

On the Relativity of Subjective Time

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On November 19th 1965, Shrii Shrii Anandamurti said in Ernakulam/Kerala:

“Time is not an eternal factor. Because what is time? It is mental reckoning of the motivity of action. This mental reckoning of the motivity of action [means that] where there is no action, there cannot be any time.”

Six years later He repeated at the same place:

“What is time? Time is a mental measurement of the motivity of action. There must be a mind, and there must be speed, there must be motivity. Without motivity and without mind there cannot be any time.”

Now, if we hear about speed, action, motivity and the motivity of action, the question arises: What is it that moves? Only physical objects, or psychic entities as well? And ultimately, as the mind itself moves from one state to another, do estimates of changing mental states suffice to bring time into existence?

Normally, the measurement of a time dependant variable is based on the comparison of the movement of an object and the cycles of a clock; and then, objective time is deduced from the number of clock cycles. But what happens in case of changing mental states?

Imagine Mr. Everyman, as he's sitting in his office, working on some files. He's quite concentrated, but from time to

time he has to take a deep breath. Then, the phone rings, and he's asked to come to a conference. He approaches the hallway, but the elevator doesn't arrive. He's looking at his watch again and again, but the lift stops elsewhere. Just having decided to better climb the stairs, the lift door opens. He's reaching late at the conference, and after a while, he's next to defend his case.

Afterwards he wonders why time was stretched out while waiting in the hallway, but compressed to a short span while defending his case. A colleague tells him that the same happened to him last night, when he couldn't sleep; time seemed to creep, whereas his wife slept like a log.

Considering the quotes and deliberations given above, mental estimates of time seemingly give different results, depending on the number of cycles, oscillating between contrasting states, like alertness and drowsiness, awareness and deep sleep. In a given period of objective time, i.e. during a defined number of clock cycles, an increase of mental cycles should produce an expansion, and the corresponding decrease a contraction of subjective time.

In the extremes, either the motivity or the experienced time come to a halt. In the first case, the number of mental cycles is so high that perceptions occur like in extreme slow motion. And in the second case, the mind doesn't change, it remains in a state of high awareness or deep sleep.

Here, the paradox question arises, as to whether it is possible to observe a state of continued awareness from

within: Being aware usually means to be aware of something; but if that something is a state of mind, the observer has to take a position beyond his or her mind. And, as sensory perceptions necessarily involve time, such an observation from within would have to be based on some extrasensory, time-independent perception (“where there is no action, there cannot be any time”).

With these queries in mind, Mr. Everyman goes to the internet for help – and after some time, he manages to find a yaogic explanation. It’s depicted in the graph below.

	Annamaya			Crude
Citta	Kámamaya	Crude	Prájiṇa	Subtle
	Manomaya	Subtle	Taejasa	
	Atimánasa	Causal	Vishva	
	Vijiṇámaya			
	Hirańmaya			
Ahamítattva	above Hirańmaya Kośa		Puruśottama	Samánya Deha
Mahattattva				
	Kośa	Mind	Witnessing Entity	Body
MICROCOSM				

It postulates three bodies (crude, subtle and samanya deha), three layers of consciousness (Citta, Ahamtattva and Mahatattva), and three layers of mind (crude, subtle and causal). Therein, the Annamaya Kosha (physical world) is

observed by the Citta, the Citta by the Ahamtattva and the Ahamtattva by the Mahatattva.

Such a multi-layered architecture, however, cannot be mapped by the mathematical model presented in my book – a model made to describe interactions of the subtle and the crude body, the mental and the physical world, the Citta and the Annamaya Kosha only. So, it obviously needs an extension. An earlier suggestion, made in a short note on my blog, replaced the complex numbers by quaternions for that very purpose. In the following, the consequences of such an exchange are to be investigated.

The Real, the Imaginary and Beyond

In order to describe interactions between the mental and the physical world, the concept of space-time had been extended, i.e. Minkowski space M_0 had been complemented by four imaginary dimensions, resulting in a complexified Minkowski space M_c (1, 2, 3). Now, in order to allow for independent observers of the mental and the supra-mental world, the complexified Minkowski space needs another extension, i.e. M_c is to be complemented by further imaginary dimensions, resulting in a quaternified Minkowski space M_q .

So, in analogy to what has been written before (4), the following must be postulated:

Let M_0 be a Minkowski space, which is a 4-dimensional flat Lorentzian manifold,

and let M_q be the quaternified M_0 of dimensionality 16,

with 4 real $-t_{Re}$ and x_{Re}, y_{Re}, z_{Re} ,
and 3 x 4 imaginary dimensions $-t_{Im}$ and x_{Im}, y_{Im}, z_{Im} .

Then, the standard basis for M_0 will be a set of 4 mutually orthogonal vectors $(-e_0, e_1, e_2, e_3)$, such that

$$(-e_0)^2 = (e_1)^2 = (e_2)^2 = (e_3)^2 = +1,$$

and for M_Q there will be an additional set of 3 x 4 mutually orthogonal vectors $(-i_0, i_1, i_2, i_3)$, $(-j_0, j_1, j_2, j_3)$ and $(-k_0, k_1, k_2, k_3)$, such that

$$(-i_0)^2 = (i_1)^2 = (i_2)^2 = (i_3)^2 = (-j_0)^2 = (j_1)^2 = (j_2)^2 = (j_3)^2 = (-k_0)^2 = (k_1)^2 = (k_2)^2 = (k_3)^2 = -1.$$

Accordingly, each point p_Q in M_Q can be written as

$$p_Q = (-e_0 t_r, e_1 x_r, e_2 y_r, e_3 z_r, -i_0 t_i, i_1 x_i, i_2 y_i, i_3 z_i, -j_0 t_j, j_1 x_j, j_2 y_j, j_3 z_j, -k_0 t_k, k_1 x_k, k_2 y_k, k_3 z_k) =$$

$$\begin{pmatrix} -e t_r - i t_i - j t_j - k t_k & e x_r + i x_i + j x_j + k x_k \\ e y_r + i y_i + j y_j + k y_k & e z_r + i z_i + j z_j + k z_k \end{pmatrix} =$$

$$e \begin{pmatrix} -t_r & x_r \\ y_r & z_r \end{pmatrix} + i \begin{pmatrix} -t_i & x_i \\ y_i & z_i \end{pmatrix} + j \begin{pmatrix} -t_j & x_j \\ y_j & z_j \end{pmatrix} + k \begin{pmatrix} -t_k & x_k \\ y_k & z_k \end{pmatrix}$$

with $t_r, t_i, t_j, t_k, x_r, x_i, x_j, x_k, y_r, y_i, y_j, y_k, z_r, z_i, z_j, z_k \in \mathbb{R}$,
 $e^2 = +1$ and $i^2 = j^2 = k^2 = -1$.

Therefrom we can get four parallel space-times: One for the physical (Annamaya Kosha), one for the mental (Citta), one for the supra-mental (Ahamtattva) and one for the observer

of the supra-mental world (Mahattattva). Mathematically they are, however, all one in hyperspace!

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2. E.T. Newman, [Complex coordinate transformations and the Schwarzschild-Kerr metrics](#), J. Math. Phys. 14, 774 (1973)
3. E.A. Rauscher, R. Targ, [The Speed of Thought: Investigation of a Complex Space-Time Metric to Describe Psychic Phenomena](#), Journal of Scientific Exploration, Vol. 15, No. 3, pp. 331–354, 2001
4. H.-J. Rudolph, [From Imaginary Oxymora To Real Polarities And Return](#) – A New Science of Reality, Authorhouse, 2012