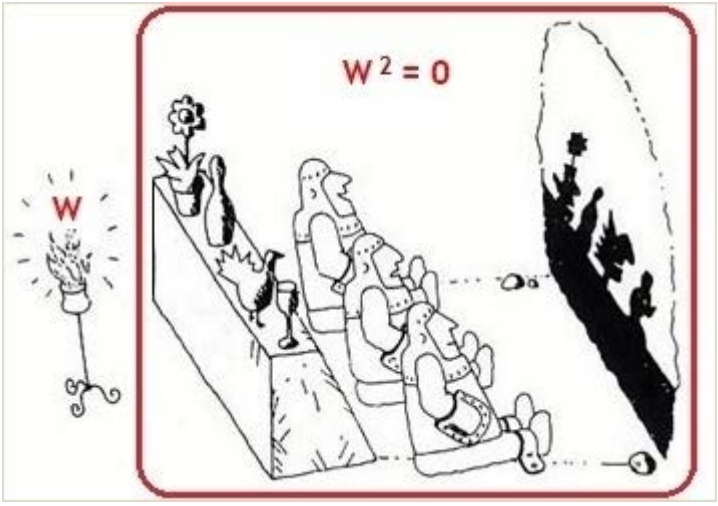
# The General Rule **1** + **0** = **1**

On p. 2 in *Gravitational Energy* (wegtransformierbar.pdf), I wrote:

> The quantum-gravitational 'John' is *wegtransformierbar* **Platonic** reality: at any consecutive instant from the *observable* metric time τ (C. Rovelli), the *intangible* energy of the gravitational field (H. Bondi) is *already* (Sic!) converted into *perfectly* tangible, localizable ***positive*** energy in the *right-hand* side of EFE, and the **Platonic** state of gravity, dubbed 'John', is *completely* **re-nullified** – once-at-a-time τ, as read with a clock. This is 'the new normal' ***gravitalized*** state at which "the gravitational field delivers no energy or momentum to the nongravitational matter" ***anymore*** (H. Ohanian). Will do it again, at the *next* instant τ viz. at the **next** 'new normal' ***gravitalized*** state.
>
> The general rule is very simple: the **Platonic** world is presented as 'John' in Schrödinger's cat and with '**zero**' in Macavity cat. In symbolic terms, **1 + 0 = 1**: the probabilities for observing John's ***jackets*** sum up ***exactly*** to **1**, whereas the chance to observe 'John' itself is ***exactly*** **zero**, as with the *wegtransformierbar* elephant.

**NB**: Something *will* happen with certainty (unit probability), but at the expense of eliminating **John** itself, as the latter *always* has ***exactly*** **zero** probability to show up in the *physicalized* 4D world, as explained by Plato with the drawing below. Hence the general rule **1** + **0** = **1.**




Read p. 13 in *The Physics of Life* (Intro.pdf).

To explain the *wegtransformierbar* quantum-gravitational 'John' mentioned above (suggested in April 2000), I will repeat the idea.

Suppose you chase a guy (John) on the street. In a two-dimensional Hilbert space, you believe can *fully* catch/measure John. But he will always leave in your hands only ***one*** of his "jackets", one-at-a-time. You will *never* catch John himself. In a two-dimensional Hilbert space, John offers only two *physicalizable* viz. *colorizable* "jackets", either |heads> or |tails>. Stated differently, John will have two Leibnizian 'windows', which will be called modes of explication in Hilbert space.

But if the dimension of the Hilbert space exceeds 2, you will hit the Gleason's Theorem and the Kochen-Specker Theorem. Now John has *three* modes of explication, and we cannot in principle *fully* measure John's jackets. Namely, the *physicalizable* viz. *colorizable* "jackets" can cover only **69%** (Sic!) from the Kochen-Specker unit sphere below.

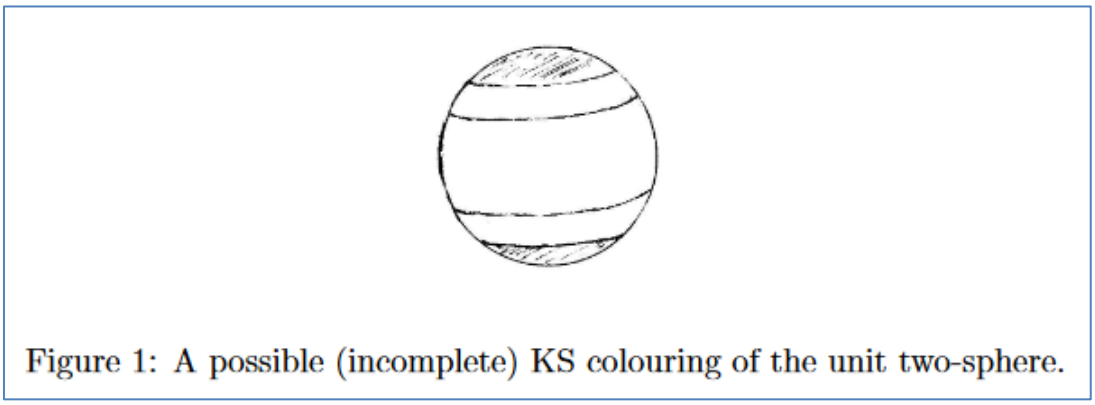


Figure 1: A possible (incomplete) KS colouring of the unit two-sphere.

Read Helena Granström, Some remarks on the theorems of Gleason and Kochen-Specker, arXiv:quant-ph/0612103v2, p. 2.

**31%** of John's jackets will be **UN**colorizable and **UN**decidable. That is, they *cannot* and will *not* possess "an unequivocal true-false value" in

$$\dim(\mathcal{H}) > 2.$$

They all will be ***excluded*** from the Hilbert space, and the general rule **1** + **0** = **1** (see above) will be applicable to only **69%** of John's ***jackets***.

I will try to illustrate only the idea of Kochen-Specker Theorem. Think of a chair, which has no more and no less than three legs. Call the three legs Tom, Dick, and Harry. Each of them can obtain any of the three colors **red**, **blue**, and **green**, shown in the table below at right, provided that Tom, Dick, and Harry will always have *different* colors.


| Tom | Dick | Harry |
|---|---|---|
| RED | BLUE | GREEN |
| RED | GREEN | BLUE |
| BLUE | RED | GREEN |
| BLUE | GREEN | RED |
| GREEN | RED | BLUE |
| GREEN | BLUE | RED |

The table above, showing the *complete* coloring of the tripod, match only **69%** of John's jackets above. The rest are just **impossible**, which means that **31%** of John's jackets will ***not*** correspond to *any* 'tripod'. So, it *cannot* belong to the Hilbert space! But then what does it mean?

Recall Erwin Schrödinger from 1935 (Sec. 8, Part One):

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

It means that the **intact** Platonic *wegtransformierbar* **UN**decidable quantum state, dubbed 'John', cannot be presented in *any* quantum wave function. John does not live anywhere on the light cone either. Only its 4D "jackets" can enter the physical world *via* the apex of the light cone, at the 4D instant 'here and now' from the global *arrow of spacetime*. In the physical world, John has always been **re-nullified**, once at a time $\tau$ (C. Rovelli) depicted in the drawing from Plato above.

**NB**: Unlike the Bell Theorem, the famous Kochen-Specker Theorem is not empirically testable. No experiment can prove or disprove the existence of phenomena which are *physically* **un**observable from the outset, such as our John, Eliot's cat Macavity and the *aether* of general relativity. They are **Platonic** reality: see the drawing on p. 1 and read pp. 1-6 in *The Arrow of Spacetime* (Heraclitus.pdf). In my opinion, the gravitational energy is *gravitalized* (Sic!) energy emerging from the **fifth force**. Read *The Bridge: Spacetime Engineering 201* (bridge.pdf).

Finally, I will elaborate on **intact** *wegtransformierbar* **UN**decidable Platonic reality, called John.

In the theory of relativity, we do not face contradictions similar to those from the Kochen-Specker Theorem. If two people with different coordinates, in Paris and in London, look at the Moon, they both will see 'the same' Moon. It will not magically disappear to one of them. Also, the Moon exists as 'objective reality', with definite 'color'. Thus, if the Moon is **green** relative to the observer in Paris and **blue** relative to the one in London, the Moon will **not** possess *any* color whatsoever. It will be the contextual, **UN**colorizable and **UN**decidable 'John', which will only cast its *colorizable* "jackets" (MTW p. 467) of positive mass *via* the *aether* of general relativity, thereby inducing acceleration and rotation. The "jackets" of negative mass cannot live on the light cone.

If we *try* to apply the illustration of Kochen-Specker Theorem on p. 3 above to the quantum world, the three distinguishable and unpainted wooden legs (called Tom, Dick, and Harry) will patiently wait to be painted in **red**, **blue**, or **green**, after which they will be again non-contextual 'objective reality', exactly like the state of the Sun when nobody is looking at it (p. 4 in Time.pdf), which is, of course, **untrue**.

Point is, the **UN**colorizable and **UN**decidable 'John' cannot live in *any* Hilbert space and cannot be presented in *any* quantum wave function.

**It** (not "He") is the epitome of 'the monad without windows' (Quora), which is why **it** is **UN**colorizable *in principle*, just like *Das Ding an sich*. This is the reason to suggest the new hyperimaginary numbers which, "when" squared ($\mathbf{W^2} = \mathbf{0}$), denote an *exactly* nullified John: $1 + \mathbf{0} = 1$. The monads are Platonic reality, which cannot have any "windows".

Of course, John itself cannot "collapse". **It** is an **intact** Platonic reality "just in the middle between possibility and reality" (W. Heisenberg).

Recall Erwin Schrödinger from 1935 (Sec. 9, emphasis mine): "(I)f a system changes, whether by itself or because of measurements, there must always be statements missing from the new function that were contained in the earlier one. In the catalog not just *new entries*, but also *deletions*, must be made." Therefore, *any* quantum wave function is an essentially *incomplete* catalog of context-dependent "jackets", whereas their common source 'John' will *always* remain outside your QM textbooks. And if you hear someone saying that "the background Newtonian time appears explicitly in the time-dependent Schrödinger equation" (C. Isham), don't buy it. The quantum world has a special relationship with the physical time $\tau$ (C. Rovelli): read Charles Wilson, *Quantum Tunneling for Dummies* at p. 12 in facts.pdf, and pp. 27-28 in *Notes on Spacetime Engineering*.

To fully explain the **UN**colorizable and **UN**decidable **intact** Platonic reality, dubbed 'John' (p. 4), let me focus on quasiparticles and virtual particles and offer an illustrative example of what they are not: their origin and dynamics *cannot* be traced back with the physical time read with a clock, as in the example with the Sun on p. 4 in Time.pdf. Then I will explain the rule 1 + **0** = 1 (see above) with the **nullified** Macavity.

An example of the physical time *read with a clock* (Wikipedia): suppose you are tossing a ball toward a wall and are monitoring its trajectory in real time, as read with a clock. But if you are shooting photons toward a mirror, you can never see them going toward the mirror, bouncing back, and hitting your eyes (p. 7 in *Notes on Spacetime Engineering*).

Likewise, you cannot trace back the quantum origin of quasiparticles and virtual particles with light, because at every 4D instant 'here and now' these "particles" have ***already*** interacted by **nullified** Macavity.

In general, the quantum world is *not* made of stuff with pre-existing, non-contextual properties. This fact leads to the **non**-uniqueness of the decomposition of any system into *entangled* subsystems. To quote Paolo Zanardi, this is manifested in "the existence, in a vector space obtained by a tensor product, of vectors $|\varphi>$ that are ***not*** expressible by a simple product e.g., $|\varphi_1> \otimes |\varphi_2>$. (...) Such non-uniqueness implies, at the quantum level, a fundamental ambiguity about the very notion of entanglement. One can parametrize the space of all possible partitions i.e, tensor product structures, of a n-dimensional quantum state-space by the points of a set $T_n$. The fact of considering all the points in $T_n$ on the same footing provide a relativization of the notion of entanglement. No partition has an ontologically superior status with respect to any other. The subsystems associated with all these possible i.e, potential multi-party decomposition were referred to as ***virtual***".

Stated differently, all quantum 'jackets' belong to their *virtual* 'John' (p. 2) and are referred to as *the* **matrix**: read p. 7 in *The Fifth Force*. Physically, *the* **matrix** is always **re**-**nullified** at every 4D instant 'here and now', like the **nullified** Macavity: 1 + **0** = 1 (read above). Thus, no *inanimate* machine, no matter how augmented with **AI**, can access the Platonic **matrix**. Only the human brain & mind can: try the experiment with your brain at p. 3. The *cognitive vacuum* itself is **UN**speakable and hence **UN**colorizable, and yet we can access the set of "***virtual***" (read Paolo Zanardi above) decompositions of the cognitive vacuum *en bloc*. You only need to know *what* to do and *how* to do it, and you will learn spacetime engineering in two weeks or less. Otherwise you will be only 'kicking spoons on the floor' (p. 8 in *Notes on Spacetime Engineering*).

Why is this important? People are nowadays investing billions of dollars and euros in "quantum computing", after ignoring 'John' and trying to replace it with some "quantum error corrections". They also ignore the gravitational energy from 'John' in GR textbooks, although they know bloody well that *their* GWs cannot explain even the mundane Earth tides. Read an excerpt from p. 2 in *Spacetime Engineering 201* here.

The hardest thing of all is to find a black cat in a dark room, especially if (Sic!) there is no cat (Confucius). But in our case, there is no "if". Those who understand gravity know very well that there is no 'cat' in the 'dark room' *in principle*. The problem is known since the inception of GR (MTW p. 467) and is spelled out in textbooks: watch a clip here and recall the problem of GR here.

You need industrial spacetime engineering: read closely p. 19 in *Notes on Spacetime Engineering* (SE.pdf). Not interested? Fine, no problem. I can take it. Does a fish need a bicycle?

If you wish to learn more about quantum gravity, first you will have to qualify: follow the instructions (1)-(2)-(3) at p. 5 in explanation.pdf. Good luck.

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