

# From the web of data to wikidata: Wikidata applications and business cases

PENS project meeting @ Middlesex Univ.  
London (Feb 2019), day 2



Erasmus+

**P E N S**  
Pathways to Europe's next generation

Salvador  
Sánchez Alonso

# Agenda

- Introduction to Wikidata
  - Context: Knowledge organization systems
  - What is Wikidata
  - Advantages and disadvantages
- Wikidata as a database
  - Data model
  - Items,
- Querying Wikidata
- Use cases
- Hands-on?

# Knowledge organization systems

- **Ontology:** a set of concepts in a domain, their properties, and the relationships between them, formally described
  - **Generic (or top-level) ontologies** capture general knowledge valid across several domains.
- **Knowledge base:** combination of an ontology and instances of the classes in the ontology

# Wikidata

Wikipedia's data is buried in 30 million Wikipedia articles in 287 languages from which extraction is inherently very difficult.



# Wikidata

- Free and open knowledge base about **the world** that can be read and edited by humans and machines
- Aim: to provide data for all Wikimedia projects becoming the central access to data
- Large amount of facts about entities
  - Widely applicable
  - Different users benefit from using the stored structured knowledge (e.g., using specific search interfaces of expert systems)



# Wikidata and the Semantic Web

Wikidata is acting as a “spine” or “hub” to link diverse databases



## Some numbers

- Started on 2012 as a project of Wikimedia Deutschland
- Fastest growing project within the Wikipedia movement:
  - > 37 million items
  - > 1,400 very active editors.
  - Edits on Wikidata account for roughly one in three edits across all Wikimedia projects.
  - 8.5 million SPARQL requests / day



# Robert Louis Stevenson

From Wikipedia, the free encyclopedia

Robert Louis Balfour Stevenson (13 November 1850 – 3 December 1894) was a Scottish novelist, poet, essayist, and travel writer. His most famous works are *Treasure Island*, *Kidnapped*, *Strange Case of Dr Jekyll and Mr Hyde* and *A Child's Garden of Verses*.

A literary celebrity during his lifetime, Stevenson now ranks among the 26 most translated authors in the world.<sup>[1]</sup> His works have been admired by many other writers, including Jorge Luis Borges, Bertolt Brecht, Marcel Proust, Arthur Conan Doyle, Henry James, Cesare Pavese, Ernest Hemingway, Rudyard Kipling, Jack London, Vladimir Nabokov,<sup>[2]</sup> J. M. Barrie,<sup>[3]</sup> and G. K. Chesterton, who said of him that he "seemed to pick the right word up on the point of his pen, like a man playing spillekins."<sup>[4]</sup>

## Works [ edit | edit source ]

### Novels [ edit | edit source ]

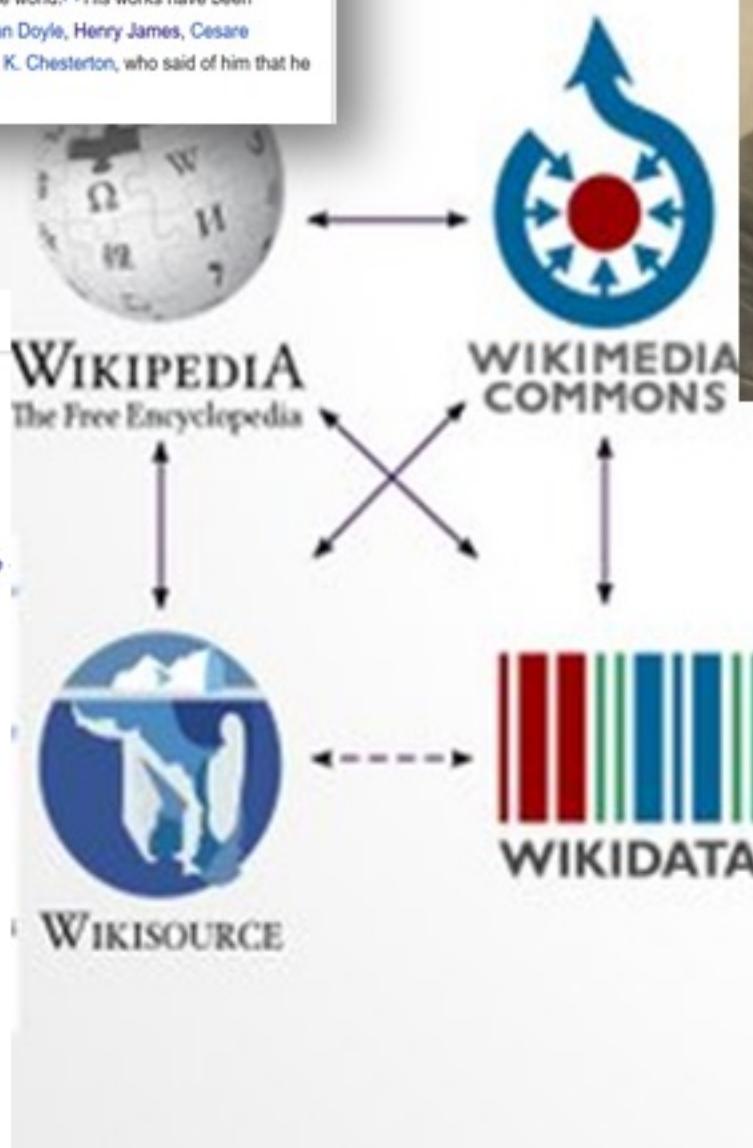
- *Treasure Island* (1883)
- *Prince Otto* (1885)
- *Strange Case of Dr Jekyll and Mr Hyde* (1886)
  - *The Annotated Strange Case of Dr Jekyll and Mr Hyde*
- *Kidnapped (Adventures of David Balfour, 1886)*
- *The Black Arrow* (1888)
- *The Master of Ballantrae* (1889) (External scan)
- *Catrina (Adventures of David Balfour, 1893)*
- *Weir of Hermiston* (1896, unfinished)
- *St. Ives* (1898, unfinished)

### with Lloyd Osbourne [ edit | edit source ]

- *The Wrong Box* (1889) (External scan)
- *The Wrecker* (1892)
- *The Ebb-Tide* (1894) (External scan)

### Short stories [ edit | edit source ]

- *A Lodging for the Night* (1877)
- *The Sire de Maletroit's Door* (1878)
- *MILL o' THE MILL* (1878)



Public Domain pic  
of Robert Louis  
Stevenson

[https://commons.wikimedia.org/wiki/File:Robert\\_Louis\\_Stevenson\\_by\\_Henry\\_Walter\\_Barnett.jpg](https://commons.wikimedia.org/wiki/File:Robert_Louis_Stevenson_by_Henry_Walter_Barnett.jpg)

## ROBERT LOUIS STEVENSON (Q1512)

- Spouse (P26): Fanny Stevenson Q3066501  
Place of birth (P19): Edinburgh Q23436  
Place of death (P20): Vailima, Samoa Q548806  
Father (P22): Thomas Stevenson Q325068  
Educated at (P69): Edinburgh Uni Q160302  
Occupation (P106): Writer Q38180  
Poet Q49757  
Novelist Q6625963  
Essayist Q11774202  
Traveler Q32212252

# Advantages vs. disadvantages

- Its **main advantage**: a set of factual claims which can grow and adapt without a rigid central schema...
- ...is also its **main weakness**:
  - ontological modeling problems abound
  - some domains of knowledge are healthy and consistent while others suffer from less attention and disorganized treatment.



# Features

- It does not only store facts, but also the corresponding sources
  - the validity of facts can be checked.
- Multilingual:
  - labels, aliases, and descriptions of entities provided in +350 languages.
- Collaborative
- Both the data and the schema are maintained and extended based on community agreements.



# Technical features

- Document-oriented database, focused on *items*
  - Each item represents a topic
- Linked open data principles
- Information is stored in **RDF** triples
- Access to data:
  - API
    - API sandbox : <https://www.wikidata.org/wiki/Special:ApiSandbox>
  - SPARQL endpoint
  - Data dumps in JSON, RDF and XML

# Items

- Represent all the *things* in human knowledge, including topics, concepts, and objects.
- For example, the "Athens 2004 Olympics", "hate", "Peter Jackson", and "dog" are all items in Wikidata.
- They are unique
  - unique identifier (starting with a Q prefix)
  - its own page in the Wikidata main namespace.

# Items and properties

- Properties: link items together so that all the data on Wikidata can be interconnected.
- Unique identifier too

The screenshot shows a Wikidata item page for the property "instance of" (P31). The top navigation bar includes tabs for "Property", "Discussion", "Read", "View history", and a search bar. The main content area starts with the heading "instance of (P31)". Below the heading is a detailed description: "that class of which this subject is a particular example and member (subject typically an individual member with a proper name label); different from P279; using this property as a qualifier is deprecated—use P2868 or P3831 instead". A list of related terms follows: is a | is an | has class | has type | is a particular | is a specific | is an individual | is a unique | is an example of | member of | unique individual | distinct member of | non-type member of | unclassifiable example of | uninstantiable instance of | unclassifiable member of | not a type but is instance of | unclassifiable particular | unitary element of class | distinct element of | distinct individual member of | occurrence of | rdf:type | type. Below this, there is a section titled "In more languages" with a "Configure" link, showing labels for various languages. A table provides additional information:

Language	Label	Description	Also known as
English	instance of	that class of which this subject is a particular example and member (subject typically an individual member with a proper name label); different from P279; using this property as a qualifier is deprecated—use P2868 or P3831 instead	is a is an has class has type is a particular is a specific is an individual is a unique



# Spain



From Wikipedia, the free encyclopedia

Coordinates: 40°N 4°W

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[Random article](#)

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[Wikipedia store](#)

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[Wikidata item](#)

[Cite this page](#)

*This article is about the country. For other uses, see [Spain \(disambiguation\)](#).*

*"España" redirects here. For other uses, see [España \(disambiguation\)](#).*

**Spain** (Spanish: *España* [esˈpanya] (listen)), officially the **Kingdom of Spain** (Spanish: *Reino de España*),<sup>[a][b]</sup> is a country mostly located on the **Iberian Peninsula** in **Europe**. Its territory also includes two **archipelagoes**: the **Canary Islands** off the coast of Africa, and the **Balearic Islands** in the **Mediterranean Sea**. The African **enclaves** of **Ceuta** and **Melilla** make Spain the only European country to have a physical border with an African country (**Morocco**).<sup>[h]</sup> Several small islands in the **Alboran Sea** are also part of Spanish territory. The country's **mainland** is bordered to the south and east by the **Mediterranean Sea** except for a small land boundary with **Gibraltar**; to the north and northeast by **France**, **Andorra**, and the **Bay of Biscay**; and to the west and northwest by **Portugal** and the **Atlantic Ocean**.

With an area of 505,990 km<sup>2</sup> (195,360 sq mi), Spain is the largest country in Southern Europe, the second largest country in Western Europe and the European Union, and the **fourth largest country in the European continent**. By population, Spain is the **sixth** largest in Europe and the **fifth** in the European Union. Spain's capital and largest city is **Madrid**; other major **urban areas** include **Barcelona**, **Valencia**, **Seville**, **Málaga** and **Bilbao**.

Modern humans first arrived in the Iberian Peninsula around 35,000 years ago. Iberian cultures along with ancient Phoenician, Greek, Celtic and Carthaginian settlements developed on the peninsula until it came under Roman rule around 200 BCE, after which the region was named **Hispania**, based on the earlier Phoenician name *Sp(a)n* or *Spania*.<sup>[11]</sup> At the **end of the Western Roman Empire** the Germanic tribal confederations migrated from Central Europe, invaded the Iberian peninsula and established relatively independent realms in its western provinces, including the **Suebi**, **Alans** and **Vandals**. Eventually, the **Visigoths** would forcibly integrate all remaining independent territories in the peninsula, including Byzantine provinces, into the **Kingdom of Toledo**, which more or less unified politically, ecclesiastically and legally all the former Roman provinces or successor kingdoms of what was then documented as **Hispania**.

In the early eighth century the **Visigothic Kingdom** fell to the **Moors**, who arrived to rule most of the peninsula in the year 726, leaving only a few small Christian enclaves in the north. The Reconquest began in the **Kingdom of Castile**. This led to a long series of wars between the Moors and Christians.

**Kingdom of Spain**  
**Reino de España** (Spanish)  
4 other official names<sup>[a][b]</sup> [show]



Flag



Coat of arms

**Motto:** "Plus Ultra" (Latin)  
"Further Beyond"

**Anthem:** "Marcha Real" (Spanish)<sup>[2]</sup>  
"Royal March"





Item Discussion

Read

View history

Search Wikidata

# Spain (Q29)

constitutional monarchy in Southwest Europe

España | Kingdom of Spain | ES | ESP | es

## ▼ In more languages Configure

Language	Label	Description	Also known as
English	Spain	constitutional monarchy in Southwest Europe	España Kingdom of Spain ES ESP es
Spanish	España	país de Europa	Reino de España ES ESP Estado español es
Catalan	Espanya	estat d'Europa	Regne d'Espanya ES ESP Estat espanyol es
Galician	España	país situado no suroeste de Europa	Reino de España ES ESP

[All entered languages](#)

## Statements

instance of

 sovereign state

Wikipedia (271 entries)

ab	Еспания
ace	Seupanyo
ady	Испаніе
af	Spanje
ak	Spain
als	Spanien
am	ኢትዮጵያ
ang	Spéonland
an	Espanya
arc	ڪوٽن
ar	إسبانيا 
arz	اسپانيا 
ast	España
av	Испан
ay	Ispaña
azb	ایسپانیا
az	İspaniya
bar	Spanien
bat_smg	Ispanéjé
ba	Испания
bcl	Espanya
be_x_old	Гішпанія
be	Іспанія
bg	Испания
bh	ਸਪੇਨ

# Information model

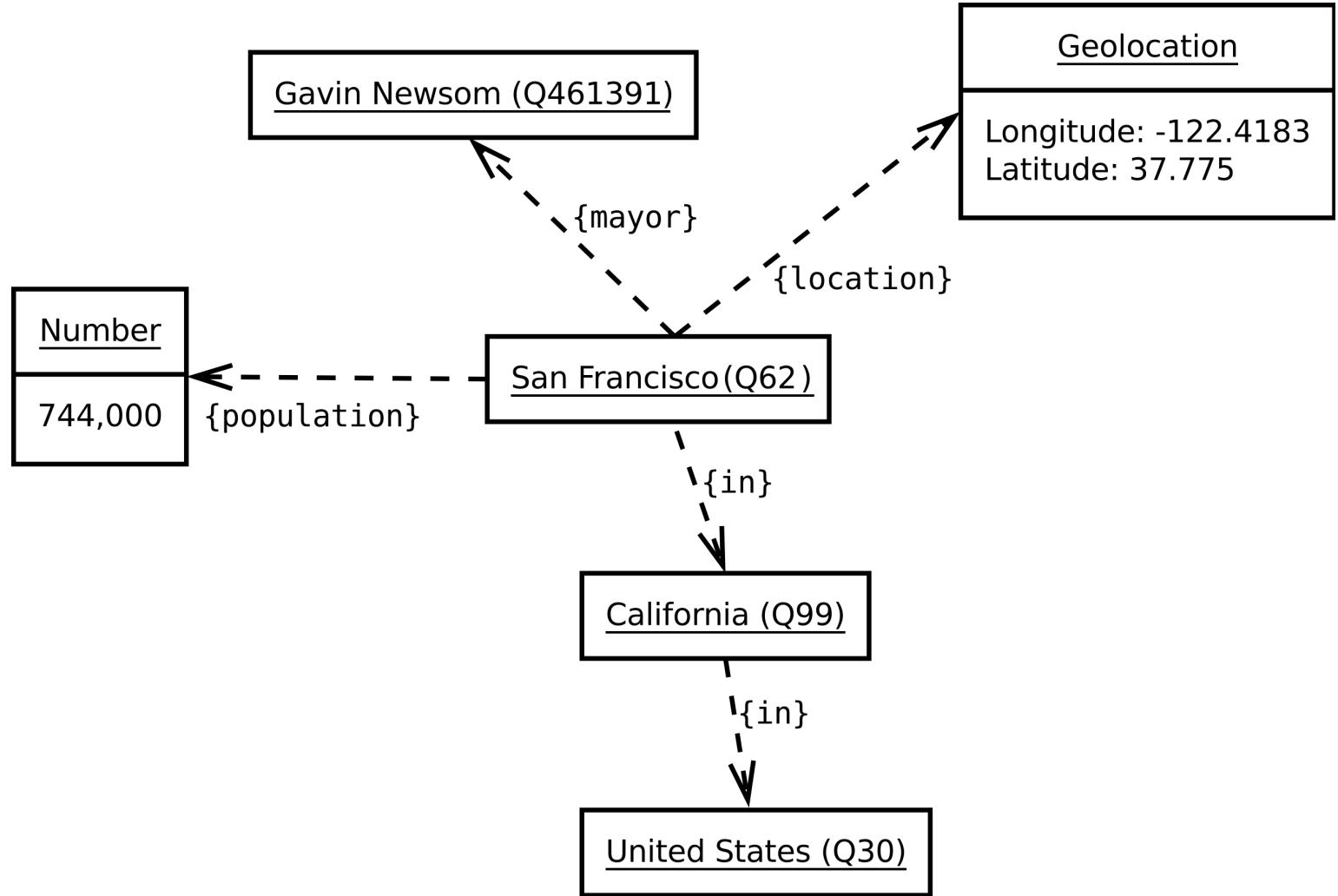
<u>continent</u>	 Europe	applies to part	peninsular Spain
			Balearic Islands
	 ▾ 0 references		
	 Africa	applies to part	Melilla
			Ceuta
			Canary Islands
			Plazas de soberanía
	 ▾ 0 references		

# Items and properties

Typical properties to link one item to another:

- Comparing items ...
  - [said to be the same as \(P460\)](#)
  - [different from \(P1889\)](#) - (different from, but sometimes confused with ...)
- Item is part of ...
  - [part of \(P361\)](#) - (section of .../ contained within .../ pieces of ...)
  - [instance of \(P31\)](#) - (is an example of ...)
  - [subclass of \(P279\)](#) - (is a subset of ...)
  - [facet of \(P1269\)](#) - (aspect of .../ subitem of .../ a broader perspective on the same topic is offered by ...)
  - [has quality \(P1552\)](#) - (has characteristic .../ defining feature .../ inherent property ...)
- Item contains ...
  - [has part \(P527\)](#) - (contains ...)
  - [has parts of the class \(P2670\)](#) (has parts that are instances of .../ some parts form subclass of ...)

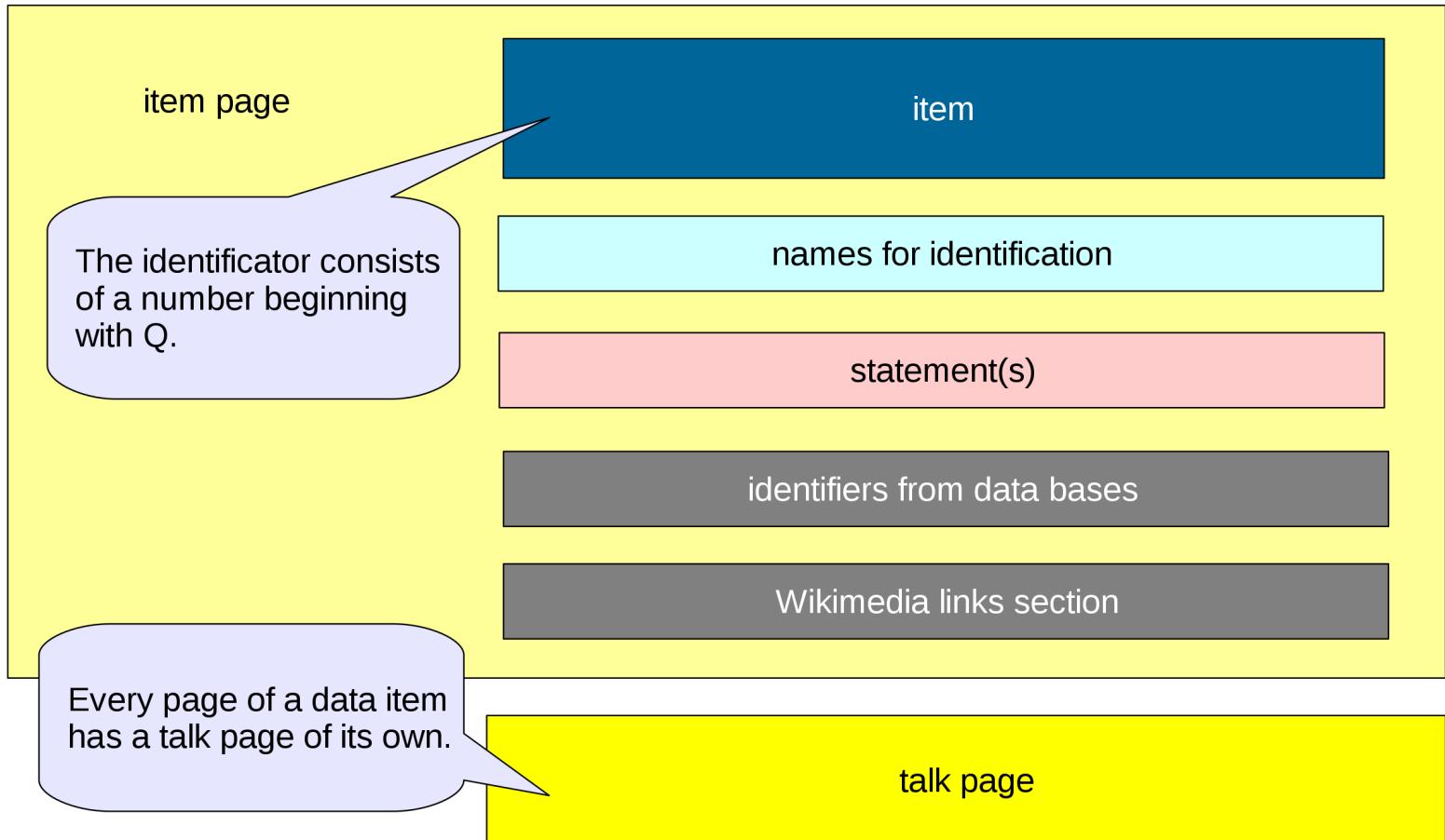
# Wikidata items



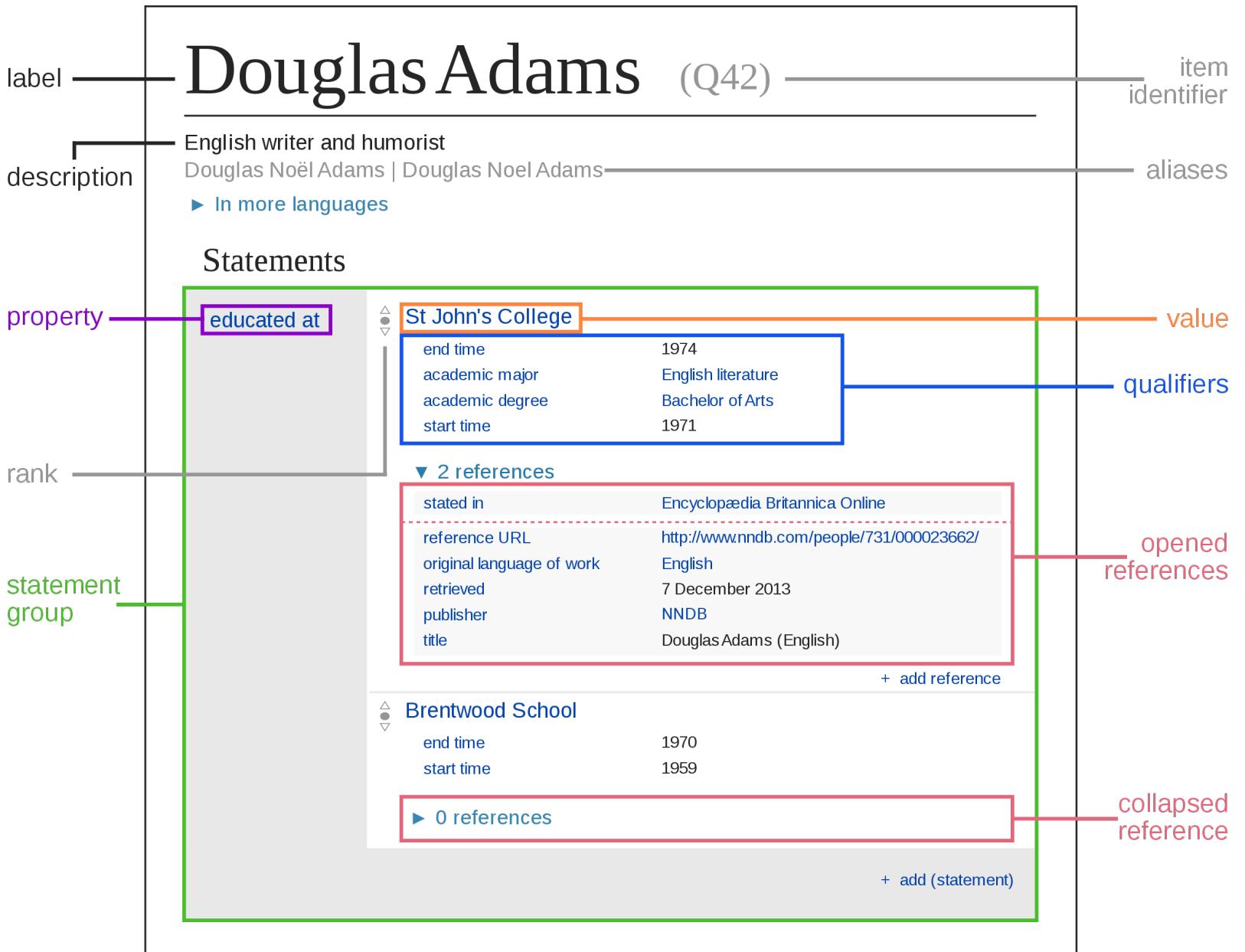
# Wikidata items

VD 01  
EN

## item page: overview



# Wikidata items



# Wikidata items

## Item:

1. **Item identifier** (number prefixed with Q)
2. **Fingerprint**, consisting of:
  1. Multilingual **label**\*
  2. Multilingual **description**\*
  3. Multilingual **aliases**
3. **Statements**, each consisting of:
  1. **Claim**, consisting of:
    1. Property
    2. Value
    3. Qualifiers (additional property-value pairs)
  2. **References** (each consisting of one or more property-value pairs)
  3. **Rank**
4. **Site links**

# Information model

- **Items + Properties**
- Triples allow to store any information
  - Subject(item) – Property/Predicate - Object
- **Identifiers** allow to link a record with other repositories: Linked Open Data.
- **Qualifiers** are used to further describe or refine the value of a property given in a statement.
- **Ranks:** Preferred, normal, deprecated, allow to select which statement(s) to return when Wikibase gets asked.

# Properties

## Property

1. **Property identifier** (number prefixed with  $P$ )
2. **Fingerprint**, consisting of:
  1. Multilingual **label**\*
  2. Multilingual **description**\*
  3. Multilingual **aliases**
3. **Statements**, each consisting of:
  1. **Claim**, consisting of:
    1. Property
    2. Value
    3. Qualifiers (additional property-value pairs)
  2. **References** (each consisting of one or more property-value pairs)
  3. **Rank**
4. **Datatype**

# Wikidata Basics

item - property - value

## Q numbers - item

- Anyone can make a Q item
- Arbitrary, correspond to a Wikipedia article or concept
- Examples
  - Q1 - the Universe
  - Q2 - Earth
  - Q5 - human
  - Q146 - cat
  - Q729 - animal
  - Q513 - Mount Everest
  - Q131626 - Smithsonian Institution

## P numbers - property

- Controlled vocabulary for consistency
- Proposal, discussion and approval process
- Examples
  - P31 - instance of
  - P279 - subclass of
  - P214 - VIAF ID
  - P569 - date of birth
  - P625 - coordinate location
- See: [Wikidata:List\\_of\\_properties](#)

# References

- References offer a source that supports the given claim
- There can be several references given for a statement.
- A claim without references is not necessarily wrong:
  - Up to the user to decide

# References

image



edit



Rafael Nadal January 2015.jpg

1,746 × 2,000; 1,015 KB

point in time

18 January 2015

▼ 0 references

+ add reference

+ add value

country of citizenship



edit

Spain

▼ 4 references

stated in

ATP website

reference URL

[http://espn.go.com/tennis/player/\\_results/\\_id/261/rafael-nadal](http://espn.go.com/tennis/player/_results/_id/261/rafael-nadal)

# Interlinking

- Linked Open Data model
- Triples allow to store any information, often in external sources
- Identifiers allow to link a record with other repositories

# Interlinking through identifiers

## BNE ID (P950)

identifier from the authority file of the Biblioteca Nacional de España. Format for persons: "XX" followed by 4 to 7 digits  
[BNE identifier](#) | Biblioteca Nacional de España ID



### ▼ In more languages Configure

Language	Label	Description	Also known as
English	BNE ID	identifier from the authority file of the Biblioteca Nacional de España. Format for persons: "XX" followed by 4 to 7 digits	BNE identifier Biblioteca Nacional de España ID
Spanish	identificador BNE	identificador de la Biblioteca Nacional de España	BNE identificador
Catalan	identificador BNE	identificador de la Biblioteca Nacional d'Espanya	BNE
Galician	identificador BNE	identificador da Biblioteca Nacional de España	

[All entered languages](#)

### Data type

External identifier

### Statements

instance of



Wikidata property for authority control by member



▼ 0 references

+ add reference

# IDs in external databases

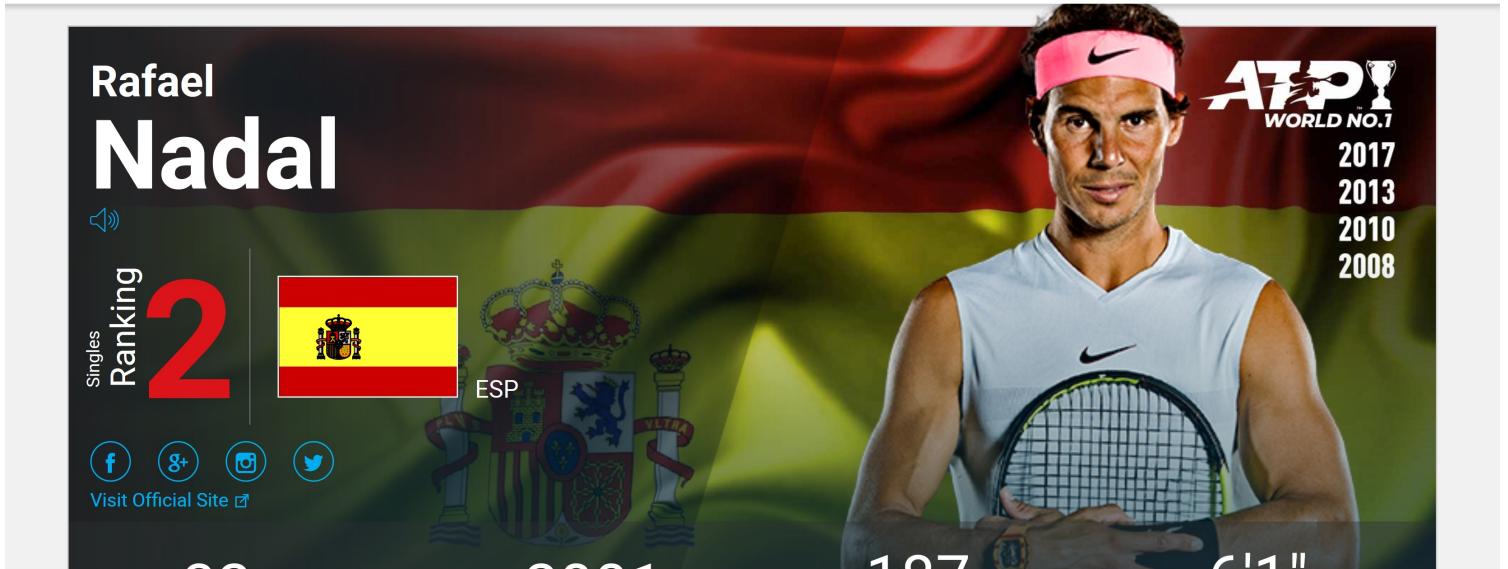
ATP player ID N409 edit

1 reference stated in ATP website + add reference + add value

ATP TOUR Scores Stats Rankings Players Tournaments News More Watch Listen Shop Search Emirates ATP TOUR PREMIER PARTNER

Rafael Nadal Overview Bio Activity Win/Loss Titles and Finals Player Stats #More# Search Players

Rafael Nadal 2017 2013 2010 2008



# Querying Wikidata

- Wikidata offers a SPARQL endpoint:  
<https://query.wikidata.org/>
- Use namespace (wdt) and property ID defining our query
- Alternatively use human readable interface (left hand side)
- Allows to create complex queries and visualizations (e.g. “Show me all politicians who are descendants of other politicians and have served in the military”)

# Prefixes

- For simple WDQS (WikiData Query Service) triples use:
  - prefix wd: for items
  - wdt: for properties

```
# ?child father Bach  
?child wdt:P22 wd:Q1339.
```

- This only applies to fixed values – variables don't get a prefix!

```
# ?dog ownedBy owner  
?dog wdt:P127 ?owner.
```

# Namespaces

- Main namespace for items only
  - Item names: Q###
- Property names: Property:nameOfProperty
  - Name: P###
- Other: Wikidata, Query...

# Namespaces

Index	Prefix	Title example	Purpose
-2	Media		Alias for direct links to media files. You can not create or delete these.
-1	Special	<a href="#">Special:SpecialPages</a>	MediaWiki automatic generated content. You cannot edit these.
0	(None)	<a href="#">Q1</a>	<i>Main name space, for items.</i>
2	User:	<a href="#">User:userid</a>	User pages
4	Wikidata: <u>WD:</u> <u>Project:</u>	<a href="#">Wikidata:Glossary</a>	Policies, guidelines, portals, wikiproject pages.
6	File:		Media description pages (currently not used)
8	MediaWiki:		User interface customization. Protected by default.
10	Template:	<a href="#">Template:Welcome</a>	Templates
12	Help:	<a href="#">Help:Contents</a>	Help pages
14	Category:		<a href="#">Category</a> description pages
120	<i>Property:</i> <i>P:</i>	<a href="#">Property:P17</a>	<i>Property definition pages</i>
122	Query:	<a href="#">Query:U1</a>	<i>Query definition pages (currently unused)</i>
146	<i>Lexeme:</i> <i>L:</i>	<a href="#">Lexeme:L1</a>	<i>Lexemes</i>
828	Module:	<a href="#">Module:Wikidata</a>	<a href="#">Scribunto</a> modules
1198	Translations:	<a href="#">Translations:Wikidata:Introduction/2/en</a>	Used by the translation interface
2300	Gadget:		Not currently in use
2302	Gadget definition:		Not currently in use
2600	Topic:		<a href="#">Structured Discussions</a> topics

Wikidata Query Service Examples Help More tools English

**Query Helper ?**

+ Filter continent Africa 

+ Show

Limit



1 SELECT ?country  
2 WHERE  
3 {  
4 ?country wdt:P30 wd:Q15.  
5 #country #continent #Africa  
6 }

14:37:17 CET, 18 feb. 2019  
Data updated a few seconds ago

706 results in 160 ms

Code Download Link

Search 

country
 wd:Q79
 wd:Q85
 wd:Q114
 wd:Q115

# Readable names

- Identifiers are not readable as the result of a query.

```
SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE]". }
```

- The language service provides additional variables:
  - For every variable `?foo` in your query, you now also have a variable `?fooLabel`



## Query Helper ?

+ Filter

continent

Africa



+ Show

Limit

```
1 SELECT ?country ?countryLabel
2 WHERE
3 {
4   ?country wdt:P30 wd:Q15.
5   ?country #continent #Africa
6   SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE],en". }
7 }
```

14:37:17 CET, 18 feb. 2019

Data updated a few seconds ago



706 results in 590 ms

&lt;/&gt; Code

Download

Link

Search



country	countryLabel
Q wd:Q79	Egypt
Q wd:Q85	Cairo
Q wd:Q114	Kenya
Q wd:Q115	Ethiopia

# Displaying results

- The default view can be change for each SPARQL query by using a comment:

```
#defaultView: [NAME]
```

- For example:

```
#defaultView: ImageGrid
```

```
#defaultView: Map
```

# Female Turing award winners

Query Helper [?](#)

award received [Turing Award](#) [Filter](#)

sex or gender [female](#) [Filter](#)

Show [image](#) [Filter](#)

Limit

#defaultView:ImageGrid

```
1 #defaultView:ImageGrid
2 SELECT ?person ?personLabel ?image WHERE {
3   ?person wdt:P18 ?image.
4   ?person wdt:P166 wd:Q185667.
5   SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE],en". }
6   ?person wdt:P21 wd:Q6581072.
7 }
```

Image grid [?](#)



commons:Allen mg 2528-3750K-b.jpg  
Frances E. Allen



commons:Shafi Goldwasser.JPG  
Shafrazi Goldwasser



commons:Barbara Liskov.PNG  
Barbara Liskov

# Maps

3. Which countries use 112 as an emergency number?

```
#defaultView:Map
SELECT ?country ?countryLabel ?location

WHERE {
  ?country wdt:P2852 wd:Q1061257;
            wdt:P625 ?location.

  SERVICE wikibase:label { bd:serviceParam wikibase:language "en" }
}
```



# Use cases

# Open Streetmap

- OpenStreetMap Wikidata entities can be linked on every kind of osm object using the [wikidata](#) key
- link from Wikidata entities to OpenStreetMap relations by using [\*\*Property P402\*\*](#)
- Several user scripts on Wikidata allow to query and render an OSM-derived map for specific items in Wikidata matching OSM elements:
  - “[Overpass](#)” – adds to a Wikidata item page a map showing features tagged in OSM with their Wikidata item identifier.
  - “[MapView](#)” – displays an OSM-derived map on Wikidata item page with coordinates



# Gene wiki initiative

- Open biological data are distributed over many resources: challenging to integrate, to update and to disseminate quickly.
- Wikidata can serve this purpose.
- In order to improve the state of biological data, facilitate data management and dissemination, all human and mouse genes, and all human and mouse proteins were imported into Wikidata.
- The first use case was to populate Wikipedia Gene Wiki infoboxes directly from Wikidata with the data integrated.



[Database \(Oxford\)](#). 2016; 2016: baw015.

Published online 2016 Mar 17. doi: [10.1093/database/baw015](https://doi.org/10.1093/database/baw015)

PMCID: PMC4795929

PMID: [26989148](#)

## Wikidata as a semantic framework for the Gene Wiki initiative

[Sebastian Burgstaller-Muehlbacher](#),<sup>✉1</sup> [Andra Waagmeester](#),<sup>2</sup> [Elvira Mitraka](#),<sup>3</sup> [Julia Turner](#),<sup>1</sup> [Tim Putman](#),<sup>1</sup> [Justin Leong](#),<sup>4</sup> [Chinmay Naik](#),<sup>5</sup> [Paul Pavlidis](#),<sup>4</sup> [Lynn Schriml](#),<sup>3</sup> [Benjamin M Good](#),<sup>1,\*</sup> and [Andrew I Su](#)<sup>1,\*</sup>

► Author information ► Article notes ► Copyright and License information [Disclaimer](#)

# Company Knowledge Panel (KP) in Google

- Google's KP includes key facts, pictures, reviews, and even social profiles related to a search query.
- KP is very visible in Google's search results, so it can be a great branding opportunity for an organization.
- Good information in Wikidata is very important as Google takes the information from several sources and one is Wikidata



## American Residential Properties ★

[Website](#) [Directions](#)

2.3 ★★★★☆ 76 Google reviews

Property Management Company

**Address:** 7047 E Greenway Pkwy #350, Scottsdale, AZ 85254

**Phone:** (480) 474-4800

[Claim this business](#) · [Suggest an edit](#)

### Reviews

[Write a review](#) [Add a photo](#)



"I'm sorry but **toxic black mold** is an emergency."



"My experience with **American Residential** has been TERRIBLE!"



"American Res is certainly NOT interested in keeping **tenants** happy."

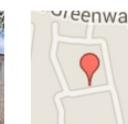
[View all Google reviews](#)

### People also search for

[View 15+ more](#)



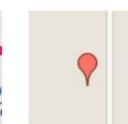
Colony  
American  
Homes



Lincoln  
Property Co



Renters  
Warehouse  
Phoenix



The P.B.  
Bell  
Companies



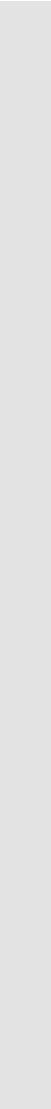
Waypoint  
Homes

# Other (endless) examples

- [Descendants of Genghis Khan.](#)
- [Timeline of works by Robert Louis Stevenson.](#)
- [Map of places of birth of female saxophonists.](#)
- [Map showing the birthplace of over 6,000 notable women born in Latin America and listed on Wikipedia but with no article in the Spanish language edition.](#)



Hands-on



# Wikidata edition

- Access the page of your hometown
- Review it
- Examine Statements
  - Add a reference to at least one statement
  - Add a statement if you can
- Examine IDs:
  - Explore some, e.g. Geonames if present

# Building a query tutorial

- Writing a Wikidata Query: Discovering Women Writers from North Africa:
- <https://medium.com/freely-sharing-the-sum-of-all-knowledge/writing-a-wikidata-query-discovering-women-writers-from-north-africa-d020634fof6c>
- Other:  
[https://www.wikidata.org/wiki/Wikidata:SPARQL\\_query\\_service/Building\\_a\\_query](https://www.wikidata.org/wiki/Wikidata:SPARQL_query_service/Building_a_query)

# Query Wikidata

- Access Wikidata SPARQL endpoint: <https://query.wikidata.org/>
- Experiment on queries, like:
  - Number of humans in wikidata
  - Name of the only Bull Terrier in wikidata, and his owner
  - List all cats' names
  - Any other you can imagine...