project overview

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This unconventional work involves initially the creation of a revised multiplication unlike conventional multiplication. By a method analogous to how conventional involution is built upon conventional multiplication, likewise is a revised involution built upon revised multiplication.
With two of its three binary operations revised, a revised arithmetic exists and consequently, a revised algebra.

In conventional algebra, there is no real number, positive or negative, multiplied by itself that equals a negative, real number product.

For example, using –1 …

$$n \ x \ n \neq -1$$

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$$+1 \ x \ +1 \ = \ +1$$
$$-1 \ x \ -1 \ = \ +1$$

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Therefore, the concept of the unit imaginary number "i" had to be invented to solve such equations.

For example, using –1 …

$$i \ x \ i \ = \ -1$$

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Together, the real number system with the imaginary unit forms the complex number system that is also indispensable (to conventional algebra).

Conversely …

In revised algebra, any negative real number multiplied by itself equals a negative, real number product.

For example, using –1 …

$$-1 \ x \ -1 \ = \ -1$$

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This exhibits perfect, mirror-image symmetry with the indisputable fact that any positive real number multiplied by itself equals a positive, real number product (in revised algebra <u>and</u> conventional algebra).

For example, using +1 …

$$+1 \ \ x \ \ +1 \ = \ +1$$
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In ½ of the cases, revised multiplication yields slightly different revised products (with the same absolute values but opposite signs) compared to conventional multiplication. In ½ of the cases, revised multiplication yields identical products.

In ¾ of the cases, revised involution yields different revised powers compared to conventional involution. In ¼ of the cases (where both the base and exponent are positive real numbers), revised involution yields identical powers.

One of a few important advantages in using revised binary operations instead of conventional binary operations is that this revised arithmetic gives rise to a revised algebra wherein any solvable equation can be solved exclusively within the real number system.

The significance of this conflicting methodology is that an equation such as " n x n = −1 " may be solved in either of two ways-

       A. By creating the unit imaginary number that exemplifies the conventional system.

           <u>OR</u>

       B. By appropriately revising the rules of multiplication that exemplifies the revised system.

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Each man-made approach is equally arbitrary and therefore, equally justifiable.
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Under formalism, one of the two most widely accepted foundations for modern mathematics, any arbitrary set of basic assumptions or axioms that are self-consistent and thorough in describing mathematical reality is a legitimate model. However, only the most concise, simplest model is suitable as a general standard. Conventional algebra is universally accepted and used because it is agreed upon by experts as being such a model. Notwithstanding, the main thrust of this work is its contention that the revised algebra (and larger system) presented within is an even better model. Unfortunately, there are presently few experts, esp. those select, extremely few with the power to change worldwide mathematical standards, who are even aware of this work. [At least, not yet.]

In revised algebra, the imaginary unit and hence, the complex number system is completely unnecessary and useless. So, it is never incorporated to begin with since the revised real number system is omnipotent.

When it comes to choosing a hardline or softline position for the advocacy of either revised arithmetic or conventional arithmetic …

The softline position would be to state that both conventional arithmetic and revised arithmetic are as correct as they are relatively-consistent … despite whichever you prefer.

To state that both:

> " −1 x −1 = +1 " is correct according to conventional multiplication

>> **and**

> " −1 x −1 = −1 " is correct according to revised multiplication

- is undoubtedly true since both systems of arithmetic are provably self-consistent.
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However, this statement diplomatically sidesteps being decisive about the obvious, critically-important issue as to whether conventional arithmetic or revised arithmetic is ultimately incorrect since they yield contradictory results. When all things are considered, it is possible to conclusively determine which is incorrect. The non-judgmental relativism inherent to the softline position becomes indefensible <u>if</u> either conventional arithmetic or revised arithmetic can be proven to be markedly superior to the other. In actuality, this is the case.

Most mathematicians I have rationally and tolerantly presented this alternative number theory to obviously hold a hardline position advocating conventional arithmetic. They have acted like an angry schoolmaster dealing with a bad student and said things to me such as,

" −1 x −1 = −1 is dead wrong.".
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Contrary to their intentions, I have been impressed only by their ignorance of the main purpose for the existence of MSC 03C62
("models of arithmetic & set theory").

Upon reflection, I have oddly decided to follow the less-than-inspiring example set by most ignorant mathematicians but only as far as to also settle upon a hardline position … advocating revised arithmetic, instead. So, I can act like an angry schoolmaster dealing with a bad student, too and say things to them such as,

" −1 x −1 = +1 is dead wrong.".
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For your consideration, I offer a complete, alternative number theory running appr. 250 pages which is chock full of rigorous, mathematical findings to support my hardline position. No non-trivial arguments for the contrary position- to prove and demonstrate how the conventional system is superior to the revised system in any way- are even possible.

Although I am an educated person, I am not a professional mathematician. Notwithstanding, I expect <u>any</u> person with the audacity to proudly call himself/herself a "mathematician" to at least, understand in theory how to perform simple arithmetic correctly (even though their jobs never require it) as thoroughly explained within this work. This is not an unfair or undue expectation on my part any more than, for example, expecting an intelligent child in his/her first year of elementary school to learn how to count.

In any case, I honestly predict that such an uneducated "mathematician" who does simple multiplication dead wrong yet naively and confidently thinks it is right will inevitably be remembered historically as a total disgrace to his/her profession as well as (to put it bluntly) a dumbass to the shocking extreme. Their place in history will be no better than, for example, astronomers in the 17th century who were familiar with the heliocentric theory yet deadset against it because they believed (some as religious fanatics) instead in the geocentric theory.

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In modern times, career mathematicians are controlled, intimidated and silenced by their fear of being labeled a "crank" and discredited by their colleagues <u>if</u> they dare to openly hold <u>any</u> radical ideas. The overall effect is that <u>all</u> established mathematical standards, even those that are dubious, must be uncritically worshipped or else, a person's career can be harmed or destroyed. Hence, it is no accident that the only people who have the prerogative to dare to point-out any possible mistakes in mathematical standards without risking reprisals are outside academia (such as myself).

The logical justifications and perceived necessities behind this cruel, severe treatment runs something like … despite their years of study, passing many classes and earning a degree or two, somehow their higher education failed to work on their innately-irrational minds and of course, standards of quality must be vigilantly protected. Admittedly, this actually happens to a small minority of people who have earned advanced degrees.

Notwithstanding, the main problem I find myself dealing with most commonly is essentially that vision, imagination, initiative, bravery and honesty are rare qualities to find at all amongst professionals within the natural sciences- perhaps because they are not taught or valued in the conniving, competitive environment of formal education. In fact, these defining qualities of individual intellect (as well as integrity and pride) are somewhat discouraged throughout modern academia.

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