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Subject: [Moderator Action] Position Statement: W3C
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To: group-data-ws-pc@w3.org

I am Barry Zane, VP Engineering for Cambridge Semantics. Please find below my submission of a position statement for the March 2019 W3C workshop in Berlin on graph data management standards.

Cambridge Semantics (CSI) is a vendor that sells Anzo, which is a product that provides a semantic layer over complex graphs that allow business users to query sub-graphs and/or aggregate graphs tailored to their specific needs and perspectives based on the total complex graph. At the base of Anzo is AnzoGraph, an RDF/SPARQL database extended for broad use cases which is now also available independent of the full Anzo semantic stack.

There are several key enhancements CSI has performed beyond the RDF/SPARQL specification that we feel should be in the W3C standard to make RDF/SPARQL more broadly useful to a larger community.

The most crucial extensions that CSI would like to see adopted in the standard are:

1. Full property graph support as described by Hartig's RDF*/SPARQL* paper. We have adopted the approach and have found it to be flexible and powerful and a natural extension of the SPARQL 1.1 specification. Further, it is even more powerful than other LPG approaches in that it allows properties (such as provenance, scoring, timestamps, veracity) on what other LPG systems consider base "properties of vertexes". Other LPG systems appear only to allow "properties on edges". In addition to SPARQL*, there can, and should, be multiple serialization formats, such as Turtle*, JSON* to support this framework.

2. View Support. In brief, a "view" is a graph derived from the larger graph(s) using a syntax similar to CONSTRUCT. The view can be materialized as a new graph or be a virtual graph assembled on-the-fly by the SPARQL processor. CSI proposes the adoption of the syntax:
  CREATE [MATERIALIZED] VIEW IriRef AS CONSTRUCT ...
Once a view has been created, it is queried exactly like other graphs in the system.
Beyond semantic simplification, views also provide a powerful basis for role-based access-control.

3. Consistent syntax for addition of graph algorithms not part of the SPARQL specification. Many vendors, CSI included, have modeled the SERVICE syntax for promoting these features of the database to the SPARQL consumer. Either an industry-wide syntax should be created, or this approach should be formalized so that users have a single consistent way to access these algorithms provided by the database.

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