

Sl. 480
 Draft Example for DL/OWL
 \uparrow Semantic Web

manages \sqsubseteq worksFor

Subordinate \sqsubseteq (worksFor \ manages) \circ manages \rightarrow
 \rightarrow a person is not his/her own subordinate
 \Rightarrow to talk about classes and relationships in the logic
 A specific fixed

subordinate is irreflexive property
 (which means that $\forall x: \neg \text{subordinate}(x,x)$)

in DL \rightarrow irreflexive (subordinate)
 2nd order predicate

Dez 6-10:07

The diagram shows a class hierarchy where 'mgr' is a subclass of 'emp'. A diamond labeled 'subordinate' is connected to both 'emp' and 'mgr'. A red arrow points from 'subordinate' to 'emp' with the text 'obvious $\langle \emptyset, * \rangle$ '. A table titled 'subordinate' lists 'mgr' and 'alice' in the first column, and 'alice' and 'mary' in the second column. The cell containing 'alice' in the first column and 'alice' in the second column is marked with a red 'X' and has a note 'break transitivity!'. Below the table, there is a note 'irreflexive?'. At the bottom, there is a logical expression: $\text{subordinate} \circ \text{subordinate} \sqsubseteq \text{subordinate}$.

in DL: $\forall x, y, z: \text{subordinate}(x,y) \wedge \text{subordinate}(y,z) \rightarrow \text{subordinate}(x,z)$
 \rightarrow transitive (subordinate)
 2nd order predicate

... can't get in our model!

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Recall: before

$$\mathcal{Y} \models F(x) \quad ?$$

$$\mathcal{Y} \models_{\mathcal{B}} F(x, y, z) \dots$$

how also

$$\overline{F} \models \mathcal{Q}$$

if for each structure s.t. $\mathcal{Y} \models F$,
also $\mathcal{Y} \models \mathcal{Q}$

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$$\frac{A \wedge B}{A}$$

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$$\frac{F \rightarrow (G \vee H), F}{G \vee H}$$

$$\frac{F}{G} \text{ or } \frac{F'}{G'}$$

$$\frac{F \vee F'}{G \vee G'}$$

Dez 6-11:41

$\mathcal{P}_{Comp} \wedge \text{wg}(\text{Alice}, \text{Sales}) \wedge \neg \text{wg}(\text{Alice}, \text{Sales})$

$$\stackrel{v}{=} \boxed{\exists y: \text{Topher}(y)}$$

Dez 6-11:45