



Linked Data Applications: examples

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Acknowledgements:

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1. The concept
2. Foundations
3. The process
4. Examples

- Libraries: <http://datos.bne.es>
- Geo: <http://geo.linkeddata.es/>
- Metereology: <http://aemet.linkeddata.es/>
- Travelling: <http://webenemasuno.linkeddata.es/>

Complex queries using data from heterogeneous Web pages

<http://www.bne.es/>

Cervantes enthusiast from Germany visiting Madrid and willing to know more about Cervantes' work and life



Tapas / Ruta de las Tapas



Alcalá de Henares es conocida entre otras muchas cosas por su gastronomía y particularmente por sus tapas. Desde Lacallemayor.net queremos ponérselo fácil, y por eso te ofrecemos nuestra "Ruta de las tapas" por la ciudad Cervantina. Una gran forma de compaginar la visita del patrimonio histórico y el gastronómico de la ciudad. Esta ruta se puede comenzar desde cualquier punto de la ciudad, aunque nuestra

<http://elviajero.elpais.com/>

Locales

Macandé

Categoría: Restaurantes

Descripción: Tapas exquisitas durante todo el año, terraza de temporada, especialidad en tostas, pates, ibéricos, menú diario. Muy centrico, idoneo para tertulias.

[Ampliar Información](#)

O'Bogavante Restaurante Marisquería

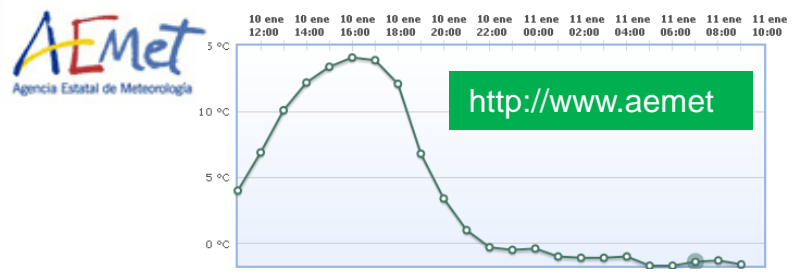
Categoría: Restaurantes

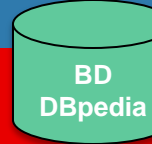
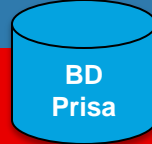
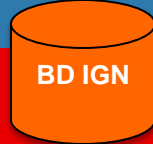
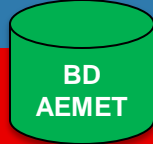
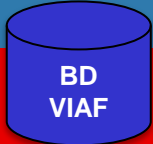
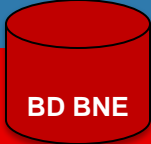
Descripción: Mecco también es un lugar imprescindible para tapear en la Ciudad de la Luz. Te recomendamos: Parrillada de marisco, carne a la piedra, arroz con bogavante... Viernes y Sabados Cenas - Baile musica de los 60 a los 90 Menú degustación 35 € por persona.

[Ampliar Información](#)

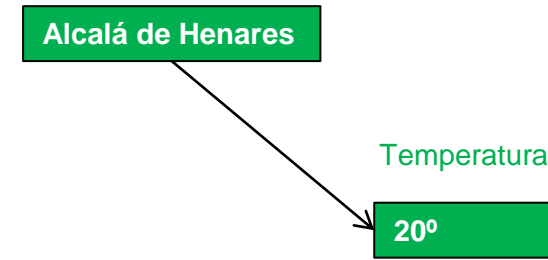
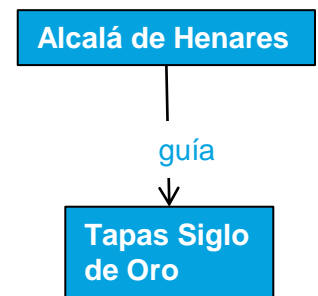
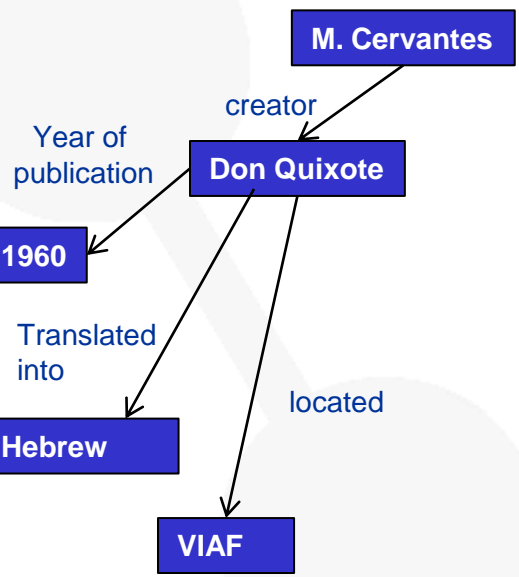
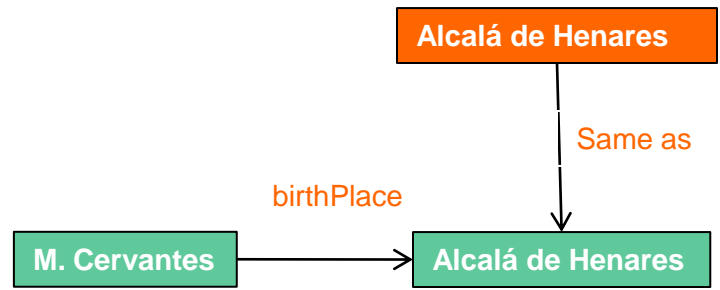
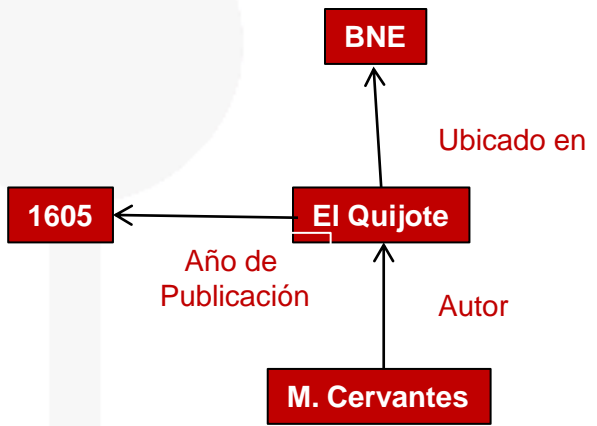
<http://www.viaf.org/>

Alcala de Henares. Temperatura (°C)





Data Integration

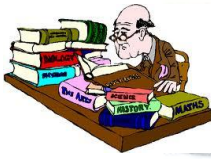


Data & Knowledge Visualization

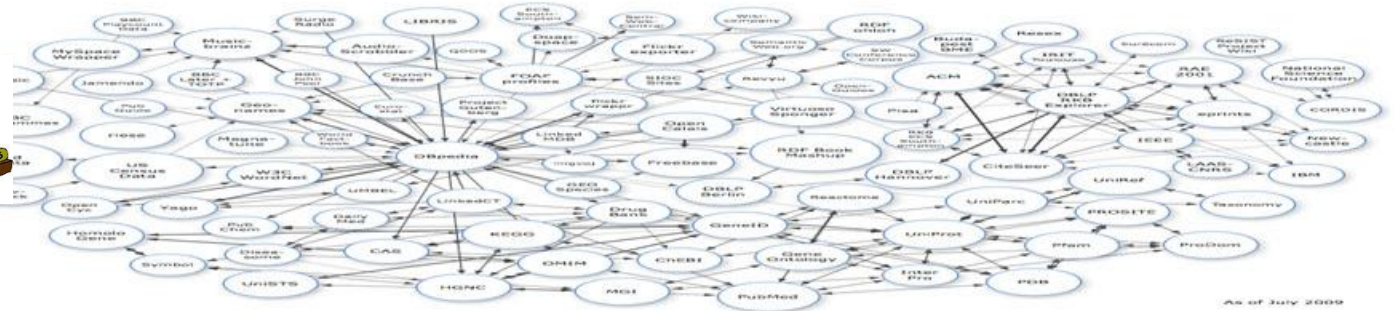


NLP + Rich client/GUI

Linking



LOD Cloud



RDF Generation



XML



Data sources
NORs, geo resources



Sensors

twitter



News, twitter



Services

Streaming resources

1. The concept

2. Foundations

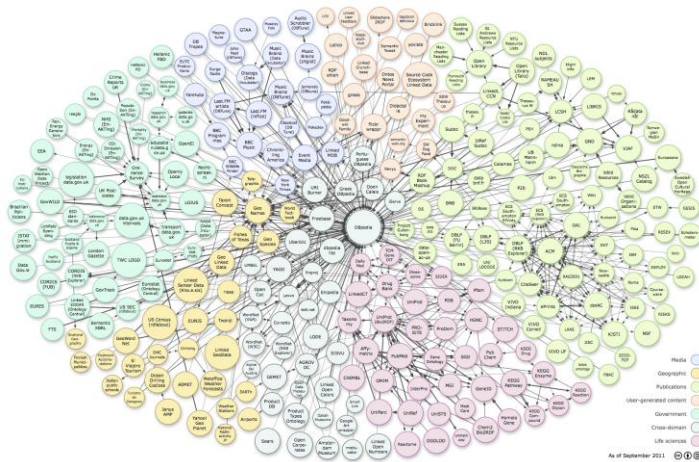
3. The process

4. Examples

- Libraries: <http://datos.bne.es>
- Geo: <http://geo.linkeddata.es/>
- Metereology: <http://aemet.linkeddata.es/>
- Travelling: <http://webenemasuno.linkeddata.es/>







Linked Data: why it is important?

- Facilitate data integration
 - From heterogeneous sources
 - In different formats
 - Different granularity
 - In different languages
 - From different countries



W3C

Choosing *How* to Publish

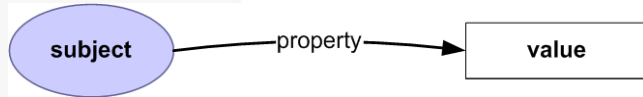
     

BOTH

Human-readable Machine-readable

© Slide adapted from “5min Introduction to Linked Data”- Olaf Hartig

RDF(S) models

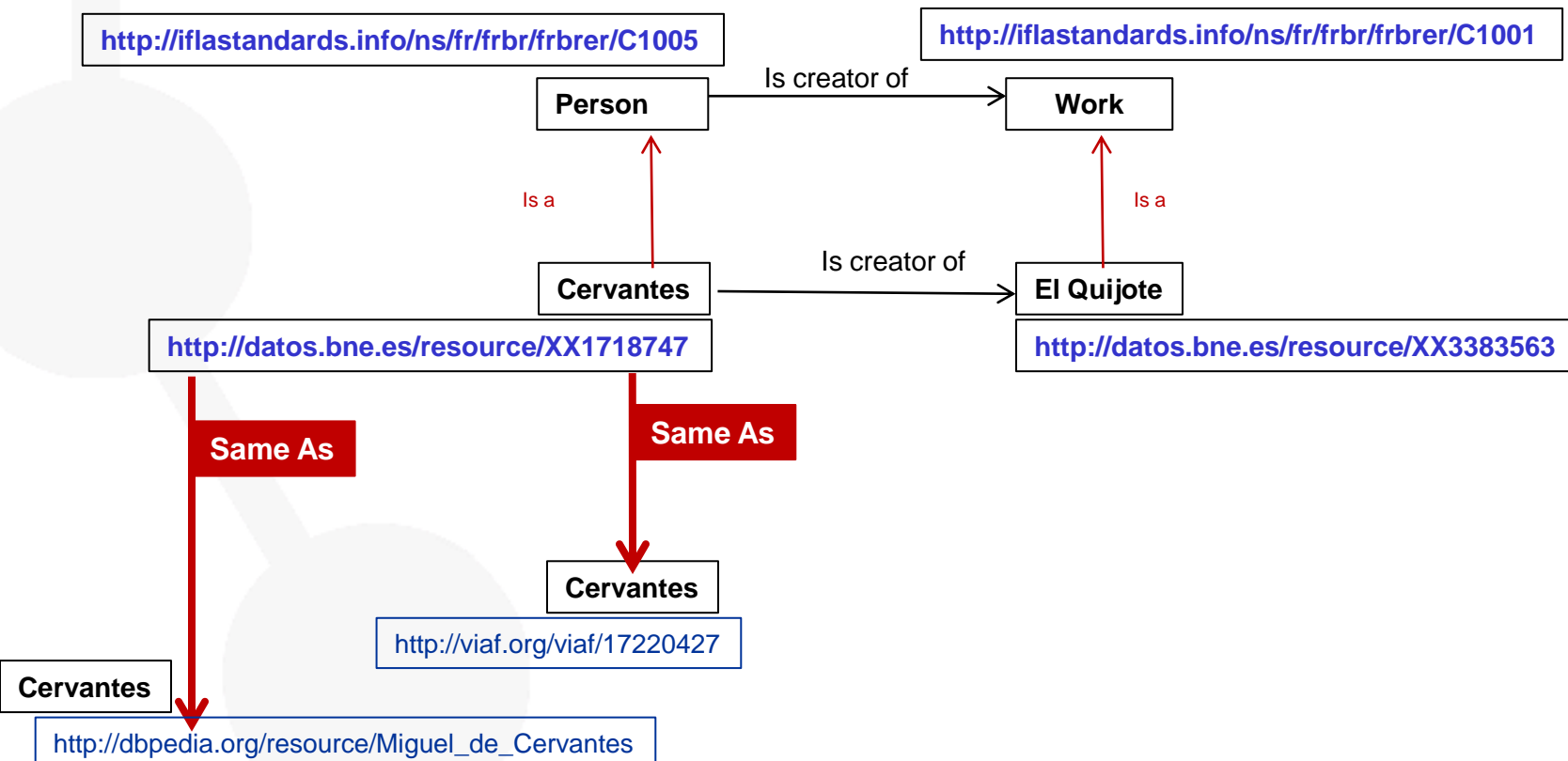


Unique identifiers: URI
identify or name a resource

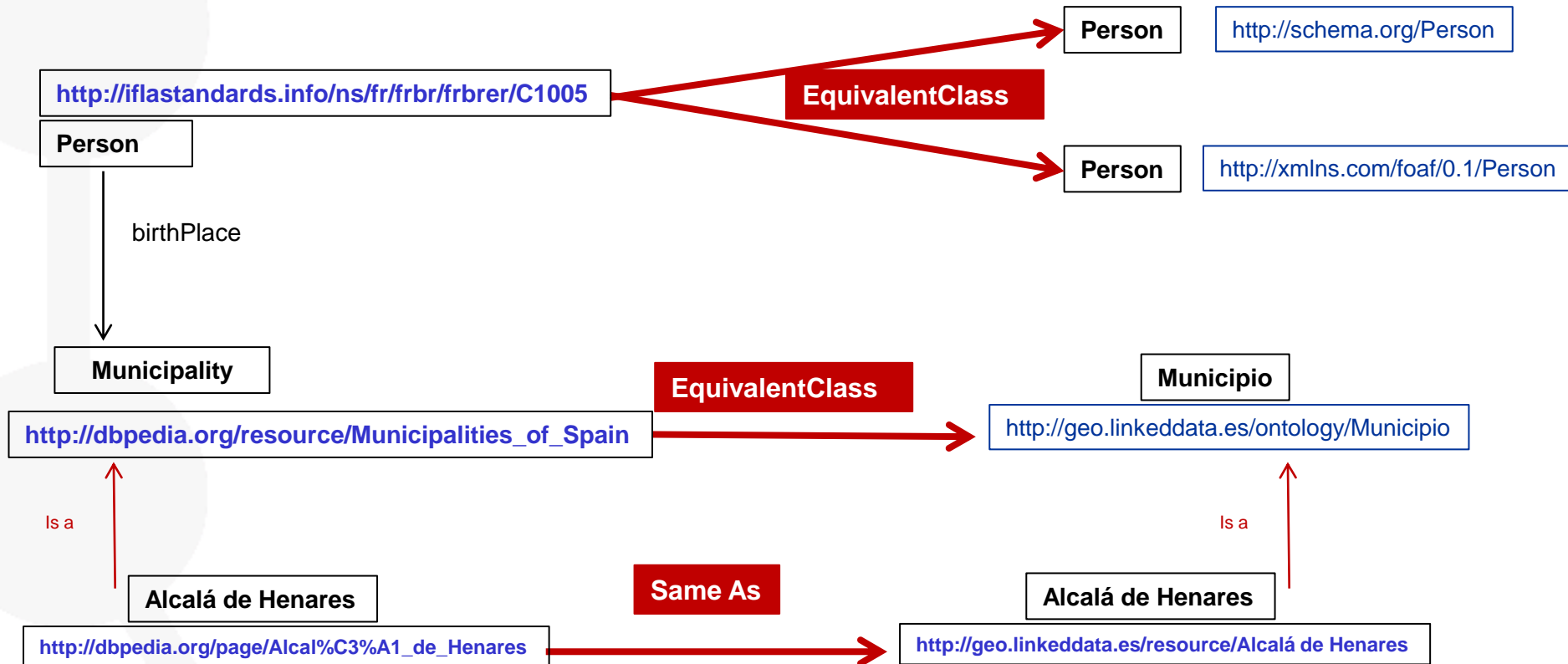
Equivalence links to other datasets

Same As

Data navigation



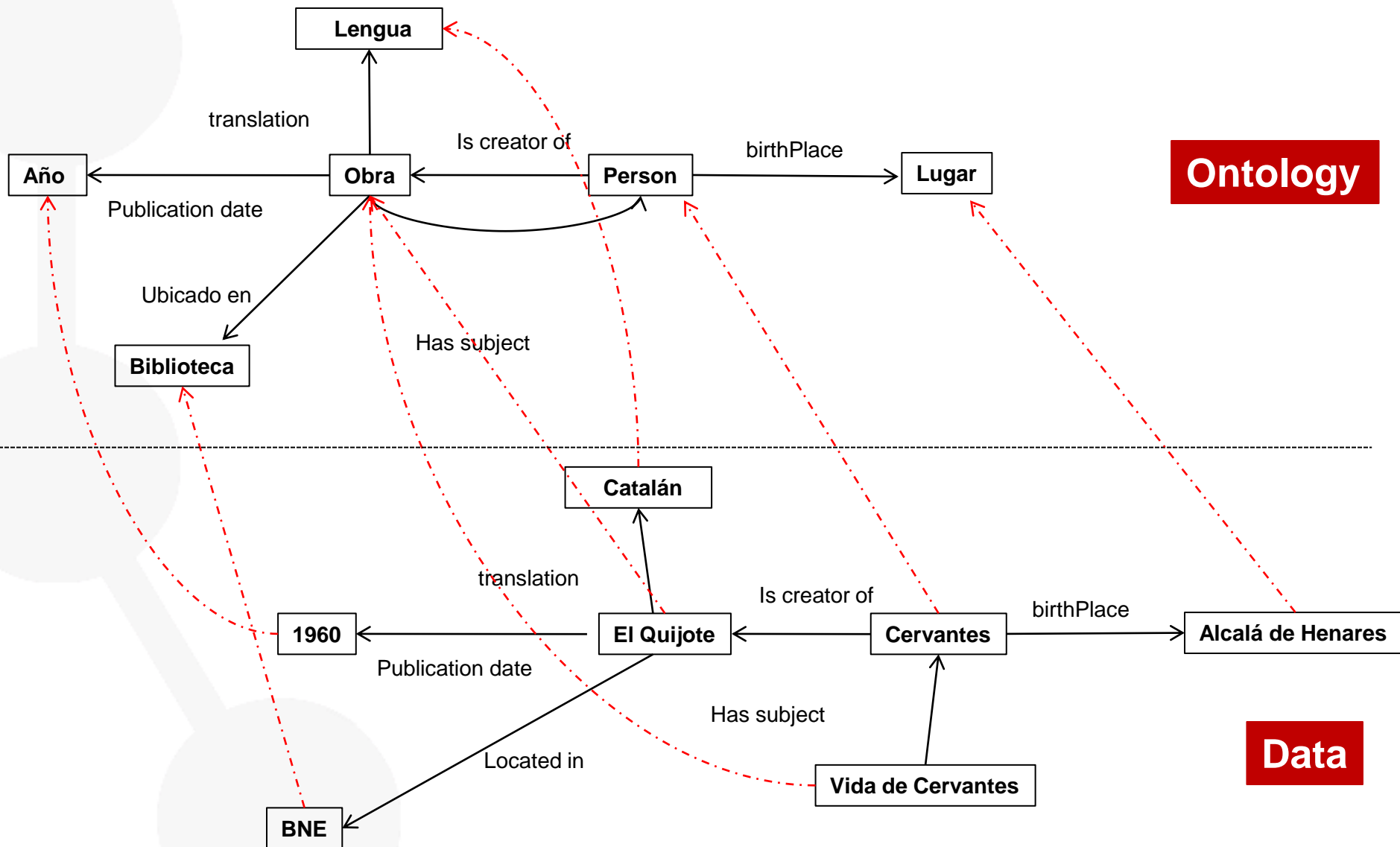
Aligning Models with Owl EquivalentClass



Lessons learnt

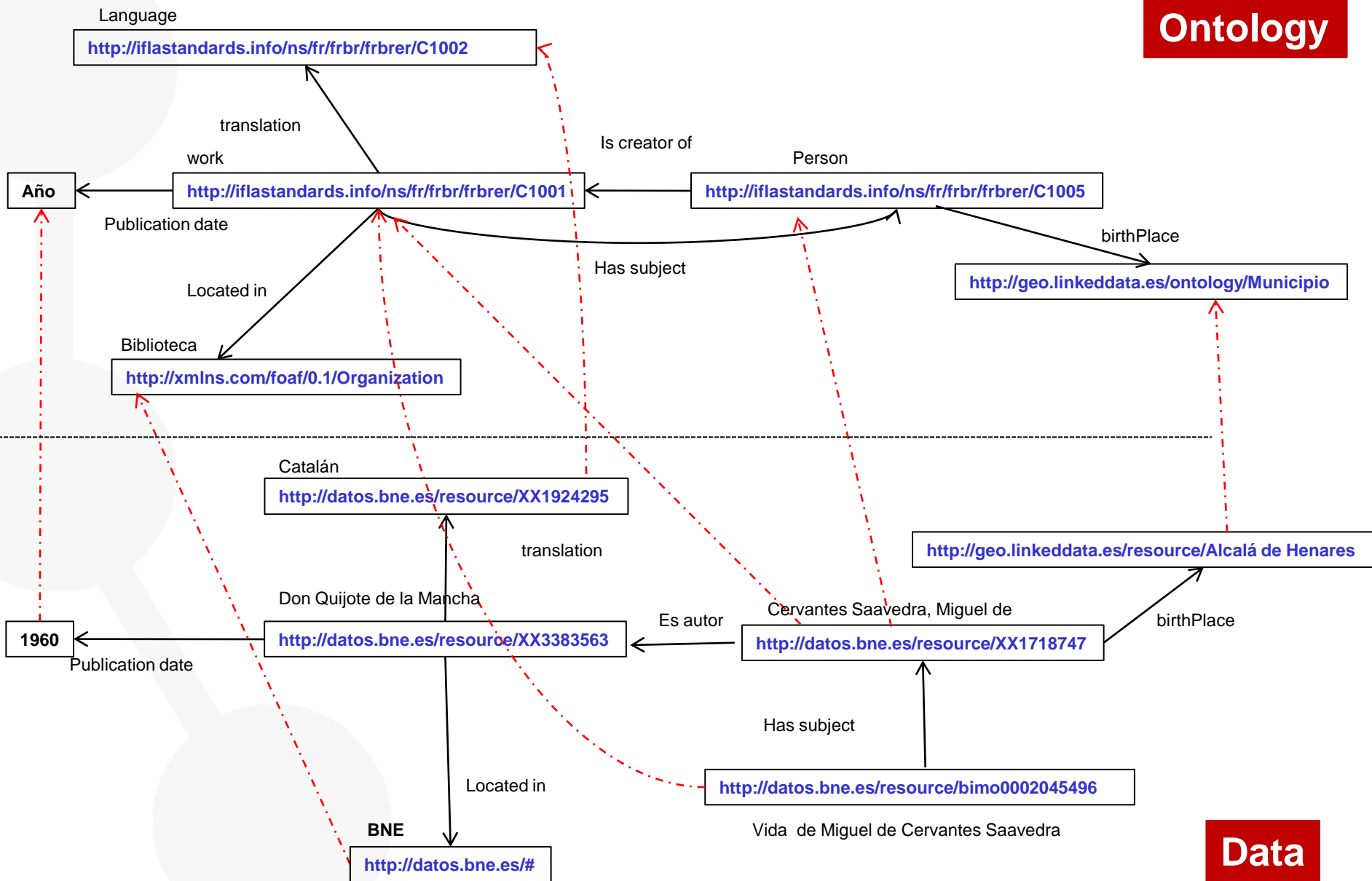
1. Reuse existing models
2. Align the data and the concepts.

El modelo (Ontología) y los datos (2 datasets)



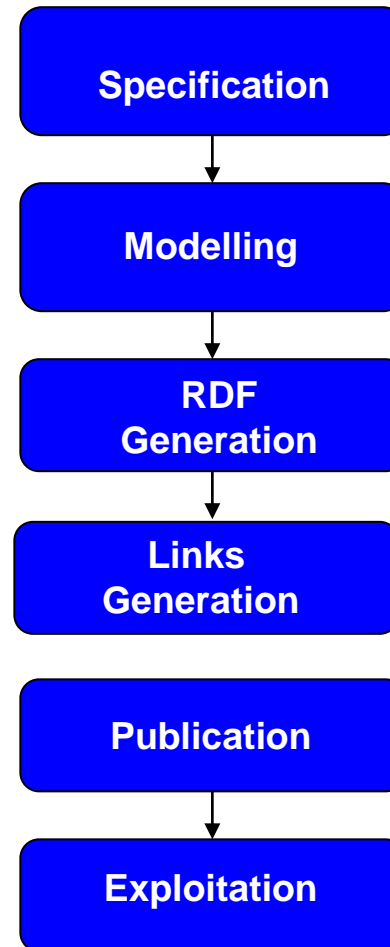
El modelo (Ontología) y los datos (2 datasets)

Ontology



Data

1. The concept
2. Foundations
3. **The process**
4. Examples



The Ontology: based on IFLA vocabularies

Specification

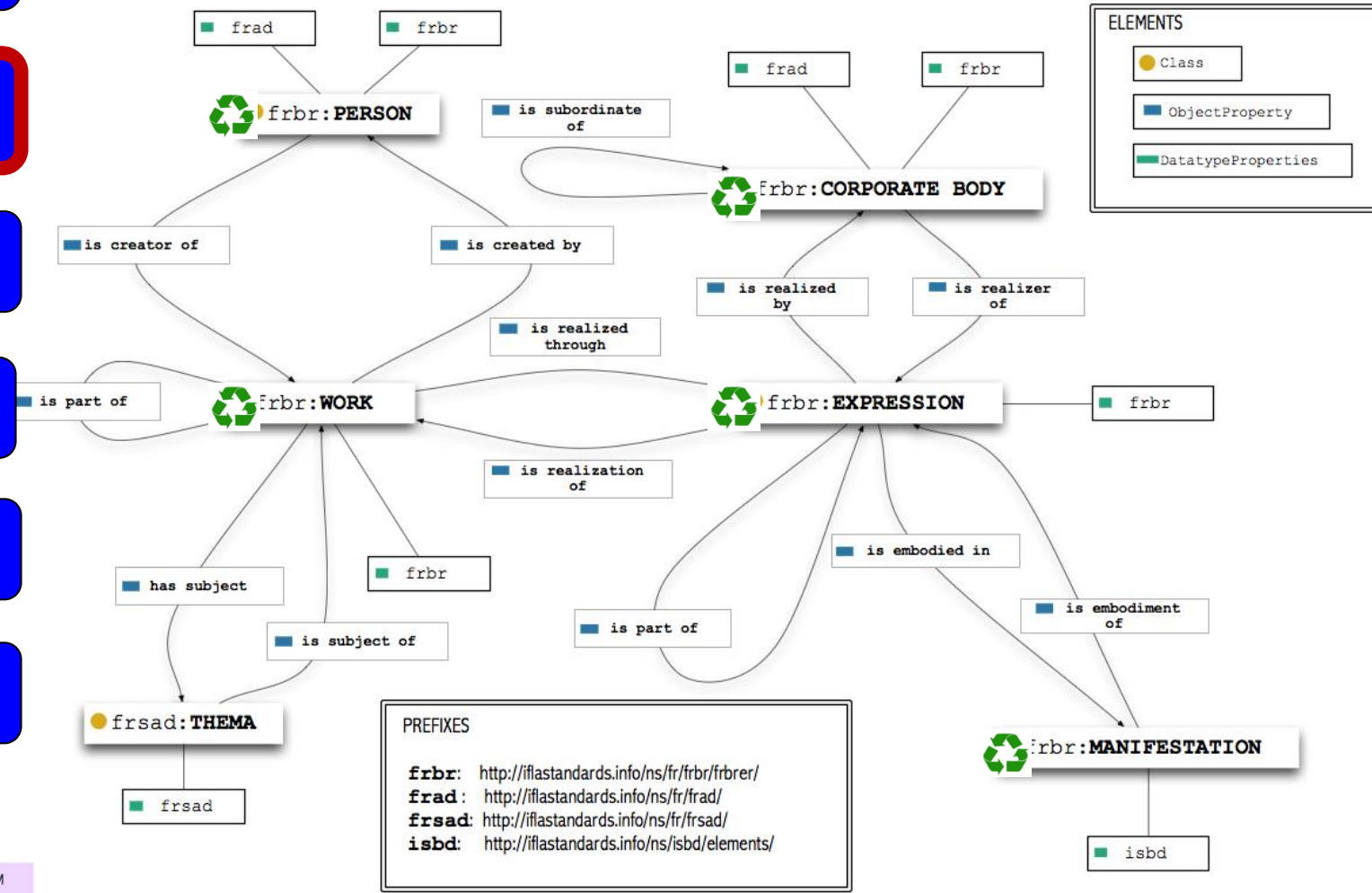
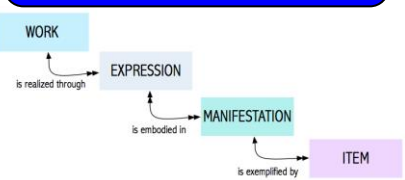
Modelling

RDF
Generation

Links
Generation

Publication

Exploitation



Marimba links with other resources: VIAF, DNB, SUDOC, LIBRIS, DBpedia

Specification

Modelling

RDF
Generation

Links
Generation

Publication

Exploitation

<http://d-nb.info/gnd/11851993X>

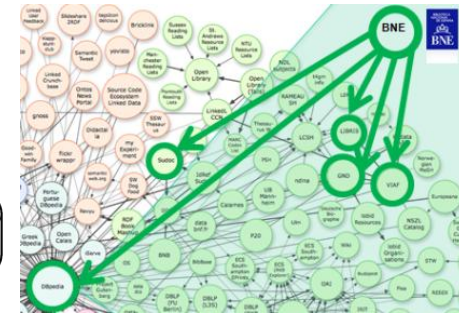


DNB

<http://viaf.org/viaf/17220427>



VIAF



Same As

Same As

Same As

Same As

Same As

<http://www.idref.fr/026774771/id>



LIBRIS

<http://datos.bne.es/resource/XX1718747>



BNE

http://dbpedia.org/resource/Miguel_de_Cervantes



DBpedia

<http://libris.kb.se/resource/auth/45369>



SUDOC

Marimba links with other resources: VIAF, DNB, SUDOC, LIBRIS, DBpedia

Specification

Modelling

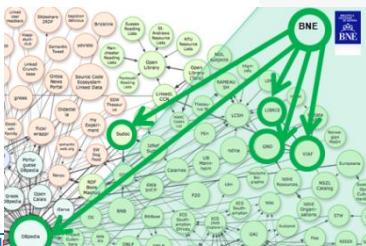
RDF
Generation

Links
Generation

Publication

Exploitation

ifla-frbr:P3039	■ bne:resource/XX5027917
ifla-frbr:P3040	■ bne:resource/XX5035214
ifla-frad:P4031	■ Cervantes Saavedra, Miguel de
	■ 1547-1616
	■ Cervantes
	■ Cervantes di Saavedra, Michele
	■ Cervantes, Miguel de
	■ Servantes Saavedra, Migel
	■ Sirfantis Saafedrā, Mīgīl dī
	■ Therbantes, Minkel nte
	■ Zerbantes eta Saabedra, Mikel
	■ Θερβάντες, Μιγκέλ ντε
	■ Сервантес Сааведра, Мигель де
	■ سرفتنس ساافدرا، ميجيل دي
locmads:citationNote	■ (Cervantes Saavedra, Miguel de (Alcalá de Henares, Madrid, 1547-Madrid, 1616))
	■ port. (Migel de Servantes Saavedra)
	■ port. (Miguel de Cervantes Saavedra)
	■ port. (Miguel de Cervantes)
	■ port. (Μιγκέλ ντε Θερβάντες = Minkel nte Therbantes)
	■ port. (سرفتنس ساافدرا = Mīgīl dī Sirfantis Saafedrā)
owl:sameAs	■ http://dbpedia.org/resource/Miguel_de_Cervantes
	■ http://d-nb.info/gnd/11851993X
	■ http://libris.kb.se/resource/auth/45369
	■ http://viaf.org/viaf/17220427
	■ http://www.idref.fr/026774774
rdf:type	■ ifla-frbr:C1005



Specification

Modelling

RDF
Generation

Links
Generation

Publication

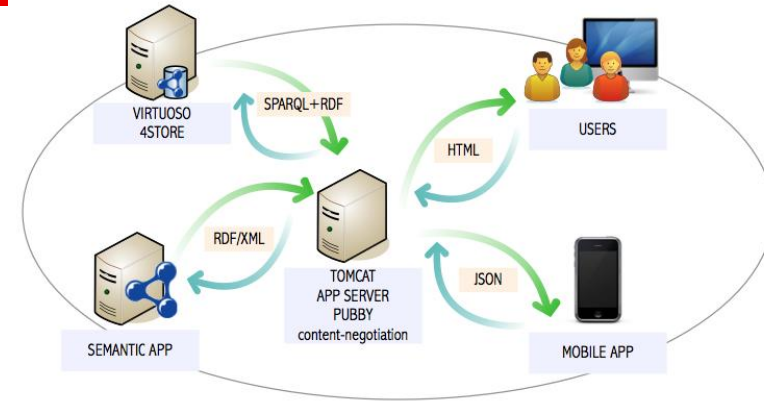
Exploitation

Data publication

Metadata publication using VOID

To facilitate the discovery

- Register in CKAN your dataset
- Use to **sitemap4rdf** to generate the site map
- Upload the site map to **Google** and **Sindice**



Specification

Modelling

RDF
Generation

Links
Generation

Publication

Exploitation

Web Interface

SPARQL queries

```
select distinct COUNT(?Obras) where {
  http://datos.bne.es/resource/XX1718747
  <http://iflastandards.info/ns/fr/frbr/frbrer/P2010>
  ?Obras
```

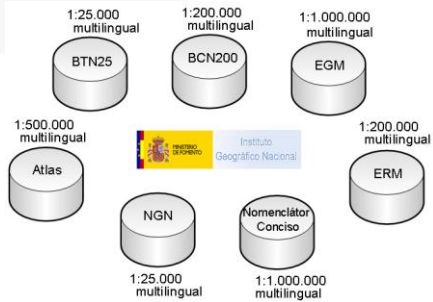
URI Cervantes

Is author

<http://linkeddata3.dia.fi.upm.es/bne-demo>

Specification

Uniform access to the Spanish Geographical Institute Databases



7 geographical DB

- Granularity
- Scale
- Multilingual

RDF Generation



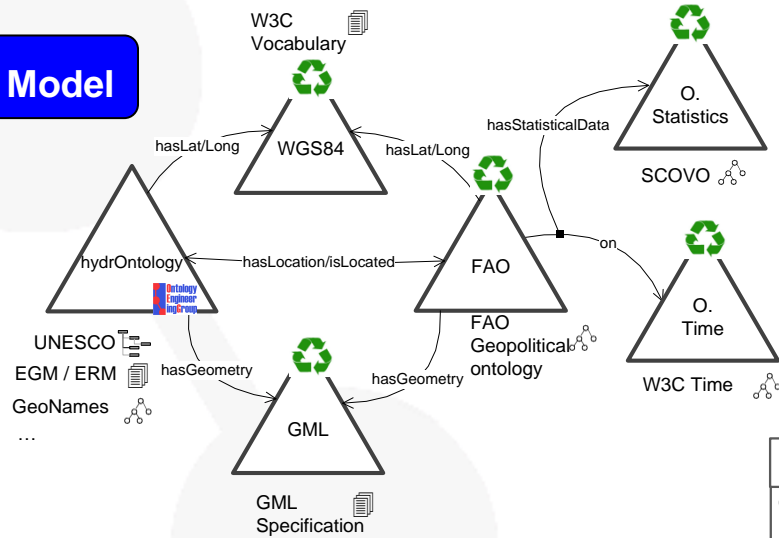
Geometry2RDF



NOR₂O





































Model



Legend	
Ontology	
Specification	
Thesaurus	



Phase	BNE	IGN	AEMET	PRISA	INE
Modeling	  DC	    	 	  SIOC	 Scovo  Data cube
RDF generation	 	   	 	  	 
Links generation	 <p> DNB VIAF LIBRIS DBPEDIA </p>	<p> Silk DBPEDIA Geonames </p>	<p> Silk Geolinkeddata.es </p>	<p> Silk DBPEDIA Geolinkeddata.es </p>	<p> NOR2O Geolinkeddata.es </p>
Publication					
Exploitation	 <p>map4rdf</p>		<p>SPARQL</p>		

1. The concept
2. Foundations
3. The process
4. **Examples**



- Libraries: <http://datos.bne.es>
- <http://linkeddata3.dia.fi.upm.es/bne-demo>
- Geo: <http://geo.linkeddata.es/>
- Meteorology: <http://aemet.linkeddata.es/>
- Travelling: <http://webenemasuno.linkeddata.es/>

<http://datos.bne.es>

- Total number of authority records: **4.100.000**
- Total number of bibliographic records: **2.390.140**
- **Total number of RDF triples: 58.053.215**
- **Links (15% authority): 587.520**
- Linked sources:
 - VIAF
 - SUDOC (Sistema Universitario de Documentación) FR
 - GND (Auth German National Library) GER
 - LIBRIS Sweden
 - DBPedia

<http://geo.linkeddata.es/>

Number of geo type phenomenon: 95 (Rivers, mountains, etc.)

Number of geo entities: 155.000

Total number of RDF triples: 21.564.199

Links: 1002 (outlinks) y 6782 (coming)

Linked sources: DBpedia y GeoNames (outlinks)
AEMET y El Viajero (entry)

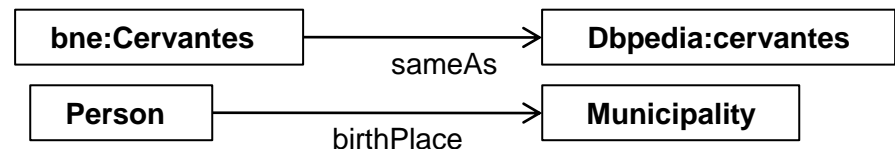
<http://webenemasuno.linkeddata.es/>

- Total number of guides: 27.876
- Total number of posts: 32.502
- Total number of locations: 6.838
- **Total number of RDF triples: 9.462.339**
- **Linked sources: 12.750**
 - DBPedia (6024 links)
 - GeoLinkedData (6726 links)



Learn about Linked Data with UPM official courses in one week

- **URI**
 - Follow existing design guidelines for new URIs
 - **Reuse existing URIs from authoritative sources**
- **Models**
 - **Reuse existing models when available**
 - Create new models from authoritative sources
 - Do not forget to align your model with existing models
- **Generation**
 - Vertical domains usually require specific tools for generation
- **Link**
 - Generic link discovery tools performs well in vertical domains
 - **Link to other data sets using**
 - Equivalence links (sameAs)
 - Typed links
- **Discovery**
 - Use sitemap4rdf to allow search engines to find your data
- Use an **iterative-incremental life cycle** in your development





Linked Data Applications: examples

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