

## This detail from Sandro Botticelli's 'Birth of Venus' focuses on the central figure, Venus, as she reclines on a large, scallop shell. She is depicted with a fair complexion and long, flowing blonde hair, wearing a pinkish-red mantle that is partially draped over her. Her gaze is directed towards the viewer. To her left, a figure in a green garment is partially visible, and to her right, another figure in a pinkish-red mantle is seen. The background is a lush, green landscape with a small body of water in the foreground. The overall style is characteristic of the Italian Renaissance, with soft, flowing lines and a focus on idealized beauty.



HPI Hasso Plattner Institut

Geographic



**Retrieval vs. Exploration**

# Retrieval vs. Exploration



- **Retrieval Problem:**
  - you are looking for **something specific**
  - i.e. you know what you are looking for
- How to specify your search request?
  - e.g. for a book:  
author name, title, etc.
- Often you are using
  - (unique) identifier
  - descriptive metadata

# Retrieval vs Exploration



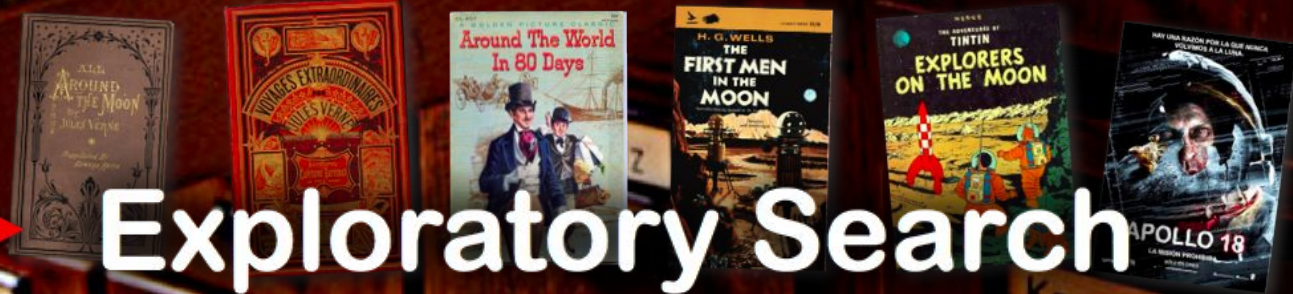
V E R N E, Jules:  
From the Earth to the Moon, Direct in  
97 Hours 20 Minutes and a Trip Round It,  
Sampson Low, Marston & Company,  
London (1873),  
viii, 323 p. plates.

GRC C.194.a.659, 12516.g.20

# Retrieval vs Exploration



- Find another („comparable“) book, (that will interest me...)
- Find books on the same or related topics
- How did the author / the topic develop over time?
- What else would I like to read?



## Exploratory Search



**...and intelligent  
recommendations**

**traditional libraries  
enable exploratory search**

## Exploratory Search

represents the activities carried out by searchers who are either:

- unfamiliar with the domain of their goal (i.e. need to learn about the topic in order to understand how to achieve their goal)
- unsure about the ways to achieve their goals (either the technology or the process)
- or even unsure about their goals in the first place.

- ...**Browsing** instead of **Searching**
- ...to find something by chance, i.e. **Serendipity**
- ...to get an **overview**
- ...enable content based **navigation**

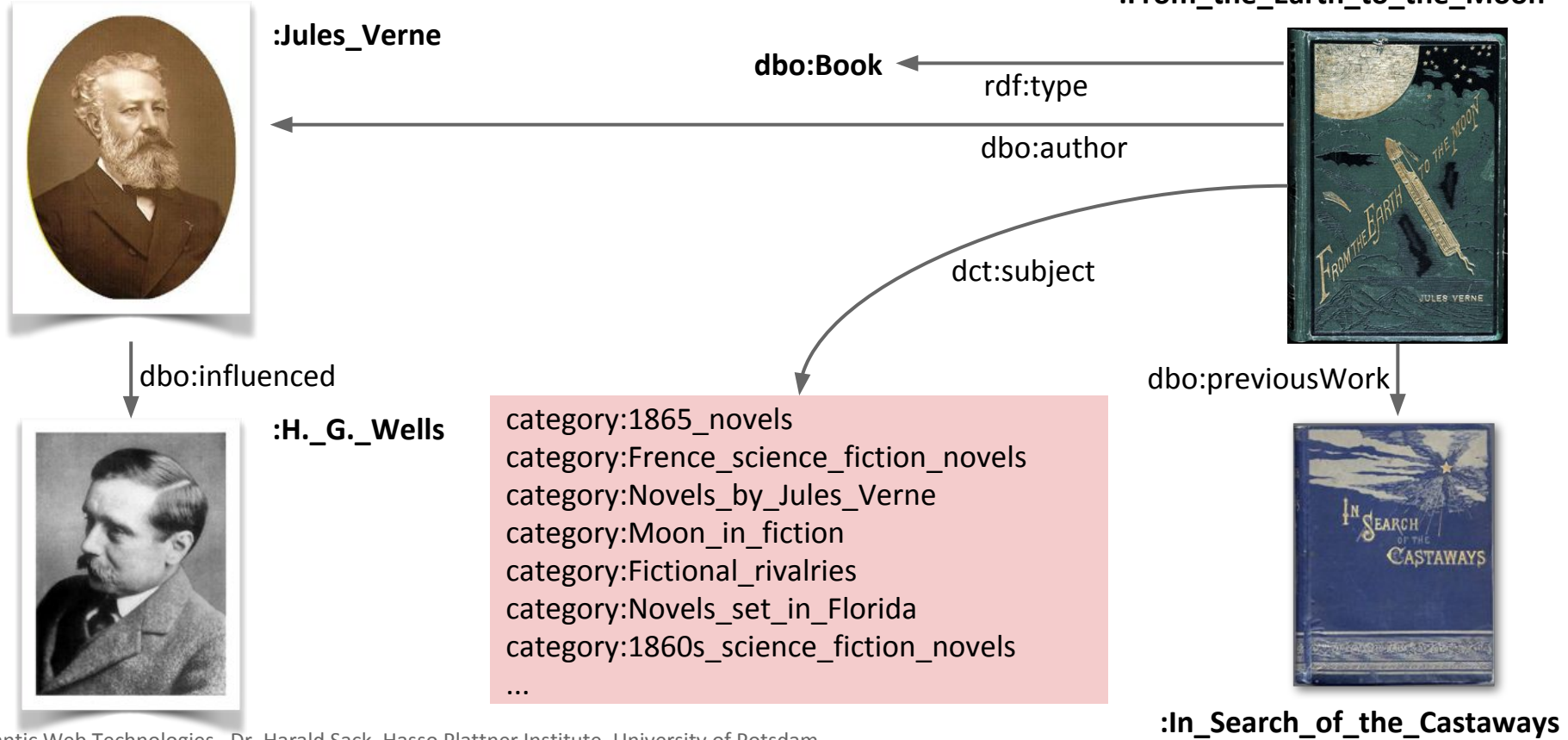
# Exploratory Search based on Linked Data



[http://dbpedia.org/resource/From\\_the\\_Earth\\_to\\_the\\_Moon](http://dbpedia.org/resource/From_the_Earth_to_the_Moon)

| About: From the Earth to the Moon                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| An Entity of Type : <a href="#">book</a> , from Named Graph : <a href="http://dbpedia.org">http://dbpedia.org</a> , within Data Space : <a href="#">dbpedia.org</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| From the Earth to the Moon (French: De la terre à la lune) is an 1865 novel by Jules Verne.                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Property                                                                                                                                                            | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <a href="#">dbpedia-owl:abstract</a>                                                                                                                                | <ul style="list-style-type: none"><li>From the Earth to the Moon (French: De la terre à la lune) is an 1865 novel by Jules Verne. It tells the story of the Baltimore Gun Club, a post-American Civil War society of weapons aficionados, and their attempts to build an enormous sky-ling Columbiad space gun and launch three people – the Gun Club's president, his Philadelphia armor-making rival, and a French poet – in a projectile with the goal of a moon landing. The story is also notable in that Verne attempted to do some rough calculations as to the requirements for the cannon and, considering the comparative lack of any data on the subject at the time, some of his figures are surprisingly close to reality. However, his scenario turned out to be impractical for safe manned space travel since a much longer muzzle would have been required to reach escape velocity while limiting acceleration to survivable limits for the passengers. The character of Michel Ardan, the French poet in the novel, was inspired by the real-life photographer Félix Nadar.</li><li>Von der Erde zum Mond ist ein Roman des französischen Autors Jules Verne. Der Roman wurde erstmals 1865 unter dem französischen Titel De la Terre à la Lune von dem Verleger Pierre-Jules Hetzel veröffentlicht. Die erste deutschsprachige Ausgabe erschien 1873 unter dem Titel Von der Erde zum Mond. Der englische Titel des Romans lautet From the Earth to the Moon. Es handelt sich um ein frühes Werk des Science-Fiction-Genres, das die Mondfahrt um etwa hundert Jahre vorwegnimmt. Allerdings geht es hier vor allem noch um die Vorbereitung des Abenteuers. Der Roman Reise um den Mond (Autour de la Lune) von 1870 setzte die Geschichte fort.</li></ul> |
| <a href="#">dbpedia-owl:author</a>                                                                                                                                  | <ul style="list-style-type: none"><li><a href="#">dbpedia:Jules_Verne</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <a href="#">dbpedia-owl:illustrator</a>                                                                                                                             | <ul style="list-style-type: none"><li><a href="#">dbpedia:Henri_de_Montaut</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <a href="#">dbpedia-owl:publisher</a>                                                                                                                               | <ul style="list-style-type: none"><li><a href="#">dbpedia:Pierre-Jules_Hetzel</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <a href="#">dbpedia-owl:translator</a>                                                                                                                              | <ul style="list-style-type: none"><li><a href="#">dbpedia:Robert_Baldick</a></li><li><a href="#">dbpedia:Lewis_Page_Merier</a></li><li><a href="#">dbpedia:Walter_James_Miller</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <a href="#">dbpedia-owl:wikiPageID</a>                                                                                                                              | <ul style="list-style-type: none"><li><a href="#">245137</a> (xsd:integer)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <a href="#">dbprop:author</a>                                                                                                                                       | <ul style="list-style-type: none"><li><a href="#">Jules Verne</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <a href="#">dbprop:caption</a>                                                                                                                                      | <ul style="list-style-type: none"><li>Cover of an early English translation</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <a href="#">dbprop:country</a>                                                                                                                                      | <ul style="list-style-type: none"><li><a href="#">France</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <a href="#">dbprop:englishPubDate</a>                                                                                                                               | <ul style="list-style-type: none"><li><a href="#">1867</a> (xsd:integer)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <a href="#">dbprop:genre</a>                                                                                                                                        | <ul style="list-style-type: none"><li><a href="#">dbpedia:Novel</a></li><li><a href="#">dbpedia:Science_fiction</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <a href="#">dbprop:illustrator</a>                                                                                                                                  | <ul style="list-style-type: none"><li><a href="#">dbpedia:Henri_de_Montaut</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <a href="#">dbprop:mediaType</a>                                                                                                                                    | <ul style="list-style-type: none"><li><a href="#">Print</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <a href="#">dbprop:name</a>                                                                                                                                         | <ul style="list-style-type: none"><li><a href="#">From the Earth to the Moon</a></li><li><a href="#">From the Earth to the Moon; and, Round the Moon</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <a href="#">dbprop:publisher</a>                                                                                                                                    | <ul style="list-style-type: none"><li><a href="#">dbpedia:Pierre-Jules_Hetzel</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <a href="#">dbprop:releaseDate</a>                                                                                                                                  | <ul style="list-style-type: none"><li><a href="#">1865</a> (xsd:integer)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <a href="#">dbprop:series</a>                                                                                                                                       | <ul style="list-style-type: none"><li><a href="#">Voyages Extraordinaires #4</a></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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# Exploratory Search based on Linked Data



# Exploratory Search based on Linked Data

:From\_the\_Earth\_to\_the\_Moon

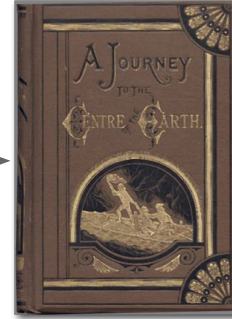


rdf:type

dbo:Book

rdf:type

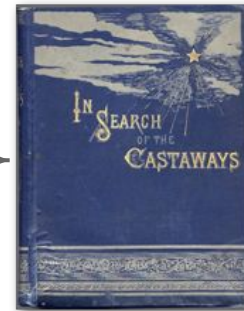
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:A\_Journey\_to\_the\_Center\_of\_the\_Earth

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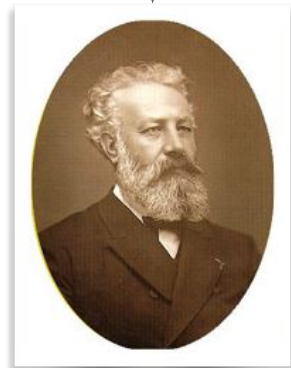
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:In\_Search\_of\_the\_Castaways

# Exploratory Search based on Linked Data

:From\_the\_Earth\_to\_the\_Moon



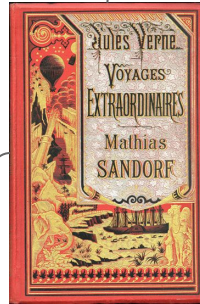
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:Jules\_Verne

rdf:type

dbo:Book

rdf:type



:Matthias\_Sandorf

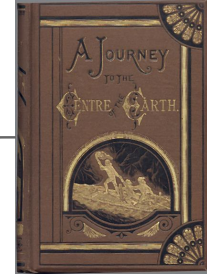
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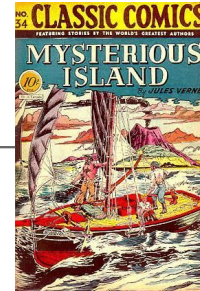
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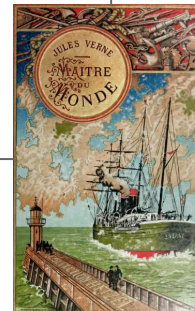


:A\_Journey\_to\_the\_Center\_of\_the\_Earth

rdf:type



:The\_Mysterious\_Island



:Master\_of\_the\_World\_(novel)<sup>11</sup>

rdf:type

## dbo:Book

rdf:type

rdf:type

rdf:type

```
dbo:author
```

dbo:author

dbo:author

dbo:author

**dbo:Writer**

dbo:influenced

## :Jules\_Verne

## :H. G. Wells

## :The\_Invisible\_Man

THE ISLAND  
OF  
DR MOREAU

H. G. WELLS

## :The\_Island\_of\_Doctor\_Moreau

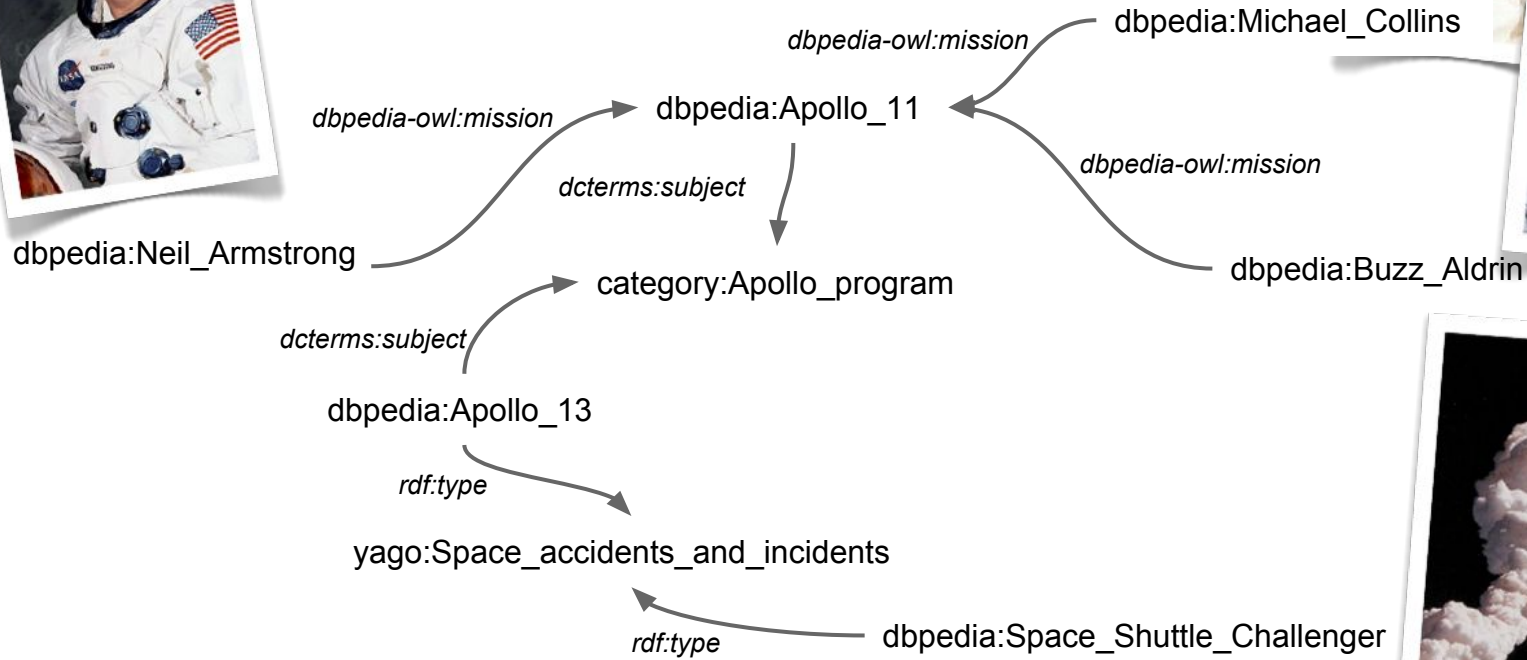
February 1951 \$0.25

# AMAZING STORIES

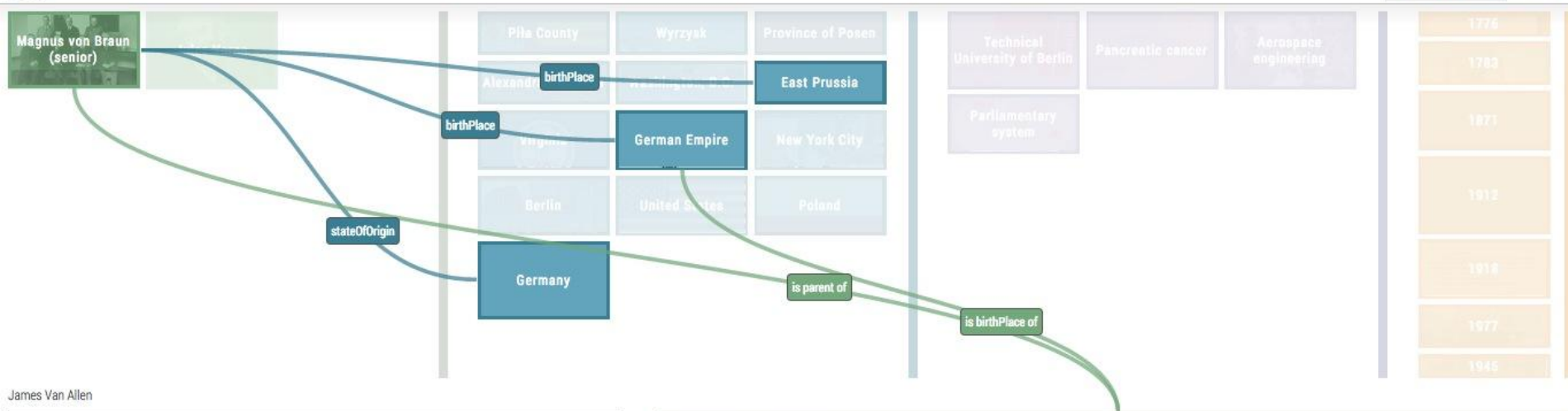
EDITED BY H. W. WELLS, H. V. VERRILL, JULIAN HUXLEY

## :The\_War\_of\_the\_Worlds 12

# Linked Data Based Exploration



# Linked Data Based Exploration



James Van Allen

|                                                     |
|-----------------------------------------------------|
| 15 Recommended Articles:                            |
| #1 Willy Ley Founder Of The German Rocket Society   |
| #2 The First Us Space Station Skylab                |
| #3 Hermann Oberths Dream Of Space Travel            |
| #4 Wolfgang Pauli And The Pauli Principle           |
| #5 Maria Goeppert Mayer And The Nuclear Shell Model |
| #6 Oskar von Miller and the Deutsches Museum        |



**Wernher von Braun**

Wernher Magnus Maximilian, Freiherr von Braun (March 23, 1912 – June 16, 1977) was a German rocket engineer and space architect. He was one of the leading figures in the development of rocket technology in Germany during World War II and, subsequently, in the United States. He is credited as being the "Father of Rocket Science". In his 20s and early 30s, von Braun was the central figure in the Nazis' rocket development program, responsible for the design and realization of the V-2 combat rocket during World War II. After the war, he and some select members of his rocket team were taken to the United States as part of the then-secret Operation Paperclip. Von Braun worked on the United States Army intermediate range ballistic missile (IRBM) program before his group was assimilated by NASA. Under NASA, he served as

DBpedia: Wernher von Braun



e.g. via refer.cx WordPress PlugIn at <http://blog.yovisto.com>



## **08: EXTRA - Named Entity Resolution Revisited**

OpenHPI - Course Knowledge Engineering with Semantic Web Technologies

### **Lecture 6: Knowledge Engineering**