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GENESIS OF A PYTHAGOREAN UNIVERSE

Alexey Burov, Lev Burov

Essay Abstract

Wide range, high precision and simplicity of the fundamental laws of nature rule out the possibility for them to be randomly generated or selected. Therefore purpose is present in their selection.

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GENESIS OF A PYTHAGOREAN UNIVERSE

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Abstract

Wide range, high precision and simplicity of the fundamental laws of nature rule out the possibility for them to be randomly generated or selected. Therefore purpose is present in their selection.

concrete theories, such as classical and quantum mechanics, general theory of relativity, the standard model, and others.

The laws of nature are discovered as composite and specific mathematical structures. As these structures are revealed, we unavoidably come to a certain

<http://arxiv.org/pdf/1411.7304v2.pdf>

<https://fermisocietyofphilosophy.wordpress.com/2014/10/24/nature-of-the-laws-of-nature/>

<http://fqxi.org/community/forum/topic/2353>

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What Is Thought Not?

Alexey Burov

Fermilab, June 18, 2015

Status of Thought in Being

- There is nothing closer associated with 'me' than my self-awareness, consciousness, thought seeing itself.
- 'I', the self-referential thought, is loaded with memory, feelings, habits, abilities, tastes, prejudices, etc. I can imagine myself without any specific part of this baggage, but I cannot imagine myself without self-awareness.
- That is what Descartes meant by his “**cogito ergo sum**”, “I think so I am”.
- Thus, self-awareness is at the core of all sorts of considerations, including applications of any sort of theory, doing any sort of experiment or observations and all statements about truth. Does it mean that **self-awareness belongs to the most fundamental level of being?** Remember that any answer implies self-awareness.

Can Thought Be an Object of Science?

- **Thought is more fundamental than science**: scientific cognition can be understood as a specific branch of thinking (rational, metaphysical, philosophical, religious). However, can thought still be somehow caught by scientific nets?
 - Can thought be scientifically defined?
 - Can thought be scientifically detected?
 - Can thought be fully caused by physical world?
- If all the answers are “No”, it would mean that the **mental world is in principle outside of scientific cognition?**

Thought, Matter and Life

- **Thought has to not be identified to physical process in the brain.** They belong to different worlds, being described by fully separated languages. Thought is described by value, purpose, all distinctions of its relation to other thoughts and observations. Physical processes are described by physical terms: energy, current, etc.
- **Thought has to not be confused with instincts of life.** There is no reason to assign thinking to cells and flowers. However, there are strong reasons to talk about thinking of higher animals. In mammals, we see the dawn of thinking, in many cases indistinguishable from higher realizations of life.
- **To see thought in its full maturity,** instead of its slight first appearances, barely distinguishable from life, **I am focusing my attention** neither onto dogs and monkeys, nor onto thoughtless choices of no value between coffee or tea, but **onto most impressive examples of creative thinking.**

Self-Awareness

- Self-awareness, or consciousness, is my awareness about myself, and selves of others, it is my ability to think about “I”, asking questions, looking for answers, and answering to something like:
 - What do I value and why? What is my purpose, why and what for?
 - What do I know and what do I not? What can I know and what can I not?
 - Who am I?
 - Did I exist before my birth and what is going to happen with me after my death?
- Thinking in its dawn (higher mammals, babies) is not yet self-aware, but thought in its mature stage is self-aware at high degree.
- It is self-awareness that gives thought its impressive power.
- Perhaps, a step from non-self-aware thought to consciousness can be compared to steps from life to thought and from matter to life.

Self-Awareness and Culture

- Self-awareness is expressed in and provoked by such self-referential forms as
 - I think that... (1)
 - That time I thought that... (2)
 - That time I believed she loves me... (3)
 - I am not sure if that time I already knew that... (3)
 - Now I know that in fact I knew nothing about her feelings... (4)
 - You may think that I was extremely stupid believing she is telling me the truth about her actual attitude to him... (4)
 - James Bond knew that the Soviets were informed about his plan, but he was not sure if they also knew that he was aware about their plans too. (potentially infinite)
- Such multi-referential forms of thought allow memoirs, family chronicles, myths and legends, fiction...
In short, **history is impossible without them.**
- An opposite is true as well: dominance of objective and lack of reflective thinking leads to personal degradation and social catastrophes.

Can Thought Be Scientifically Discussed?

- Can thought be scientifically defined?

- No, since borders of thought cannot be known.

- Can thought be scientifically detected?

- No, since to detect thought means to understand it. Understanding cannot be standard, while scientific detection must be.

- Can thought be fully caused by physical world?

- No, since that would equate a person with a phenomenon, leading to
 - the paradox of Epimenides in logic,
 - loss of the categorical imperative in ethics
 - and, most likely, totalitarian state in politics.

Persons as objects: paradox of Epimenides

- If thoughts are fully caused by physical world, then persons are phenomena, **objects among objects**.
- I myself , with all my ideas, can be fully explained as a result of physical, biological, economical forces and accidents. My thoughts, being fully caused by the laws of nature and accidents, have no reason to have anything common with the truth. Lie in many cases is more beneficial for survival than truth. Interests do not assume truth. Agreement with observation does not help: both perceptions and ideas can be totally wrong, but seemingly agree with each other.
- Hence, I do not have any reason to suspect even a partial truth in my ideas, including the idea that my ideas are caused by physical world. This is a **paradox of Cretan Epimenides**: all Cretans are liars. This paradox has a resolution: it is just a false statement, my thoughts cannot be fully explained by the physical world.

Persons as objects: ethical and political catastrophe

- *Understanding* loses its value; instead, people have to be *explained* (e.g.: he is saying this because he is an american/jew/capitalist/male, since they are interested in that)
- All values are lost, including the value of truth; there are no values for phenomena. All moral principles are lost: there are no moral principles for objects.
- Ethical nihilism follows moral degradation, social atomization and, as the reaction, likely, a totalitarian state.
- All that proves that thoughts cannot be fully caused by the physical world.

Mind and Science

- Scientific approach is based on a priori exclusion of thinking beings from the scene of research. From here both its power and limitations follow.
- After that, all explanations are traced to the fundamental laws and accidents.
- The question remained though is about the fundamental laws. They are specific and not self-referential, so they have to be explained by something else.
- There are only two entities for that terminus: a pure accident, chaos, and the Absolute Mind. The first option is excluded, see “[Genesis of a Pythagorean Universe](#)”, A&L Burov. Thus, the laws of nature can only be explained as ideas of the Absolute Mind.
- The Absolute Mind does not need to be explained by something else: It is a self-referential totality, or the Substance which is *causa sui*, leaving a place for the mystery.

Mind as the place for mystery

“To be a complete terminus of questioning, a creative mind has to be mind per se, or the Absolute Mind. Otherwise, questions about origin and possibility of its mindness would require new answers. Unlike chaos, Absolute Mind as terminus leaves room for mystery; the creativity of the human mind does as well. Where there is mystery, questioning is inexhaustible, and the feeling of mystery may instill a deep value in the pursuit of knowledge. Contrary to this, the postulation of chaosogenesis, by rejecting the primacy of mind, is incompatible with mystery, and thus with the value of fundamental cognition. Thus, the problem of cosmogenesis leads to a dual mystery, one aspect of which is the Absolute Mind as the source of the laws of nature, while the other aspect lies in a mind capable of discovering them.” (*Genesis of a Pythagorean Universe*)

Henri Poincare (1854-1912)

“The sole objective reality consists in the relations of things whence results the universal harmony. Doubtless these relations, this harmony, could not be conceived outside of a mind which conceives them. But they are nevertheless objective because they are, will become, or will remain, common to all thinking beings.” **“The value of Science” (1913)**

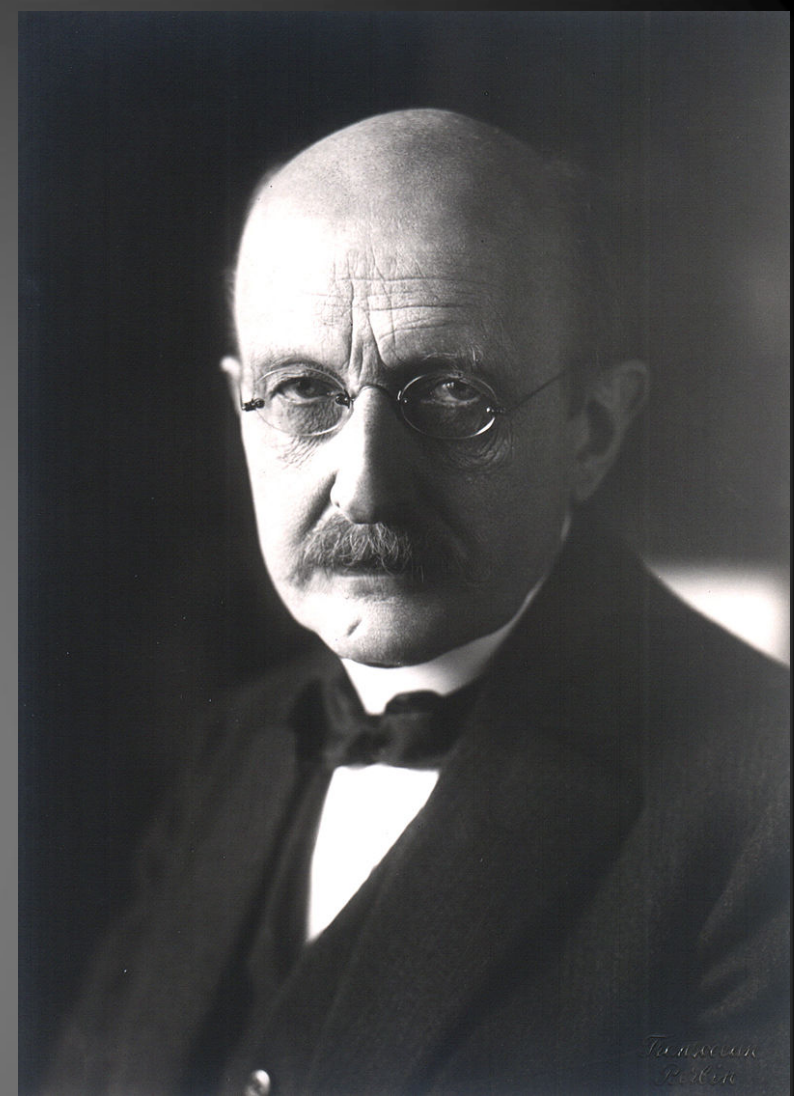
“If nature were not beautiful it would not be worth knowing, and life would not be worth living. I am not speaking, of course, of the beauty which strikes the senses, of the beauty of qualities and appearances. I am far from despising this, but it has nothing to do with science. What I mean is that more intimate beauty which comes from the harmonious order of its parts, and which a pure intelligence can grasp.” **“Science and Method” (1908)**



Max Planck (1858-1947)

“I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.” (1931)

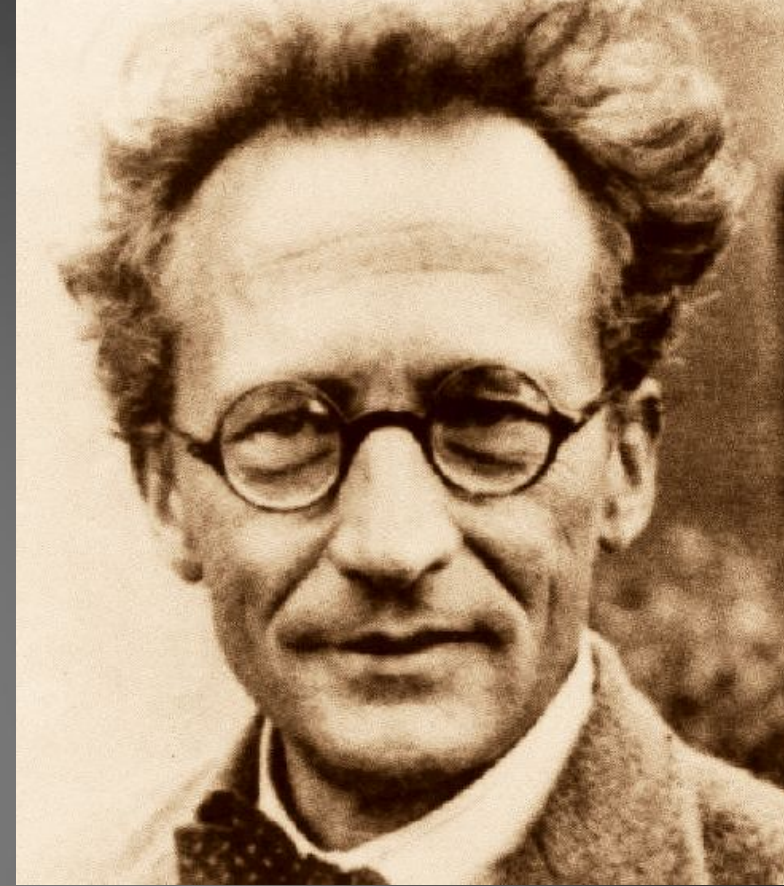
“We must assume behind these [material] forces the existence of a conscious and intelligent mind. This mind is the matrix of all matter.” (1944)



Erwin Schrödinger (1887-1961)

“Nirvana is a state of pure blissful knowledge... It has nothing to do with the individual. The ego or its separation is an illusion. Indeed in a certain sense two "I"s are identical namely when one disregards all special contents — their Karma. The goal of man is to preserve his Karma and to develop it further... when man dies his Karma lives and creates for itself another carrier.”

1918, from “A Life of Erwin Schrödinger” by W. Moore (1994)



“Although I think that life may be the result of an accident, I do not think that of consciousness. Consciousness cannot be accounted for in physical terms. For consciousness is absolutely fundamental. It cannot be accounted for in terms of anything else.

As quoted in *The Observer* (11 January 1931); also in *Psychic Research* (1931), Vol. 25, p. 91

“We do not belong to this material world that science constructs for us. We are not in it; we are outside. We are only spectators. The reason why we believe that we are in it, that we belong to the picture, is that our bodies are in the picture.” “*Nature and Greeks*” (1954)

Eugene Wigner (1902-1995)

“Many physicists insist that nothing exists besides matter. But our thoughts, our desires, and emotions—what are they then? If all that exists in my brain are a chain of complex chemical processes, why do I care what those processes are? The full meaning of life, the collective meaning of all human desires, is fundamentally a mystery beyond our grasp. As a young man, I chafed at this state of affairs. But by now I have made peace with it. I even feel a certain honor to be associated with such a mystery.” (Recollections, 1992)

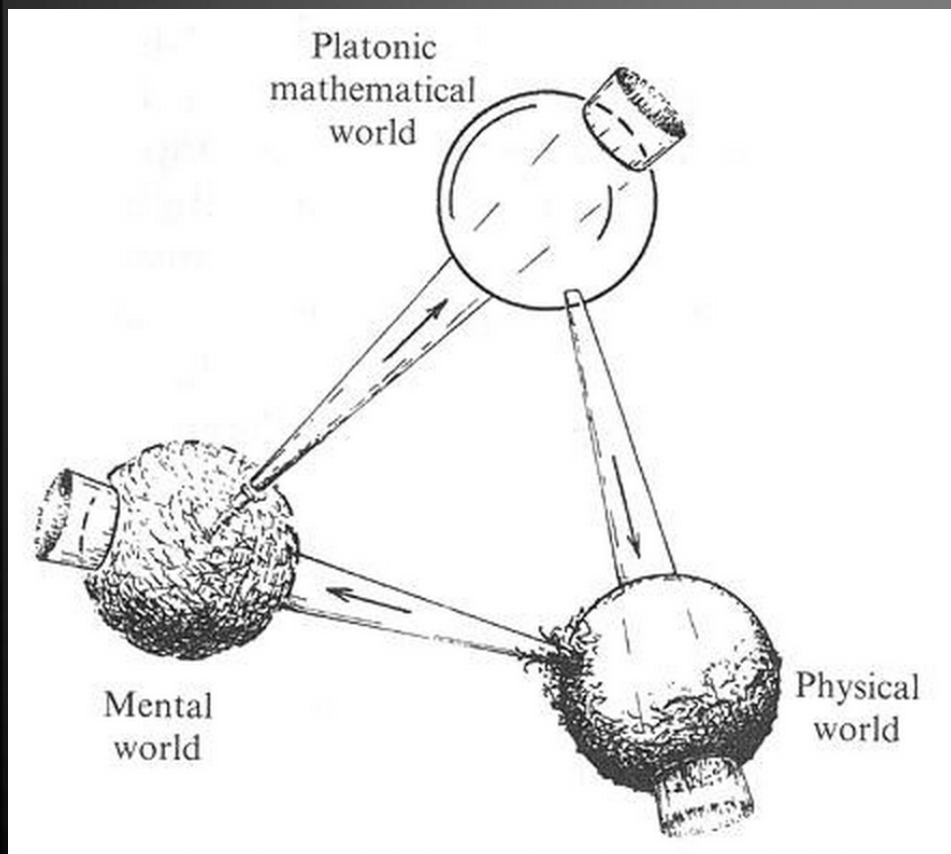


“The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift, which we neither understand nor deserve. We should be grateful for it and hope that it will remain valid in future research...” (“Unreasonable Effectiveness of Mathematics”, 1960)



Roger Penrose (b. 1931)

"I think I would say that the universe has a purpose, it's not somehow just there by chance ... some people, I think, take the view that the universe is just there and it runs along – it's a bit like it just sort of computes, and we happen somehow by accident to find ourselves in this thing. But I don't think that's a very fruitful or helpful way of looking at the universe, I think that there is something much deeper about it."



"Children are not afraid to pose basic questions that may embarrass us, as adults, to ask. What happens to each of our streams of consciousness after we die; where was it before we were born; might we become, or have been, someone else; why do we perceive at all; why are we here; why is there a universe here at all in which we can actually be? These are puzzles that tend to come with the awakenings of awareness in any one of us..." (1999)