

CC7220-1

LA WEB DE DATOS

PRIMAVERA 2021

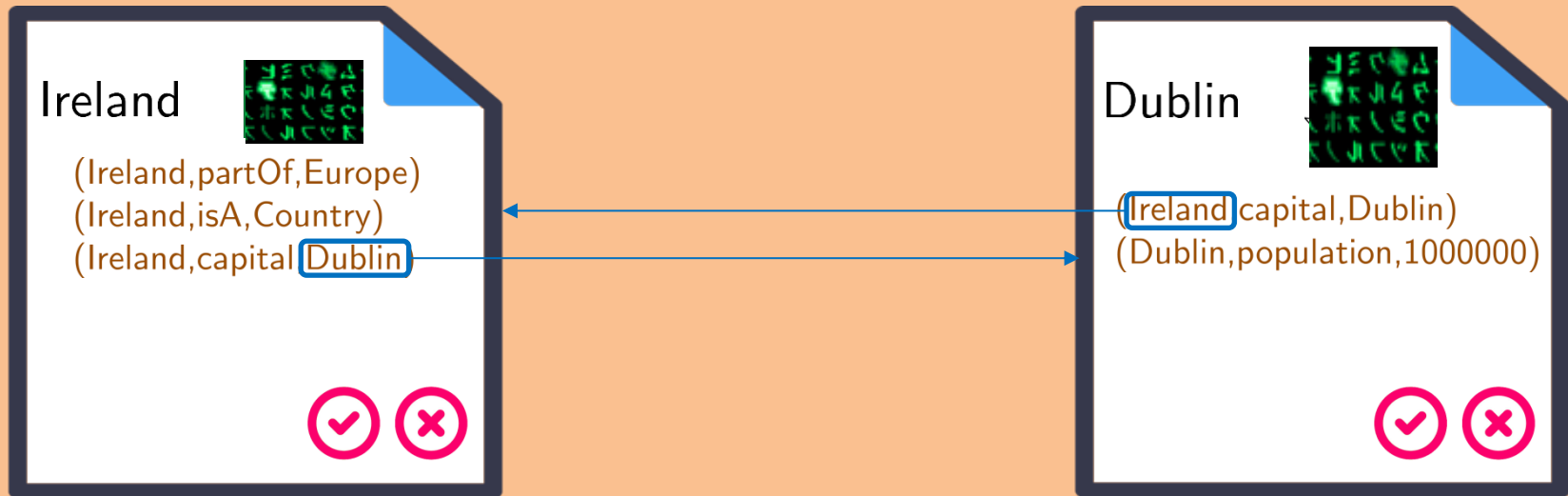
LECTURE 12: CONCLUSION

Aidan Hogan

aidhog@gmail.com

SEMANTIC WEB: DATA, LOGIC, QUERY, LINKS, VALIDATION

DATA:



LOGIC: $((b, \text{capital}, a) \rightarrow (a, \text{partOf}, b))$
 $((a, \text{partOf}, b), (b, \text{partOf}, c) \rightarrow (a, \text{partOf}, c))$

QUERY: $((x, \text{partOf}, y)?)$

OUTPUT: $\{(x \mapsto \text{Ireland}, y \mapsto \text{Europe}),$
 $(x \mapsto \text{Dublin}, y \mapsto \text{Ireland}),$
 $(x \mapsto \text{Dublin}, y \mapsto \text{Europe})\}$

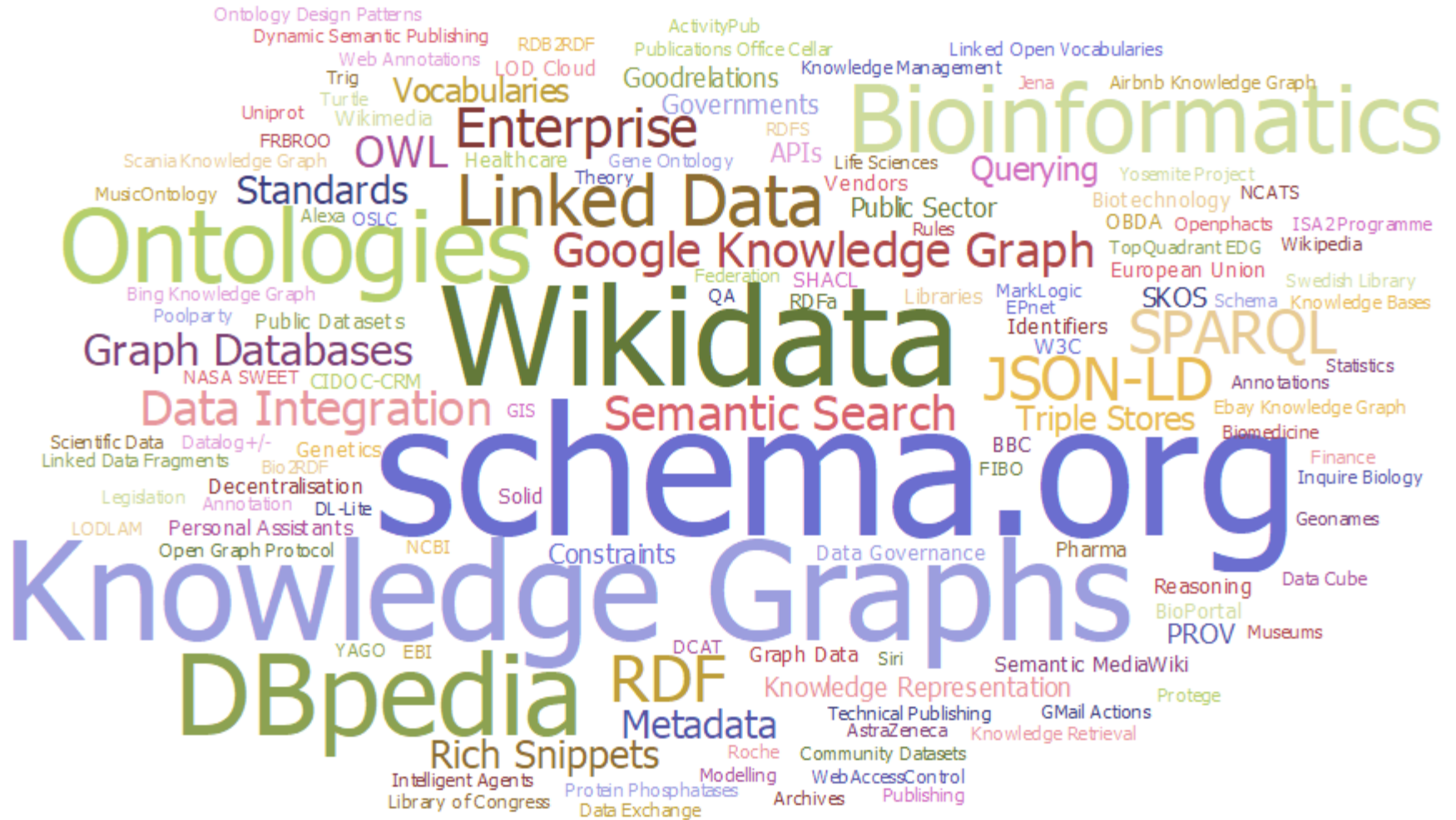




TAKING OFF

Hannover

SUCCESS STORIES



<http://aidanhogan.com/docs/semantic-web-now.pdf>



Main page
Community portal
Project chat
Create a new Item
Create a new Lexeme
Recent changes
Random Item
Query Service
Nearby
Help
Donate

Tools

What links here
Related changes
Special pages

Main Page

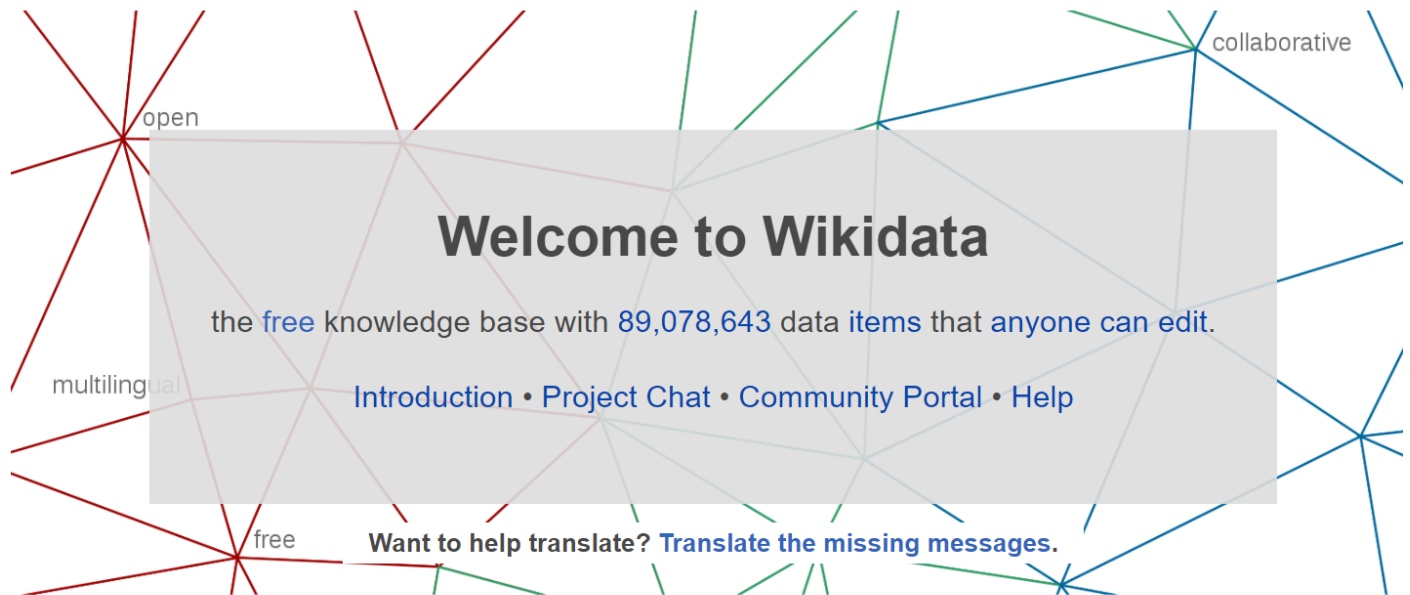
Discussion

Read

View source

View history

Search Wikidata

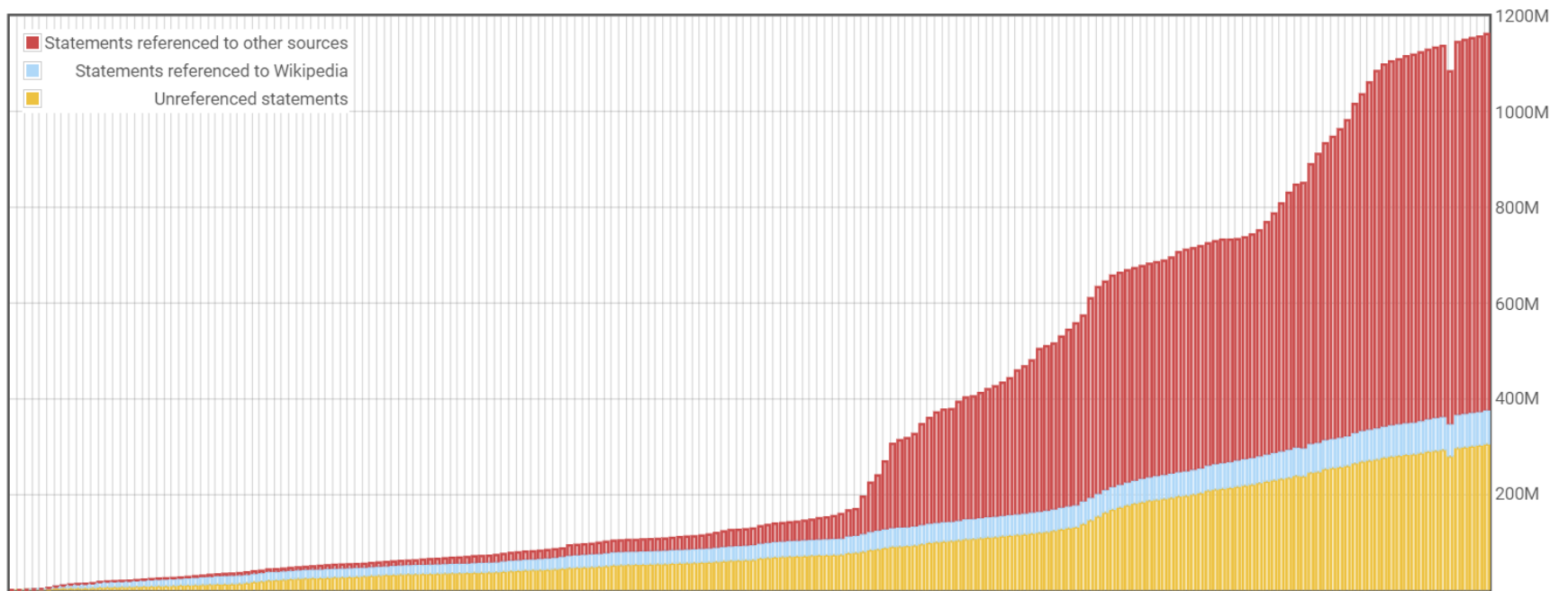


Welcome!



Learn about data

WIKIDATA



GOOGLE'S RICH SNIPPETS ...



lmon meringue - Google

https://www.google.cl/?gfe_rd=cr&ei=AfHMY9-YCMqnxgT356mQDw&gws_rd=ssl#q=lemon+meringue

Aplicaciones Linguee SGICM Apache Any23: Anythi Otros marcadores

Google lemon meringue

All Images Videos News Maps More Search tools

About 2,920,000 results (0.35 seconds)

Grandma's Lemon Meringue Pie Recipe - Allrecipes.com
allrecipes.com/recipe/15093/grandmas-lemon-meringue-pie/
★★★★★ Rating: 4.6 - 1,625 reviews - 40 min - 298 cal
This pie is thickened with cornstarch and flour in addition to egg yolks, and contains no milk." ... To Make **Lemon** Filling: In a medium saucepan, whisk together 1 cup sugar, flour, cornstarch, and salt. Stir in water, **lemon** juice and **lemon** zest.

Ultimate lemon meringue pie | BBC Good Food
www.bbcgoodfood.com/recipes/3482/ultimate-lemon-meringue-pie/
★★★★★ Rating: 4.6 - 182 votes - 3 hr 15 min - 480 cal
For the pastry, put the flour, butter, icing sugar, egg yolk (save the white for the **meringue**) and 1 tbsp cold water into a food processor. ... While the pastry bakes, prepare the filling: mix the cornflour, sugar and **lemon** zest in a medium saucepan. ... Try some of our other lemony treats ...
[Lemon meringue pie](#) · [Little lemon meringue pies](#) · [Ultimate meringue](#)

Classic Lemon Meringue Pie recipe from Betty Crocker
www.bettycrocker.com/...lemon-meringue.../8f991b88-55b0-4740-b12c...

Lemon meringue
Lemon meringue pie, usually se a crust usually lemon custard topping. [Wikip](#)

GOOGLE'S KNOWLEDGE PANEL



The screenshot shows a Google search for "sully prudhomme" in a browser window. The browser's address bar shows the URL https://www.google.cl/?gfe_rd=cr&ei=AfHmV9-YCMqnxgT35l. The search bar contains "sully prudhomme". Below the search bar, there are tabs for "All", "Images", "Videos", "Books", "News", and "More". The search results show "About 372,000 results (0.32 seconds)".

The Knowledge Panel on the right side of the search results displays a large portrait of Sully Prudhomme and a grid of smaller portraits. Below the portraits, the name "Sully Prudhomme" is displayed, followed by the title "Poet". A brief biography states: "René François Armand Prudhomme was a French poet and essayist. He was the first ever winner of the Nobel Prize in Literature in 1901." Below this, there are sections for "Born: March 16, 1839, Paris, France", "Died: September 6, 1907, Châtenay-Malabry, France", "Books: Les vaines tendresses", and "Awards: Nobel Prize in Literature". At the bottom of the panel, there is a section titled "People also search for" with portraits and names of Leconte de Lisle, Theodor Mommsen, Frédéric Mistral, Paul Verlaine, and Gabriel Fauré.

The search results on the left side of the panel include:

- Sully Prudhomme - Wikipedia, the free encyclopedia**
https://en.wikipedia.org/wiki/Sully_Prudhomme
René François Armand (Sully) Prudhomme was a French poet and essayist. He was the first ever winner of the Nobel Prize in Literature in 1901. Born in Paris ...
Early life · Writing · Nobel Prize · Death
- Sully Prudhomme - Wikipedia, la enciclopedia libre**
https://es.wikipedia.org/wiki/Sully_Prudhomme · [Translate this page](#)
René François Armand (Sully) Prudhomme también conocido como Sully Prudhomme (París, Francia, 16 de marzo de 1839 - Châtenay-Malabry, Francia, 6 de ...
- Sully Prudhomme - Biographical - Nobelprize.org**
www.nobelprize.org/nobel_prizes/literature/laureates/1901/prudhomme-bio.html
Rene Francois Armand Prudhomme (1839-1907) was the son of a French shopkeeper. ... Sully Prudhomme was a member of the «Conference La Bruyère», ...
- Sully Prudhomme - Nobelprize.org**
https://www.nobelprize.org/nobel_prizes/literature/laureates/1901/
The Nobel Prize in Literature 1901 was awarded to Sully Prudhomme "in special recognition of his poetic composition, which gives evidence of lofty idealism, ...
- Sully Prudhomme | French poet | Britannica.com**
<https://www.britannica.com/biography/Sully-Prudhomme>
Sully Prudhomme, pseudonym of René-François-Armand Prudhomme (born March 16, 1839, Paris—died Sept. 7, 1907, Châtenay, France) French poet who ...
- Sully Prudhomme - NNDB.com**
www.nndb.com/people/297/000098003/
It was at this moment that the small circle of which Leconte de Lisle was the center were preparing the Parnasse, to which Sully Prudhomme contributed several ...
- Sully Prudhomme | Definition of Sully Prudhomme by Merriam-Webster**

SCHEMA.ORG

YAHOO!

Google

 Microsoft

Yandex

Schema.org

Documentation

Schemas

About



Welcome to Schema.org

Schema.org is a collaborative, community activity with a mission to create, maintain, and promote schemas for structured data on the Internet, on web pages, in email messages, and beyond.

Schema.org vocabulary can be used with many different encodings, including RDFa, Microdata and JSON-LD. These vocabularies cover entities, relationships between entities and actions, and can easily be extended through a well-documented extension model. Over 10 million sites use Schema.org to markup their web pages and email messages. Many applications from Google, Microsoft, Pinterest, Yandex and others already use these vocabularies to power rich, extensible experiences.

Founded by Google, Microsoft, Yahoo and Yandex, Schema.org vocabularies are developed by an open community process, using the public-schemaorg@w3.org mailing list and through [GitHub](#).

A shared vocabulary makes it easier for webmasters and developers to decide on a schema and get the maximum benefit for their efforts. It is in this spirit that the founders, together with the larger community have come together - to provide a shared collection of schemas.

We invite you to [get started](#)!

View our blog at blog.schema.org or see [release history](#) for version 11.01.

FACEBOOK'S OPEN GRAPH



IMDb

16 hrs · 🌐

The latest trailer for "Game of Thrones" is out, and contains so many fantastic details that we don't even know where to begin. Take a look: <http://imdb.to/1KXLPFJ>



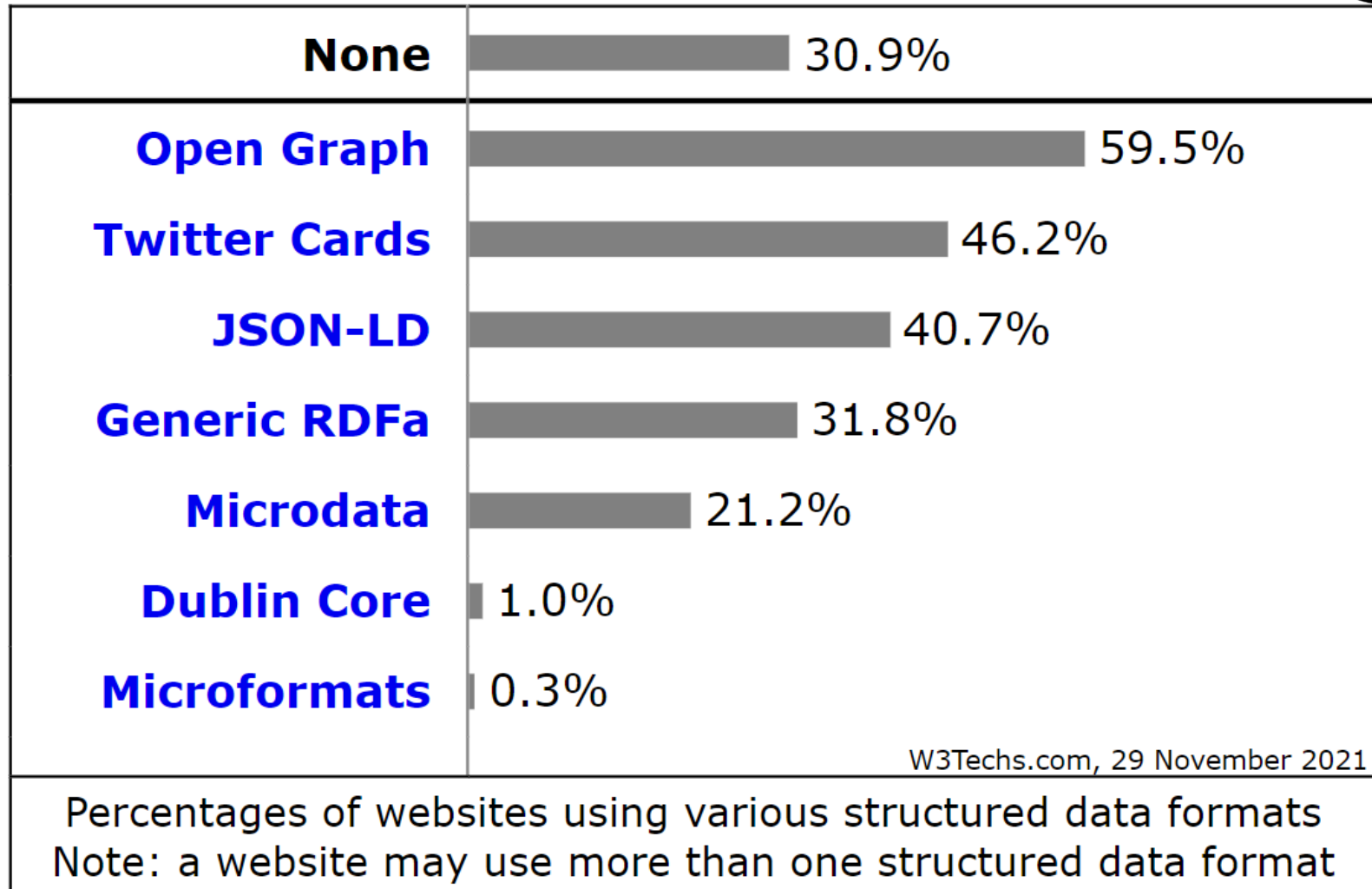
"Game of Thrones": The Wheel

"I'm not going to stop the wheel. I'm going to break the wheel."

IMDB.COM

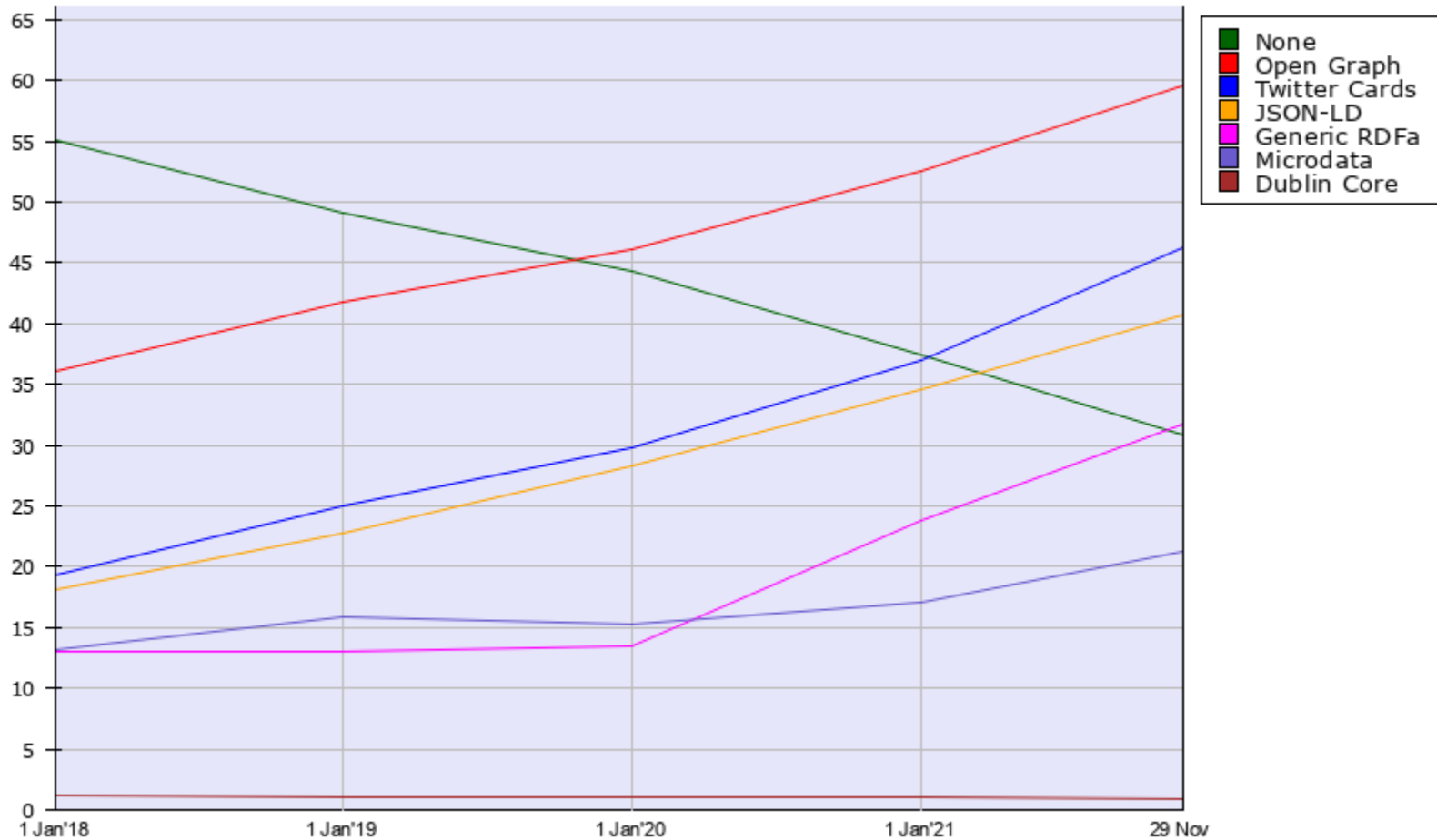
Like · Comment · Share · Send · 👍 6,469 💬 395 ➦ 1,381

EMBEDDED STRUCTURED DATA



https://w3techs.com/technologies/overview/structured_data

EMBEDDED STRUCTURED DATA



Usage of structured data formats for websites, 29 Nov 2021, W3Techs.com

https://w3techs.com/technologies/history_overview/structured_data/all/y

GOOGLE'S KNOWLEDGE GRAPH



Amazon Prime



☐ Free UK Delivery by Amazon

FREE Delivery on orders over £10 for books or over £20 for other categories shipped by Amazon

Deals

☐ Today's Deals

Department

Books

Artificial Intelligence (A.I.)
Beginner's Guide to Databases
Managers' Guides to Computing
Data Mining
E-Business

✓ [See more](#)

Kindle Store

Information Technology
Mathematical & Statistical

✓ [See All 4 Departments](#)

Avg. Customer Review

★★★★★ & Up
★★★★☆ & Up
★★★☆☆ & Up
★★☆☆☆ & Up

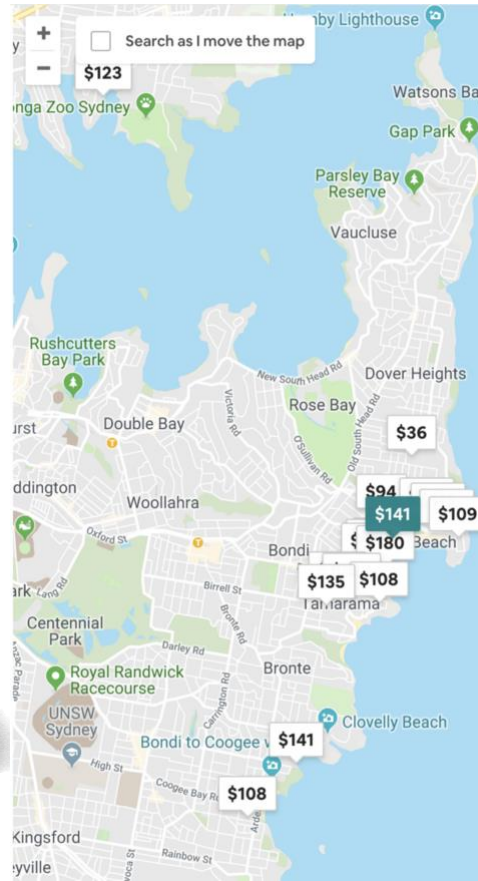


Knowledge Graph

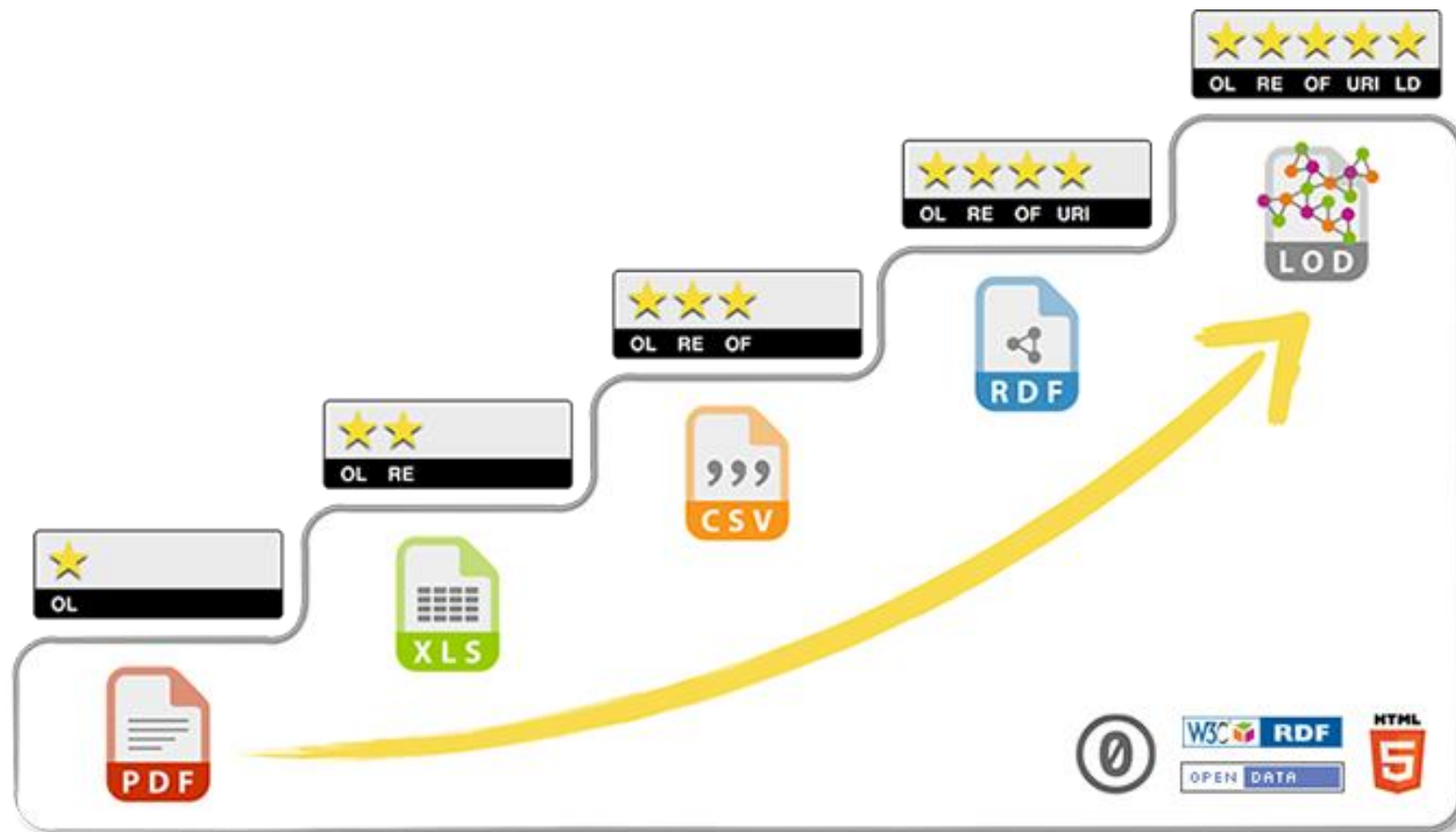


The Knowledge Graph is a knowledge base used by Google and its services to enhance its search engine's results with information gathered from a variety of sources. The information is presented to users in an infobox next to the search results.

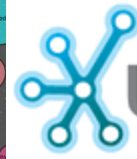
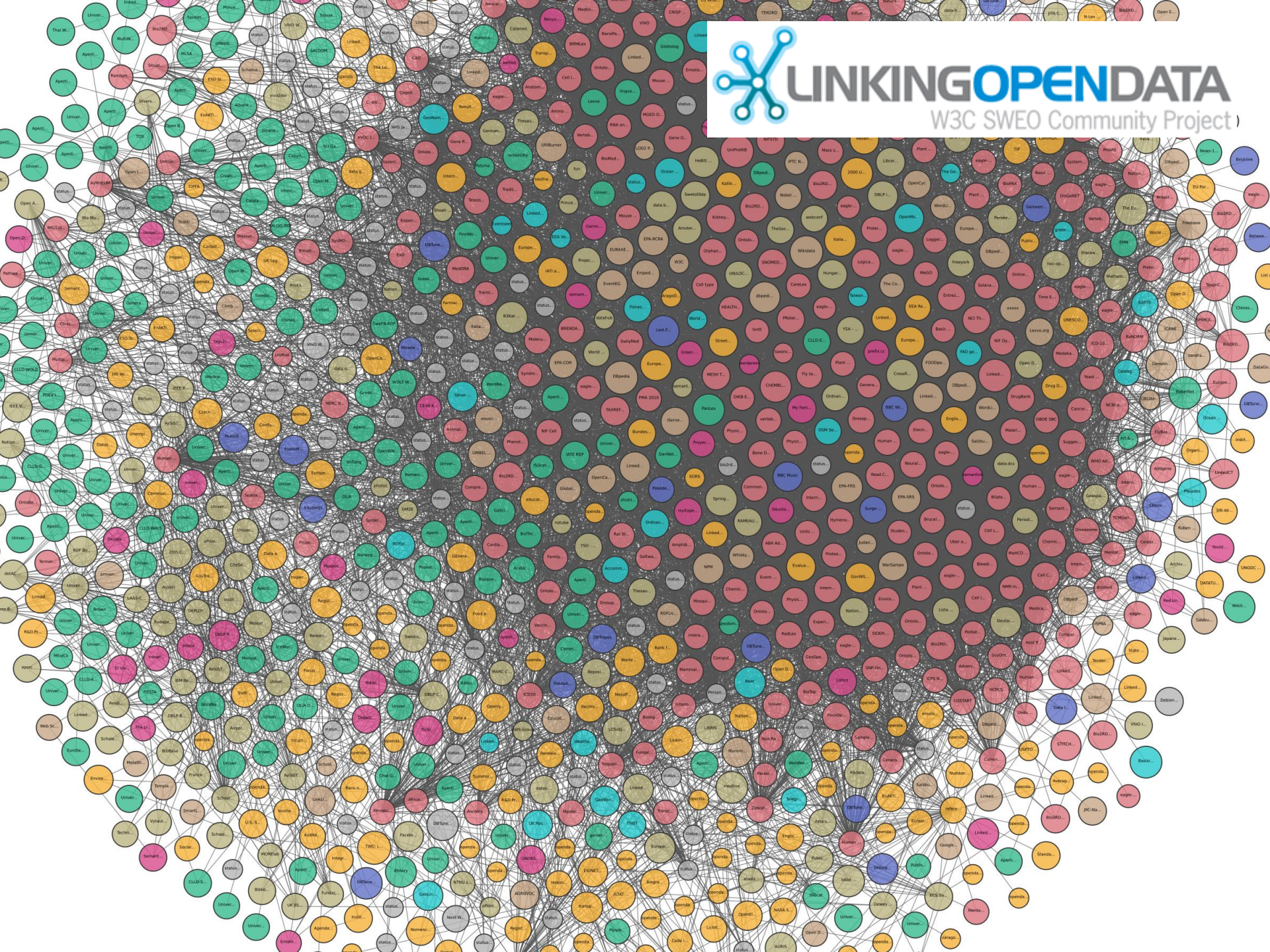
[Wikipedia](#)



LINKED OPEN DATA



5-Star Linking Open Data Scheme



LINKING OPENDATA
W3C SWEO Community Project



BIOMEDICAL ONTOLOGIES



The Open Biological and Biomedical Ontology (OBO) Foundry

Community development of interoperable ontologies for the biological sciences

bfo	Basic Formal Ontology 	The upper level ontology upon which OBO Foundry ontologies are built. Detail								
chebi	Chemical Entities of Biological Interest 	A structured classification of molecular entities of biological interest focusing on 'small' chemical compounds. Detail								
doid	Human Disease Ontology 	An ontology for describing the classification of human diseases organized by etiology. Detail								
go	Gene Ontology 	An ontology for describing the function of genes and gene products Detail								
obi	Ontology for Biomedical Investigations 	An integrated ontology for the description of life-science and clinical investigations Detail								
pato	Phenotype And Trait Ontology 	An ontology of phenotypic qualities (properties, attributes or characteristics) Detail								
po	Plant Ontology 	The Plant Ontology is a structured vocabulary and database resource that links plant anatomy, morphology and growth and development to plant genomics data. Detail								

BIOMEDICAL ONTOLOGIES



BioPortal

[Ontologies](#) [Search](#) [Annotator](#) [Recommender](#) [Mappings](#)

[Login](#)

[Support](#) ▼

Welcome to BioPortal, the world's most comprehensive repository of biomedical ontologies

Search for a class

Enter a class, e.g. Melanoma



[Advanced Search](#)

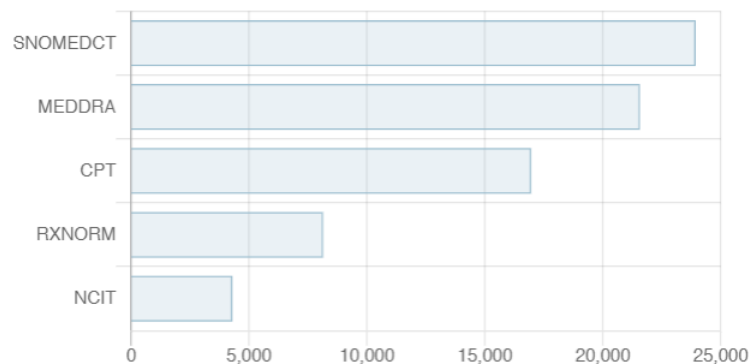
Find an ontology

Start typing ontology name, then choose from list



[Browse Ontologies](#) ▼

Ontology Visits (November 2020)



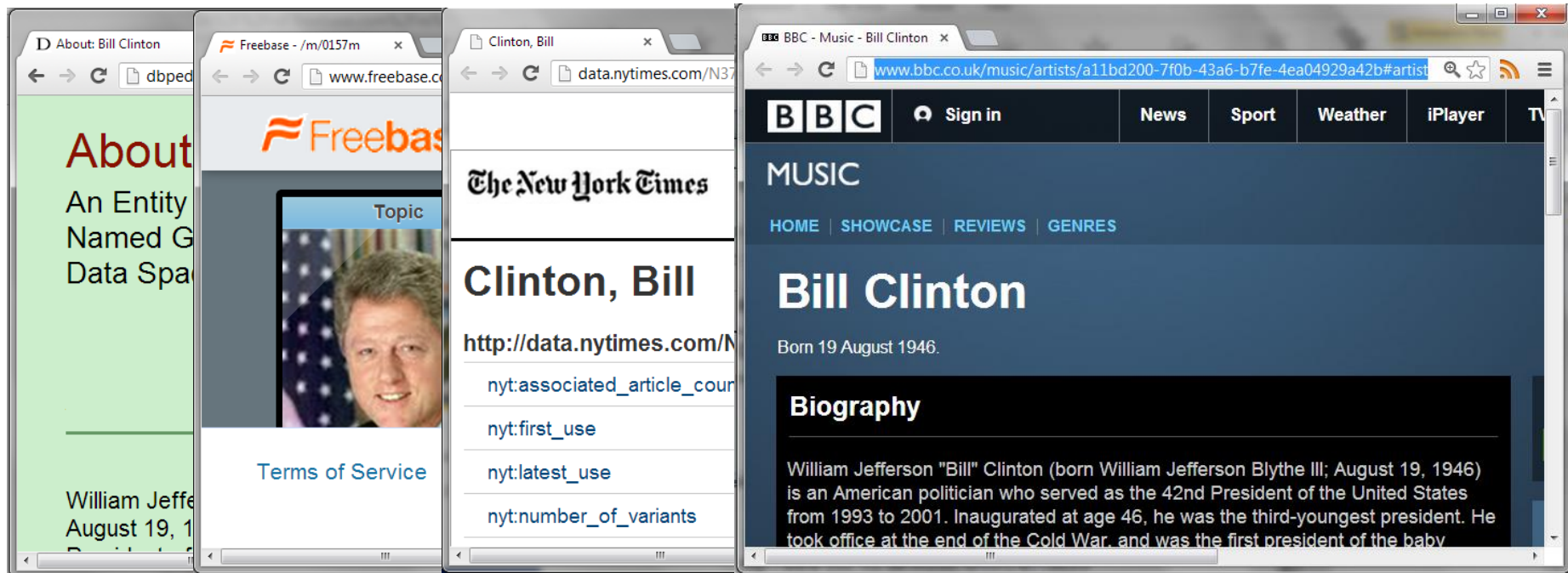
BioPortal Statistics

Ontologies	912
Classes	12,108,726
Properties	36,286
Mappings	111,130,779

The background image is a dark, atmospheric landscape. A narrow, light-colored path or streambed winds through the center, flanked by dense, dark foliage and trees. In the foreground, the silhouettes of bare, spindly trees are visible against the lighter path. The entire scene is overlaid with a semi-transparent green filter, creating a somber and mysterious mood.

ONGOING RESEARCH

INTEGRATING DIVERSE DATA



http://dbpedia.org/resource/Bill_Clinton

http://rdf.freebase.com/ns/en.bill_clinton

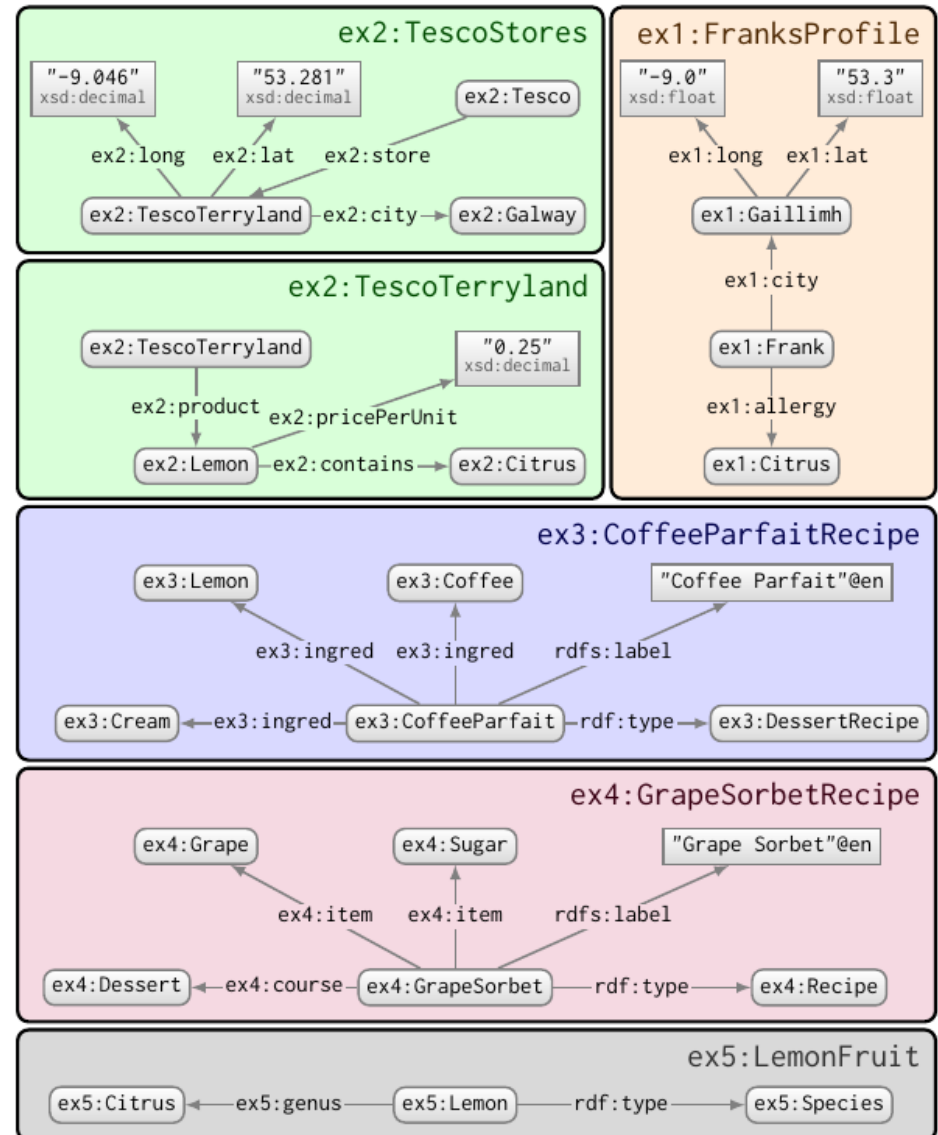
http://data.nytimes.com/clinton_bill_per

<http://www.bbc.co.uk/music/artists/...>

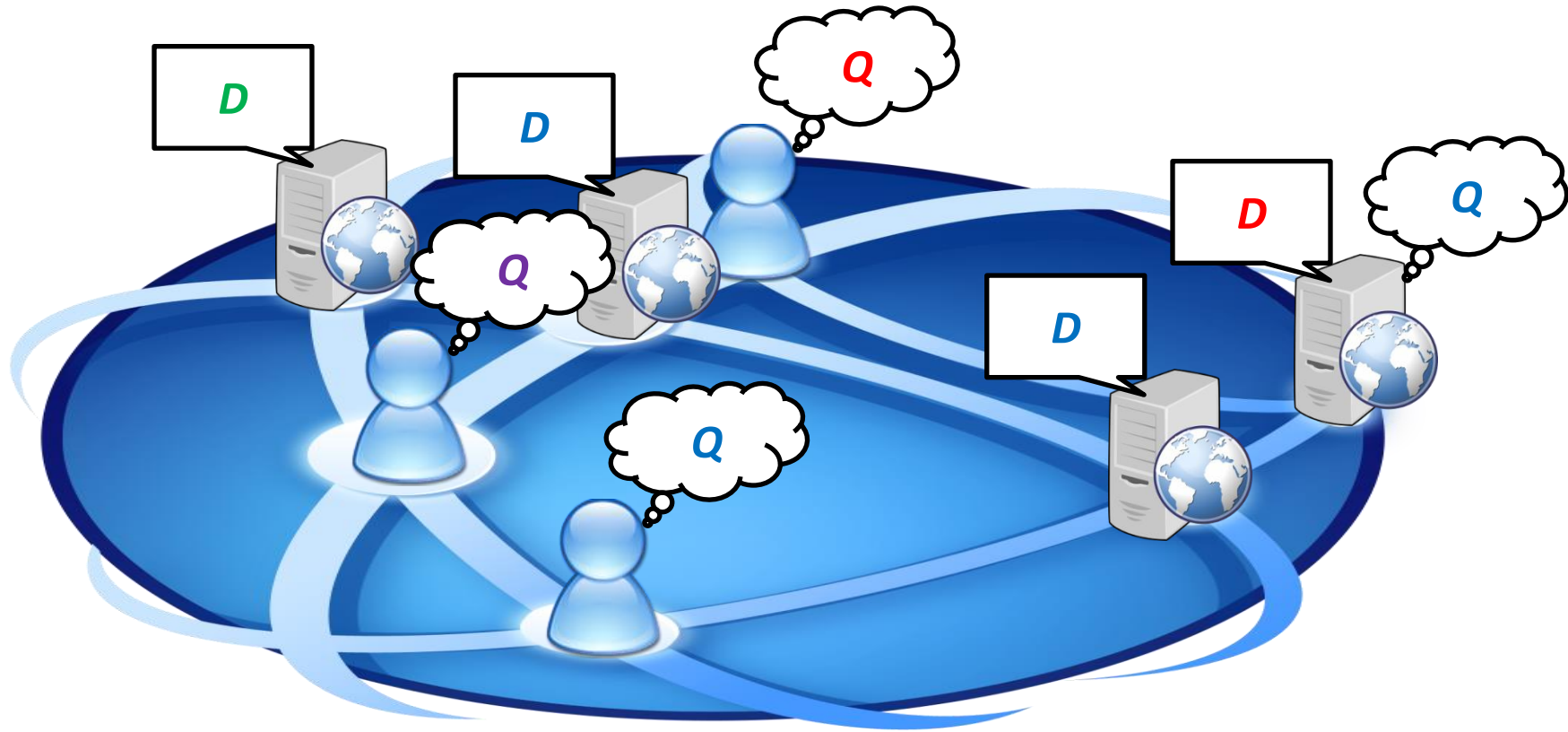
How can we integrate data using different identifiers from different sources?

INTEGRATING DIVERSE VOCABULARIES

How can we integrate and write queries against Linked Data using different vocabularies?

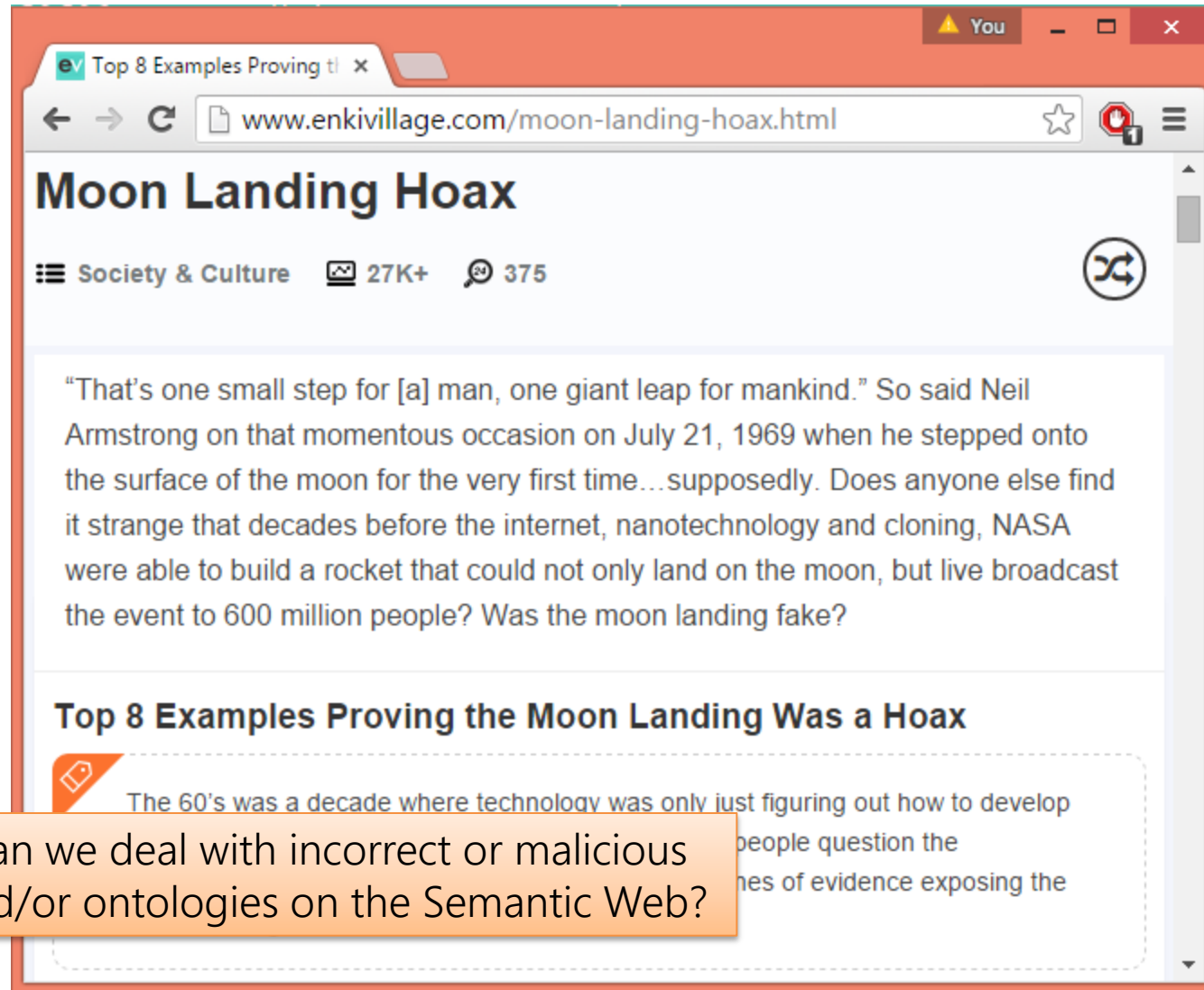


DECENTRALISED QUERYING



How can we enable decentralised querying over multiple decentralised datasets?

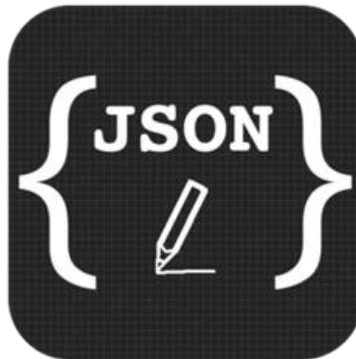
VERACITY



How can we deal with incorrect or malicious data and/or ontologies on the Semantic Web?

LEGACY DATA

How can we “import” more legacy data into the Semantic Web?



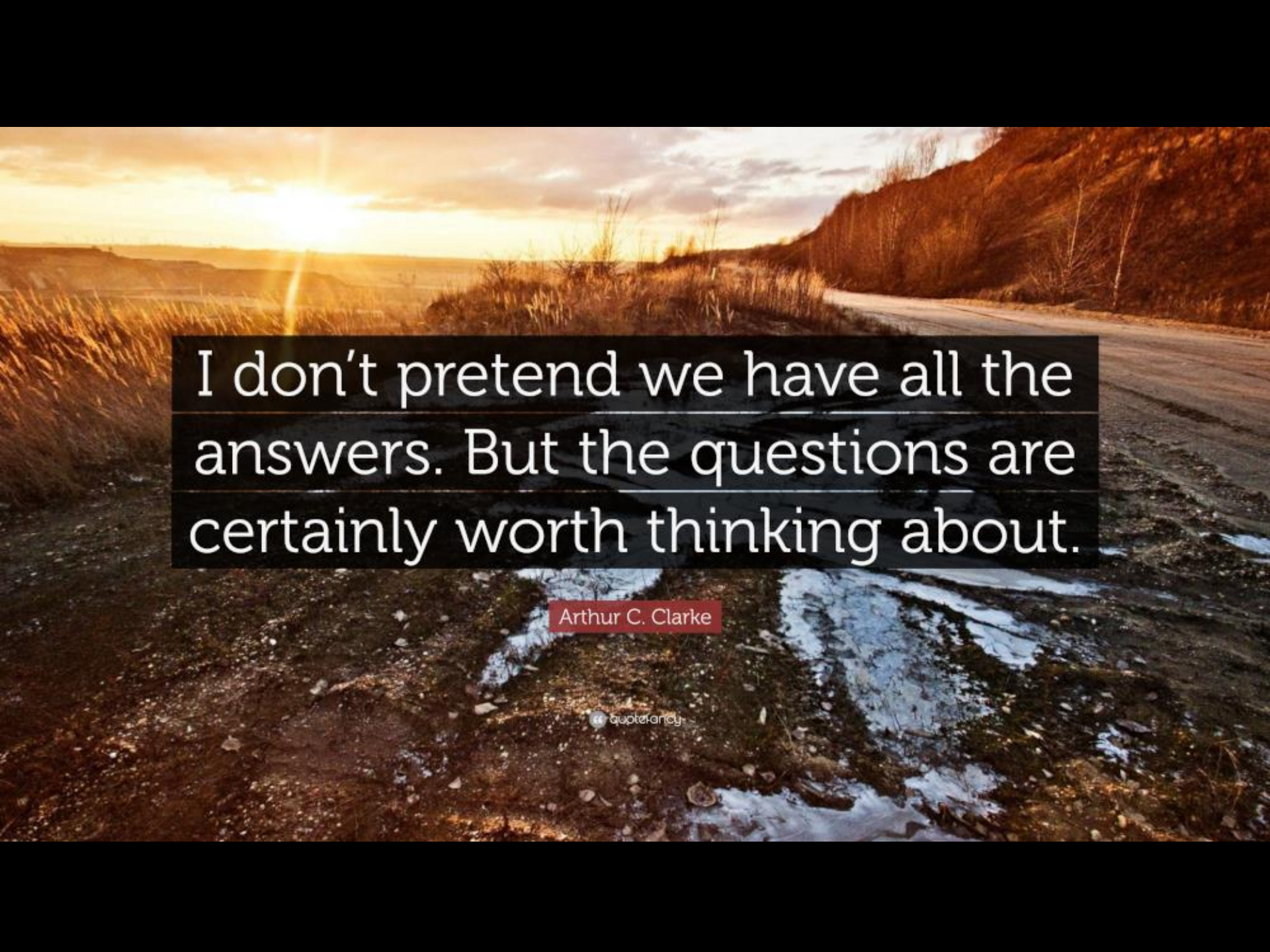
USABILITY

```
PREFIX geo: <http://www.opengis.net/ont/geosparql#>
PREFIX lgdo: <http://linkedgeodata.org/ontology/>
PREFIX geom: <http://geovocab.org/geometry#>
PREFIX bif: <bif:>

SELECT ?country ?geometry ?label WHERE {
  SERVICE <http://linkedgeodata.org/sparql> {
    ?s geom:geometry [ geo:asWKT ?geometry ] ;
      a lgdo:Embassy ;
      lgdo:country ?code ;
      rdfs:label ?label .
    FILTER(bif:st_intersects(?geometry, bif:st_point(-70.6693,-33.4489), 10))
  }
  ?country wdt:P297 ?code ;
    wdt:P30 wd:Q48 . # continent: Asia
}
```

What kinds of interfaces can help non-expert users to better interact with the Semantic Web?



A landscape photograph showing a dirt road winding through a field of tall grass. In the background, there are hills and a bright sun low on the horizon, creating a warm, golden glow. A dark, semi-transparent rectangular box is overlaid on the middle of the image, containing white text. Below the text box, there is a small red rectangular box with white text, and a small circular logo with the text 'quote fancy' below that.

I don't pretend we have all the
answers. But the questions are
certainly worth thinking about.

Arthur C. Clarke

quote fancy

ONGOING RESEARCH IN CHILE



THAT'S ALL FOLKS ...



QUESTIONS?

