

Towards a Visual SPARQL-DL Query Builder

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XXIV Congreso Argentino de Ciencias de la Computación
Octubre 2018



- 1 Introduction
 - Objective
 - crowd
 - SPARQL-DL
- 2 A UML-like Graphical Language for SPARQL-DL
 - UML-like VQL
 - SPARQL-DL Encoding
- 3 Implementation
- 4 Example



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- Make queries.
- With great expressiveness.
- Easy to read, write and understand.



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What is *crowd*?

Web tool for graphical ontology modelling



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Why *crowd*?

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- Berardi *et al.* encoding to OWL 2 and reasoning support.

A crowd screenshot

The screenshot displays the crowd web application interface. At the top, a dark navigation bar contains the 'crowd' logo, a 'Details' link, a 'Reasoning UML' dropdown menu, a 'SPARQL-DL' dropdown menu (which is currently selected), and a 'Class' link. A small flag icon is visible in the top right corner of the navigation bar. The main workspace shows a class diagram with two classes: a class labeled '?a' on the left and a class labeled 'Person' on the right. A white arrow points from the 'Person' class to the '?a' class, indicating a generalization relationship. A context menu is open over the '?a' class, containing two options: 'Translate to SPARQL-DL' and 'Run Query'.

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A Query Language for OWL-DL ontologies significantly more expressive than existing DL QL.



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Example

```
SELECT * WHERE {Class(?x), Class(?y),  
  DirectSubclassOf(?y, ?x)}
```



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UML-like VQL

Let's define a UML-like Visual Query Language.



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For example: ?person



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UML	DL	OWL 2
TBox		
Classes	Concepts	Classes
Associations	Roles	Object Properties
Generalizations	Inclusion	SubClassOf
ABox		
Objects	Instances	Individuals/Instances

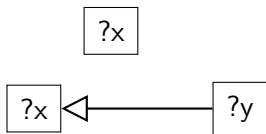
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Now we need to encode the UML-like primitives into SPARQL-DL.

`?x`

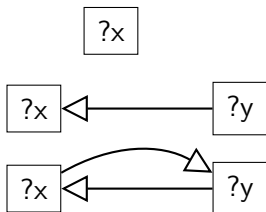
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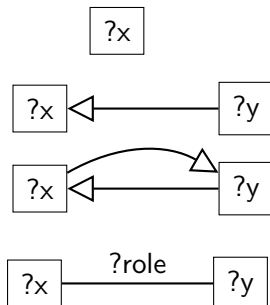


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SELECT * WHERE {Class(?x)}
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SELECT * WHERE {Class(?x), Class(?y),  
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SELECT * WHERE {Class(?x), Class(?y),  
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```
SELECT * WHERE {Class(?x), Class(?y),  
  Domain(?role, ?x), Range(?role, ?y)}
```

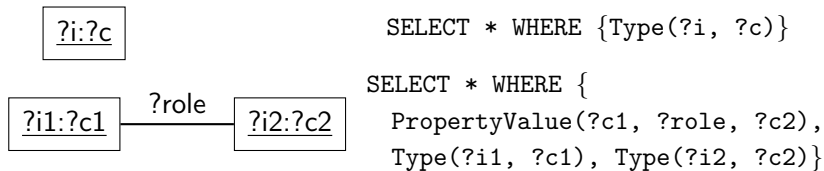
Now we need to encode the UML-like primitives into SPARQL-DL.

?i:?c

```
SELECT * WHERE {Type(?i, ?c)}
```

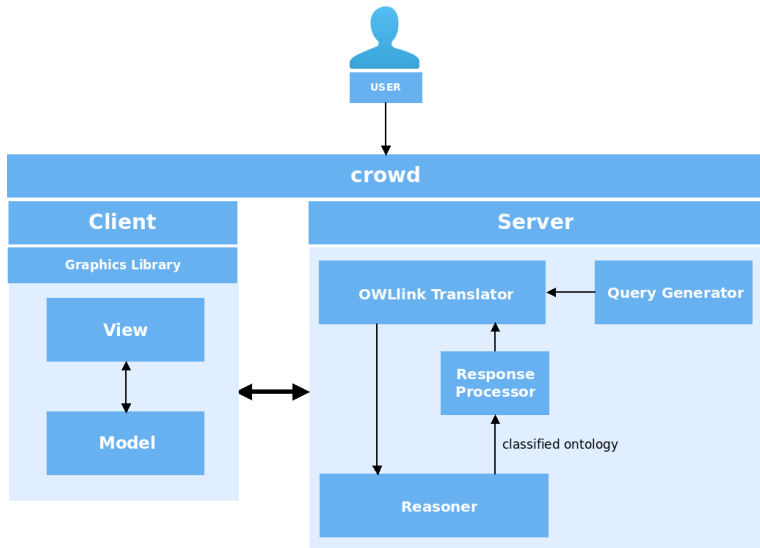
SPARQL-DL Encoding (instances)

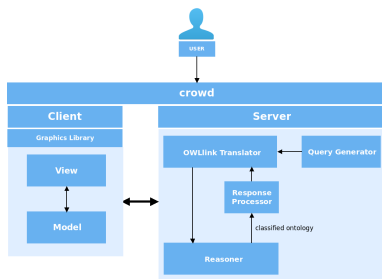
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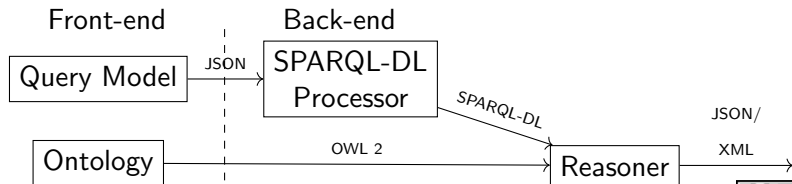
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Back-end steps for processing the query modelled by the user.



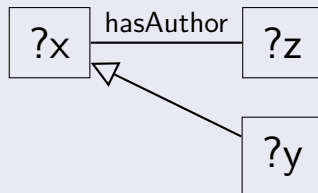
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UML-like Query

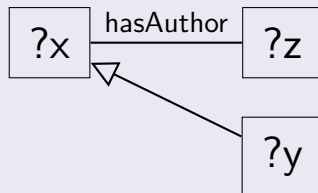
A query expressed in UML-like class diagram model.



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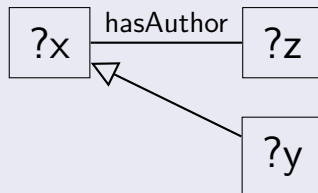
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A query expressed in UML-like class diagram model.



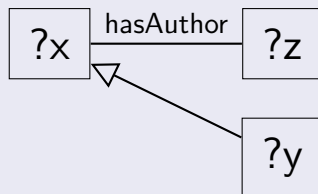
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A query expressed in UML-like class diagram model.



SPARQL-DL Encoding

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}
```


Thank you!

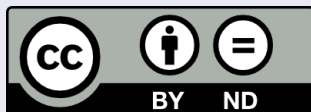
Thank you!

Questions?



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