

Call for Papers

Special Issue of the Journal of Web Semantics on Reasoning with context in the Semantic Web

Mechanisms for reasoning with context have become increasingly important factors in the Semantic Web. There is a growing need for general and robust reasoning techniques that make it possible to integrate heterogeneous knowledge or to use homogeneous knowledge across different domains.

Research on this topic has so far, and not surprisingly, concentrated on formal ontologies, i.e., on the logical structures that encode the semantics of a software's domain of application. Work on the Semantic Web as well as on information integration, distributed knowledge management, multi-agent and distributed reasoning has focussed on the relationship between an ontology and its context. This has aimed at clarifying how to relate knowledge that is distributed over many resources. Recent Semantic Web specific developments suggest that aspects of this relation can be captured by means of named graphs (to express meta-information), the use of provenance (to track the context where data/axioms came from) and querying (to facilitate reasoning).

Other neighbouring research areas, though, have also investigated topics that shed light on how to reason with context in the Semantic Web. Ontology Engineering and Maintenance, for instance, has tackled the problems faced by ontology engineers when developing and maintaining an ontology. The yielded automation of the process of ontology development and of its phases (e.g. knowledge elicitation, revision cycles, alignment with pre-existing ontologies etc.) has improved efficiency, reduced the introduction of unintended meanings into ontologies and in general made explicit the relationship between an ontology and its development context. Finally, research on Problem Solving and Agent Communication has explored how an agent's ontology needs to change at run-time because of interactions with its context – for instance with other agents whose ontologies are not known or with new non-classifiable world situations. This type of research has delivered a deeper understanding of the evolution of an ontology and is often based on non-monotonic reasoning, belief revision or changes of signature, i.e., of the grammar of the ontology's language, with a minimal disruption to the original theory.

Topics of interest

This special issue aims at bringing together work on reasoning with context in the Semantic Web from the integration, development and evolutionary perspectives described above. Submitted articles, which may describe either theoretical results or applications, must clearly pertain to the Semantic Web and/or to semantic technologies. They should present either Semantic Web specific approaches to reasoning with context, or approaches that have characteristics that are interesting for the Semantic Web (e.g., scalability, bounded reasoning), or approaches that are of value to a larger community containing a non-trivial Semantic Web sub-community (e.g. revision/update techniques and error pin-pointing).

Submissions are welcome on topics relevant to reasoning with context in the Semantic Web and that include but are not limited to:

- Named graphs
- Provenance
- Knowledge representation languages for semantic technologies
- Planning and reasoning about action and change in the Semantic Web
- Ontology fault diagnosis and repair
- Pinpointing of logical errors in contexts and ontologies

- Explanation and justifications in DL ontologies
- Ontology and context evolution, debugging, update and merging
- Inconsistency handling in contexts and ontologies
- Uncertainty handling, defeasible reasoning and argumentation in ontologies
- Non-classical belief revision
- Context revision and theory change in DL ontologies
- Ontology and context versioning
- Semantic difference in ontologies and in contexts
- Information and knowledge integration
- The role of context and ontology in distributed reasoning and knowledge management
- Heuristic and approximate reasoning
- Bounded reasoning and bounded rationality in the Semantic Web
- Adaptive systems and reconfiguration
- Ontology-based data access
- Querying
- Multi-Agent systems in the Semantic Web
- Temporal and spatial reasoning
- Normative reasoning in the Semantic Web
- General problem solving for semantic technologies
- Machine learning for the Semantic Web
- Philosophical foundations of reasoning about context and ontology evolution
- Comparison of uses of contexts and ontologies

How to submit

Maximal length of submissions is 25 pages. Authors should upload submissions on [Elsevier's Electronic Submission System](#) choosing "Reasoning with context in SW" as article type. See [Guide Authors](#) for instructions.

Important dates

Submission deadline: 15 June 2011
 First-round reviews: 5 September 2011
 Revised papers submitted: 30 September 2011
 Final acceptance decisions: 31 October 2011
 Tentative publication date: April 2012

Guest editors

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