Scalable and Complete Ontology Reasoning

Fact Sheet

Project Information

SCORE
Grant agreement ID: 303914
Status
Closed project
Start date 1 April 2012
End date 31 March 2016

Funded under
FP7-PEOPLE

Overall budget
€ 100 000

EU contribution
€ 100 000

Coordinated by
NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA
Greece

Objective

Semantic Web technologies, like OWL 2 and RDF(S) ontologies have gradually started to be used in many research as well as industrial strength applications, a recent example being BBC’s World Cup Semantic Website. Many such applications usually have to deal (reason) with a huge amount of data in as much little time as possible. The pressing need for scalable reasoning often forces developers to use incomplete ontology reasoners--that is, reasoners which for some combinations of inputs fail to derive all answers to a user query. Examples of such systems are OWLim (the system used by BBC), Oracle’s Semantic Store, and more. Although incompleteness provides performance guarantees it is clearly undesirable, and in some applications may even be unacceptable. To address this problem, the current project aims at investigating the problem of 'repairing' an ontology $O$ for an incomplete reasoner--that is, computing an extension $R$ such that a reasoner that is incomplete for $O$ becomes complete when used with $O$ and $R$ as inputs.
The project will investigate the possibility of repairing ontologies $O$ which contain disjunctive constructors and also repairing under non-ground queries. Both these features are very important in knowledge representation and ontology engineering and to the best of our knowledge are currently not supported by any state-of-the-art repair approach. Furthermore, the project will also provide prototypical implementations and an extensive experimental evaluation as proof of concept of the proposed technologies and the practically of the approach. Finally, it will also investigate the trade-off between fully repairing completeness of an incomplete system and the consequences that the repair potentially has in its scalability. Overall, the project aims at delivering scalable and complete ontology reasoning by bringing together complete but inherently inefficient systems with incomplete but scalable ones.

Field of science

/humanities/philosophy, ethics and religion/philosophy/metaphysics/ontology
/natural sciences/computer and information sciences/internet/semantic web

Programme(s)

Topic(s)

Call for proposal

FP7-PEOPLE-2011-CIG

Funding Scheme

MC-CIG - Support for training and career development of researcher (CIG)

Coordinator

NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA

Address

Heroon Polytechniou 9
Zographou Campus
15780 Athina
Greece

Activity type

Higher or Secondary Education Establishments

EU contribution

€ 100 000

Website

Contact the organisation

Administrative Contact