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Using Ontology Design Patterns To Define SHACL Shapes

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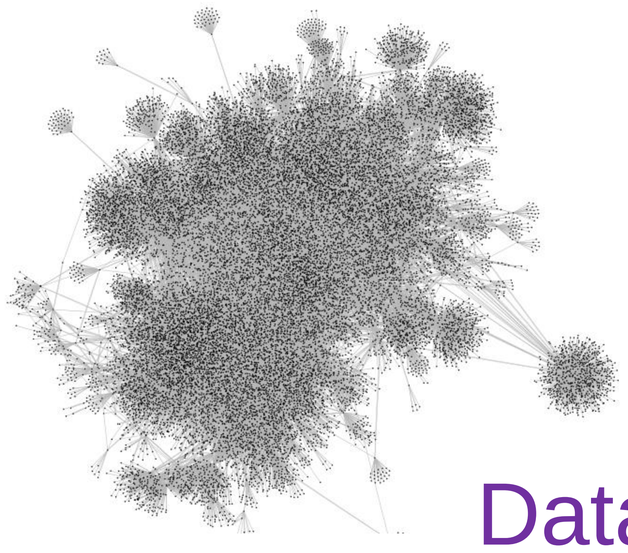


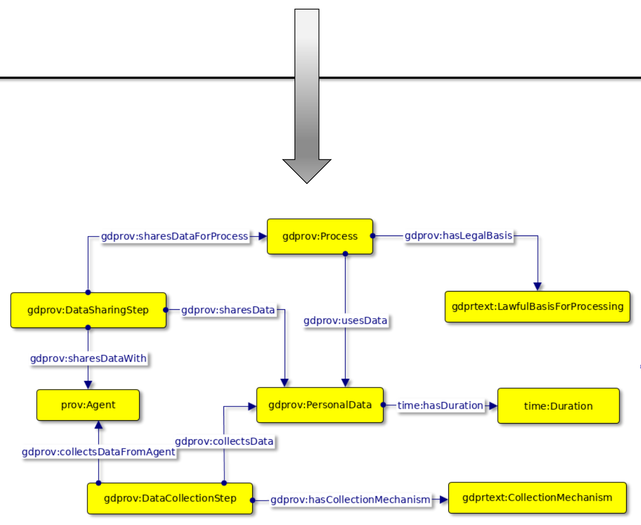
Data Graph

Ontology A

Ontology B

Ontology C

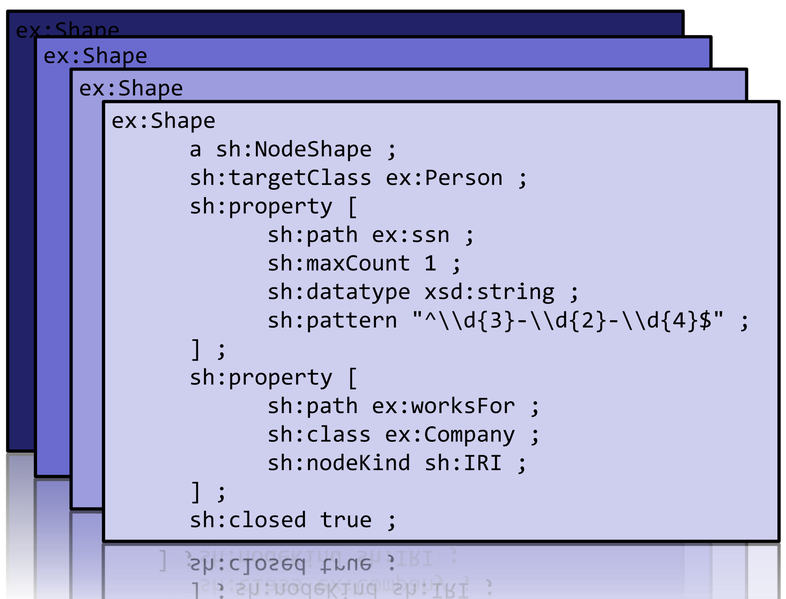
- Given Data Graph uses several Ontologies
- Consider cases where only some (or few) concepts and relationships are used
- A Data Graph may therefore selectively use parts of the ontology
- Here, `axioms` from the defined ontologies may not be applicable over data graph for validation



ODP

axiom
axiom
axiom
axiom
axiom
axiom

- ODP is re-used or created for data graph
- Axioms are defined for consistency
- Axioms can use terms and properties from any of the used ontologies
- Axioms are specific to the data graph
- Axioms therefore represent the *data model*



SHACL Shapes

1. *Generate SHACL shapes from Axioms in ODP*
2. *Validate Data Graph using axioms*
3. *Align Data Model (axioms) with Validation (SHACL)*

Benefits of using ODP in this context:

- Visualise SHACL shapes
- Summarise Data (as patterns)
- Provide a “schema” for data graph that can be reused

Future Work

1. Mappings between OWL2 Axioms and SHACL Shapes
2. Incorporate SHACL-SPARQL
3. Automate generation of SHACL shapes for given data graph

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