The Early Days of KR: Rule-Based Formalisms



- rules provide a natural way of modelling "if-then" knowledge
- general form of a (Horn) rule:

Body → Head

- body: (possibly empty) conjunction of atoms, head: at most one atom
- Examples:

 $married(x,y) \wedge Woman(x) \rightarrow Man(y)$

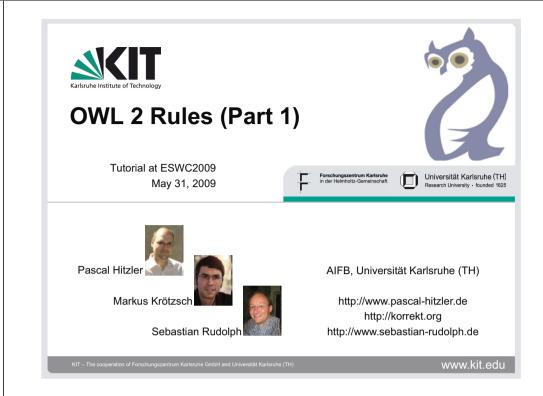
 $Man(x) \wedge Woman(x) \rightarrow$

→ married(pascal,anne)



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- Examples:

 $\forall x \forall y (married(x,y) \land Woman(x) \rightarrow Man(y))$

 $\forall x (Man(x) \land Woman(x) \rightarrow false)$

true \rightarrow married(pascal,anne)





Outline Part 1



- The Early Days of KR: Rule-Based Formalisms
- OWL 2 DL the new DL-based Web Ontology Language
- Semantics of OWL DL
- Tractable Fragments