

A Flexible and Powerful Access Control Model for Linked Open Data

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Access Control:

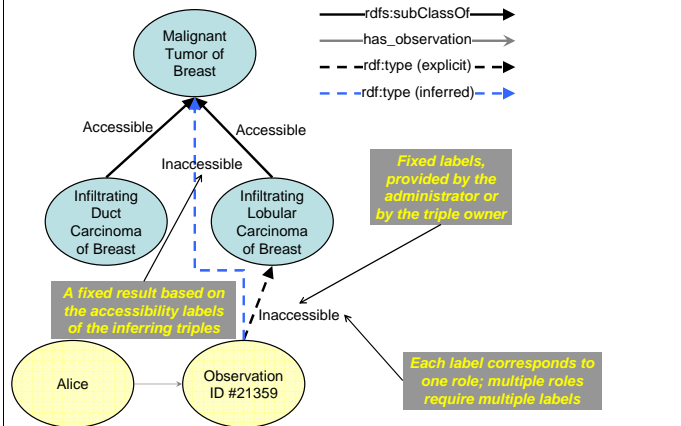
- ⇒ Refers to the ability to *allow or deny access* to certain information resources for certain entities (selective exposure)
- ⇒ Crucial for sensitive content (e.g., medical information, personal data)
- ⇒ Important for the publication of *Linked Open Data*

Focus: Linked Open Data (based on the RDF/S language)

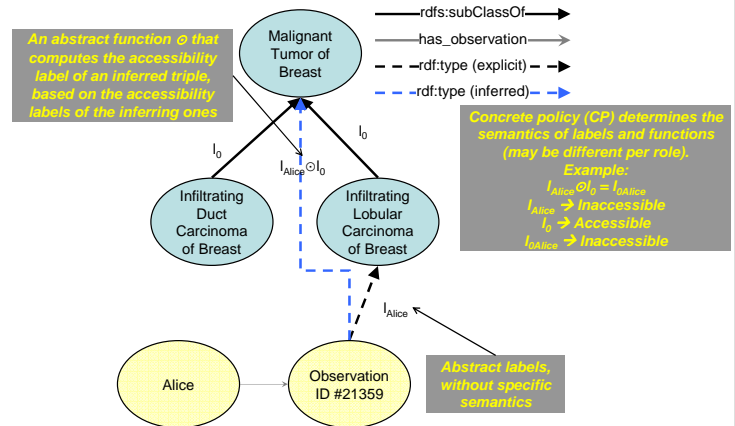
Addressed Challenges:

- ⇒ Inference
- ⇒ Multiple roles, each with its own associated access control policy
- ⇒ Dynamic data
- ⇒ Dynamic access control policies

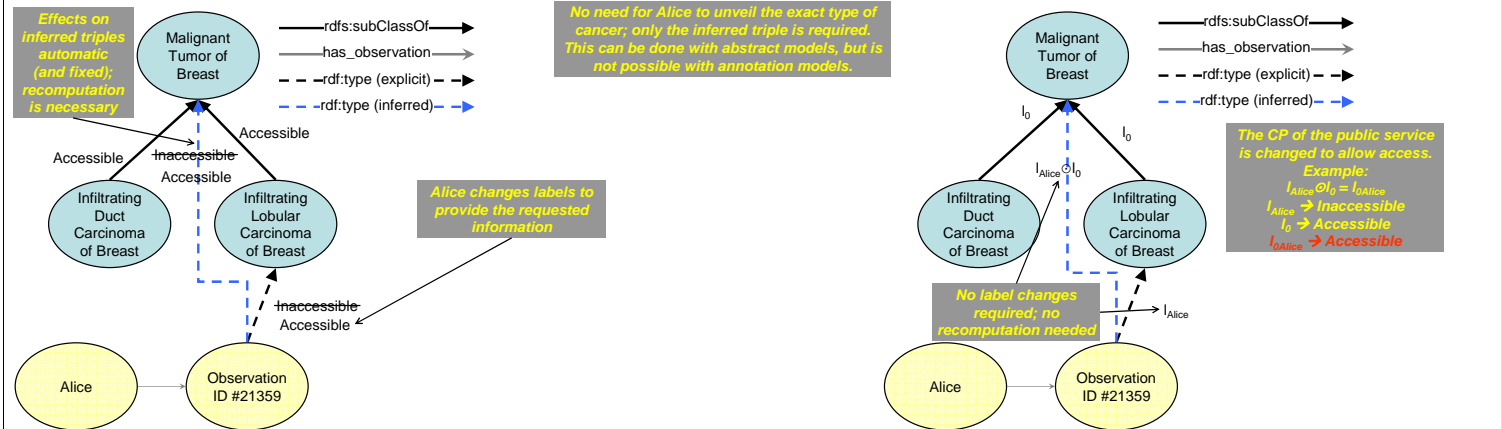
Annotation Models (most common approach)



Abstract Models (our proposal)



Scenario: a public service requires evidence that a patient suffers from cancer in order to provide a benefit



Annotation Models:

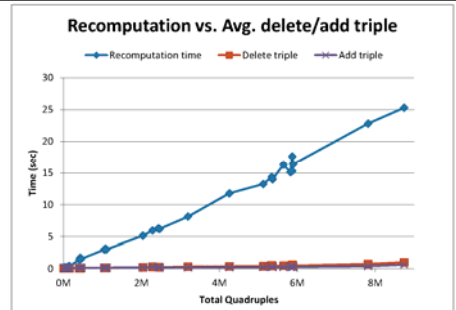
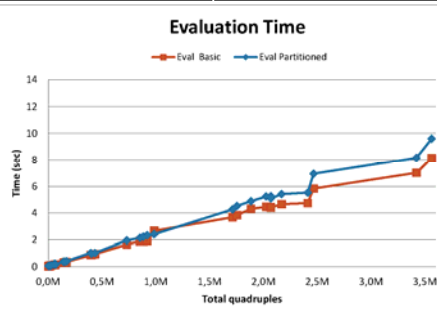
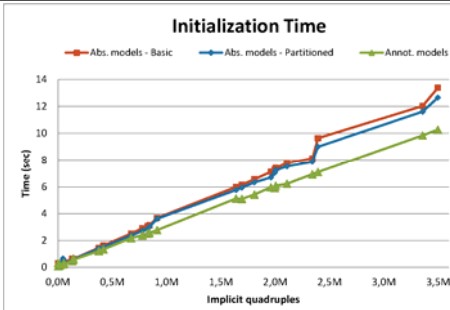
Suitable for *static* data and access control policies

- ⇒ Recomputation necessary following every change (including changes in the labels and/or changes in the data itself)
- ⇒ Fixed and inflexible semantics
- ⇒ Replication needed to support multiple policies or roles

Abstract Models:

Suitable for *dynamic* data and access control policies

- ⇒ No recomputation needed during updates
- ⇒ Better support for dynamic data/access control policies, at a small overhead in evaluation and initialization time (and space)
- ⇒ Multiple policies or roles, each with its own concrete policy



More details on this work can be found at:

- [1] V. Papakonstantinou, M. Michou, I. Fundulaki, G. Flouris, G. Antoniou. Access Control for RDF Graphs Using Abstract Models. In SACMAT, 2012.
- [2] G. Flouris, I. Fundulaki, V. Papakonstantinou. Abstract Access Control Model for Dynamic RDF Datasets. In EDF, 2012.
- [3] G. Flouris, I. Fundulaki, M. Michou, G. Antoniou. Controlling Access to RDF Graphs. In FIS, 2010.
- [4] G. Flouris, I. Fundulaki, M. Michou, G. Antoniou. Access Control for RDF: Experimental Results. In Poster Session of FIS, 2010.

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