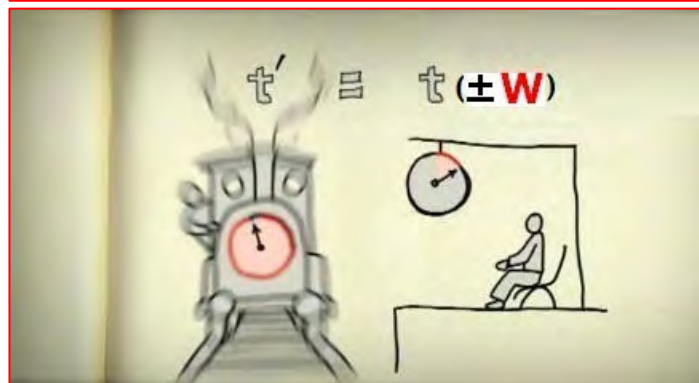
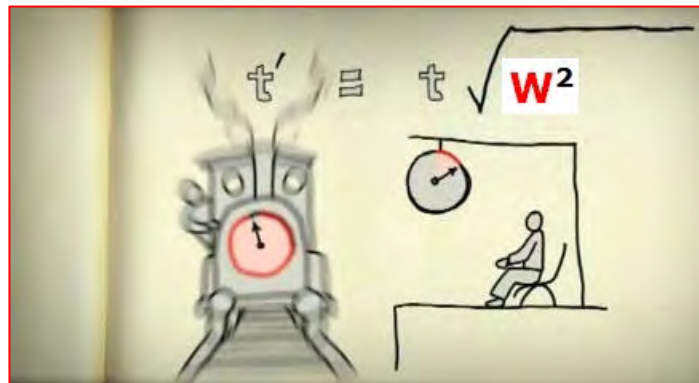
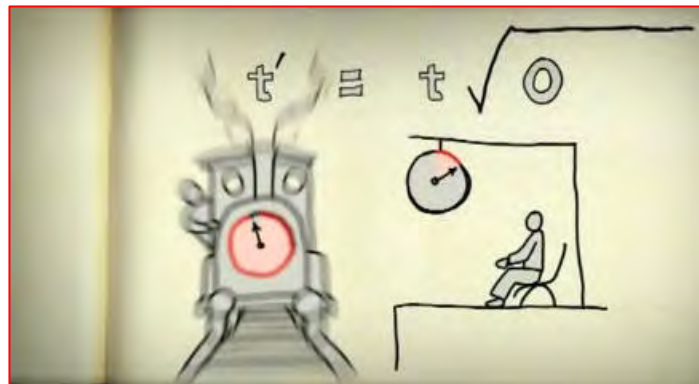


0:47-0:51: "Relative to the platform, time on the train completely stops."

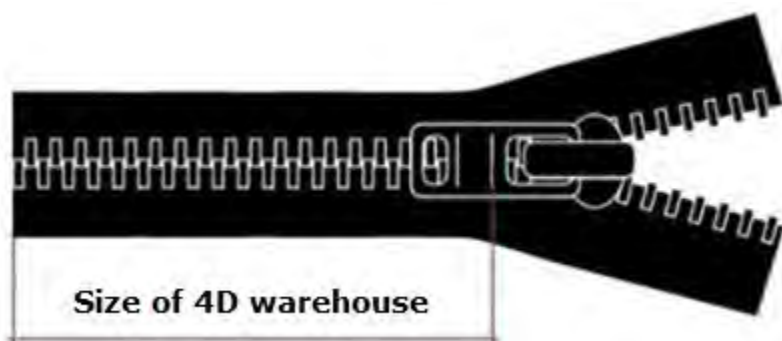


We postulate that the *fabric of spacetime* is made of ‘meters of light-travel time’ (p. 3), which are endowed with **elasticity** — they can *deflate* and *inflate* (p. 5). Namely, the spacetime has **elastic** rods-and-clocks “built into itself, even when matter and nongravitational fields are absent!” (MTW p. 396). But how come “absent”? On 5 May 1920, Albert Einstein explained the *ether* as follows: “But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time. The idea of motion may not be applied to it.” I will briefly introduce a new *theory of gravity* based on the fundamental **elastic fabric** of spacetime: matter and fields become *gravitalized* by the **fifth force**. Details at p. 6.

To explain the “intuitively clear” idea about ‘time as read with a clock’ (Wikipedia), we recall that it will be impossible to move from one spatial location to another without also “moving” in time. But we “move” in time even if we do not “consume” space (P. Mainwood), as we (not photons) can always choose a reference frame at which we are **at rest**. But what is the *rate* at which we ‘move’ in time? One second per second makes no sense. What if **time** is actually an *imaginary variable* (Arthur Eddington)? Here is my “intuitively clear” idea about the *rate* of time.

Suppose the speed of a runner (pictured here) was exactly the **speed of light**. His ‘time as read with a clock’ will “shrink” to *one single point* and will **stop**. But if he was running at 99.5% the speed of light, his time will slow by a factor of ten. To quote John D. Norton, his clock will tick “once each twenty seconds instead of once each two seconds.” How come at 99.5% the speed of light, the *rate* of time will slow by a factor of ten?

Imagine 4D spacetime as a warehouse that always has a **finite** size, never zero nor infinite; read p. 25 and p. 39 in *Can Geometry Produce Work*. Suppose the zipped section of the warehouse below is being dynamically *assembled* with a variable *rate* of time.



A smaller zipped interval assembled with lower speed is like a greater zipped interval assembled with greater speed. **Voila.**

If the “speed” of *assembling* is 99.5% the speed of light, the *rate* of time will slow by a **factor of ten**. If the “speed” of *assembling* was infinite, the *rate* of time will slow by a factor of infinite. This is the **absolute luxonic Time**, which requires new numbers called *hyperimaginary numbers* (**W**).

To understand the *assembling* phenomenon, start with its [force](#): read [talk.pdf](#). Then move to the new relative-scale (RS) spacetime (p. 5 in [synopsis.pdf](#)). The [origin of gravity](#) is the same global phenomenon that *assembles* the Small and the Large, only applied locally. Let me explain.

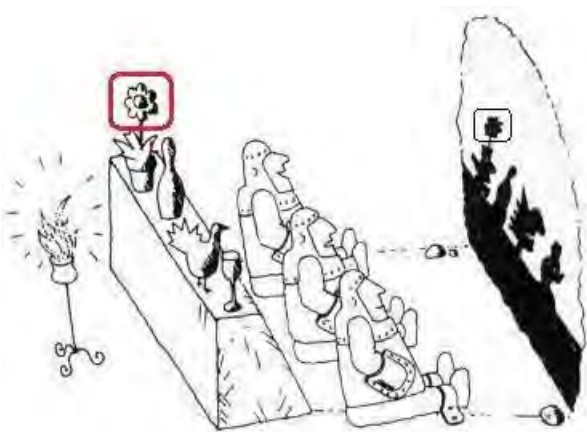
First, some prerequisites. The dynamics of spacetime *itself* is categorically rejected in GR textbooks: “nothing ever moves therein; nothing happens; nothing changes” ([Robert Geroch](#)). Physicists deeply believe we inhabit a “block universe” ([G.F.R. Ellis](#)): the universe does *not* “fly” ([J.A. Wheeler](#)). As the old saying goes, if you only have a hammer, you will see every problem as a nail. Of course, the dynamics of spacetime *itself* cannot be relational. If it were, the [aether](#) will be *physically* observable and the “speed” of light will become relational, and the [absolute luxonic Time](#) will be exposed to *physical* observations. Another example of the dynamics of spacetime is from the metaphysical principles of [locality](#) and [causality](#): what is the [primordial influencer](#) called Time? If this phenomenon was *relational*, it must be executed by some “dark” *physical stuff*. Bad idea.

Can we suggest a *non-relational* dynamics of spacetime? Take for example the perpetual, hence dynamical, *calibration* of every clock in “meters of light-travel time” ([E.F. Taylor and J.A. Wheeler](#)). This ongoing calibration is simply a *non-relational* phenomenon exposing the dynamics of spacetime. I will use it to postulate that the 4D spacetime is being *assembled* (p. 2) with a variable *rate*. To grasp the idea, here is a simple analogy.

Think of ‘rate’ as frames/ticks per second (FPS), and imagine three cars, called Alice (A), Bob (B), and Carol (C). Let them travel, relative to the road at rest, with speed (S) denoted  $S_A$ ,  $S_B$ , and  $S_C$  over *the same* interval (D) from the zipped 4D spacetime (p. 2), called ‘4D invariant spacetime interval’ ([Wikipedia](#)). Notice that if A, B, and C were photons, they “will not have aged” (*ibid.*), meaning that they will “live” in the [absolute luxonic Time](#) of the *atemporal Platonic* world (p. 6 in [The Arrow of Spacetime](#)).

Now, if  $S_A = S_B = S_C$ , the three cars will “assemble” *the same* 4D interval D. But what if we *inflate* Carol’s 4D interval denoted  $D_C$  and – at the same instant – *deflate* Bob’s 4D interval denoted  $D_B$ , relative to Alice’s 4D interval  $D_A$ ? Then Bob could *shrink* to the size of [protons](#) and [beyond](#), and at the same instant Carol could *inflate* to the size of galaxies and [beyond](#).

But we want to keep their 4D intervals 'the same', meaning  $D_B = D_A = D_C$ . How can we do that? By introducing variable *rates* of assembling the Small (Bob) and the Large (Carol), relative to the macroscopic world (Alice) at the length scale of tables and chairs. Namely, relative to Alice's *rate* of time, Carol's *rate* of time will be *inflated* and Bob's *rate* of time will be *deflated*, in such way that  $D_B = D_A = D_C$ . Relative to Alice (Sic!), Carol will "assemble" a *larger* 4D interval from the "warehouse" (p. 2), whereas Bob will "assemble" a *smaller* 4D interval from the "warehouse". It will be like the car C (Carol) was traveling faster than the car A (Alice), and the car A (Alice) was traveling faster than the car B (Bob). To keep their "assembled" invariant 4D intervals 'the same' ( $D_B = D_A = D_C$ ), Carol's time will run/tick "faster" than Alice's, and the latter will run/tick "faster" than Bob's. If Carol's time could run/tick *infinitely* fast, Carol will "assemble" the entire finite "warehouse" (p. 2) *instantaneously*, and her time will be "frozen". And if Bob's time could run/tick *infinitely* slow, Bob can "assemble" only one single spacetime point, and his time will be "frozen" as well. The two *asymptotic* cases (Slide 3) are indistinguishable, and Carol and Bob will "live" in the *absolute luxonic Time* of the *atemporal Platonic* world (p. 3).



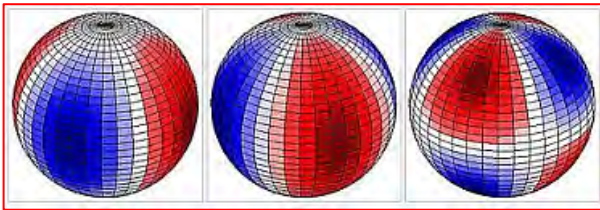
Thanks to the "speed" of light, we *cannot* turn around and look at the *atemporal Platonic* world. The latter is interpreted as the common source of matter and psyche, after *Leibniz*, and is placed in the *potential* future (denoted **P**, see Escher's *drawing hands*) in the *arrow of spacetime*.

Again, relative to Alice, Bob will be truly "small" and Carol will be truly "large". But the world of the Small is *indistinguishable* – not identical – to the world of the Large. This is *RS* spacetime in a nutshell. So, if Bob's size matches the *RS* size of *protons* and Carol's size matches the *RS* size of our *Milky Way*, their *RS* invariant spacetime intervals will be *indistinguishable*. Relative to Alice's clock, Carol's clock can *tick* "once each twenty seconds instead of once each two seconds" (p. 2): the '*tick*' will be *RS* inflated by factor of 10. And relative to Alice's clock, Bob's clock will be *RS* deflated and can, for example, *tick* 10x per second, instead of once each second of

Alice. In *their* RS reference frames, a proton and a galaxy are 'the same'.

NB: This is how Nature inflates and deflates the invariant "meters of light-travel time" (Slide 3). It's all relative, as uncle Albert used to say. We can present the attractive gravity as deflated RS spacetime *locally*, and the repulsive gravity as inflated RS spacetime *locally*. Forget "dark energy".

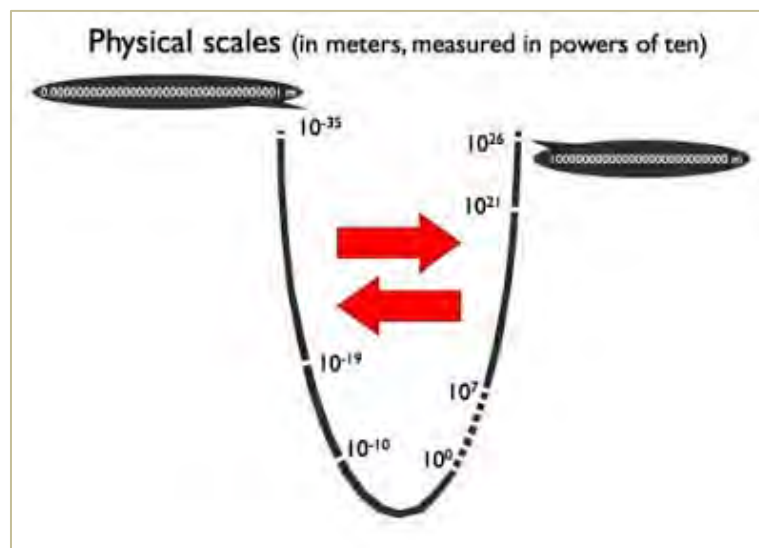
Those who reject my *theory of gravity* as "too speculative" will be kindly invited to explain the *Earth tides* with GR (MTW p. 467).



If GWs transported energy, they will be *physical waves*; if GWs *cannot* transport energy, they will be some parapsychological ghosts. This is the dilemma in *GW parapsychology*.

Because the *Christoffel symbols* cannot rotate the Earth *and* pull up↑ rocks. Only the *fifth force* can, in RS spacetime (p. v in *The Physics of Life*).

Now we can suggest the *mutual penetration* (entanglement?) of the Large and the Small. It begins from *Alice* at macroscopic scale (watch *YouTube*) along two opposite 3D "*directions*" toward the Large and the Small.



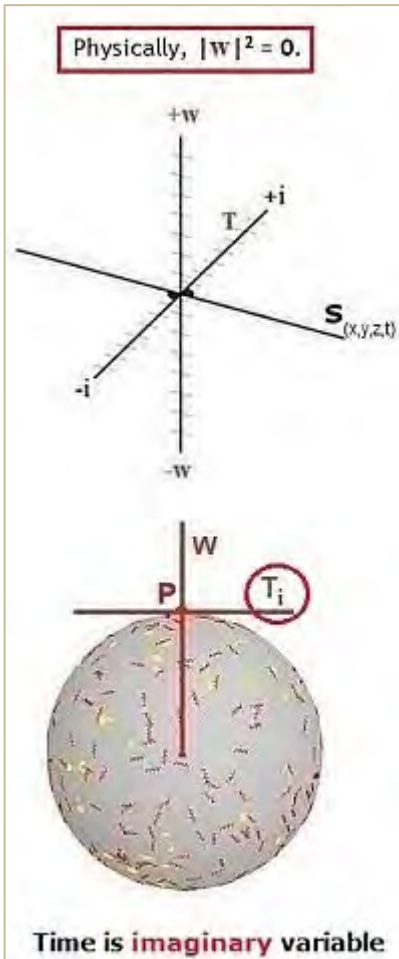
This is the road to the theory of *gravitational rotation* and *quantum gravity*. As of today, however, *nobody is interested*.

23 June 2022, 08:28 GMT



Q1. Why do you postulate some “squared variable” to be “zero” (p. 1)?

A1. The three types of invariant intervals, including the [null interval](#), are squared. Physically,  $|W|^2 = 0$  (see the drawing at left, from [Slide 2](#)).



The so-called *hyperimaginary numbers* denote [Macavity](#), which, “when” squared, is re-**nullified**. To understand the meaning of ‘when’, read the thought experiment [here](#). Thus, the *atemporal Platonic* world (p. 4) does exist, but “before” light, just like [Macavity](#). Namely, “during” every consecutive 4D instant ‘here and now’ ([Slide 1](#)), the *atemporal Platonic* world has been “already” re-**nullified**, hence the finite and “zipped” 4D spacetime (p. 2) is “already” re-assembled. An example of “already” re-assembled cases is [here](#).

The term  $(\pm W)$  on p. 1 stands for the “collapsed” **Platonic** world (p. 4), which decays to *imaginary* numbers, and **nothing** else. Which is why [time](#) is an *imaginary variable* ([Arthur Eddington](#)). To understand the [bundle](#) of normal and tangential directions “along” null intervals (p. 21 in [BCCP](#)), read the explanation at [this http URL](#). In other words,  $W$  and  $T_i$ , shown in the drawing at left, are *physically* indistinguishable. They pertain to the Platonic **matrix**: read p. 7 in [The Fifth Force](#).

Notice the [asymptotes](#) ( $x = 0$ ) and ( $y = 0$ ) in [Slide 3](#), and imagine a [gimbal](#) flying in RS spacetime with RS speed 1m/s and  $\Omega = 10^3$ . We ([Alice](#)) will be shocked by its flying dynamics: in *our* RS frame of  $\Omega = 1$ , it will be flying with  $10^3$ m/s, but in gimbal’s RS frame the speed is 1m/s. It’s all relative, as uncle Albert used to say.

Again, the [gimbal](#) is not flying with some mythical “[dark energy](#)”, but by the [fifth force](#). Explanation on [23 June 2022](#). The video will be available only upon request, and until Christmas 2022. To receive the link, follow strictly the requirements (1)-(2)-(3) at p. 5 (last) in [explanation.pdf](#).

Q2. What's the purpose of this exercise?

A2. First, we need [spacetime engineering](#) to combat the [climate crisis](#). And secondly, we must rebuke [GW parapsychology](#): read [p. 5](#). Do you agree?

17 May 2022, 12:48 GMT