Vector Proof of Fermat’s Theorem

By “Flamenco Chuck” Keyser

12/24/2016

The proof that follows references all scalar operations to the null vector.

I'm still trying to figure out if it makes sense, but I think it amounts to referencing scalar operations to the origin of the Cartesian Coordinate system $(\vec{0},\vec{0})$.

(e.g., the center of the relativistic unit circle, $(\vec{0},\vec{0})$ by setting $a=\gamma$, $b=\beta$, and $c=1$ so that $1^2=\gamma^2+\beta^2$, and if there is a product $\gamma\beta\neq 0$, it can't be an integer).

The only integers for the relativistic unit circle occur when either $\gamma=1$, $\beta=0$ or vice versa (i.e., as unit vectors), which is analogous to the condition in the Binomial theorem that $rem\left(a,b,n\right)\ =\ 0$ only if $a=0$ or $b=\ 0$ (or both, in which case $c=0$. This corresponds to the fact that in the Binomial Theorem, the interaction terms do not vanish for $n=2$ (excluding Pythagorean triples for integers), or right triangles in the real number case.

In addition, invoking the relativistic unit circle means the proof is valid for all numbers, not just integers.

(the fact that c must be irrational at the end of the proof is a consequence of invoking Cartesian, rather than radial coordinates in the proof)

Since the relativistic unit circle covers all possible cases in which the invariant (final result) is that of the above, it shows that the interaction term in the Binomial theorem cannot be integers for independent variables in two dimensions.

In any case, it is consistent with my other lines of thinking, I'm pretty sure, so if it is wrong, then the others are probably wrong as well. But if it is right...

$\vec{\mathbf{a}}$ and $\vec{\mathbf{b}}$ orthogonal

If $\vec{a}$ and $\vec{b}$ are orthogonal, then there is no interaction term, since $cos\theta=0$, for $\theta=\dfrac{\pi}{2}$ so the term $(a\cdot b)=(ab)\vec{0}$ vanishes.

$$c^2=(\vec{c}\cdot\vec{c})=((\vec{a}+\vec{b})\cdot(\vec{a}+\vec{b})=\vec{a}\cdot\vec{a}+2(\vec{a}\cdot\vec{b})+\vec{b}\cdot\vec{b})=(a^2+b^2)$$

We can assign this operation as the scalar coefficient of a vector $\vec{k}$, so that
$(c^2)\vec{k} = (a^2 + b^2)\vec{k}$

That is, $(c^2 = (a^2 + b^2))\vec{k}$, where the arithmetic operations have taken place on a single number line. We can just as easily assign the coefficient to the null vector, so that $(c^2 = (a^2 + b^2))\vec{0}$; a vector translation to the origin $(0,0)$

----- Dot Product $(\theta \neq 0)$ **-----**

If $\vec{a}$ and $\vec{b}$ are not orthogonal, then the term $\vec{a} \cdot \vec{b} = (ab)cos\theta$, $\theta \neq 0$

Then $(c = \vec{a} \cdot \vec{b} = (ab)cos\theta)\vec{0}$ where we have assigned the scalar product as the coefficient of the null vector.

$$\left(c = (ab)\cos\theta\right)\vec{0}$$

----- Cross Product ($\theta \neq 0$) -----

$$(c = \vec{a} \otimes \vec{b} = (ab)\sin\theta)\vec{k}$$

$$(c = \vec{b} \otimes \vec{a} = (ba)\cos\theta = (ab)\sin\theta)\left(-\vec{k}\right)$$

$$2c = 2\left(ab\sin\theta\right)\vec{0}$$

$$c = \left(ab\sin\theta\right)\vec{0}$$

From the Dot Product:

$$\left(c = \left(ab\right)\cos\theta\right)\vec{0}$$

$$\left(c^2 = (ab)^2\cos^2\theta\right)\vec{0}$$

From the Cross Product:

$$\left(c = \left(ab\right)\sin\theta\right)\vec{0}$$

$$\left(c^2 = (ab)^2\sin^2\theta\right)\vec{0}$$

Conclusion

$$\left(2c^2 = (ab)^2(\sin^2\theta + \cos^2\theta) = (ab)^2\right)\vec{0}$$

$$c = \frac{1}{\sqrt{2}}(ab)$$

Therefore, c cannot be an integer.

(in all the above cases, the scalar operatioins have been assigned to the null vector, so are referred to the origin for both dot and cross products).

For the relativistic unit circle, set $a=\gamma$, $b=\beta$ and $c=1$ for the contradiction...)