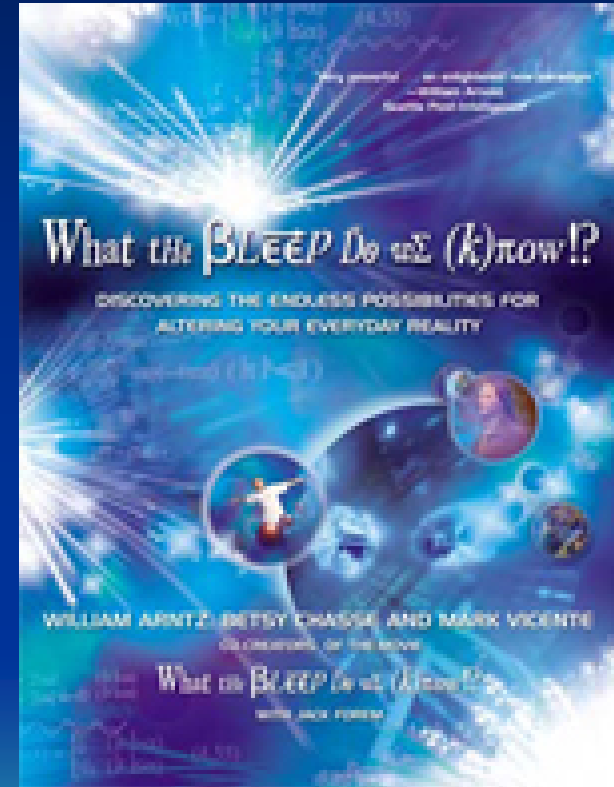


OMNISCIENCE

Andy Ross

Life, the Universe and Everything

- Omniscience is the science of everything
- The scope of omniscience includes life and the universe
- But the aim is not to reach a final teeshirt formula
- For omniscience that aim is either utopian or trivial
- As Douglas Adams said:
The answer is 42
- But what was the question?
- As William Arntz says:
What the bleep do we know!?



OMNISCIENCE

MIPH

- Logic
- Sets
- Worlds
- Method

MIND

- Consciousness
- Phenomenology
- Epistemology
- Psychology

TIME

- Becoming
- Probability
- Quanta
- Spacetime

LIFE

- Evolution
- Cognition
- Control
- Reality

MIPH

Logic

- A formalized language makes a useful structure

Sets

- Start with a null description and build up discretely

Worlds

- Interpret universal sets as worlds with centers

Method

- Build up layer by layer by reflecting universal sets

Logic

- A formalized language makes a useful structure
 - Scientific theories are linguistic constructions that are supposed to provide true descriptions of nature
 - If the language in which a theory expressed is formalized, the benefit in terms of clarity about the logical status of the formalized theory can be significant
 - Such a language may include zero-order propositional variables and the standard truth-functional connectives
 - It may also include first-order functional notation for predicate attribution, object variables and quantification

Sets

- Start with a null description and build up discretely
 - A standard way to understand the logic of a scientific theory is to say it describes a domain of objects that have various properties
 - The theory is true if the objects exist and have the stated properties
 - The objects exist if their identifying descriptions are true
 - Set theory provides a frame within which such identifying descriptions can be constructed and assigned certain basic formal properties
 - A dynamic set theory starts with zero and builds up as far as necessary, in what looks formally like a standard recursive process

Worlds

- Interpret universal sets as worlds with centers
 - Set theories comprehend sets with limited numbers of members and also sets including everything so far
 - Such universal sets are seen first as classes and comprehended later as elements in more comprehensive classes
 - Universal sets serve as formal analogs of worlds for subjects located inside them
 - Such worlds have centers and provide a formal model for located subjectivity, as in everyday human experience
 - The formal model is a metaphor whose justification lies in any illumination it offers

Method

- Build up layer by layer by reflecting universal sets
 - We have a formal foundation in a logical syntax including set-theoretic ideas and a null base
 - We also have a general strategy for going from level to level in a formal structure by comprehending new layers of sets in a growing cumulative hierarchy
 - So we can start a recursion that reaches as far as our experience does, to reflect in a logical formalism the ongoing process of comprehending centered experiential worlds

MIND

Consciousness

- The synthetic unity of apperception creates a self

Phenomenology

- The manifold of phenomena is given as sensorium

Epistemology

- Layers of ontology build up to reflect past worlds

Psychology

- A self is a structure of layers budding from layers

Consciousness

- The synthetic unity of apperception creates a self
 - Consciousness brings subjective experience to a unity
 - In a Kantian approach we can call this unity the synthetic unity of apperception
 - The unity of consciousness creates a growing structure in a dynamic process that can be modeled as the recursive construction of a cumulative hierarchy
 - The growing structure can be understood intuitively as a self
 - The subjective continuity of experience is essential to a self, and its recursive construction from a null foundation is a natural way to model scientifically the temporal growth and inward transparency of a self

Phenomenology

- The manifold of phenomena is given as sensorium
 - A self has experience or interacts in a changing world
 - The changing world is a manifold in which arbitrarily many parts are folded together in a unity that has some level of ongoing stability, for example some number of dimensions
 - The parts are initially phenomenal but soon revealed as having a foundation in sensory experience
 - The sensorium is the theater of phenomenal experience and entertains the self with a passing show
 - The self is a cumulative construct from the elements of previous shows
 - The whole process is a bootstrap fed by new waves of phenomenal input

Epistemology

- Layers of ontology build up to reflect past worlds
 - Each layer of phenomenal input creates a new layer of elements
 - The elements are formally defined in terms of previous input and constitute a cumulative structure that we see as a world built upon past worlds
 - At each moment, all the elements so far define a layered ontology
 - The dimension in which the layers are defined appears to the self for which they are the parade of past worlds as the dimension of experienced or historical time
 - Time thus defined is primarily epistemo-ontic in nature

Psychology

- A self is a structure of layers budding from layers
 - The formal psychology that emerges from the layered ontologies is that of a self embedded in a succession of momentary worlds, where each world is a centered construction based on a sensorium
 - The sensorium brings a manifold of phenomena to a synthetic unity via the process of apperception
 - Each momentary state of the self reflects a centered world, and is equal and opposite to it in a way that admits exact definition in set theory
 - As a self grows in time, it occupies a succession of momentary forms, each of which is reflected in a formal ontology of things comprehended so far

TIME

Becoming

- Reality grows and cannot be manifest all at once

Probability

- The past is real but futures are virtual or probable

Quanta

- Discrete elements of experience are quantized

Spacetime

- Logical worlds accumulate in a growing spacetime

Becoming

- Reality grows and cannot be manifest all at once
 - The formal metaphor of set theory suggests that reality cannot be manifest to us as a final eternal structure
 - It reveals itself in time, and time goes on beyond any momentary form of an experiencing subject
 - Cosmology is doomed to be an incomplete science
 - Each temporal take on reality reveals a world that will be embraced and superseded in more comprehensive worlds
 - Layers of elements come into being as existing elements in a universe that is becoming ever more comprehensive or specific or determinate in time

Probability

- The past is real but futures are virtual or probable
 - Scientific theories have as one of their central tasks the prediction of events that still lie in the future relative to the present world in which the predicting subject is embedded
 - Future events do not yet exist
 - They are virtual and may at best be assigned probabilities to come into existence
 - Classical mechanics describes events that may be predicted with probability approaching one, but epistemological paradoxes limit its applicability

Quanta

- Discrete elements of experience are quantized
 - Quantum mechanics represents an epistemological advance from the naïve stand of classical mechanics
 - Future events are seen as virtual and different possible futures have different probabilities to come into being
 - The realized form of a self in a world helps determine the probabilities of realization of alternative possible future events
 - It seems to be an empirical discovery that the elements of experience are discrete, with finite and measurable values
 - The continuum model of reality is a heuristic device for emphasizing the open-ended nature of experience in the phenomenal manifold and the impossibility of exhausting it in a discrete process

Spacetime

- Logical worlds accumulate in a growing spacetime
 - Time and space appears to form a continuum because they seem inexhaustible for a discrete process
 - Given relativistic spacetime, worlds that are built up cumulatively by means of a discrete recursion seem to be embedded in a spacetime continuum
 - For philosophical reasons the antinomy of discrete versus continuous for spacetime may be irresolvable
 - Spacetime may be discrete in the small, at the Planck scale
 - Then each comprehended world is also discrete in the large
 - Only the universe in which all logical worlds are stacked will seem continuous, together with the spectrum of virtual futures stretching to infinity

LIFE

Evolution

- Generations of life forms reflect past environments

Cognition

- Cognitive evolution is organismic epistemology

Control

- Neuronets balance alternatives for motor control

Reality

- Cosmology accommodates ultimate transcendence

Evolution

- Generations of life forms reflect past environments
 - A living organism is the physical embodiment of a growing self
 - The organism grows into forms reflecting the unity of its sensorium, and is realized as the organism processes input from successive momentary constellations of the phenomenal manifold
 - Generations of life forms thus reflect histories of involvement with their embedding worlds, where the salient features of those worlds manifested in the sensorium help interactively to shape the life forms
 - Different life forms compete in an evolutionary struggle to assimilate alien worlds and remain sovereign selves

Cognition

- Cognitive evolution is organismic epistemology
 - Evolution occurs at the cognitive level in mammalian brains
 - Competing resolutions of phenomenological conflicts result in sovereign interpretations of phenomena that shape the realization of alternative possible futures
 - The synthetic unity of apperception of the resulting self is reflected in a world with a specific physical constitution supporting a reigning interpretation at the cognitive level
 - Epistemology is the study of such cognitive development continued to the level of scientific theories and philosophies

Control

- Neuronets balance alternatives for motor control
 - In human brains, neuronets implement the logic of subjective worlds as well as their development in the sensorimotor interaction that results in ontic and epistemic progress
 - Thus the coupling of neuronets to the physical environment of cognitive agents via the sensorium generates an ongoing crystalization of reality as a series of momentary worlds
 - In neuronets, sensory input causes electrochemical imbalances that the net then seeks to balance
 - As impulses flow through a neuronet and activate various logic elements, thought and action take shape
 - Ideally, an ongoing self-loop retains control of the unfolding process

Reality

- Cosmology accommodates ultimate transcendence
 - If self and world reflect each other in an ongoing process of epistemo-ontic transformation with a set-theoretic logic, and if this process can operate at the societal level, the resulting self structures can assume cosmic proportions
 - For an individual who seeks to transcend limited forms of self, such cosmic possibilities can seem overwhelming
 - Yet self-transcendence is a physical process, and the cosmos in which it occurs can be defined like any other subjective world
 - We can define an envelope cosmology to embrace all our science so far, and allow self-transcendence within it
 - We have no reason to try to limit the scope of scientific method

Andy Ross

- Is British, lives in Germany
- Works as developer at SAP
- Worked as editor at Springer, Germany
- Taught philosophy in Oxford, English in Japan, math and physics in London
- Holds four philosophy degrees from Oxford and London
- Has written two books:
Lifeball
Mindworlds
- www.andyross.net

