

Knowledge Graphs

Lecture 5 - Knowledge Graph Applications

5.1 Ontologies in Action

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Lecture 5: Knowledge Graph Applications

5.1 Ontologies in Action

5.2 Knowledge Graphs

5.3 RDF and OWL Knowledge Graphs

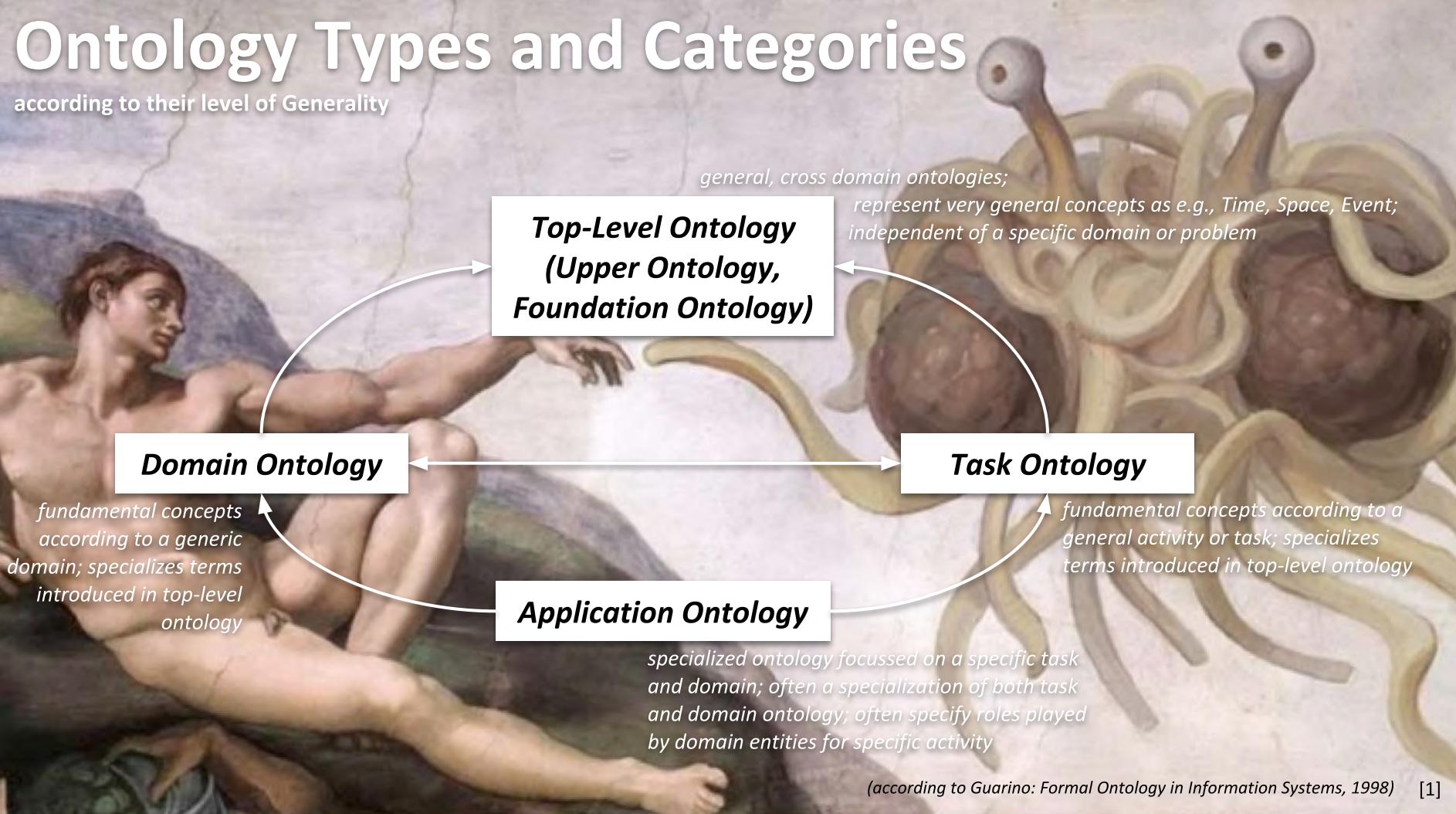
5.4 Knowledge Graph Programming

5.5 Knowledge Graph Visualization

5.6 Knowledge Graph Analytics

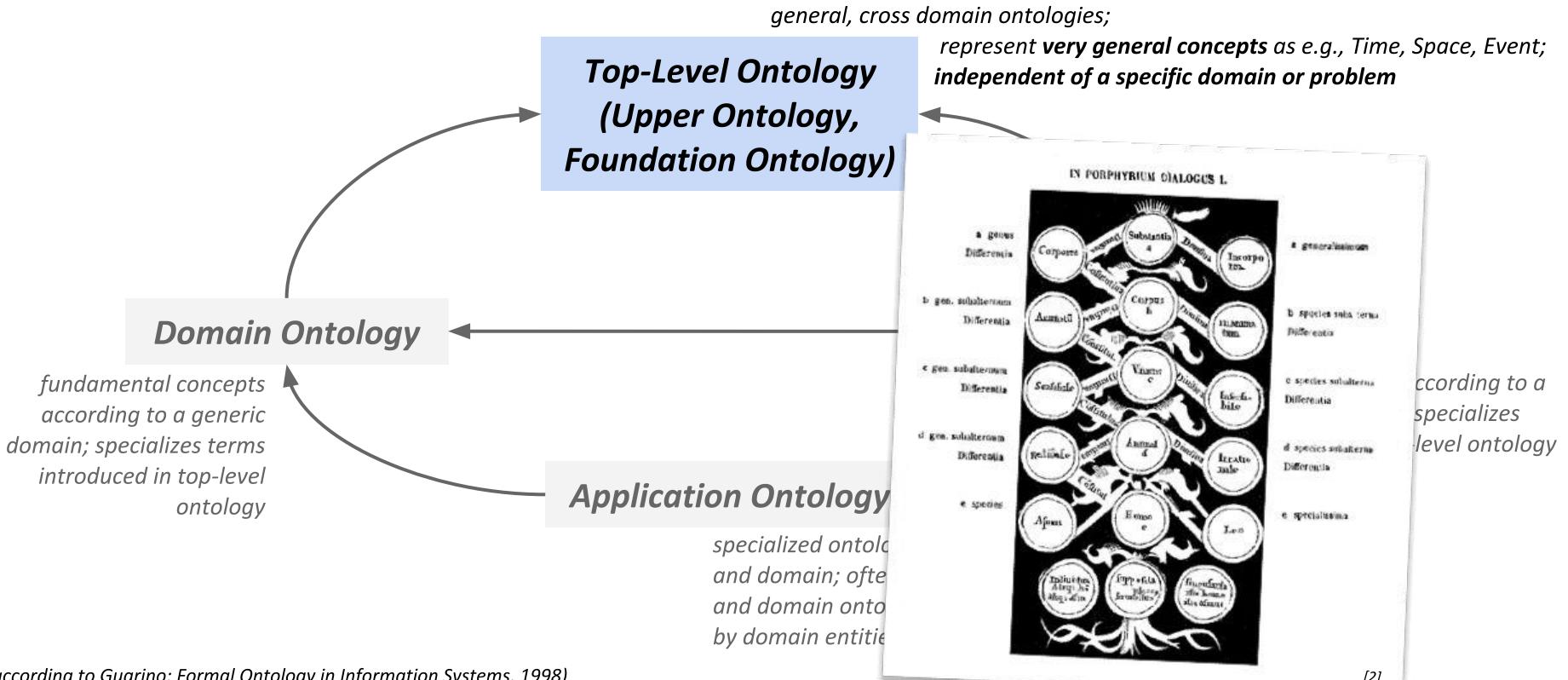
Ontology Types and Categories

according to their level of Generality



Ontology Types and Categories

according to their level of Generality

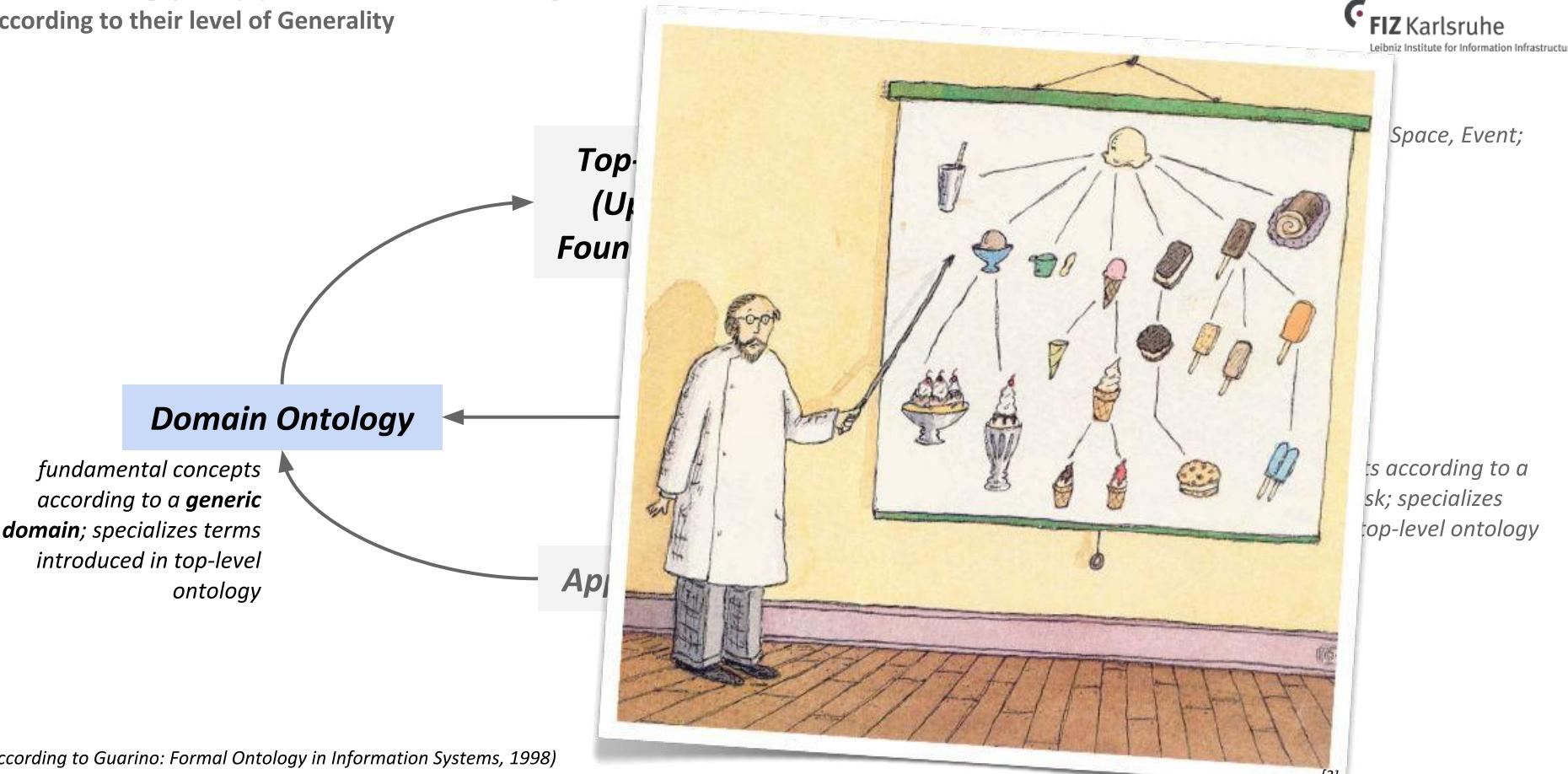


(according to Guarino: Formal Ontology in Information Systems, 1998)

[2]

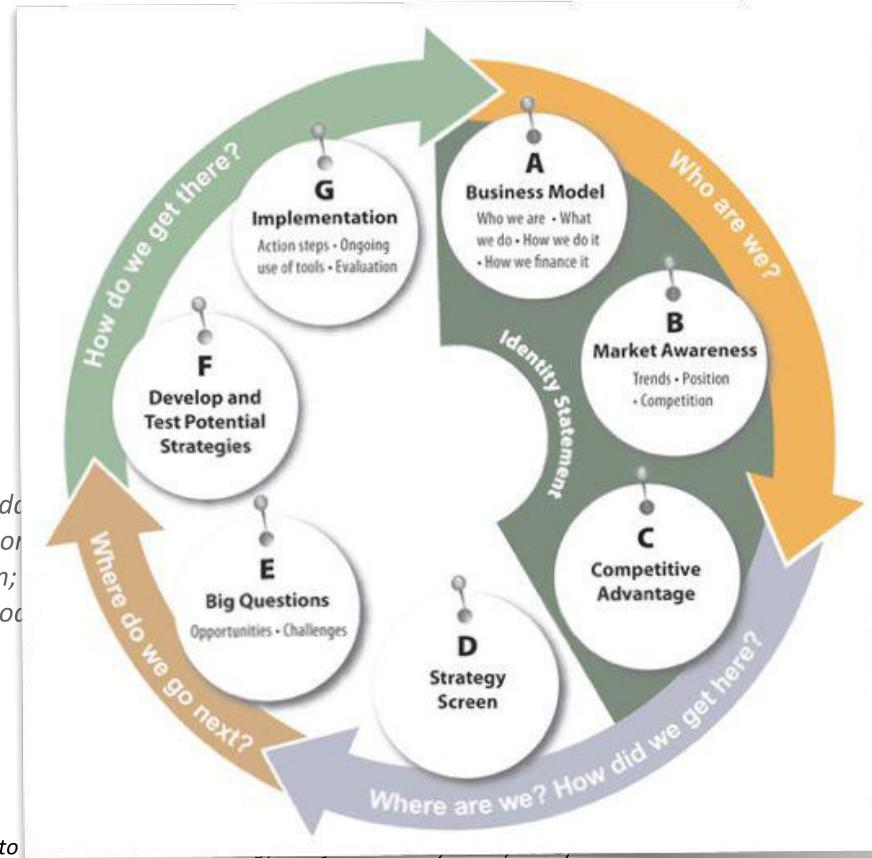
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Ontology Types and Categories

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general, cross domain ontologies;

represent very general concepts as e.g., Time, Space, Event;
independent of a specific domain or problem

ontology,
ontology,
ontology)

Task Ontology

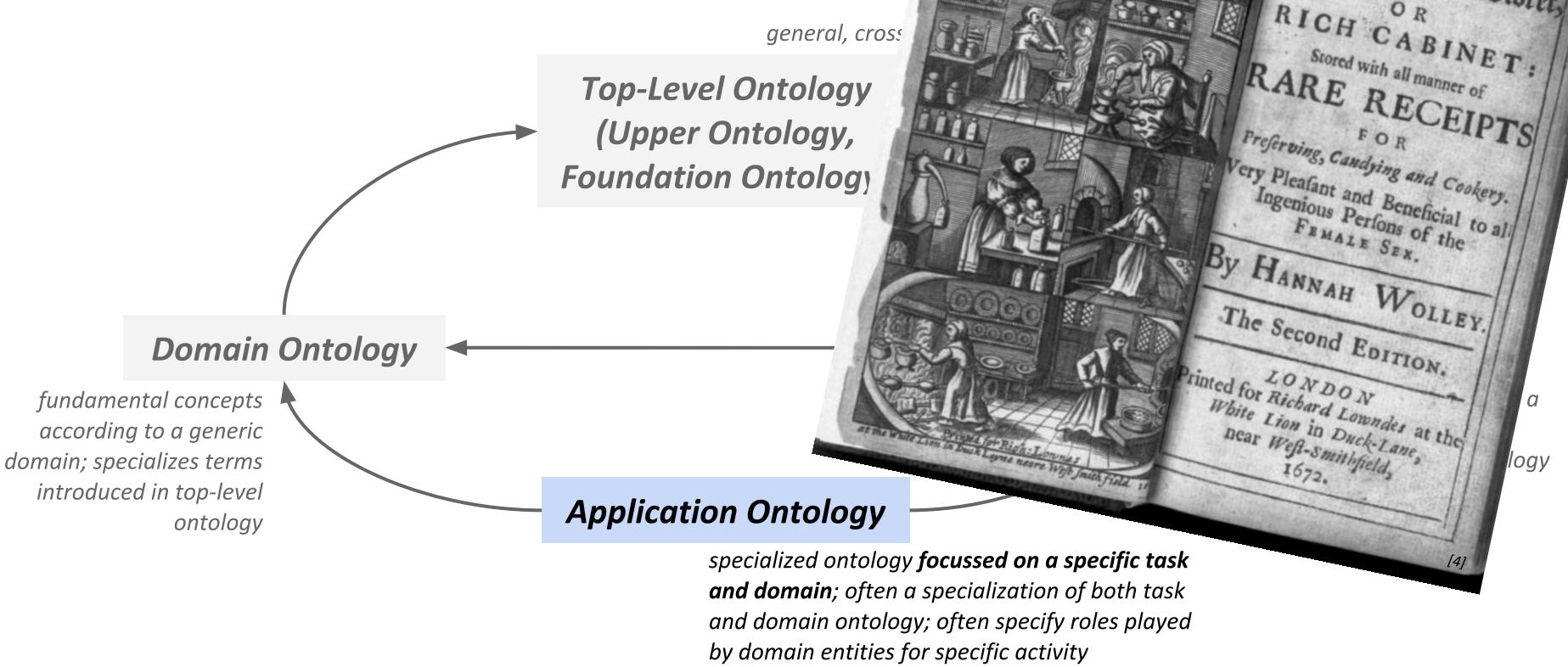
fundamental concepts according to a **general activity or task**; specializes terms introduced in top-level ontology

ontology

ontology focussed on a specific task; often a specialization of both task ontology; often specify roles played by entities for specific activity

Ontology Types and Categories

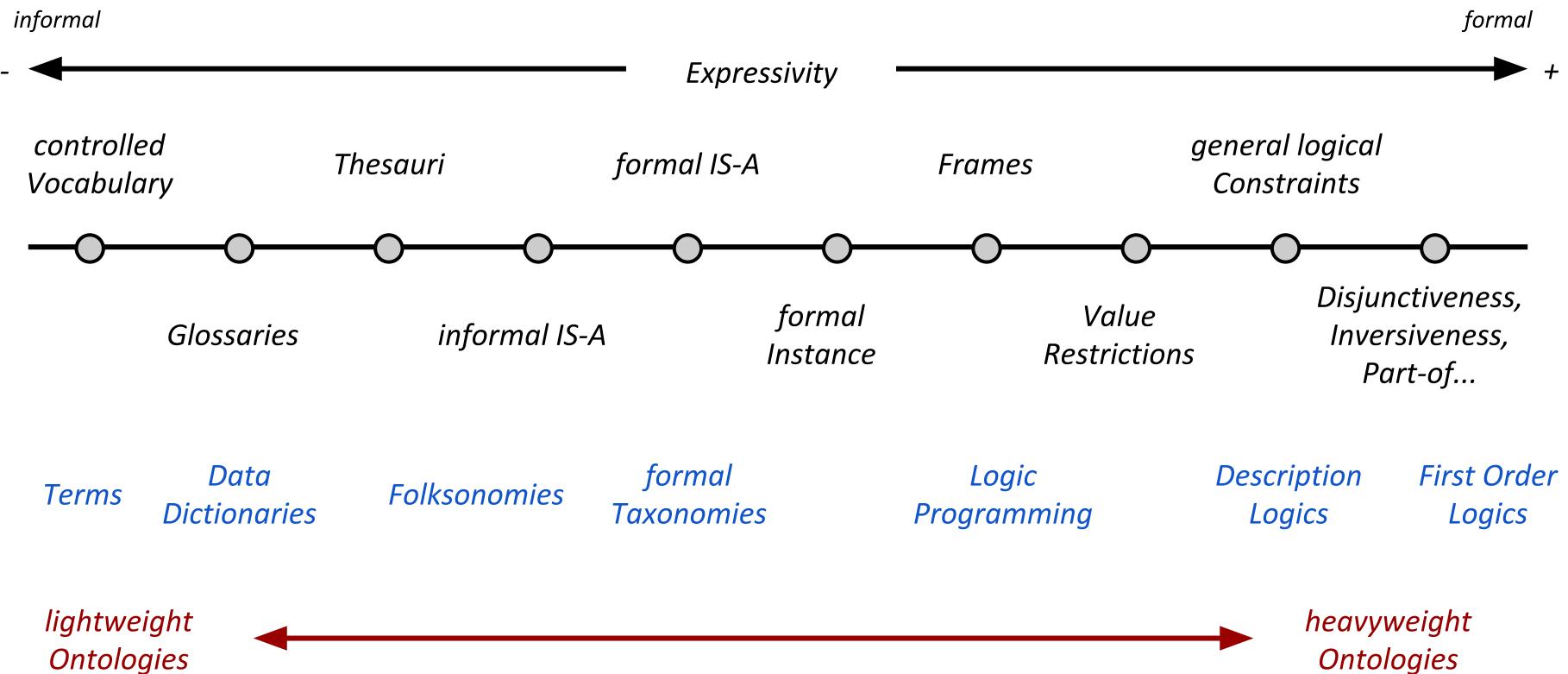
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Ontology Types and Categories

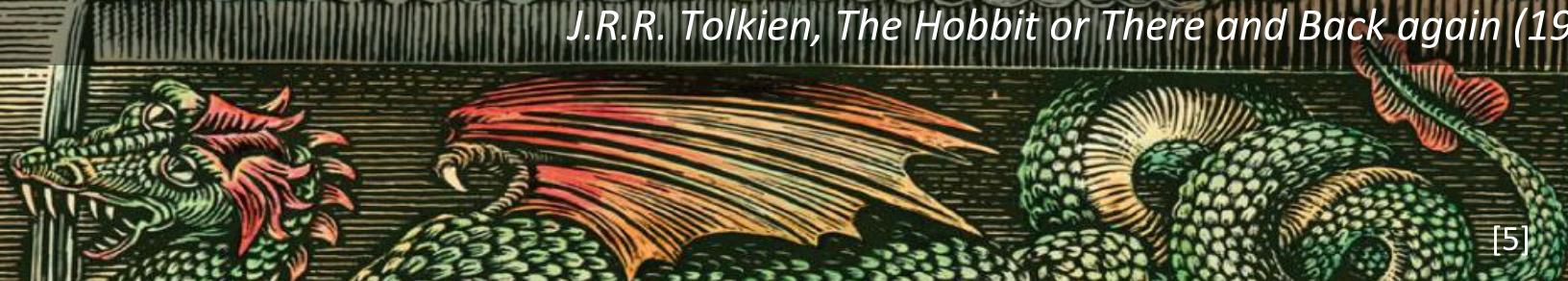
according to their level of Generality





“It does not do to leave a live dragon out of your calculations, if you live near him.”

J.R.R. Tolkien, The Hobbit or There and Back again (1937)

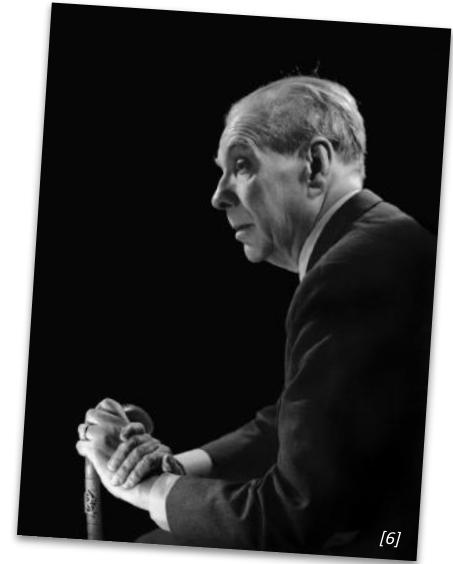


Ontologies as Interpretation of Reality

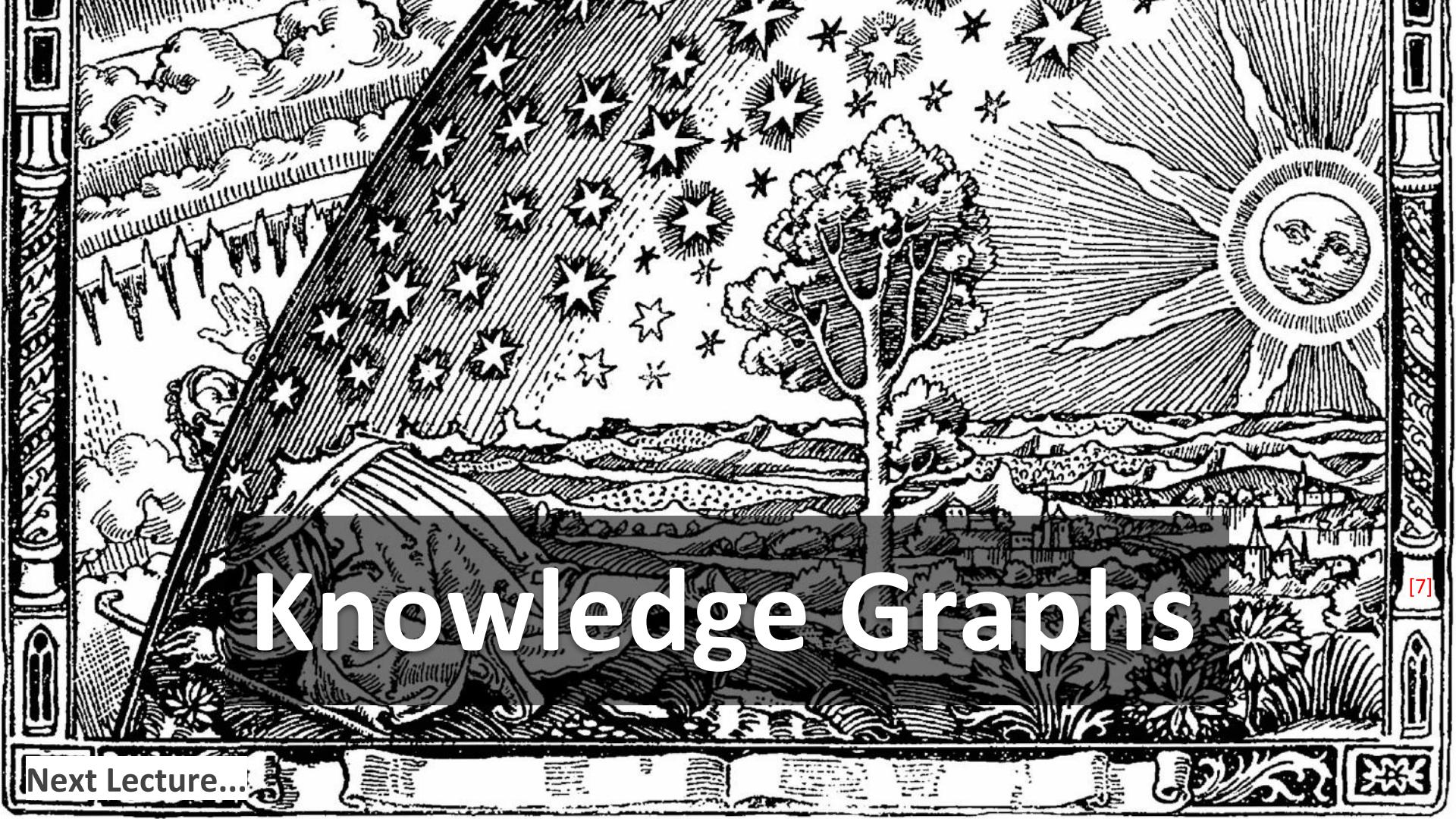
Pitfalls to be avoided...

Various categories of animals from "a certain Chinese encyclopedia"
according to Jorge Luis Borges:

- Those that belong to the emperor
- Embalmed ones
- Those that are trained
- Suckling pigs
- Mermaids (or Sirens)
- Fabulous ones
- Stray dogs
- Those that are included in this classification
- Those that tremble as if they were mad
- Innumerable ones
- Those drawn with a very fine camel hair brush
- Et cetera
- Those that have just broken the flower vase
- Those that, at a distance, resemble flies



Jorge Luis Borges
(1899-1986)



Knowledge Graphs

[7]

Next Lecture...

Picture References:

- [1] Niklas Jansson, Touched by His Noodly Appendage, the parody of Michelangelo's Creation of Adam has become an iconic image of the Flying Spaghetti Monster, Niklas Jansson, 2015, [Public Domain]
https://commons.wikimedia.org/wiki/File:Touched_by_His_Noodly_Appendage_HD.jpg
- [2] Arbor porphyrii, in translation of Boetius, 6th century, [Public Domain]
[https://en.m.wikipedia.org/wiki/File:Arbor_porphyrii_\(probably_from_one_of_Boethius%27_translations\).png](https://en.m.wikipedia.org/wiki/File:Arbor_porphyrii_(probably_from_one_of_Boethius%27_translations).png)
- [3] Scientist (Ice Cream) 1986; Cover illustration for The New Yorker, August 4, 1986;
Courtesy of Roz Chast and Danese/Corey, New York, <https://www.nrm.org/2015/03/roz-chast-cartoon-memoirs/>
- [4] Hannah Wolley, The Queen-like Closet. 1672, [Public Domain]
https://commons.wikimedia.org/wiki/File:Engraved_frontispiece_showing_5_cooking_scenes_and_title_page_of_Hannah_Wolley,_The_Queen-like_Closet,_1672_LCCN2003674992.jpg
- [5] A fantasy map of a flat earth. Photograph: Antar Dayal/Getty Images/Illustration Works, <[link](#)>
- [6] Jorge Luis Borges by Annemarie Heinrich, 1967, [Public Domain]
https://commons.wikimedia.org/wiki/File:Jorge_Luis_Borges_by_Annemarie_Heinrich,_1967.jpg
- [7] Camille Flammarion, L'atmosphère: météorologie populaire, 1888, [Public Domain]
<https://en.wikipedia.org/wiki/File:Flammarion.jpg>