Expressing licenses by ODRL and RightsML

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@ DCMI 2018 Conference

The Challenge

To express a granted license or ownership transfer for an asset – a media asset – in a machine readable way.

To narrow down for the news industry: to express only a media asset specific part of a generic license applying to a (large) group of media assets.

The Solution

Use the ODRL 2.2 (Open Digital Rights Language, a W3C Recommendation) with the IPTC RightsML 2.0 profile.

ODRL – in short

ODRL is

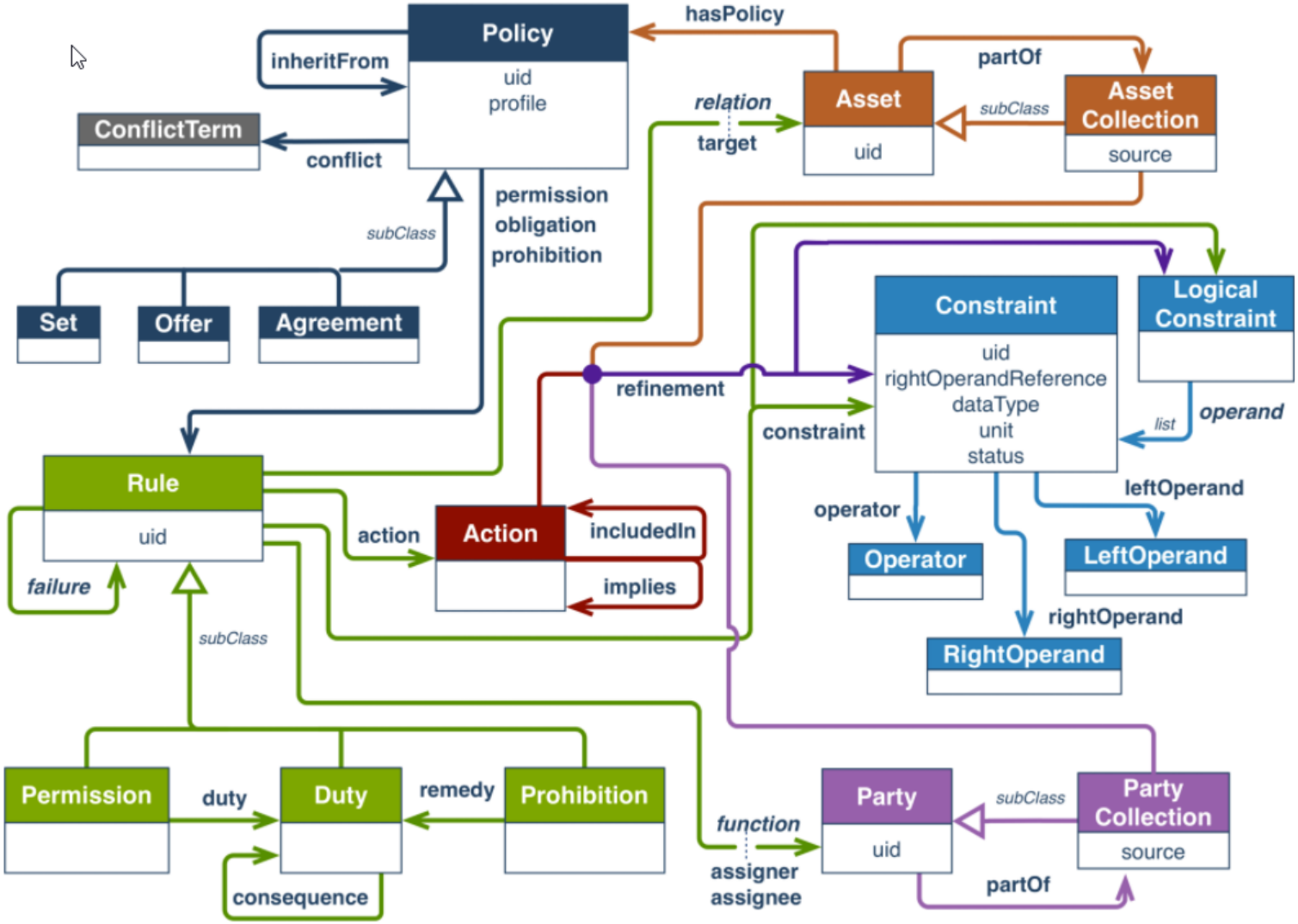
- a machine-readable language to communicate permissions, prohibitions and duties from an assigner to an assignee
- NOT a language to control the access to assets directly

ODRL has …

- … a minimal basic set of terms used with permissions, prohibitions and duties
- … profiles which allow to define additional terms which are relevant for a specific business sector
- … processing rules which apply to building blocks regardless of the profile

Find the full Information Model at https://www.w3.org/TR/odrl-model/

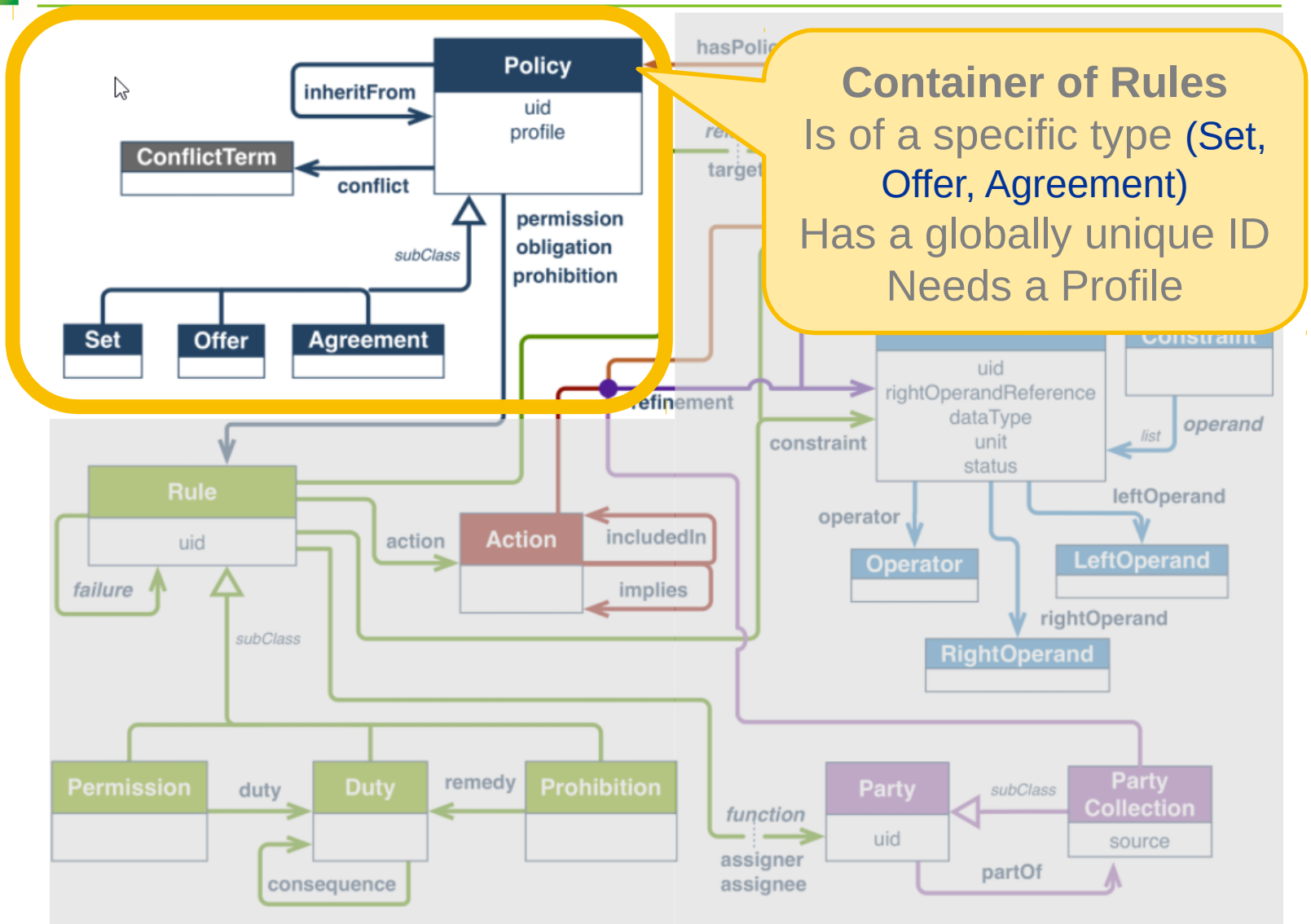
Network of ODRL Building Blocks



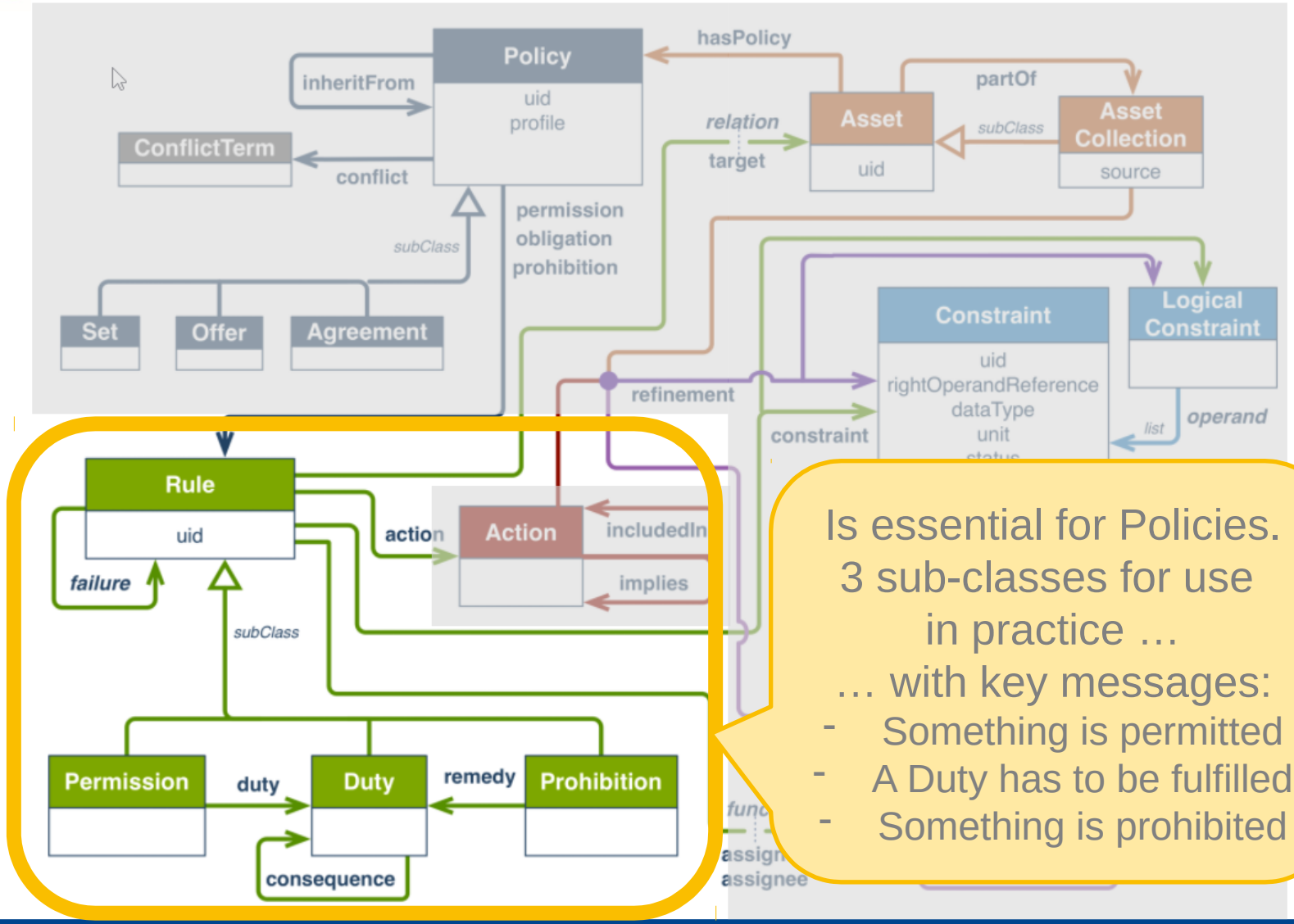
ODRL Design

- Basics:
  W3C ODRL is based on RDF, any building block is defined as Class with Properties.
- The **Policy** = the container of one to many Rules
- A **Rule** defines what action be (not) be taken.
- These Rule sub-classes are in use: Permission, Prohibition and Duty
- A Rule has to define an **action**
  - It may apply **constraints** to the action
  - It may require that a **duty** is fulfilled to consume the granted action

ODRL Building Block: Policy



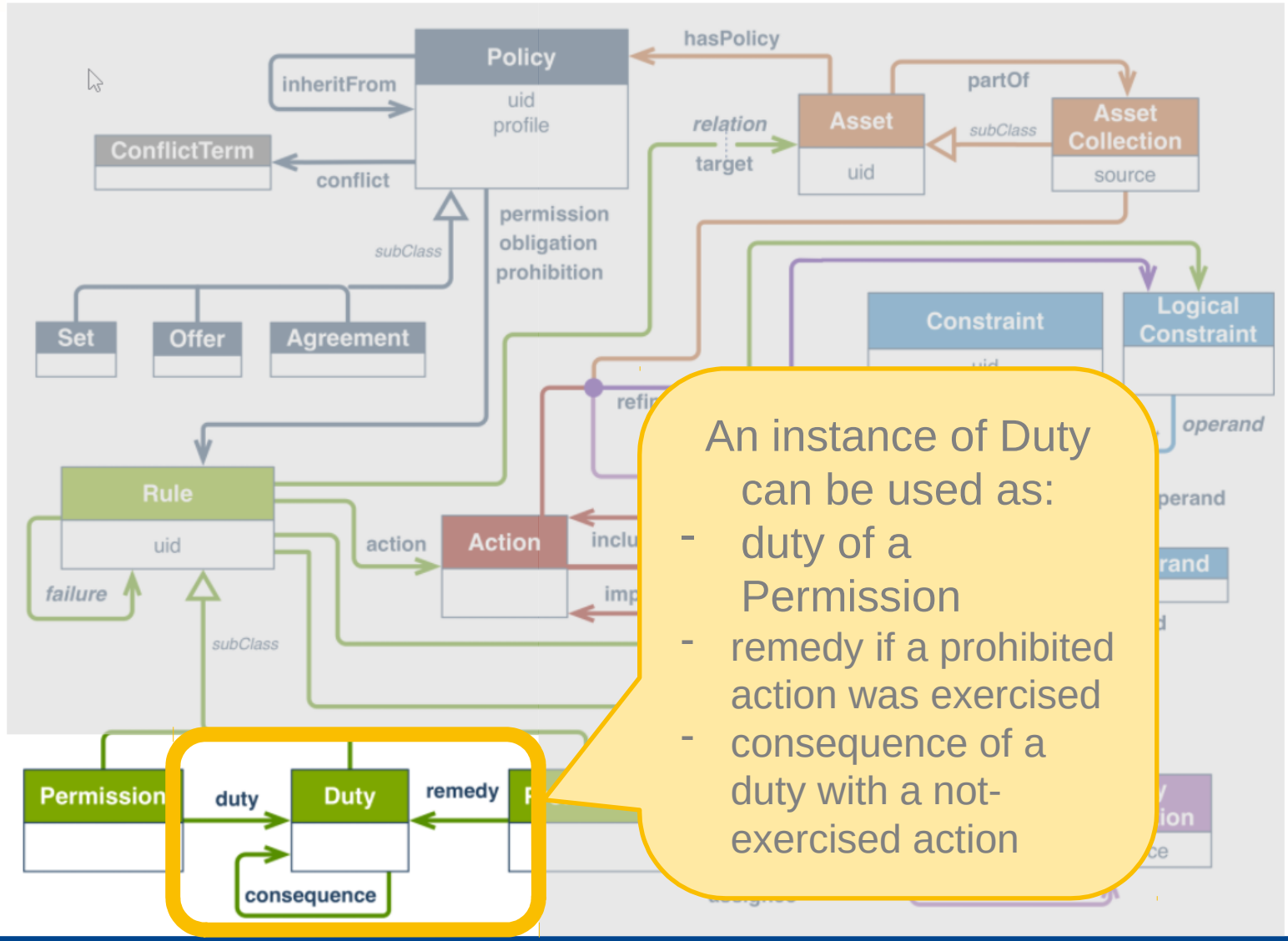
ODRL Building Block: Rule



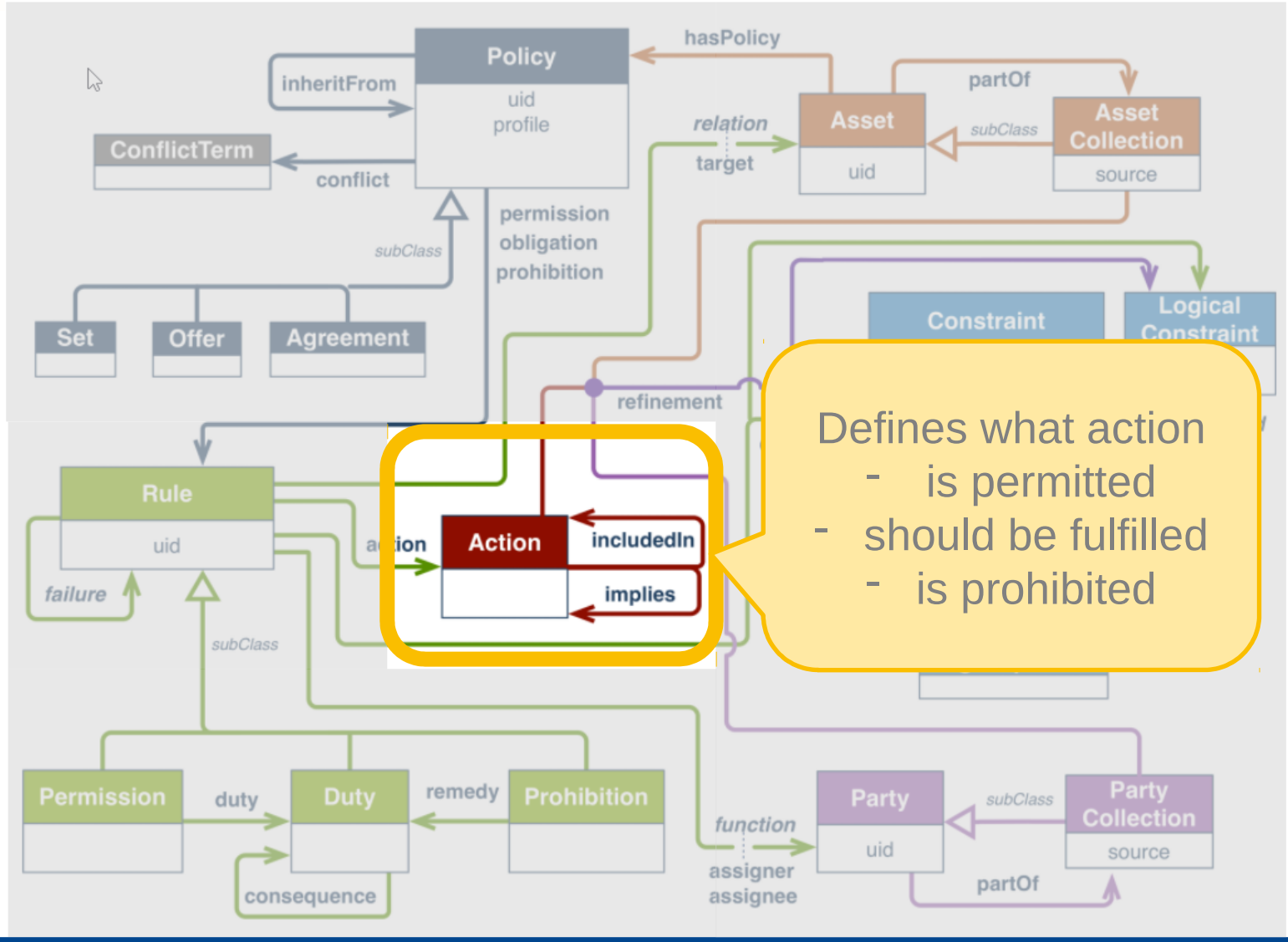
Is essential for Policies.
3 sub-classes for use in practice …
… with key messages:

- Something is permitted
- A Duty has to be fulfilled
- Something is prohibited

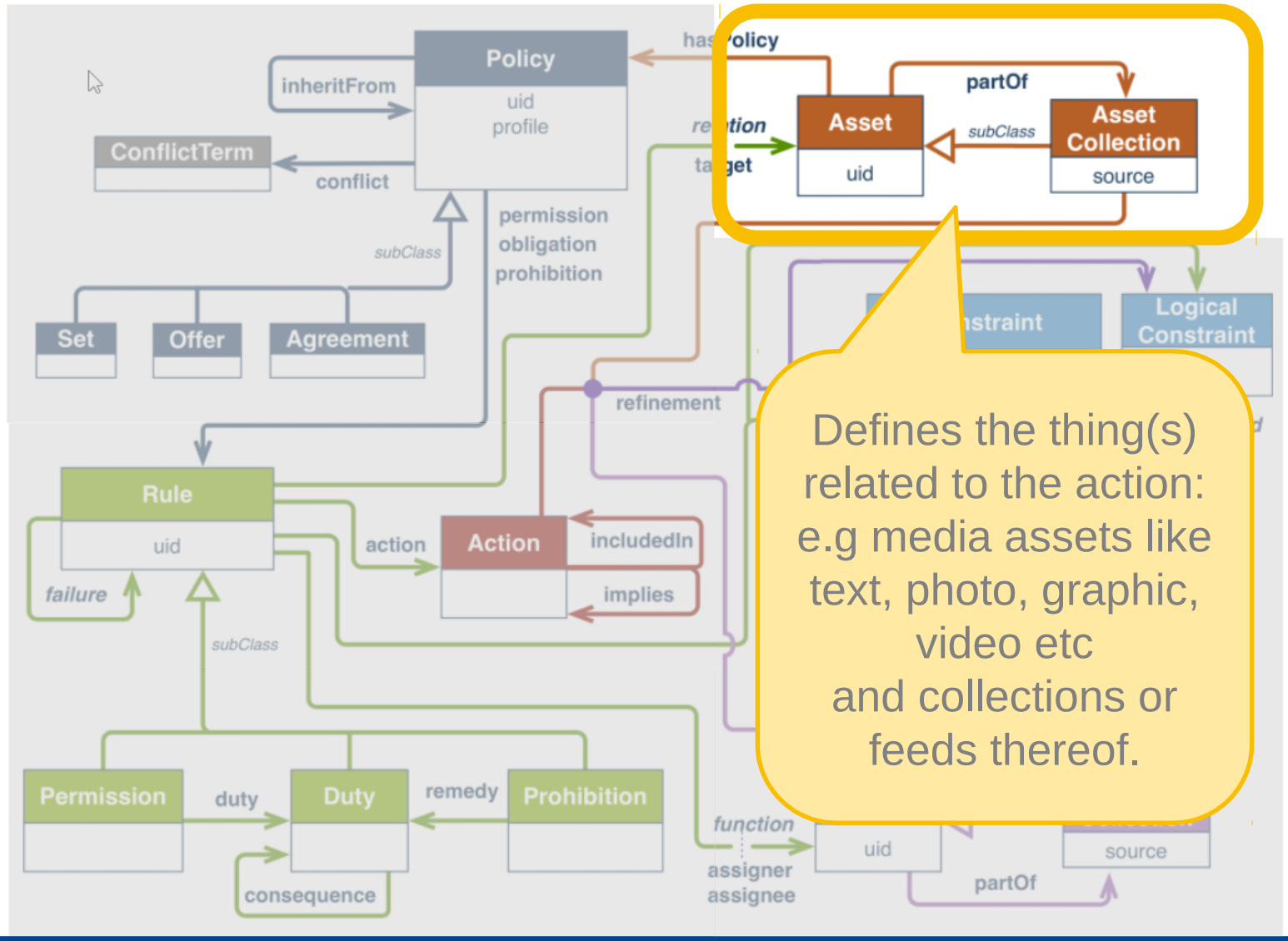
ODRL Building Block: Rule Duty



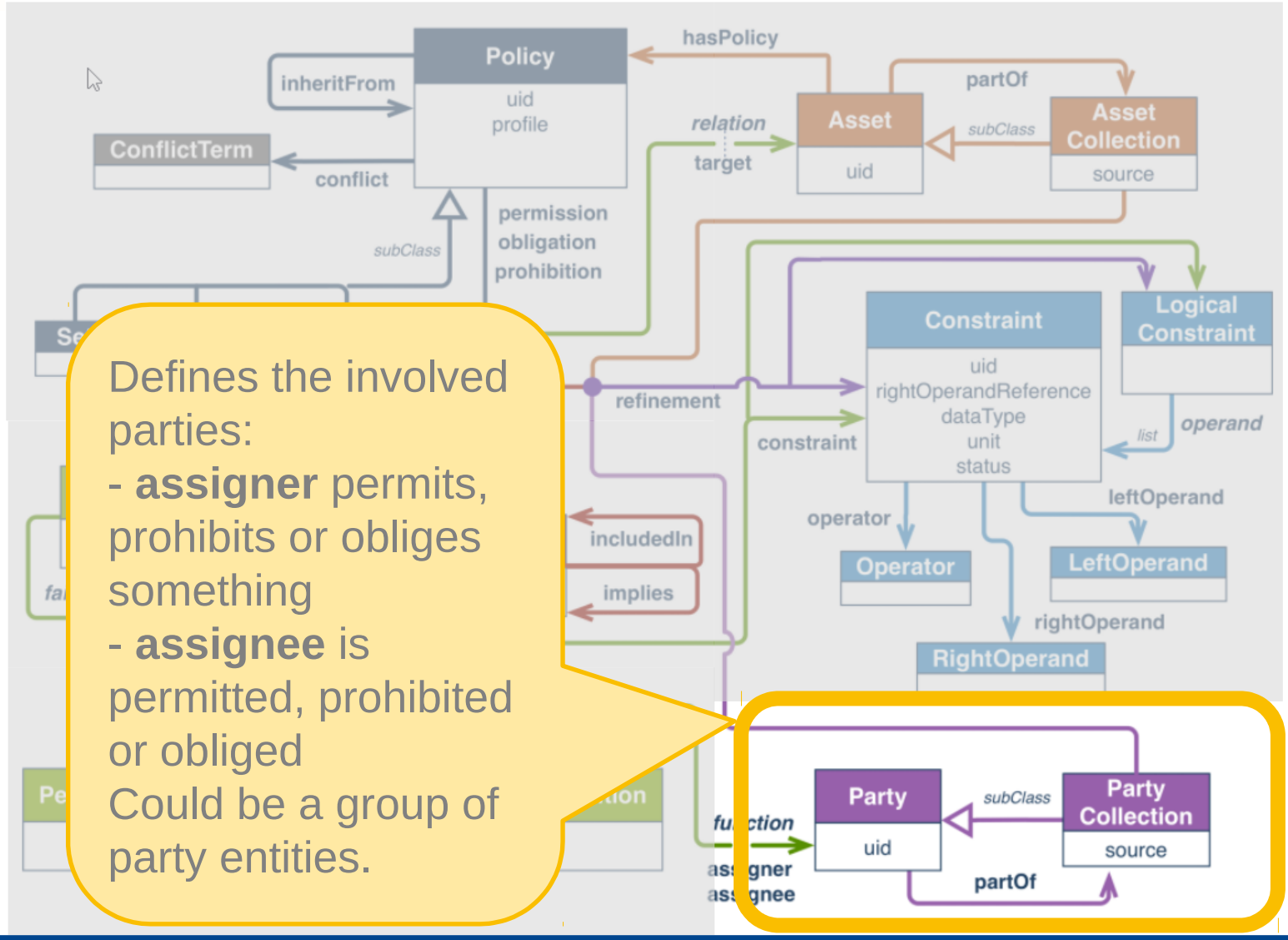
ODRL Building Block: Action



ODRL Building Block: Asset



ODRL Building Block: Party



Defines the involved parties:
- **assigner** permits, prohibits or obliges something
- **assignee** is permitted, prohibited or obliged

Could be a group of party entities.

ODRL Building Block: Constraint

Defines conditions for:
- executing a permission
- not-executing a prohibition
- fulfilling a Duty

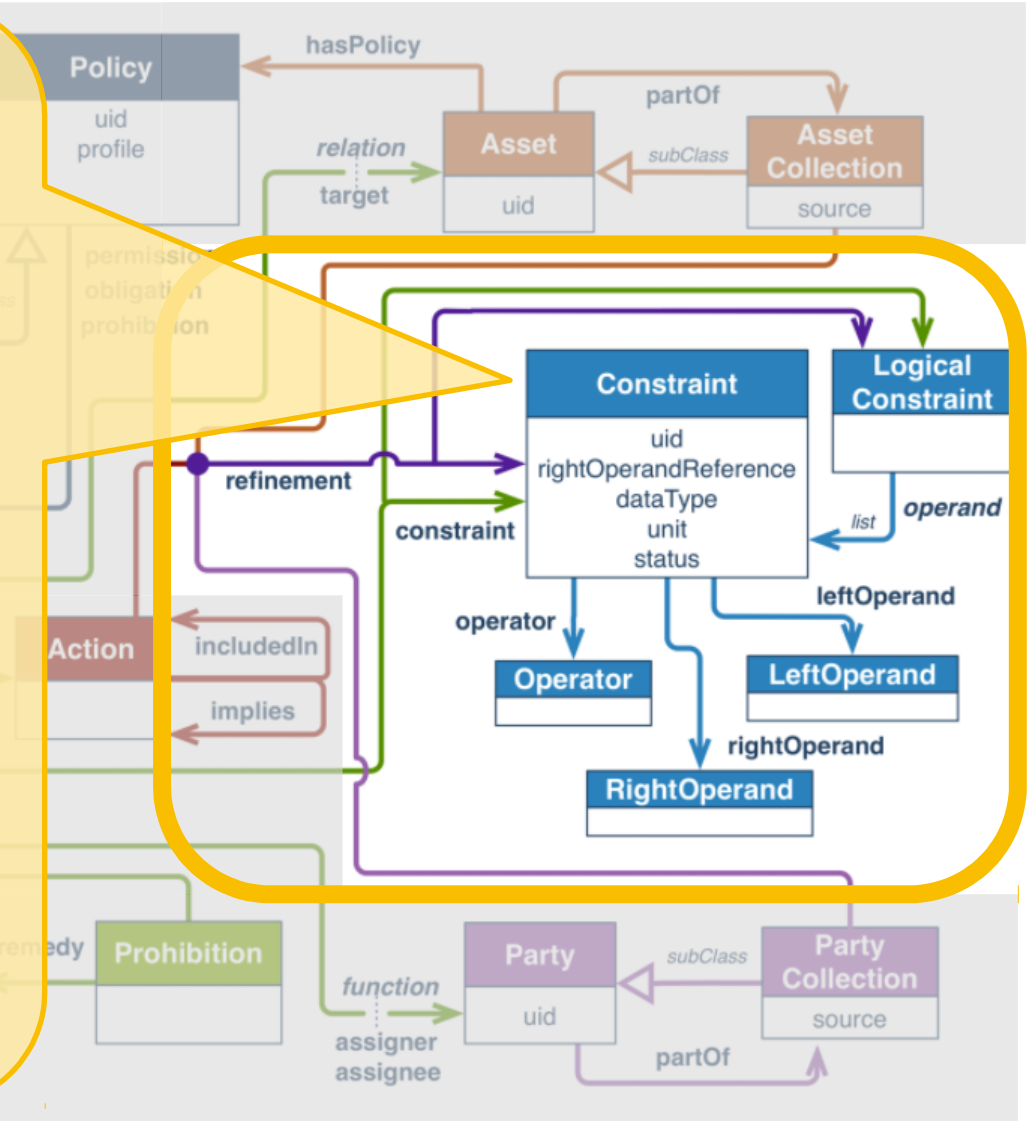
OR

Refines the semantics of an Action. (e.g. how to “compensate”)

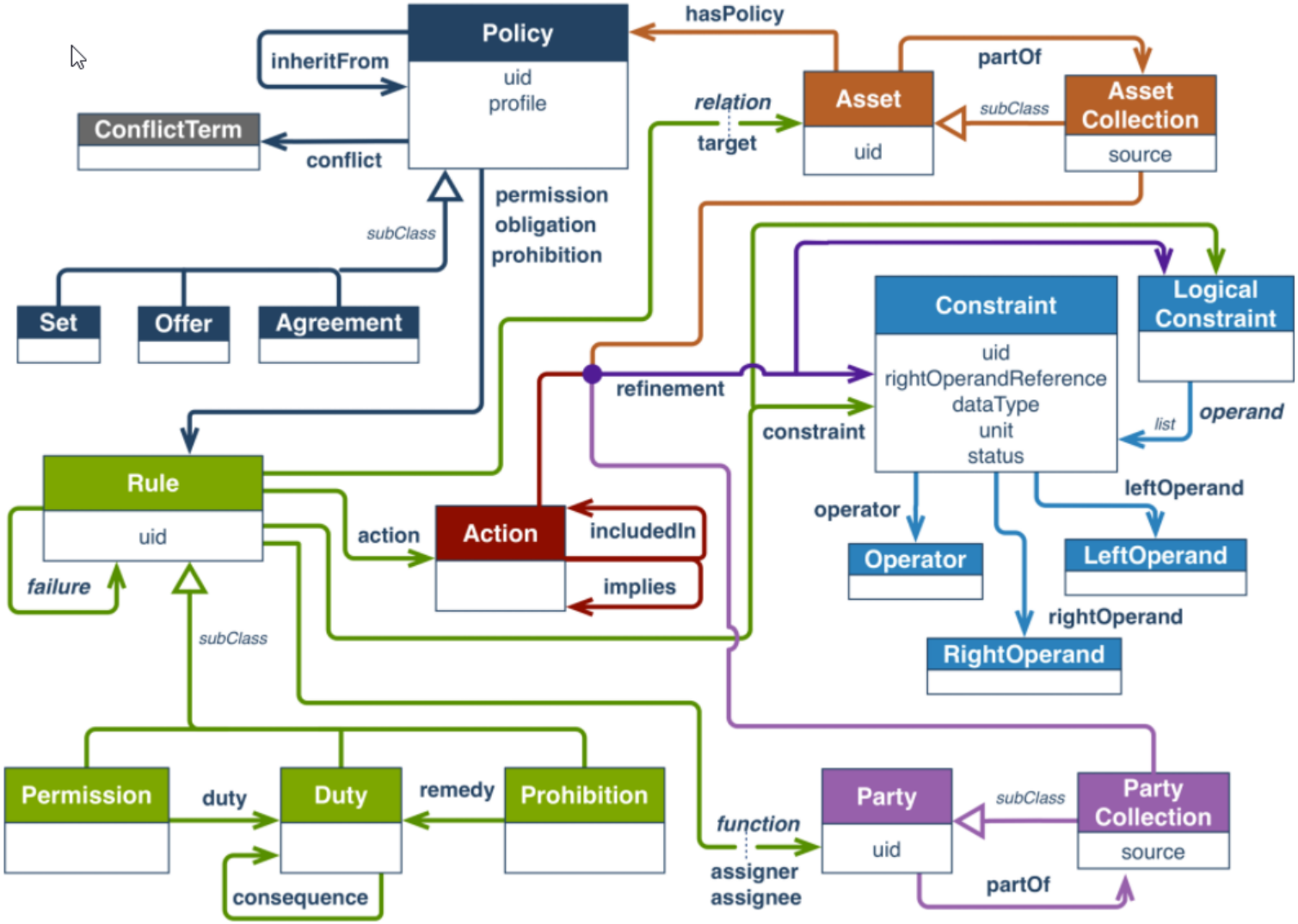
OR

Narrows down the scope of an Asset-Collection or Party-Collection.

A logic relationship (and, or …) of multiple Constraints can be set.



Network of ODRL Building Blocks



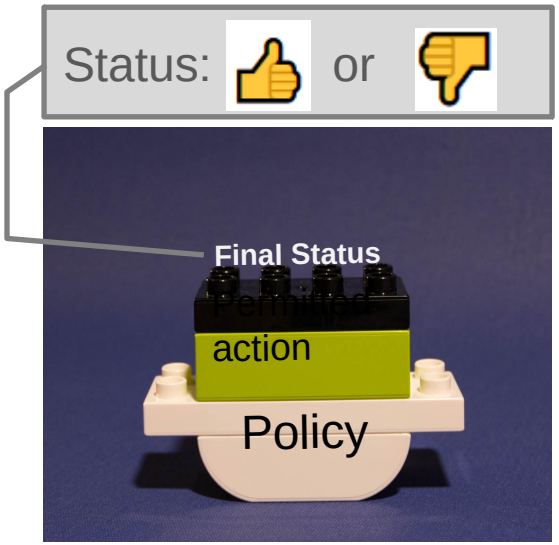
The ODRL message:

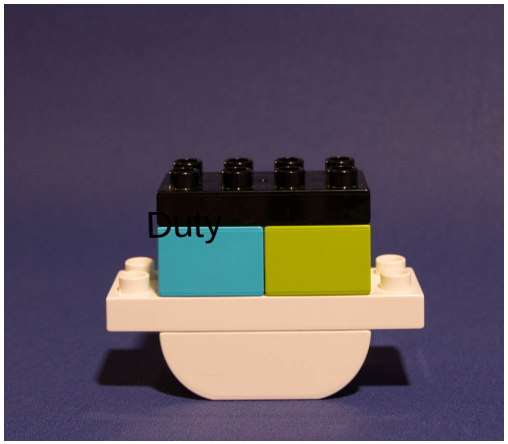
Many Building Blocks are available.

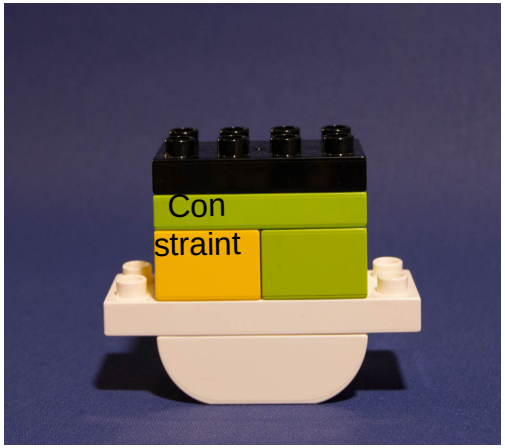
They can be combined
in many ways
to cover many different needs.

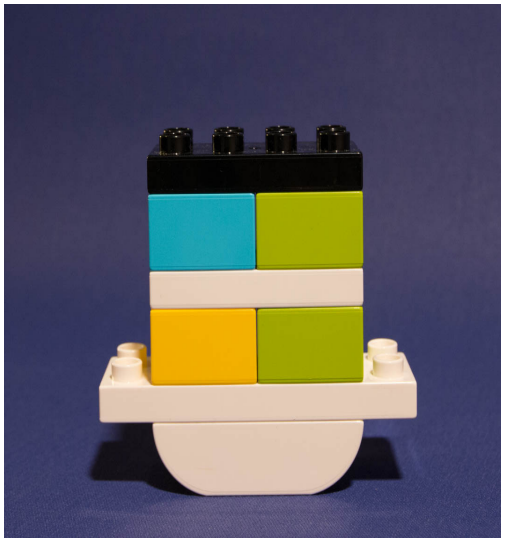
But how ????

Building a Permission

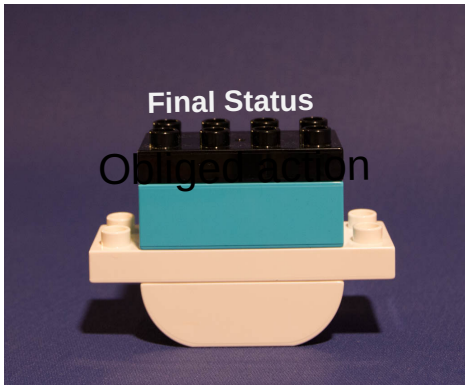


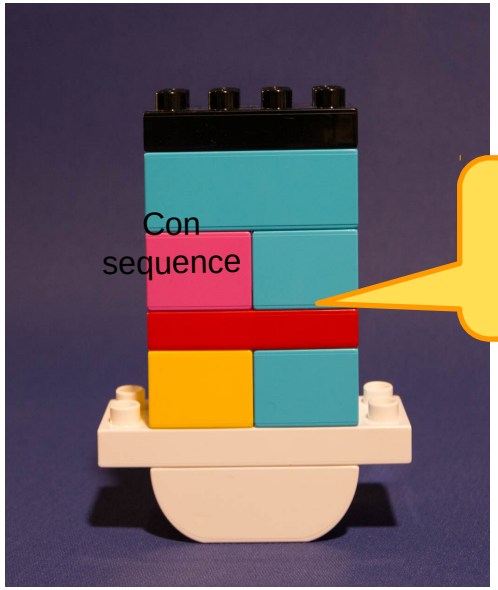




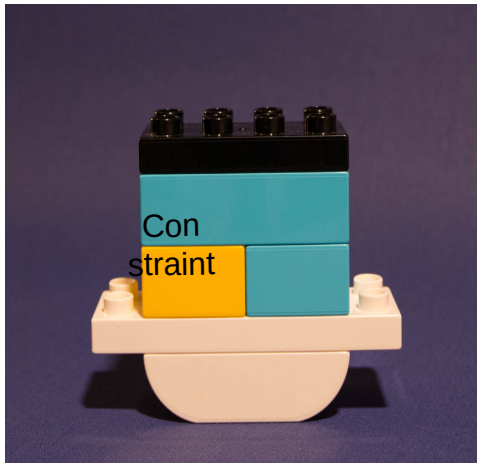


Building an Obligation duty





Not exercised action



The ODRL message:

"This is a very flexible framework for rights expressions"

But it needs Profiles to gain its full power

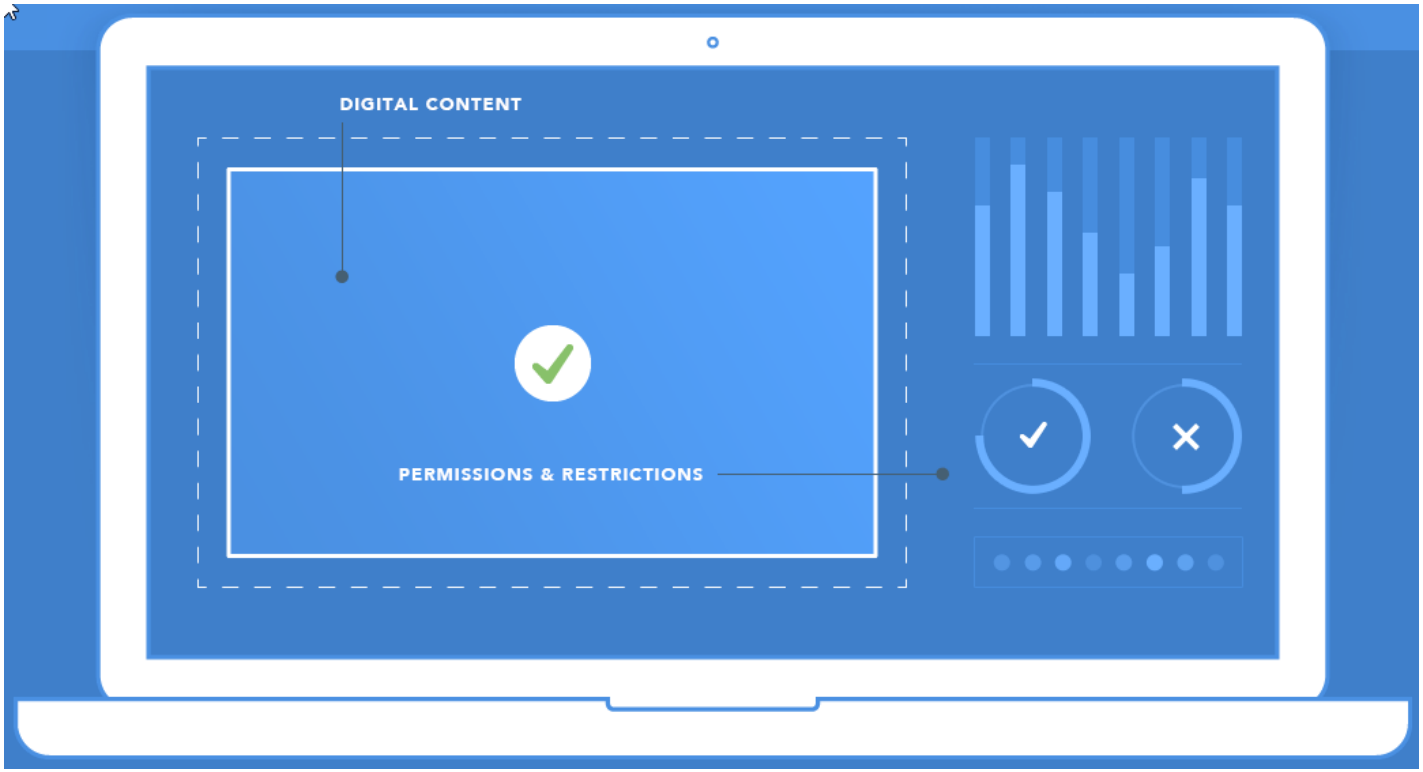
…as the list of normative terms is quite slim.

(See it at https://www.w3.org/TR/odrl-vocab/)

RightsML 2.0

The IPTC Standard RightsML 2.0 defines a profile for the W3C Recommendation ODRL 2.2.

See https://iptc.org/standards/rightsml/



RightsML ODRL Profile

It defines these terms:

- 37 actions, like Present, Display, Play, Print, Archive, Index, Modify for the usage and Sell or Give for the ownership transfer of an asset
- 27 definitions of a constraint, like Datetime, Geospatial area, Delivery Channel or Event
- 9 parties, like Attributed Party, Compensated Party, Informed Party

Find the full specification at
https://iptc.org/std/RightsML/2.0/RightsML_2.0-specification.html

Typical RightsML Context

IPTC is the global standards body for news media.

The typical design of licensing contracts for a stream of news is:

- A generic licensing contract defines basic terms and conditions and is written in human language
- It may include a term “Specific license terms may be applied to a single media asset”.
- In this case the “specific license term” comes with the asset …
- … as machine-readable **ODRL/RightsML** policy.

Example 1

The use case: The Example Photo Agency EPA (*assigner*) offers any EPA picture contract holder (*assignee*) the option to distribute (*action*) this picture (*target-asset*) - but only within Germany (*constraint*).

The

```
Policy:
  type: "http://www.w3.org/ns/odrl/2/Set"
  uid: "http://example.com/RightsML/policy/idGeog1"
  profile: "https://iptc.org/std/RightsML/odrl-profile/"
  permission:
    - target: "urn:newsml:example.com:20120101:180106-999-000013"
      assigner: "http://example.com/cv/party/epa"
      assignee:
        type: "http://www.w3.org/ns/odrl/2/PartyCollection"
        uid: "http://example.com/cv/partygroup/epapartners"
      action: "http://www.w3.org/ns/odrl/2/distribute"
      constraint:
        - leftOperand: "http://www.w3.org/ns/odrl/2/spatial"
          operator: "http://www.w3.org/ns/odrl/2/eq"
          rightOperand: "http://cvx.iptc.org/iso3166-1a3/DEU"
```

Find details at http://dev.iptc.org/RightsML-Simple-Example-Geographic

Example 2 Use Case

The use case:

Getty Images (*assigner)* grants (*permission)* its clients (*assignee*s) that a photo of a specific group may be used (*action*) in any country except the UK (*spatial constraint*). In addition to the *spatial constraint* the grant is limited to a period of 14 days (*temporal constraint*) after submission of the image by Getty Images.

Example 2 Policy

(Fact: the image is submitted on 1 June 2018)

```
Policy:
  type: "http://www.w3.org/ns/odrl/2/Set"
  uid: "http://gimages.info/cv/policy/2"
  profile: "https://iptc.org/std/RightsML/odrl-profile/"
  permission:
    - target:
        type: "http://www.w3.org/ns/odrl/2/AssetCollection"
        uid: "http://gimages.info/assetgroup/grpid4711"
      assigner: "http://companyreg.com/gim"
      assignee:
        type: "http://www.w3.org/ns/odrl/2/PartyCollection"
        uid: "http://gimages.info/partygroup/clients1"
      action: "http://www.w3.org/ns/odrl/2/use"
      constraint:
        - leftOperand: "http://www.w3.org/ns/odrl/2/spatial"
          operator: "http://www.w3.org/ns/odrl/2/neq"
          rightOperand: "http://cvx.iptc.org/iso3166-1a3/GBR"
        - leftOperand: "http://www.w3.org/ns/odrl/2/dateTime"
          operator: "http://www.w3.org/ns/odrl/2/lt"
          rightOperand: "2018-06-15"
          dataType: "http://www.w3.org/2001/XMLSchema#date"
```

Find details at http://dev.iptc.org/RightsML-Combined-Example-geographic-and-time-period

Example 3 Use Case

The use case:

The Example Photo Agency EPA (*assigner*) allows (*permission*) the Italian news agency ANSA (*assignee*) to grant the use (*action*) of the picture (*target asset*) in Italy (*constraint*) to any third-party under the condition (expressed by a *next policy-duty*) that the third-party pays some money (duty-target-*asset*) to ANSA (which through the revenue share concept gets back to EPA)

Example 3 Policy 1

```
Policy:
  type: "http://www.w3.org/ns/odrl/2/Set"
  uid: "http://epa.eu/cv/policy/2"
  profile: "https://iptc.org/std/RightsML/odrl-profile/"
  permission:
    - target: "urn:newsml:example.com:20120101:180106-999-000013"
      assigner: "http://example.com/cv/party/epa"
      assignee: "http://example.com/cv/party/ansa"
      action: "http://www.w3.org/ns/odrl/2/grantUse"
      constraint:
        - leftOperand: "http://www.w3.org/ns/odrl/2/spatial"
          operator: "http://www.w3.org/ns/odrl/2/eq"
          rightOperand: "http://cvx.iptc.org/iso3166-1a3/ITA"
          duty:
            - target: "http://epa.eu/cv/policy/3"
              action: "http://www.w3.org/ns/odrl/2/nextPolicy"
```

Example 3 (next) Policy 2

```
Policy:
  type: "http://www.w3.org/ns/odrl/2/Set"
  uid: "http://epa.eu/cv/policy/3"
  profile: "https://iptc.org/std/RightsML/odrl-profile/"
  permission:
    - target: "urn:newsml:epa.eu:20120101:180106-999-000013"
      assigner: "http://example.com/cv/party/ansa"
      action: "http://www.w3.org/ns/odrl/2/use"
      duty:
        - compensatetParty: "http://example.com/cv/party/ansa"
          action:
            value: "http://www.w3.org/ns/odrl/2/compensate"
            refinement:
              - leftOperand: "http://www.w3.org/ns/odrl/2/payAmount"
                operator: "http://www.w3.org/ns/odrl/2/eq"
                rightOperand: "http://epa.eu/cv/revshare/A2800"
```

Find details at http://dev.iptc.org/RightsML-Combined-Example-geographic-and-duty-to-pay

View from the assignee's side

Those who are the target person of a rule – the assignees – have to evaluate a policy with "their" rule(s).

An ODRL evaluation processor needs to be able

- to interpret a policy …
- … with any profile applied to it – e.g. RightsML
- to provide the required facts for a constraint. E.g. "at what date and time should the target asset be use", "at which location or in which geospatial area should the target asset be use"

Evaluation and State of a Building Block

Each building block has a state as result of its evaluation, ODRL defines terms and rules for each one:

- Permission: is **allowed** or **not-allowed**
- Prohibition: is **not-infringed** or **infringed**
- Duty: is **fulfilled** or **not-fulfilled** or **not-active**
- Constraint/Refinement: is **satisfied** or **not-satisfied**

Short View on Evaluation

- To evaluate a specific Rule it is required to set values for properties and use them with or match them against the Rule:
  - **assigner** and **assignee**: must be the covered by the Rule
  - **target** asset: must be covered by the Rule
  - **action**: must be the same in the Rule
  - **data for constraints** – depending on the type of constraint
  - **“has action been exercised”** for a Prohibition and all kinds of Duty: as reality tells

ODRL/RightsML Tools

- Guideline for evaluating a received ODRL/RightsML policy - http://www.iptc.org/std/RightsML/tools/ODRL_GenericRuleEvaluationFlow_3.pdf
- Node.js app for evaluating an existing ODRL Policy, different scenarios of use can be applied to it, results as defined by ODRL are delivered: https://github.com/nitmws/odrl-wprofile-evaltest1

Thanks
for digging into
ODRL and RightsML