

Refutation of symplectic vector space for physics of biology

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Abstract: The symplectic vector space is refuted as the basis for the Borsuk-Ulam theorem (BUT) and the ham sandwich theorem, demoting those to conjecture status. Consequently, arguments derived therefrom cannot be proved for use in physics of biology.

We assume the method and apparatus of Meth8/VL4 with Tautology as the designated *proof* value, **F** as contradiction, **N** as truthity (non-contingency), and **C** as falsity (contingency). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables.

LET $p, q, r, s: \omega \text{ lc_omega}; u; v; V;$
 \sim Not; $+$ Or; $\&$ And; $>$ Imply, greater than; $<$ Not imply, lesser than, \in
 $=$ Equivalent; $@$ Not Equivalent; $(s@s)$ zero.

From: Tozzi, Arturo; Peters, James F.; Torday, John S. (2018). An operational definition of life, evolution and their primeval occurrence. vixra.org/pdf/1810.0132v1.pdf; en.wikipedia.org/wiki/Symplectic_vector_space:

alternating: $\omega(v,v)=0$ holds for all $v \in V$ (2.1.1)

$(\#r<s)\&((p\&(q\&r))=(s@s))$; **FFFF NNNF FFFF FFFF** (2.1.2)

nondegenerate: $\omega(u,v)=0$ for all $v \in V$ implies that u is zero. (3.1.1)

$((\#r<s)\&((p\&(q\&r))=(s@s)))>(q=(s@s))$; **TTTT TTCT TTTT TTTT** (3.1.2)

Eqs. 2.1.2 and 3.1.2 as rendered are *not* tautologous, with Eq. 3.1.2 diverging by one contingency value of **C** as falsity. This refutes the symplectic vector space.

The basis of the Borsuk-Ulam theorem (BUT) and all cases of the ham sandwich theorem is symplectic vector space. Therefore, those theorems are refuted at their inception and are demoted to conjectures for use in physics of biology. This results in unprovable results, such as definition of life, evolution, and primeval instance of the authors, as based on such conjectures.