

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 $\rightarrow$ Head

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

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

$\text{Man}(x) \wedge \text{Woman}(x) \rightarrow$

$\rightarrow \text{married}(\text{pascal}, \text{anne})$

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OWL 2 Rules (Part 1)

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Pascal Hitzler



Markus Krötzsch



Sebastian Rudolph

AIFB, Universität Karlsruhe (TH)

<http://www.pascal-hitzler.de>
<http://korrekt.org>
<http://www.sebastian-rudolph.de>

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- Examples:

$\forall x \forall y (\text{married}(x,y) \wedge \text{Woman}(x) \rightarrow \text{Man}(y))$

$\forall x (\text{Man}(x) \wedge \text{Woman}(x) \rightarrow \text{false})$

$\text{true} \rightarrow \text{married}(\text{pascal}, \text{anne})$

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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

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