Einstein's Formula: A Sleight of Hand

By

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In basic math exponents are added.

$$x^1 \ \ times \ \ y^2 \ = \ z^3$$

In Einstein's famous formula two exponents are not given; they are hidden.

$$E = m\,c^2$$

Only the term *c*, the speed of light in a vacuum, has its exponent made explicit: *c-square.* The terms of E (energy) and *m* (mass) do not have their exponents given. Yet, in math, we know the rule is to add up the exponents in such equations.

One might think that the exponent of E is one (E^1) and that the exponent of m is one also (m^1). But, according to the basic rules of mathematics, this is impossible because exponents are added in equations of equivalency based on multiplication of terms.

$$E^1 = m^1\,c^2$$

Addition of exponents (^): ^1 = ^1 + ^2 (trivially incorrect)

According to the rules of math, the formula forwarded by over a century ago appears to *imply*:

$$E^1 = m^1\,c^2$$

However, according to mathematical procedure this should be:

$$E^3 = m^1\,c^2$$

Therefore, the term for mass (m) might be thought to have the first power (m^1). And, since c-square is given then E in relation to m^1c^2 would have to be E^3 ---even though E is shown to have a power of one (E^1) according to the formula. The expression $\boldsymbol{E^3 = m^1\ c^2}$, not shown, obtains irrespective of whether the *terms* in the formula are the same or distinct as illustrated in the equation.

One could imagine the three different terms of the formula in different equivalencies as of the *same terms* in three different ways, *according to the powers implicit in the formula:*

$$\boldsymbol{E^1 = E^1\ E^2}$$
$$\boldsymbol{m^1 = m^1\ m^2}$$
$$\boldsymbol{c^1 = c^1\ c^2}$$

It is this last expression that has caught our eye for the past few years in our research. The reason the last expression, $c^1 = c^1\ c^2$ draws so much attention is due to the numerical values given in the science literature today for ***Planck Energy*** and ***Planck Mass***. These values are commonly cited as:

Planck ***Energy*** = **1.9560** fractal*
Planck ***Mass*** = **2.17645** fractal *
c-square = **8.987551787** fractal*

Planck ***Energy*** = Planck ***Mass*** <u>*times*</u> Speed of Light in a vacuum

1.9560 = 2.17645 *x* 8.987551787 (*significant fractal numbers)*

These values are supposedly to be interpreted implicitly as the powers for E and m are never given in the formula's presentation anywhere in the science literature.:

$$\boldsymbol{E^1 = m^1\ c^2}$$

The obvious manipulation of the powers of the terms E and m during the existence of Einstein's supposed formula is now made obvious. Throughout the science literature for over one hundred years this sleight of hand in math has been overlooked, accepted as a given tenet of the formula.

Supposedly, the Planck values when entered into the terms of the equation tell us something about the equivalency of *mass* | *Energy*. This may not be the case, however; it may be a case of a mistaken math procedure.

The fractal *numerical values* of the cited Planck constants suggest and/or express equivalencies in multiples/powers of the speed of light.

Palcnk Energy *equals* Planck mass *times* c-square:

19560.78711 *equals* **2176.**431087 *times* **8**.987551787

These numerical values are fractal expressions of the speed of light in a vacuum; respectively.

$$\boldsymbol{c^9} \text{ equals } \boldsymbol{c^7} \text{ times } \boldsymbol{c^2}$$

When *c* is expressed as a significant value in scientific notation, as **2**.99792458, the following obtains for the significant values of higher exponents, its multiples:

c^1	=	*2.99792458*	
$\mathbf{c^2}$	=	**8.987551787**	
c^3	=	26.94400242	
c^4	=	*80.77608713*	
c^5	=	*242.1606171*	
c^6	=	*725.9792663*	
$\mathbf{c^7}$	=	**2176.431087**	*(Planck mass constant)*
c^8	=	*6524.776252*	
$\mathbf{c^9}$	=	**19560.78711**	*Planck energy constant)*

Innumerable other combinations may exist in the equations of these terms. But, when *c*-square is chosen as a base term (one of the two multiplicands) for Einstein's formula, then the options are reduced to:

$$c^3 = c^1\, c^2$$
$$c^4 = c^2\, c^2$$
$$c^5 = c^3\, c^2$$
$$c^6 = c^4\, c^2$$
$$c^7 = c^5\, c^2$$
$$\boldsymbol{c^9 = c^7\, c^2} \textit{ (Einstein/Planck formula)}$$

$$c^{10} = c^8\, c^2$$
$$c^{11} = c^9\, c^2$$
$$c^{12} = c^{10}\, c^2$$
infinitely so...,

One may perceive that the option $\boldsymbol{c^9 = c^7 c^2}$ is sufficiently removed from the *baseline* option $c^3 = c^1\ c^2$ whereby the mathematical origin of the equation $\boldsymbol{c^9 = c^7 c^2}$ may go unrecognized.

With the Planck values for *energy* and *mass* inserted into Einstein's formula the term *c* to the ninth power is changed to *E* (energy). The term *c* to the seventh power is substituted for *m* (mass). And, *c*-square, the ***constant multiplicand***, is maintained in the formula. Therefore, mathematically, the term ***c-square*** (c^2) determines the Planck values, *i.e.,* the numerical values of the other two categories (*E, m*). In this manner, the numerical values chosen for Planck Energy and Planck mass are not arbitrarily or magically chosen. Rather they both fulfill a mathematical necessity in relation to the numerical value of *c*-square. Planck energy (*E*) is the math result of Planck mass (*m*) times the fixed, constant *c*-square term of the formula.

Other options exist, no doubt. Another fractal option that Einstein and/or Planck could have chosen would have been the *basic whole-numbered exponent* relationship:

$$\boldsymbol{c^3 = c^1 c^2}$$

26.94400026 *equals* 2.99792458 *times* 8.987551787

This option where mass is *c*-exponent-1 (2.99792458) would have been too easily recognizable.

Another option, with c^1 as unit 1.0 would have made little sense, even though it serves as the basis for *c*-square in Einstein's formula:

$$\boldsymbol{c^2 = c^1 c^1}$$

This option may readily be considered the *base relation* of Einstein's ***mathematical equation***, but not that of its ***symbolic formula***.

In any of the previous options shown here, the trick to the formula would have been easily recognized. However, the expression $c^9 = c^7c^2$ far removed from the base relation would be less recognizable, *as it has not been so recognized for over 100 years now*. The reason is relatively simple.

Enormous skill would have been required to compute the higher powers of *c* with pen or pencil during that early period of the development of physics. Obviously, computing the basic relationship, $c^3 = c^1c^2$ would have been more easily derived; thus its theoretical and practical avoidance.

Mathematically, the expression ($\boldsymbol{c^3 = c^1c^2}$) represents the underlying theoretical base for Einstein's formula; not the multiples thereof ($c^9 = c^7c^2$) implicit from the Planck constants.

$$\boldsymbol{c^3 = c^1c^2}$$

$$\boldsymbol{E^3 = c^1m^2}$$

As physics history teaches us, one may employ the hidden expression $\boldsymbol{E = mc^2}$; the suggested Planck/exponent-*c* values 1.9560 = 2.17645 *x* 8.987551787; or, even the expression the $c^9 = c^7c^2$.

A*ccording to the math*, however, in reality the underlying computation derives $\boldsymbol{c^3 = c^1c^2}$. All of the other optional expressions chosen are mere multiples of this basic equation involving *c*-square as the given multiplicand in the formula. The second multiplicand, then, minimally must be c-exponent-1 (given the suggestion of whole-numbered exponents for the formula). *[Were* c*-square otherwise not one of the basic multiplicands, then the basic equation could be represented by* $\mathbf{c^2 = c^1c^1}$. *An additional argument may be made to illustrate that this equation, in fact, is the underlying baseline of Einstein's famous formula given the importance of c-square in his formula.]*

Einstein states $E = mc^2$ yet the exponents for *E* and *m* are not given; they are implicit. Einstein's famous formula, $E = mc^2$, presents then indefinite terms (*E, m*) of the basic equation, $c^3 = c^1c^2$. The numerical constant values given by Planck for *E* and *m* determine of how the numbers work in Einstein's formula, as powers of *c*, the speed of light *in vacuo*: $c^9 = c^7c^2$.

Therefore, even though Einstein "says" $E = m\,c^2$, the Planck numbers cited in today's science literature for *mass* and *energy* (2.17645 and 1.9560 respectively) necessarily mean $c^9 = c^7c^2$.

There are two sleights of hand in Einstein's famous formula. The sleight of hand (mathematically speaking) is having removed the powers of *E* and *m* in Einstein's formula. Additionally, the popular use of Planck's numbers in physics today confirms yet another sleight of hand *and* divulges the mathematics behind the simple formula.

Exponents are added; there is no way to avoid this basic mathematical procedure. ***The terms of the formula may be interchanged, but the numerical values of the equation cannot be changed.*** The terms of the formula may be interchanged [*E* or *m* may be substituted for *c*], but the numerical values deriving from the relations of equivalency of powers cannot be manipulated.

Ultimately, the theoretical contradiction between these numerical values and the questionable math procedure forwarded in Einstein's formula bring suspicion upon the thesis supposedly resolved by the formula: *the equivalency of energy and mass.*

As illustrated in this analysis, physicists have been suggesting an equivalency of mass | energy exists based upon higher powers of the speed of light. Nonetheless, the same physicists affirm theoretically that the speed of light represents a physical speed limit of matter|energy in spacetime. If *c* constitutes a physical limit of matter|energy, then the speed of light cannot be a multiple of itself ---neither symbolically in math nor physically in reality.

In my view, the hidden math procedures of Einstein's formula combined with the Planck values in its equation present a mathematical and theoretical sleight of hand. Einstein's formula, Planck's numerical values, and the theoretical posits upon which they are based, represent a computational and physical impossibility in the forms of matter|energy in spacetime/motion.

**Fractal numbers:*
Planck ***Energy*** = 1.9560 fractal (0.19560, 1.9560, 19.560, 195.60,...)
Planck ***Mass*** = 2.17645 fractal (.0217645, 2.17645, 21.7645, 217.645,...)
c-square = 8.987551787 fractal (0.8987551787, 8.987551787, 89.87551787...,)

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