Semantic Web Overview

Jim Hendler
@jahendler
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(Semantic) Web Vision ca. 1994

- “Documents on the web describe real objects and imaginary concepts, and give particular relationships between them...

  Tim Berners-Lee plenary presentation at WWW 1, Geneva, 1994
Semantic Web (vision) ca. 2001
Semantic Web (research) ca. 2005
Semantic Web (transition) ca. 2008

Social database (freebase.com)
Semantic Web Maturation ca. 2012
Semantic Web (RPI) 2013
Semantic Web Innovation: Environment
Semantic Web Innovation: Ocean Informatics
Semantic Web Innovation: Government
Semantic Web Innovation: Medicine
Semantic Web Innovation: Critical Infrastructure
Semantic Web Research: Networking

Source Augmentation allows discovering all results (when possible)

No Augmentation vs. SPARQL Augmentation
Semantic Web Research: Social Networks
Semantic Web Research: Supercomputing

Figure 5.10: Data Scaling, Blue Gene/Q, Par-CoreRDFS, LUBM10K

Figure 5.11: Data Scaling, Blue Gene/Q, Par-MemOWL2, LUBM10K

J. Weaver, 2/2013, BG/Q - CCNI
Semantic Web Research: Mobile and Distributed Computing

Geolocation
Moving the Wine Agent to a mobile platform allows it to take advantage of additional technologies, such as GPS, to better serve users’ needs. The Wine Agent displays a map centered on the user with locations of nearby restaurants, which have been encoded as RDF+XML. Restaurant menus are then loaded by the agent and any dish or wine instances not part of that menu are removed from the ABox to reduce the number of triples. Future work includes using search engines to locate restaurants with RDF rather than directly encoding the restaurants’ existence within the Wine Agent’s RDF.

Smart Interfaces
End users of Semantic Web applications are not always aware of ontologies, formal reasoning rules, and the Open World Assumption. The Wine Agent provides ontology-aware interfaces which adapt how information is displayed and entered to reduce the possibility of logical errors being introduced by users.

Social Network Integration
Twitter
The Wine Agent integrates with the microblogging site, Twitter, so that users can share information about restaurants, food, wine, and recommendations with their followers. Twitter users with the Wine Agent installed can click posted links to launch the Wine Agent and access the semantic content.

Linked Data
The Wine Agent integrates the Wine and Food ontologies with Geonames and Freebase. Preliminary restaurant, dish, and wine data are available as RDF+XML for others to link, use, and extend.
Semantic Web ca. (class of) 2016

Two RPI Freshmen