Raising the vector space $W$ to the irrational power $N$.

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Abstract

At the beginning the vector space $A$ is constructed from infinite number of tensor cofactors. With the help of (viXra.org 1402.0167) these tensor cofactors are constructed from rational powers of vector space $W$. Then these powers are summed and the sum is denoted as $N$. And it turns out that $A$ is $W$ raised to the power $N$. The $N$ turned out to be any real number (rational or irrational).

How to raise the vector space into the rational power $M/L$ is described in (viXra.org 1402.0167). Now this will help us. Let us consider the following vector space $A$:

$$A = K \otimes_3 V \otimes_2 V \otimes_1 V \otimes_0 V \otimes_{-1} V \otimes_{-2} V \otimes_{-3} V \otimes K$$ (1)

Every tensor cofactor $aV$ in this product space defines so:

$$aV = W^{(n_a \cdot 2^a)}$$ (2)

Numbers $n_a$ can be 1 or 0. If $n_a = 0$ then $W^0 = I$ (3)

Here we introduce I – unit vector space. This space is 1-dimensional. Let $\hat{e}_1$ be the basis of I.

Then $(\hat{e}_1, \hat{e}_i) = 1$ (4) and $\hat{e}_i \times \hat{e}_1 = \hat{e}_i$ (5)

Now we have: $A = W^N$ (6)

Where $N = \sum_{a=-\infty}^{\infty} n_a \cdot 2^a$ (7)

$N$ – binary form of any irrational (and also any rational) number.

In order to number $a$ can go into minus infinity, the dimension of $W$ must be infinite.

And now we have the definition of raising infinite dimension vector space $W$ in any irrational (and rational) power $N$. 

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