

# On the Nature of Time

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What is time and why it is so similar to the description of space dimensions in modern relativity theories and at the same time it looks so different to us?

The fact that modern relativity theories work so well implies that the mathematical formulation of the time dimension has to be considered correct, therefore what is wrong, at least potentially?

In physics it is usual to change the system of coordinates and look to the event space under a different perspective for finding a deeper understanding.

It is indeed possible to adopt the system of coordinates of Euclidean Relativity and focus on the interpretation of that system in a pragmatic view.

In Euclidean Relativity the invariant measure of distance of the Minkowski metric takes the role of space dimension, it follows that in Euclidean Relativity all four dimensions are space dimensions. The new interpretation of the invariant distance as a spatialized time dimension introduces four new concepts.

The first concept is that the new spatialized time dimension can be potentially explored like the remaining three space dimensions.

The second concept is that the Euclidean Relativity space is not an event space like Einstein space, instead it is a memory space; in fact every space that is characterized only by space dimensions is a memory, for instance if you take a book and you look on a given page and given Cartesian coordinates on that page, you find a letter; if you repeat the experiment you find the same letter, that is the definition of memory, the memory can be changed by a process if required.

The third concept is that the spatialized time is invariant, therefore it is absolute, therefore by symmetry, the remaining three space dimensions are absolute and therefore the full Euclidean Relativity space is an absolute memory space.

The fourth concept is that in Euclidean Relativity space everything travels at the speed of light; therefore the traditional concept of time is substituted by the concept of speed, specifically the speed of light.

Being formally equivalent to Special Relativity, Euclidean Relativity is validated by experiments.

The Euclidean Relativity memory space describes the whole history of the Universe, past, present and future at the same time and in a very peculiar way. In fact the Euclidean interpretation of the Minkowski metric shows that everything travels at the speed of light. Light travels at the speed of light in the usual three dimensional space that we can perceive, matter travels at the speed of light (let's say this) along the spatialized time dimension. It is not difficult to understand that matter and light are orthogonal in four dimensions and that the light we perceive comes from other parallel worlds that are very near to our actual plane of existence. In turn, we are allowed to send light and information to other parallel worlds; without light and electromagnetism we cannot perceive anything external to our mind (remember that information transmission in

nerves is electric, the sense of touch is a form of electric repulsion, and air molecules collisions of sound waves are ultimately an electric phenomenon).

An infinite number of parallel worlds must exist to make Euclidean Relativity consistent with itself, and the orthogonality of matter and light determines the one-way flow of information that is the origin of causality.

The concept can be easily visualized with a technical analogy. The Euclidean Relativity memory space is a memory device like a videotape. In the videotape the three space dimensions are encoded in the complicate magnetic structure of the helical scan, which we may simply schematize as the tape width, the spatialized time is the tape length, the videotape is pure bi-dimensional space storing information. If you have a videocassette of a movie you have the entire story. It is strange but you can't look at it as a whole, you need a videotape player and explore in a sequence. The rotating head in the player is the mechanism that makes the story visible, it is the equivalent of a Quantum Mechanical process in our reality, it represents the materialization of our space-time, and this process creates what we perceive as the flow of time. The Euclidean Space materializes at a rate that is determined by "tape speed", which according to Euclidean Relativity is the speed of light.

Now suppose that the videotape player is an editing machine, with sentient entities that "can" change the story according to some purposes. Well, we are those entities, and the analogy is nearly complete.

Finally suppose that along the tape there are many, infinite, editing machines. Those are parallel realities, those that we have not yet discovered experimentally, but that are required by the plain theory.

Our best model for the editing machines is Quantum Mechanics.

This new interpretation of time is clearly a revolution in understanding. There is no mystery, the visible universe is a slice of a Multiverse containing the full history of the universe in which every historical event continuously evolves through any possible outcome. Our visible universe is the manifestation of one of those infinite editing processes,.....

The present view should be compared with the conclusion of Sakharov Nobel lecture:

*"I support the cosmological hypothesis which states that the development of the universe is repeated in its basic features an infinite number of times. In accordance with this, other civilizations, including more "successful" ones, should exist an infinite number of times on the "preceding" and the "following" pages of the Book of the Universe. Yet this should not minimize our sacred endeavors in this world of ours, where, like faint glimmers of light in the dark, we have emerged for a moment from the nothingness of dark unconsciousness of material existence. We must make good the demands of reason and create a life worthy of ourselves and of the goals we only dimly perceive."*

We must accept Sakharov hypothesis as a fact, we are building the story of the Universe all together, we cannot be so lazy and incompetent to fail our only motivation to exist...

<http://link.aip.org/link/?APCPCS/746/1403/1> <http://arxiv.org/abs/physics/0410054>  
<http://link.aip.org/link/?APCPCS/813/1402/1> <http://arxiv.org/abs/physics/0511157>  
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