

Shapes and Ontologies

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In the Semantic Web, both the Web Ontology Language (OWL) and the Shapes Constraint Language (SHACL) provide further tools and functionality for the Resource Description Framework (RDF). The RDF specification describes a graph-like data model, referred to as RDF graphs.

In this talk we focus on the relation between these two technologies: OWL and SHACL. On the one hand there is OWL, which is used to describe ontologies, i.e, constraints on the knowledge about the application domain. On the other hand we have SHACL which is used to describe schemas, i.e., constraints on the knowledge representation itself. The applications of both are different but the underlying logics seem to be quite similar. For OWL there is an established underlying logic, the Description Logic *SR_QIQ*. There is no established underlying logic for SHACL yet. In this talk, we discuss the previous work on the formalization of SHACL [Corman et al., 2018] [Andresel et al., 2020] as a starting point and discuss the expressiveness of the language and compare it with the expressiveness of *SR_QIQ*. We found that *SR_QIQ* can express concepts that SHACL cannot and vice versa. Furthermore, an extension to the formalization of the previous work and to the SHACL language itself is suggested based on these expressivity results.

References

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