

BRIEF OVERVIEW OF CONSCIOUSNESS

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www.GrokingWholeness.info

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PURPOSE

TO FACILITATE OUR DISCUSSION

- ▶ Establish a common baseline
- ▶ Hi-level overview of state-of-the-art in the science of consciousness
- ▶ Raise awareness of issues, implications and possible future actions

Warning: some of the contents contained within may challenge long held beliefs

CHANGE OF PERSPECTIVE IS URGENTLY NEEDED

- ▶ Until the mid-19th century everything we needed to know to survive and thrive could be learned by the ripe old age of 6
- ▶ Our knowledge of the world, our instincts and our beliefs no longer serve us well; instead, they act to our detriment
- ▶ Our traditions and our institutions are based on knowledge and understanding that are woefully out of date
- ▶ Continuous growth in a finite (closed) system is unsustainable
- ▶ Today our understanding of the reality we are living in (e.g. our sciences and metaphysics) is incomplete and it has a long way to go
- ▶ The experiences we have within our reality are real but many of our interpretations of them are not
- ▶ The rate of change of human knowledge now has a half-life of 18-24 months.
- ▶ There is little time to adapt let alone plan to accommodate such rapid change

WHY CONSCIOUSNESS?

“You cannot solve a problem with the same kind of thinking that got you into the problem in the first place”

Albert Einstein

“It all depends on how we look at things, not how they are in themselves”

Carl Jung

The only certainty there is in the world:

“I am conscious, therefore I am”

Rene Descartes

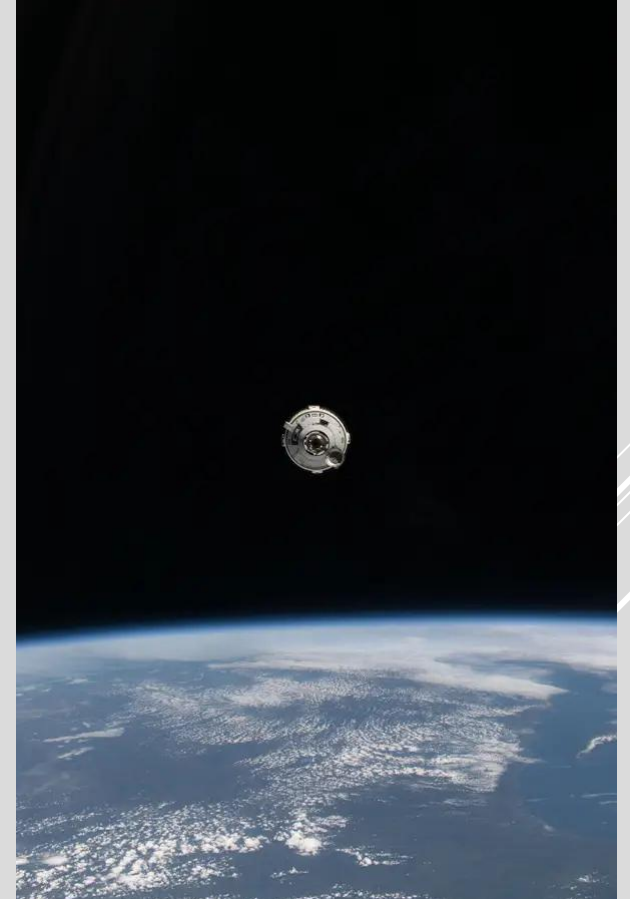
WHERE WE ARE & WHERE WE ARE HEADED

► Prevailing world view

- Consciousness is an epiphenomena of matter
- Consciousness ends at bodily death; life has no meaning or purpose
- Consumption and accumulation of material resources
- Encourages Individualism and separation
- Promotes nihilism and an epicurean lifestyle
- The fear of death – the biggest motivator in human history

► Emerging world view

- Matter is derived from consciousness
- Consciousness is the substrate for all reality and is unbounded by time and space
- What is learned and/or experienced is never lost
- It restores meaning and purpose to the human condition
- There is only oneness and entanglement
- It promotes empathy, altruistic behavior and the sanctity of life
- A much better understanding of the full human experience
- A new model of wellness – one that promotes mind body interactions



ITS ALL ABOUT UNDERSTANDING THE NATURE OF CONSCIOUSNESS



"To understand the human condition,
you must first understand the universe"
Buckminster Fuller

"If you want to understand the universe,
you must first understand the self"
Mystics and Sages of all cultures and eras

We define ourselves through our consciousness
It is the only way we know how we (and everything else) exists

SO, WHAT IS CONSCIOUSNESS?

WITHOUT CONSCIOUSNESS

There would be no knowing and no existence

Consciousness is what goes away when we are under anesthetics or enter dreamless sleep

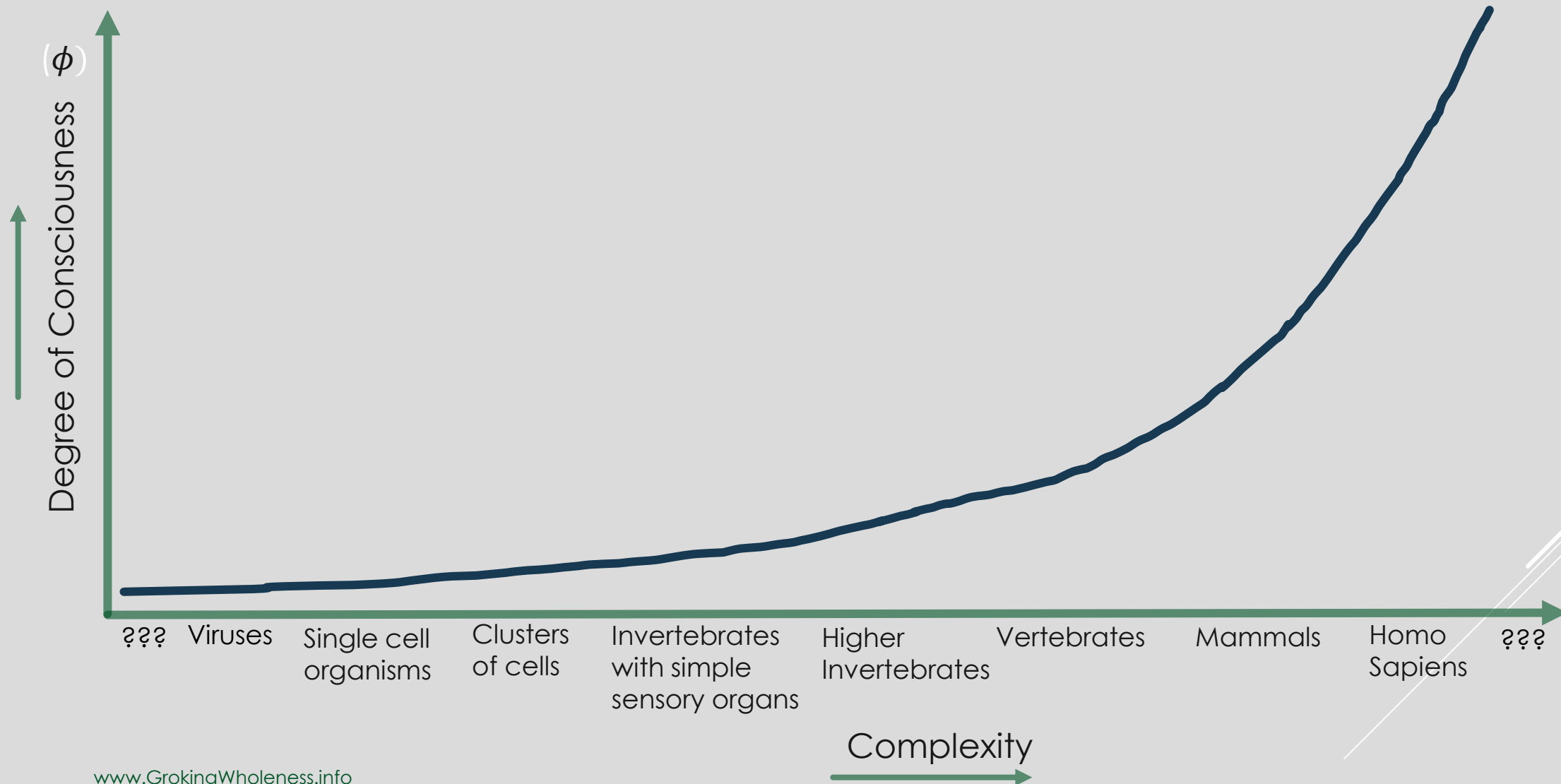
No me No friends No environment No objects
No time No space No memories No colors
No present No future No past No emotions
No sights No sounds No thoughts No tastes No sensations
No dreams

Consciousness is what it is like to have experience (to be)

CONSCIOUSNESS & LIFE ARE INTRICATELY CONNECTED



SPECTRUM OF CONSCIOUSNESS

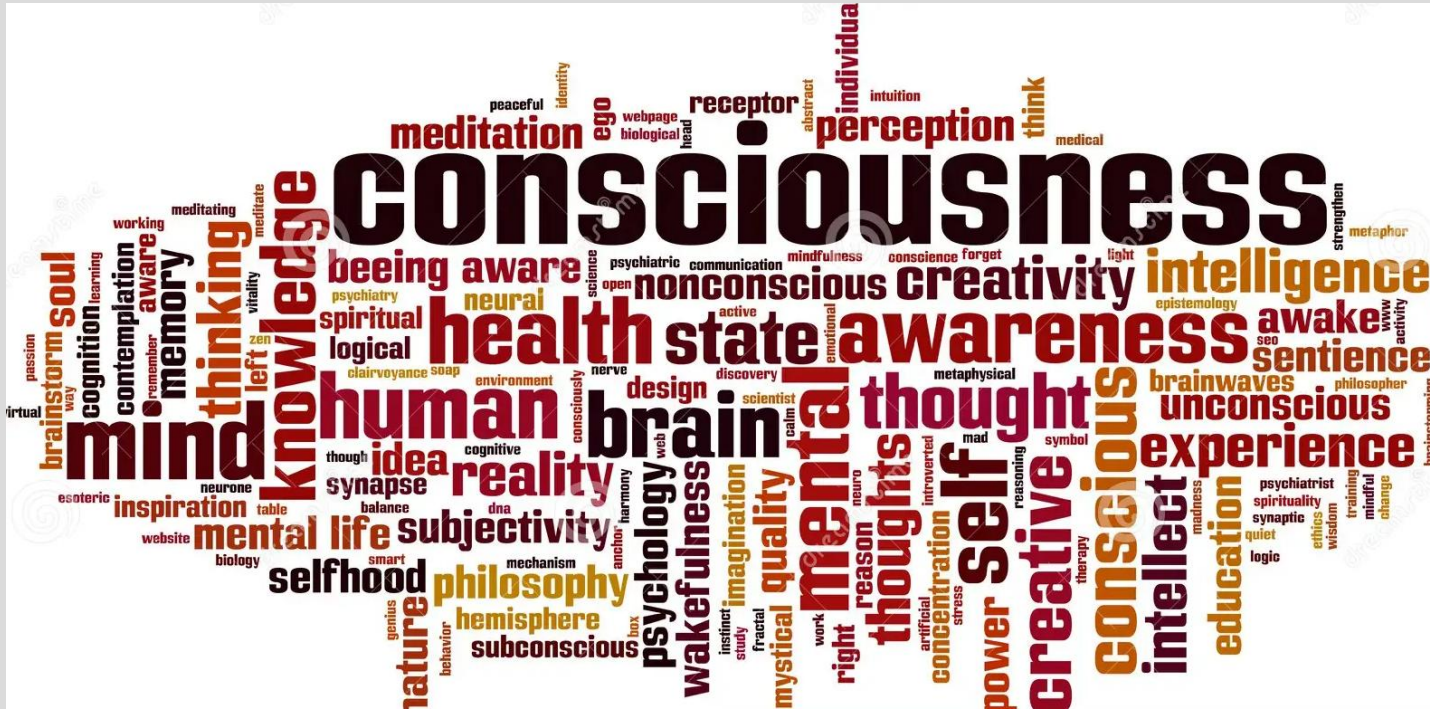


MILESTONES IN CONSCIOUSNESS RESEARCH

- ▶ Early 20th Century – Quantum physics conundrum
- ▶ 1973 – IONS Founded (from epiphany in space)
- ▶ 1974 – Thomas Nagel “What is it Like to Become a Bat”
- ▶ 1994 – Journal of Consciousness Studies
- ▶ 1995 – David Chalmers “The Hard Problem of Consciousness”
- ▶ Early 2000s – Active Debates about the nature of Reality & Consciousness
- ▶ Present Day
 - ▶ Physicalism is Dying
 - ▶ Overcoming inertia

Meanwhile - for millennia Eastern traditions have been studying the nature of consciousness

CONSCIOUSNESS WORD SALAD



SPECTRUM OF CONSCIOUSNESS

1. Unconsciousness

- ▶ No existence
- ▶ No experience (deep sleep, anesthetics)



2. Phenomenal Consciousness – all living organisms

- ▶ Existence; “to experience”
- ▶ Subjective (conscious) Experience
- ▶ Awareness
- ▶ “What it is like to be/do”
- ▶ To know/to intend



3. Meta Consciousness – living organisms with a brain

- ▶ Re-representation (self-reflection) of experience
- ▶ Ability to evaluate, analyze, plan
- ▶ To know that you know or intend
- ▶ Experience/intention are reportable



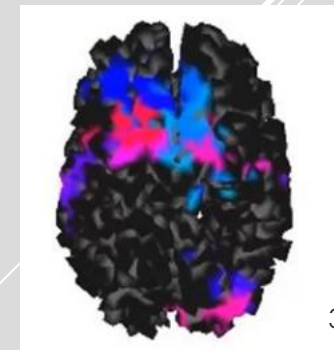
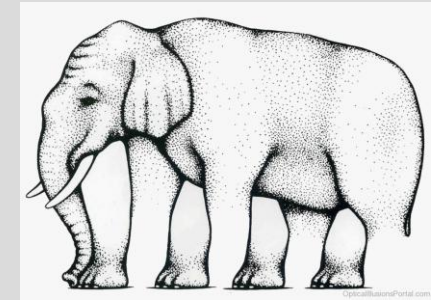
CONSCIOUSNESS ≠ BEHAVIOR

- ▶ Behavior may imply consciousness
 - ▶ External stimuli
 - ▶ Looking for opportunities
 - ▶ Avoiding threats
 - ▶ Pursuing desires
 - ▶ Being alert
 - ▶ All voluntary acts
- ▶ Being conscious does not imply behavior
 - ▶ Internal focus
 - ▶ Visualizing /planning
 - ▶ Intending
 - ▶ Dreaming
 - ▶ Meditating
 - ▶ Having a mystical experience
 - ▶ Etc.



MIND

- ▶ Experience as a unity of conscious experience
 - ▶ Computationally irreducible
- ▶ Does a great job at deceiving itself
 - ▶ Representations of external reality
- ▶ A collective of meta-conscious and phenomenal complexes
 - ▶ Most are not in meta-conscious awareness
 - ▶ Only one is in control at any given instant
- ▶ Physical correlates of subjective awareness
 - ▶ Correlates with centers of brain function & processes
 - ▶ Neural Correlates of Consciousness (NCCs)
 - ▶ Correlation does not imply causation
- ▶ Includes memories as well as conscious states



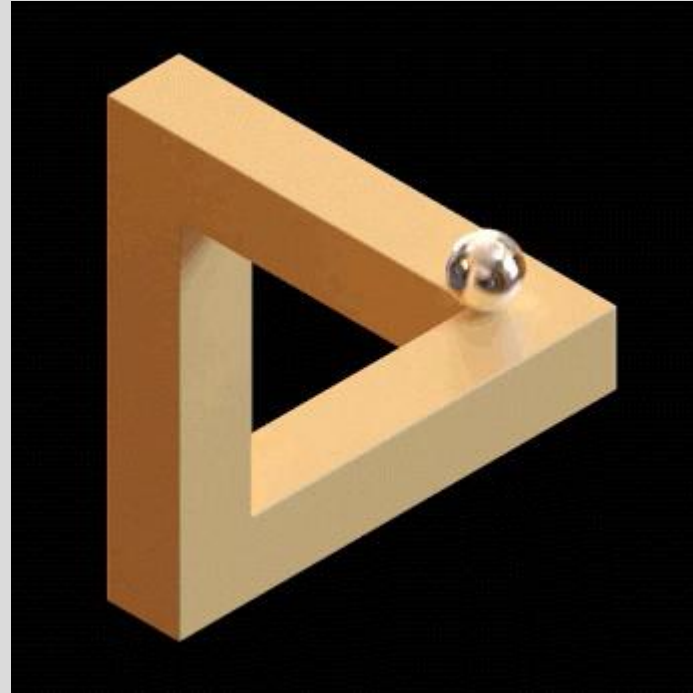
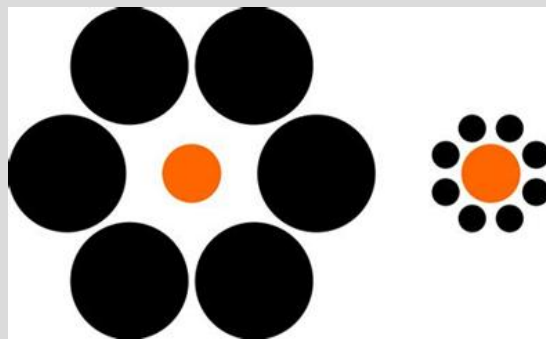
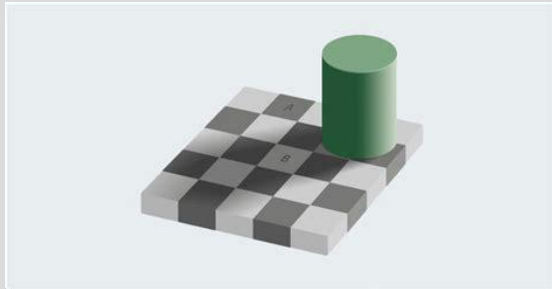
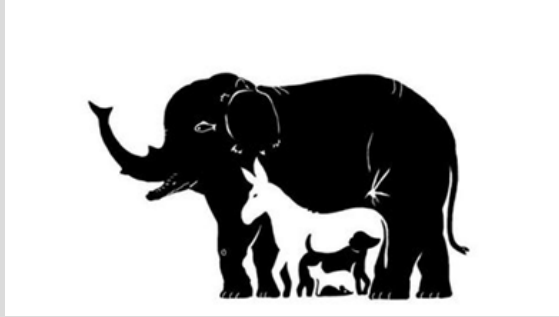
Mind is that which experiences

ASPECTS OF MIND

- ▶ Memory
 - ▶ Information store of experience
- ▶ Information
 - ▶ Patterns of matter or energy or
 - ▶ symbolic representations
- ▶ Intelligence
 - ▶ Measurable (Objective)
 - ▶ Ability to set and reach goals
 - ▶ Pattern recognition, analysis & matching
 - ▶ Computational (problem solving)
- ▶ Consciousness
 - ▶ Metaphysical
 - ▶ Phenomenal (Subjective)
 - ▶ Instinctive (archetypical)
 - ▶ Metacognitive & self-reflective
 - ▶ Assigns meaning to information (i.e. understanding)
 - ▶ Computationally irreducible



THE MIND LOVES TO DECEIVE ITSELF



We all experience reality differently

MEMORY – ITS NOT WHAT YOU THINK



► New Developments

- Recent experiments in biology
- Organ transplant surgery
- Episodic memory in savants

- Container of the entire event history of your life experience
- Retrieval takes place through the appropriate cognitive associations
- Content is about what was experienced; not what existed in reality
- Recent evidence suggests that it may not be stored within the brain

INSTINCTS & BELIEFS

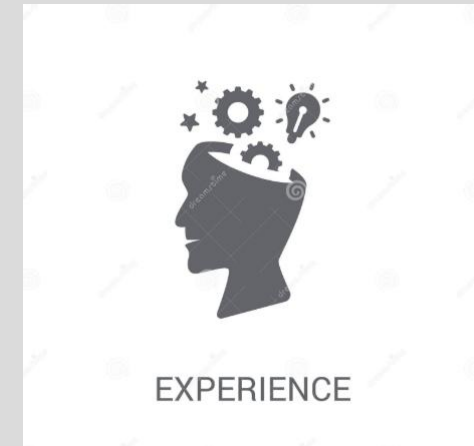
- ▶ Nature's motivators and survival mechanisms for a stable planetary ecosystem
 - ▶ Instincts are inherited behaviors (archetypical)
 - ▶ Beliefs are learned behaviors
- ▶ Beliefs are reenforced through repetition
 - ▶ Results from memories of prior experience
 - ▶ Often enculturated at an early age
- ▶ Operate at the level of phenomenal consciousness
 - ▶ Usually not self-reflective
 - ▶ Very quick reaction time
- ▶ Can be overcome but require considerable metacognitive effort and reconditioning
- ▶ Cultivators – events experienced with a strong emotional context and/or by reinforcement
 - ▶ Anger / Fear / Pain / etc.
 - ▶ Love / Joy / Pleasure / etc.



CATEGORIES OF EXPERIENCE

“What something feels like”

1. Perceptual (external – objective – 3rd person)
 - ▶ Sense organs involved
2. Endogenous (internal – subjective – 1st person)
 - ▶ Thinking, Emotions, Feelings, Intuitions, Imagination, Memories



Experiences are self-excitations (e.g. the behavior) of consciousness

Experiences are qualitative not quantitative

All experiences exist for themselves and have causal power

PROPERTIES OF PERCEPTUAL OBJECTIVE (EXTERNAL) EXPERIENCES

- ▶ Spatial extendedness
- ▶ Temporal flow
- ▶ Objective (3rd person viewpoint)
- ▶ Colors
- ▶ Sounds
- ▶ Smells
- ▶ Textures
- ▶ Tastes
- ▶ Etc.



The variations of these experiences probably number in the quintillions (10^{18}) or more

The mind filters and acts as a reducing valve to all external experiences

External experiences are shared experiences

Interpretations of shared experiences will vary

PERCEPTUAL REALITY IS AN INTERFACE



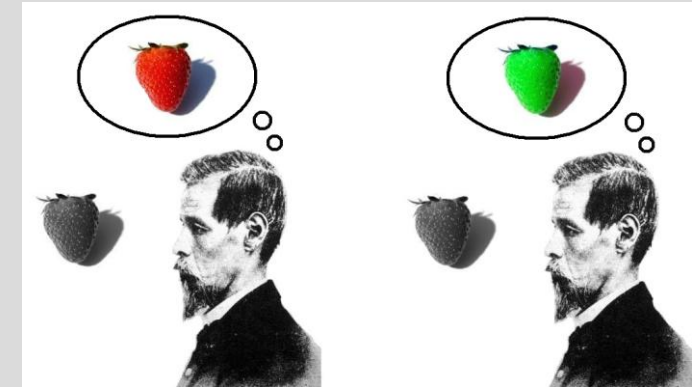
- ▶ Entropy overload
- ▶ Representations of what nature is
- ▶ A 3rd person view of external reality
- ▶ Reducing valve
- ▶ Focus on survival



“We don’t experience Nature as it is
We experience Nature as we are”

PROPERTIES OF ENDOGENOUS SUBJECTIVE (INTERNAL) EXPERIENCES

- ▶ Pure subjectivity (1st person viewpoint)
 - ▶ Experience is private
 - ▶ Conveys or provides meaning to experience
 - ▶ Shaped by archetypes (mental properties)
 - ▶ Cannot be described by quantities (or words)
 - ▶ Specious present (stream of consciousness)
- ▶ Pure Intentionality
 - ▶ Exists for itself
 - ▶ Self exciting
 - ▶ Agency (has causal powers)



THE QUALITIES OF ENDOGENOUS (SUBJECTIVE) EXPERIENCE

- ▶ The color green
- ▶ The smell of a rose
- ▶ The taste of chocolate
- ▶ The pain of a toothache
- ▶ The feeling of love
- ▶ The beauty of a sunset
- ▶ The feeling of fear
- ▶ The feeling of boredom
- ▶ Bodily sensations
- ▶ Desiring
- ▶ Dreading
- ▶ Imagining
- ▶ Etc.

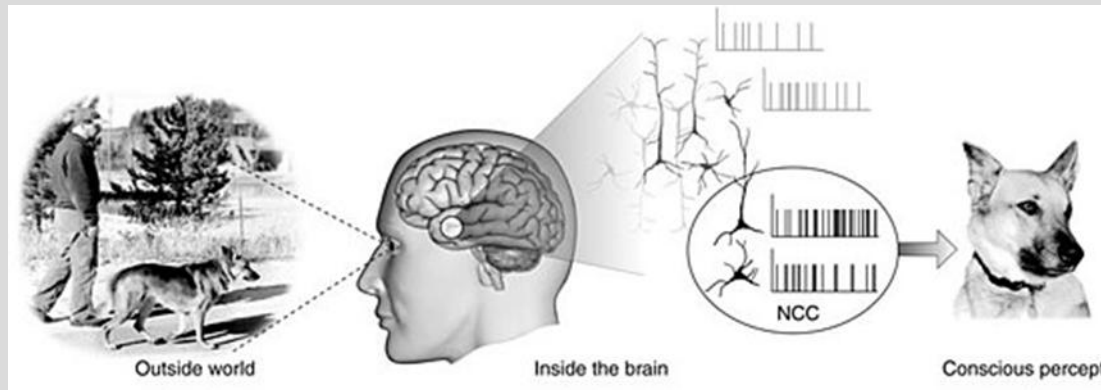


Physicalist science has no good explanations as to how felt experiences are generated by the brain (e.g. the “hard problem” of consciousness)

NEURAL CORRELATES & COMPLEXES OF CONSCIOUSNESS

Every specific conscious experience is associated with an NCC

Collections of NCCs make up a conscious complex

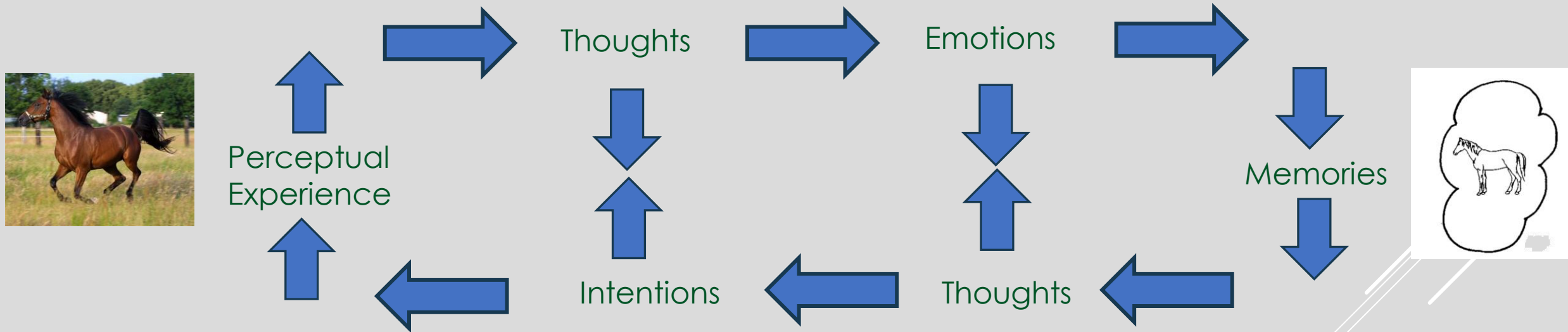


Kock, 2004

Qualia \equiv instances of specific subjective experiences

SUBJECTIVE EXPERIENCE INTEGRATES BY ASSOCIATION

Collection of conscious complexes made up of conscious agents
(a network of self excitations which cannot be predicted)



Order and interactions will vary based on cognitive associations & attention

Recurring associations tend to become habits of behaviors

CHARACTERISTICS OF EXPERIENCE

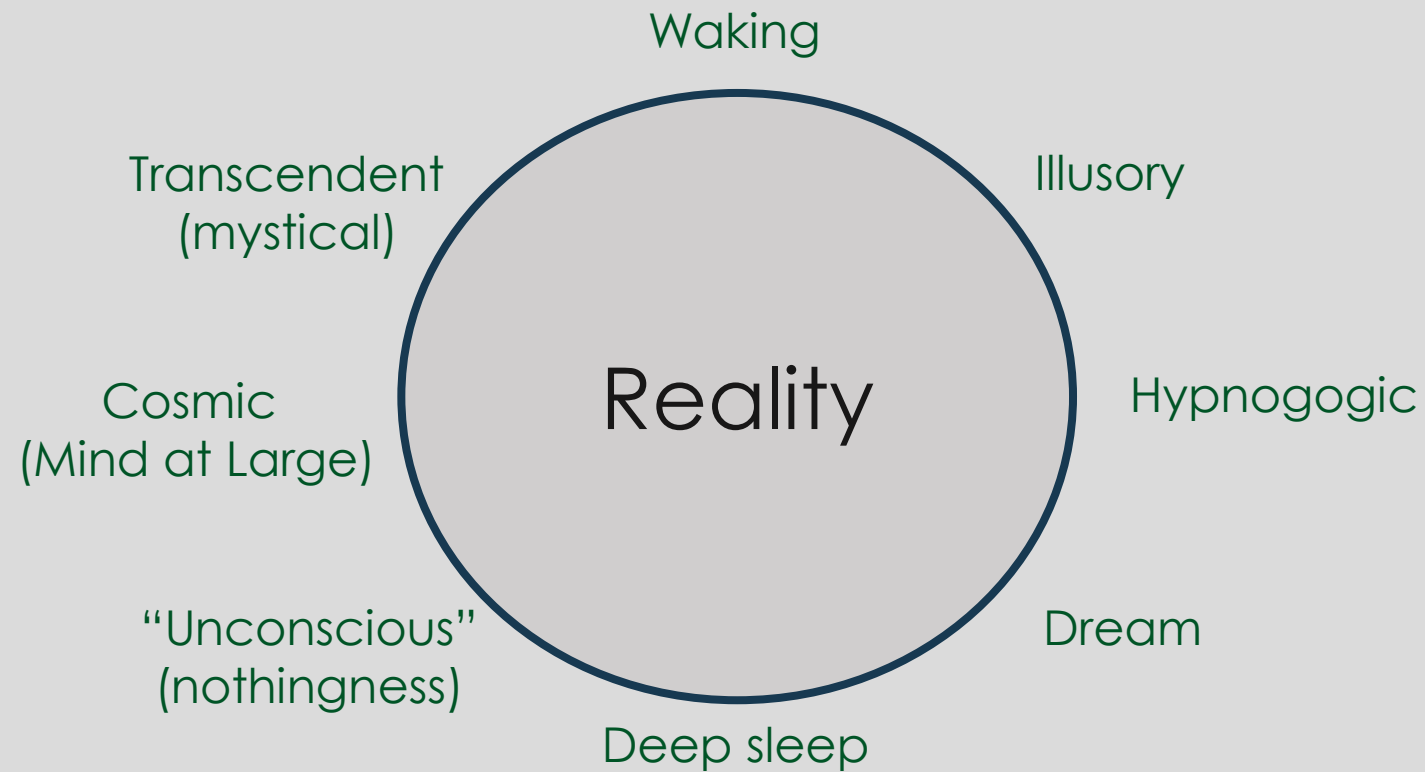
- ▶ Unitary and holistic
- ▶ Exists for itself
- ▶ Excitations are self-activating
- ▶ Has agency (causal power) to influence its own and other states
- ▶ Influenced by other states

Experience is the behavior of the thing that is experiencing (e.g. consciousness)



Consciousness is a state of being – it is not a computation

STATES OF EXPERIENCE



Depth and richness of experience varies by state

THE EXPERIENCE OF TRANSCENDENCE

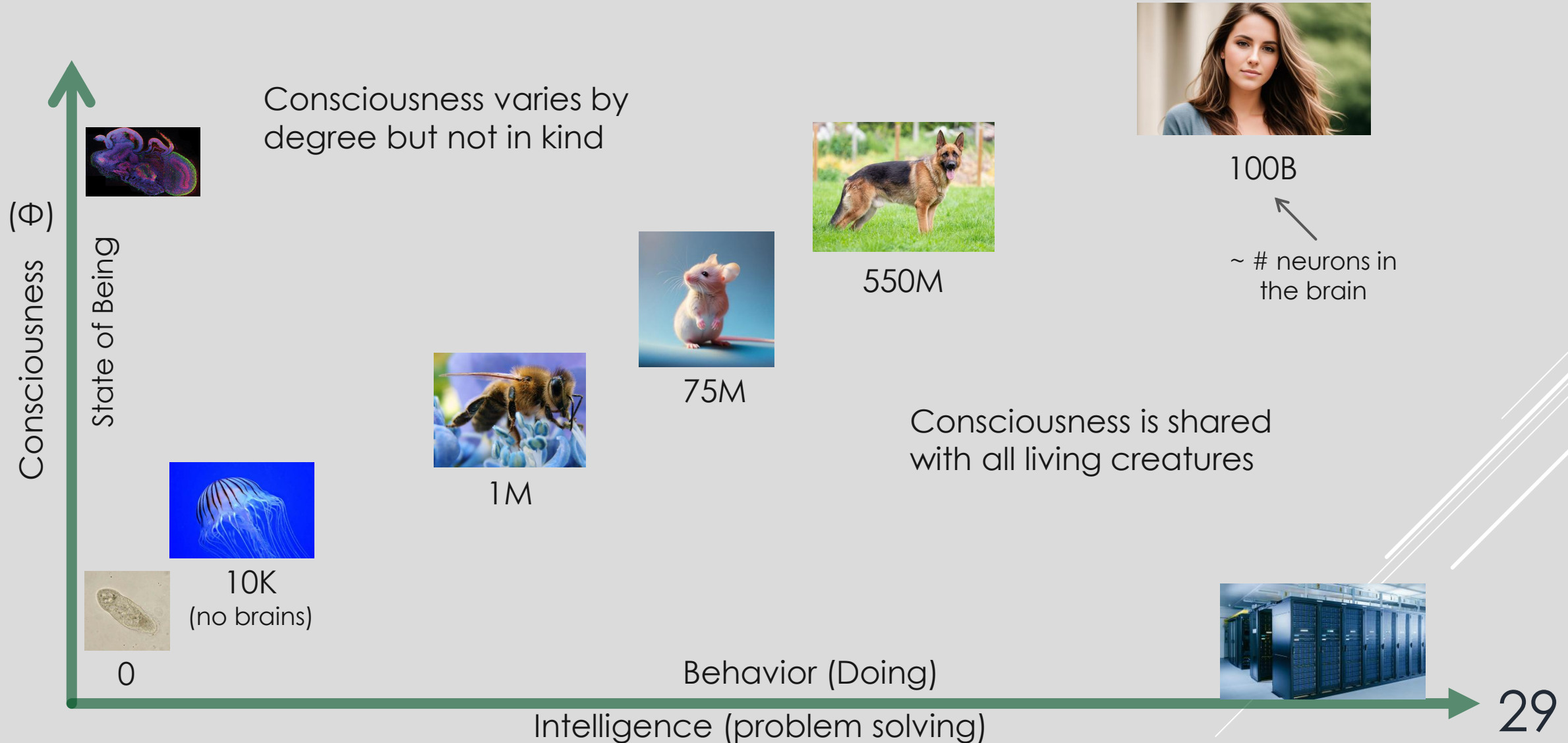
Excerpt from "then I am myself the world" – by Christof Koch

I ceased to exist in any recognizable way, shape or form. No more Christof, no more ego, no more self; no memories, dreams, desires, hopes, fears – everything personal was stripped away. Nothing was left but a non-self; this remaining essence wasn't a man, woman, child, animal, spirit or anything else; it didn't want anything, expect anything, think anything, remember anything, dread anything.

But it experienced. Did it ever.

It saw a point of cold white light of unbearable intensity, unable even to conceive of looking away, as there was no "away from." There was no left or right, up or down, front or back, far away or close by. There wasn't a black canvas upon which the light existed, as there was no space. There were no other attributes: no color, no motion, no texture, no sound or silence, no smell, no body, no pleasure, no pain. What there was, was a timeless universe convulsed to a blazing, icy light. That and a profound feeling of both terror and ecstasy, the awfulness of pure experience lasting indefinitely – for there was no perception of time. The experience wasn't brief or long. It simply was.

CONSCIOUSNESS VS INTELLIGENCE

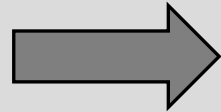


THREE ASPECTS OF INTELLIGENCE

- ▶ Analytical
 - ▶ Recognizing problems and solving them
- ▶ Creative
 - ▶ Innovation
- ▶ Practical
 - ▶ Application of knowledge



Higher Intelligence



More ways to solve problems (by different means)

NATURE'S EVOLUTIONARY IMPERATIVES



- ▶ Inhibitors
 - ▶ Pleasure, joy, happiness, etc.
 - ▶ Instinct & beliefs
- ▶ Drivers
 - ▶ Pain, suffering, etc.
 - ▶ Fear, anguish, etc.
- ▶ Metacognition
 - ▶ Ability to balance Inhibitors & drivers
 - ▶ Ability to reason (evaluate, analyze & plan)
 - ▶ Ability to assign meaning to experience
 - ▶ Ability to affect



ARTIFICIAL (GENERAL) INTELLIGENCE

“Assuming that IIT is correct, it can be proven that a powerful general AI, or even a detailed simulation of one’s brain, will remain unconsciousness (in any meaningful sense)”

Julio Tononi – co-inventor of IIT



A simulation is not the same as the thing being simulated
Consciousness is not computational

Artificial Intelligence [AI] is not the same as Artificial Consciousness [AC]

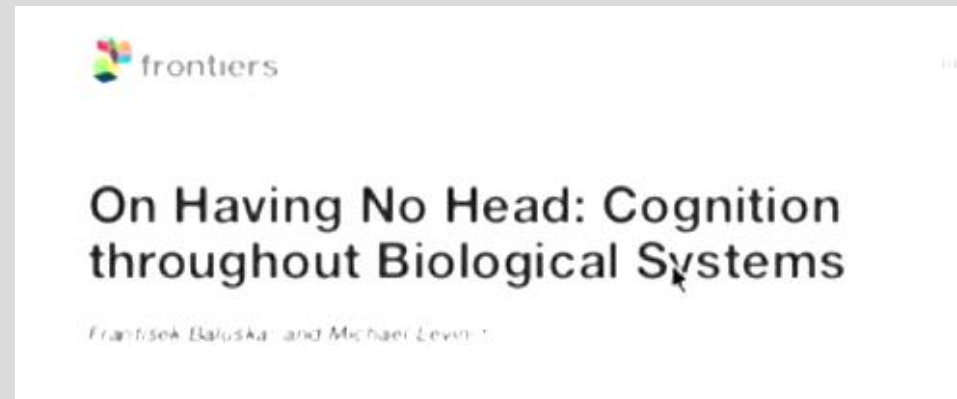
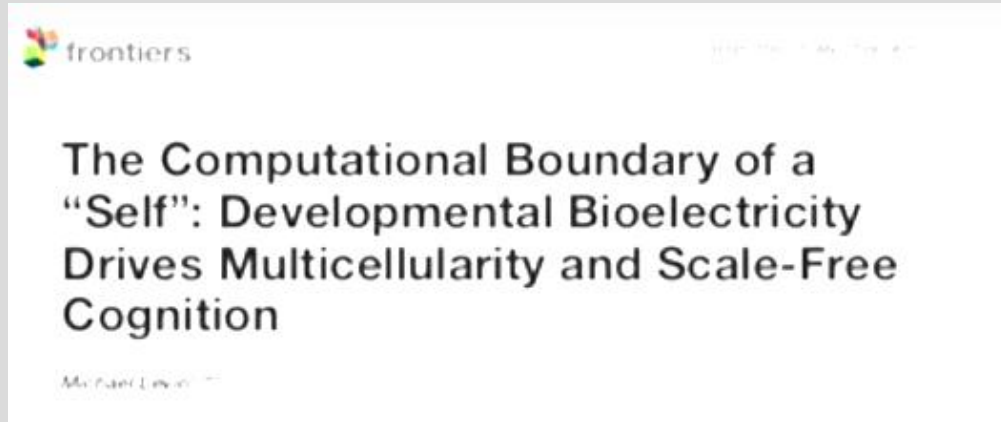
LIFE \equiv CONSCIOUSNESS

Cognition all the way down

Biology's next great horizon is to understand cells, tissues and organisms as agents with agendas (even if unthinking ones)

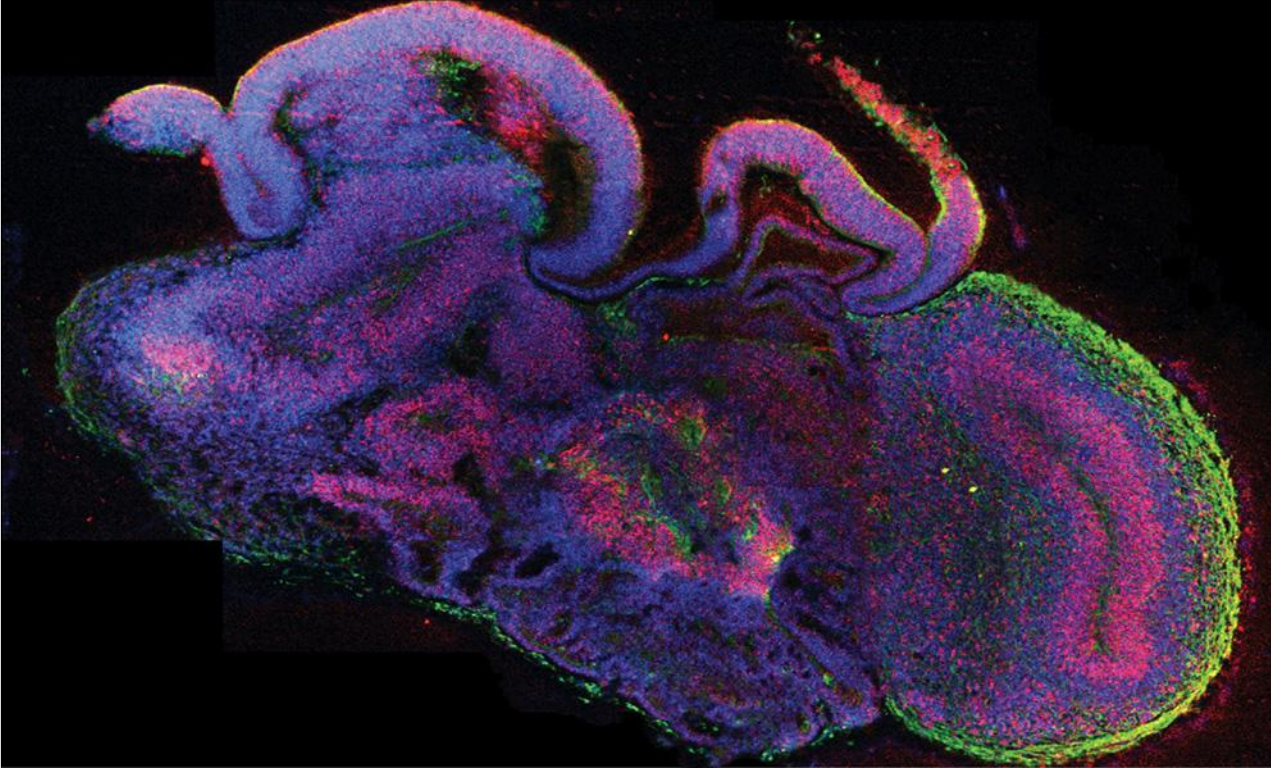
Michael Levin, *Frontiers in Bioengineering and Biotechnology*

<https://aeon.co/essays/how-to-understand-cells-tissues-and-organisms-as-agents-with-agendas>



Dr. Michael Levin - Professor of Biomedical Engineering Tufts University

ORGANOIDS ARE COMING



- Three-dimensional (3D) living structures that mimic the architecture & function of actual organs.
- Derived from stem cells
- Can self-organize into complex tissue-like formations
- Valuable tools for various functions
 - Biomedical applications,
 - Bioelectronics & biocomputing
 - Cyborgs
 - ???

THE REAL THREAT TO HUMANITY

World's first commercial biological computer launched by Australian start up – March 5, 2025



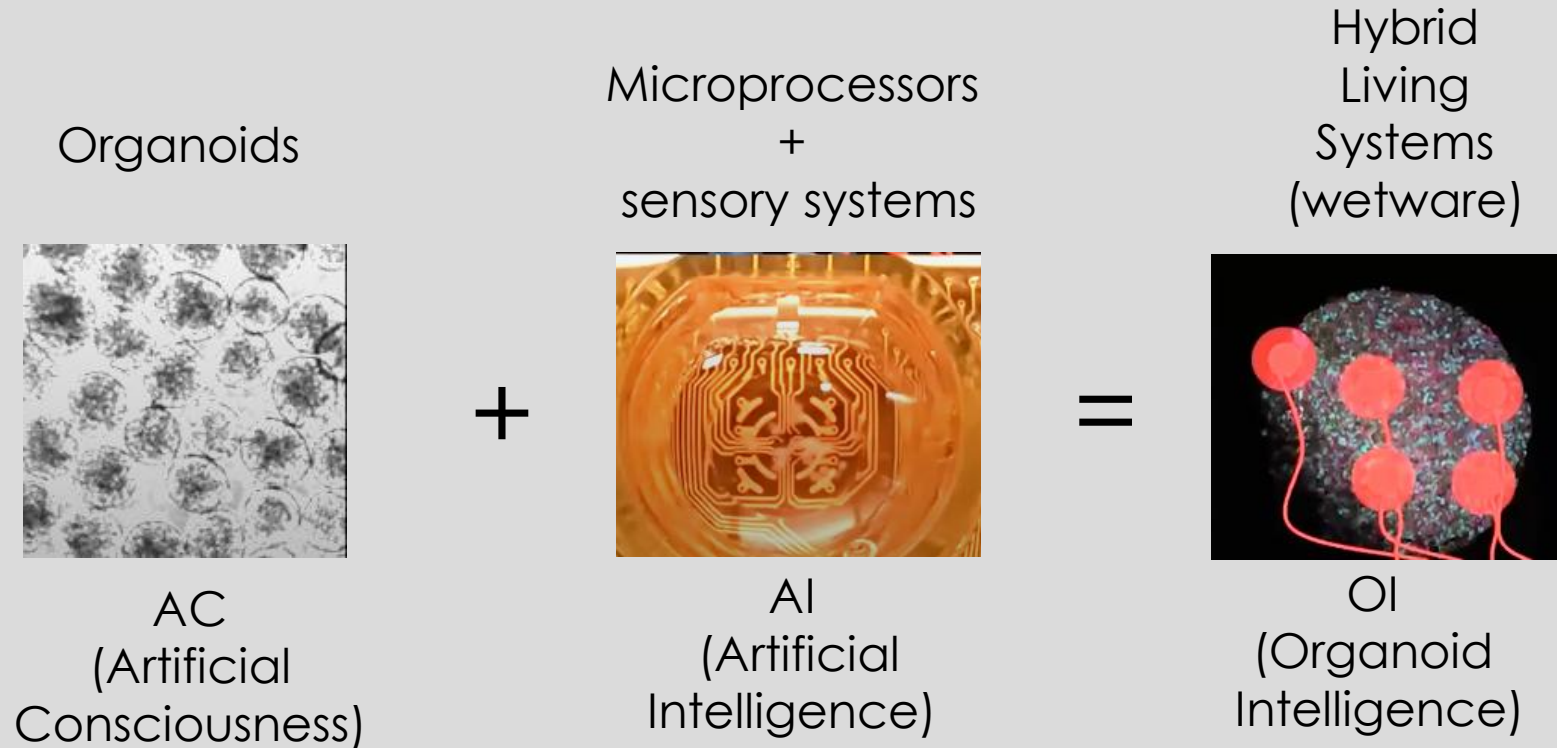
CL-1. Credit: Cortical Labs

CL1's lab-cultivated cells are based on neurons grown from human stem cells

They are grown across a silicon chip that has pins used to send electrical impulses into the web of neurons and receive impulses back.

This creates a high bandwidth connection between the organic network and digital set ups.

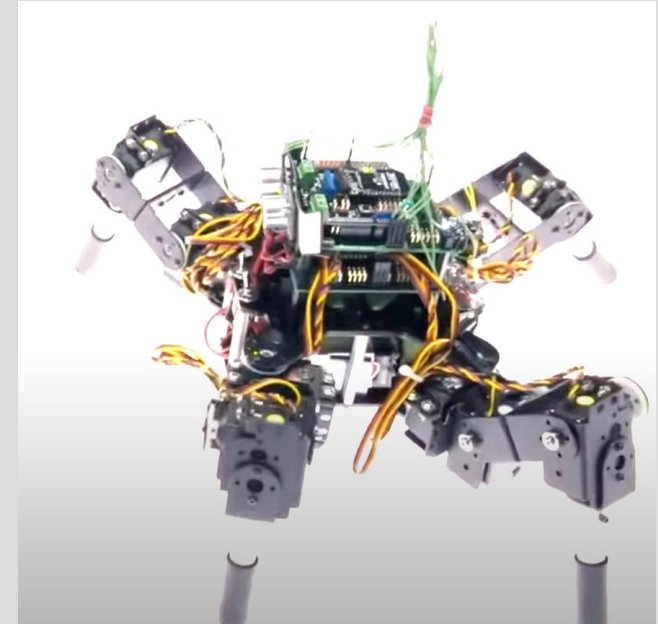
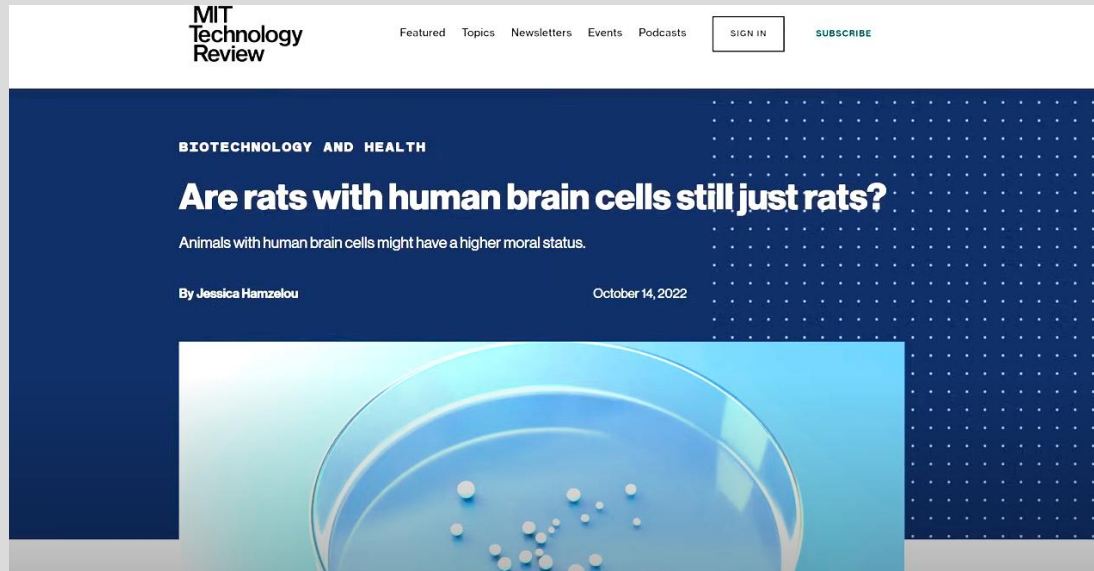
THE FUTURE – BIOCOMPUTING



Eventually OI capabilities will far exceed human capabilities

Whiting School of Engineering, Johns Hopkins University

ETHICAL IMPLICATIONS OF OI



Journal of Law and the Biosciences, 1–13
<https://doi.org/10.1093/jlb/lbad007>
Original Article

OXFORD

The legal personhood of human brain organoids

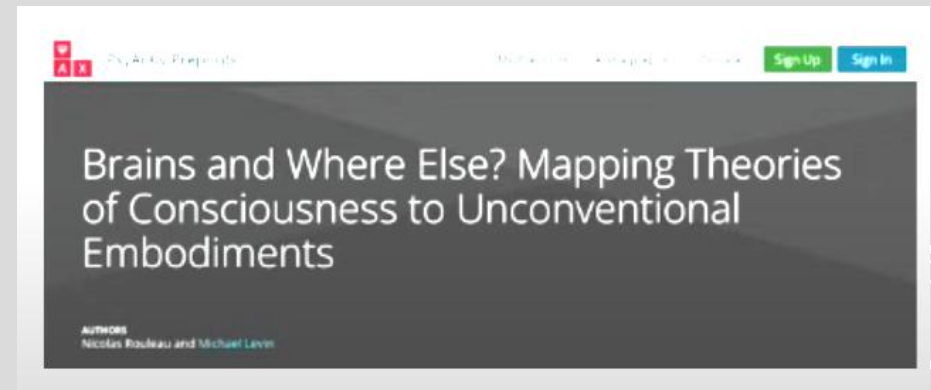
Masanori Kataoka ¹, Tsung-Ling Lee ² and
Tsutomu Sawai ^{1,3,*}

¹ Graduate School of Humanities and Social Sciences, Hiroshima University, Hiroshima, Japan
² Graduate Institute of Health and Biotechnology Law, Taipei Medical University, Taipei, Taiwan
³ Institute for the Advanced Study of Human Biology, Kyoto University, Kyoto, Japan
*Corresponding author. E-mail: tstmsw@hiroshima-u.ac.jp

WHERE IS CONSCIOUSNESS?

“If you take molecular mechanisms, evolutionary relationships, or problem-solving behaviors as evidence of consciousness in the problem of other minds, you need to take it seriously for non-linguistic body organs too (and beyond)”

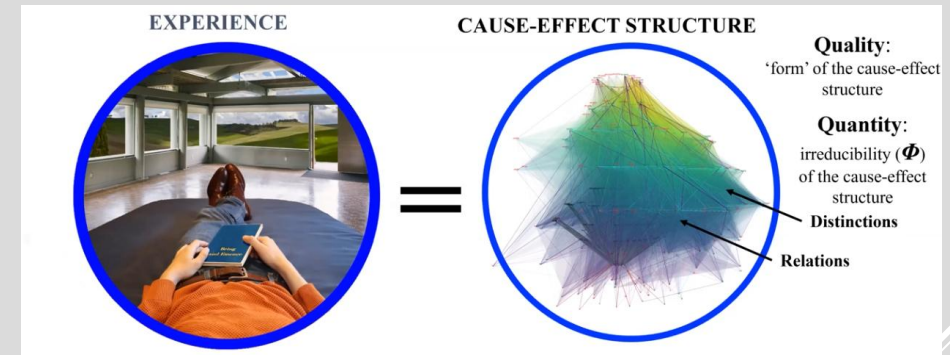
Michael Levin PhD – Biology Dept. Tufts University



“Creative problem-solving, learning, etc. are ancient – not brain-specific. Sciences of the self-assembly of bodies (developmental biology) and of the autopoiesis of minds have a lot to teach each other”

A SCIENTIFIC MODEL OF CONSCIOUSNESS

- ▶ Integrated Information Theory (IIT)
- ▶ A **model** describing what consciousness does – not what it is
 - ▶ Starts from experience – which exists irrefutably
 - ▶ Accounts for the qualities of experience
 - ▶ An experience is identical to a cause-effect structure (cognitive complex) upon itself
 - ▶ Maps subjectivity to neural correlates (physicality)
 - ▶ Structural; non computational
 - ▶ Not tied to a specific metaphysics
- ▶ Has explanatory and predictability value
- ▶ Practical Applications
 - ▶ “Locked in” syndrome
 - ▶ Consciousness modification (anxiety disorders, suffering, etc.)
 - ▶ Ethics
 - ▶ Measurement (degree of suffering)
 - ▶ Free will debate (certain types of decisions)
 - ▶ Moral rights (what is the threshold)
 - ▶ Compassion



IIT Wiki – www.iit.wiki

Note: correlation does not imply causality

METAPHYSICS VS SCIENCE

▶ Metaphysics

- ▶ A description of what nature is (Being)
- ▶ Metaphysics can inform science
- ▶ Living systems cannot directly see reality for what it actually is

▶ Science

- ▶ A description of how nature behaves (Doing)
- ▶ Science is perceptual (3rd person)
- ▶ Science can validate metaphysics
- ▶ Uses models (convenient fictions) to predict nature's behavior
- ▶ Maps (models) are NOT the territory
- ▶ Scientific theories can be falsified (scientific method)



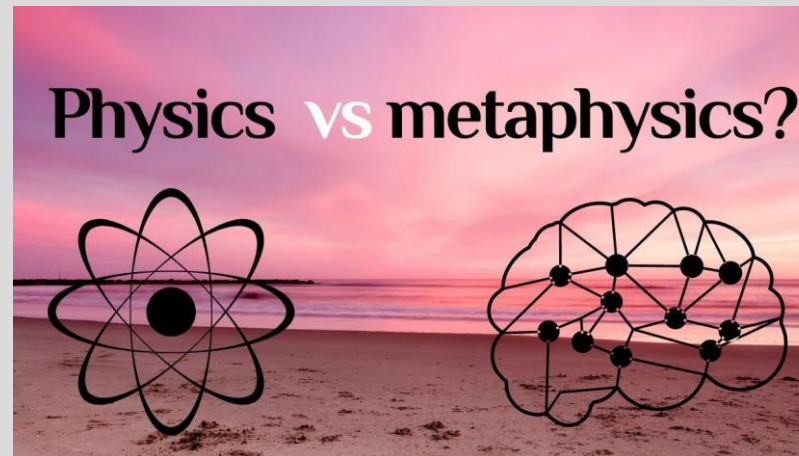
MAJOR SCHOOLS OF THOUGHT ON THE METAPHYSICS OF CONSCIOUSNESS

- ▶ Physicalism (aka materialism)
 - ▶ Consciousness is an epiphenomenon of brain function & processes
- ▶ Panpsychism
 - ▶ Every physical object has an aspect of consciousness
- ▶ Idealism
 - ▶ Everything either is consciousness or is in consciousness and manifested by consciousness
- ▶ Dualism vs Monism



Criteria for Evaluating Metaphysical Hypotheses

- ▶ Empirical evidence consistent with hypothesis
- ▶ Explanatory power for observed phenomena
- ▶ Coherent and supported by informed intuitions and experience
- ▶ Plausibility
- ▶ Logic and reasonability tests
- ▶ Parsimonious (Occam's razor)

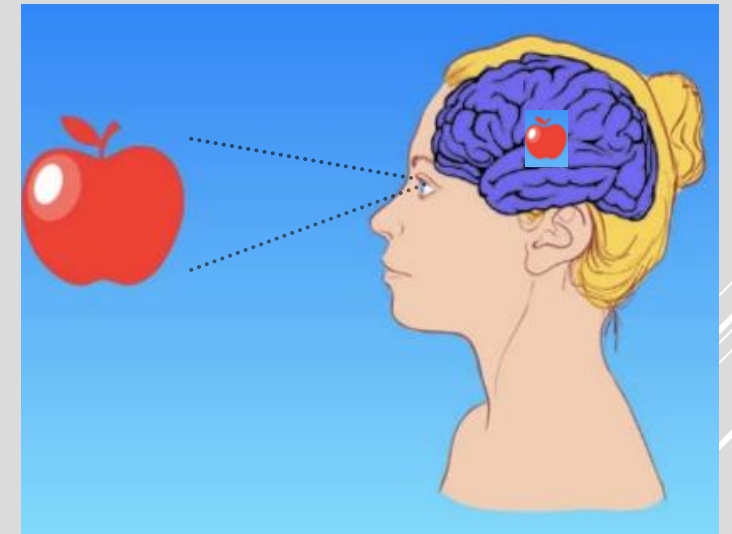


PHYSICALISM (MATERIALISM)

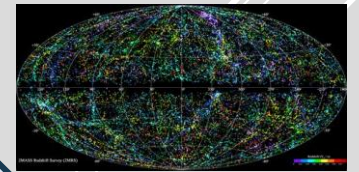
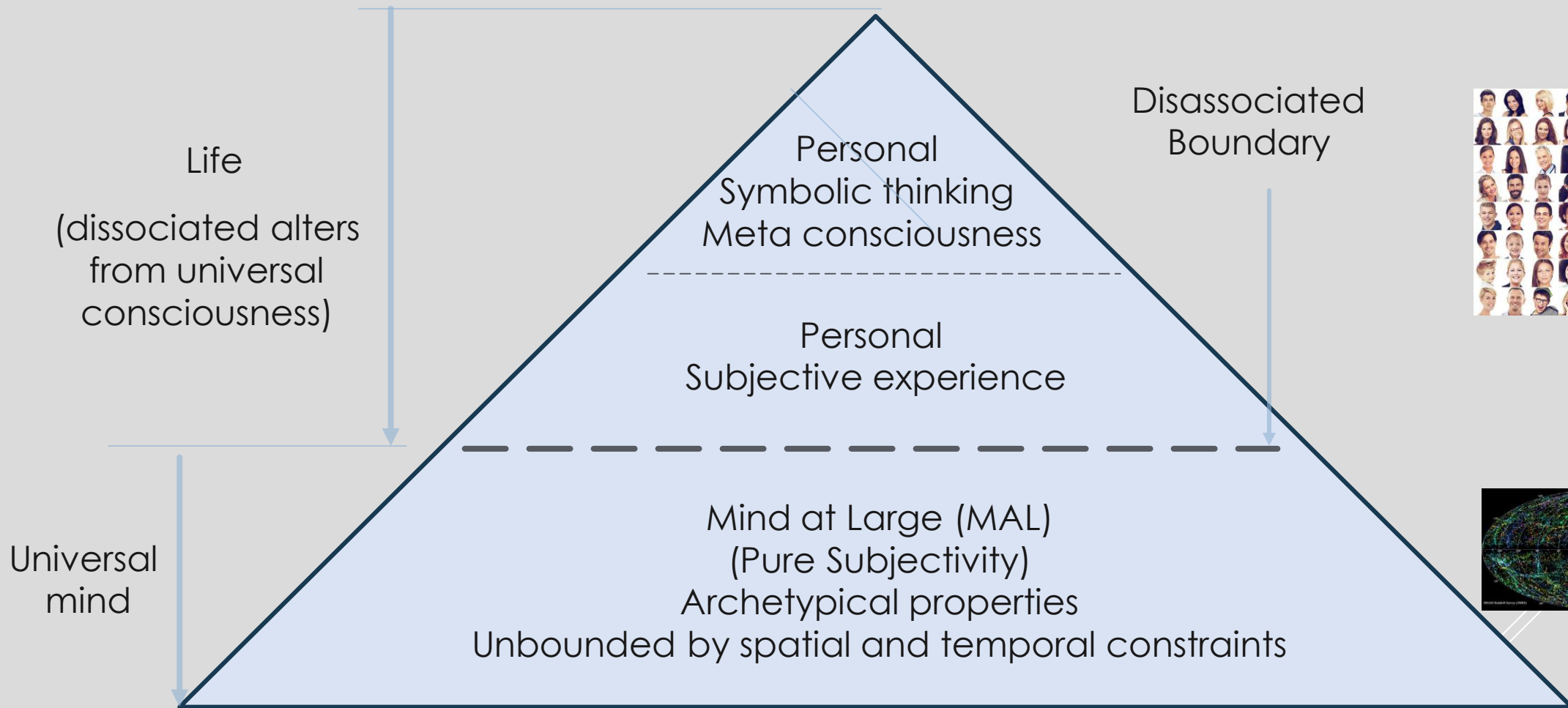
PREVAILING VIEW

- ▶ Originally invented as a political weapon against the church
- ▶ External non-living objects have their own independent physical existence and are made of a single ontic category
- ▶ Assumes that consciousness arises from biological brain functions and processes (epiphenomenal)
- ▶ Consciousness does not exist in organisms without a brain
- ▶ Matter can be described by quantities (mass, charge, size, etc.)
- ▶ Issues
 - ▶ Provides no solution to the “Hard Problem of Consciousness” – what are the physical objects (and their properties) that create experience
 - ▶ Not a single conscious experience has ever been explained
 - ▶ Conflicts with recent discoveries in physics, biology, neuroscience and neurophysiology
 - ▶ Does not explain much of the human experience
 - ▶ Cultural conditioning embedded in humanity since the mid 19th century

The map is not the territory



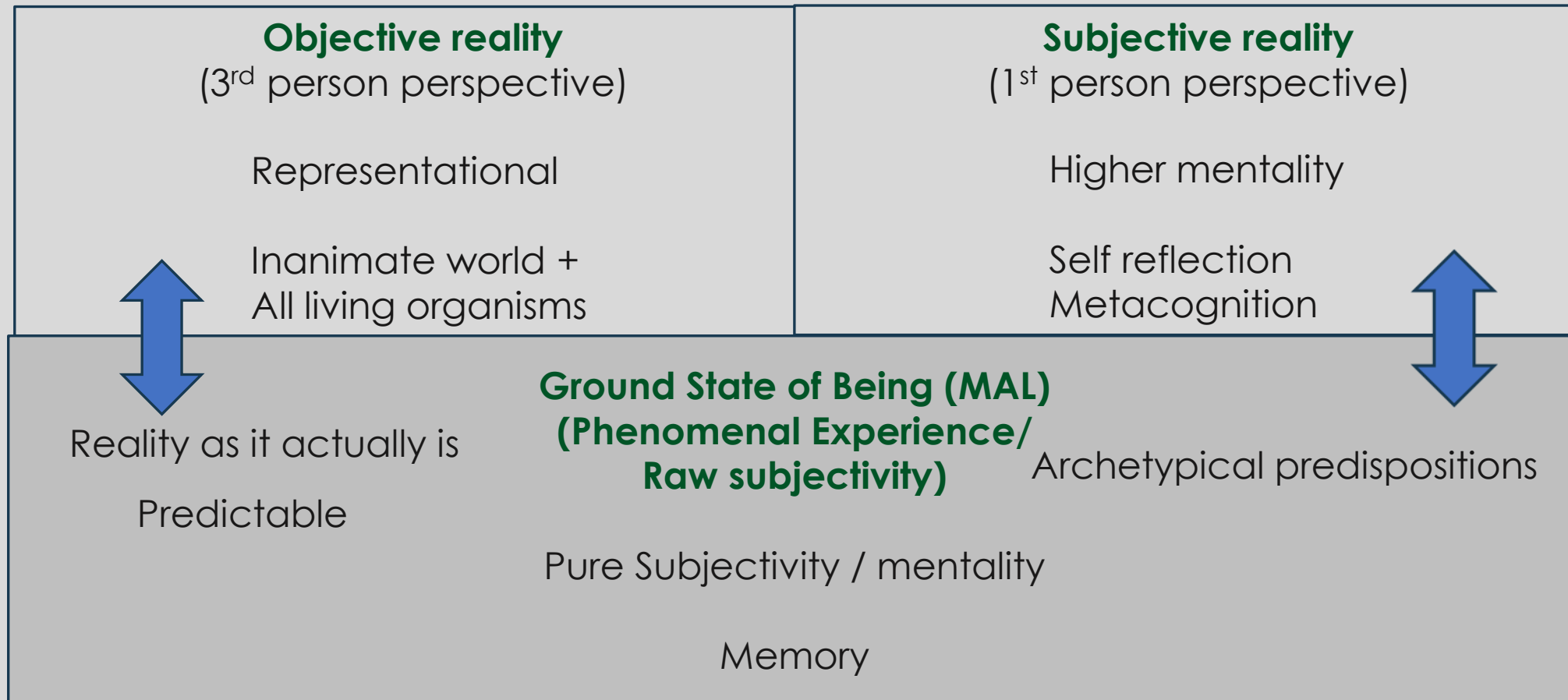
ANALYTIC IDEALISM EMERGING VIEW



All physical objects are 3rd person representations of mentation (consciousness)

Subjective experience is the fundamental substrate of Nature

ASPECTS OF ANALYTIC IDEALISM



THE ONE IS IN THE MANY & THE MANY IS IN THE ONE



CONSCIOUSNESS IS ALL THERE IS

- ▶ At the fundamental substrate of reality there is only one universal (subjective) consciousness
- ▶ Everything is conscious or exists in consciousness
- ▶ All life is dissociated aspects of universal consciousness
- ▶ Physicality is a 3rd person perspective of consciousness
- ▶ Space and time are mental constructs that organize experience
- ▶ Consciousness is unbounded
- ▶ Consciousness assigns meaning to experience
- ▶ There is only oneness
- ▶ Self excitable (causal powers)
- ▶ Exists for itself



“The more you look at the Universe, the more it seems like a great thought”

Sir James Jeans

CONSCIOUSNESS - THE ONTOLOGICAL PRIMITIVE

- ▶ Consciousness is Incontrovertible
 - ▶ If there is an **experience**, there is an experienter
- ▶ Empirical Evidence
 - ▶ Quantum Physics
 - ▶ Neuroscience & Neurophysiology
 - ▶ Biology, medicine
- ▶ Explanatory power
 - ▶ Brain impairments or pathologies
 - ▶ Terminal Lucidity
 - ▶ Savant syndrome
 - ▶ Non-ordinary states of consciousness
 - ▶ NDEs, OBEs, etc.
 - ▶ Synchronicities
 - ▶ Psi phenomena
 - ▶ Etc.

**Essentia
Foundation**



www.essentiafoundation.org

WHERE WE ARE AND WHERE WE ARE HEADED

- ▶ Physicalism (prevailing view)
 - ▶ Consciousness is an epiphenomena of matter
 - ▶ Consciousness ends at bodily death; life has no meaning nor purpose
 - ▶ Applauds consumption and accumulation of material resources
 - ▶ Encourages Individualism and separation
 - ▶ Promotes nihilism and an epicurean lifestyle
 - ▶ Removes the fear of death the biggest fear in human history
- ▶ Analytic Idealism (emerging view)
 - ▶ Consciousness is the substate for all reality and is unbounded by time and space
 - ▶ Matter is derived from consciousness
 - ▶ It restores meaning and purpose to the human condition
 - ▶ What is learned and/or experienced is never lost
 - ▶ There is only oneness and entanglement
 - ▶ It promotes empathy, altruistic behavior and the sanctity of life
 - ▶ Provides a much better understanding of the full breath human experience
 - ▶ A new model of wellness – one that promotes mind body interactions



PARTING THOUGHTS

*“I have trust that we humans can resolve the problems that we have created.
There is a Sanskrit saying that I subscribe to and I like very much”*

“God sleeps in the minerals,
Awakens in plants,
Walks in the animals,
And thinks in mankind”

Edgar Mitchell