

Titel Zeile Zeile

Diplomarbeit
von

Mein Name

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1. Einführung

(Inhalt)

ToDo

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A general comment about punning: Punning has been introduced to OWL 2 DL to allow for some greater flexibility in naming entities. Now you can give the same name to both an individual and a class or, if you like, to both a class and a property, and the ontology will still count as a valid OWL 2 DL ontology. This is, however, entirely a syntactic aspect. Semantically, the two equally named entities are completely unrelated. Citing the old Next Steps for OWL paper, which gave an overview about the original OWL 1.1 proposal, the forerunner of OWL 2 DL:

OWL 1.1 uses a (weak) form of meta-modelling called punning. In punning, names can be used for several purposes; for example, Person can at the same time be the name of a class and the name of an individual. The different uses of a name are, however, completely independent, and from a semantic point of view they can be thought of as separate names, e.g., Person-the-Class and Person-the-Individual.

So in your example, you cannot infer anything new from giving the same name to both a class and a property that you would not already receive from using distinct names for these entities. In particular, the two entities do /not/ become equal by giving the same name to them. This would, in fact, be impossible, since in OWL DL a class represents a subset of the universe of discourse, while a property represents a binary relation over that universe - they are completely different kinds of entities.

In addition, note that punning is new only for OWL 2 /DL/ and all the OWL 2 DL profiles. In OWL Full, just as in RDFS, it has always been possible to give the same name to entities from different entity types without any restriction. More, in OWL Full the same name always denotes the same thing, with the corresponding semantic consequences. This is so since in OWL Full, again as in RDFS and unlike OWL DL, classes and properties do not directly stand for sets and binary relations, but instead

they are individuals with sets or binary relations associated to them. So, since classes and properties are actually individuals, they may become equal, and in fact do so when being equally named.

However, in the specific case of your class/property example, you will not even get semantic consequences of the kind you ask for from OWL Full. The reason is that, while an individual can really have both a set and a binary relation associated to it (i.e., the individual can be both a class and a property), there will be no relationship between that set and that relation – quite similar as in the case of OWL 2 DL punning. For example, the individual can on the one hand be the empty class, while on the other hand it is a non-empty binary relation, e.g. by having a triple with the individual as its predicate in the ontology.