Conditional Access and Licensing Linked Data in Construction

DAC2016 - 4th Linked Data in Architecture and Construction Workshop

Madrid, 22nd June 2016

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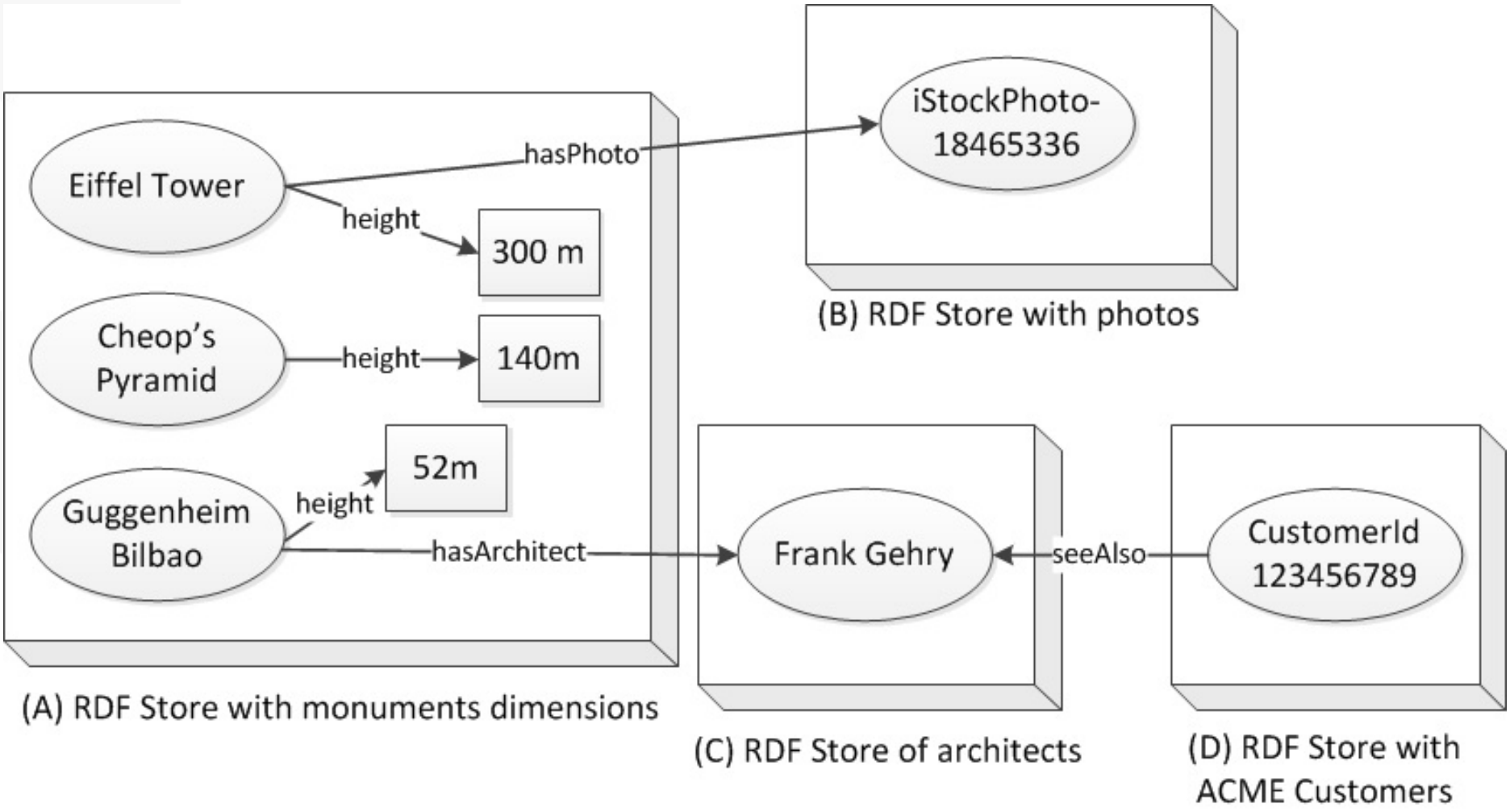
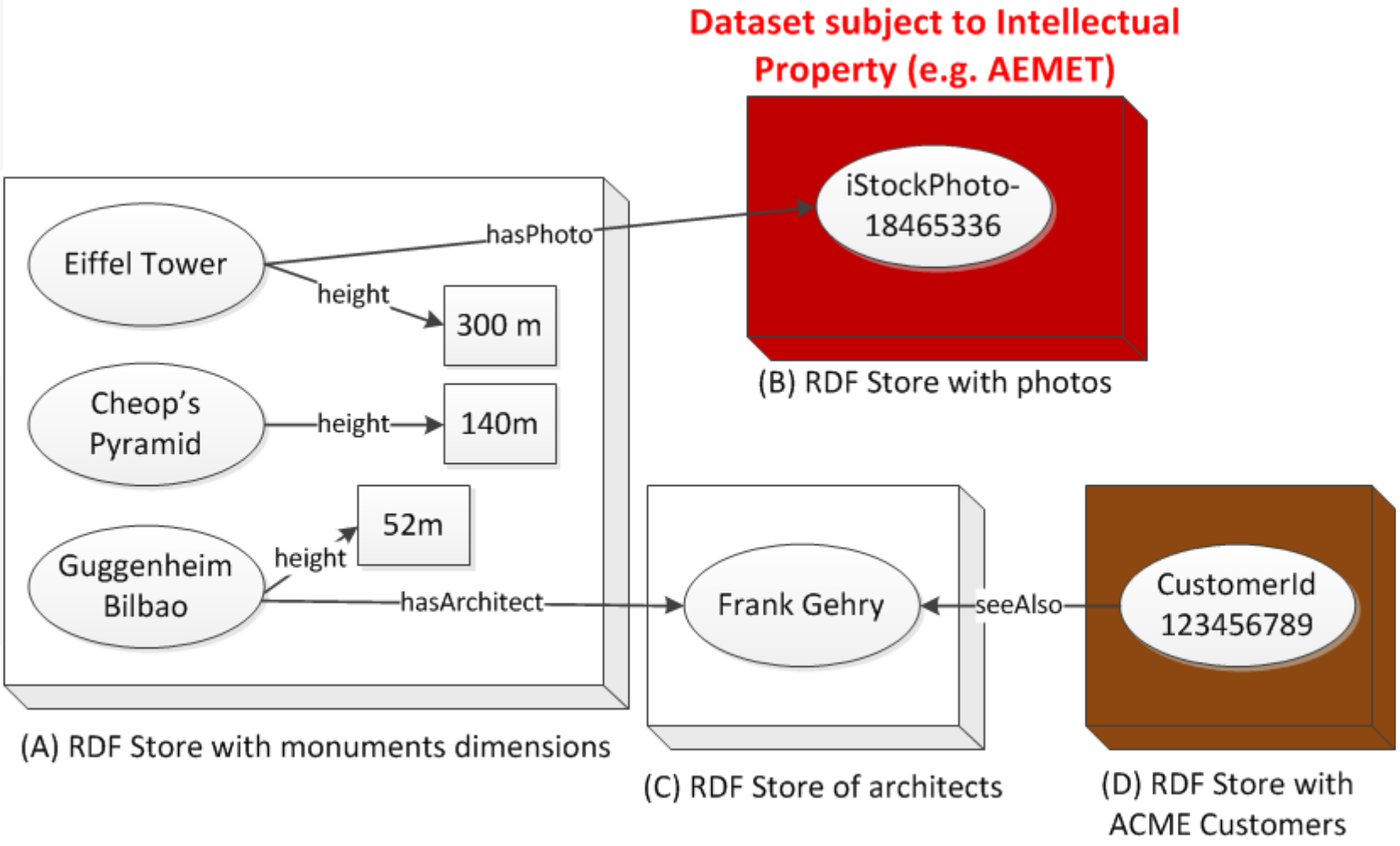
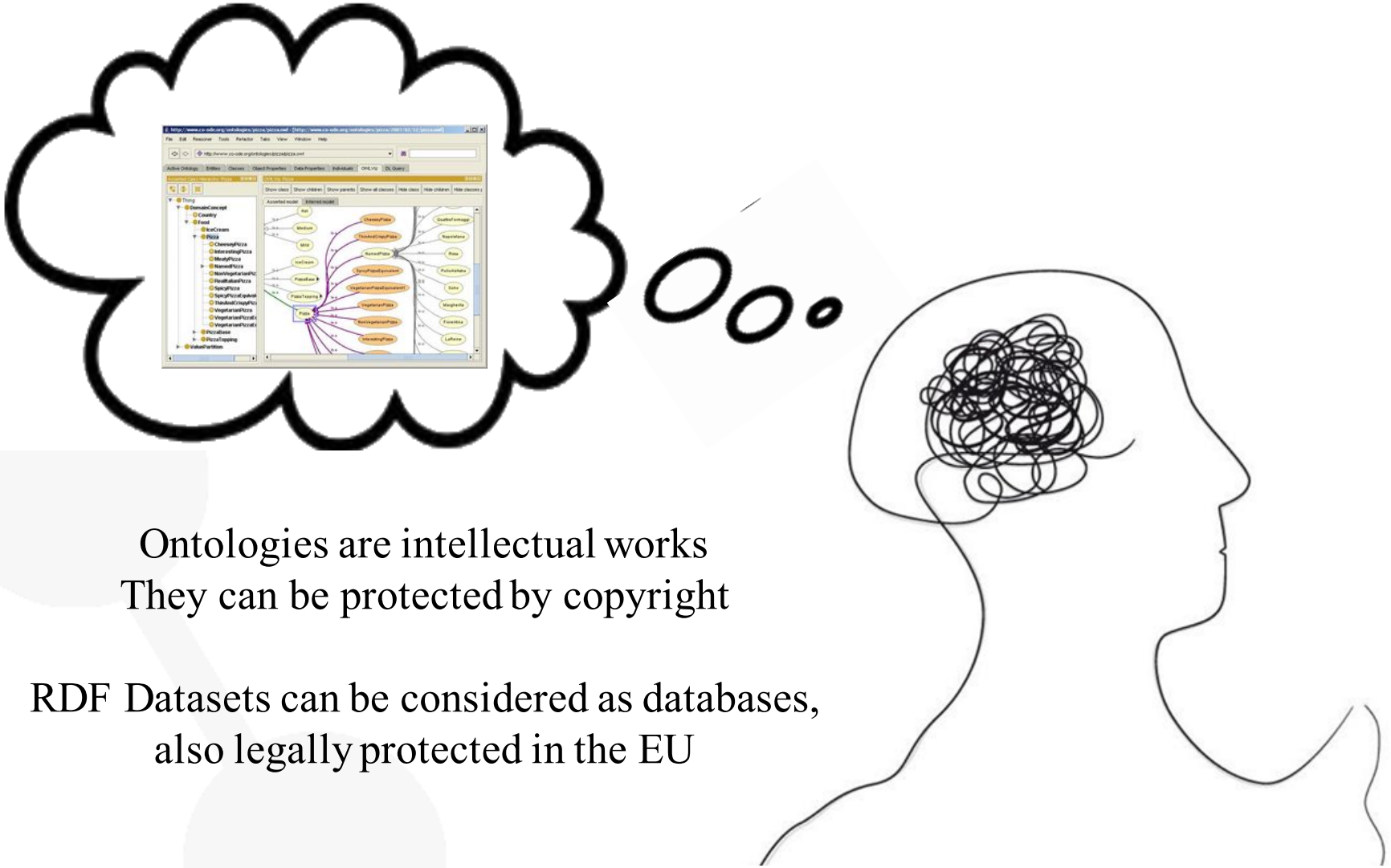
Motivating example



Motivating example



Legal Framework



Ontologies are intellectual works
They can be protected by copyright

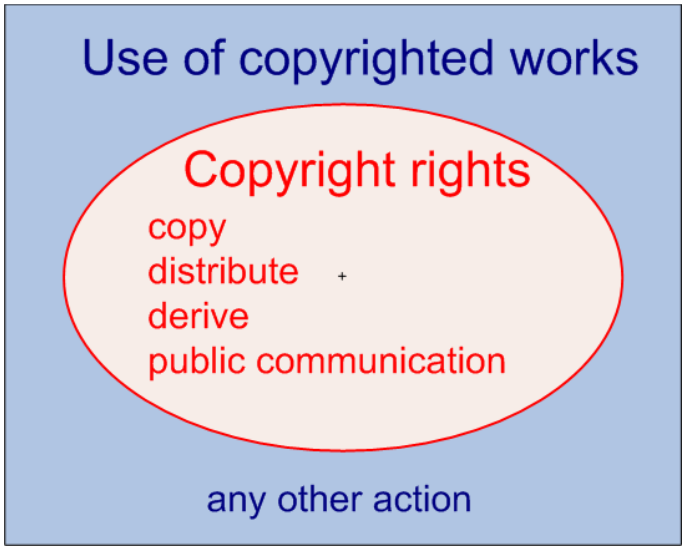
RDF Datasets can be considered as databases,
also legally protected in the EU

Legal Framework

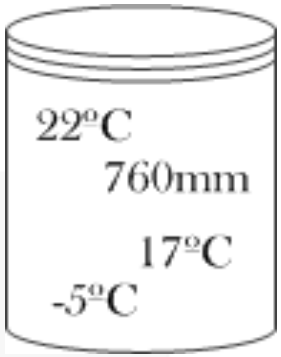
Linked Data resources can be works protected by copyright

as long as they are:

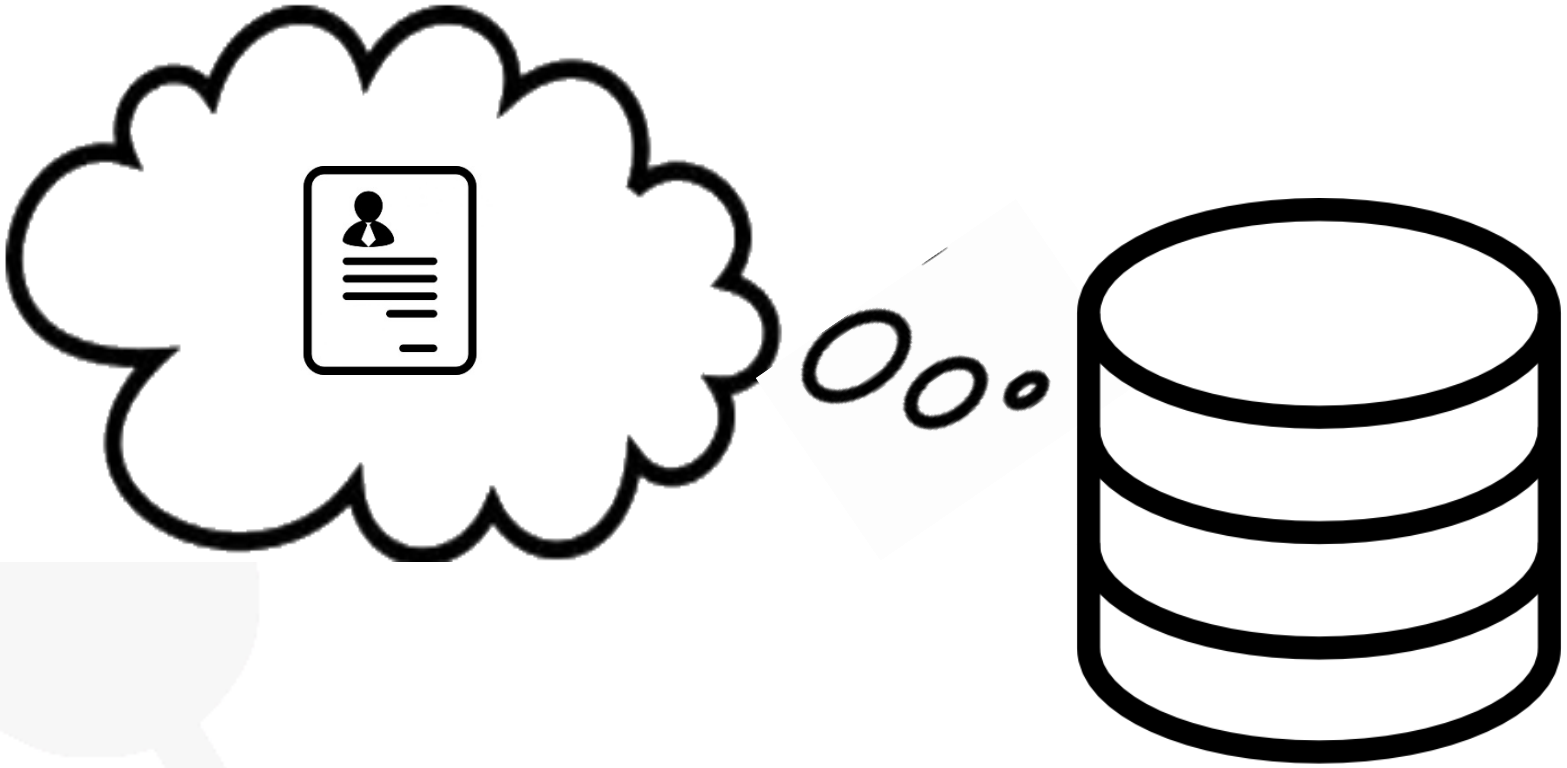
- **original** mind creations
- in a **tangible** medium
- **attributable to a person** or collective



Databases are also protected in some legal systems (Europe) as long as certain requirements are met



Legal Framework



Some RDF Datasets contain personal data
No personal data file can be kept without the data subjects' consent, a definite purpose, a limitation in time and proper security measures to grant the data subjects' rights. Demands from the data subject must be attended

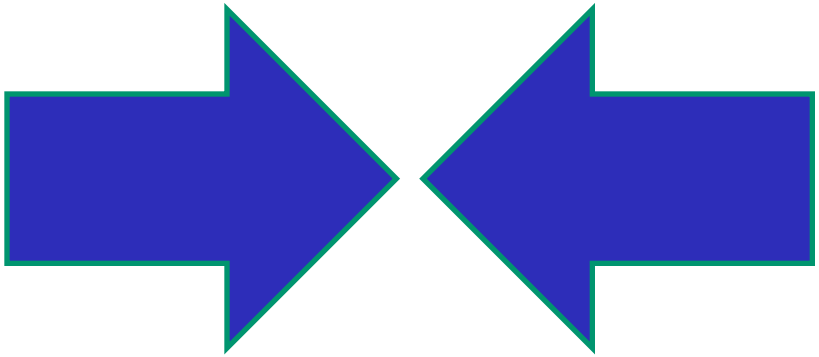
Privacy vs. Data Protection

Rights of the individuals

- to fairness when giving information
  - Obtained by fair methods, informed (with contact of the organization) with a consent with a definite purpose and for a limited time. No consent is needed by legal obligation, contract with individual, necessary to protect vital interests etc.
- to get a copy of their personal information
  - includes both computer and certain manual files
  - obligation to take appropriate security measures
- to have wrong information corrected
- to opt out of marketing - includes mail & phone
- to complain to the Data Commissioner
- to freedom from automated decision making

Objectives of Data Protection Legislation

Promoting the free flow of information



Protection of privacy as a human right

To enter into force very soon:

EU Regulation on the protection of natural persons with regard to the processing of personal data and on the free movement of such data

Legal Framework

Consuming and publishing Linked Data can be limited by a number of laws, like personal or confidential information. Access and communication can be limited.

Legal Framework

Copyright Directive	Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society
Computer Programs Directive	Directive 2009/24/EC on the legal protection of computer programs
Database Directive	Directive 1996/9/EC on the legal protection of databases
Convention 108	Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, CETS No.108, 28/01/1981
Data Protection Directive	Directive 1995/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data
General Data Protection Regulation	Regulation on the protection of natural persons with regard to the processing of personal data and on the free movement of such data
Proposal for Police and Criminal Justice Data Protection Directive	Directive on the protection of individuals with regard to the processing of personal data by competent authorities for the purposes of prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and the free movement of such data and repealing
Public Sector Information Directive	Directive 2003/98/EC on the re-use of public sector information
Conditional Access Directive	Directive 98/84/EC on the legal protection of services based on, or consisting of, conditional access

V. Rodríguez-Doncel, C. Santos, P. Casanovas, A. Gómez-Pérez. **Legal Aspects of Linked Data**, Computer Law & Security Review, ISSN: 0267-3649, Springer. (to appear)

Legal Framework

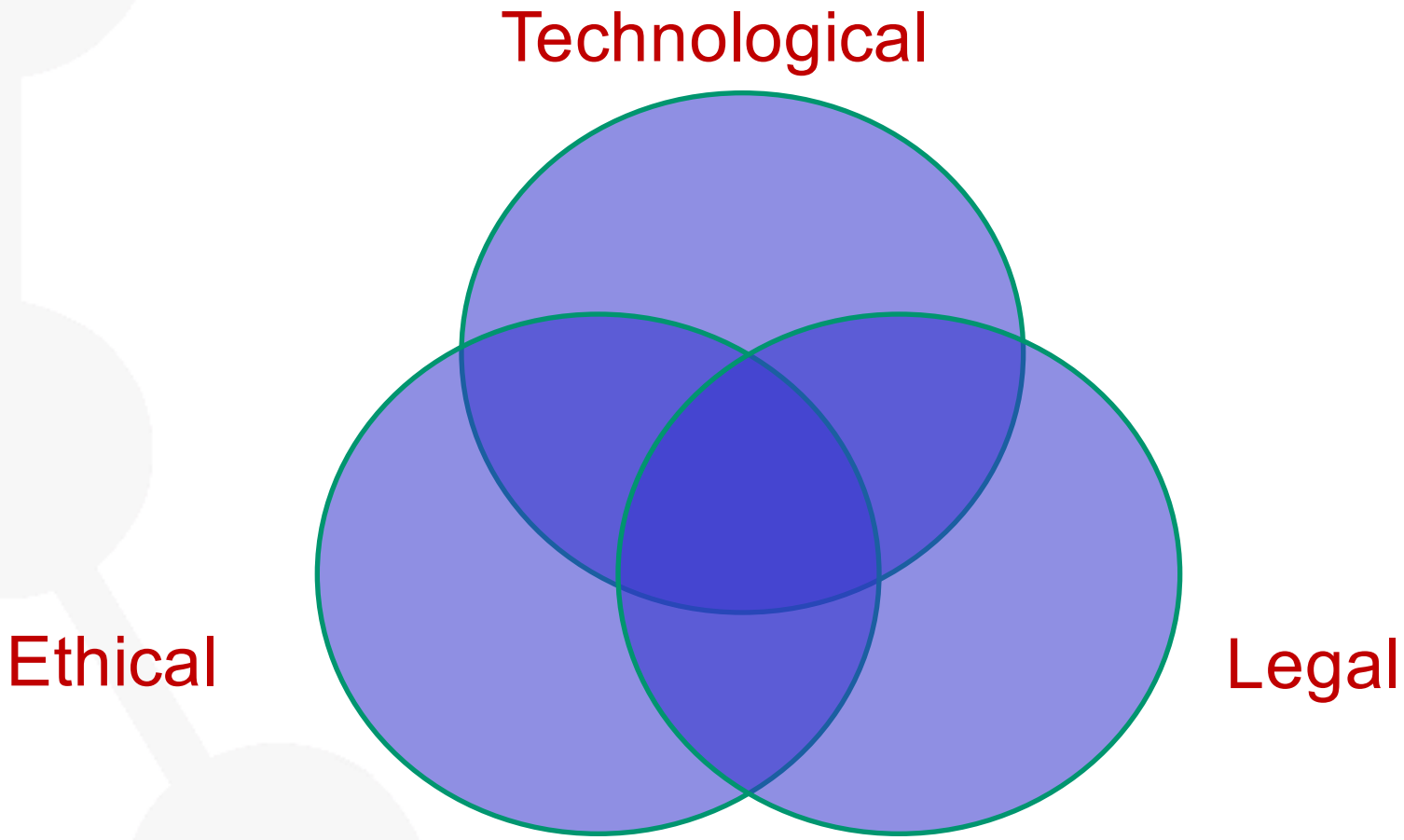
Examples of actions that are limited

- Copy and distribute physical copies of an ontology
- Publish an ontology or dataset in a server
- Integrate the ontology in a local computer to power an application
- Translate (and publish) a dataset
- Copy a database to a local server to power an application (Europe)
- Integrating and editing a database to build another one (Europe)
- Storing a dataset with personal data in a non-secured computer

Legal Framework

It is not always possible to use and publish other's data

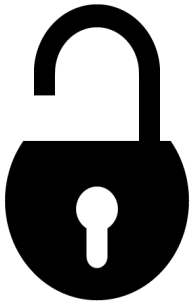
Not only a legal problem



How to protect your valuable data

Legal measures

Technical measures



How to protect your valuable data

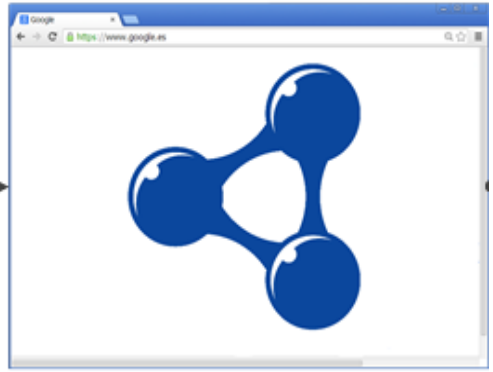
Legal measures: register and license

- Licenses for **general works** (e.g. Creative Commons)
- Licenses for **documentation** (e.g. GNU Free Documentation License)
- Licenses for **software** (e.g. Apache)
- Licenses for **data** (e.g. Open Data Commons)

Technological protection measures:

- Code obfuscation
- Expiration date encoded.
- Hardware dongle required.
- Copy-protection schemes.
- “Activation” features.
- Encryption schemes; digital-rights management (DRM)
- **Access control**

How to protect your valuable data



Licenses

Publishing licensed Linked Data

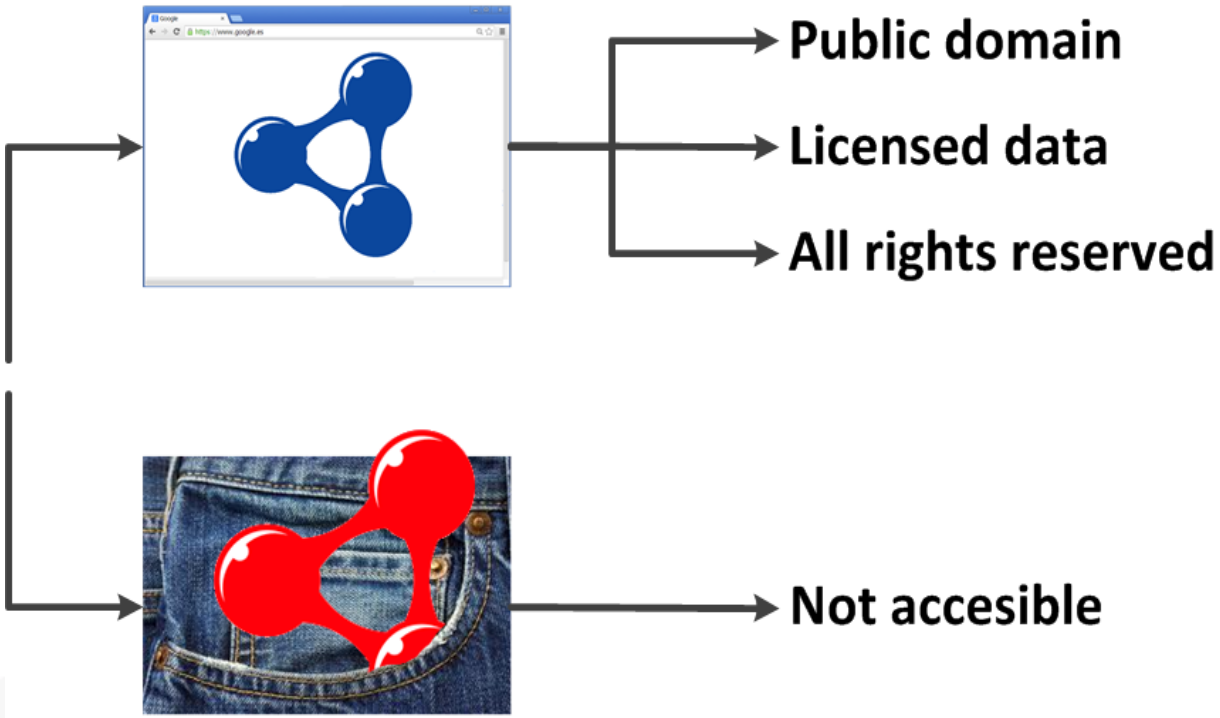
Licenses grant the right to execute certain actions subject to certain condtions

Policies

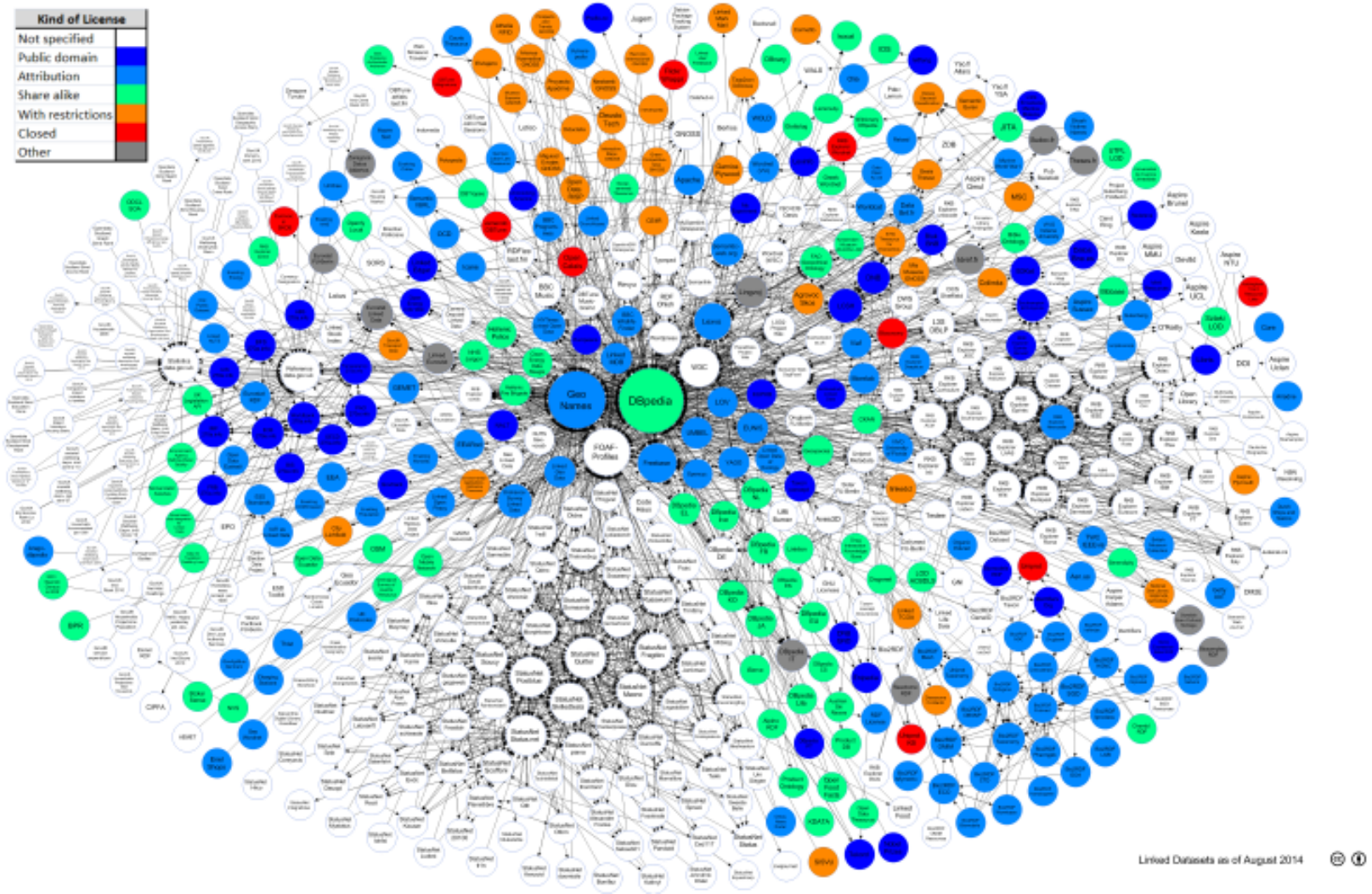
Conditional access to Linked Data

Linked Data can be conditionally served based on policies

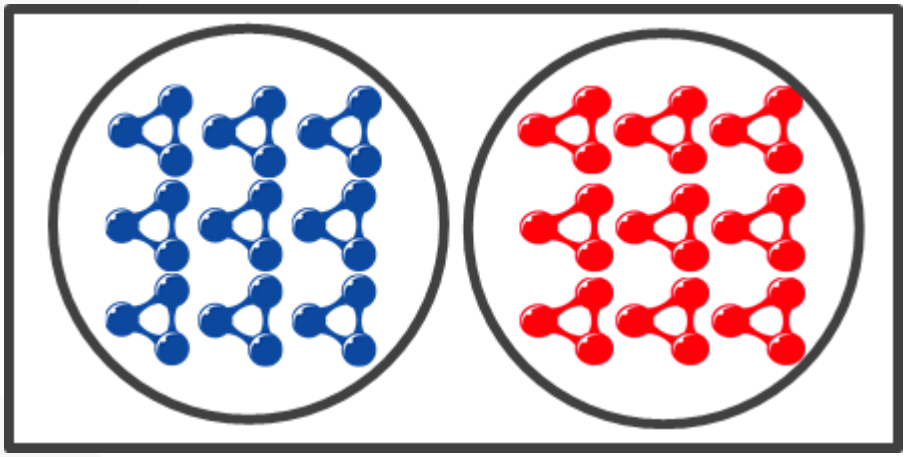
Kind of licensed works



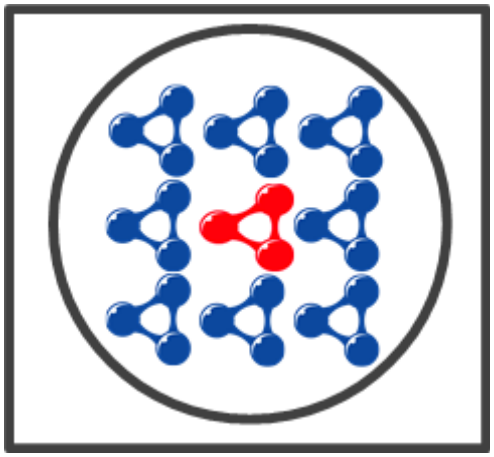
Linked Open Data and Linked Data



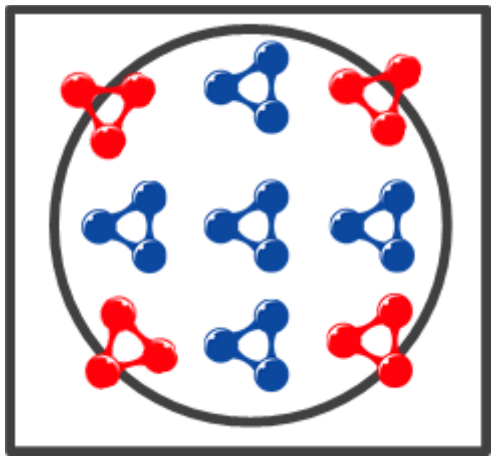
Granularity levels



Dataset level



Triple level



Mappings level

Legal measures: declaring license within the data items

http://sws.geonames.org/3996063/about.rdf

```
<gn:alternateName  xml:lang="zh">墨西哥</gn:alternateName>
<gn:featureClass rdf:resource="http://www.geonames.org/ontology#A"/>
<gn:countryCode>MX</gn:countryCode>
<gn:population>112468855</gn:population>
<wgs84_pos:lat>23</wgs84_pos:lat>
<wgs84_pos:long>-102</wgs84_pos:long>
<gn:parentFeature rdf:resource="http://sws.geonames.org/6255149/"/>
<gn:childrenFeatures rdf:resource="http://sws.geonames.org/3996063/contains.rdf"/>
<gn:neighbouringFeatures rdf:resource="http://sws.geonames.org/3996063/neighbours.rdf"
<gn:locationMap rdf:resource="http://www.geonames.org/3996063/mexico.html"/>
<gn:wikipediaArticle rdf:resource="http://en.wikipedia.org/wiki/Mexico"/>
<foaf:Document rdf:about="http://sws.geonames.org/3996063/about.rdf">
  <foaf:primaryTopic rdf:resource="http://sws.geonames.org/3996063/"/>
  <cc:license rdf:resource="http://creativecommons.org/licenses/by/3.0/"/>
  <cc:attributionURL rdf:resource="http://sws.geonames.org/3996063/"/>
  <cc:attributionName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">GeoNames<
  <dcterms:created rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2006-01-15</dc
  <dcterms:modified rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2014-10-17</d
</foaf:Document>
</rdf:RDF>
```

Legal measures: declaring the license in the dataset metadata

The British National Bibliography (BNB) lists the books and new journal titles published or distributed in the United Kingdom and Ireland since 1950.

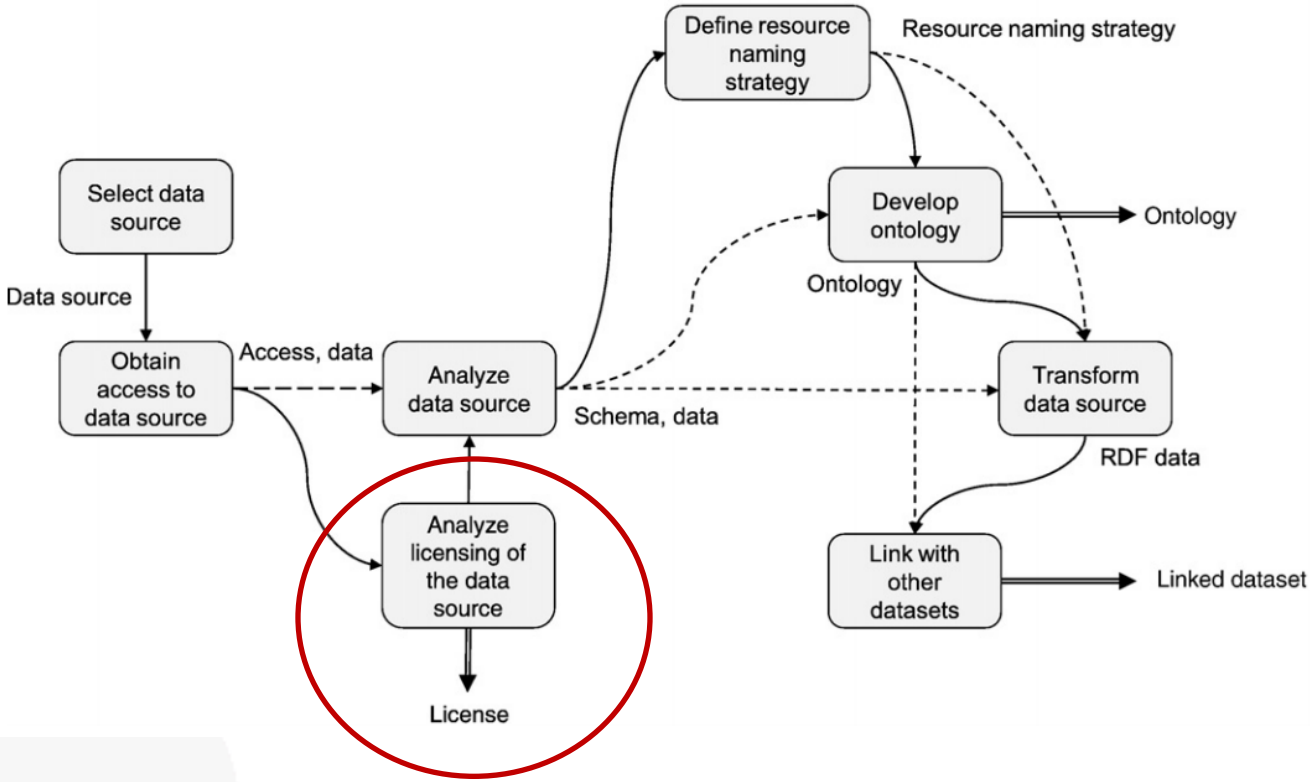
```
<http://bnb.data.bl.uk/id/data/BNB> a void:Dataset ;
    dct:license <http://creativecommons.org/publicdomain/zero/1.0> ;
```

Licensed Linked Data resources as building blocks

In production settings, reusing without legal warranties is unacceptable. A resource that is not open cannot be republished, modified, used in a public application or anything else beyond private use.

Best practices to generate linked data

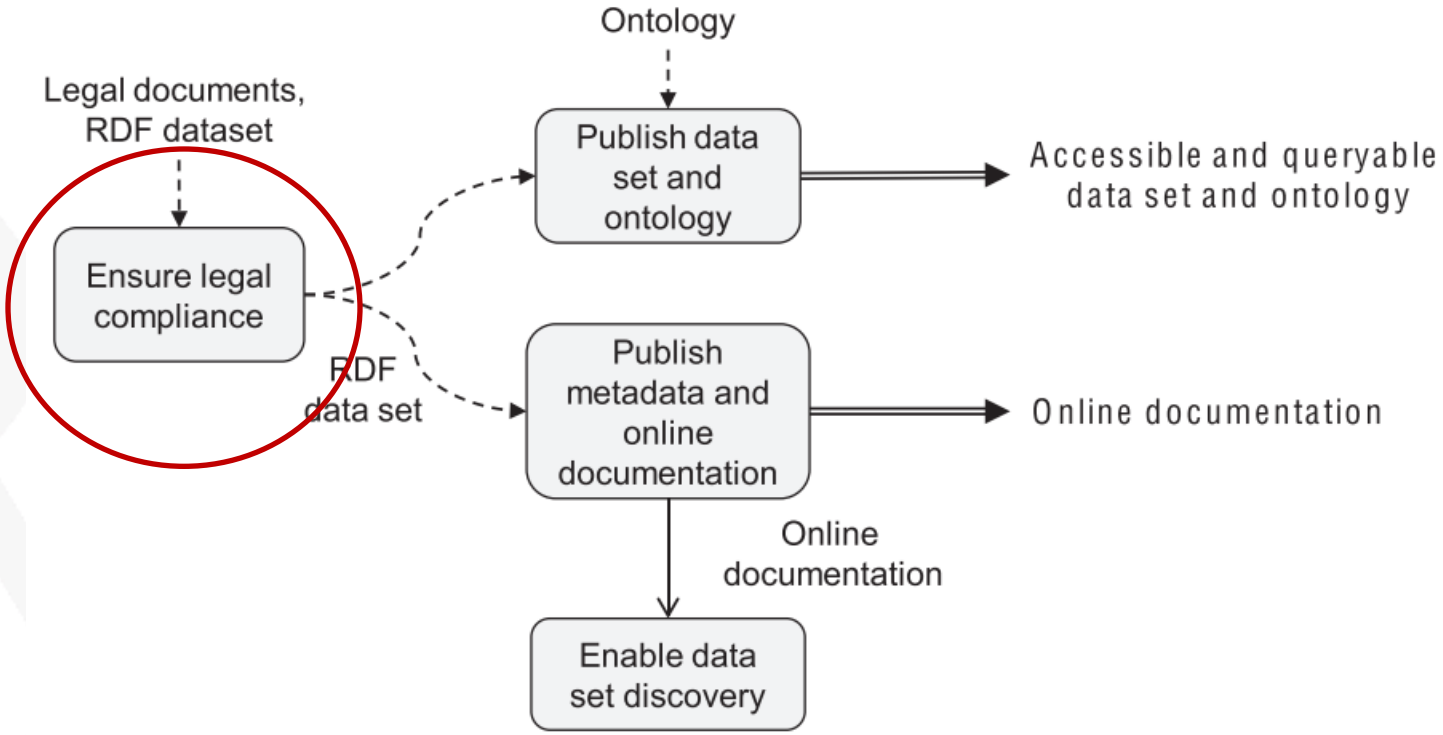
F. Radulovic, M. Poveda-Villalon, D. Vila-Suero, V. Rodriguez-Doncel, R. Garcia Castro, A. Gomez-Perez. **Guidelines for Linked Data Generation and Publication: an Example in Building Energy Consumption**. Automation in Construction, ISSN: 0926-5805, Vol. 57, pp. 178–187, September 2015



Tasks of the Linked Data generation process

Best practices to publish linked data

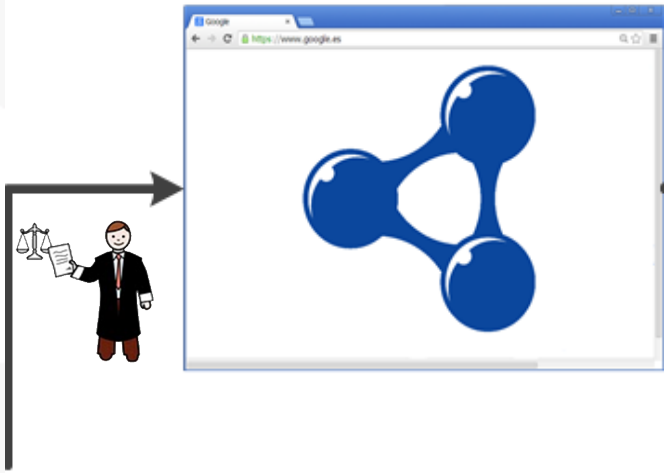
F. Radulovic, M. Poveda-Villalon, D. Vila-Suero, V. Rodriguez-Doncel, R. Garcia Castro, A. Gomez-Perez. **Guidelines for Linked Data Generation and Publication: an Example in Building Energy Consumption**. Automation in Construction, ISSN: 0926-5805, Vol. 57, pp. 178–187, September 2015



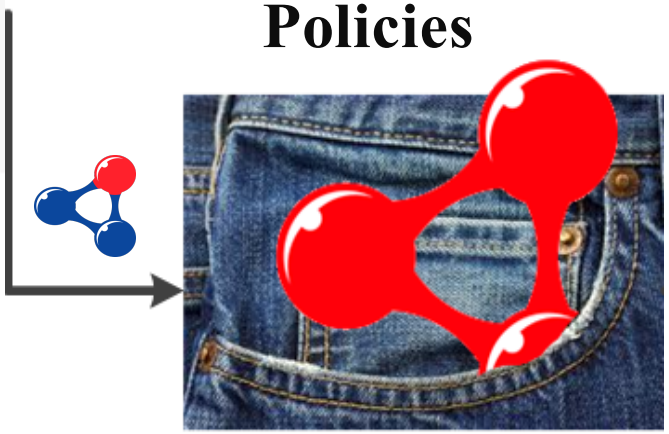
Tasks of the Linked Data publication process

How to protect your valuable data

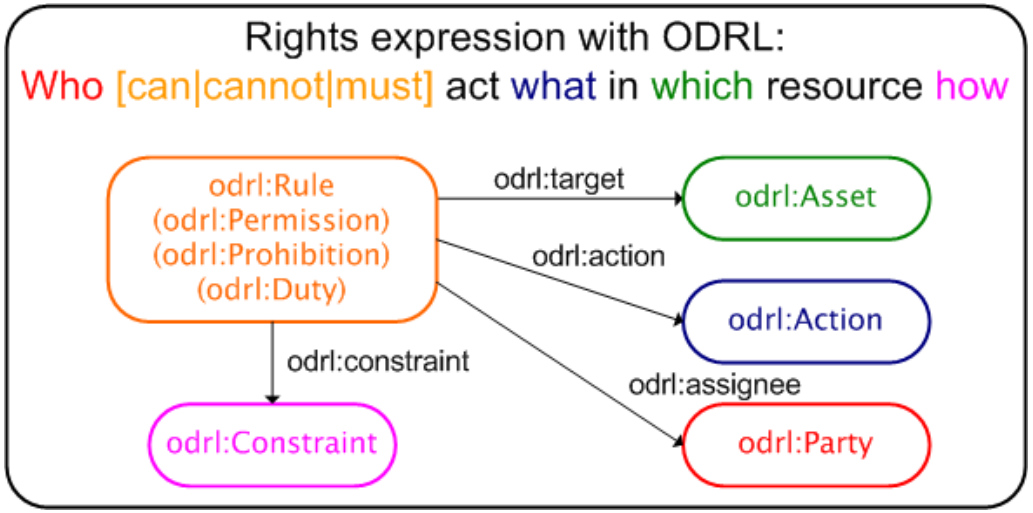
Licenses



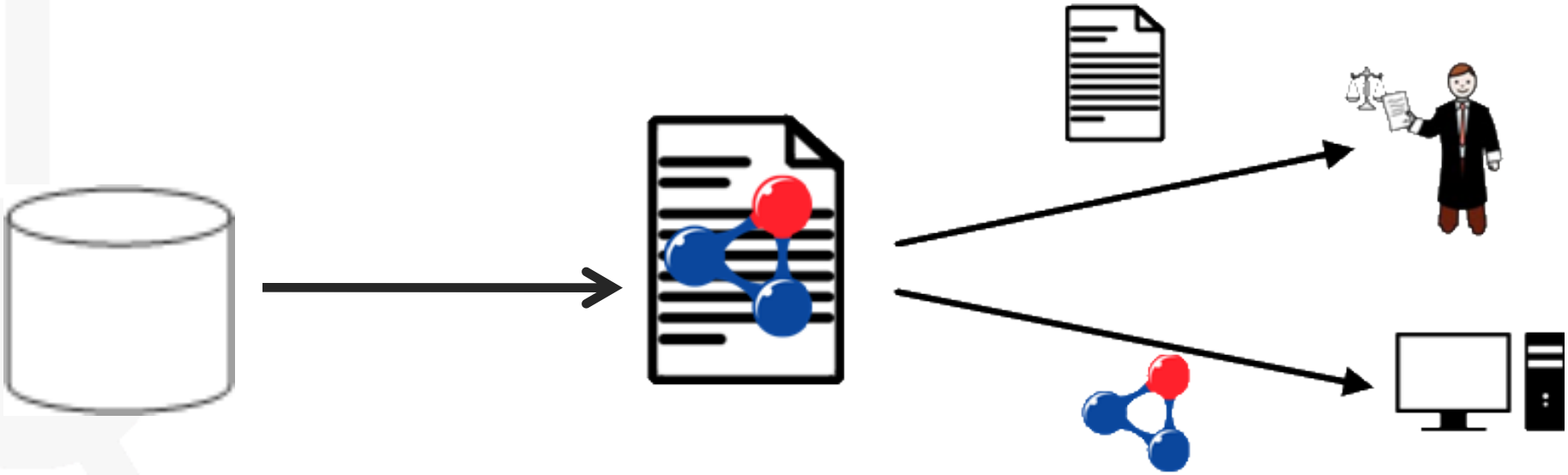
Policies



Both licenses and policies can be expressed in a digital form with a policy language like ODRL (Open Digital Rights Language)

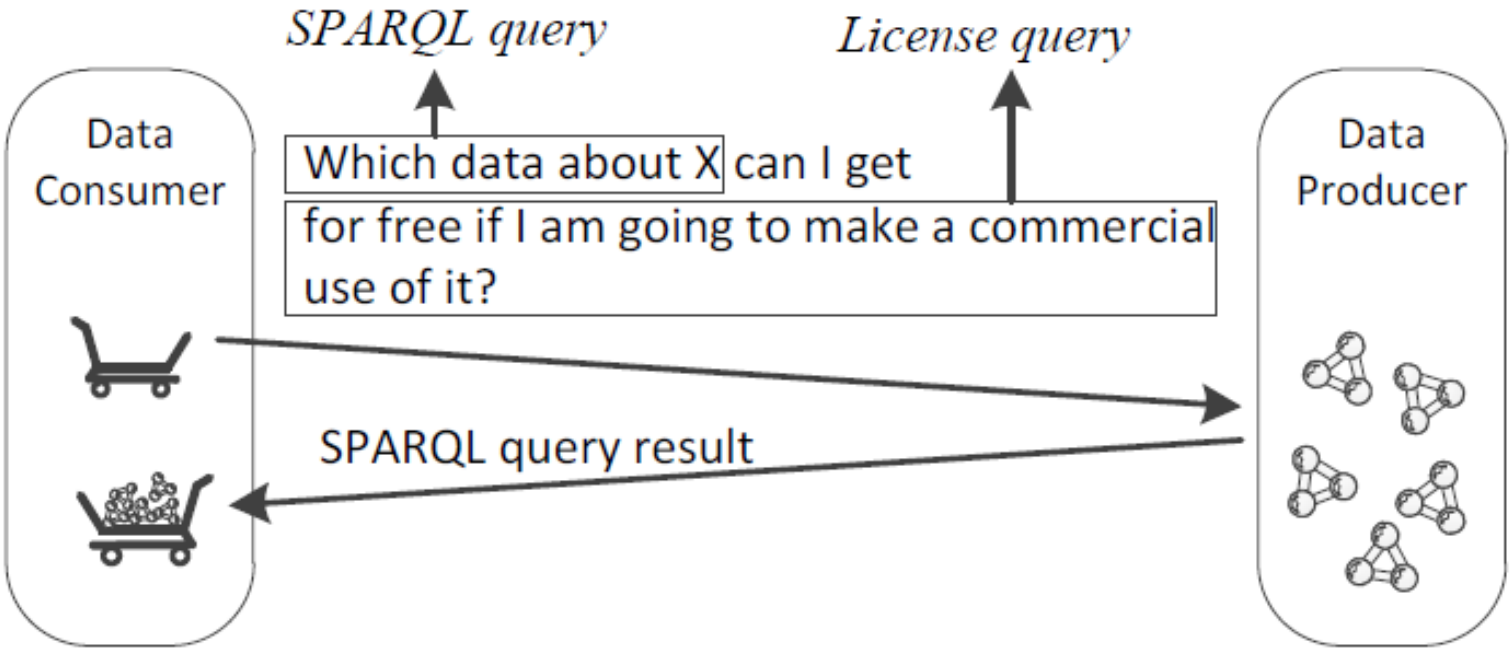


Linked Licensed Data

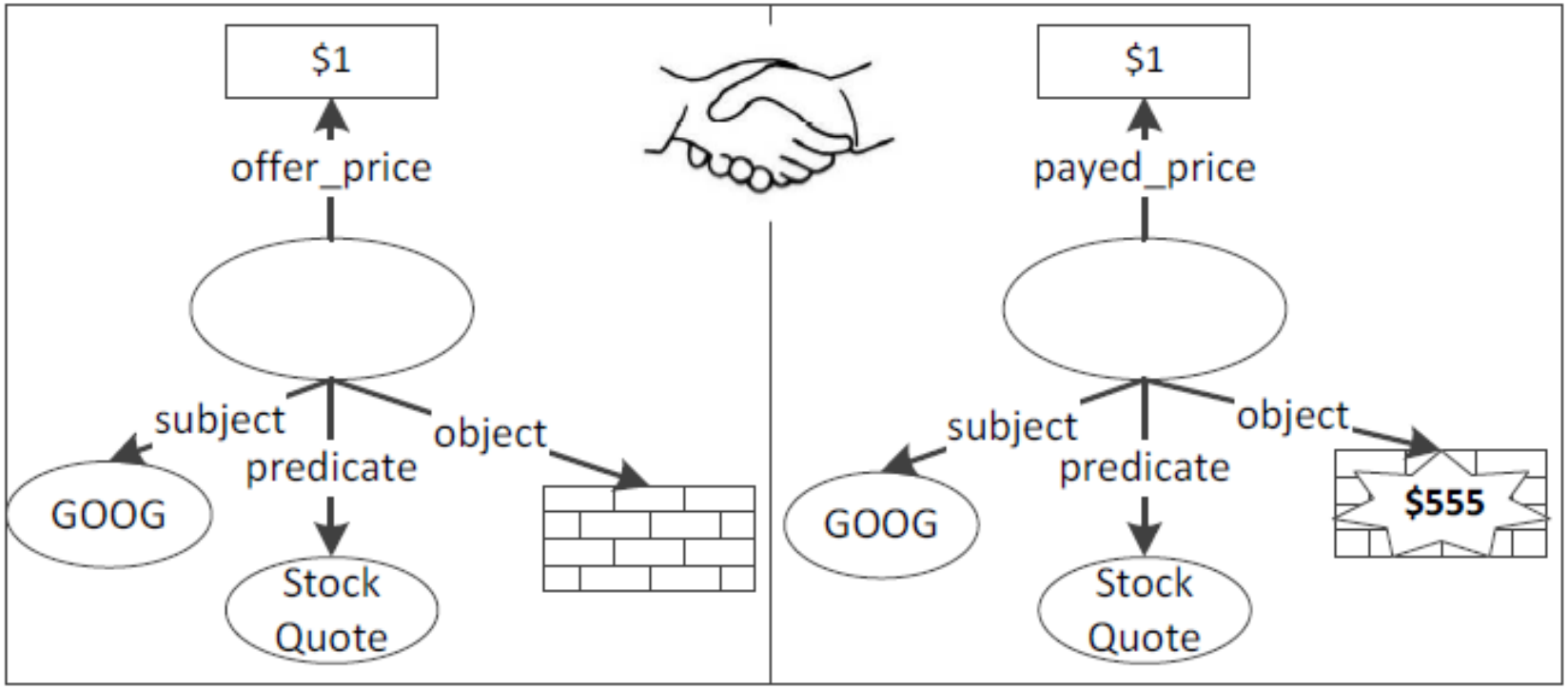


V. Rodríguez-Doncel, S. Villata, A. Gómez-Pérez, **A Dataset of RDF Licenses**, in Proc. of the 27th Int. Conf. on Legal Knowledge and Information System R. Hoekstra (Ed.), ISBN 978-1-61499-467-1, pp. 187-189, IOS Press, (2014)

How can I know what I am retrieving in a query?



Offer of Linked Data for sale



An example of policy

META-SHARE NonCommercial NoRedistribution NoDerivatives For-a-Fee Licence

```
@prefix rdf:   <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs:  <http://www.w3.org/2000/01/rdf-schema#> .
@prefix odrl:  <http://www.w3.org/ns/odrl/2/> .

<http://example.com/nc-nored-nd-ff> a odrl:Policy ;
    rdfs:label       "NC-NoReD-ND-FF" ;
    rdfs:comment     "MetaShare NonCommercial, No Redistribution, No Derivatives, for a fee.
                      Perpetual, worldwide, allowing no redistribution of the original. "@en ;
    rdfs:seeAlso     <http://www.meta-net.eu/meta-share....pdf> ;
    odrl:permission  [ a            odrl:Permission ;
                       odrl:action  odrl:reproduce;
                       odrl:duty    [ a            odrl:Duty ;
                                      odrl:action  odrl:pay ;
                                      odrl:target  "XXX EUR"
                                    ]
                     ] ;
    odrl:prohibition [ a            odrl:Prohibition ;
                       odrl:action odrl:commercialize, odrl:distribute, odrl:derive
                     ] .
```

Sell the rights of a triple

Selling **data** is not the same as selling the intellectual property **rights on data**

You may...	If you...
use the data in your application	pay $100
distribute printed copies	pay the 10% of revenues

Policy Based, Conditional Access to Linked Data

Conditional access to Linked Data

Resource info

Demo data

- What is this?
- Introduction
- Technical details
- User's view (demo)
- Browse dataset
- Offers
- Admin's view (demo)
- Control panel
- Accountability

Barcelona (Provincia)

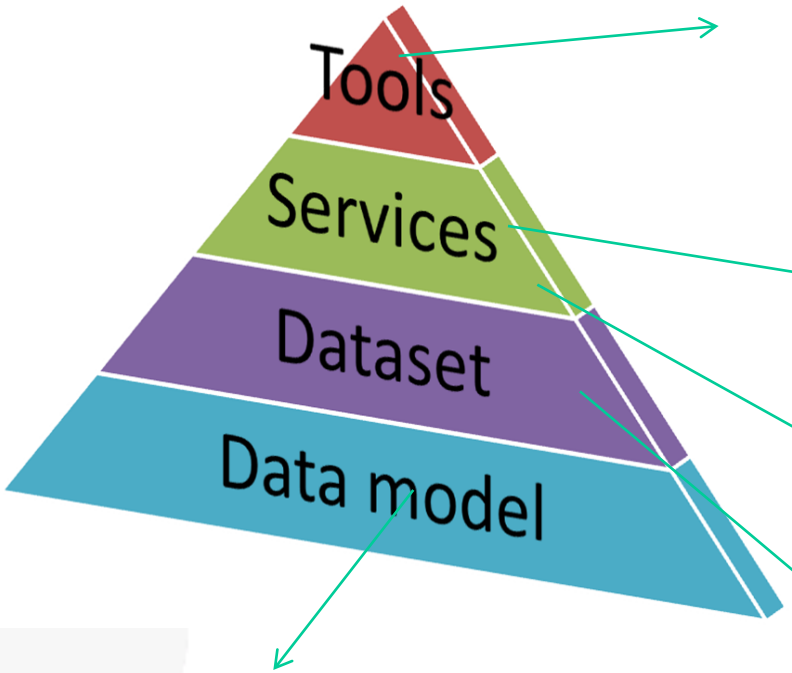
Open triples

Property	Value
type	Provincia
tieneCapital	Barcelona
formaParteDe	Cataluña
label	Barcelona
formadoPor	Barcelona

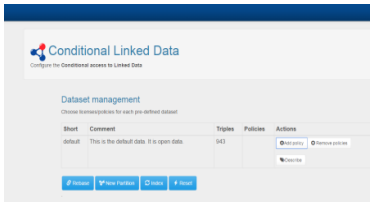
Limited access triples

Property	Value
geometry	Limited access (Offer)
exactMatch	Limited access (Offer --- Per RDF Statement)
exactMatch	Limited access (Offer)

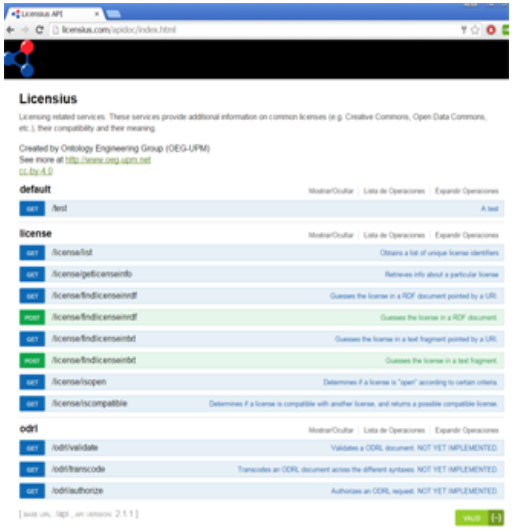
Support for licensing with semantic technologies at OEG-UPM



Conditional Access to Linked Data
Conditional Linked Data Server
http://conditional.linkeddata.es

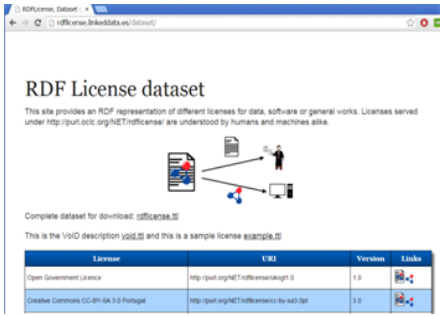


Licensius
license related services
http://licensius.com

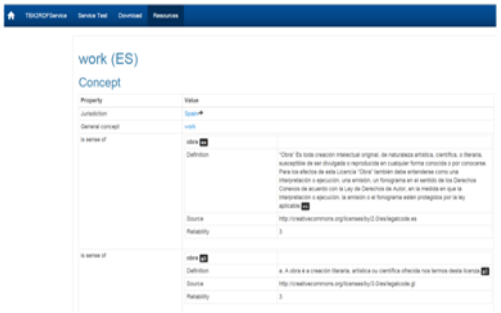


Linked Data Rights
ODRL Profile for Linked Data
http://purl.oclc.org/NET/ldr/ns#

RDF License
Dataset of licenses in RDF
http://rdflicense.linkeddata.es/



Terminology of copyright-related concepts
http://copyrighttermbank.linkeddata.es/



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