

Weakly monotonic queries

$Q = \{ ?P \ a : Person \}$
OPTIONAL $\{ ?P : age \ \{ A \} \}$

$D_1 = \{ john \ a : Person. \}$
 $[Q]_{D_1} = \{ \{ ?P \rightarrow :john \} \}$

$D_2 = \{ :john \ a : Person. \ ; :mary \ a : Person. \}$
 $[Q]_{D_2} = \{ \{ ?P \rightarrow :john \}, \{ ?P \rightarrow :mary \} \}$

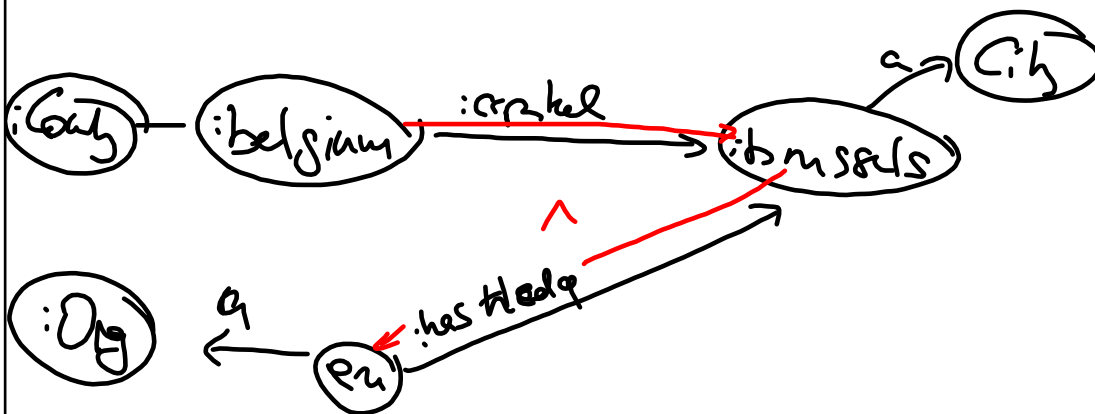
\rightarrow illustrates monotonicity:
 $D_2 \supseteq D_1 \quad [Q]_{D_2} \supseteq [Q]_{D_1}$

$D_3 = \{ :john \ a : Person. \ ; :age \ 35. \ ; :mary \ a : Person. \}$
 $[Q]_{D_3} = \{ \{ ?P \rightarrow :john, ?A \rightarrow 35 \}, \{ ?P \rightarrow :mary \} \}$

$D_3 \supseteq D_2 \quad [Q]_{D_3} \not\supseteq [Q]_{D_2}$
 $[Q]_{D_3} \supseteq [Q]_{D_2}$
 \square weakly monotonic

Mai 28-10:12

Exerc 1.1 path queries.



$\{ ?C \ a \ : County \ ; \ :capital \ ?X \ . \}$
 $\{ ?O \ a \ : Organization \ ; \ :hasHeadq \ ?X \ . \}$

Mai 28-10:51

Sl. 152

$$\text{Parent} \equiv \text{Person} \wedge \neg \text{hasChild.T}$$

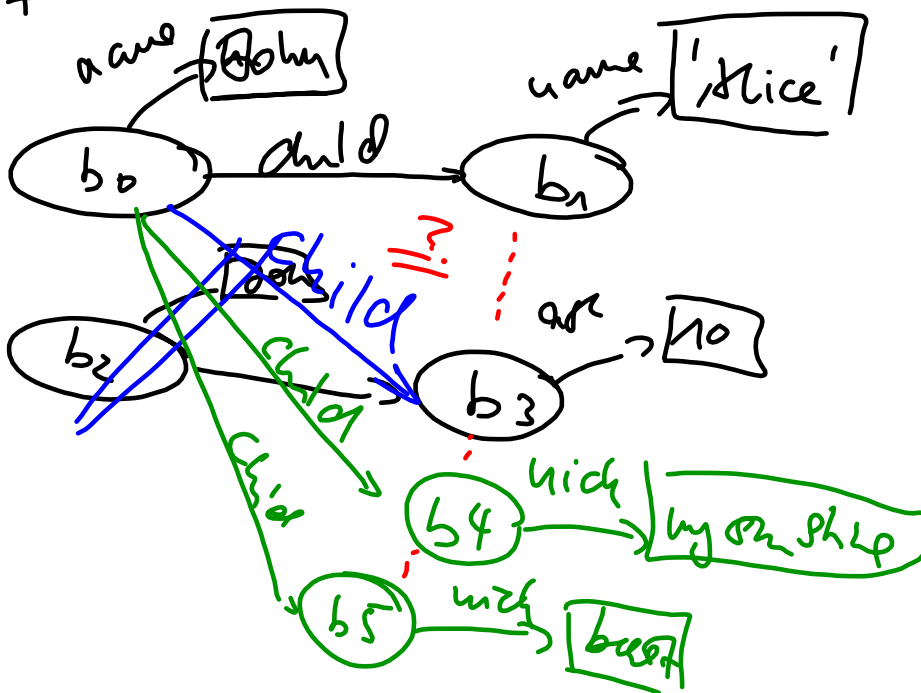
$$\text{Parent} \equiv \text{Person} \wedge \underbrace{\exists \text{hasChild. Person}}_{\text{"role"}}$$

$$\text{Grandparent} \equiv \text{Person} \wedge \exists \text{child. Parent}$$

$$\text{Grandparent} \equiv \text{Person} \wedge \exists \text{child} (\exists \text{child.T})$$

Mai 28-11:23

Sl. 157



Mai 28-11:39

Slides
158
(156) interpretation of 4th "o"
first "-"

$$\Sigma_i = \{ \text{name}/2, \text{child}/2, \text{age}/2 \}$$

$$\mathcal{Y} = (\mathcal{I}, \mathcal{D}) \quad \mathcal{Y} \neq \text{Slide 156}$$

$$\mathcal{D} = \{ j, c \}$$

$$\bar{I}(\text{name}) = \{ (j, \text{"John"}), (c, \text{Alice}), (c, \text{Bob}) \}$$

$$\bar{I}(\text{age}) = \{ (j, 37), (c, 10), (c, 8), (c, 12) \}$$

$$\bar{I}(\text{child}) = \{ (j, c) \}$$

May 28-11:42