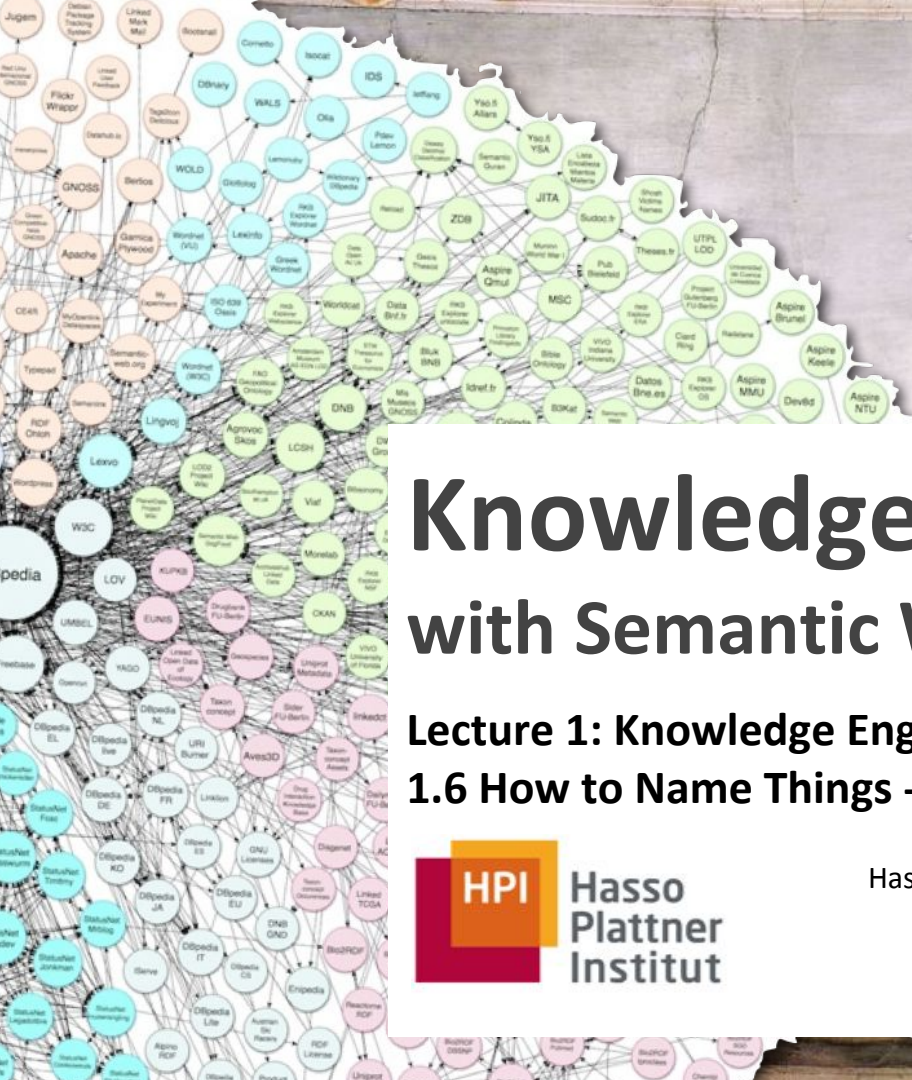


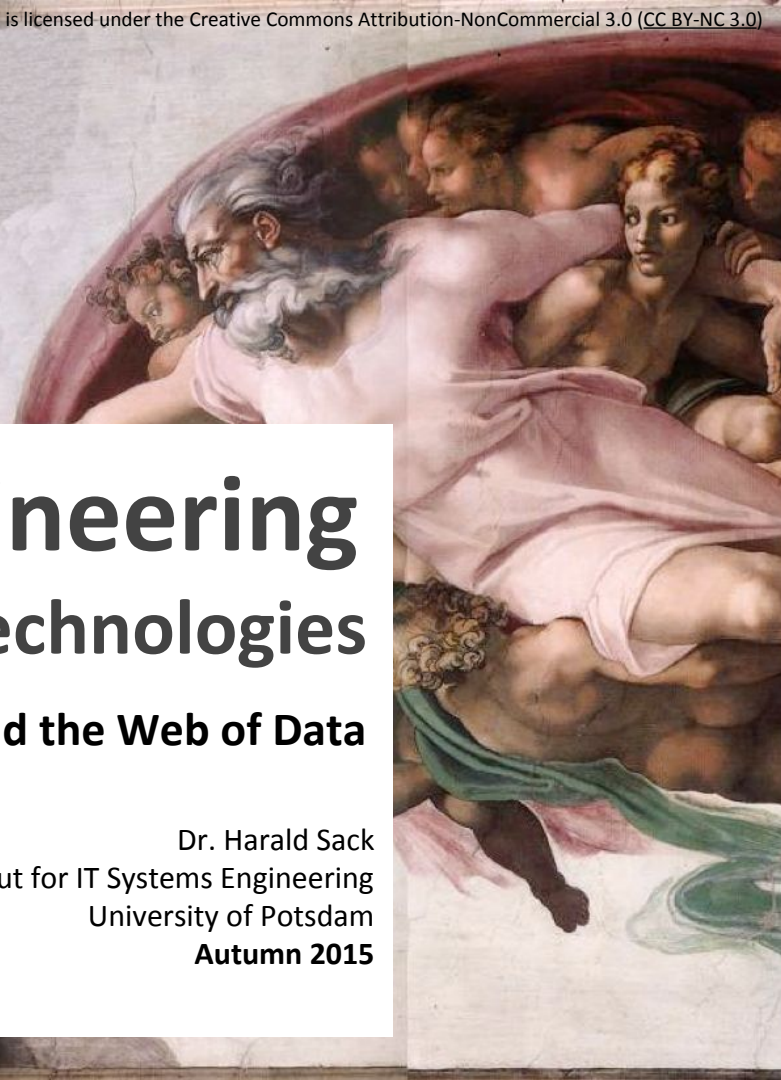


Knowledge Engineering with Semantic Web Technologies

Lecture 1: Knowledge Engineering and the Web of Data 1.6 How to Name Things - URIs



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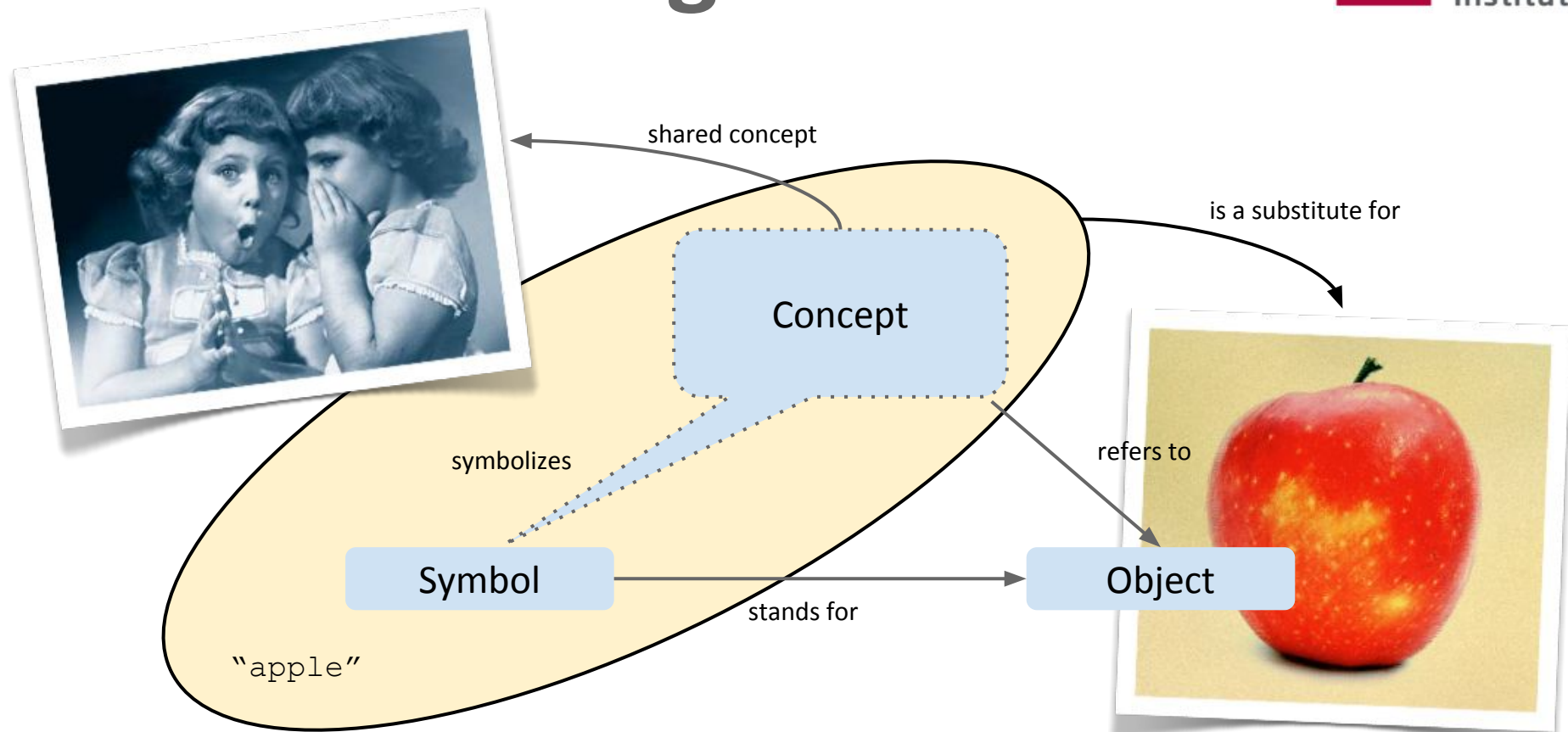
What is this?





Ceci n'est pas une pomme.

Semiotic Triangle



Rumplestitskin Principle



Knowing someone's, or something's, true name gives the person
(who knows the true name) power over them...

Uniform Resource Identifier

- A **Uniform Resource Identifier** (URI) defines a simple and extensible schema for worldwide unique identification of abstract or physical resources (RFC 3986).
- A **Resource** can be every object with a clear identity (according to the context of the application)
 - as e.g., web pages, books, locations, persons, relations among objects, abstract concepts, etc.
- URI concept is already established in various domains, as e.g.,
 - the Web (URL),
 - Books and publications (ISBN, ISSN),
 - Digital Object Identifier (DOI)

URI

<http://www.tour-eiffel.fr/index.html>

Resource

identifies

Presentation

represents (stands for)

describes

Designatum

Representation

defines

Designator

Metadata:

Content-type: text/html

Data:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01
Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
  <head>
    <title>Le site officiel de la Tour Eiffel</title>
    ...
  </html>
```

The Eiffel Tower is described
(**designated**) by the web page

What if a URI does not exist (yet)?

- Define a URI by yourself:
 - **avoid overlaps** → use your own website
 - enable **documentation at the same place** → Content Negotiation
- Use **separate URIs** for the resource (*Designatum*) and its documentation (*Designator*) via
 - Content Negotiation and/or
 - URI references (e.g. via "#" fragment identifier)

Content Negotiation

Let's try an example:

- I want to have **information** about the Eiffel Tower from DBpedia

1 HTTP GET request
Accept Header: text/html

http://dbpedia.org/resource/Eiffel_Tower

URI represents *Designatum*

2 HTTP/1.1 303 See Other

http://dbpedia.org/page/Eiffel_Tower

URI represents *Designator*

3 HTTP GET request
Accept Header: text/html



4 HTML Document

Content Negotiation

Let's try an example:

- I want to have **machine readable information** about the Eiffel Tower from DBpedia

1 HTTP GET request
Accept Header: application/rdf+xml

http://dbpedia.org/resource/Eiffel_Tower

URI represents *Designatum*

2 HTTP/1.1 303 See Other

http://dbpedia.org/data/Eiffel_Tower

3 URI represents *Designator*

HTTP GET request
Accept Header: application/rdf+xml

4 RDF Document



Fragment Identifier

Let's try another example:

- I want to have **machine readable information** about myself

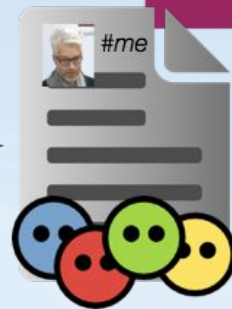
```
http://hpi.de/harald_foaf.rdf
```

Designator

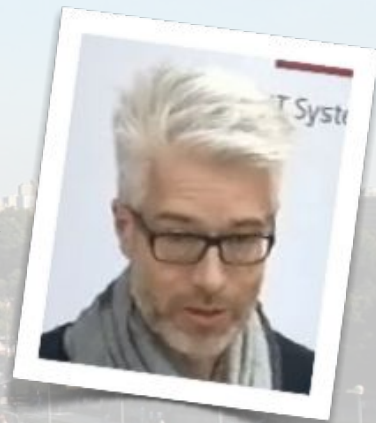
```
http://hpi.de/harald_foaf.rdf #me
```

Designatum

identifies me



FOAF Document
with information about me





Next: 07 - How to Represent Simple Facts - RDF

OpenHPI - Course Knowledge Engineering with Semantic Web Technologies

Lecture 1: Knowledge Engineering and the Web of Data