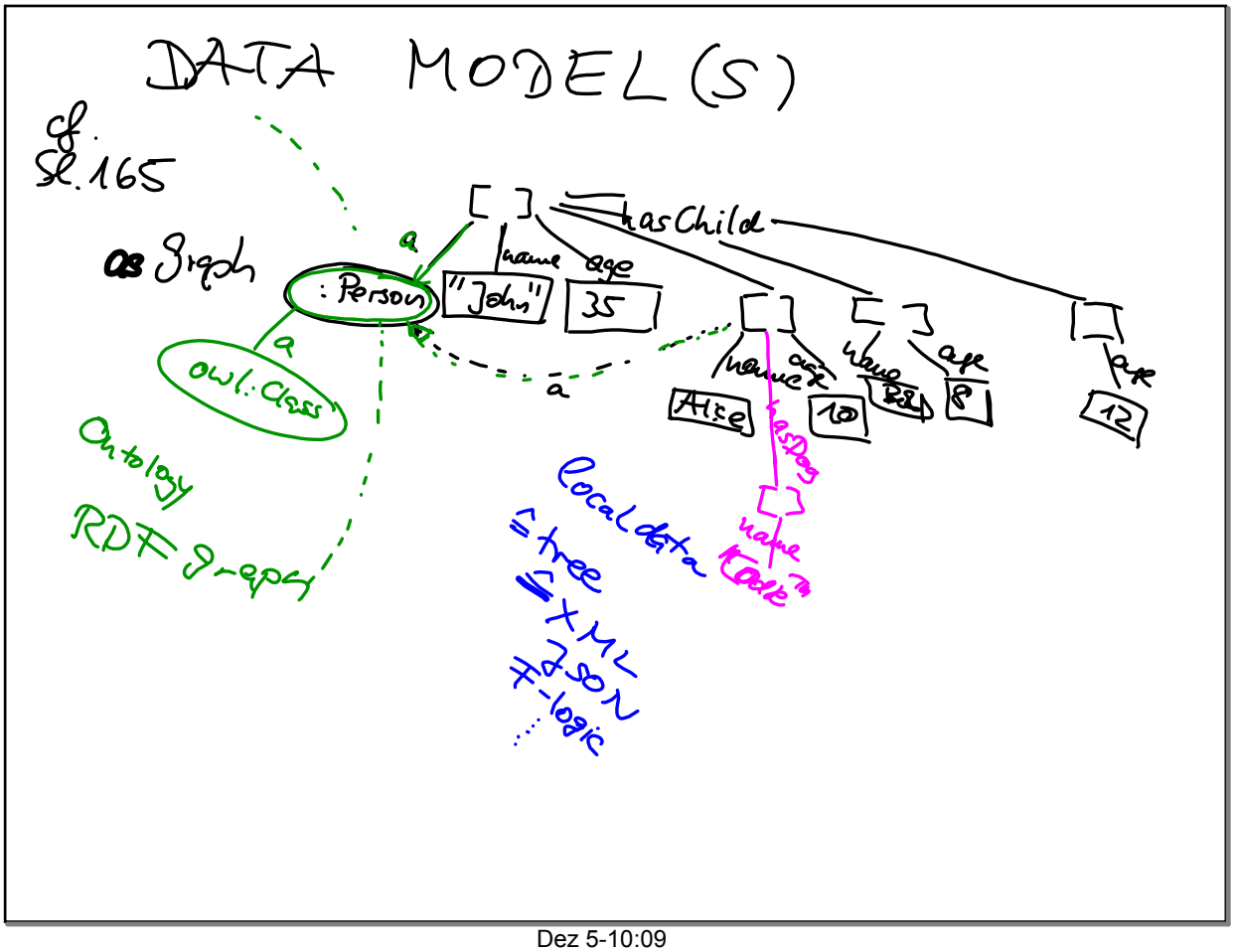


Dez 5-10:09

$\exists j,a,b,c,m:$ name$(j,$ "John"$) \wedge \ldots \wedge$ married(j,m)
$\wedge$ child$(j,a) \wedge$ child$(j,b) \wedge$ child(j,c)
$\wedge$ name$(a,$ "Alice"$) \wedge \ldots$
$\wedge$ name$(b,$ "Bob"$) \wedge \ldots$
$\wedge$ age$(c,12)$
$\wedge$ name$(m,$ "Mary"$) \wedge$ child$(m,a) \wedge$ child$(m,b) \wedge$ child(m,c)

Dez 5-10:34

recall: 2-variables fragment of FOL is decidable

$\exists x$: name(x, "John") $\wedge$ $\exists y$(married(x,y) $\wedge$ ...)

2 Vars: x, y

$\exists y$: (Child(x,y) $\wedge$ name(y, 'Alice') $\wedge$ age(y,10) $\wedge$ $\exists x$: hasDog(y,x) $\wedge$ Dog(x) $\wedge$ name(x, 'Odie') $\wedge$ ....)

$\wedge$ $\exists y$ (child(x,y) $\wedge$ name(y, 'Bob') $\wedge$ age(y,8))

$\wedge$ $\exists y$ (child(x,y) $\wedge$ age(y,12))

$\Rightarrow$ TREES can be expressed using only 2 variables

Graph (John, Mary, alice, Bob) CANNOT be expressed by 2 Vars.

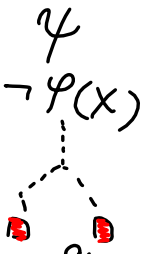
"tree property"

Dez 5-10:39

Se 17.2 $\psi \to \varphi$, ψ consistent

$\hat{=}$ Query $\varphi(x)$?

$\rightsquigarrow$ Tableau



answer: what is for x when tableau closes

$\psi \to \varphi$, ψ inconsistent $\Rightarrow$ error

ψ

[$\neg \varphi(x)$] not needed for closing

for ψ alone $\rightsquigarrow$ everything is an answer

Dez 5-10:51