

## unclear foundations of math

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Mathematicians are in an ideal position to fully appreciate what is meant by the well-known “unreasonable effectiveness of mathematics to scientific endeavors” and “unreasonable ineffectiveness of philosophy to scientific endeavors”. Specialists in foundations and/or philosophy of math sometimes over-estimate the importance of their work to those in other specialties. In fact, few mathematicians are typically concerned on a daily, working basis over logicism, formalism or any other philosophical position. Instead, their primary concern is that the mathematical enterprise as a whole always remains productive ... as evident by the work they are doing at the moment.

Typically, they see this as insured by remaining open-minded, practical and busy; as potentially threatened by becoming overly-ideological, fanatically reductionistic or lazy. I do not know of a name for this “philosophical position” but it may be the one most mathematicians adhere to more strongly than any traditional, philosophical position they also favor or agree with (if any).

Although no one should dismiss the correctly-defined foundations of math as being unimportant, there are quite possibly a few serious problems and limitations with rigor in all present-day programs which attempt to do so. Moreover, there are unavoidably implicit value judgments of a quasi-philosophical nature involved that are subject to sizeable human error. Unfortunately, those who demand a clear demarcation between mathematical foundations and philosophies (to avoid dealing with disagreements, confusion and pseudo-scientific “works of science” inevitably created in a setting of philosophizing) desire the impossible. Total commitment to a mislaid foundation of math would eventually yield disastrous consequences. In principle, taking such a dangerous gamble without being forced to would be unwise. [Note- We are not being forced to.]

Most mathematicians regard the theoretically-infinite universe of possible models of arithmetic (and math) as trivial compared to other vital areas of mathematics. In every case except ONE, I actually agree.

A sharp distinction should be made between applicable and non-applicable models of arithmetic (and math). Applicable arithmetics (and maths) are defined herein as those which are provably, measurably compliant with physical reality, those which can be applied to our universe. For instance, all of the interactions of exclusively positive real numbers under the three binary operations must be defined by the familiar, conventional standard. To be otherwise in any imaginable way, they would then be measurably incorrect. Non-applicable arithmetics (and maths) are defined as those which are NOT provably, measurably compliant with physical reality and cannot be applied to our universe.

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**Guesswork at the correct mathematical modeling of possibly non-existent, additional universes (which never can be confirmed, observed, studied) is NOT a scientific endeavor. Furthermore, it fails to meet the criteria of an intelligent, productive or even, rational endeavor. Therefore, all studies of non-applicable arithmetics (and maths) should be terminated.**

**By contrast, exploring applicable arithmetics (and maths) is potentially significant and productive since they can at least be compared meaningfully to the conventional model. Of the numerous ones I have studied, experimented with and/or invented, some have been a little better than the conventional model; some have been a little worse. Remarkably, I have only discovered one applicable arithmetic (and math) that is far better than the conventional model.**

**This alternative model has the distinction of being the only one that can be based upon numerical perfect symmetry. [Note- It also possesses geometrical perfect symmetry via its characteristic function-graph relationships.] It is the only model I have ever discovered (and probably, the only model theoretically possible) whose comparative merits outweigh its costs (i.e., temporary disruption) of replacing the current standard model by far.**

**Although I have done research, I did not discover this model pre-existing in the literature. Instead, I discovered and modeled it from scratch while attempting to invent an unconventional system whereby real numbers possessed ALL of the problem-solving capabilities complex numbers were normally required for under the conventional system. Unexpectedly, I easily succeeded.**

**[Note: This achievement is next-to-nothing for me to brag about. It would have been easy, even for an untrained amateur, to do equally well or a bit better. Anyone could have and should have done it many years earlier than I if they had merely cared enough to try.]**

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**For comparison:**

**In computer science, where there are many constant pressures or demands from the outside world that must be met, professional standards are measured and expressed primarily in terms of efficiency. If a new programming language were introduced which possessed appr. 5 times more complication than absolutely necessary (without any compensating advantages), it would quickly be doomed to extinction with prejudice as it was replaced in favor of a better programming language that could be developed using routine methods.**

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In pure mathematics, where there are few pressures or demands from the outside world which must be met, professional standards are measured and expressed primarily in terms of abstract grasp of convention. The luxury of remaining mostly unfamiliar with the concept of efficiency is commonplace. [This is significantly moreso the case in modern times than it was in ancient times.] Unfortunately, this situation gives too much free reign for sentimentality, tradition, stagnation, discrimination, fastidiousness and unconditional protection of the status quo. Consequently, an established mathematical language that possesses at least 5 times more complication than absolutely necessary (without any compensating advantages) is NOT in any imminent danger of extinction, whatsoever.

Instead, its ideal-replacement, mathematical language has no secure future to date and as such, remains in danger of extinction inevitably unless-until a dramatic, fundamental improvement occurs in the situation. There remains hope since it is always possible that its merits will be recognized and appreciated anytime yet realistically, it is difficult to imagine exactly how or when progress can take place.

It is not my radical contention that it is impossible for an intelligent person to learn some important matters about mathematics using the established, over-complicated language, regardless.

I consider this analogy an appropriate description of my position:

1. A person with perfect eyesight is unnecessarily forced to wear eyeglasses with thick, strong lenses at all times to see the world.
2. With great effort and practice, this person eventually can see adequately well.
3. Still, this person would be able to see reality a lot more clearly and easily without the eyeglasses.

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The moral of the story is that freedom and empowerment can be available as the simplest, easiest option imaginable yet inexplicably, irrationally may not be chosen.

This project is mainly about practical, constructive mathematics that would provably be beneficial. Essentially, it is about “how to build a better mousetrap”. To be sure, it is not about my philosophical ramblings or radicalism (if you perceive some of my points that way).

One need not be a formalist to find something of value within this work. Please exercise intelligent judgment, good taste and ethics in deciding what you value. Please take measures to promote, preserve and protect what you value.

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