THIS SESSION – The goal

History:
- We first talked about computation, complexity and looked at several definitions of information.
- Later, we also tried to understand information within the context of data, knowledge, communication and language.
- We attempted to get a feel of the relation between computing and information processing.
- We then looked at Ontology and ontology in relation to philosophy, information and information systems, noting that ontology is an ontobase with a specific structure etc.

Goal:
- We now want to look at one plausible ontology – actually proposal for the structure and content of an ontobase, proposed by Ron Weber for IS
Some notes – Use of ontology (still continued)

- Why has ontology become so important in IS?

- Simple:

  Ontologies “… interweave human understanding of symbols with their machine processability.

  “Ontologies were developed in artificial intelligence to facilitate knowledge sharing and re-use” not only for machines or only for humans but both!


Some notes – The alignment problem #1

Try to answer the following question:
What is a pipe?

A short narrow tube with a small container at one end, used for smoking eg. tobacco.

A long tube made of metal or plastic that is used to carry water or oil or gas.

A temporary section of computer memory that can link two different computer processes.

Fabien Gandon, Ontology Engineering: A Survey and a Return on Experience, Research Report No. 4396, INRIA, March 2002 (ISSN 0249-6399)
Some notes – The alignment problem #2

- The alignment problem manifests itself as one concept (or meaning) mapped onto several symbols, or one symbol mapped onto several concepts (meanings).

- This has the potential to introduce “noise” if not handled properly.

- One clear message is that we should at least agree on the structure of “things” and how “Things” are going to be represented in the ontobase.

- Another important issue is to ensure that the representation is not too “far” from the human mind nor the executing machinery.

An intermediary conclusion – Representation of information

- The representation of information is important on all accounts!

- Information needs to be (at least) both cognitively and computationally appropriate.

- At least, because “at most” would include political appropriateness, appropriateness to belief systems etc...
Weber’s ontology – An introduction, the basic assumptions

- “The world is made up of things.”
- “We know about the things in the world via their properties.”
- “All things have properties; there are no propertyless things.”
- “We assume... that things and their properties really exist in the world.”
- “We know about things and their properties, however, only via the models of things and their properties that we creat.”


Weber’s ontology – A pointer to something recognizable

- Then Weber talks about the terms with which a system more specifically “information system” is to be represented...
- In terms of: things, properties of things, attributes of things, types of properties, state of a thing, classes of things, events, history, coupling, systems and sub-systems (decompositional/aggregational structure), input/output, transfer functions, equilibrium etc...
- Is any of this familiar, maybe in terms of something else?
- Let’s look at this “something else”...

Weber’s ontology – Things and their properties

- Properties of things (discuss)
- Attributes (discuss)
- Behavior (discuss)


Weber’s ontology – Things and their properties

- Types (discuss)
- Classes (discuss)
- State (discuss)

WEBER’S ONTOLOGY – Q&A

NEXT TIME:
A few words on information representation, storage, processing and retrieval.

ANY QUESTIONS SO FAR?