



semantics

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RDQL: an implementation experience

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what is RDQL?

- RDF Data Query Language (RDQL)
- SQL like syntax to query RDF graphs
- **data query** language
- syntax is easy to read and write
- JDBC/ODBC/DBI friendly

simple enough...

```
SELECT
    some information
FROM
    somewhere
WHERE
    this matches
AND
    this constraints
USING
    these vocabularies
```

RDQL example

```
SELECT
    ?title ?description ?orbit ?satellite ?sensor ?date
FROM
    <http://earth.esa.int/showcase/ers/dublin.rdf>
WHERE
    (?item <dc:title> ?title)
    (?item <dc:description> ?description)
    (?item <isc:orbit> ?orbit)
    (?item <isc:satellite> ?satellite)
    (?item <isc:sensor> ?sensor)
    (?item <dc:date> ?date)
USING
    isc FOR <http://earth.esa.int/standards/showcase/>
    dc FOR <http://purl.org/dc/elements/1.1/>
    rdf FOR <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
    rdfs FOR <http://www.w3.org/2000/01/rdf-schema#>
```

<http://demo.asemantics.com/rdfstore/rdql/>

an implementation...

- RDFStore - <http://rdfstore.sourceforge.net>
- since 2001
- C/Perl
- DBI/JDBC/ODBC interfaces
- ...with little extensions :-)

needed extensions...

- free-text and stemming
- graph-naming/contexts/provenance (4th component in triple-patterns)
- simple OR in triple-patterns

some issues

- JDBC/ODBC uses already ‘something’ for placeholders/bindings
- processing: recursive vs. iterative algorithms
 - query efficiency
- aggregation and merging
 - how to best merge/join connected RDF graphs?
 - scaling and caching
- cursors and streaming results
 - what about 500k matches?

an (ab)use case...

```
SELECT
    ?x ?title ?date ?section
FROM
    <rdfstore://demo.asemantics.com:1234/nb>
WHERE
    (?ctx <dc:date> "2004-04-21"@it)
    (?ctx <rdf:type> <rdfstore:Context>)
    (?x <rss:description> %"iraq"% ?ctx)
    (?x <lmn:section> %"international | gossip"% ?ctx)
    (?x <lmn:section> ?section ?ctx)
    (?x <rdf:type> <rss:item> ?ctx)
    (?x <rss:title> ?title ?ctx)
    (?x <dc:date> ?date ?ctx)
    (?items ?ii ?x ?ctx)
    (?items <rdf:type> <rdf:Seq> ?ctx)
    (?s <rss:items> ?items ?ctx)
    (?s <rdf:type> <rss:channel> ?ctx)
    (?s <dc:source> <http://www.corriere.it/ , http://www.ansa.it/> ?ctx)
USING
    lmn FOR <http://www.asemantics.com/schemas/lastminutenews/>
    rdfstore FOR <http://rdfstore.sourceforge.net/contexts/>
```

our DAWG wishlist

- optionals and empty matches (simple OR)
- ordering (ORDER BY)
- basic set of XSD data types and operators
- XPath expressions (XPointers)
- extension points (e.g. like EXSLT)
- data manipulation (INSERT, UPDATE, DELETE)



thank you!

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