

# QueryVOWL – Visual Composition of SPARQL Queries

Florian Haag · Steffen Lohmann · Stephan Siek · Thomas Ertl

## What is QueryVOWL?

QueryVOWL [1] is a visual query language for RDF data. Visually, it is derived from VOWL, the Visual Notation for OWL Ontologies [2]. Semantically, it is defined by mapping the visual elements to SPARQL query fragments.

**"Which companies from London were founded by a politician?"**

A QueryVOWL graph specifies a graph pattern to find in an RDF graph. Blue circles (using the VOWL OWL class notation) are variables, purple circles (using the VOWL RDFS class notation) represent constant individuals. One variable is selected (red border) to indicate which entity is being queried.

**"Which actors born in the capital of a constitutional monarchy started in works produced in a federal republic?"**

QueryVOWL graphs can have any complexity; the practical limit is mostly determined by the complexity of the SPARQL expression, which influences the response time on the endpoint. The number of results is displayed in each variable node and dynamically updated as the graph changes.

**"Which voice actors born before 1980 have a connection to a band?"**

Retrieval of literal values and filter-based restrictions thereof are supported, as well. Also, arrowless edges and unlabeled properties can be used to represent arbitrary property relations in an unspecified direction.

**"Which connections between judges born in the U.S. to universities founded in the 20th century or later are known?"**

Property labels can be selected as a means of expressing that the query is supposed to determine what properties connect two given nodes. This works with both directed and undirected property edges.

## Additional Defined Visual Elements (not yet supported in the web-based prototype)

**"Find British films for which at least two actors are listed on DBpedia."**

The Disjoint edge ensures that the two connected nodes are mapped to different individuals in each result.

**"Which musical or martial artists were born after 1984 and have a nickname?"**

With a Union node, restrictions applied to two or more other nodes can be combined in a disjunction. The result list for the Union node contains all individuals that are valid for at least one of the linked variable nodes.

**"List all surnames of painters who also create poetry."**

An Intersection node combines restrictions of all linked nodes in a conjunction. This can be used to avoid rewiring large parts of the query graph when it is discovered that the restrictions for several variable nodes need to be combined.

## Where can I find further information?

Have a look at our paper presented at the HSWI 2015 workshop [1] and check out our website:

<http://queryvowl.visualdataweb.org/>



- [1] Haag, F., Lohmann, S., Siek, S., Ertl, T.: Visual Querying of Linked Data with QueryVOWL. In: HSWI '15. CEUR-WS, 2015.
- [2] Lohmann, S., Negru, S., Haag, F., Ertl, T.: VOWL 2: User-oriented visualization of ontologies. In: EKAW '14, LNCS 8876, pp. 266–281. Springer, 2014.

