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INF5020  
*Philosophy of Information:*  
*Data, Information and Knowledge*



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THIS SESSION – *The goal*

History:

- During the first week's lectures, we talked about computation, complexity and information.
- We looked at several definitions of information

Goal:

- We want to go on discussing what information is, but within the context of data and knowledge
- We want to be able to come closer to a definition of information (or at least a better understanding of what information is) through contrasting it with data and knowledge



REMEMBER FROM THE LAST SESION – *TM and the maximality thesis*

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- **Application of maximality thesis**

If the mind-brain is a machine, then the TM computable functions provide sufficient mathematical resources for a full account of human cognition.

Corollary (Information processing view): Thus, psychology must be capable of being expressed ultimately in terms of the TM.

- **The simulation fallacy**

It's the belief that any biological or physical system (incl. the brain) can be simulated by a TM.



REMEMBER FROM THE LAST SESSION – *Definition(s) of information*

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**INFORMATION IS<sup>(1)</sup>...**

- According to Claude Shannon:  
That which reduces uncertainty.
- According to Gregory Bateson:  
That which changes us.

**REMEMBER ALSO THE DISCUSSION...**

- According to Dino Karabeg:  
Information is recorded experience.

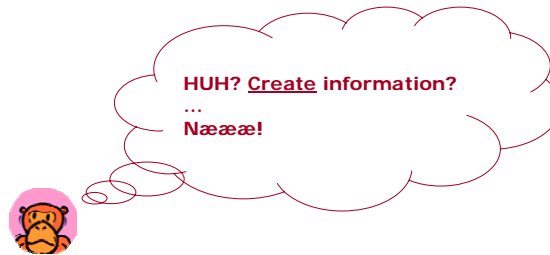
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(1) From the Principia Cybernetica Web



## FROM NATHAN SHEDROFF <sup>(1)</sup> – *Introduction*

“The most important skill for almost anyone in the next decade and beyond will be the ability to create valuable, compelling, and empowering information and experiences for others.”



(1) N. Shedroff, Information Interaction Design: A Unified Field Theory of Design, Chapter 11 in Robert Jacobson (Editor), Information Design, MIT Press, 1999.



## INFORMATION – *Testing the definition of information*

Assuming the validity of the claim that “information is creatable”, let us test the three earlier definitions:

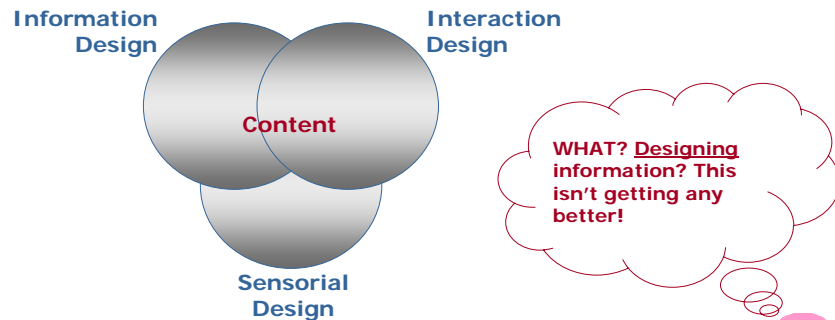
- 1) C. Shannon:  
Information is that which reduces uncertainty.  
Q: Can we create that which reduces uncertainty?
- 2) G. Bateson:  
Information is that which changes us.  
Q: Can we create that which changes us?
- 3) D. Karabeg:  
Information is recorded experience.  
Q: Can we create recorded experience?

**Please try to answer the questions and discuss!**



## FROM NATHAN SHEDROFF – *Information and interaction design*

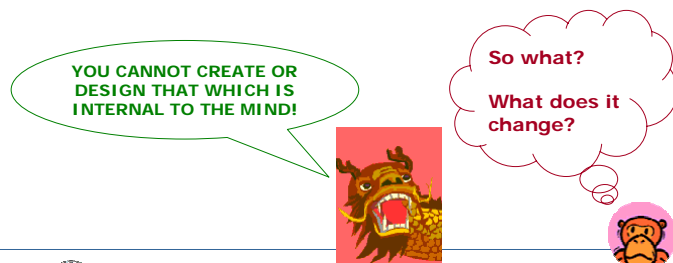
N. Shedroff claims that “... interface design is a combination of three categories of disciplines: Information Design, Interaction Design and Sensorial Design (which includes all kinds of visual, auditory, written, and other sensorially-related disciplines).”



## THE CAUSE OF CONFUSION – *An explanation*

The issue arises because the concept of information is not well defined, hiding two (contradicting) assumptions:

- Information is **external** to “the mind”.
- Information is **internal** to “the mind”.



## INFORMATION – *Choosing a stance*

So, we have to define information first,  
which starts by choosing one of the two:

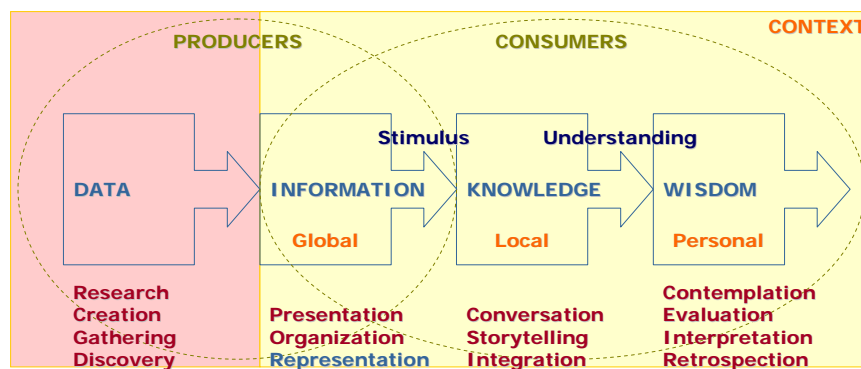
- Information is **external** to “the mind”.
- Information is **internal** to “the mind”.

**Please discuss and pick one!**



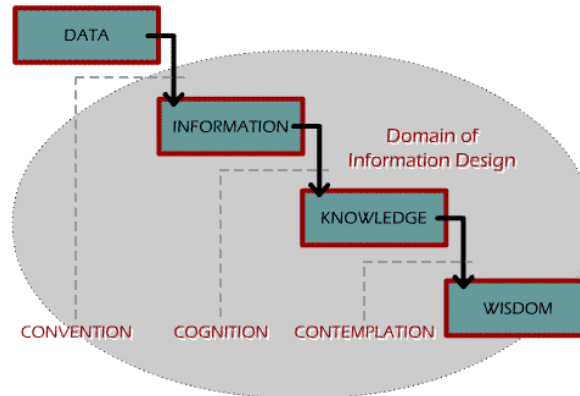
## FROM NATHAN SHEDROFF – *The understanding spectrum*

“Understanding is a continuum that leads from data, through information and knowledge, and ultimately to wisdom.”



FROM M. N. AKKØK'S WEB-SITE – *A transformational view*

“Data transforms to information by convention, information to knowledge by cognition, and knowledge to wisdom by contemplation.”



See <http://heim.ifi.uio.no/~nacia/modeling-paradigms-ID-PhD.html>



FROM M. N. AKKØK'S WEB-SITE – *A transformational view*

- Data to information:  
CONVENTION

- TYPE ~ CONVENTION
- STRUCTURE ~ CONVENTION
- Thus typed data provides information!

- Information to knowledge:  
COGNITION

- CULTURAL/COGNITIVE/SENSORY FACILITATORS (MORE “CONTEXT”) ~ COGNITION

- Knowledge to wisdom:  
CONTEMPLATION

- REPETITION, EXPERIMENTATION, USE (MORE “INFO”) ~ CONTEMPLATION





ANY QUESTIONS?

