

Jiaoyan Chen

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# LINKED DATA

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## A GLOBAL DISTRIBUTED DATASPACE

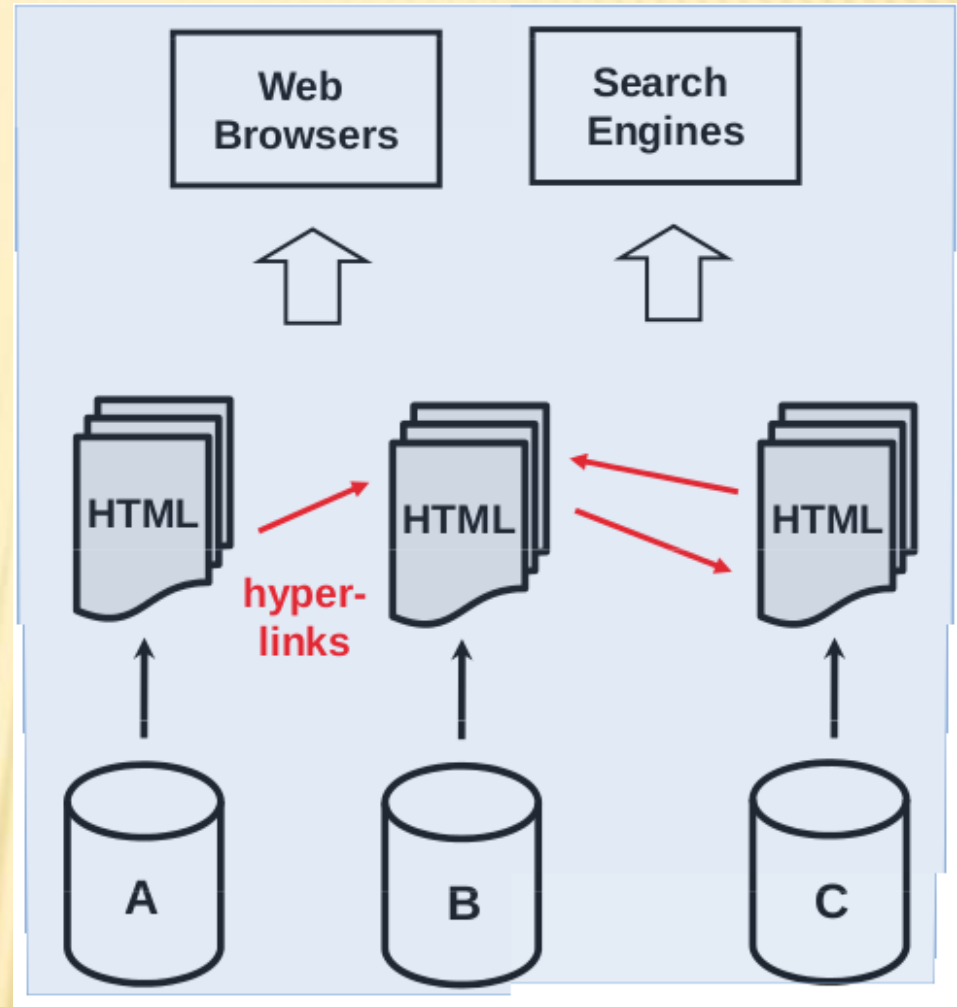
# CONTENT

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- ✕ From a Web of Document to a Web of Data
- ✕ What is Linked Data
- ✕ How to Consume Linked Data
- ✕ Applications
- ✕ What we can contribute and utilize

## Single Global Information Space

1. URLs as
  - Globally unique IDs
  - Retrieval mechanism
2. HTML as shared content format
3. Hyperlinks



## THE CLASSIC WEB

# PROBLEM AND SOLUTION

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## × Problem

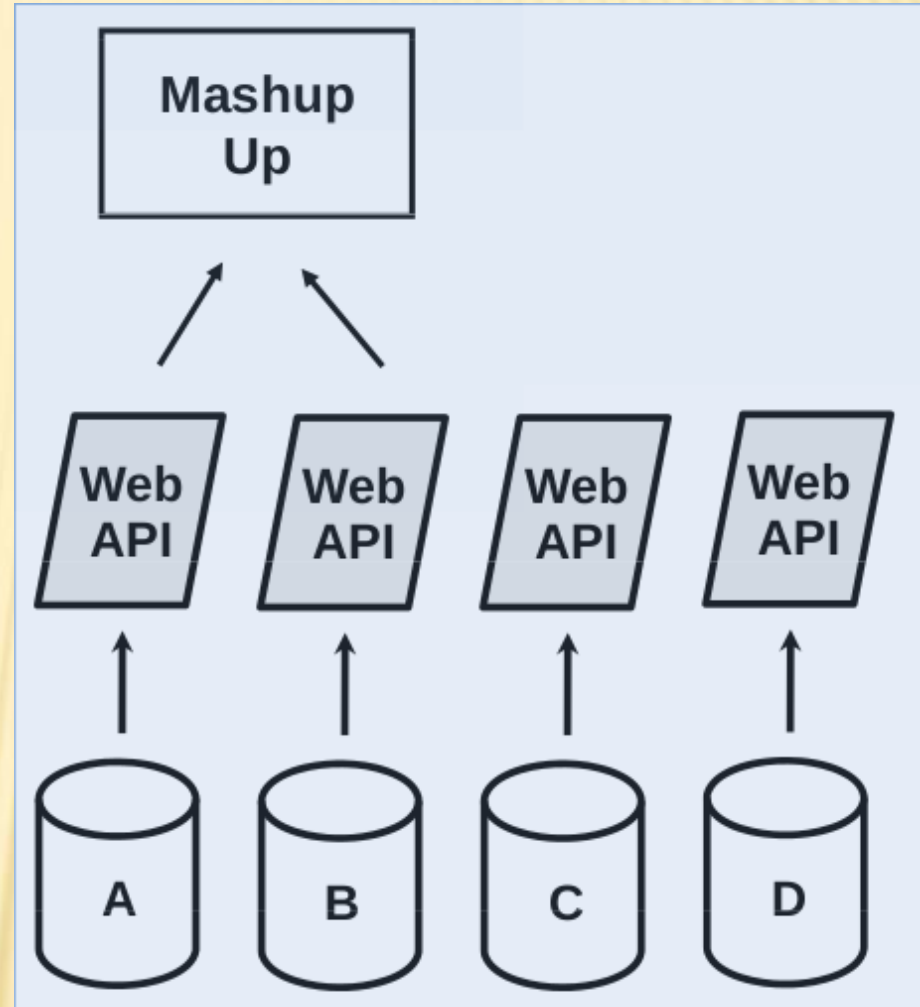
+ As Web content is only loosely structured it is difficult for applications to do smart things with it

## × Solution

+ Increase the structure of Web content

## Shortcomings

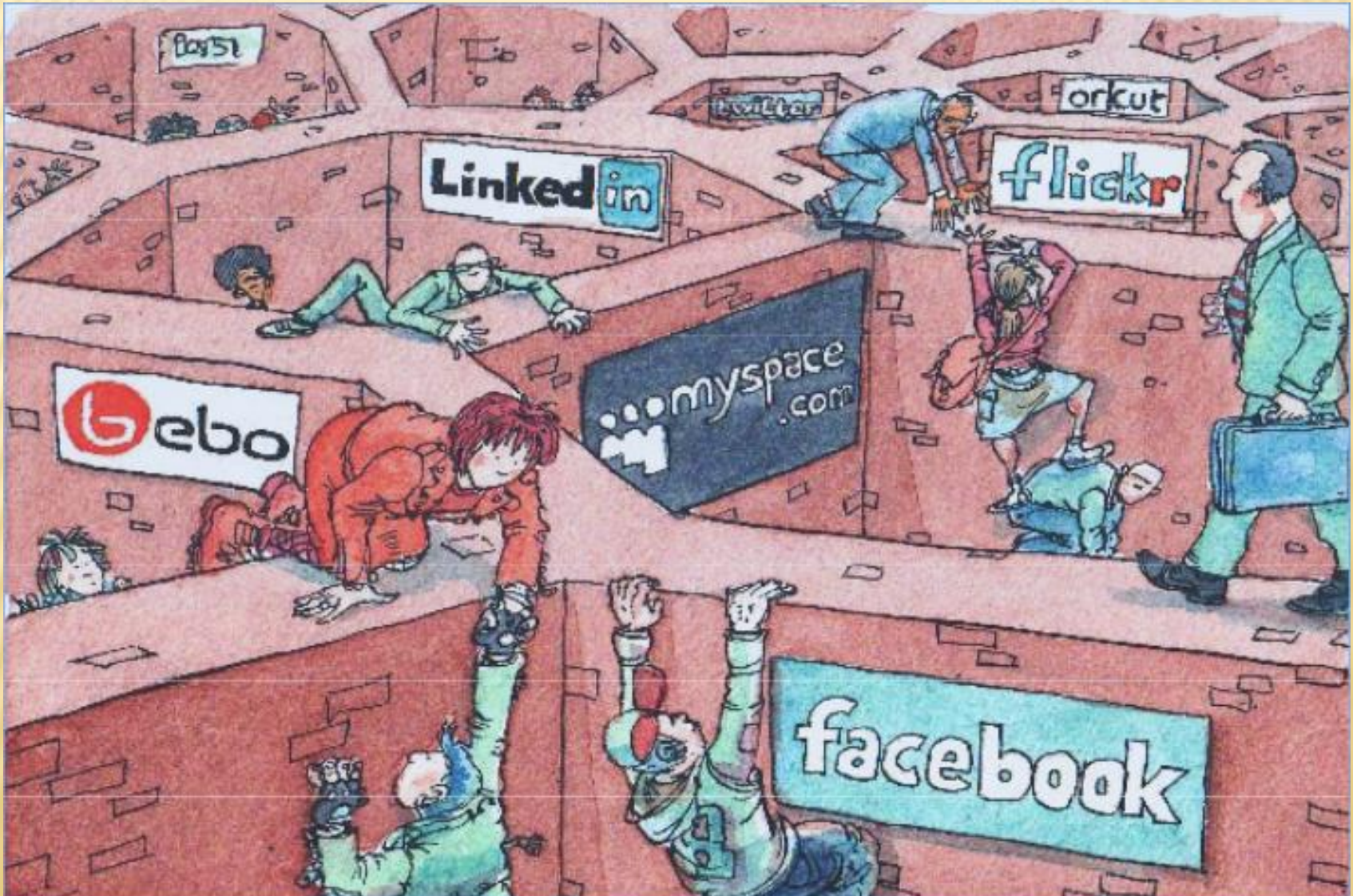
1. APIs provide proprietary interfaces
2. Mashups are based on a fixed set of data sources
3. You can not set hyperlinks between data objects



## WEB APIS AND MASHUPS

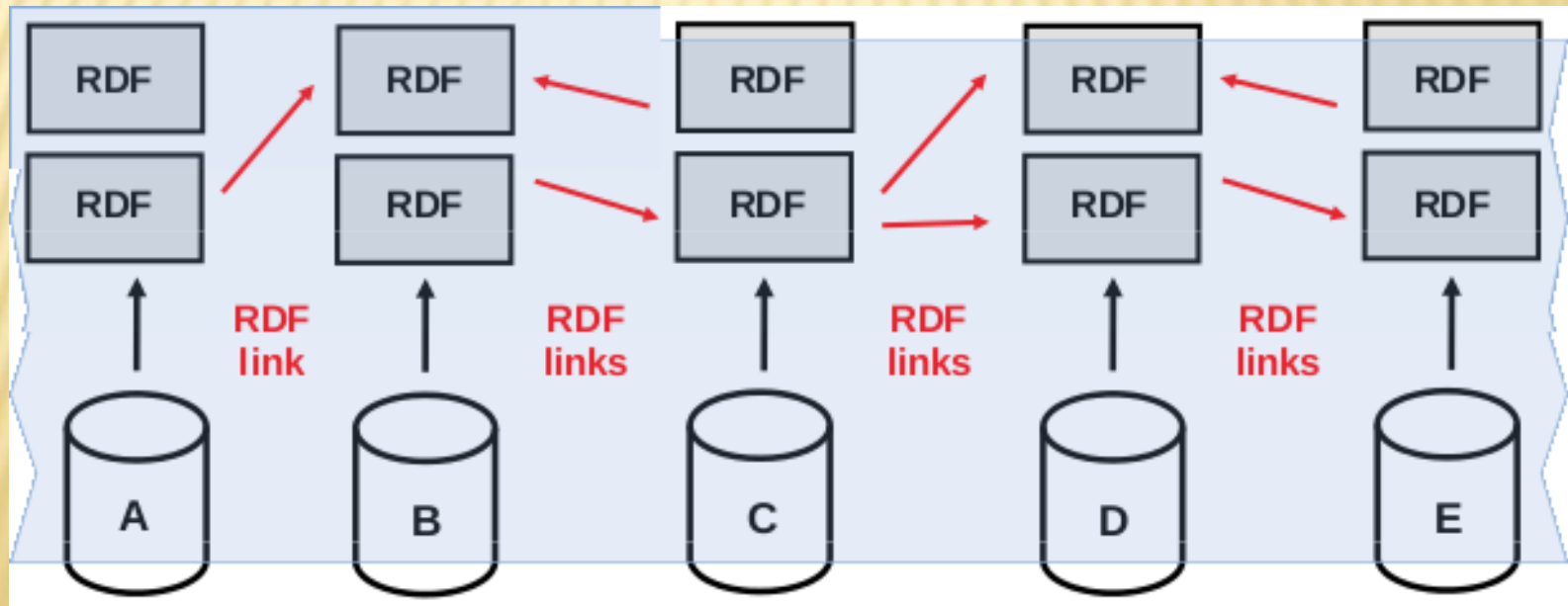


# WEB APIS SLICE THE WEB INTO WALLED GARDENS



# WHAT IS LINKED DATA

- ✗ Use Semantic Web technologies to
  - + publish structured data on the Web,
  - + set links between data from one data source to data within other data sources.





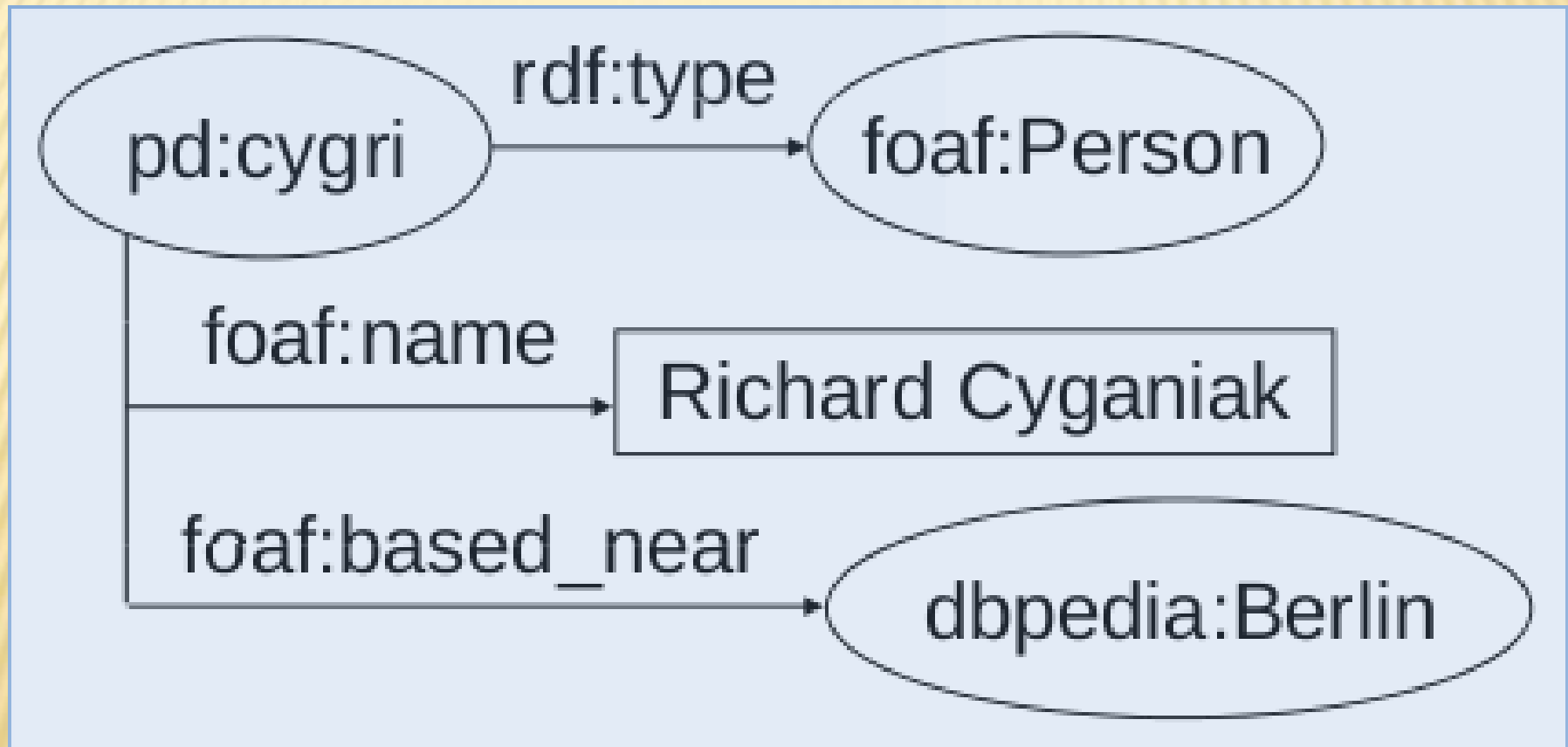
# LINKED DATA PRINCIPLES

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1. Use URIs as names for things
2. Use HTTP URIs so that people can look up those names
3. When someone looks up a URI, provide useful RDF URI information
4. Include RDF statements that link to other URIs so that they can discover related things

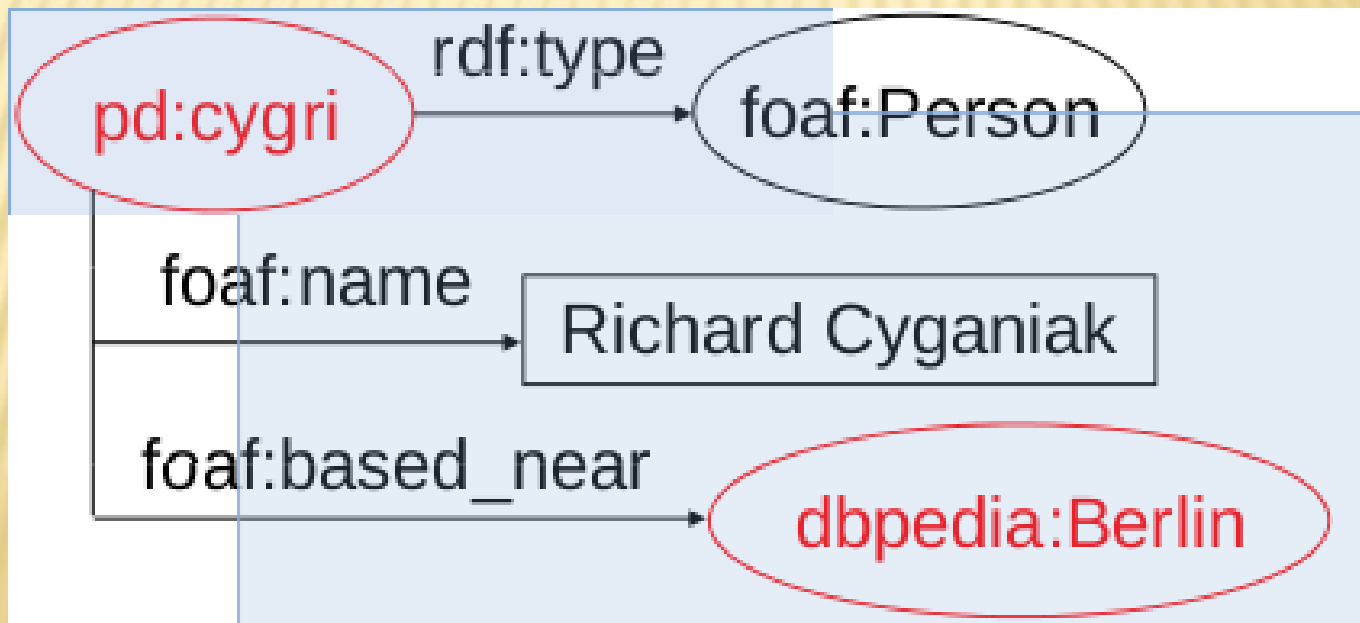


# THE RDF DATA MODEL

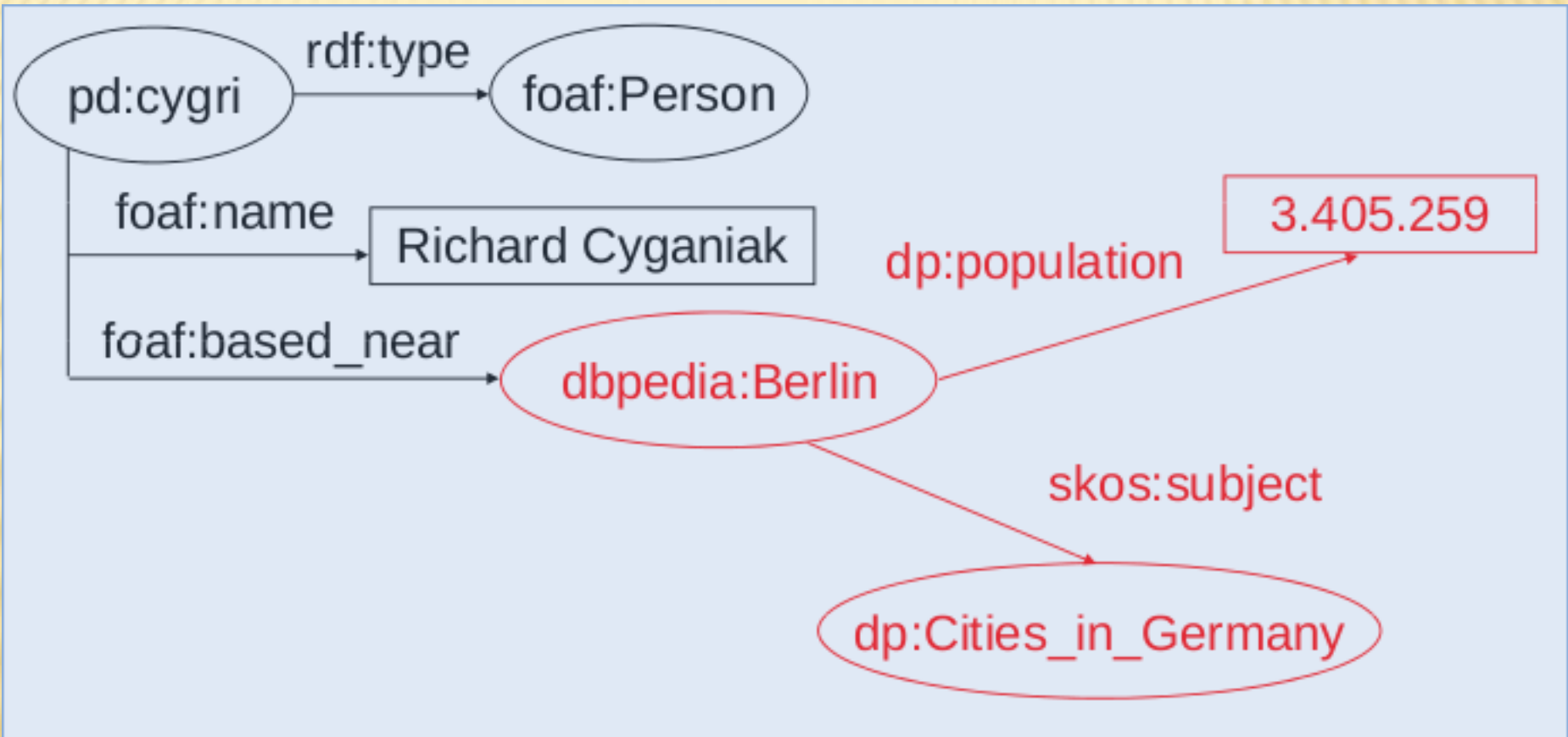


# DATA ITEMS ARE IDENTIFIED WITH HTTP URIS

- ✗ `pd:cygri` =  
`http://richard.cyganiak.de/foaf.rdf#cygri`
- ✗ `dbpedia:Berlin` =  
`http://dbpedia.org/resource/Berlin`

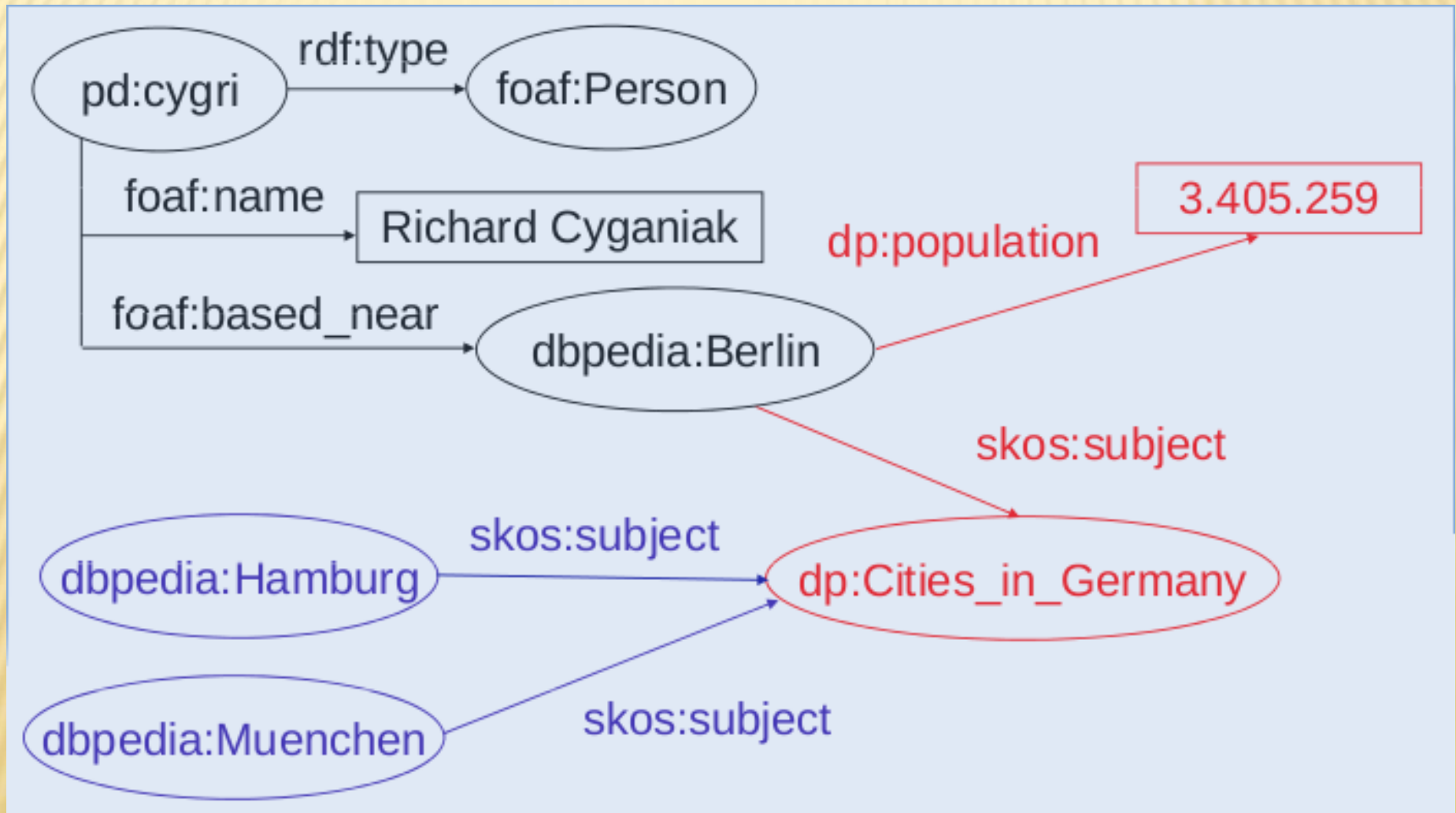


# RESOLVING URIS OVER THE WEB

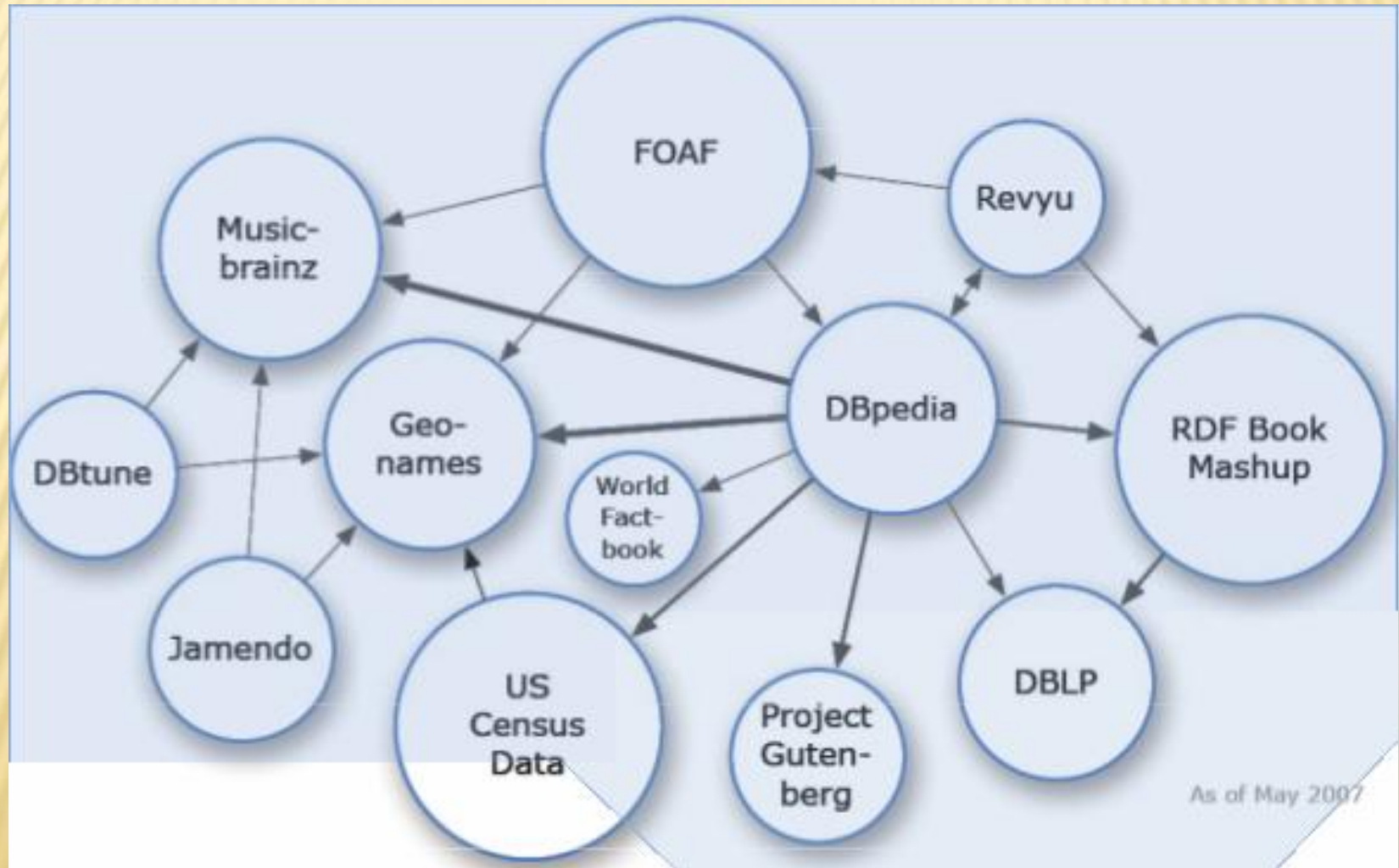




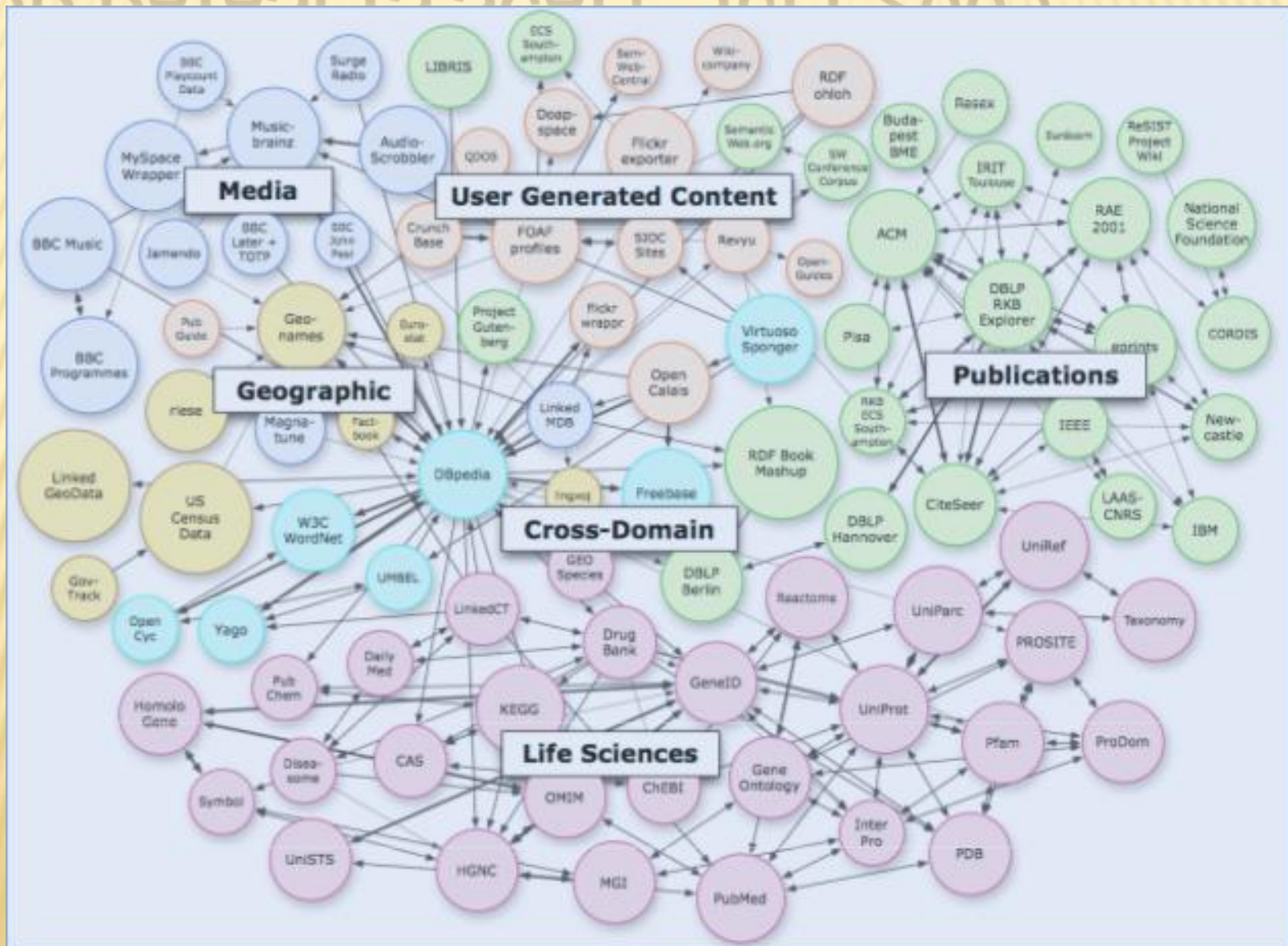
# DEREFERENCING URIS OVER THE WEB



# LOD DATASETS SCALE: MAY 2007

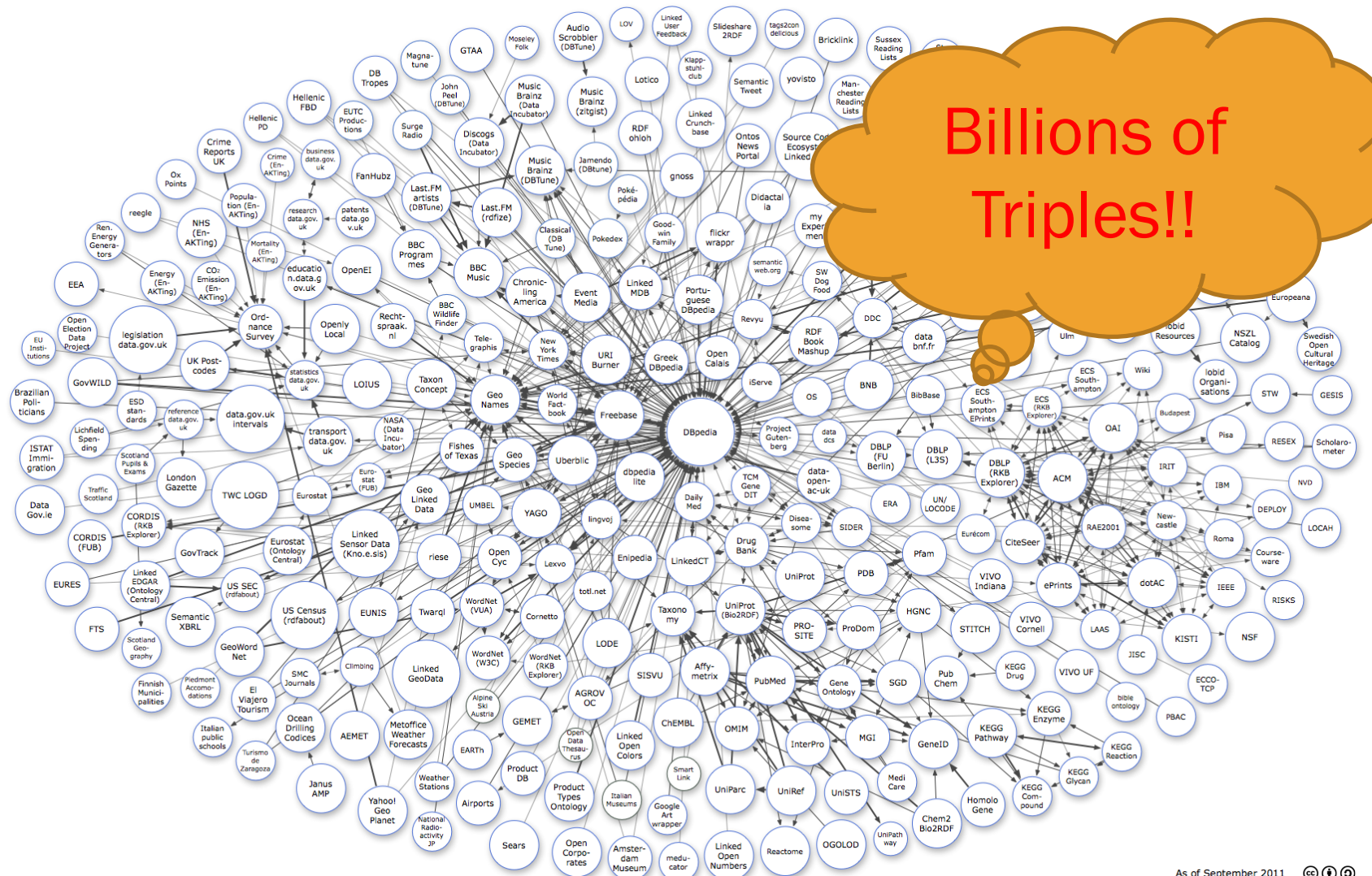


# LOD DATASETS SCALE: JULY 2009





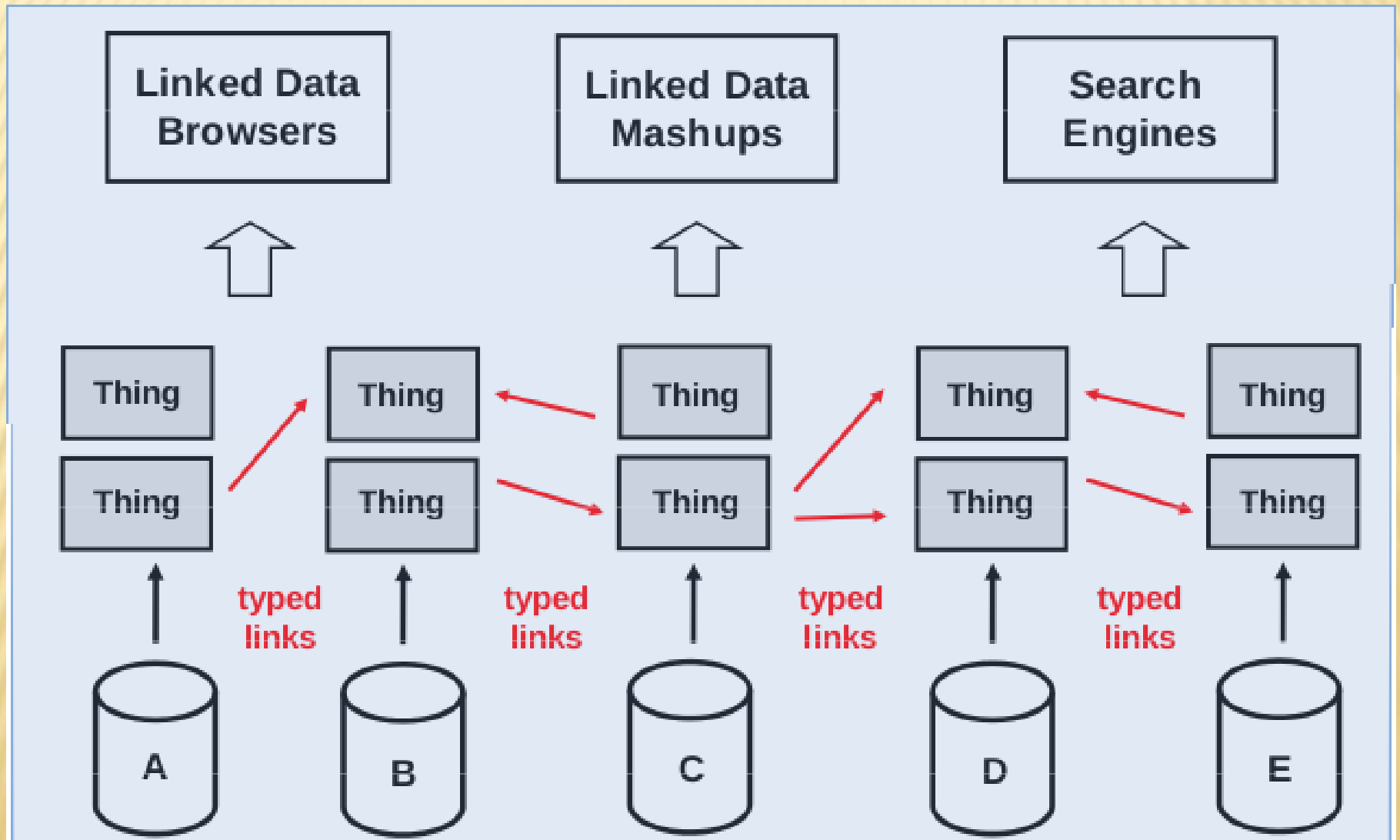
# LOD DATASETS SCALE: SEP 2011



# HOW TO CONSUME LINKED DATA

1. Consuming Linked Data by Humans
  - Linked Data Browsers(Marbles, Fenfire, et.)
  - Semantic Search Engine(Swoogle, Falcons, et.)
2. Consuming Linked Data by Machines and Applications
  - Accessing and retrieving Linked Data
  - Querying Linked Data with SPARQL
  - Automated Linked Traversal

# WHAT CAN I DO WITH LINKED DATA





# DBPEDIA MOBILE

- ✖ Based on the GPS signal of a mobile, it is able to render information from the



# BBC'S NEW MUSIC BETA SITE

- ✕ Music metadata such as related artists are pulled from Musicbrainz, for those links pointing to Wikipedia, the introductory text for each artist's biography is fetched from there

# EXTRACTING ENTERPRISE VOCABULARIES USING LINKED OPEN DATA

- ✗ A paper contributes a process to automatically extract a domain specific vocabulary (terms and types) from unstructured data in the enterprise guided by term definitions in Linked Open Data
- ✗ Dbpedia and Freebase are used



# WHAT WE CAN CONTRIBUTE

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- ✕ We can link our Social-Groupbuy Dataset to LOD

# WHAT WE CAN UTILIZE

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- ✗ Automatically annotate text from text
- ✗ Extract key words from groupbuy title, thus enhancing our background mashup engine

# Thanks!

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