Proposal of changes to the ODRL Model

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1   Motivation

In the last few years a number of improvements to the ODRL 2.0 Model have been identified. Much as the comments on ODRL1.1 in [Guth04] led to changes in ODRL2.0, newer insights may lead to a better ODRL3.0 model. This document discusses the possible changes.

2   Issues

Some of the improvements identified by [Becker13][Arnab05][Steyskal15] and [Beck13] are listed shortly here. Also, stemming from the experiences using ODRL some other requirements have been extracted: in the context of Linked Data [Steyskal14][Rodriguez14, Rodriguez14b], of ODRL in HTML pages expressed as RDFa in [Beck13], in the development of a Java API and a HTTP REST API[1] .

C1. There is no naming convention for attributes

Proposal. Follow the recommendations in [Becker13] page 3087. Modify the name of the attributes "undefined", "conflict" etc.

C2. Roles and relations are inconsistently modelled

"*The relations between the Policy entity and other entities from the Core Model are modeled inconsistently. A Permission is related to an Asset via the association class Relation. Likewise, the association class Role expresses the function of a Party associated with a Permission. On the other hand, the inheritance relation between two policies is expressed through the attributes inheritRelation and inheritFrom*"[Becker13]

Proposal. Use a uniform manner of modelling these relations.

C3. Default modality of policies

Arnab had observed that ODRL policies do not have a default modality, [Arnab05] hampering the logical expression of CreativeCommons licenses. The "undefined" attribute of policy is insufficient, as the purpose is other. Becker recommends adopting either a default permit or a default prohibit.

Proposal. Having this ambiguity has proved to be very useful. I propose leaving the spec as it is, but enabling specific policies to set the default value: add

C4. Ability to express which actions are supported by which assets

[Becker13] suggests that in order to make this handier, types of assets should be able to be defined ('audio' etc.).

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[1] http://www.licensius.com

Proposal. List at least the types of assets, possibly using the W3C Ontology for Media Resources https://www.w3.org/TR/mediaont-10/.

C5. Aggregated assets are not supported

According to [Becker13]: "Aggregated assets are not supported by the Core Model, i. e., it is impossible to expressthat an asset consists of multiple parts". Please note that the term isPartOf is an operator of user for such purpose.

Proposal. Support the partOf relationship for assets

C6. The scope of the roles is confusing

"The Common Vocabulary describes scope as attribute of the entity Role. On the contrary, the Core Model defines it as part of the entity Party as well as in the association class Role." [Becker13].

Proposal. This is an important inconsistency between the Model and the Vocabulary that should be fixed choosing either approach.

C7. Permission, Duty, and Prohibition have a similar structure, but are modeled as separate entities

The Rule is a non normative part of ODRL and is not the central element in the ODRL schemata. Becker describe a number of advantages in doing so in page 3090; for example being able to specify post and pre-conditions (e.g. whether a payment must be made before or after the execution of the action). [Becker13]

Proposal. Move from non-normative to normative section the text on the Rules. Make the Rule the center of the schema, handling permissions duties and prohibitions equally.
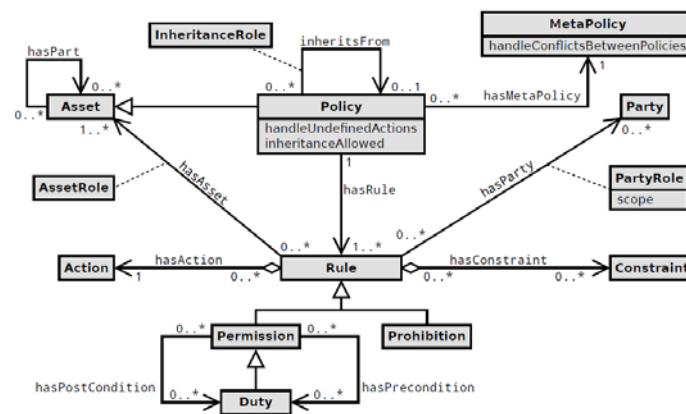

Figure 1. Taken from [Backer13]

C8. Dependencies between actions are not explicit

[Steyskal15] observe that the execution of an action A1 implies, that an action A2 must be executable (e.g. share and copy).

Proposal. Define a property to establish which actions imply the execution of other actions.

C9. The fact that an action is broader than other cannot be made explicit

[Steyskal15] (page 365) points out the need for a subsumption hierarchy between actions

Proposal. Define a property to establish a hierarchy of actions.

C10. The list of actions to be done with a policy is undefined

While leaving open the use of ODRL is key for it success, a minimal set of operations would greatly enhance the interoperability between different implementors. The experience implementing a Java API and a HTTP REST API has shown that a validation mechanism must exist, possibly with different compliance levels. A test bed of policies and expected behaviors is needed.

Proposal. Define a set of actions, like:

- "Validate a policy (syntactically)" − output being true/false

- "Validate if a policy is satisfiable " − output being true/false. E.g. an action being permitted and prohibited.

- "Validate a Request against a Set" - output being permitted actions

- "Validate a Request against a Set and a Ticket" - output being permitted actions

- "Validate conflict between Policy1 and Policy2" − output being true/false

- "Validate conflict between Policy1 and Policy2" − output being conflicting elements

- "Create a the minimum Policy1 inheriting from Policy2" − output being a policy

- "Extend a policy making explicit all the implicit knowledge" (if this is implemented) − the new policy having "print", "use" etc. from an originally shorter policy with a broader term.

C11. There is no suitable mechanism to declare pattern licenses

This is already illustrated in the new Use Cases and Requirements, hence the ODRL2.1 did not model it.

3   References

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