

What is the Mysterious Connection Between Physics and Mathematics?

Defining the Problem

It was suggested by the ancient philosophers that the world, and thus reality, may disappear when we go to sleep only to be recreated, in our minds, when we awoke. Yet, the repeatable reality, upon waking, is that if we drop a rock, it always falls according to $F=mg$. How does it “know” how to fall if there is no memory or pre-programming? Hence, an enigma exists: is reality just a mental 3D array capable of understanding by using some abstract symbolism, i.e. using mathematics, or is reality an entity beyond an external physical 3D array, primary, and subject to a undefined, pervasive metric or system of metrics? Resolution of this problem requires a definition of reality to uncover the mysterious connection between the physics and chemistry of the mind and the mathematics of physical measurement. Please consider the following arguments.

Types of Reality

There appears to be three types of reality: an abstract, a physical and a sequential or frame change. The external tangible world seems to possess only the latter two; the human brain possess all three. For instance, consider the act of a murder or writing a Constitution. Both of these circumstances are set on a 3D physical stage that unfolds in an iterated sequence, from which time and a cause and effect relationship can be extrapolated. However, the implication of death (by murder) and the Constitution is an abstraction and has an effect on the philosophical future, social outcomes and religious foundation of future and very real minds. Hence, the abstract forms a reality that originates from the physical interactions integrating with the (human) mind.

Abstract and Mental Reality

The (human) mind linearizes iterations into a sequencing of the 3D frames. For a computer like understanding of this model of human reality based on the above definitions, let us say that the smallest physical iteration is: $E_t=h$, or $p_x=h$; then the smallest notable energy transfer change is h , or 6.626×10^{-34} erg-sec. Thus, if a human

lives to be about 100 years, he has to deal with approximately $(60 \text{ sec} \times 60 \text{ min} \times 24 \text{ hrs} \times 365.26 \text{ da} \times 100 \text{ yr})/6.626 \times 10^{-34} \text{ erg-sec} = 4.76 \times 10^{42}$ frame iterations of energy or transformations in his/her lifetime. How is this measured in the mind to comprise a reality? Within this context, there are three required components:

- a) an image or 3D reservoir in the brain where a setting for reality or events to occur exists in the visual cortex of the occipital lobe;
- b) a mathematical or abstract (compiling) computing area where velocity and time are extracted in the optic tectum, along with computing all differential measurements such as temperature, any change, etc are registered;
- c) and, an analytical or abstract area where the residue of sequencing of events are analyzed and related to the self, which exists in the thalamus.

These areas comprise thinking. The brain evaluates these minute changes and pumps out a behavior predicated by previous analysis, the value of enhancement to the self and/or some abstract greatness or desired goodness as it relates to the being. In this basis, reality exists only in the mind. The abstract concept of death becomes a place of a “different” dimensionality, for which no understandable frame exists that is consistently repeated in a plurality of individuals. Dreaming, on the other hand, and insanity are often posed by patients and psychiatrists, as an altered form of reality, which questions whether the “mind-set” exists or is not, or is not, in fact, a visit from or to a place of an “extra” or outside dimensionality. This may be so, but again, to the common mind, unless they share the 3D basis of that mathematical system – it is unknowable to the remainder of us, thus becoming like Angels or demons from our dimensionality perspective. It should be mentioned that there are clairvoyants whom seem to be able to foretell of events, and even death. Most of us are made of common matter from DNA to proteins; maybe some of us have some radioactive, dark matter or anti-matter biological material from which a different 3D basis forms in their minds allowing them to communicate beyond the common man. I do not share these powers and cannot speak to these visions, but they may not be crazy.

Physics Reality

Physics reality consists of a tangible object or objects: i.e. mass and/or space. There is no understood mechanism for change or motion which has been defined within this simple 3 dimensionality. Space exists and is properly represented as a dimensional grid; mass is a entity which exists in 3 dimensionals, either as a singlet or more, and can be described as a “standing” wave: $\Psi^*\Psi$, but unless the concept of change is introduced, there is no movement, no transformation, no heat transfer, no time. It is a stagnant system with NO dynamics. These objects must relate to one another for any measurement, change or physics to exist at all! They must exchange energy to effect a change, creating a sequence and the passage of time. This notion is also true of the human mind as well. About 50 years ago, in psychology, there was a famous story about two psychiatrists, married to each other, whom had a baby. They wanted to see what would happen if they properly fed and cared for the baby, using objects (mechanical arms, etc.), but without any human interaction at all. The experiment, as I remember the details, ran for several years. The baby went insane and irrevocably insane. Separating out the visional spacial dimension from an abstract lineage or function, minimally defines a simple reality. Individual objects and entities must interact with each other along some continuum or the Universe does not exist, not mentally nor physically. This was the essence of Mach’s Principle, who proposed that the mass of local objects are determined by the entire mass of the rest of the Universe. Max Tegmark has proposed that “all structures that exist mathematically exist also physically” and “the Universe is mathematics,” where a higher dimensional Universe could be built upon every mathematical system that exists in which “those structures are complex enough to possess self-awareness.” Herein argued, is that self-awareness requires a communication; two bodies must be linked or there is no reality between them. If one examines Einstein’s conjecture of a gravitational field, a mass curves its spacetime. This creates a field, which communicates energy by particle or wave with another object, without which no known physics would occur. There is no self awareness here; there is an observable which changes based on some communication with another particle or body.

Sequential and Frame Change Reality

Physics on the other hand, encapsulates the orbit of a planetary body, and presumably all bodies, as $GM/r = v^2$, which bring us to the question of how does a stone “know” to fall at the rate of $32\text{ft}/\text{sec}^2$. Whether the “real-physical 3D” world linearizes or takes some other mathematical frame sequences is not known and requires a separate definition of time itself. Any event must involve the exchange of energy: $E_t = h$; however, in a series of events, that energy may or may not be sequence dependent and commute. This might ultimately determine whether events can be reversible and irreversible. Yet the physical world does follow some symbolical abstraction: the laws of physics and chemistry, to be exact. If mathematics is defined as a array or lineage of sets or entries which have some relation to the former and following member, it constitutes a informational logic system. Physics is the quantitation of events and evolution of a system, which theoretically could be based on anything or nothing (randomness). At the quantum mechanics level, nature is the study of the randomness or probabilistic nature of particles and their evolution, while classical physics appears to be deterministic and conform to mathematical rigor and a formula. Yet even probability can be formulated in terms of a mathematical formula: $P(\text{Event}) = Y(E) + N(\text{not } E)$; group theory. The human mind is a metabolic system of recording events and sequencing them according to the observers’ basis. So, in order to define whether physics rest on a mathematics, an underlying innate structure of reality must exist which can be expressed symbolically and how one entry flows from the event of the former. This metric was invented and developed by Isaac Newton in the theory of change, the calculus; it also quantitates and symbolically defines time. Even today we have no real, no further understanding of the nature of time other than that set up from the calculus. This lineage, time, may or may not terminate as an end, or have a “container.” True randomness, would not be related to any other metric, thus every event would be a miracle or extra (outside) logical to reality and consciousness, especially since consciousness if it is based on some continuum, and it is thus, based on mathematics. An explicit and definitive explanation of how are mathematical sets and systems connected would generate the Unified Field and Experience Equation.; and, if a complete

mathematical description of the World is known, then the question of why continue if the events are known anyway; do you really need to participate and would this change the final outcome, thus negating the predictable to probabilistic possibilities. Really the only mystery of whether there is a connection between physics and mathematics here is derived from mathematics, where it is not known even in mathematics what generates 1 to 2, or a to b, even though we know 1, 2, a & b. It is the change within the system. What makes the continuum exist and/or generate, no matter the set? I argue that this is the ultimate cause and effect, which generates physics, laws and all reality. Is there another world in which chaos varies according to no predictable basis? That is what one would find at the edge, or limit, at infinity, mathematically, or the exterior of the container in physics, where the particle is defined, but the container is not in quantum mechanics. Hence reality is subordinating logical subsets along a self generating line that communicate with each other.

Conclusions

The mysterious connection between physics and mathematics resides in the calculus developed by Newton and Leibniz. The most commonly measured rate of change of one variable with respect to another, is time. The notion of measuring change in the Universe is essential to a functional, abstract and real World; without which, neither the Universe nor the mind exists, including any and all meaning. Mathematics is the symbolic logic of documenting the change between systems; physics is the actual exchange of energy to effect a change between systems. Two sets may be subsets of one another, but unless there is a connection and a dynamic of change between the two sets, there is no meaning and no mathematics.

References

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