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 \(p_\alpha\) in \(M_\Omega\) can be written as

\[
p_\alpha = (-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!
