Title: Protecting RDF data in presence of inference
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Abstract
The emergence of the semantic web has led to rapid adoption of RDF (Resource Description Framework) to describe data and relation between them. RDFS (RDF Schema) is an extension of RDF that provides a framework to describe application-specific classes and properties. RDFS uses inference rules for reasoning over RDF data and deriving new information.
Applications that publish and exchange potentially sensitive RDF data multiplied increasingly, which leads to the problem of protecting that data from unauthorized access. We propose an access control model for protecting RDF data from unauthorized access using authorization rules. Our model supports negative and positive authorizations therefore conflicts may occur. The most used conflict resolution strategies are "Denials Take Precedence" where negative authorizations prevail over positive ones, and "Permissions Take Precedence" where positive authorizations prevail over negative ones. Our model supports more elaborate strategies such as "Most specific takes precedence" or "Most recent takes precedence". The ability to infer new triples generates another kind of conflicts as inference rules allow to derive triples that should not be accessible. We are studying how to detect and resolve such conflicts.

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