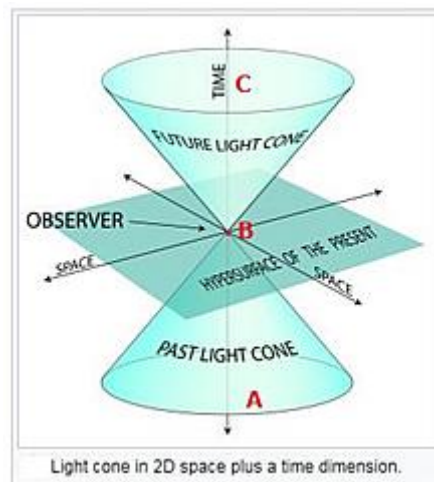


We are here obviously faced with events whose regular and lawful unfolding is guided by a ‘mechanism’ entirely different from the ‘probability mechanism’ of physics. We must be prepared to find a new type of physical law.

Erwin Schrödinger, *What Is Life?* February 1943, p. 28

The Physics of Life: Flipping a Quantum Coin



To understand the physics of life, first we have to understand [Quantum Mechanics](#)⁽ⁱ⁾.

If [Schrödinger’s cat paradox](#) is [difficult](#), look at the light cone from [Wikipedia](#) above and consider flipping a quantum coin. Saul Youssef writes in [quant-ph/9509004v1](#):

The situation before the observation could be described by the distribution $(1/2, 1/2)$ and after observing heads our description would be adjusted to $(1, 0)$. The problem is, what would you say to a student who then asks: “Yes, but what causes $(1/2, 1/2)$ to evolve into $(1, 0)$? How does it happen?”

To understand ‘how it happens’, try to trace back the relativistic history of your observation ‘heads’ $(1, 0)$ from the instant **B** ‘here and now’. Before ‘heads’ $(1, 0)$ happened at instant **B**, the *same* ‘heads’ $(1, 0)$ should have been a quantum coin $(1/2, 1/2)$ in your past light cone **A**, in line with the axiom of causality ([Wikipedia](#)), $A \rightarrow B \rightarrow C$ ([Piotr Chrusciel](#)).

Q: Can you trace back the [quantum coin](#) $(1/2, 1/2)$ in your past light cone **A** ?

1. If your answer is ‘yes’, please explain (i) the dynamics of converting the former quantum coin state $(1/2, 1/2)$ at **A** into definite state ‘heads’ $(1, 0)$ at **B**, and (ii) the history (if any) of the other definite state ‘tails’ $(0, 1)$, which is patiently waiting (where?) for the next (if any) flipping of the quantum coin, to get [50% chance](#) to be observed at some future time and place at **C**.

2. If your answer is ‘no’, please explain why. Do not use schizophrenic “[infinite worlds](#)”, please.

3. If your answer is ‘the question does not have an answer’, please explain why.

My answer to the quiz is (3): the quantum coin (1/2,1/2) is not a fact, like tossing a physical coin *in the air*, and therefore its “qubit” state $\{|1\rangle, |0\rangle\}$ cannot live **anywhere** on the light cone. Even if the quantum beast has one observable ‘face’, like a quantum ball in 1D Hilbert space, it cannot be observed in the quantum “air”, like the intermediate “time” of a photon, “after” it was emitted but “before” it was absorbed (A2 in Slide 19 in Quantum Spacetime).

But where is the “qubit” coin $\{|1\rangle, |0\rangle\}$? What kind of ‘time’ is implied in Schrödinger equation?

As Alfredo Macias and Hernando Quevedo explain in [gr-qc/0610057v1](#), “time in quantum mechanics is a Newtonian time, i.e., an absolute time. In fact, the two main methods of quantization, namely, canonical quantization method due to Dirac and Feynman’s path integral method are based on classical constraints which become operators annihilating the physical states, and on the sum over all possible classical trajectories, respectively. Therefore, both quantization methods rely on the Newton global and absolute time. The absolute character of time in quantum mechanics results is crucial for its interpretation, i.e., matrix elements are evaluated at fixed time (dubbed “filter” below - D.C.), and the internal product is unitary, i.e., conserved in time, and it implies conservation of the total probability. Therefore, time is part of the classical background, which is needed for the interpretation of measurements.”

Fine, but again, is the quantum coin (1/2,1/2) located **anywhere** on **any** light cone, including those that are space-like separated from B ‘here and now’? Read Erwin Schrödinger from 1935:

In general, a variable has no definite value before I measure it;
then measuring it does *not* mean ascertaining the value that it *has*.

Therefore, the quantum coin (1/2,1/2) cannot have definite values, neither before nor *after* (Sic!) we measure it. Surely the quantum coin has two *physicalizable* “jackets” (read below), either ‘heads’ (1,0) or ‘tails’ (0,1), and these “jackets” produce real physical effects. Yet their common ‘coin’ $\{|1\rangle, |0\rangle\}$ cannot be observed, as we know since 1911 (Slide 7).

But again, is the quantum coin (1/2,1/2) **anywhere** on **any** light cone? If not, where *is* it ?

Plato suggested the answer twenty-four centuries ago. In modern parlance, the inevitable non-definiteness of the *uncolored* Kochen-Specker sphere (Helena Granström) is noumenal ‘monad *without* windows’ (Leibniz). It defies any mathematical logic: we cannot determine whether a proposition about *Das Ding an sich* is ‘true’ or ‘false’, because the Noumenon itself does *not* have any ‘windows’ (cf. (iii) below). Read p. 30 and p. 44 in ‘Platonic Theory of Spacetime’ from 4 November 2018 at my [website](#). Both the quantum coin and the Schrödinger cat exist ‘out there’ as Platonic reality known as *Res potentia*. The Moon (David Mermin) also exists ‘out there’, but as physical reality of ‘facts’ (*Res extensa*), placed only in the past light cone A. Thus, every physical fact “definitely either *is* or is *not*” (Erwin Schrödinger, 18 November 1950).

The Platonic *Res potentia* neither *is* nor is *not*. It is a **different kind of reality**, “just in the middle between possibility and reality” (Werner Heisenberg). It quietly resides “inside” the **null intervals**, that is, “between” photon’s emission and absorption (Kevin Brown). It communicates with the physical world once-at-a-time (Slide 7), as recorded with a clock – only at the event B ‘here and now’, and only by its *physicalizable* “jackets”. Forget about those mythical “qubits”.



The generic quantum state $\{|1\rangle, |0\rangle\}$ is Platonic *Res potentia* (see again Slide 7). It cannot be manipulated over a *finite* (not zero) time interval by any inanimate (dead) object. The physical world at the length scale of tables and chairs can “filter” (Sic!) only the *point-like* “jackets”, either ‘heads’ (1,0) or ‘tails’ (0,1), but *never* $\{|1\rangle, |0\rangle\}$. It is impossible *in principle* to employ and control the *unobservable*, *intact*, and *atemporal* quantum state $\{|1\rangle, |0\rangle\}$ *solely* from its fleeting *physicalized* “jackets”. *Sheeple* can only play with “quantum error correction”. Other sheeple, mostly at CERN, are trying to assemble the *proton solely* from its “jackets” (Slide 10), until they fail and declare proton’s *unobservable*, *intact*, and *atemporal* quantum state “dark”.

This is the physics of life (Erwin Schrödinger), without the ‘*verdamnten Quantenspringerei*’ (*idem*, p. 9 in FRAUD.pdf). The “quantum jumps” are inevitable *artefacts* from the “filter” above. Dead matter makes quantum jumps; the living-and-quantum matter is smarter. RDFM.

Needless to say, the physics of life cannot be understood without gravity. Many people are brainwashed with the current textbooks in General Relativity, and will claim that gravity is classical phenomenon, because it always has definite values, both before we measure it and after we measured it. But what makes up ‘gravity’ to become *geometric*, and not physical, “field”? What is the *origin* of gravity? Let’s try to find out what this phenomenon is not.

The origin of gravity is not some quantum phenomenon, like the quantum dice above, but the origin of gravity is not some force field either: read the first paragraph in p. 45 and follow the links. Surely the physical *contributions* to gravity, placed in the right-hand side of *Einstein field equations*, have *always* definite values, like the ‘heads’ (1,0) and ‘tails’ (0,1) above, but the left-hand side contains an *entirely* different, neither quantum nor classical, animal. Many people consider “intuitively clear” to interpret this brand new object as ‘pure geometry’, like the grin of the Cheshire cat *without* the cat (p. 15), but here’s the catch: “There is no spring or sink *everywhere* (emphasis mine - D.C.) in spacetime for matter (particles’ plus electromagnetic field’s) energy-momentum” (Zhaoyan Wu), which could be reserved *exclusively* for gravity, so that gravity could employ such “spring or sink” to *interact* with matter and fields, say, with a plastic bottle (p. 21) or with “a bead on a stick” (Richard Feynman). We face the same puzzle in the physics of the *human brain*: if the mind were able to interact with brain’s tissue, then the mind will be a *bona fide* physical field. But how could *geometric* things interact with matter?

The only possible solution – *Gravity-Matter Duality* – requires Platonic theory of spacetime. The quantum-gravitational *Res potentia* does not live anywhere on the *light cone*, but only “inside” (pardon my French) the event B ‘here and now’. We can observe only its *physicalized* “jackets” (p. 3 in CEN.pdf), and only *post factum* (A2 in Slide 19 in Quantum Spacetime), only *after* they were cast in our past light cone A – one-jacket-at-a-time. We may detect these *gravitalized* “jackets” iff their detector is endowed with *self-action*, just like the self-acting *human brain*. Forget about the fake “GW astronomy”. We need *Quantum Gravity*. Welcome aboard and RDFM.

If you are not interested in Mathematics and theoretical physics, and are only curious about the basic principle of the physics of life, check out p. 4 and the *continuum* on p. 39 in the “manual”. The quantum-gravitational, *atemporal*, and **pre-geometric** *Res potentia* springs “within” every geometric point/event, that is, “between” photon’s emission and absorption (Kevin Brown). Its duration, recorded with a *physical* clock, is **zero** – read the Greek story on p. 31 *therein*. In the so-called Arrow of Space (p. 7), time comes from *both* ‘change in space’ (the coordinate time, recorded with clocks) *and* ‘change of space’. The latter is *completely* nullified, being “inside” every geometric point/event. Hence we have *perfect* (Sic!) spacetime continuum in the **light cone**, whereas the Platonic *Res potentia* is shifted to the **potential** future (see the carrot below). It is accessible only to the living and quantum-gravitational world (p. 7). All you need is a **brain**. You don’t have to learn exotic techniques like **meditating on a rock** or solving **differential equations**: spacetime engineering works like a **black box** (p. 43; see also Slide 14).



Fig. 10, p. 11 in CEN.pdf

You only have to swing the carrot (**potential** future) toward your desired destination, and the **donkey** will carry you and the cart there.

In a nutshell, every **next** event ‘here and now’ along the **Heraclitean flow of events** is **jointly** determined by its irreversible history and **potential** future. This new form of *retarded* causality (the cause and its effect are **timelike separated**) was called ‘biocausality’ in January 1990. The **potential** future (the “carrot” above) is, of course, *Res potentia*. It is always *flexible* (p. 33), and we can practice spacetime engineering effortlessly (p. 38), by altering the *phase* of the “carrot”. It (not “He”) is *atemporal pre-geometric Res potentia*, resembling a single geometric point stretched to infinity. It does not have metric, so it is neither “small” nor “large”, just as we cannot measure the Platonic *ideas* of a tree and a mountain, to find out which one is larger or heavier. It is simply ‘the grin of the Cheshire cat *without* the cat’ (p. 15) and ‘that which has no part’ (Euclid). Just like the human **thoughts**, it has no mass and no inertia. All humans have access to the mental **correlates** (*qualia*) of *Res potentia*, and these *correlates* build up our subjective world called *Res cogitans*, whereas the inanimate quantum-gravitational world is only bootstrapped by its *Res potentia*. If we get access to the “carrot” of **steam turbine rotors** in **nuclear power plants** and to its mental *correlates* (*qualia*), we should be able to “swing” the **entangled** (Sic!) carrot-and-rotor by gravitational rotation *effortlessly* (p. 35) and produce electricity without water supply, steam, or hazardous **nuclear fuel**. It shouldn’t be a problem to rotate a chunk of metal – gravity can *effortlessly* rotate a **whole galaxy en bloc**. This is just one possible application of spacetime engineering. Many people may not like it, but recall that the only available alternative would be to invest *every year* **€180 billion** in renewable energy, energy efficiency, and clean transport until 2030 (p. 38). That’s **€2.16 trillion**. Read my mind.

In summary, we can *evoke* the appearance of various *physicalized* “jackets” (p. 3 in [CEN.pdf](#)) of Platonic *Res potentia* at macroscopic length scale, producing unlimited and perfectly clean energy (pp. 38-45): read p. 9 in [Gravity-Matter Duality](#). If the gravitational rotation [above](#) seems a bit too exotic, recall the quantum vacuum ([Peter Milonni](#)): “all fundamental fields, such as the electromagnetic field, must be quantized at each and every point in space” ([Wikipedia](#)). Fine, but each and every point in space acts like a “filter” (read [above](#)) for *physicalizable* “jackets”, and this “filter” *irreversibly* eliminates the Platonic *Res potentia*, depicted with the “carrot” [above](#): the relation between [QM operators](#) and ‘points in spacetime’ is like one-way street, in the sense that we cannot recover the hypothetical ‘quantum state’ from its point-like “jackets” cast by the quantum coin $\{|1\rangle, |0\rangle\}$ [above](#). With spacetime engineering, we can avoid those “quantum jumps” ([Erwin Schrödinger](#)) and access the **intact complex phase** of what we call ‘**virtual particles**’, then carefully tweak it and *evoke* the appearance of real physical stuff at macroscopic length scale. The latent energy pool stored in the vacuum is just [mind-boggling](#). For example, if we could somehow capture all energy from GRB 080916C and convert it into electricity at 100% efficiency, it will supply the entire planet for 13.10^{27} years ([Wikipedia](#)). The trivial law of [energy conservation](#) is not applicable here ([Paul Steinhardt](#)): the *physicalized* part of the Universe is not ‘**isolated system**’, because it is coupled to Platonic *Res potentia*. I have suggested a new equation, dubbed ‘**evolution equation**’, but it is still in symbolic form (p. 40). We need new Mathematics and new presentation of ‘zero’ ([Macavity](#)), in the first place.

Many [sheeple](#) strongly oppose my proposal and [ignore it](#), but that’s quite a different matter. As of today, people can [tweak electronic devices](#), freeze water (p. 19), and [fly in the air](#) over the streets of London. There is no sense to keep silent and pretend that this is some weird “magic” that should be studied only by special government agents behind closed doors. The underlying phenomena are known since 1911, thanks to Charles Wilson ([Slide 7](#)), and were studied by [Erwin Schrödinger](#) in 1935. There’s no “magic” in chemistry (p. 44), right?

Finally, I wish to explain why I wrote this paper. Back in November 1989, I completed my first manuscript on the physics of life, entitled: ‘How to Bind Mind to Matter?’. It was dated [15 January 1990](#), to mark eighteen years of study and research, which I started in January 1972, at age 19. I am old and probably won’t be around to witness the devastating [climate catastrophe](#), but many younger people, including my loved ones, will. I feel like being brutally forced, along with my children and grandchildren, to take a seat in a rubber boat, surrounded by a bunch of crazy idiots, who enjoy rafting on a mountain river toward a gigantic waterfall a few kilometers ahead (p. 38). I can only shout at these morons to stop immediately *our* boat, before it is too late. For if we pass the [tipping point](#), we will be dead close to [Climageddon](#) and [WWIII](#). Don’t even think that [WWIII](#) cannot happen because governments were “smart”. [They are not](#).

Now, thirty years ago, I was speculating about the physics of life and quantum gravity, but nobody showed any interest, maybe because these issues looked purely academic. But now the situation is totally different (p. 45). We *all* are in the same ‘boat’, but we’re not building clean energy anywhere near fast enough: “At this rate, it’s going to take nearly 400 years to transform the energy system” (James Temple, [MIT Technology Review](#), [14 March 2018](#)). Forget it. Read [Bjorn Lomborg below](#).

What will you do, my dear reader? Do you care about your kids? They will have **miserable** life. Don’t say that you [see nothing](#), [hear nothing](#), [know nothing](#), and keep rafting on [Niagara River](#).

There is no alternative to the proposal for clean unlimited energy from [March 1994](#) (p. 9). This is what Mother Nature does, by unleashing mass-energy from the quantum-gravitational **vacuum**. This is how the Universe was created **by itself** (read [below](#)) at the Beginning ([John 1:1](#)). **RDFM**.

ADDENDUM

I believe it is not entirely impossible that one day in the distant future there will be people interested in Platonic theory of spacetime, and they will be studying the ‘[manual](#)’. But before diving in the details, such as the so-called hyperimaginary numbers, the atom of geometry, Finite Infinity (FI), Maximal Set Theory (MST), the doctrine of *trialism*, physical theology, and the evolution equation (still in symbolic form), you should know whether it is worth your time. As a friend of mine put it (Stavros, [p. 31](#)), “But where’s the beef? And what can I cook from it?”

Perfectly reasonable questions. Let me try to answer the first one and suggest what you could ‘cook’ from Platonic theory of spacetime. Needless to say, I offer my personal, and perhaps strongly biased, opinion. Take it with a grain of salt.

There is an enormous, perhaps unlimited, treasure ‘out there’, and we only need a navigation map to find it. This ‘map’ is our theory. Let me show you ‘the beef’: the Platonic *Res potentia* (read [above](#)). It is not physical reality (*Res extensa*) nor mental thing (*Res cogitans*). It creates and controls the entire physical world ([p. 26](#)) modeled as ‘Brain of the Universe’. Keep in mind that there are three very different “components” of what we call Platonic *Res potentia* ([p. 11](#)): (i) the observable and *physicalizable* “[jackets](#)”, such as the ‘heads’ (1,0) and ‘tails’ (0,1) [above](#), (ii) their unobservable, **intact**, *atemporal*, and **pre-geometric** source (‘the matrix’, [p. 5](#)), and (iii) the noumenal ‘monad without windows’ or *Das Ding an sich*. The latter is ‘non-reality’, and it (not “He”) is *not* comprehensible with human cognition (the Eskimo, [Slide 14](#)). It can only be described mathematically ([p. 30](#)), hopefully.

Regarding (i), recall that in QFT we can have “superposition” of $|\text{cat}\rangle + |\text{dog}\rangle$ (Erich Joos), whereas their sub-quantum matrix (cf. (ii) above) covers all possible ‘[animals](#)’. Hence we can suggest (not define) the *undefinable* matrix pertaining to ‘the Universe as ONE’ ([pp. 29-30](#)). A simple *illustration* of the “[jackets](#)” (i) is offered with their mental *correlates* (*qualia*): check out the experiment, which you can perform with your brain, at [p. 2](#) in [Hyperimaginary Numbers](#). The matrix (ii) is demonstrated on [p. 3](#) therein and also in Slides 10, 11, and 12 from [Quantum Spacetime](#). It cannot *in principle* be located on the [light cone](#). In this sense, the *self-acting* matrix is “[dark](#)” ([Macavity](#)), as it cannot be traced back from its **gravitalized** “[jackets](#)” [above](#).

In fact, none of the physicalized explications of ‘time’ (Arthur S. Eddington) can be used to trace back their common source – ‘that which moves without being moved’, Aristotle. Just like [Macavity](#) and the ‘monad without windows’ (iii), the **self-acting** Unmoved Mover cannot be located on the [light cone](#), which is what makes it “[dark](#)”. Otherwise it will be at absolute rest and will fix an absolute *physical* reference frame, contrary to the theory of relativity ([p. 31](#)).

These are the facts, to name a few. What can you ‘cook’ from them? [Save the planet](#), of course!

[Bjorn Lomborg](#) warns us that even “if *every nation* fulfills *every promise* by 2030, and continues to fulfill these promises faithfully until the end of the century, and there is no ‘CO₂ leakage’ to non-committed nations, the entirety of the Paris promises will **reduce temperature rises by just 0.17° C** by 2100.” The 2015 Paris climate agreement [cannot achieve its goal](#). No way. Not even if we manage to squeeze our budgets and produce **€2.16 trillion** until 2030 (read [above](#)).

The only possible solution – [spacetime engineering](#) – is in your hands.

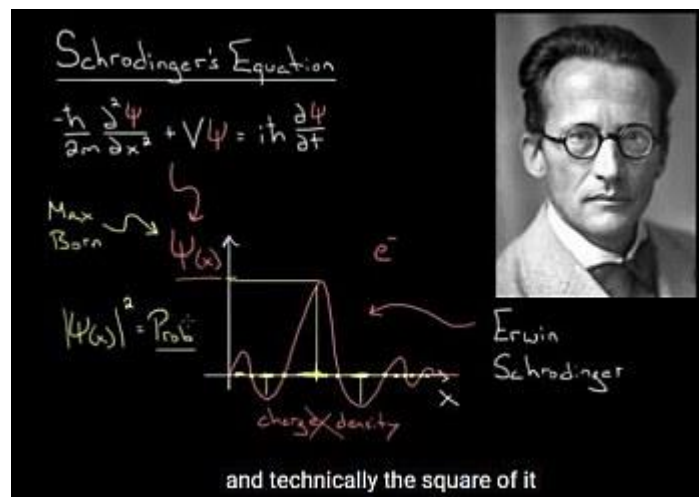
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Cf. *Platonic Theory of Spacetime* ([about_spacetime.pdf](#)), 46 pp., 4 November 2018, at [this http URL](#).

EXPLANATORY NOTE

The “components” of what we call Platonic *Res potentia*, (i) - (iii) [above](#), and their exploration with spacetime engineering (read [above](#)), need an **KISS** explanation. I will assume that you’ve read the abstract at [this http URL](#) and will try to explain the first, and perhaps most challenging and “counterintuitive”, proposition in Platonic theory of spacetime: the vacuum. Let me start with the **quantum vacuum**, and later will explain the so-called cognitive vacuum. Finally, I will refer to the doctrine of *trialism* ([Slide 14](#)) to suggest cognitive-and-quantum vacuum, which is the crux of **spacetime engineering**.

Unlike technical vacuum (e.g., the absence of oxygen in [light bulbs](#)), the notion of ‘vacuum’ in theoretical physics still doesn’t have mathematical presentation: the trivial idea of ‘empty set’ is defined *relationally*, with respect to ‘something that is absent’, whereas we need a brand new notion of non-relational or “absolute zero”, as in the case of *Macavity* at [this http URL](#). Physically, we can detect only various “jackets” cast from/by their common source: the matrix (see (ii) [above](#)), dubbed also ‘**John**’. Physically, the matrix is ‘vacuum’ defined as non-relational or “absolute zero”. Recall also the still-*not*-squared quantum wave amplitude ([KhanAcademy](#)):



It is not ‘physical reality’ (read [above](#)). It is the “absolute zero” of *Macavity*: *atemporal* Platonic *Res potentia* (read [above](#)), dubbed ‘the matrix’ – see (ii) [above](#). Physically, it is just ‘vacuum’.

To avoid misunderstandings, let me explain what the matrix is not. Back in 1970s, I would go to the National Library in Sofia, say ‘hello’ to the librarian there, and ask for particular book. After a few minutes, she would bring the book and give it to me, under the condition that I will read it only in designated reading rooms there, and by the end of the day will give it back to her. Sure enough, *the same* book was somewhere in the library, at some *exact* place. This is the physical ‘structure’ (not matrix) of the library, thanks to which every book can be retrieved. (Recall the insoluble problem of ‘structured information’ in artificial intelligence (AI), which is not present in cognitive vacuum, as I will explain later; see p. 2 in [Hyperimaginary Numbers](#)).

Now, what would the library look like, if it were ‘vacuum’ governed by its [Platonic matrix](#)? We can only *evoke* the appearance of *physicalized* “books” or “[jackets](#)”, but we can never see the library/vacuum itself, nor the still-*not*-squared quantum wave amplitude of any “virtual”, yet to be physicalized, book/jacket. It will make to sense to “count” the *physicalizable* “books” in such vacuum-like library. There is no ‘librarian’ either. Yet we can easily *evoke* the appearance of our desired “books”, thanks to their *atemporal* matrix: see p. 3 in [Hyperimaginary Numbers](#). To understand how the *atemporal* Platonic matrix works, see Slides 10 and 12 from [Quantum Spacetime](#). In the living world (Slide 11 [therein](#)), *the same* matrix works flawlessly as well. Suppose, for example, that you are slicing onion with a kitchen knife and accidentally cut your finger: you put a plaster on it to heal faster and after a few hours it won’t bleed, and on the next day your skin will recover completely. Trivial, you may say, but recall that there is no computer and [custom-made software application](#), which can be inserted in every [skin cell](#) to execute such process, *just* in case you cut your finger. That would be like retrieving books from the physical library above, based on the physical *structure* of the library. Thus, the biological and quantum *matrix* are ‘John’s memory’ stored in the ‘vacuum’: we observe only its ‘[jackets](#)’.

But what is ‘cognitive vacuum’? Try the experiment at p. 2 in [Hyperimaginary Numbers](#). Its cognitive *matrix* produces invariant ‘meaning’ among all people, despite the differences in the structural and functional organization of their brains viz. their different neurophysiological “[jackets](#)”. This cognitive vacuum doesn’t change alongside your aging body: for example, once you remember the *meaning* of ‘apple’, you will always keep it in your *atemporal* memory. It is not made from the elements in the [periodic chart](#), so it cannot be eaten by worms, after you drop down your deteriorated “jacket” (get off the train, [p. 31](#)). It *always* produces the [qualia](#) from its biological and quantum-gravitational matrix, and works like a **black box** – read [above](#).

All you need is to apply the doctrine of *trialism* ([Slide 14](#)) and suggest two complementary types of ‘vacuum’, called cognitive-and-quantum vacuum, and you’re done. Namely, you’ll have to *bridge* your chosen quantum-gravitational matrix with the matrix of your [brain](#), and the latter will offer you a new mental *correlate* ([quale](#)) from this ‘bridge’. Then you can work with it and practice [spacetime engineering](#), just as if you’re learning a new motor skill. It is called learning. Simple, isn’t it? Check it out with the exercise below (p. 8 in [HBP.pdf](#)), which involves only the biological matrix of your [brain](#) and its complementary cognitive matrix.

Imagine a cube made of some white plastic material, with 3 cm rib, painted blue, which you cut into 27 little cubes, 1 cm each, and ask yourself the question: how many little cubes have 3 painted sides, 2, 1, and zero?

Compare this exercise with the demonstration by Flavian Glont, who can arrange approximately [43 quintillion](#) ($43 \cdot 10^{30}$) permutations of the Rubik Cube blindfolded: watch [6:33 to 6:38](#) below and noticed that at the end he was “looking” (Sic!) at cube’s *cognitive matrix* for nearly 2 sec.



To reach the quantum-gravitational matrix and its complementary [cognitive matrix](#), you don't have to learn and master any special skill – only the Platonic theory of spacetime (p. 38), to give you access to the *atemporal* 'bridge' [above](#). It is not “magic” nor [yoga](#) (p. 43). It is based on the physics of life and *the* only possible theory of quantum gravity (p. 4).

What can we produce with [spacetime engineering](#)? Enhanced nanotechnology and natural healing, for example, may require the same effort as in rotating the [mental cube](#), “looking” at it, and counting its colored sides. But most importantly, we can [save our planet](#), right now!

Finally, let me elaborate on the main premise in the physics of life, stated by Erwin Schrödinger in [February 1943](#): “We must be prepared to find a new type of physical law.” The *physicalized* section of the Universe is incredibly [fine-tuned to life](#), as if it had *known* how to get organized, even from the Beginning, in order to raise living organisms billions of years later. The doctrine of *trialism* ([Slide 14](#)) offers the alternative to the so-called [anthropic principle](#): matter and psyche spring from their common source, in such way that *the only possible* organization of matter is also *the* optimal one, to both matter and psyche. The ‘[probability mechanism](#)’ of physics is totally inadequate. It makes no sense and only leads to *reductio ad absurdum*.

As [Fred Hoyle](#) once remarked, the random emergence of even the simplest cell matches the likelihood that “a tornado sweeping through a junk-yard might assemble a [Boeing 747](#) from the materials therein.” This is why we need the [Platonic Res potentia](#) viz. the *matrix* common to quantum-gravitational *and* living systems: God casts the matrix, not the dice (p. 26). Check out Slides 10, 11, and 12 from [Quantum Spacetime](#). Once we uncover the quantum-gravitational matrix, which guides the creation of positive energy only, and *never* ‘[negative mass](#)’, we will know how to mimic Nature and produce unlimited clean energy with [spacetime engineering](#).

This is how we can [save our planet](#) and avoid [Climageddon](#) and [WWIII](#). Ignore it at your peril.

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8 November 2018

Last update: 22 December 2018, 14:06 GMT

P.S. A friend of mine (p. 31) asked recently whether he could learn spacetime engineering without the hassle of reading “[your crazy stuff](#)”. Suppose you wish to learn how to juggle three balls: watch the ‘manual’ at [YouTube](#). However, suppose you cannot see the balls, and actually have three spoons at your disposal. You only *believe* that you’re dealing with balls, but they are in fact spoons. Then suppose you *believe* that you will be tossing balls (not spoons) in the air, but you have feedback from your legs only, because you are blindfolded and can’t see anything. You try to move your arms and toss the balls in the air, but in fact you’re moving your legs and kicking three spoons on the floor. What skill could you achieve without that “[crazy stuff](#)” [above](#)? Try [meditating on a rock](#) instead.

Anyway. If you are only vaguely curious about [spacetime engineering](#), and are not interested in any ([very important](#)) details, I can certainly try to explain it. I’d like to imagine that you are a gorgeous sexy lady and we are casually chatting in a French restaurant over a glass of wine or five. (This hasn’t happened so far, but maybe one day it will – we can never know the future!)

Suppose we have a bunch of apples here on the table:



The bag above is what we call a ‘set’. The bag is not made of apples, so we can “remove” it and replace it with ‘knowledge’. Knowledge of *what*? Apples, of course. (Here I’d be tempted to ask whether she has heard of QM, because some people like [Niels Bohr](#) avoid *physical* apples and try to replace them with ‘knowledge’ of $\{|1\rangle, |0\rangle\}$, but I guess she won’t be interested.) Suppose that there is a holistic phenomenon in our world, which we try to explain by saying ‘the whole is *something else* than the sum of its parts’ ([Kurt Koffka](#)). Namely, the thing we’d call ‘bag’ is the ‘*wlohe*’: read the text in [Slide 11](#). It is like a *holistic* forest made of trees, in the sense that every tree is feedback-influenced by the entire forest *en bloc*. Thus, the trees (not the apples above) are what they are (i) *partly* because of their physical structure, and (ii) *partly* because of their holistic forest. The latter keeps the matrix ([p. 33](#)) of all trees. What is ‘matrix’? Do you know how to slice onion with a kitchen knife? Let me explain (read [above](#)). This is *the matrix*. Once you catch it with your [brain](#), you will experience it as ‘knowledge + *something else*’, and will be able to alter the physical state of every tree *via its forest/matrix*. Simple, no? Cheers!

If you wish to learn more, check out Yakov P. Terletsii and Max Tegmark at [this http URL](#). The global “time” of John (pictured [here](#)) is **always zero** ([p. 14](#)). William G. Unruh and Robert M. Wald examined this nondynamical “time” in October 1989 (Time and the interpretation of canonical quantum gravity, *Phys. Rev. D* 40 (1989) [2598-2614](#)). Adam Helfer called it [Macavity](#). It (not “He”) is not ‘physical reality’ and therefore cannot exist on the light cone (read [above](#)). Physically, we can see only its “[jackets](#)” or “shadows”, as Plato suggested many centuries ago ([p. 11](#)). At the inanimate macroscopic world, modeled with classical physics, the bootstrapping effect of the ‘bag’ [above](#) is miniscule: the matrix (see (ii) [above](#)), stored in apples’ “forest”, offers only [infinitesimal](#) flexibility to the “donkey” [above](#). This trivial case is labeled Case I in Table 1, p. 14 in [The Spacetime](#). The living and quantum-gravitational world is smarter ([p. 40](#)).

As of today, the only reaction to my proposal for unlimited clean energy ([p. 9](#)) came from my kids: stop banging your head against a wall. I’m afraid this advice holds also to [Bjorn Lomborg](#). Nobody cares. **Nobody**. There is nothing I can do to avoid the upcoming climate catastrophe. Will wash my hands of it and try to ‘[leave the boat](#)’, along with my family, as soon as possible.

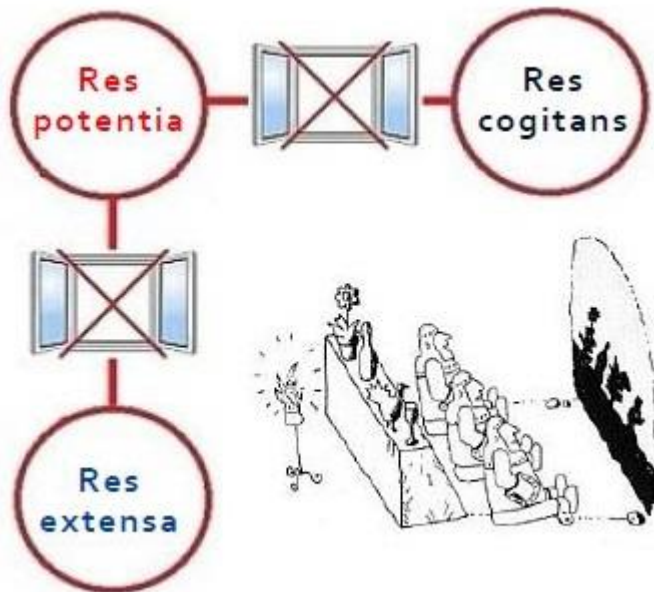
I wish all my readers (if any) a very happy and joyful Christmas.

D. Chakalov

10 December 2018

Last update: 22 December 2018, 14:30 GMT

THE DOCTRINE OF TRIALISM



Slide 14 in [Quantum Spacetime](#)

Matter gives Mind life and cognition; Mind gives matter the [arrow of Time](#) – *Der Geist bewegt die Materie*, Virgil.

The doctrine of *trialism* (p. 8) was suggested by the author of these lines in April 2000. It may be “counterintuitive” (p. 44), because it blends the proposal by Plato (p. 11) with the phenomenon of dualism (e.g., [wave-particle duality](#)). Here’s a brief explanation.

Suppose you are Eskimo. You have never seen and will never see an elephant in your life, yet you can make observations on elephant’s trunk with two devices measuring either properties of *your* arm or properties of *your* nose.

You can never imagine the common source of your arm (*Res cogitans*) and your nose (*Res extensa*), which you blindly called “trunk” (*Res potentia*), because the latter does not have arm-like windows nor nose-like windows: it (not “He”) is ‘the true monad without windows’ (Leibniz, [Monadology §7](#)). You may suggest, after Leibniz, that what you see as ‘arm’ (*Res cogitans*) is always *pre-correlated* with what you see as ‘nose’ (*Res extensa*) by [pre-established harmony](#). But again, you’re Eskimo and can never imagine the ‘trunk’ (*Res potentia*), thanks to which, even at the Beginning, the ‘nose’ (*Res extensa*) had already “known” *exactly* how to get organized in order to raise biological organization of matter equipped with ‘arm’ (*Res cogitans*) billions of years later (details [above](#)). In this sense, the biological organization of matter acts like “filter” for life and facilitates the emergence of [mind and cognition](#) at [macroscopic scale](#).

To understand the notion of ‘windows’, recall that a physical library always has ‘windows’, thanks to which every book in it can be retrieved (read [above](#)). If the vacuum (Peter Milonni) were made of *physical* particles (like books in [physical library](#)), its energy density would be 10^{13} joules per cubic meter ([Wikipedia](#)): “the worst theoretical prediction in the history of physics!”. (M.P. Hobson *et al.*) Ditto to *Res cogitans*: there are no ‘windows’ to what we call Noetic world, because we face here the UNSpeakable cognitive vacuum. We can always pull out particular ‘meanings’ from the cognitive vacuum (read [above](#)), yet it (not “He”) is cognitive-and-quantum vacuum, or simply ‘trunk’. It makes the so-called ‘bridge’ in [spacetime engineering](#) (pp. 38-45). Which means that we can employ the existing *matrixes* (read [above](#)) or create new ones at will.

Yes, we have unlimited pool of *physicalizable* energy stored in the ‘trunk’. Yes, we can [save our planet](#) and avoid [Climageddon](#) and [WWIII](#). Don’t ever say that you knew nothing about it. Period.

As to the doctrine of trialism itself, feel free to denounce it by suggesting any solution different from the *dual* “trunk” [above](#). You will face the insoluble problem with [infinite regress](#), known as ‘[turtles all the way down](#)’. Aristotle was fully aware of it: recall the Unmoved Mover (iii) [above](#). Physically speaking, the Unmoved Mover makes ‘the Universe as ONE’ [self-acting](#) (read [above](#)).

This is how the Universe was created **by itself** at the Beginning ([John 1:1](#)). Theologians would argue that the solution to ‘[turtles all the way down](#)’ is some ultimate limit, which we call God ([Luke 17:21](#)) and interpret as *Love* ([1 John 4:8](#)). This means that Nature has only one limit to ‘[turtles all the way down](#)’, which can be envisaged *only* from the ‘arm’ (*Res cogitans*) [above](#). Physicists would argue that the ultimate limit does not lead to God but to Aristotelian [Unmoved Mover](#), which can be envisaged *only* from the ‘nose’ (*Res extensa*) [above](#). But here comes the third solution: the ‘limit’ has *dual* nature, and both theologians and physicists are right. Why? Because we’re [Eskimos](#). We need new Mathematics ([p. 18](#)) to *present* the Unmoved Mover as purely mathematical concept. We could not prove the existence of ‘unmoved mover’ with any mathematical theorem, because its operational definition will involve undecidable propositions, which are neither provable nor refutable, as in [Gödel’s theorems](#). Thus, we can only claim that the doctrine of *trialism* unites the aspirations of theologians and physicists, and stress that any effort to understand Nature is ultimately rooted on *belief*. It is the ultimate cutoff on human cognition. For if Nature was infinitely comprehensible, we would be asking questions about its origin, purpose, reason, etc., *ad infinitum* ([p. 30](#)). Thank God, this is impossible.

Taking again the risk to be very boring, I will briefly outline the origin of *trialism*: the topology of spacetime, based on two *complementary* types of ‘infinity’, actual/completed and potential. The latter is demonstrated with [infinite regress](#), commonly known as ‘[turtles all the way down](#)’, whereas the former is used in calculus to *infer* – but *never* prove – the existence of ‘limit’. As explained in [Wikipedia](#), “In mathematics, a limit is a *guess* (emphasis mine - D.C.) of the value of a function or sequence (...).” Recall the story about bartender’s guessing ([p. 15](#)) below.

An infinite ([actual infinity](#)) crowd of mathematicians enters a pub. The first one orders a pint, the second one a half pint, the third one a quarter pint...
“I understand”, says the bartender – and pours two pints.

We all can understand the notion of limit at which we must ‘stop there’, but cannot *rigorously* prove it, because potential infinity is based on [infinite regress](#), which does not ‘stop’ anywhere. Thus, we *believe* that the two types of infinity complement each other (recall the [wave-particle duality](#)) and use them *en bloc*. To cut the long story short, the alleged Archimedean numbers, which do not contain [infinitesimals](#) and hence present one single geometric point, cannot exist. Check out the real number line on [p. 39](#), Finite Infinity (FI) on [p. 3](#), the ‘atom of geometry’ on [p. 17](#), and the discussion on [p. 44](#).

Going back to the doctrine of *trialism*: the “two” limits, which theologians and physicists suggest either from the ‘arm’ (*Res cogitans*) or from the ‘nose’ (*Res extensa*) [above](#), are fused in one *dual* limit, which is not comprehensible to Eskimos. It will be useless to argue whether the ‘trunk’ is God or ‘the Universe as ONE’. It’s both. It exists “inside” us ([Luke 17:21](#)), by the virtues of [actual infinity](#) (cf. the holistic forest [above](#)), yet it cannot be *physically* reached due to [potential infinity](#), not even with Gedankenexperiment. All our efforts to understand Nature are ultimately rooted on *belief*. We can argue that Nature is smarter than [Eskimos](#), but this statement is also based on *belief*. We cannot completely overlap ontology and epistemology. Thank God, this is impossible.

You may again ask, do we really need all that “[crazy stuff](#)”? The choice is yours – read [above](#).

D. Chakalov
25 December 2018
Last update: 31 December 2018, 08:35 GMT

ⁱ Download the latest version of [q_coin.pdf](#) from my website at [this http URL](#).