

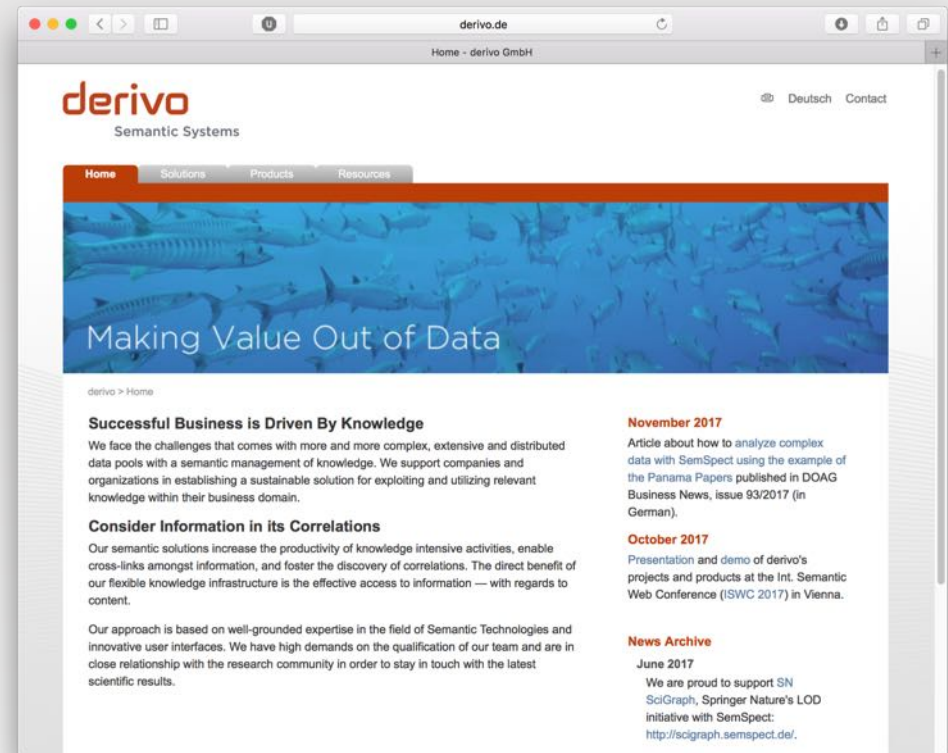


Connecting the Dots of Linked Data of Resource Collections

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derivo

- SME, est. 2010
- Design and development of semantic software solutions
- Expertise:
Smart Data, Big Data and Semantic Technologies
- OWLlink, OWL API
- Clients:
intelligence authorities
machine engineering
publisher



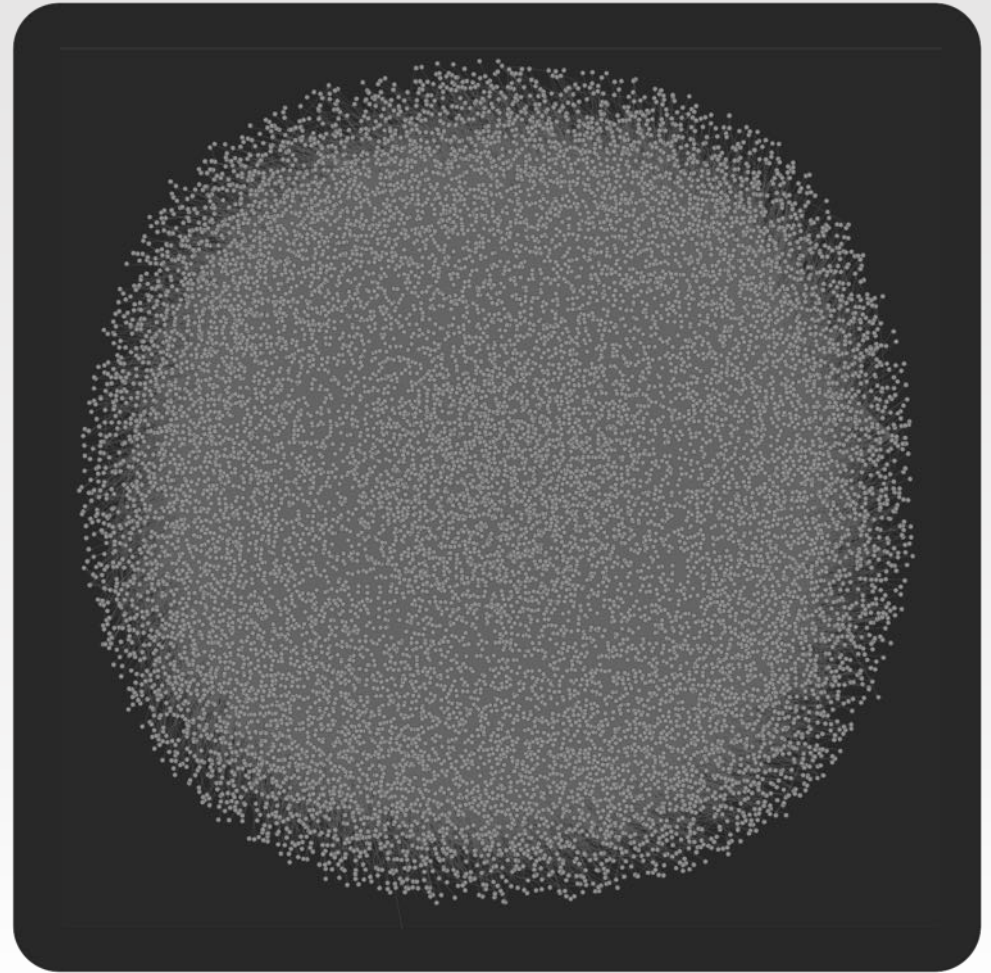
RDF Graphs

Pro:

- simplest possible structure
- easy to produce, exchange, consume, ...
- straightforward query language

Con:

- everything has to be a triple (reification is painful)



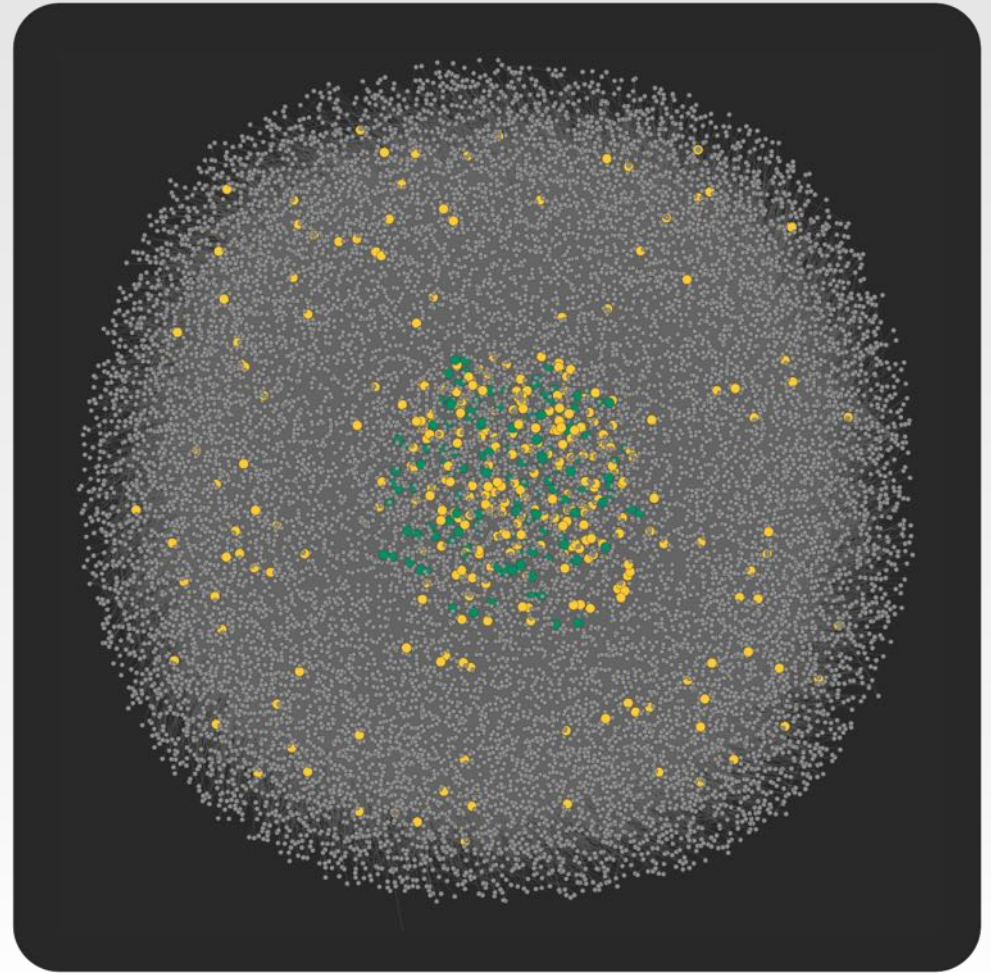
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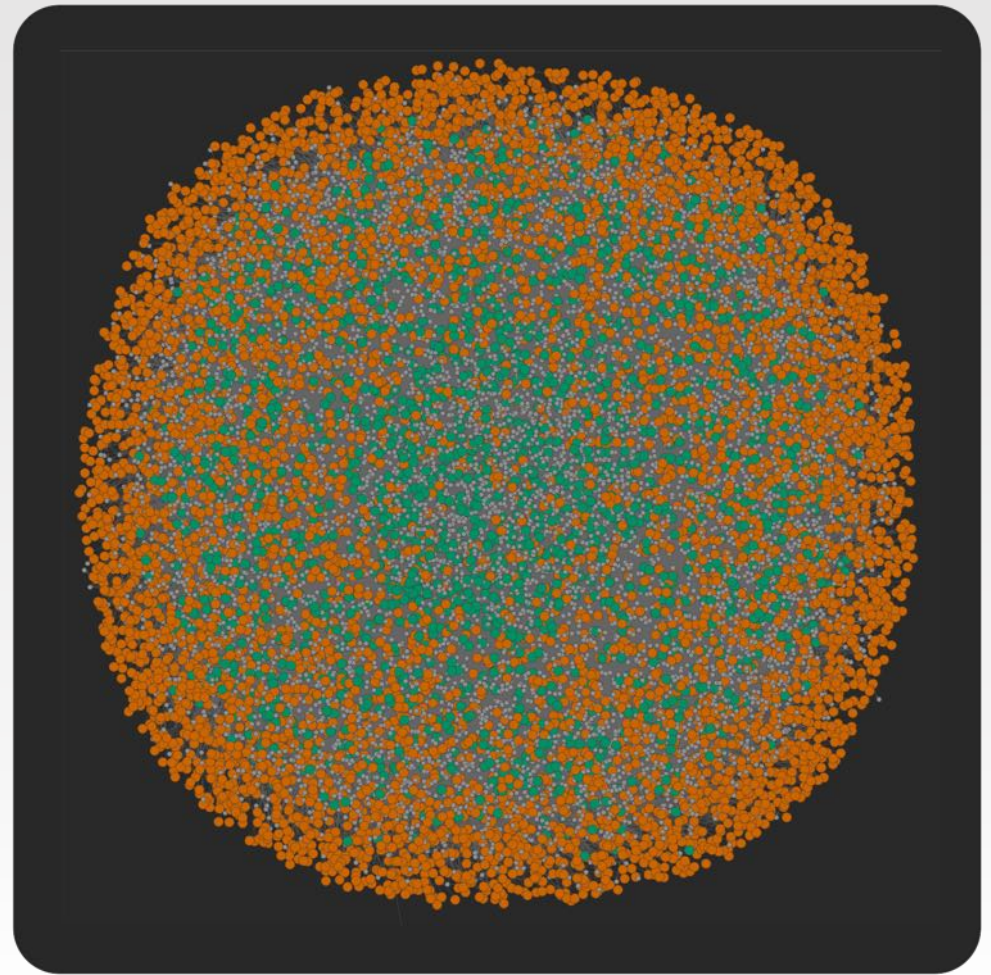
RDF Graphs

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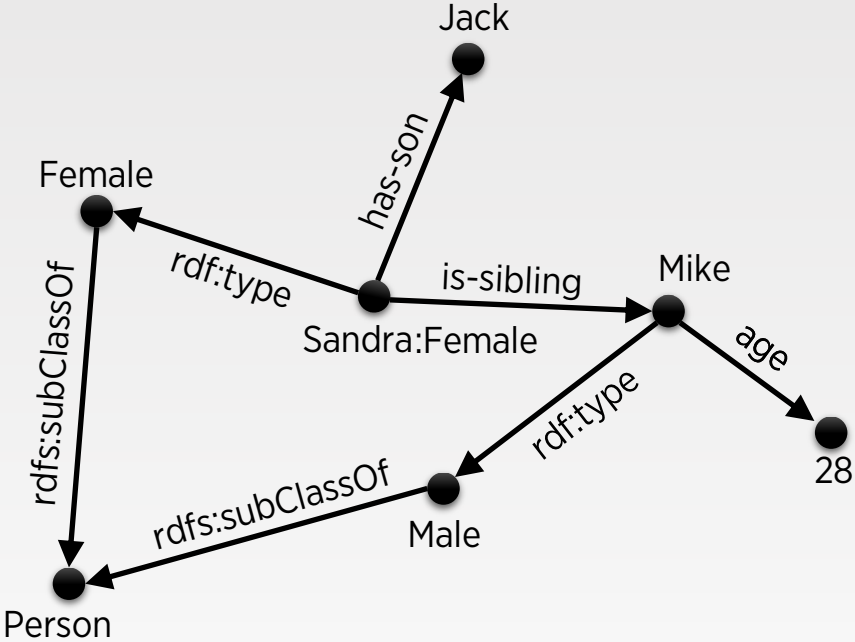
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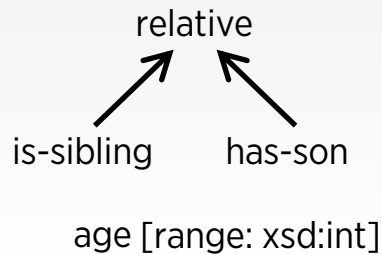
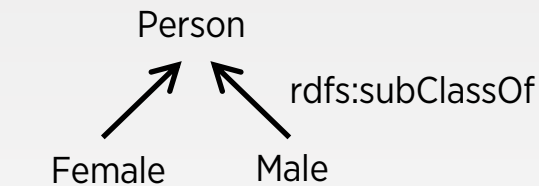
What's in a RDF Graph?



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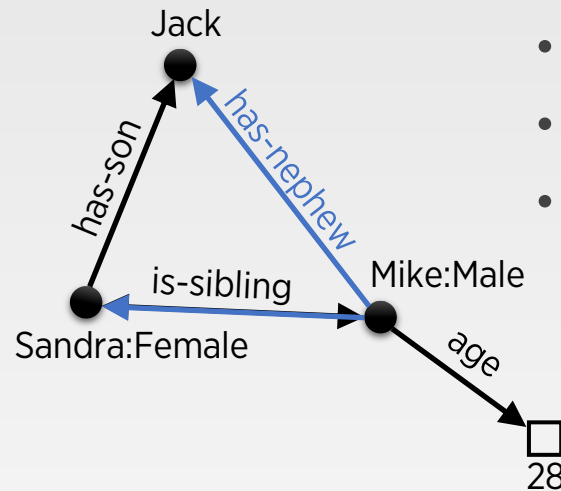
Schema (TBox)

- vocabulary of domain
- vocabulary conform data
- knowledge about domain



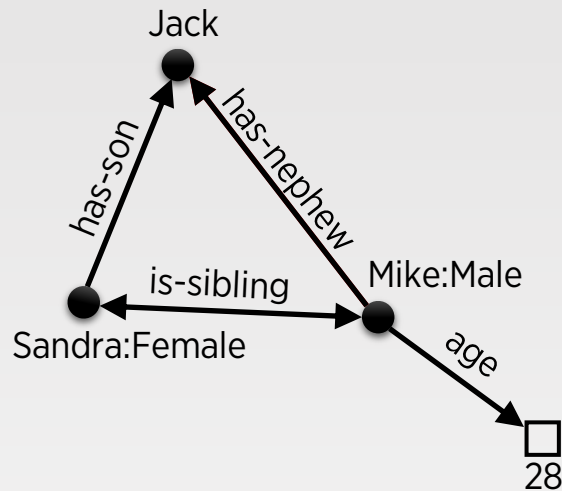
Data (ABox)

- data of the domain
- object of queries
- contains inferred facts
- larger than schema and subject to updates



symmetric: is-sibling
is-sibling \oplus has-son \rightarrow has-nephew

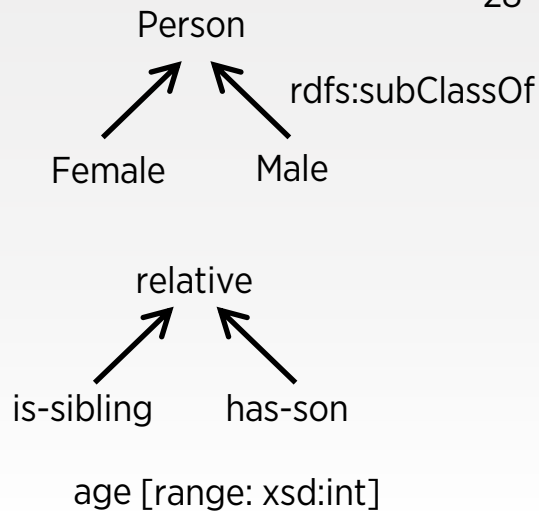
How to Query and Visualize a RDF Graph?



SPARQL:

```

SELECT ?x ?y WHERE {
  ?x a Female .
  ?x relative ?y .
}
  
```



Wikidata Query Examples Help Tools English

```

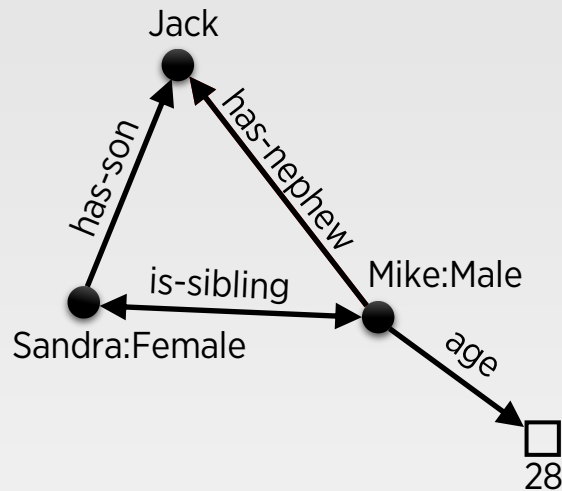
1 SELECT DISTINCT ?x ?y
2 WHERE
3 {
4   ?x wdt:P31 wd:Q5 .
5   ?x wdt:P21 wd:Q6581072 .
6   ?x wdt:P1038 ?y .
7 }
8
  
```

relative (P1038)
family member (quality with "type of kinship", P1039; for direct family member please use specific property)

500 results in 190 ms Code Download Link

x	y
wd:Q90250	wd:Q4583
wd:Q90250	wd:Q7339

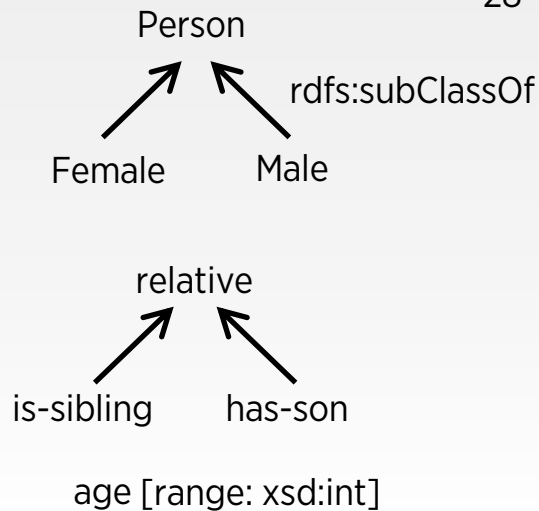
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Your query and its **current focus** (click on different parts of the query to change it)

give me every **person** that has a **relative x** <http://www.irisa.fr/LIS/ferre/sparklis>

Sparklis suggestions to refine your query

Types and Relations of the **relative**

matches ...

- ▶ an agent (143+)
- a person (140+)
- a person (140+)
- that has a label (89+)
- that has a type (89+)

390+ items

Identities or Values of the **relative**

matches all of

- anything
- Diana, Princess of Wales (9+)
- Eunice Kennedy Shriver (5+)
- George H. W. Bush (4+)
- William Randolph Hearst (4+)

154+ items

Modifiers and operators

matches ...

- the highest-to-lowest relative
- the lowest-to-highest relative
- any relative
- optionally
- not

20 items

Results of your query

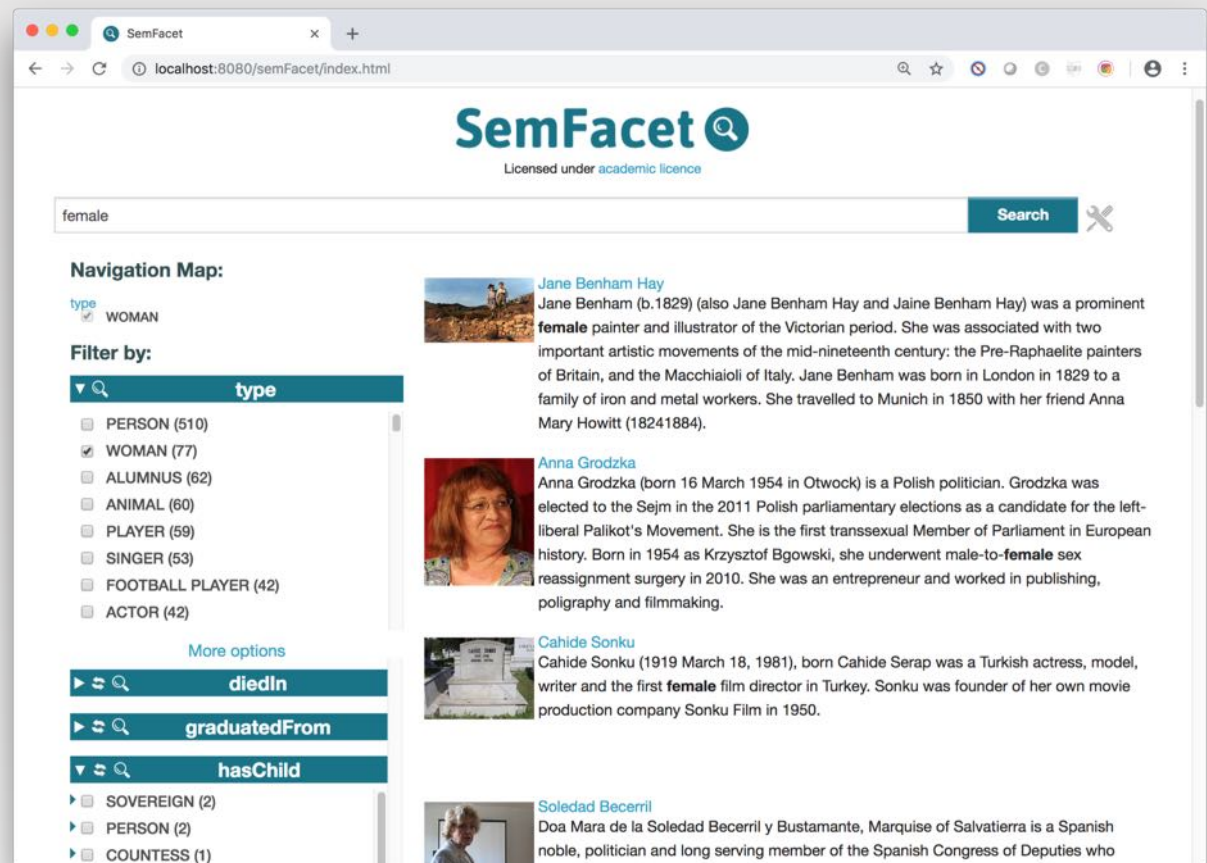
Table Map Slideshow

results 1 - 10 of 200+ Show 10 results

	person	relative
1	Sarah Lincoln Grigsby	Abraham Lincoln
2	Thomas Lincoln, Jr.	Abraham Lincoln

Faceted Search

- <http://www.cs.ox.ac.uk/iscg/tools/SemFacet/>
- well known to users
- allows logic operators (and/or)
- focus on one result variable (when compared to SPARQL)
- overview missing



The screenshot shows the SemFacet web application interface. The search bar contains the term "female". The results are displayed in a list format, with each entry including a small image, a name, and a brief biographical description. The interface includes a "Navigation Map" and a "Filter by:" section with a list of categories and their counts.

Navigation Map:

type
WOMAN

Filter by:

type

- PERSON (510)
- WOMAN (77)
- ALUMNUS (62)
- ANIMAL (60)
- PLAYER (59)
- SINGER (53)
- FOOTBALL PLAYER (42)
- ACTOR (42)

More options

diedIn

graduatedFrom

hasChild

- SOVEREIGN (2)
- PERSON (2)
- COUNTESS (1)

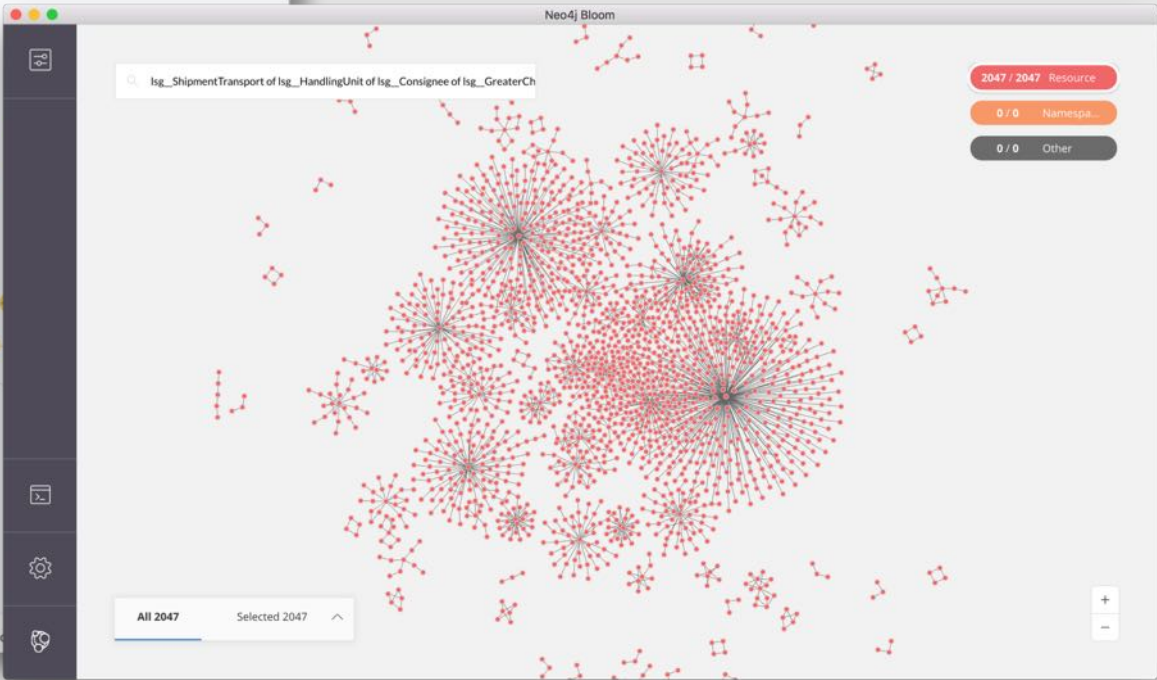
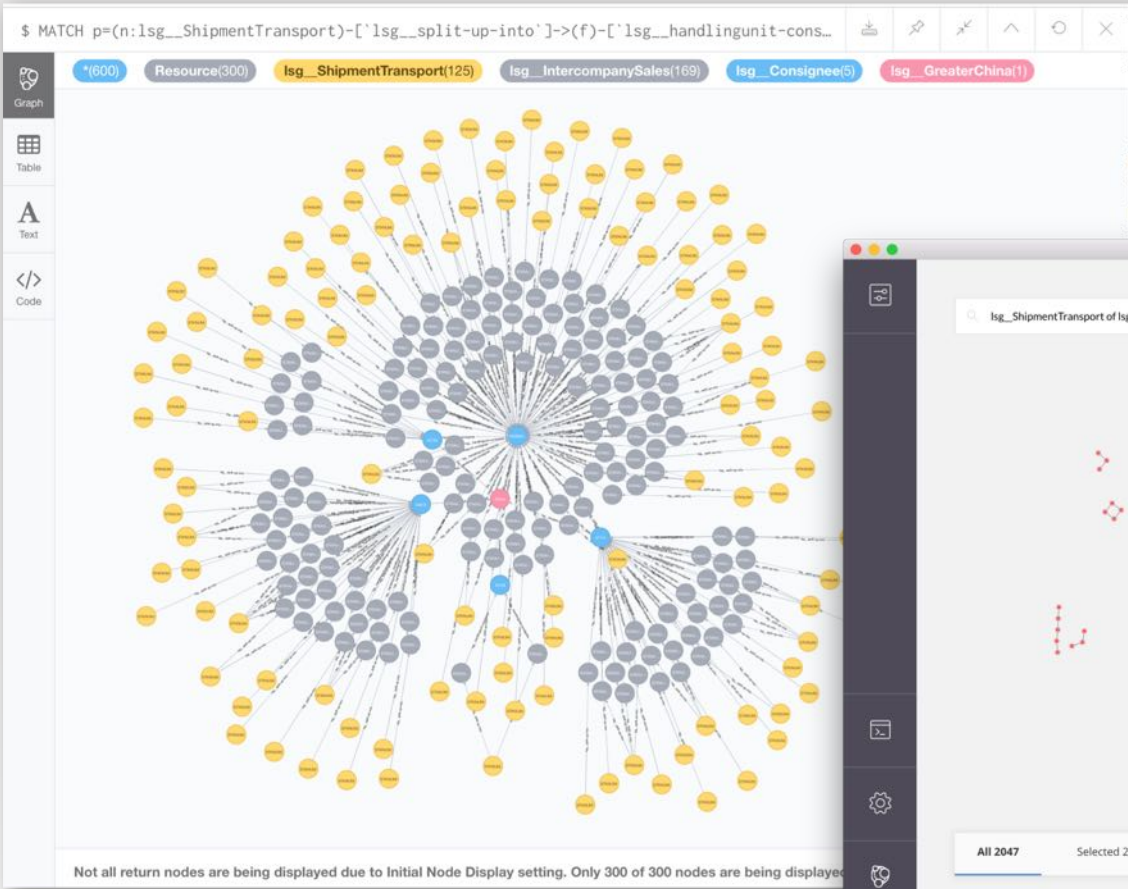
Jane Benham Hay
Jane Benham (b.1829) (also Jane Benham Hay and Jaine Benham Hay) was a prominent **female** painter and illustrator of the Victorian period. She was associated with two important artistic movements of the mid-nineteenth century: the Pre-Raphaelite painters of Britain, and the Macchiaioli of Italy. Jane Benham was born in London in 1829 to a family of iron and metal workers. She travelled to Munich in 1850 with her friend Anna Mary Howitt (1824-1884).

Anna Grodzka
Anna Grodzka (born 16 March 1954 in Otwock) is a Polish politician. Grodzka was elected to the Sejm in the 2011 Polish parliamentary elections as a candidate for the left-liberal Palikot's Movement. She is the first transsexual Member of Parliament in European history. Born in 1954 as Krzysztof Bgowski, she underwent male-to-**female** sex reassignment surgery in 2010. She was an entrepreneur and worked in publishing, poligraphy and filmmaking.

Cahide Sonku
Cahide Sonku (1919 March 18, 1981), born Cahide Serap was a Turkish actress, model, writer and the first **female** film director in Turkey. Sonku was founder of her own movie production company Sonku Film in 1950.

Soledad Becerril
Doa Mara de la Soledad Becerril y Bustamante, Marquise of Salvatierra is a Spanish noble, politician and long serving member of the Spanish Congress of Deputies who

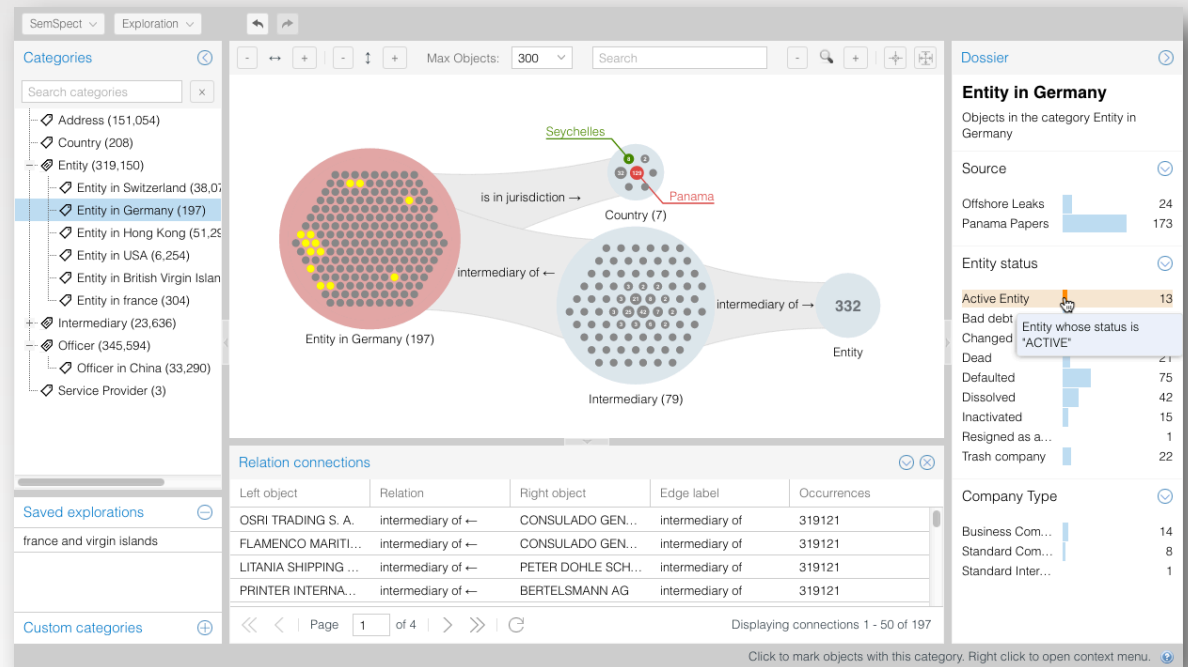
Network Visualizations



SemSpect

Interactive, data driven visualization and analysis via:

- grouping of nodes
- aggregation of relations
- selective exploration
- on-demand details
- sophisticated filtering
- <http://www.semspect.de>



Wrap-Up

- ▶ Lessons learned
 - business critical data is not always perfect
 - semantic modelling is not for free but pays off
 - don't get confused by the triple heap
- ▶ Key factors for effective querying and exploring
 - user guidance wrt. schema and query syntax
 - scalability of visualization paradigm
 - user orientation and result interpretation
 - data-driven exploration options