

Towards a Visual SPARQL-DL Query Builder

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Objective

- We have a big ontology.
- How can we query it?.
- But OWLink/DIG is difficult to use!
- We want to query whatever we want!
 - Not only data, structure too!
- It would be awesome if it is a graphical language!

Then, we want to:

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



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crowd

What is crowd?

Web tool for graphical ontology modelling

Why crowd?

- Web tool.
- Adaptable and expandable.
- Supports UML as graphical language.
- Berardi *et al.* encoding to OWL 2 and reasoning support.



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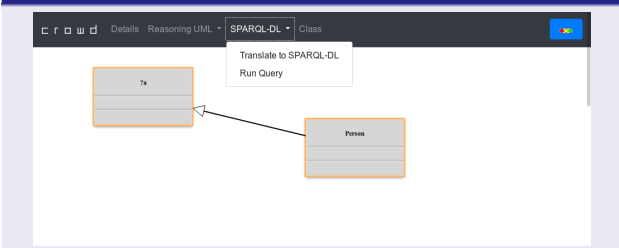
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crowd

A crowd screenshot



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SPARQL-DL

What is SPARQL-DL?

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

Why SPARQL-DL?

- Allows combined ABox, RBox and TBox queries.
- Aligned with SPARQL.
- Can be used on top of OWL-DL reasoners.

Example

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



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UML-like VQL

UML-like VQL

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

- crowd has UML support.
- UML is well-known.
- We allow to use variables as classifier names.
For example: ?person

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



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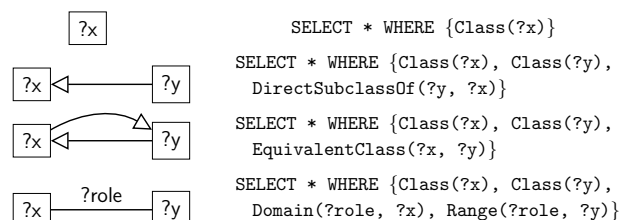
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SPARQL-DL Encoding

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



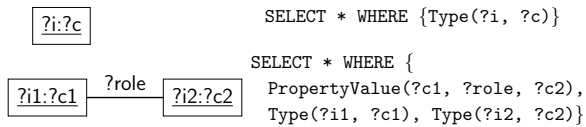
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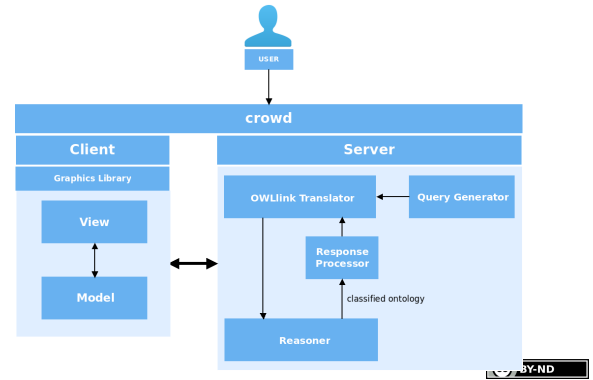
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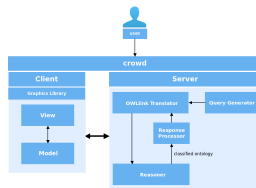
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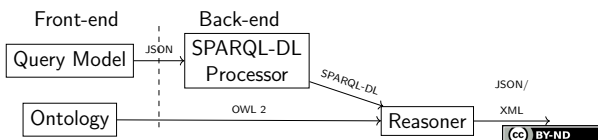
crowd Architecture



crowd Architecture



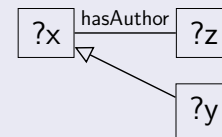
Back-end steps for processing the query modelled by the user.



Example

UML-like Query

A query expressed in UML-like class diagram model.



SPARQL-DL Encoding

```
SELECT ?x,?z,?y WHERE
{Class(?x), Class(?z), Class(?y),
  DirectSubclassOf(?y,?x),
  Domain(?x,:hasAuthor), Range(?z,:hasAuthor)
}
```

Thank you!

Thank you!

Questions?

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