

Q. Smart Board notes from ~~13.6~~ 19.6.

→ Branching in Tableau

$Dog(d)$
 $Cat(c)$

$(Dog \cup Cat)(e)$

$Canine \equiv (Dog \cup Cat \cup Crocodile \cup \dots)$

$\neg Canine(x)$

$\neg Dog(x)$
 $\neg Cat(x)$
 $\neg Crocodile(x)$

... try to close tableau

1. $\Box \{x \rightarrow d\}$
 2. $\Box \{x \rightarrow c\}$

... other answers?

$Dog(e)$
 $\Box \{x \rightarrow e\}$

$Cat(e)$
 \Box

? Canine (X) ?

Jun 21-10:12

Branching mit $\exists R.C (E)$

$hasChild.Male(kate)$

$Grandparent(kate)$

$Grandparent \equiv \exists hasChild. \exists hasChild.T$

$(\exists hasChild. \exists hasChild.T)(kate)$

Sholem-constant: $hasChild(kate, c)$
 $(\exists hasChild.T)(c)$

another sholem constant $hasChild(kate, d)$
 $Male(d)$

$hasChild(c, e)$
 $T(e)$

→ ? two sholem constants c, d
 do they describe the same child or different ones?

$c \neq d$ $c = d$

→ explicit equality between resources / blank nodes / sholem objects!

→ owl:sameAs(...)
 owl:differentFrom(...)

Jun 21-10:38

OWL: express everything by triples

- simple individual triples
 - ABox John a Person.
 - TBox Parent subclass of Person.
 - ABox John hasChild Alice.

DL

Person (John)
 Parent \sqsubseteq Person
 hasChild(John, Alice)

- RDFS
 - TBox hasChild rdfs:range Person. $T \sqsubseteq \forall \text{hasChild. Person}$
 - John rdfs:domain PoliticalEntity

• OWL DL: \mathcal{Q} PoliticalEntity $\sqsupseteq \exists \text{capital.T}$
 Every country has (at least) one capital

Country owl:subclassOf Country $\sqsubseteq \exists \text{capital.T}$

[owl:Restriction; owl:onProperty :capital;
 owl:someValuesFrom owl:Thing]

Jun 21-11:35