Chapter 8

Summary

Information quality assessment relies on different types of meta-information. This part of the thesis extended the RDF data model to the Named Graphs data model in order to allow a more efficient representation of quality-related meta-information. Using Named Graphs instead of RDF reification is also beneficial for other use cases which require the representation of meta-information about RDF data. Further use cases for Named Graphs are:

Restricting Information Usage. Information providers might want to attach information about intellectual property rights or their privacy preferences to RDF data in order to restrict the usage of published information [Mar02]. Within the Named Graphs data model, such information can be expressed as triples describing distinct graphs.

Access Control. An RDF triple store may wish to allow fine-grained access control. Access rights appear as meta-information concerning the graphs in the RDF store [Int06a] and can conveniently be represented using the Named Graphs data model.

Signing RDF Data. Information providers might decide to sign published information in order to provide a clear record of origin [Car03]. As shown in Section 6.2, the graph naming makes it possible to clearly keep track of what is signed and to include digital signatures into graph sets.

Ontology Versioning and Evolution. As ontologies evolve over time, it is necessary to track of different versions of the same ontology [HP04]. Named Graphs allow multiple versions of ontology elements to be represented within a single integrated model [CS04b].

The Named Graphs data model and the TriQL query language have influenced the standardization of the SPARQL query language [PS05]. TriQL was evaluated by the W3C Data Access Working Group [Fuk04]. The Named Graphs data model was intensively discussed on the `semantic-web@w3.org` and `public-rdf-dawg@w3.org` mailing lists[1]. The discussions and the evaluation finally led to the adoption of Named Graphs as part of the data model behind SPARQL and to the inclusion of graph patterns into the SPARQL query language.

As Named Graphs are now part of a W3C recommendation [PS05], various Semantic Web toolkits have implemented Named Graphs [BW06] and it is likely that the data model will be used by a growing number of applications. Examples of applications which already use Named Graphs are the Gnowsis Adapter Framework [SS05] developed at DFKI, Germany, and a version control system [WN06] developed at the University of Southampton, United Kingdom.

Chapter 5.3 introduced the Semantic Web Publishing Vocabulary (SWP). The SWP vocabulary allows information providers to express different degrees of commitment towards published information and to assure the origin of information with digital signatures. SWP signatures are still verifiable after information from different sources is combined and serialized using a different serialization syntax.

Linking information to authorities and optionally assuring these links with digital signatures gives information consumers a secure basis for employing provenance-based information filtering policies. The next part of the thesis introduces the WIQA - Information Quality Assessment Framework. The framework employs the Named Graphs data model and enables information consumers to filter information using different quality-based information filtering policies.

---

[1]The `semantic-web@w3.org` mailing list is archived at http://lists.w3.org/Archives/Public/semantic-web/. The `public-rdf-dawg@w3.org` mailing list is archived at http://lists.w3.org/Archives/Public/public-rdf-dawg/