

Technische Universität Dresden  
Fakultät Informatik

# Wikidata, die freie Wissensbasis von Wikipedia

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TU Dresden

DINI Jahrestagung  
Juli 2015





**1/2 Milliarde**

Wikipedia Leser/Monat

**Die Antwort  
auf alle Fragen ...**

**... in allen Sprachen**

**Welches sind die derzeit größten Städte mit  
einer Bürgermeisterin**

**?**

(vorhandenes Wissen  $\neq$  nutzbares Wissen)

# nahezu 300

Wikipedia Spracheditionen

**nahezu 300**

Wikipedia Spracheditionen

**114**

mit einem Artikel zu Ebola

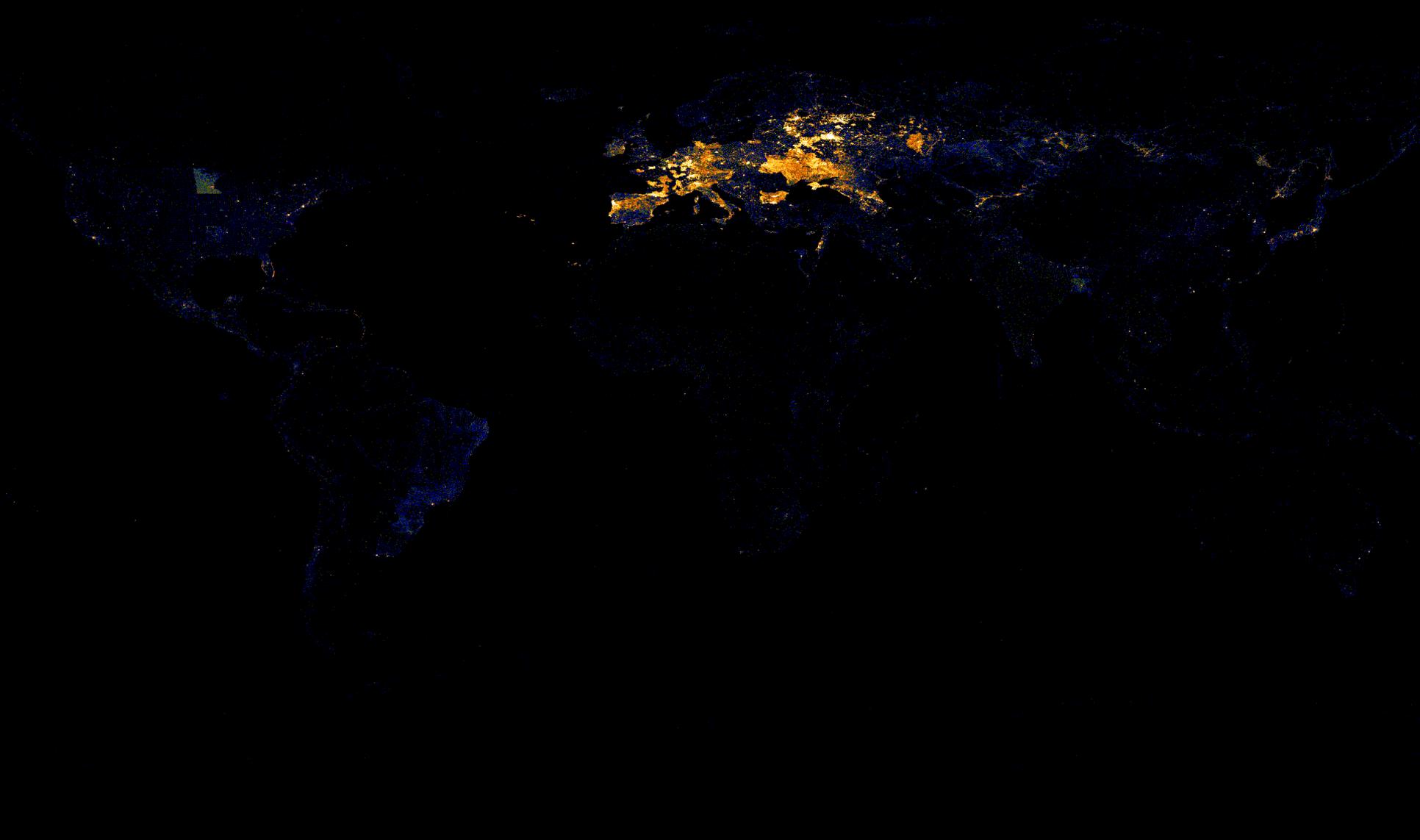
# Englisch (978.759 Einträge)



# Deutsch (362.869 Einträge)



# Russisch (313.124 Einträge)



# Italienisch (252.659 Einträge)



# Chinesisch (224.135 Einträge)



# Japanisch (114.251 Einträge)



# Englisch (978.759 Einträge)





**WIKIDATA**

1. offen und kollaborativ
2. multilingual
3. sekundäre Datenbank

1. Datenquelle
2. Integrationsplattform
3. Vokabular und Ontologie

**18.697.897**

Entitäten in Wikidata

**18.697.897**

Entitäten in Wikidata

**6.324.207**

Artikel in englischer Wikipedia

# Englisch (978.759 Einträge)



# Wikidata (2.360.617 Einträge)



# 1.874

Eigenschaften

Geburtsdaten von Personen

Bürgermeister von Städten

Spektralklassen von Sternen

Koordinaten von Erdbeben

...

**74.266.887**

Aussagen (Statements)

**74.266.887**

Aussagen (Statements)

**38.695.979**

Aussagen mit Quellenangaben

**> 80.000**

Menschen haben bisher editiert

**> 80.000**

Menschen haben bisher editiert

**> 75%**

aller Bearbeitungen durch Bots

# Nahezu jede Wikipedia-Seite zeigt Daten aus Wikidata

*Sprachlinks und eingebettete Daten*

# Einbettung von Daten über Vorlagen



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## South Pole Telescope

From Wikipedia, the free encyclopedia

Coordinates: 90°S 0°E

**The South Pole Telescope (SPT)** is a 10 [metre](#) (394 [in](#)) diameter telescope located at the [Amundsen–Scott South Pole Station](#), Antarctica. The telescope is designed for observations in the [microwave](#), [millimeter-wave](#), and [submillimeter-wave](#) regions of the electromagnetic spectrum, with the particular design goal of measuring the faint, diffuse emission from the [cosmic microwave background](#) (CMB).<sup>[1]</sup> The first major survey with the SPT—designed to find distant, massive, [clusters of galaxies](#) through their interaction with the CMB, with the goal of constraining the [dark energy](#) equation of state—was completed in October 2011. In early 2012, a new camera was installed on the SPT with even greater sensitivity and the capability to measure the polarization of incoming light. This camera is designed to measure the so-called "[B-mode](#)" or "[curl](#)" component of the polarized CMB, leading to constraints on the mass of the [neutrino](#) and the energy scale of [inflation](#).<sup>[2]</sup>

The SPT collaboration is made up of over a dozen (mostly North American) institutions, including the [University of Chicago](#), the [University of California-Berkeley](#), [Case Western Reserve University](#), [Harvard-Smithsonian Astrophysical Observatory](#), the [University of Colorado-Boulder](#), [McGill University](#), [The University of Illinois at Urbana-Champaign](#), [University of California at Davis](#), [Ludwig Maximilian University of Munich](#), [Argonne National Laboratory](#), and the [National Institute for Standards and Technology](#). It is funded by the [National Science Foundation](#).

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- [5 Science goals](#)
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### South Pole Telescope



**Location(s)** [Amundsen–Scott South Pole Station](#)

**Coordinates**  90°S 0°E

**Built** October 2006–January 2007

**Telescope style** [Gregorian telescope](#)

**Website** [pole.uchicago.edu](#)

[Related media on Wikimedia Commons](#)



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## South Pole Telescope

From Wikipedia, the free encyclopedia

Infobox

[Coordinates:](#) 90°S 0°E

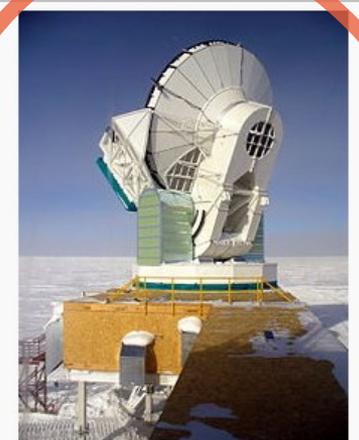
**The South Pole Telescope (SPT)** is a 10 [metre](#) (394 [in](#)) diameter telescope located at the [Amundsen–Scott South Pole Station](#), Antarctica. The telescope is designed for observations in the [microwave](#), [millimeter-wave](#), and [submillimeter-wave](#) regions of the electromagnetic spectrum, with the particular design goal of measuring the faint, diffuse emission from the [cosmic microwave background](#) (CMB).<sup>[1]</sup> The first major survey with the SPT—designed to find distant, massive, [clusters of galaxies](#) through their interaction with the CMB, with the goal of constraining the [dark energy](#) equation of state—was completed in October 2011. In early 2012, a new camera was installed on the SPT with even greater sensitivity and the capability to measure the polarization of incoming light. This camera is designed to measure the so-called "[B-mode](#)" or "[curl](#)" component of the polarized CMB, leading to constraints on the mass of the [neutrino](#) and the energy scale of [inflation](#).<sup>[2]</sup>

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South Pole Telescope



**Location(s)** [Amundsen–Scott South Pole Station](#)

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**Keine Daten im Text!**

```
{{Infobox telescope}}
'''The South Pole Telescope''' ('''SPT''') is a 10 [[metre]] (394&nbsp;[[inch|in]]) diameter telescope located at the [[Amundsen–Scott South Pole Station]], Antarctica. The telescope is designed for observations in the [[microwave]], [[extremely high frequency|millimeter-wave]], and [[terahertz radiation|submillimeter-wave]] regions of the electromagnetic spectrum, with the particular design goal of measuring the faint, diffuse emission from the [[cosmic microwave background]] (CMB).<ref name=carlstrom09>
{{Cite arXiv
|author = J. E. Carlstrom|author2 = et al.
|title = The 10 Meter South Pole Telescope
|eprint = 0907.4445
}}</ref> The first major survey with the SPT—designed to find distant, massive, [[clusters of galaxies]] through their interaction with the CMB, with the goal of constraining the [[dark energy]] equation of state—was completed in October 2011. In early 2012, a new camera was installed on the SPT with even greater sensitivity and the capability to measure the polarization of incoming light. This camera is designed to measure the so-called "[[B-modes|B-mode]]" or "[[Curl (mathematics)|curl]]" component of the polarized CMB, leading to constraints on the mass of the [[neutrino]] and the energy scale of [[inflation (cosmology)|inflation]].<ref name="mcmahon09">
{{Cite journal
|author = McMahon, J.|display-authors = etal
|date = 2001
|journal = AIP Conf. Proc.
|pages = 511–514
|url = http://proceedings.aip.org/resource/2/apocps/1185/1/511_1|volume = 1185|title = SPTtel: an
```

# Read

Wiki

Externe Anwendungen

Web API (REST/JSON)

Daten-Exporte (JSON, RDF)

Live-Abfragen (SPARQL)

# Read

Wiki

Externe Anwendungen

Web API (REST/JSON)

Daten-Exporte (JSON, RDF)

Live-Abfragen (SPARQL)

# Write

Wiki

Externe UIs (Games, etc.)

Web API (REST/JSON)

Bot-Frameworks

Import-Frameworks (MnM, PS, etc.)

# Read

Wiki

Externe Anwendungen

Web API (REST/JSON)

Daten-Exporte (JSON, RDF)

Live-Abfragen (SPARQL)

# Open

# Write

Wiki

Externe UIs (Games, etc.)

Web API (REST/JSON)

Bot-Frameworks

Import-Frameworks (MnM, PS, etc.)

# Data

# 1/2 Milliarde

RDF-Tripel als Linked Open Data

# Vokabular!

Wikidata als Quelle eindeutiger  
Bezeichner für Entitäten

Verknüpfungen zu sehr vielen  
Datenbanken und Normdateien  
zahlreicher Themengebiete

# Vokabular!

Wikidata als Quelle eindeutiger  
Bezeichner für Entitäten

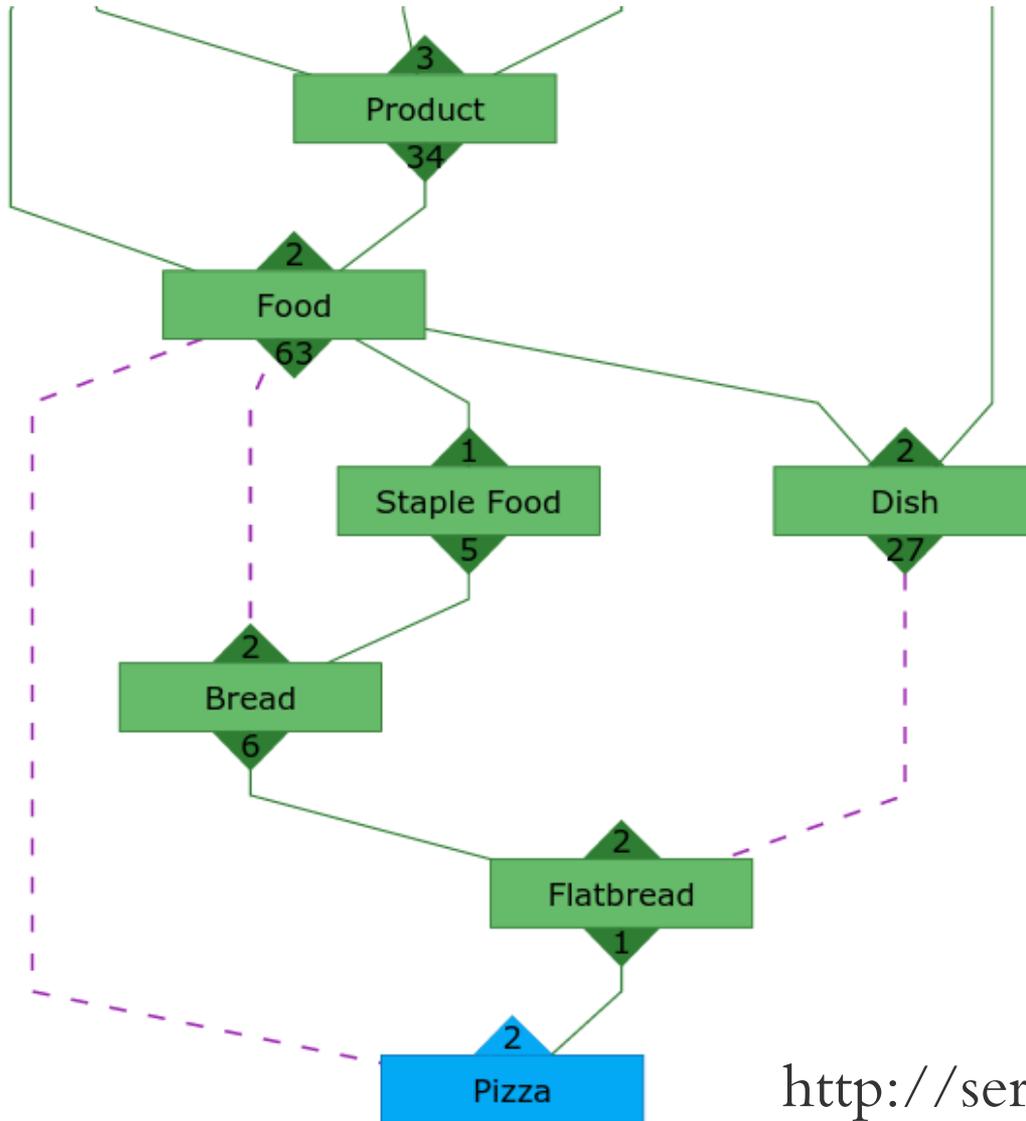
Verknüpfungen zu sehr vielen  
Datenbanken und Normdateien  
zahlreicher Themengebiete

# Ontologie?

Wikidata-Entitäten werden  
taxonomisch organisiert

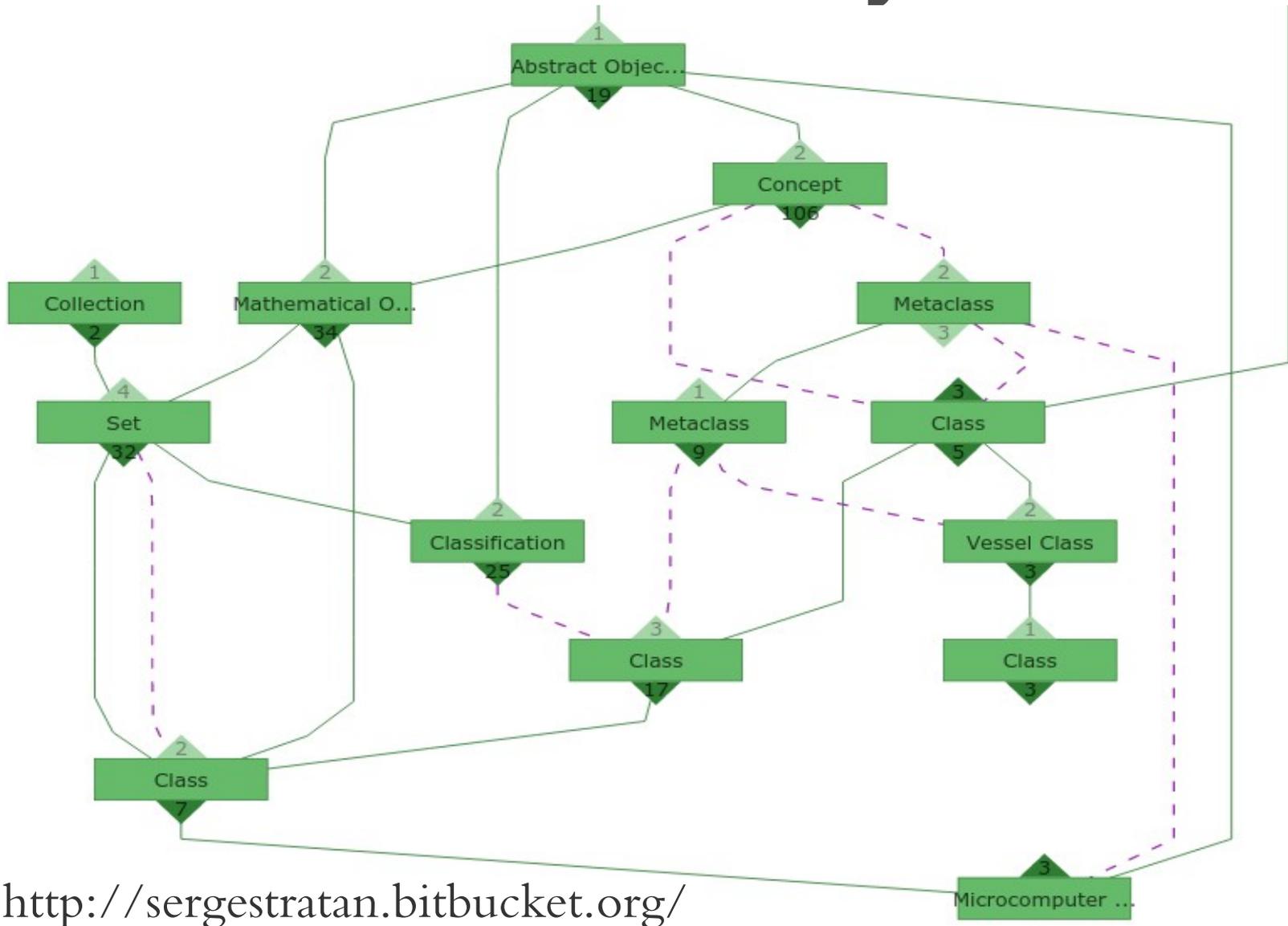
Kohärente, sinnvolle Organisation  
über Themengebiete hinweg  
extrem anspruchsvoll

# Wikidata Taxonomy Browser



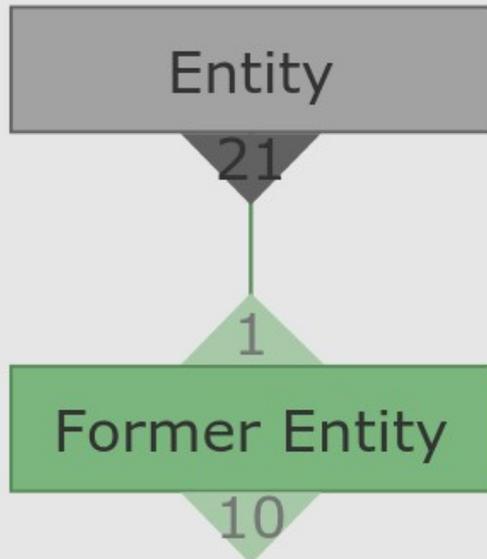
<http://sergestratan.bitbucket.org/>

# Wikidata Taxonomy Browser



<http://sergestratan.bitbucket.org/>

# Wikidata Taxonomy Browser



## Choose which classes to display

**Former Entity** class has **10** direct neighbors!

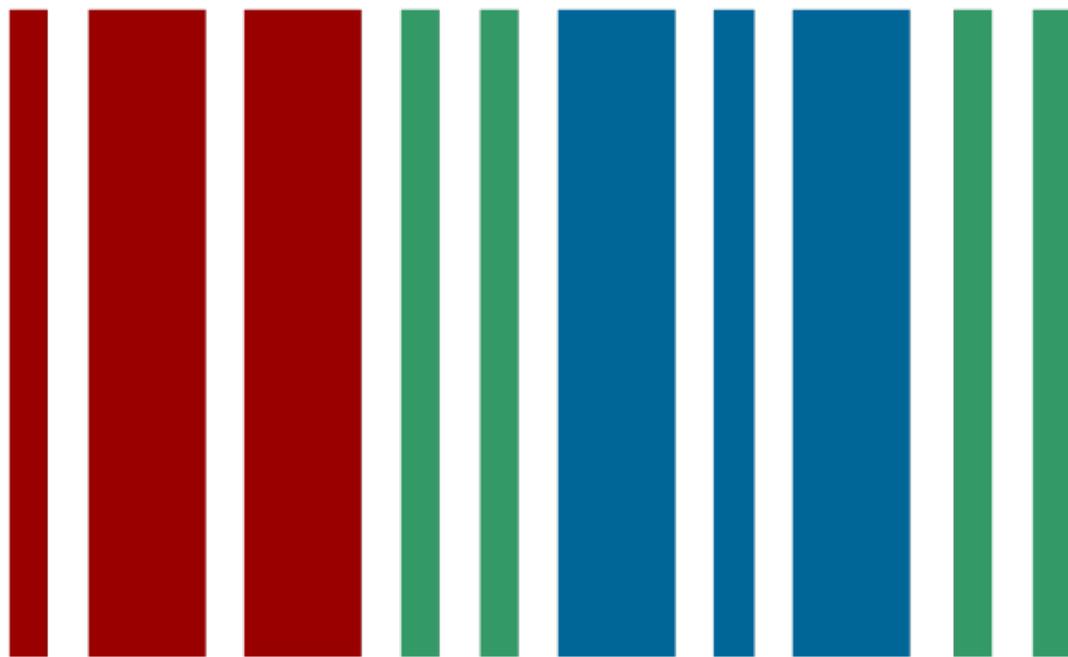
Choose which classes to display:

- Select All
- Extinct Language (Q45762)
- Ghost Town (Q74047)
- Historical Region (Q1620908)
- Historical Ethnical Group (Q4204501)
- Defunct Sports Team (Q15896028)
- Historical Administrative Division (Q19832712)
- Defunct Cycling Race (Q19860625)
- Former Building Or Structure (Q19860854)
- Historic Ocean (Q20018918)
- Former Administrative Division (Q21140352)

Cancel

Confirm

<http://sergestratan.bitbucket.org/>



**WIKIDATA**

# Antworten auf alle Fragen?!

Wikipedia's freie Wissensbasis

Read/Write Open Data

Extrem aktive Entwicklung

Ressource für Data Sciences

Junges Projekt: nur 3 Jahre!

Viele unerforschte Anwendungen

Mehr bessere Referenzen nötig

Taxonomische Herausforderungen

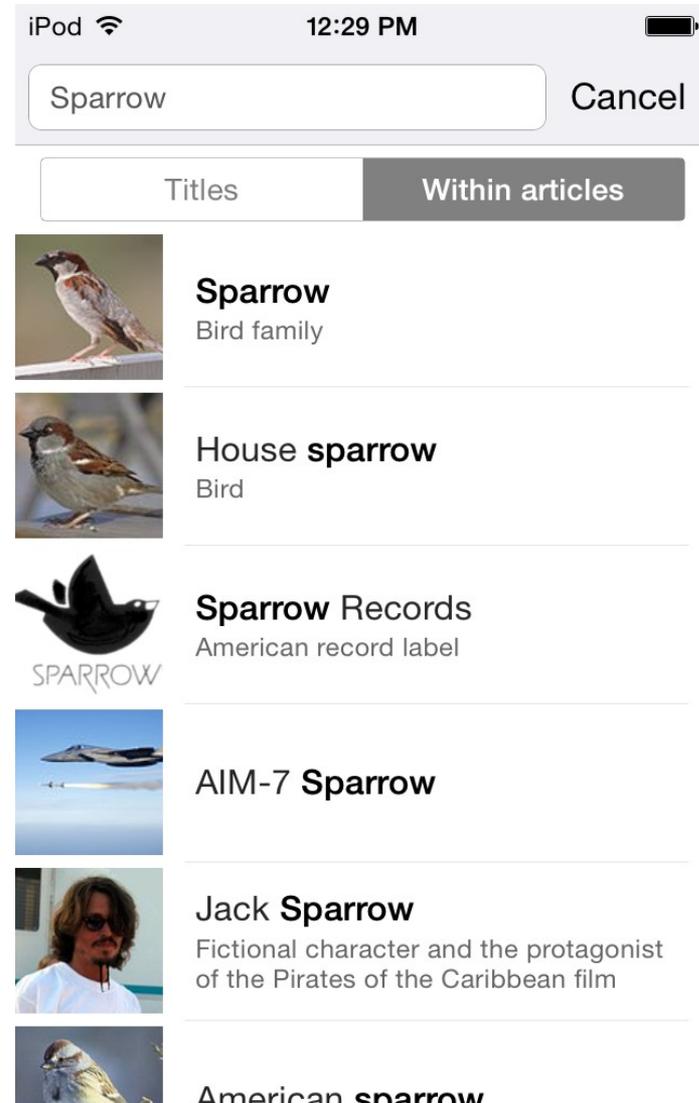
# Und die Bürgermeisterinnen?

<b>Madrid</b>	<b>Manuela Carmena</b>	<b>3.165.235</b>
<b>Paris</b>	<b>Anne Hidalgo</b>	<b>2.240.621</b>
<b>Houston</b>	<b>Annise Parker</b>	<b>2.195.914</b>
<b>Havana</b>	<b>Marta Hernández Romero</b>	<b>2.106.146</b>
<b>Warsaw</b>	<b>Hanna Gronkiewicz-Waltz</b>	<b>1.735.442</b>
<b>Barcelona</b>	<b>Ada Colau</b>	<b>1.611.822</b>
<b>Sofia</b>	<b>Yordanka Fandakova</b>	<b>1.286.383</b>
<b>Prague</b>	<b>Adriana Krnáčová</b>	<b>1.243.201</b>
<b>Washington, D.C.</b>	<b>Muriel Bowser</b>	<b>658.893</b>
<b>Taguig</b>	<b>Lani Cayetano</b>	<b>644.473</b>

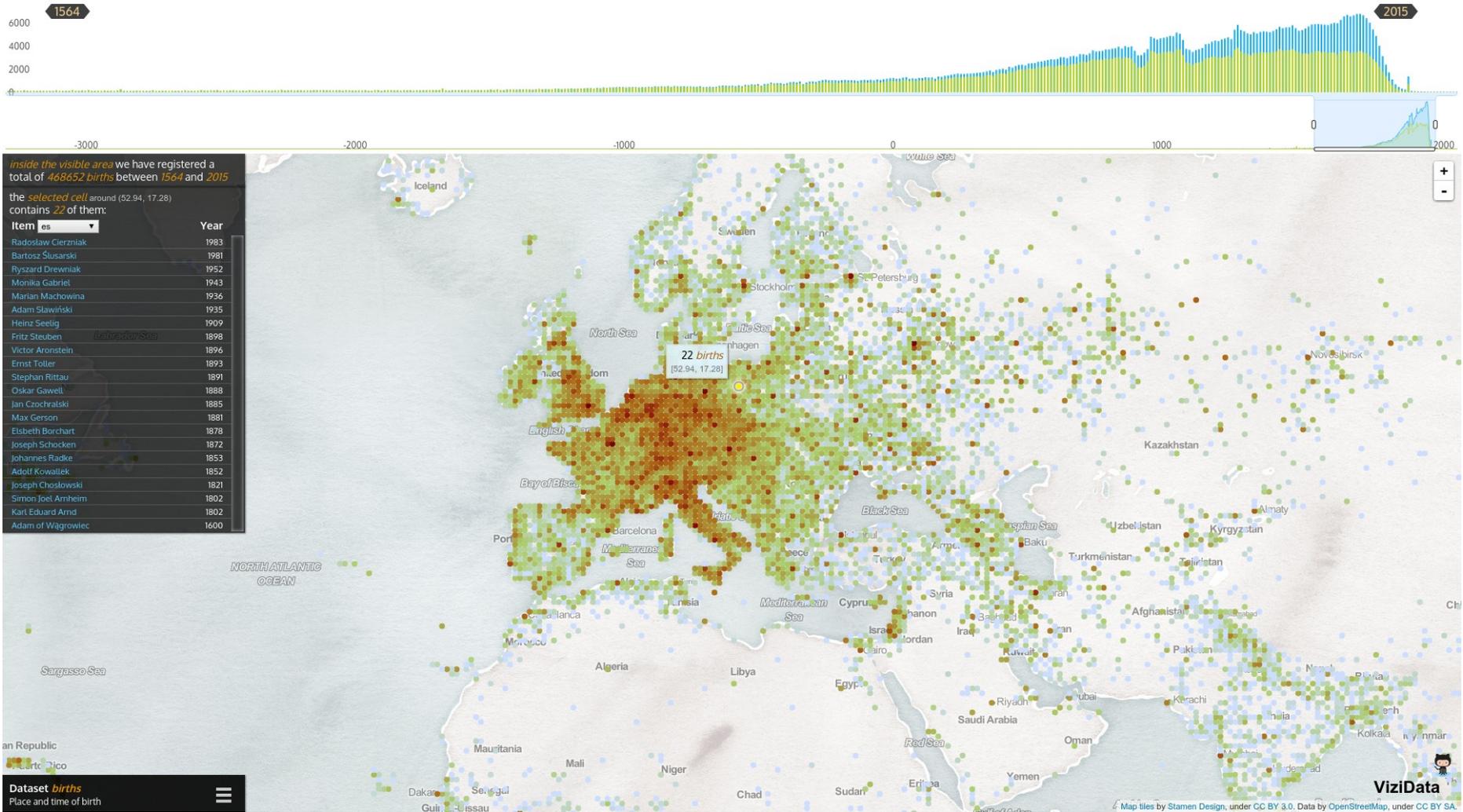
# Weitere Anwendungsbeispiele



Wikipedia Apps



# Weitere Anwendungsbeispiele



ViziData von Georg Wild

# Weitere Anwendungsbeispiele

Item [Johann Sebastian Bach](#) (q1339)

## Johann Sebastian Bach

Jean-Sébastien Bach | Ёган Бах | Бах, Йоганн Себастиан | Бах | Бах, Йоганн Себастиан |  
Bach | J. S. Bach | JS Bach | باخ

German composer, organist, harpsichordist, violist, and violinist

male composer /organist from [Germany](#)

[See the full family tree](#)

### Relatives

#### Parents

**father** ♂ [Johann Ambrosius Bach](#) [WD](#)

**mother** ♀ [Maria Elisabeth Lämmerhirt](#)  
[WD](#)

#### Siblings

**brother** ♂ [Johann Jacob Bach](#) [WD](#)

♂ [Johann Christoph Bach](#) [WD](#)

#### Children

**child** ♂ [Wilhelm Friedemann Bach](#) [WD](#)

♂ [Carl Philipp Emanuel Bach](#) [WD](#)

♂ [Johann Christian Bach](#) [WD](#)

♂ [Johann Gottfried Bernhard Bach](#) [WD](#)

♂ [Johann Christoph Friedrich Bach](#) [WD](#)

#### Other

**spouse** ♀ [Anna Magdalena Bach](#)  
[WD](#)

♀ [Maria Barbara Bach](#) [WD](#)

**grandparent** ♂ [Christoph Bach](#) [WD](#)

of ♂ [Johann Sebastian Bach](#) [WD](#)



*Johann Sebastian Bach.*

GND [11850553X](#)  
LCCN [n79021425](#)  
ISNI [0000 0001 2276 4157](#)  
BNF [118897907](#)  
IMDb [nm0001925](#)  
VIAF [12304462](#)  
SUDOC [026699656](#)  
NDL [00432003](#)  
NI A [000035011573](#)

Reasonator von Magnus Manske

# Weitere Anwendungsbeispiele

The screenshot displays the Histropedia website interface. At the top, there is a navigation bar with 'BETA v1.0', social media links (Facebook, LinkedIn, Instagram, Twitter), and menu items: 'Timeline', 'About', 'Contact', 'How it works', 'Join Community', and 'Feedback'. Below the navigation bar is a search bar with the placeholder text 'Start searching for your topic...' and a search icon. To the right of the search bar are options for 'Event density' (set to 'High'), a 'Save' button, and a 'Sign In' button.

The main content area shows a horizontal timeline from 1455 to 1525. Various portrait paintings are placed along this timeline, each with a title and date. The paintings include:

- Portrait of Sigmunde (1471)
- Portrait of Francesco Gonzaga (1481)
- Portrait of a Young Man (Botticelli, Pi) (1470 - 1475)
- Portrait of a Lady known as Esmeralda (1471)
- Primavera (painting) (1482)
- Lady with an Ermine (1489)
- Portrait of Sanuzetta Vespucci (Piero di) (1490)
- Portrait of a Musician (1490)
- Portrait of a Young Fiancee (1495)
- Portrait of Emilia Pia da Montefietro (1504 - 1505)
- Portrait of Pope Julius II (Raphael) (1511 - 1512)
- Portrait of J. Muffel (1526)

At the bottom of the timeline, there are controls for 'My timeline' and a 'Share Timeline' button. On the right side, a detailed view of the 'Lady with an Ermine' painting is shown, including its title, a 'Wikipedia' link, and social media sharing options (Twitter, Books, TV & Film, Music, YouTube). Below the painting image is a button labeled 'ADD TO TIMELINE'.

Histropedia