

# Cross-Cutting Themes of Nature and Future II

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## Background Models

### critique of *dichotomy* accepted

- ... but disciplines still constituted by this dichotomy
- ... while hybrids show up everywhere

### ... try ternary models,

- e.g. Penrose *triangle*: MMM (Matter, Mind, Math)
- renaming reveals legacies: "Theological Origins of Modernity" (Gillespie, 2008)

### ... try quaternary models

- 2x2 *matrix*: spanned by epistemic, ontic attitudes
- accommodates four cosmologies (after Ph. Descola, 2011)
- implications for (future) notions of future:

## What does a Model do?

Empirical disciplines provide descriptions of the world, in ecology about organisms, ecosystems, etc. Empirical grounding can be based on observations of the ambience or individual or collective memories of histories. Mathematics allows different axiomatic systems in which theorems can be derived and proved. (Pearl, 2000) suggested the labels for two important packages of such formal systems.

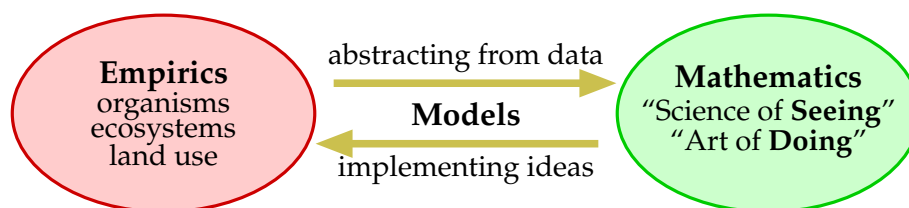


Figure 1: Models link data to math by abstractions and reversely link ideas to their effects by implementation

	<b>passive</b> 'Science of Seeing'	<b>active</b> 'Art of Doing'
<b>real, actual realm</b> task: abstract		
<b>abstract, virtual realm</b> task:implement		
	<b>passive</b> 'Science of Seeing'	<b>active</b> 'Art of Doing'
<b>real, actual realm</b> task: abstract	physics	anthropology
<b>abstract, virtual realm</b> task:implement	engineering	law, art, software

## Two Distinctions (Replacing the Dichotomy)

### epistemic-ontic

**ontic** as it *is*

- in reality, in actual situations **xor**
- in abstract ideas (Platon), in virtual situations

**epistemic** as it *appears*

- in (inter)active engagement **xor**
- in passive observation

From the two basic actions of models (abstracting or implementing) and the two basic epistemic attitudes of observers (active or passive relationship with the world) a 2x2 Matrix of types of models can be sketched. The model types are illustrated by the typical perspectives of scientific disciplines or arts.

The typical physics model (termed Naturalism by Descola) may in a reflexive modernity no longer hold the most consistent modelling approach, when a description of e.g. wilderness in

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<b>real, actual realm</b> task: abstract	physics <i>moderns</i>	anthropology
<b>abstract, virtual realm</b> task:implement	engineering	law, art, software <i>reflexive moderns?</i>

national parks is sought. Other 'cosmologies' can be compared, though there is no meta-perspective available in this scheme from which a firm decision can be made. The only criterion is internal consistencies of models tried from various perspectives.

### **Future 'Past'**

As outlook a tentative (speculative) prognosis is offered. While Renaissance sciences were concerned about the special spatial position of the earth, today's science seem to be concerned about the special temporal position in world history. Do we live at a unique time in which current decisions may end all futures for humans?

Such views and self-assessments provide historical markers. Future historians may look back at our time as when they thought they were at the center of history (what in fact was just another 'now').

### **Started as A Genuine 'Modern Situation'**

- one shared global history
- at a critical moment? (facing apocalypse?)
- epistemologies spatially-indexed (read off a map)
- future as fact (accessible by prediction)
- nation states as subjects
- scientists as mediators
- analyse and act (pragmatically) in space

### **Future 'Future'**

This (optimistic for a modeller) speculation expects the rise of more theory devoted to merging the notions of reflexivity in humanities with the those in computer science and mathematics.

**regardless of ...**

**space** where you are

**discipline** what expertise you have

**scale** whether global or local

**method** whether theoretically or pragmatically inclined

**you might be ...**

- attending conferences on: *reflexive* <your discipline>
- attending as a: *reflexive (post-)modern*
- reporting on: *reflexive* nature or culture
- focussing on time and behaviour, rather than space and structure

## **1 References**

Descola, P. (2011). *Jenseits von Natur und Kultur*. Suhrkamp Verlag.

Gillespie, M. A. (2008). *The Theological Origins of Modernity*. University Chicago Press.

Pearl, J. (2000). *Causality: models, reasoning, and inference*. Vol. 47. Cambridge Univ Press.