How many stars do you see in this constellation?

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<https://github.com/dgraux/RDFStar Observatory>

**RDF** and **SPARQL** [1,2]

- To facilitate adding statement-level metadata, an RDF & SPARQL syntax extension has recently been proposed to the Semantic Web community: RDF & SPARQL*.
- It allows data providers to shape statements about RDF graphs in an intuitive manner, while still being compliant with the RDF standard syntax.
- The extension can potentially bridge the gap between the RDF and Property Graphs worlds.

**Towards an Observatory**

- A simple test suite shows that current engines are not treating this extension in a uniform way.
- Our goals are (i) to review the current available engines, starting by observing their internal representations, and (ii) to raise awareness providing the community with a test suite for further evaluation.

**Current RDF*/SPARQL* Engines**

- RDFStarTools v.0.0.1 (by Hartig et al.)
- Stardog v.7.1.2
- Blazegraph v.2.1.5
- AnzoGraph v.2
- GraphDB v.9.2
- RDF4J v.3.2
- Apache Jena v.3.15.0 "tested"

**Let’s stargaze . . .**

We observed multiple anomalies:

- Stardog uses its own syntax based on curly-brackets (angular-brackets often raise exceptions).
- Blazegraph cannot deal with spaces at some places and raises errors when “Select *” is used.
- RDFStarTools and Blazegraph do not return the subject column when there is an RDF triple at the subject place in the clauses.
- Different internal representations: Stardog’s representation leads to errors, as it is “flattening” the nested statements.

**SPARQL** Query Results:

<table>
<thead>
<tr>
<th>Select * Where ...</th>
<th>Stardog</th>
<th>Blazegraph</th>
<th>RDFStarTools</th>
</tr>
</thead>
<tbody>
<tr>
<td>{?s ?p ?o}</td>
<td>s1 p1 o , s2 p2 o2 , s3 p3 o3 , s4 p4 o4 , (s2 p2 o2) d2 e2 , (s4 p4 o4) d4 e4 , (s3 d3 e3) t3 u3 , s3 d3 e3</td>
<td>s1 p1 o , s2 p2 o2 , s3 p3 o3 , s4 p4 o4 , (s2 p2 o2) d2 e2 , (s4 p4 o4) d4 e4 , (s3 p3 o3) d3 e3 , (s3 p3 o3) d3 e3 t3 u3</td>
<td>s1 p1 o , s2 p2 o2 , s3 p3 o3 , s4 p4 o4 , (s2 p2 o2) d2 e2 , (s4 p4 o4) d4 e4 , (s3 p3 o3) d3 e3 , (s3 p3 o3) d3 e3 t3 u3</td>
</tr>
<tr>
<td>{&lt;&lt;s ?p ?o&gt;&gt; ?d ?e}</td>
<td>s2 p2 o2 d2 e2 , s4 p4 o4 d4 e4 , s3 d3 e3 t3 u3</td>
<td>s2 p2 o2 d2 e2 , s4 p4 o4 d4 e4 , s3 p3 o3 d3 e3 , (s3 p3 o3) d3 e3 t3 u3</td>
<td>s2 p2 o2 d2 e2 , s4 p4 o4 d4 e4 , s3 p3 o3 d3 e3 , (s3 p3 o3) d3 e3 t3 u3</td>
</tr>
<tr>
<td>{&lt;&lt; &lt;&lt;s ?p ?o&gt;&gt; ?d ?e&gt;&gt; ?t ?u}</td>
<td>No results</td>
<td>s3 p3 o3 d3 e3 t3 u3</td>
<td>s3 p3 o3 d3 e3 t3 u3</td>
</tr>
</tbody>
</table>

**Further Reading**


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