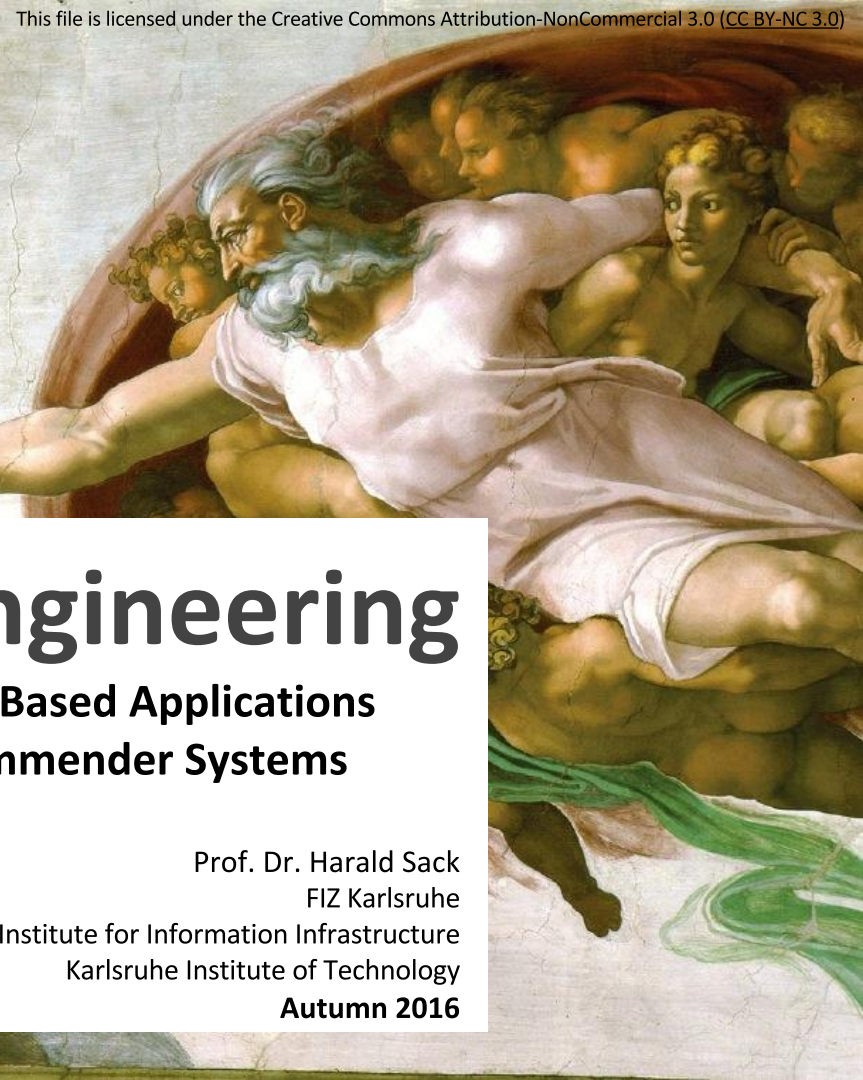




Lecture 6: Advanced Linked Data Based Applications

6.6 Exploratory Search and Recommender Systems



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Leibniz Institute for Information Infrastructure

Leibniz Institute for Information Infrastructure
Karlsruhe Institute of Technology
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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



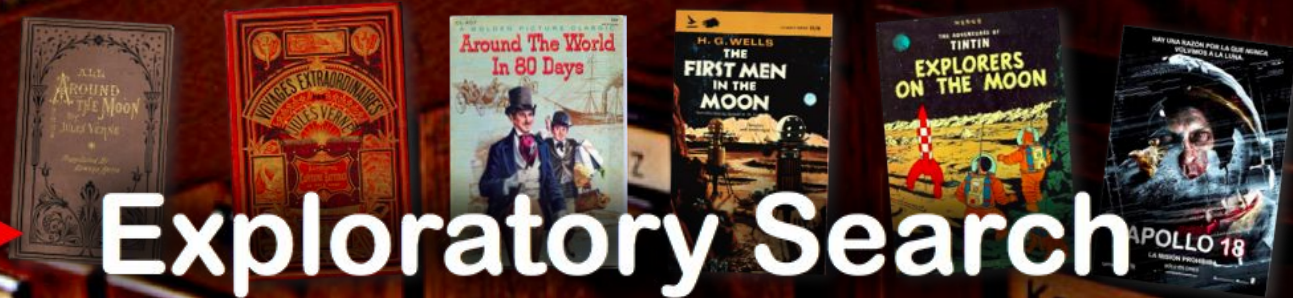
V E R N E, Jules:
From the Earth to the Moon, Direct in
97 Hours 20 Minutes and a Trip Round It,
Sampson Low, Marston & Company,
London (1873),
viii, 323 p. plates.

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:

- 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



Browse using

Formats

Faceted Browser

Sparql Endpoint

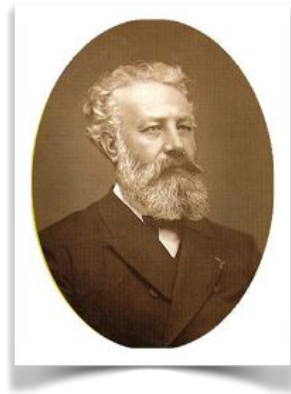
About: From the Earth to the Moon

An Entity of Type : work, from Named Graph : <http://dbpedia.org>, within Data Space : dbpedia.org

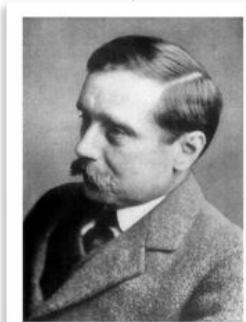
From the Earth to the Moon (French: De la terre à la lune) is an 1865 novel by Jules Verne.

Property	Value
dbo:abstract	- 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. ^(de) - 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 enthusiasts, and their attempts to build an enormous sky-facing Columbiad space gun and launch three people—the Gun Club's president, his Philadelphian 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 member of the party in the novel, was inspired by the real-life photographer Félix Nadar. ^(en)
dbo:author	dbr:Jules_Verne
dbo:illustrator	dbr:Henri_de_Montaut
dbo:literaryGenre	dbr:Science_fiction
dbo:mediaType	dbr:Hardcover
dbo:publisher	dbr:Pierre-Jules_Hetzel
dbo:series	dbr:Voyages_extraordinaires
dbo:thumbnail	wiki-commons:Special:FilePath/From_the_Earth_to_the_Moon_Jules_Verne.jpg?width=300

Exploratory Search based on Linked Data



:Jules_Verne



dbo:influenced

:H._G._Wells

dbo:Book

rdf:type

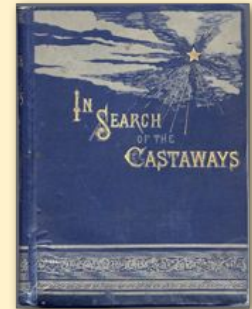
dbo:author

dct:subject

:From_the_Earth_to_the_Moon



dbo:previousWork



:In_Search_of_the_Castaways

category:1865_novels
category:Frence_science_fiction_novels
category:Novels_by_Jules_Verne
category:Moon_in_fiction
category:Fictional_rivalries
category:Novels_set_in_Florida
category:1860s_science_fiction_novels
...

Exploratory Search based on Linked Data

:From_the_Earth_to_the_Moon

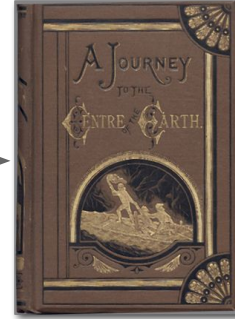


rdf:type

dbo:Book

rdf:type

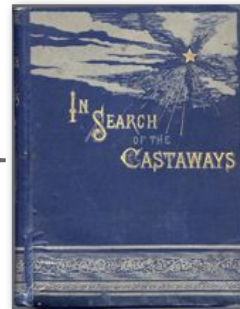
dbo:subsequentWork



:A_Journey_to_the_Center_of_the_Earth

rdf:type

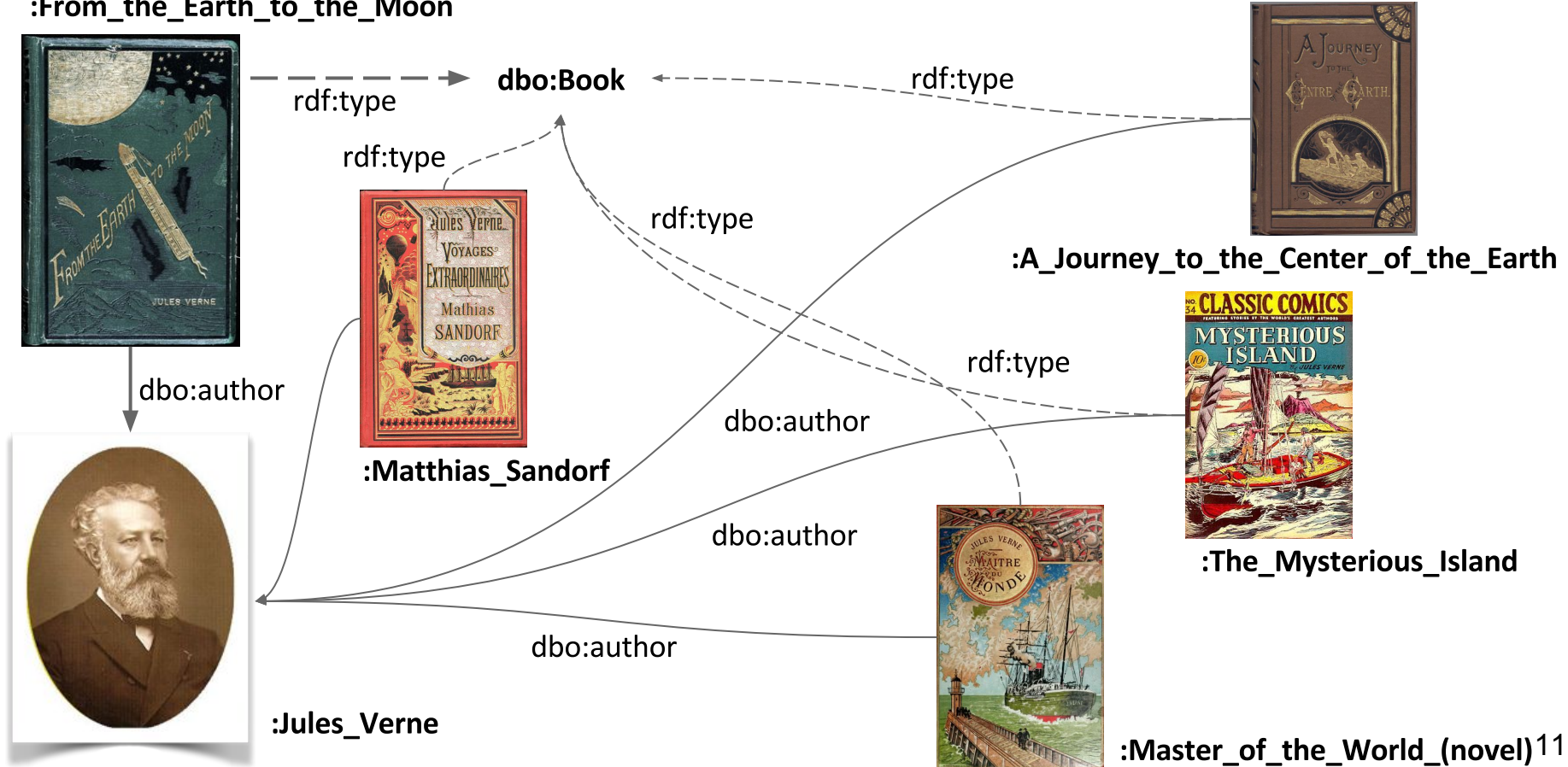
dbo:previousWork



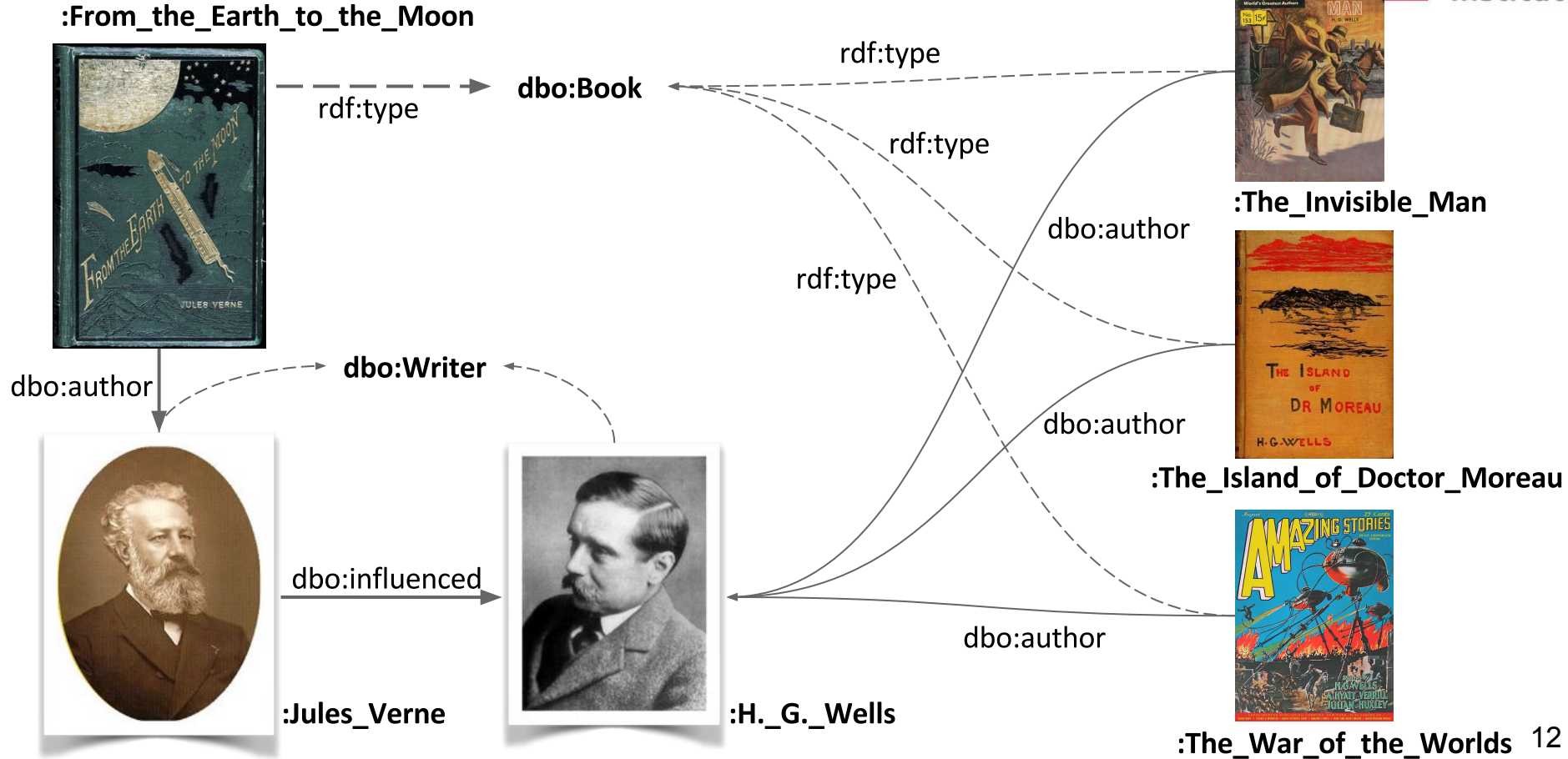
:In_Search_of_the_Castaways

Exploratory Search based on Linked Data

:From_the_Earth_to_the_Moon



Exploratory Search based on Linked Data



- **Recommend Books based on Jule Verne's "From the Earth to the Moon"**
 - **General Idea to work with:**

The recommendation should share as many properties with the Basis as possible
 - **How to implement this with DBpedia?**

Use the **categories** the entity belongs to
 - Can be easily implemented with a SPARQL query

Hands On Example

```
SELECT DISTINCT ?recommendation COUNT(?category) as ?rank
WHERE {
  dbr:From_the_Earth_to_the_Moon rdf:type ?category .
  ?recommendation rdf:type ?category;
                  rdf:type dbo:Book
  FILTER (?recommendation != dbr:From_the_Earth_to_the_Moon) .
}
GROUP by ?recommendation
ORDER BY DESC(?rank)
```

[Link to SPARQL query](#)

Hands On Example

recommendation	rank
http://dbpedia.org/resource/In_Search_of_the_Castaways	32
http://dbpedia.org/resource/Godfrey_Morgan	32
http://dbpedia.org/resource/The_Lighthouse_at_the_End_of_the_World	32
http://dbpedia.org/resource/Two_Years'_Vacation	32
http://dbpedia.org/resource/The_Island_of_Doctor_Moreau	31
http://dbpedia.org/resource/The_Last_of_the_Mohicans	31
http://dbpedia.org/resource/The_Green_Ray	31
http://dbpedia.org/resource/Tribulations_of_a_Chinaman_in_China	31
http://dbpedia.org/resource/The_Castaways_of_the_Flag	31
http://dbpedia.org/resource/Michael_Strogoff	31
http://dbpedia.org/resource/Gulliver's_Travels	31
http://dbpedia.org/resource/A_Drama_in_Livonia	31
http://dbpedia.org/resource/Dune_(novel)	31
http://dbpedia.org/resource/The_Little_Prince	30
http://dbpedia.org/resource/Anna_Karenina	30
http://dbpedia.org/resource/Eaters_of_the_Dead	30
http://dbpedia.org/resource/The_Hobbit	30
http://dbpedia.org/resource/The_A.B.C._Murders	30
http://dbpedia.org/resource/A_Christmas_Carol	30
http://dbpedia.org/resource/Through_the_Looking-Glass	30
http://dbpedia.org/resource/Prince_Caspian	30
http://dbpedia.org/resource/White_Fang	30
http://dbpedia.org/resource/Mathias_Sandorf	30
http://dbpedia.org/resource/The_Voyage_of_the_Dawn_Treader	30
http://dbpedia.org/resource/Starship_Troopers	30
http://dbpedia.org/resource/Cycle_of_the_Werewolf	30
http://dbpedia.org/resource/Nicholas_Nickleby	30
http://dbpedia.org/resource/The_Call_of_the_Wild	30
http://dbpedia.org/resource/The_Shining_(novel)	30
http://dbpedia.org/resource/The_Mighty_Orinoco	30
http://dbpedia.org/resource/The_Invisible_Man	30
http://dbpedia.org/resource/Fahrenheit_451	30
http://dbpedia.org/resource/Matilda_(novel)	30
http://dbpedia.org/resource/The_Portrait_of_a_Lady	30
http://dbpedia.org/resource/The_Dead_Zone_(novel)	30
http://dbpedia.org/resource/The_Neverending_Story	30
http://dbpedia.org/resource/Thinner_(novel)	30

