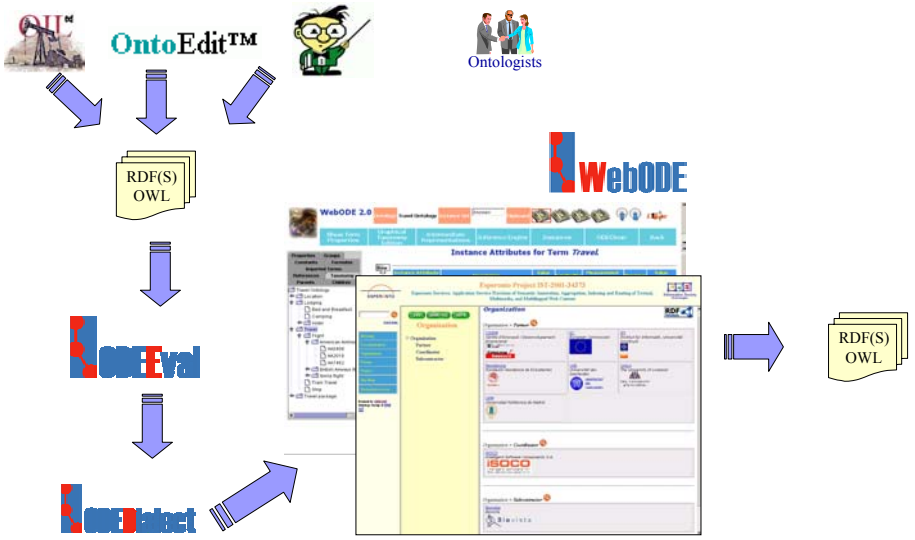
Diferentes usuarios = Diferentes perspectivas



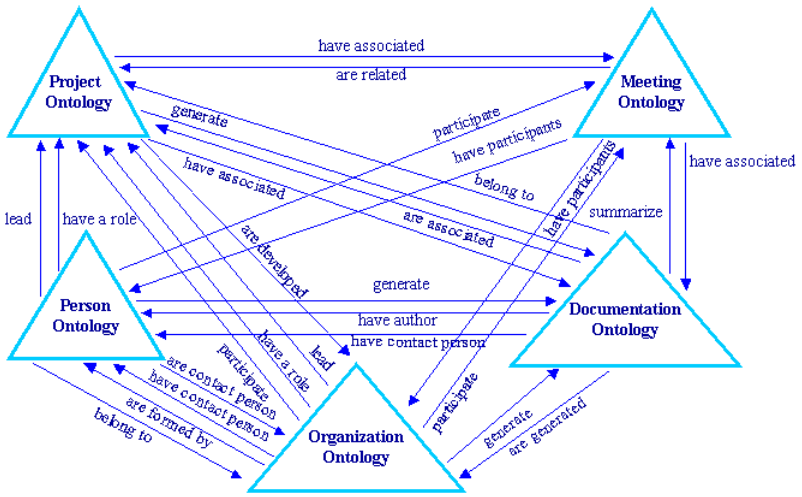
Proceso de generación de un portal

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

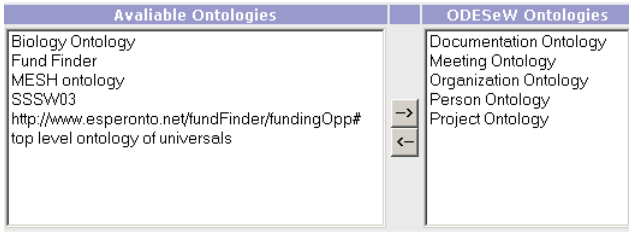
Modelado de ontologías



Modelado de ontologías

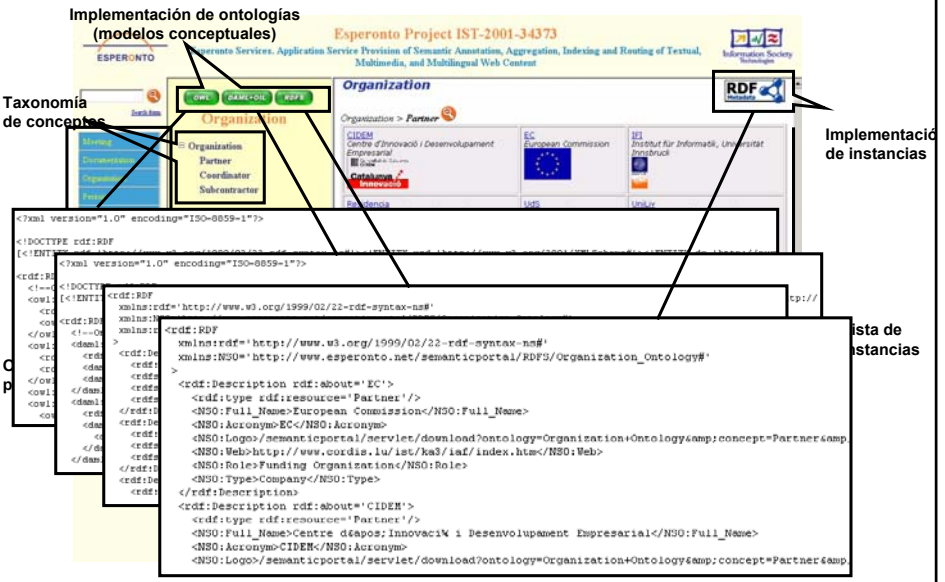


Despliegue de ontologías en ODESeW



Se seleccionan las ontologías que se publicarán en el portal

Personalized Browsing



Visualización dirigida por la semántica (invitado)

Deliverable List

WP1: Ontologies
- D1.1: State of the art in ontologies from the SW perspective
- 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
- D2.2: Report on SW languages evolution

WP3: Annotation services
- D3.1: State of the art on annotation tools and services
- 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

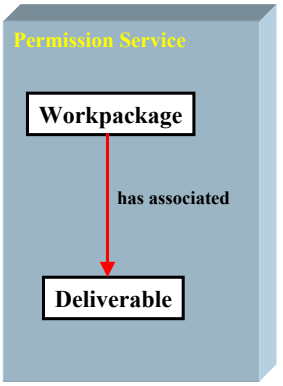
WP4: Semantic indexation and routing
- D4.1: State of the art on indexation, routing techniques and negotiation techniques
- D4.2: Semantic Index Solution *(Restricted)*
- D4.3: Routing Solution *(Restricted)*

WP5: Multilinguality
- D5.1: State of the art on multilinguality for ontologies, annotation services and user interfaces
- 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
- D6.2: Ontology visualisation core services
- D6.3: Semantic Web content visualisation services
- 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)*

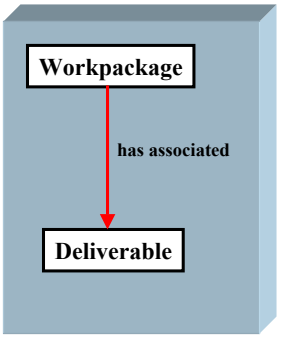
WP8: Test case 1. Fund finder for R&D
- D8.1: Test case system specification *(Restricted)*
- D8.2: Test case ontology specification *(Restricted)*



Visualización dirigida por la semántica (Extranet)

Deliverable List

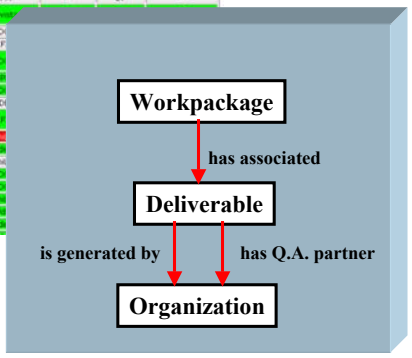
Workpackage	Deliverable	upload date	PDF
WP1: Ontologies	D1.1: State of the art in ontologies from the SW perspective	11/08/2002	
	D1.2: Kernel Ontology Specification. Knowledge architecture	09/24/2003	
	D1.3: Ontology Workbench Specification	09/26/2003	
	D1.4: Ontology Alignment Solution	09/12/2003	
WP2: Window on Semantic Web languages	D2.1: State of the art on Semantic Web languages	02/17/2003	
	D2.2: Report on SW languages evolution	08/28/2003	
WP3: Annotation services	D3.1: State of the art on annotation tools and services	02/28/2003	
	D3.2: Methodology for the development of wrappers and annotation tools	09/15/2003	
	D3.5: Annotation services for multimedia content	09/26/2003	
WP4: Semantic indexation and routing	D4.1: State of the art on indexation, routing techniques and negotiation techniques	02/11/2002	
WP5: Multilinguality	D5.1: State of the art on multilinguality for ontologies, annotation services and user interfaces	02/28/2003	
	D5.2: Multilinguality and ontologies	09/26/2003	
	D5.3: Multilinguism and annotation services	09/26/2003	
WP6: User interface and visualisation services	D6.1: State of the art on visualisation technologies feasible for the Semantic Web	03/07/2003	
	D6.3: Semantic Web content visualisation services	09/25/2003	
WP7: Definition and integration	D7.1: System specification	07/29/2003	
	D7.2: Cooperation protocol definition	01/16/2003	
	D7.3: Application development guidelines	04/03/2003	
	D7.4: Integration test plan	09/18/2003	
WP8: Test case 1. Fund finder for R&D	D8.1: Test case system specification	04/07/2003	
	D8.2: Test case ontology specification	08/29/2003	
	D8.3: Test case application development	09/25/2003	
WP9: Test case 2. Cultural tour	D9.1: Test case system specification	07/21/2003	
	D9.2: Test case ontology specification	09/26/2003	
WP10: Test case 3. Scientific discovery	D10.2: Test case ontology specification	07/10/2003	
WP11: Project management	D11.1: Quality Plan and Development Plan	02/12/2003	



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: State of the art in ontologies from the SW perspective	UPM	IFI	11/06/2003	2	Final
	D1.2: Kernel Ontology Specification. Knowledge Architecture	UPM	UdS	09/24/2003	27	Final
	D1.3: Ontology Workbench Specification	UPM	UniLiv	09/26/2003	27	Final
	D1.4: Ontology Alignment Solution	IFI	UPM	09/12/2003	27	Final
WP2: Window on Semantic Web languages	D2.1: State of the art on Semantic Web languages	IFI	UPM	02/17/2003	2	Final
	D2.2: Report on SW languages evolution	IFI	ISOCO	08/28/2003	30	Final
WP3: Annotation services	D3.1: State of the art on annotation tools and services	ISOCO	UdS	02/28/2003	2	---
	D3.2: Methodology for the development of wrappers and annotation tools	ISOCO	UdS	09/15/2003	10	---
	D3.3: Annotation services for static resources	ISOCO	UPM	---	10	---
	D3.4: Annotation services for dynamic resources	ISOCO	UniLiv	---	23	---
	D3.5: Annotation services for multimedia content	UdS	ISOCO	09/26/2003	23	Final
	D3.6: Annotation services for web services	ISOCO	UPM	---	27	---
WP4: Semantic indexation and routing	D4.1: State of the art on indexation, routing techniques and registration techniques	UniLiv	Ibrosi			
	D4.2: Semantic Index Solution	UniLiv	ISO			
	D4.3: Routing Solution	UniLiv	IF			
WP5: Multilinguality	D5.1: State of the art on multilinguality for ontologies, annotation services and user interfaces	UdS	ISO			
	D5.2: Multilinguality and ontologies	UdS	UP			
	D5.3: Multilinguism and annotation services	UdS	ISO			
	D5.4: Multilingual user interface	UdS	CID			
WP6: User interface and visualisation services	D6.1: State of the art on visualisation technologies feasible for the Semantic Web	ISOCO	IF			
	D6.2: Ontology visualisation core services	ISOCO	Uni			
	D6.3: Semantic Web content visualisation services	ISOCO	Ibrosi			
	D6.4: Semantic Index and Routing Monitor service	ISOCO	Uni			
WP7: Definition and integration	D7.1: System specification	UPM	ISO			
	D7.2: Cooperation protocol definition	UPM	ISO			
	D7.3: Application development guidelines	UPM	Uni			
	D7.4: Integration test plan	UPM	UdS			
WP8: Test case 1. Fund finder for	D8.1: Test case system specification	CIDEM, UPM	Ibrosi			



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- **Maedche, S. Staab, R. Studer, Y. Sure, and R. Volz. (2002) *SEAL -- Tying up information integration and web site management by ontologies*. IEEE-CS Data Engineering Bulletin, Special Issue on Organizing and Discovering the Semantic Web, March 2002.**
- **Spyns P, Oberle D, Volz R, Zheng J, Jarrar M, Sure Y, Studer R, Meersman R (2003). *Ontoweb - a Semantic Web Community Portal*. Fourth International Conference on Practical Aspects of Knowledge Management (PAKM), 2-3 December, 2002, Vienna, Austria, pp. 189-200**
- **Staab S, Angele J (2000) *AI for the Web - Ontology-based Community Web Portals*. 17th National Conference on Artificial Intelligence and 12th Innovative Applications of Artificial Intelligence Conference (AAAI 2000/IAAI 2000), Menlo Park/CA, Cambridge/MA, AAAI Press/MIT Press.**
- **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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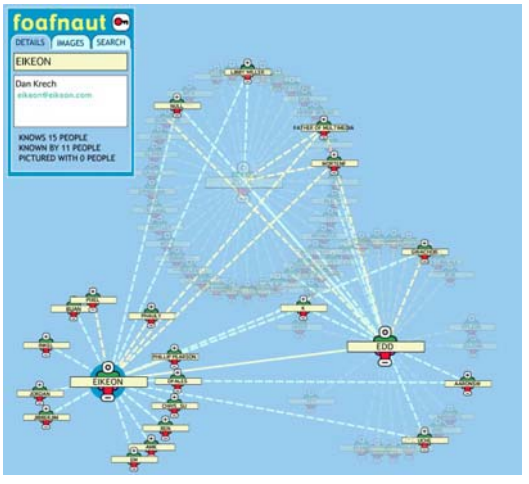
FOAF:a semweb case study

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.

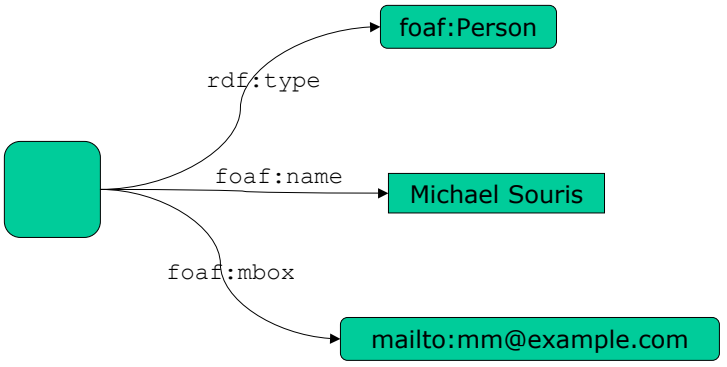
Distributed RDF/XML records describing people, who they know, projects they work on...



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



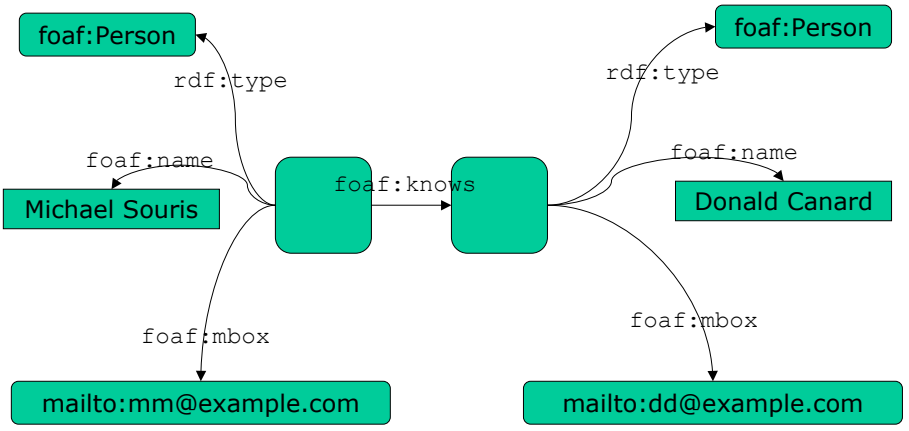
.. which can be serialized in XML

```
<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>
```

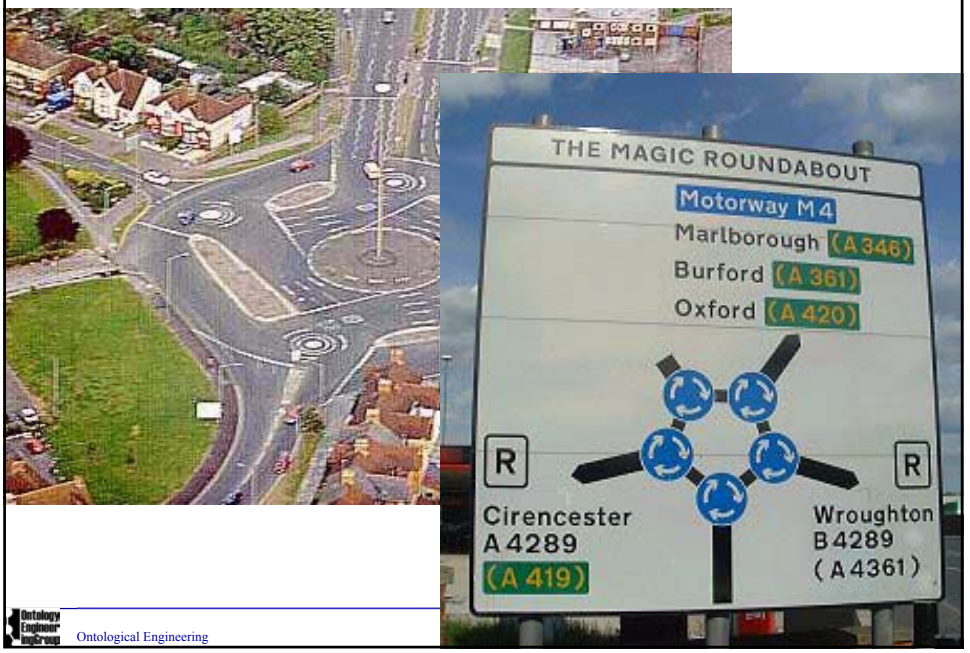

.. and N3

```
@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



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