Departamento de Informática

Contracts in the Semantic Web

Knowledge and Information Systems Group

CENTRIA

Ricardo Gonçalves

(Postdoctoral researcher)

Degrees:
2004: BSc in Applied Mathematics and Computation from IST
2008: PhD in Mathematics from IST
Advisor: José Júlio Alferes

Objectives

The Semantic Web initiative has an ambitious plan and promising ideas regarding the sharing of metadata and knowledge in the Web.
In an open domain as the Web, it is crucial to study the interaction between entities. An important research area within the Semantic Web initiative is the study of contracts, which are mutual agreements between two or more parties engaging in various types of interactions.

The objective of the research is to develop a rich language for the specification and verification of contracts in the Semantic Web.

Methodology

Develop of a contract language integrating ontologies, which describe the relevant concepts and entities in the contract, and non-monotonic contract rules. The language should then be enriched with deontic and temporal constructs, thus allowing to model obligations and deadlines and to monitor possible violations of the agreements established in the contract. Endow the language with a simple and declarative semantics, so that agents (the ones subject to the contract) and the electronic institution (the one responsible for monitoring the agents and applying sanctions) can reason about the contract in a simple and clear way.

Expected Results

A rich language for contract specification and verification, that tightly integrates ontologies and non-monotone contract rules, together with temporal and deontic constructs.

Identification of sub-languages of the contract language that enjoy useful computational properties.

Implement a tractable sub-language for specifying and reasoning about contracts.
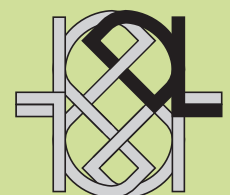
Semantic Web

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efficient reasoning with rules and ontologies