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Correction

Correction: Gill, R.D. Does Geometric Algebra Provide a Loophole to Bell's Theorem? *Entropy* 2020, 22, 61

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Corrections are made to my paper "Gill, R.D. Does Geometric Algebra Provide a Loophole to Bell's Theorem? *Entropy* 2020, *22*, 61". Firstly, there was an obvious and easily corrected mathematical error at the end of Section 6 of the paper. In the Clifford algebra under consideration, the basis bivectors Me_i do not square to the identity, but to minus the identity. However, the trivector M does square to the identity and hence non-zero divisors of zero, $M-1$ and $M+1$, can be found by the same argument as was given in the paper.

Secondly, in response to a complaint about *ad hominem* and *ad verecundam* arguments, a number of scientifically superfluous but insulting sentences have been deleted, and other disrespectful remarks have been rendered neutral by omission of derogatory adjectives. I would like to apologize to Dr. Joy Christian for unwarranted offence.

The end of Section 6 of Gill (2020) [1] discussed the even sub-algebra of $\mathcal{C}\ell_{4,0}$, isomorphic to $\mathcal{C}\ell_{0,3}$:

> One can take as basis for the eight-dimensional real vector space $\mathcal{C}\ell_{0,3}$ the scalar 1, three anti-commuting vectors e_i, three bivectors v_i, and the pseudo-scalar $M = e_1e_2e_3$. The algebra multiplication is associative and unitary (there exists a multiplicative unit, 1). The pseudo-scalar M squares to -1. Scalar and pseudo-scalar commute with everything. The three basis vectors e_i, by definition, square to -1. The three basis bivectors $v_i = Me_i$ square to $+1$. Take any unit bivector v. It satisfies $v^2 = 1$ hence $v^2 - 1 = (v-1)(v+1) = 0$. If the space could be given a norm such that the norm of a product is the product of the norms, we would have $\|v-1\|.\|v+1\| = 0$ hence either $\|v-1\| = 0$ or $\|v+1\| = 0$ (or both), implying that either $v-1=0$ or $v+1=0$ (or both), implying that $v=1$ or $v=-1$, neither of which are true.

But the bivectors v_i square to -1 and the trivector M squares to $+1$. Still, it then follows that $(M+1)(M-1) = 0$, and by the argument originally given, it follows that $M = 1$ or $M = -1$, a contradiction.

Reference

1. Gill, R.D. Does Geometric Algebra Provide a Loophole to Bell's Theorem? *Entropy* **2020**, *22*, 61. [CrossRef] [PubMed]

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