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Time: 2:30 pm - 3:30 pm, 4th September, 2014.

Venue: SETS Auditorium, ISI-Chennai.

Title: Query Answering over Contextualized RDF/OWL Knowledge with Forall-Existential Bridge Rules: Attaining Decidability using Acyclicity

Abstract: The recent outburst of context-dependent knowledge on the (Semantic) Web has led to the realization of the importance of the quads in the web community. Quads, which extend a standard RDF triple, by adding a new parameter of the ‘context’ of an RDF triple, thus informs a reasoner to distinguish between the knowledge in various contexts. Although this distinction separates the triples in an RDF graph into various contexts, and allows the reasoning to be decoupled across various contexts, bridge rules need to be provided for inter-operating the knowledge across these contexts. We call a set of quads together with the bridge rules, a quad-system.

In this Seminar, I will try to describe the problem of query answering over quad-systems with expressive forall-existential bridge rules. It turns out the query answering over quad-systems is undecidable, in general. We derive a decidable class of quad-systems, namely context-acyclic quad-systems, for which query answering can be done using forward chaining. Tight bounds for data and combined complexity of query entailment has been established for the derived class.

The topics/results are part of Joint work between Dr. Luciano Serafini (FBK-IRST) and Prof. Gabriel Kuper (DISI, University of Trento)