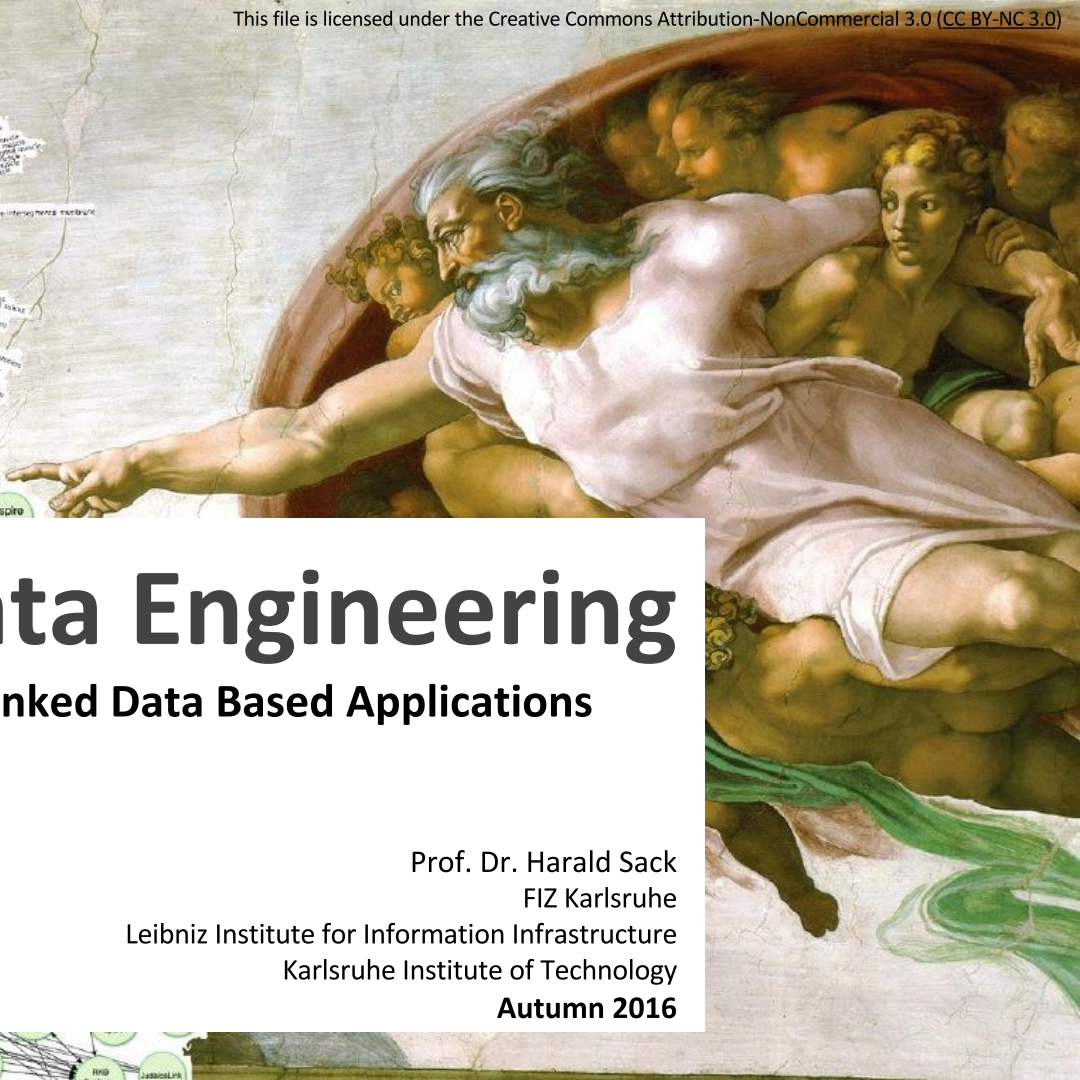




Lecture 6: Advanced Linked Data Based Applications

6.5 Semantic Search



FIZ Karlsruhe

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FIZ Karlsruhe
Leibniz Institute for Information Infrastructure
Karlsruhe Institute of Technology
Autumn 2016

Prof. Dr. Harald Sack
FIZ Karlsruhe
Information Infrastructure
The Institute of Technology
Autumn 2016

jules verne
jules verne books
jules verne movies
jules verne paris

About 17,200,000 results (0.50 seconds)

Jules Verne - Wikipedia, the free encyclopedia

https://en.wikipedia.org/wiki/Jules_Verne Wikipedia
Jules Gabriel Verne (/vɜːn/; French: [ʒyl vɛʁn]; 8 February 1828 – 24 March 1905) was a French novelist, poet, and playwright best known for his adventure ...
Twenty Thousand Leagues - Jules Verne bibliography - From the Earth to the Moon

Jules Verne - Author - Biography.com

www.biography.com/people/jules-verne-9517579
Jules Verne was a 19th century French author whose revolutionary science-fiction novels, including Around the World in Eighty Days and Twenty Thousand ...

Jules Verne - The Literature Network

www.online-literature.com/verne/
Jules Verne (1828-1905), noted French scientific author wrote Around the World in Eighty Days (1873), Journey to the Center of the Earth (1864), and Twenty Thousand Leagues Under The Sea (1869); ... After attending boarding school during which he started to write short stories and ...

Home | Restaurant le Jules Verne - Tour Eiffel Paris

www.lejulesverne-paris.com/
The Jules Verne. ///. For Christmas at lunch, live an exceptional moment with an exclusive menu created for the event. On Christmas ...

In the news



Francis Joyon may start Jules Verne on Saturday

Scuttlebutt Sailing News - 13 hours ago
The Jules Verne Trophy is a prize for the fastest circumnavigation of the world by any type of ...

More news for jules verne

Jules Verne | French author | Britannica.com

www.britannica.com/biography/Jules-Verne Encyclopaedia Britannica
Apr 22, 2015 - Prolific French author whose writings laid much of the foundation of modern science fiction. Verne's father, intending that Jules follow in his ...

The UnMuseum - Jules Verne - Museum of Unnatural Mystery

www.unmuseum.org/verne.htm
Jules Verne was born on February 8, 1828, in the city of Nantes, France. His father, Pierre Verne, was a lawyer. From the family's summer house just outside the ...

Jules Verne - IMDb

www.imdb.com/name/nm0894523/ Internet Movie Database
Jules Verne, Writer: Journey to the Center of the Earth.



Jules Verne

Novelist

Jules Gabriel Verne was a French novelist, poet, and playwright best known for his adventure novels and his profound influence on the literary genre of science fiction. Wikipedia

Born: February 8, 1828, Nantes, France

Died: March 24, 1905, Amiens, France

Full name: Jules Gabriel Verne

Influenced by: Edgar Allan Poe, Alexandre Dumas, Victor Hugo, Daniel Defoe, James Fenimore Cooper, George Sand

Quotes

View 2+ more

We may brave human laws, but we cannot resist natural ones.

I believe cats to be spirits come to earth. A cat, I am sure, could walk on a cloud without coming through.

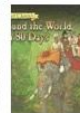
Science, my lad, is made up of mistakes, but they are mistakes which it is useful to make, because they lead little by little to the truth.

Books

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Twenty
Thousand
Leagues...
1870



Around the
World in
Eighty Da...
1873



Journey to
the Center
of the Earth
1864



The Mysterious
Island
1874



From the
Earth to the
Moon
1865

People also search for

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The Fabulous
World of Jules V...
1958



20,000 Leagues
Under the Sea
1954



A Trip to the Moon
1902



Jules Verne's
Rocket to the M...
1967



Journey 2: The
Mysterious Island
2012



Valley of the
Dragons
1961



The Light at the
Edge of the World
1971



Journey to the
Center of the Earth
2008



In Search of the
Castaways
1962



Jules Verne's
Mysterious Island
2012



Two Years'
Vacation
1967



The Soldier and
the Lady
1937



Up to His Ears
1965



The Southern Star
1969



From the Earth
to the Moon
1958

Category:Films based on works by Jules Verne - Wikipedia

https://en.wikipedia.org/wiki/Category:Films_based_on_works_by_Jules_Verne ▾

Category:Films based on works by Jules Verne ... A. ▸ Films based on Around the World in Eighty Days (5 P). J. ▸ Journey to the Center of the Earth films (6 P) ...

Jules Verne - IMDb

www.imdb.com/name/nm0894523/ ▾

Jules Verne, Writer: Journey to the Center of the Earth. ... 1977 A Journey to the Center of the Earth (TV Movie) (novel). 1977 Wielka podróż ... 1968 L'orgue fantastique (TV Movie) (short story "Monsieur Ré Dièse et Mademoiselle Mi Bémol").

Books to Film: Jules Verne - Movie List - VideoHound's Golden Movie ...

www.moviehunter.com ▾ VideoHound Lists ▾

Movie Reviews · Cast & Credits · VideoHound Lists · News · Award Winners · Blog · Store · My ...
Movies adapted from the literary works of Jules Verne.

Jules Verne Filmography and Movies | Fandango

www.fandango.com/people/jules-verne-698476/film-credits ▾

1958, From the Earth to the Moon. 1958, Fabulous World Of Jules Verne. 1956, Around the World in 80 Days (1956). 1954, 20,000 Leagues Under the Sea.

Jules Verne - Movies - Andrew Nash

www.julesverne.ca/jvmovie.html ▾

1936-39, Around the World in 80 Days Great Britain/France, Production: Alexander Korda, London-
Films Notes: incomplete - Was to be a feature length ...

What are some of the best movies based on books by Jules Verne ...

<https://www.quora.com/What-are-some-of-the-best-movies-based-on-books-by-Jules-Verne> ...

Good answers by Jesse Frankel and Harman Sohi. I would like to add From the Earth to the ... Around
The World In 80 Days (1956 movie)- This is the best in my priority list. Around the World in 80
Day(1989 TV Series)- If you are a series lover!

Jules Verne

Novelist



Jules Gabriel Verne was a French novelist, poet, and playwright best known for his adventure novels and his profound influence on the literary genre of science fiction. Wikipedia

Born: February 8, 1828, Nantes, France

Died: March 24, 1905, Amiens, France

Full name: Jules Gabriel Verne

Movies: The Fabulous World of Jules Verne, More

Quotes

View 2+ more

Science, my lad, is made up of mistakes, but they are mistakes which it is useful to make, because they lead little by little to the truth.

I believe cats to be spirits come to earth. A cat, I am sure, could walk on a cloud without coming through.

We may brave human laws, but we cannot resist natural ones.

Books

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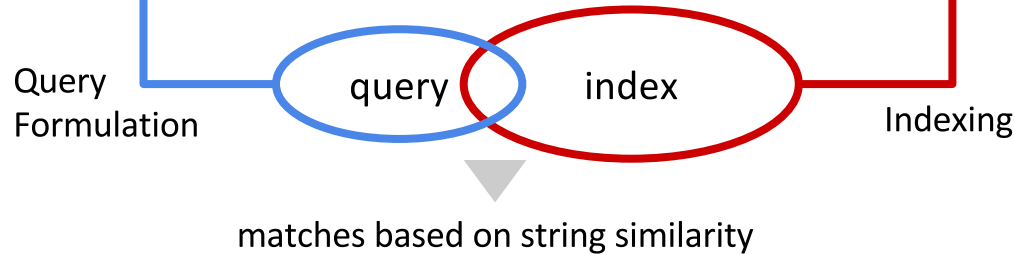
The Information Retrieval Paradigm



Set of Queries



Set of Documents



Classical Information Retrieval

Simplified Form



search query

search term



search index

keywords

searching, vb. , in allen ger
sprachen bezeugt: got.sokjan,
ags. sēcan, as. sokian, an. Soekj

[Bd. 20, Sp. 835]

sēza, ahd. suohhan. aus idg. *sprachen* steht
am nächsten lat. sāgiospūre, air. saigim gehe
einer sache nach, suche; zur weiteren
verwandschaft vgl. Walde-Pokorny 2, 449.
der umlaut des stammvokals erscheint im nd.,
er wird im md. verzeichnet von Crecelius
oberhess. wb. 827; Spiess henneb. id. 248;
Hertel Thüringen 240; Gerbet Vogtland 425
und auf kolonialem boden bei
Schröderdeutsche mundarten des ungrischen
berglandes 225.
neben eigentlichem suchen 'einer sache
nachspüren, sich bemühen, sie
aufzufinden' (dann auch 'jemanden
aufsuchen, ihn bedrohen, angreifen') steht
eine reich bezeugte bedeutungsgruppe mehr

document corpus



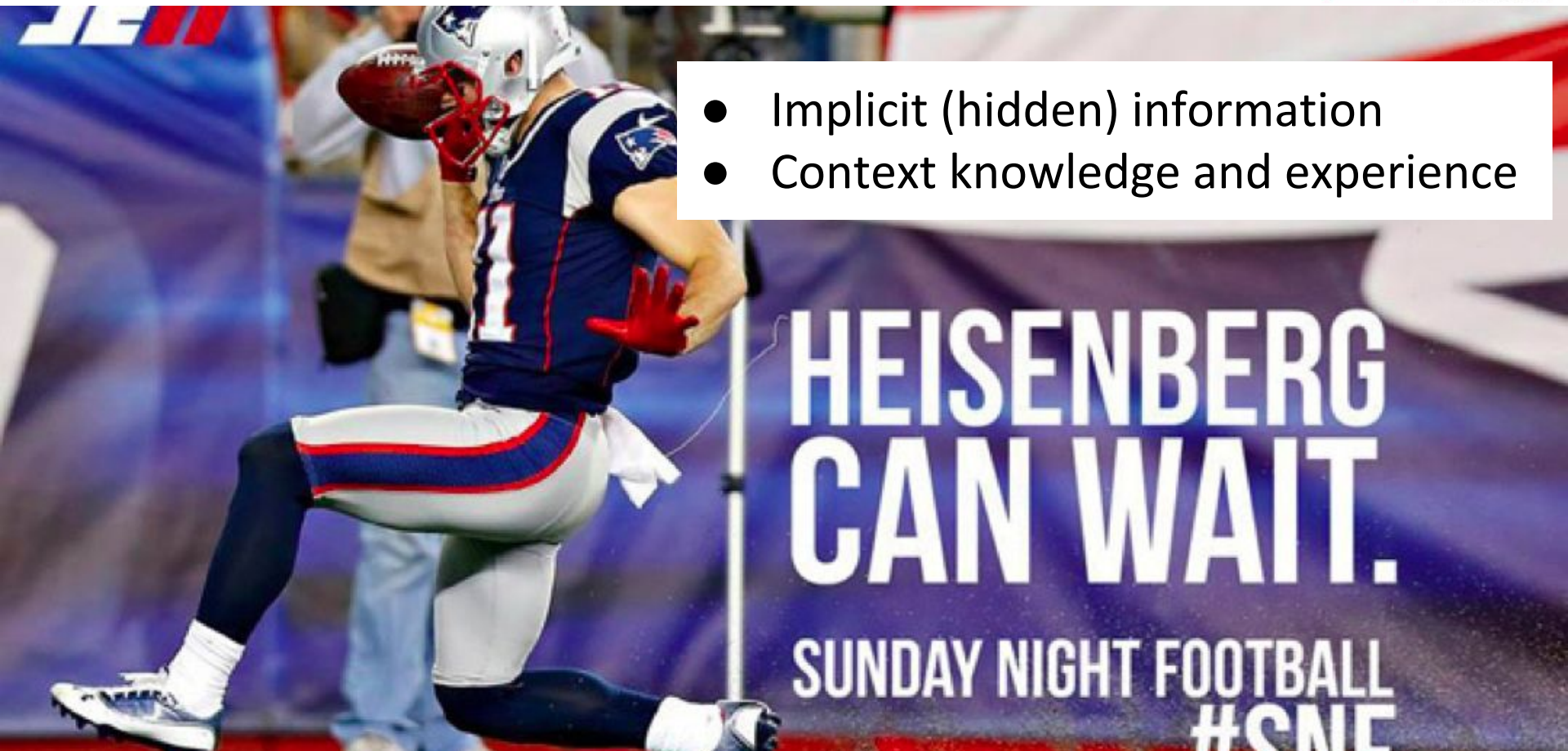
document

The Information Retrieval Dilemma



- ambiguity of natural language (polysemy)
- different words/expressions for the same concept (synonyms, metaphors)

The Information Retrieval Dilemma

- 
- A photograph of Tom Brady, quarterback of the New England Patriots, running with the football. He is wearing his blue and white uniform with the number 12. The background is a blurred stadium setting.
- Implicit (hidden) information
 - Context knowledge and experience

**HEISENBERG
CAN WAIT.**

**SUNDAY NIGHT FOOTBALL
#SNE**

Semantic Search

How can Semantic Technologies help to improve information retrieval?

- **Prerequisite:** Annotation with explicit semantics, as e.g. semantic entities
- Enables **entity-based Information Retrieval**
 - Language independent
- Make use of underlying Knowledge Base, as e.g.
 - content-based **similarities** among entities
 - content-based **relationships** between entities
- **Interoperable metadata** via semantic annotations
 - for content-based description
 - for structural and technical description
- **Content-Based Navigation** and **Result Filtering** (Search Facets)

Semantic Search vs. Keyword-Based Search

- **Query String Refinement**
enables more precise or more complete search results
- **Cross Referencing**
enables to complement search results with additional associated or similar information
- **Fuzzy Search**
enables the determination of nearby results and results related by content
- **Exploratory Search**
enables visualization and navigation of the search space
- **Reasoning**
enables to complement search results with implicitly given information

Entity Based Search

Search Query:

Armstrong on the Moon

Named Entity Resolution

dbr:Neil Armstrong

dbr:Moon

Indexing

The first Man on the Moon

....
On the Moon, the 38-year-old civilian commander, radioes to earth and the mission control room here: "Houston, Tranquility Base here, The Eagle has landed."
....

dbr:Neil Armstrong

dbr:Moon

Named Entity Resolution

Entity-Based Query Matching

- simple entity matching
- similarity-based entity matching
- relationship-based entity matching
- ...

Entity Based Search

Search Query:

Armstrong on the Moon

Named Entity Resolution

dbr:Neil_Armstrong

dbr:Moon

Indexing

The 2nd Man on
the Moon

dbr:Moon

....
Legendary astronaut
Buzz Aldrin has revealed
some captivating pieces of
Apollo 11 memorabilia on
social media in the last few
days.
....

dbr:Buzz_Aldrin

↑
semantic
similarity
↓

dbr:Neil_Armstrong

Named Entity Resolution

Entity-Based Query Matching

- simple entity matching
- **similarity-based entity matching**
- relationship-based entity matching
- ...

two entities are considered **semantically similar**,

- if they share property/value pairs
- if they share properties with similar values

Entity Based Search

Search Query:

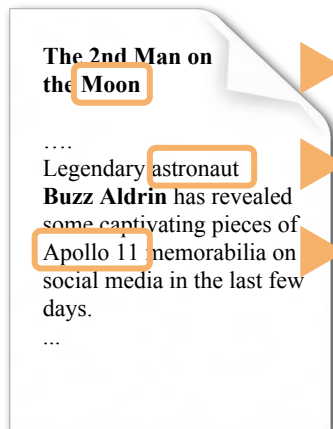
Armstrong on the Moon

Named Entity Resolution

dbr:Neil_Armstrong

dbr:Moon

Indexing



dbr:Moon

dbo:Astronaut

dbr:Apollo_11

Entity-Based Query Matching

- simple entity matching
- similarity-based entity matching
- **relationship-based entity matching**
- ...



Named Entity Resolution

HPI Hasso Plattner Institut

- 
- A black and white portrait of a middle-aged man with a full, dark beard and mustache. He has light-colored, wavy hair. He is wearing a dark suit jacket over a white shirt and a dark bow tie. The background is a plain, light color.

On January 30, 1873, **Jules Verne**'s famous novel '**Around the World in 80 Days**' (Le tour du monde en quatre-vingt jours) was published in Paris, France. It is one of the most famous works of Jules Verne, a French writer of adventure fiction. Verne was born on February 8, 1828, and died on March 24, 1905. He was a French novelist, poet, and travel writer. Verne is best known for his novels, including 'Around the World in 80 Days', 'Journey to the Center of the Earth', and 'Twenty Thousand Leagues Under the Sea'. Verne's works have inspired generations of readers and writers, and his influence can be seen in modern science fiction and adventure fiction.

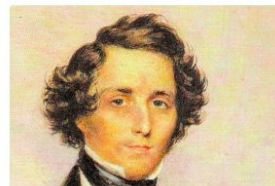
Jules Hetzel in Paris, France. It is one of
egg of London and his newly employed
te the world in 80 days on a £20,000 wager set

ens. He's a rich bachelor, around 40 years of age,
leas Fogg always lives life in clockwork precision.
gan, Fallentin, and Sullivan are talking about a
on £20,000, where Fogg is quite sure he can
esn't believe it can be done. Sullivan, Flanagan,
ted. At the very same evening, Phileas Fogg is
5 p.m. on Saturday 21 December 1872 together
t, who is caught unaware of the bet polishing
while everything else will be bought on the trip.

f t g+ t

yovisto.com
@yovisto

On Nov 4, 1847, the German composer and pianist of the Romantic era Felix Mendelssohn Bartholdy passed away. blog.yovisto.com/felix-mendelssohn-bartholdy

[View on Twitter](#)

Yovisto Video Search:



Example of semantically annotated blog post
<http://blog.yovisto.com/around-the-world-in-80-days/>

Semantic Annotation

- To enable **Entity-based Search** the documents have to be **semantically annotated**
 - as e.g. with WordPress Plugin **refer.cx** for automated & manual NER annotation

Around the World in 80 Days

Permalink: <http://blog.vovisto.com/around-the-world-in-80-days/> Edit

Add Media

Visual Text

Paragraph


Jules Verne (1828-1905)

On January 30, 1873, Jules Verne's famous novel Days (Le tour du monde en quatre-vingts jours) was published by Pierre-Jules Hetzel in Paris, France. It is one of Jules Verne's most acclaimed stories, where Phileas Fogg of London and his newly employed French valet Passepartout attempt to circumnavigate the world in 80 days on a £20,000 wager set by his friends at the London Reform Club.

Phileas Fogg lives at No. 7, Saville Row, Burlington Gardens. He's a rich bachelor, around 40 years of age, but nobody knows his source of his fortune. Overall, Phileas Fogg always lives life in clockwork precision. One day at the London Reform Club, Phileas Fogg, Flanagan, Fallentin, and Sullivan are talking about a recent bank robbery. This conversation leads to a wager on £20,000, where Fogg is quite sure he can travel around the world in eighty days, while Sullivan doesn't believe it can be done. Sullivan, Flanagan, and Fallentin think Fogg is not considering the unexpected. At the very same evening, Phileas Fogg is about to get on the train and start his expedition at 8:45 p.m. on Saturday 21 December 1872 together with his newly hired resourceful valet Jean Passepartout, who is caught unaware of the bet polishing shoes. Fogg tells Passepartout to pack only a few things, while everything else will be bought on the trip. The only

WP Statistics

Move to

Format

Stan Gall Imag Vide

Categories

All Categories



Entity Suggestion

es. Fogg tells Passepartout to pack only a few things, while everything else will be bought on the trip. The only will carry about is a carpet bag filled with £20,000.

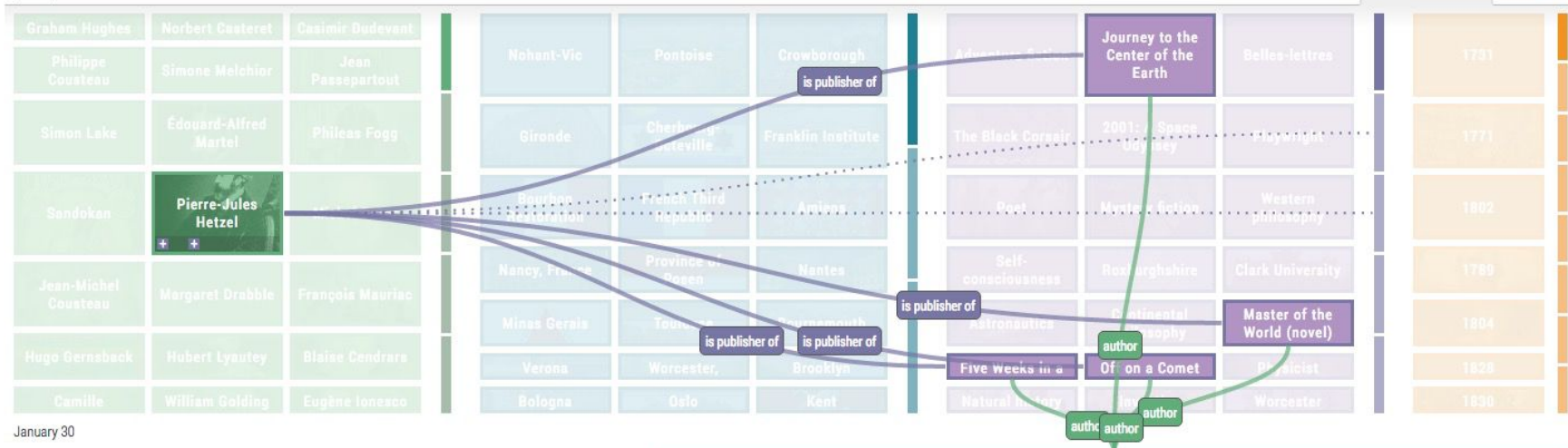
ginning of the fabulous plot and from on we see how Phileas Fogg travels around the world and we witness adventures that he has together with a companion. While disembarking in Egypt, he is spotted by a dilligent detective named Fix, who has been dispatched in search of a bank robber. Because Fogg matches n of the bank robber, Fix mistakenly believes Fogg to be the thief. In order to secure a re, Fix goes on board the steamer crossing the Atlantic. On the voyage, Fix gets th Passepartout, but does not reveal his purpose. Fogg and Passepartout and Fogg have Fix's true intentions, who wants to get Fogg.



Information Exploration



Relation Browser Timeline



January 30

15 Recommended Articles:

- #1 Hermann Oberths Dream Of Space Travel
- #2 Simon Lake and the Argonaut
- #3 Adventure Time with Emilio Salgari
- #4 Karl May's Fantastic Adventures
- #5 Alberto Santos-Dumont – the Brazilian Father of Aviation
- #6 The Love Affairs of George Sand

Jules Verne



Jules Gabriel Verne (French: [ʒyl vɛʁn]; 8 February 1828 – 24 March 1905) was a French novelist, poet, and playwright best known for his adventure novels and his profound influence on the literary genre of science fiction. Born to bourgeois parents in the seaport of Nantes, Verne was trained to follow in his father's footsteps as a lawyer, but quit the profession early in life to write for magazines and the stage. His collaboration with the publisher Pierre-Jules Hetzel led to the creation of the Voyages Extraordinaires, a widely popular series of scrupulously researched adventure novels including Journey to the Center of the Earth, Twenty Thousand Leagues Under the Sea, and Around the World in Eighty Days. Verne is generally considered a major literary

DBpedia: Jules Verne





Next: 06 Exploratory Search and Recommender Systems

OpenHPI - Course Linked Data Engineering - **Lecture 6: Advanced Linked Data Based Applications**