

Example (slightly dirty...)

RDFS/owl DL

$\text{hasPet rdfs:range :Animal} \quad \text{TC} \quad \forall \text{hasPet. Animal}$

$\downarrow \text{:Animal owl:equivalentWith} \quad \text{TC} \quad \forall \text{hasPet. Animal}$

$\downarrow \text{[owl:unionOf (:Cat :Dog)] Animal} \equiv \text{(Cat } \sqcup \text{ Dog)}$

Whenever some x has a pet y , then y is an animal

\downarrow animal

FOL: $\forall x, y: \text{hasPet}(x, y) \rightarrow \text{animal}(y)$

fact (A Box)

$\text{hasPet}(\text{john}, \text{garfield}).$

$\models \text{(Cat } \sqcup \text{ Dog)}(\text{garfield})$

Jun 18-10:10

Things that have no children:

Childless $\equiv \forall \text{hasChild. } \perp$

.....

$\models_{DL} \text{Male} \sqcap \forall \text{hasChild. Male}$

\equiv

$\text{Male} \sqcap \text{Childless}$

Jun 18-10:46

Abk Person (John) Example
 hasChild (John, Alice)
 Female (Alice)
 \neg hasChild (Alice) (John)

Thex

Male \wedge Female $\subseteq \perp$
 we want to ask whether John has at least 2 children
 \Rightarrow Counting Quantifiers.

$(\geq 2 \text{ hasChild}) (John)$

\Rightarrow At least Two Children $\equiv \exists \geq 2 \text{ hasChild}$

Jun 18-11:03