

On simulation, minds, and universes.

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The prevalence of simulation in our Universe is discussed. Simulation is considered in the context of foundational efforts to determine the nature of reality and philosophical speculations related to why our reality might be a simulation are listed.

The Unreasonable Effectiveness of Mathematics in the Natural Science is a famous article published in 1960 by the famous physicist Eugene Wigner. In a similar fashion, perhaps we can consider another concept that is also rather prevalent in terms of its reoccurring presence in our reality. Let us consider the concept of *simulation*. Every mind represents the physical world but minds also model future scenarios as we plan and consider options, risks, and outcomes. But note how this fundamental mental activity, if not constant activity, promulgates into the world. For what is television or literature, science fiction, dramatic stage plays, and video games but, at their core, simulation. It is possible that this somewhat “unreasonable effectiveness” or vastness of simulation might hint that the “nature of reality” is itself a simulation. Now, beyond Nick Bostrom's popular arguments for a simulated Universe, we can also consider the quantum mechanical nature of reality with discrete and identical particles or fields again reinforcing this paradigm.

In regards to the eternal quest for the nature of reality, concerns on the foundations of mathematical and physical sciences have for millennia known of murky problems. Perhaps of the problems of greatest concern are:

- a. The prevalence of pi (a non-repeating and non-terminating - in principle - irrational number) in our Universe. As the nature of pi directly implies the possibility of infinity - i.e. somewhere where infinity must exist which, at the moment at least, is only known without debate to exist in conscious minds leading to the obvious concern if pi exists in another distinct Platonic reality or only in minds.
- b. Quantum Mechanics, as noted, that describes our Universe almost perfectly from experimental testing with light and energy fields as discrete entities and with exact quantities or particles. The observable fact that every electron and photon is *exactly* the same alone is an incredible consideration in and of itself, implying possible encoding or simulation as their source. However action or location in our quantum mechanical reality is describable via a wave function (Schrodinger's wave function in Hilbert space) that is based on an infinite or continuous number line that, by logical definition with irrational numbers, cannot possibly exist in a discrete reality.

Now the acceptance of both *a* and *b* may imply the existence of two distinct realities or “worlds.” One world, an infinite or Platonic universe where infinity and pi literally exist. This would always be a larger or largest reality if not an eternal reality. The other world then a discrete universe which, again by definition, could be represented as code (binary bits a la the “holographic paradigm”) that obviously could imply our current Universe or universes are a simulation.

One possible model of reality would involve the contemporary concept of a multiverse of infinite universes. An example of a multiverse scenario could involve each universe as a solution to a Universal Schrodinger wave function. Or perhaps each Universe is just a programmatic runtime or instance of a fundamental encoded “universe computer program” along the lines of cellular automata evolution.

Obviously metaphysical questions arise as to “why” our reality would be a simulation in the aforementioned examples. Again, outside of Nick Bostrom’s three scenarios, possible extremely philosophical speculations could fall along the lines of:

1. The creation of “something” versus or with “nothing” may require something to be materially instantiated by sort of a boot-strap definition; i.e can a computer program be proven to exist if it is never run?
2. Perhaps, in a sort of circular logic, the only way to create the Platonic reality is to have Universes with conscious beings whereby “only” minds input ideas, or create ideas to be input, into the Platonic universe.
3. The realm of the mind “is” the Platonic universe. Here perhaps there is no multiverse even but rather a duality of only mind (with infinite concepts) and matter. Of course this leads to the discussion of which would be primary and does mind then create physical reality.
4. Perhaps every consciousness is actually merely a subset of a single field or a fundamental consciousness. In essence, there is only one consciousness.