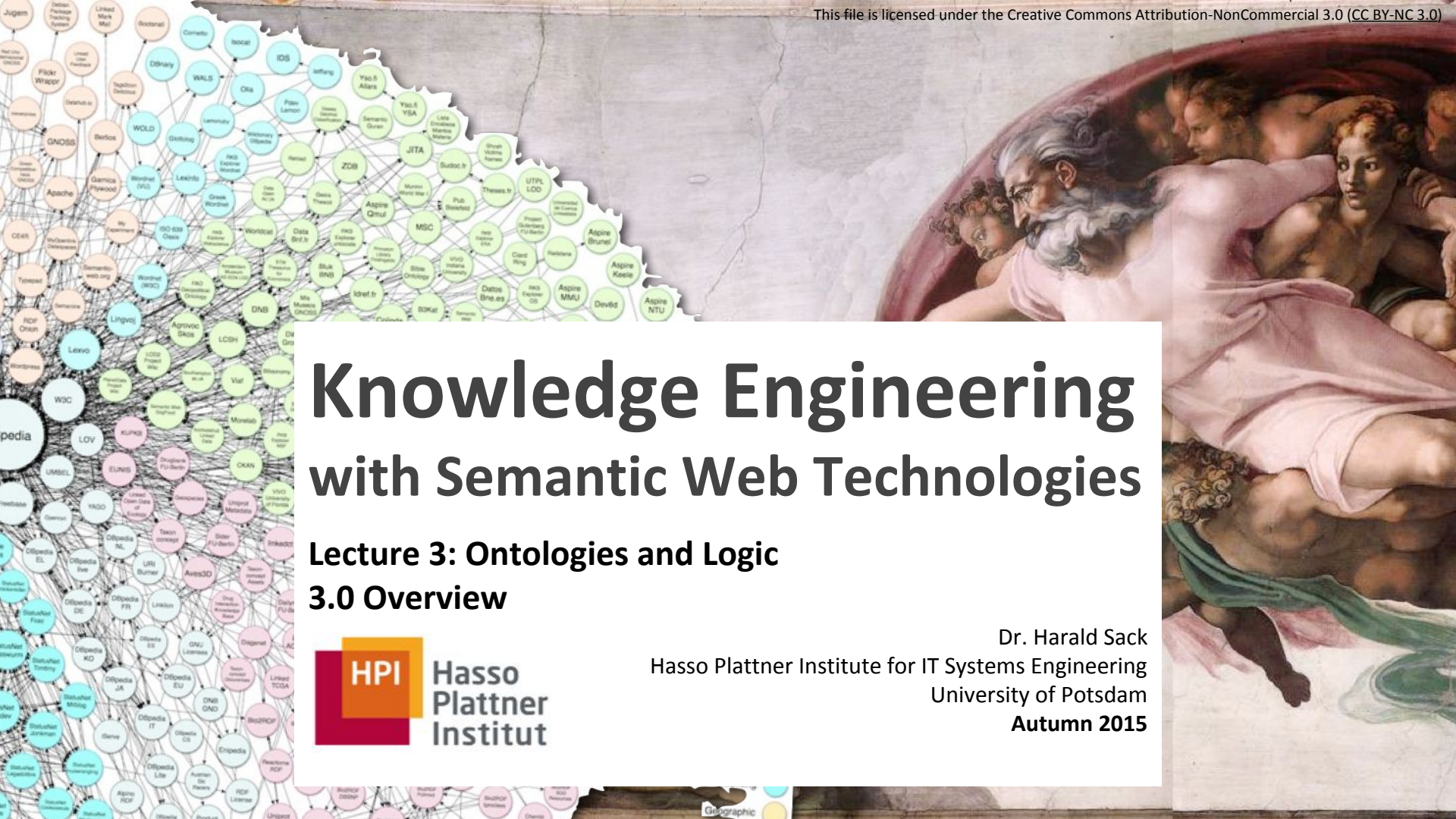
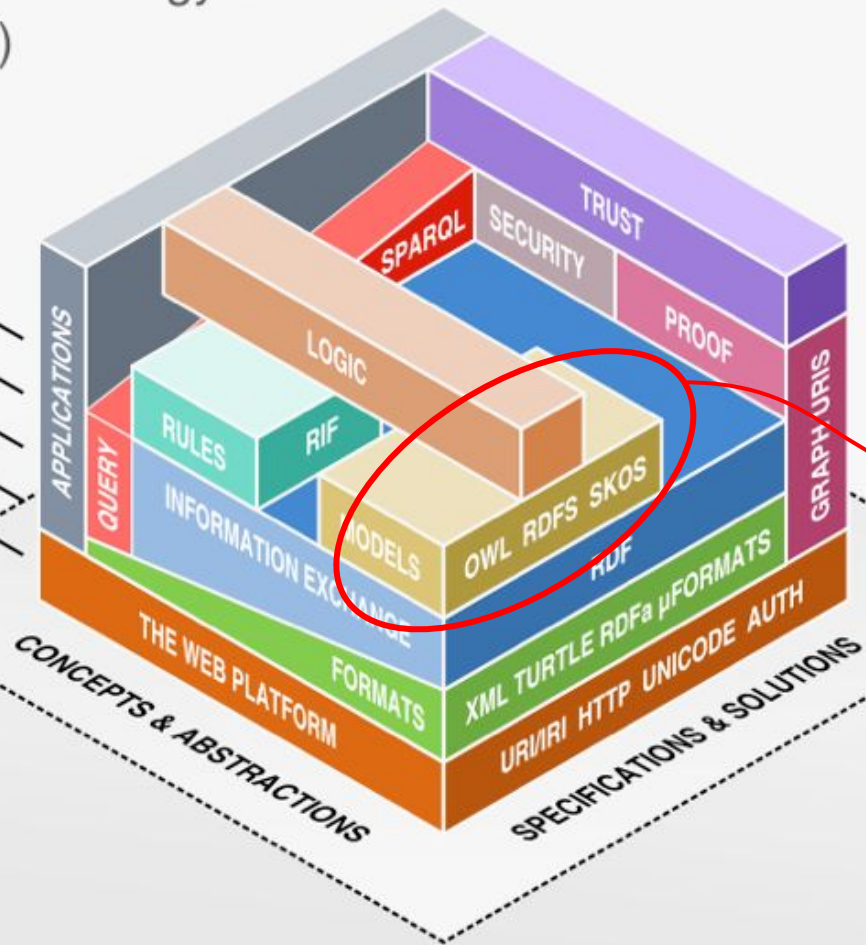
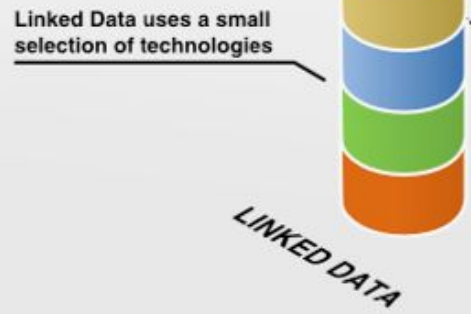


The image is a composite. On the left, there is a large, intricate network graph with numerous nodes (circles) in various colors (blue, green, orange, pink) and many connecting lines, representing a semantic web or knowledge graph. On the right, there is a classical painting of a man with a long white beard, wearing a pink robe, looking down at a woman who is reclining. The central part of the image is a white rectangular box containing text. At the top of this box is the title 'Knowledge Engineering with Semantic Web Technologies' in a large, bold, black font. Below the title is the subtitle 'Lecture 3: Ontologies and Logic 3.0 Overview' in a smaller, bold, black font. At the bottom left of the box is the logo for 'HPI Hasso Plattner Institut', which consists of a red square with 'HPI' in white, followed by the text 'Hasso Plattner Institut'. At the bottom right of the box is the text 'Dr. Harald Sack', 'Hasso Plattner Institute for IT Systems Engineering', 'University of Potsdam', and 'Autumn 2015' in a black font. The background of the entire image is a light, textured surface.



The Semantic Web Technology Stack (not a piece of cake...)

- Most apps use only a subset of the stack
- Querying allows fine-grained data access
- Standardized information exchange is key
- Formats are necessary, but not too important
- The Semantic Web is based on the Web



Ontology Layer

Ontology Basics and Logics

- 3.1 Ontology in Philosophy and Computer Science
- 3.2 Ontology Types
- 3.3 The Foundations of Logic
- 3.4 Short Recapitulation of Propositional Logic
- 3.5 Short Recapitulation of First Order Logic
- 3.6 How to mechanize Reasoning - Tableaux Algorithm
- 3.7 Description Logics
- 3.8 Inference and Reasoning
- 3.9 DLs and the Open World Assumption
- 3.10 Tableaux Algorithm for ALC

Ontology Basics and Logics

3.11 EXTRA: FOL - Canonical Forms

3.12 EXTRA: FOL - Resolution Algorithm

3.13 EXTRA: A Brief History of Ontology