



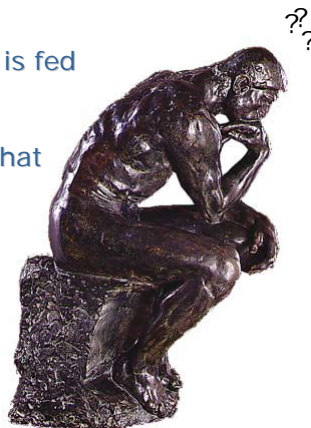
INF5020
Philosophy of Information



WE THINK, WE REASON

Thinking & reasoning is fed
by information ...

It may even be said that
reasoning starts with
information.



**NB! Argue on
the postulate!**

Rodin, The Thinking man



WE GENERATE PHILOSOPHIES ON LUE

LUE =
Life, the
Universe and
Everything



Escher, Sky and Water



Escher, Waterfall

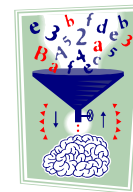


Escher, Eight Heads U/D



WE ALSO GENERATE a PHILOSOPHY of INFORMATION

... and MIND (or AI)



... and LANGUAGE
... and COMMUNICATION



... and COMPUTATION



... all somehow related!



DO YOU SEE THE RELATIONS?
PLEASE DISCUSS!



Very difficult to answer.

From Principia Cybernetica Web (<http://pespmc1.vub.ac.be/Default.html>)

INFORMATION

- 1) that which reduces uncertainty. (Claude Shannon); 2) that which changes us. (Gregory Bateson).

Literally that which forms within, but more adequately: the equivalent of or the capacity of something to perform organizational work, the difference between two forms of organization or between two states of uncertainty before and after a message has been received, but also the degree to which one variable of a system depends on or is constrained by (see constraint) another. E.g., the dna carries genetic information inasmuch as it organizes or controls the orderly growth of a living organism. A message carries information inasmuch as it conveys something not already known. The answer to a question carries information to the extent it reduces the questioner's uncertainty. A telephone line carries information only when the signals sent correlate with those received. Since information is linked to certain changes, differences or dependencies, it is desirable to refer to theme and distinguish between information stored, information carried, information transmitted, information required, etc. Pure and unqualified information is an unwarranted abstraction. information theory measures the quantities of all of these kinds of information in terms of bits. The larger the uncertainty removed by a message, the stronger the correlation between the input and output of a communication channel, the more detailed particular instructions are the more information is transmitted.

Are you comfortable with this?



FLORIDI (CH. 4) – *What is information?*

- Citing from Aristotle's *Metaphysics*, Floridi agrees that information “can be said in many ways”.
- Floridi also points to the fact that information is often used in connection with communication. Citing from Cambridge Dictionary of Philosophy, Information as...:

an objective (mind independent) entity. It can be generated or carried by messages (words, sentences) or by other products of cognizers (interpreters).
Information can be encoded and transmitted, ...

but the information would exist independently of its encoding or transmission

← PLEASE DISCUSS!



FLORIDI (CH. 4) – *General Definition of Information (GDI) #1*

- GDI says that information is semantic content in terms of data + meaning:
 - i is an instance of information (i.e., objective semantic content) **iff**
 - i consists of n data (d) for $n \geq 1$
 - The data are (syntactically) well-formed (wfd)
 - The well-formed data (wfd) are meaningful ($mwfd$)
- GDI says that there can be different kinds of data:
 - **Primary data**: Raw data, as in a database)
 - **Metadata**: Data-on-data, i.e., data on the nature of the primary data
 - **Operational data**: Data on the usage of data (behavioral data)
 - **Derivative data**: Data that can be extracted from the three others above



FLORIDI (CH. 4) – *General Definition of Information (GDI) #2*

- **Relevance of data to information:** Note that datum is what is distinct from its background (in that specific context).
- Note that GDI does not allow for information without data...
- **Topological Neutrality (TyN):**
... But GDI does not specify what kind of data constitute information.
- **Taxonomic Neutrality (TaN):** A datum is a relational entity, i.e., no data without relata (relations).
- **Ontological Neutrality (ON):** No information without data representation.
 - If one assumes representation = implementation, then ON.1: No information without physical implementation (crucial and basic in computing)
 - Instead of representation = implementation, Akkøk says that “implementability or interpretability of the representation is necessary (but not sufficient)”



FLORIDI (CH. 4) – *General Definition of Information (GDI) #3*

- **Genetic Neutrality (GeN):** Meaningful well-formed data (*mwfd*) have semantics independently of any informee (i.e., the person being informed).

PLEASE DISCUSS THIS.



FLORIDI (CH. 4) – *Special Definition of Information (SDI)*

- **Alethic** (i.e., truth value or mode) **Neutrality (AN)**:
Meaningful and well-formed data qualify as information, no matter whether they represent or convey a truth or falsehood or have no alethic value at all.
- But how much value has information if it does not convey correct information?
- Thus, SDI adds a 4th condition to GDI:
 - *i* is an instance of information (i.e., objective semantic content) **iff**
 - *i* consists of *n* **data** (*d*) for $n \geq 1$
 - The data are (syntactically) **well-formed** (*wfd*)
 - The well-formed data (*wfd*) are **meaningful** (*mwfd*)
 - The *mwfd* are **truthful**.



INFORMATIN – *Are we any wiser about what information is?*



ANY QUESTIONS?

