The Real, the Imaginary and Beyond

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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 independant observers of the mental and the supra-mental world, the complexified Minkowski space needs another extension, i.e. M_C must 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 is to 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 this hyperspace!

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