

Wandering Towards a Goal: How can mindless mathematical laws give rise to aims and intention?

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Abstract: Mathematical deductions are nothing but exercises of human mind. Mathematical equations or laws have no mind of their own. Human minds manipulate information from various 'cause and effect' relations to form and interpret various mathematical laws and derive suitable equations. Therefore, it is the human minds that give rise to aims and intentions rather than mindless mathematics. Without human intelligence to formulate them from cause and effect relations, mathematical laws and equations remain mere sequential arrangements of notations.

Keywords:

Mathematics and physics:

Universe is constituted by real entities. Real entities are made of substance (stuff). Their substance gives objective reality and positive existence to real entities. Only real entities can act or be acted up on. Real entities are considered tangible and sensible by us. We are three-dimensional spatial beings, who live and operate in three-dimensional spatial system. All our (known) senses and instruments are devised to sense and measure only three-dimensional objects in three-dimensional spatial system. Therefore, objects, which have smaller measurements (intangible by our standards) in one or two spatial dimensions, are considered non-entities by us. Although they have real existence in all three spatial dimensions, they are considered non-entities and imaginary due to our inability to sense or measure them.

Human beings have rational minds, which continuously relate effects to causes and vice versa. Human Intelligence constantly endeavors to find logical relation between them, so that desired effects can be replicated at will by stimulating corresponding cause(s). Initially, this process might have been by error and trial methods. But as processes have become numerous and complicated, it became easier and simpler to take advantage of mathematics to commonly theorize the processes instead of stimulations of individual

processes in the fields. For this purpose, mathematics helps human mind.

Concepts and their arguments can be formed by arranging causes and effects in logical sequences. Step by step reasoning, used in an argument for a concept, should be valid. However, due to preconceived beliefs and ideas, these arguments can be easily influenced by personal preferences and may become different and vary in cases of each concept. Whenever valid arguments are not available, human beings tend to take baseless assumptions or other types of shortcuts to take their places. This often defeats the purposes of concepts and leads to irrational results.

In order to generalize arguments of many concepts, it is easier to use abstract logic in their reasoning. In formal or abstract logic, as is used in mathematics, we have the advantage of being able to decide validity of reasoning, without being psychologically influenced by statements used in arguments. Generally, notations given in mathematics have no specific meanings. According to situations, they may be given many different but suitable meanings. It becomes much easier to tell a good reasoning from bad, when arguments are exhibited in their skeleton form in notations. This not only saves time and effort but also appears to produce generalized theorems.

This advantage should not be misused. The statement, $2 + 2 = 4$, means nothing unless the terms in the statement represent some real entities. In this form, without representation by real entities, they are just 'propositional functions'. They are meaningless as notations used in them represent nothing real. Because of this, conclusions reached in mathematical treatments cannot be considered assertions until proper meanings are assigned to notations used in them. Only then, they become 'propositions'. Depending on the meanings, assigned to notations, resulting statements may be true, false or nonsense. The statement, 2 apples + 2 apples = 4 apples, is true. The statement, 2 apples + 2 oranges = 4 apples, is false. The statement, 2 apples + 2 oranges = 4 something?, is nonsense. Consequently, similar conclusions reached mathematically (using propositional functions) in two sets of arguments do not guarantee similar conclusions, when propositions are used. This fact is often overlooked by those who insist on mathematical treatments and resulting equations as the sole criteria for a good theory.

Mathematics is a very good and very helpful tool to explain physical phenomena. Difficulty arises only when mathematics starts to question or dictate logical reasoning. It is only natural that in the eyes of a person, who is major in mathematics, everything else (physics) appear as a bunch of mathematical problems. However, the person should not forget that such solutions are to help to establish logical reasoning rather than mock at them. Emphasis on mathematics is not going to be of much help in solving problems to find true causes of physical phenomena.

If used correctly, mathematics gives solid foundation and predictability to a theorem. However, it is important to use proper (definite and real) meanings to notations used in equations and not to have assumptions based on abstract considerations. If a phenomenon is observed to progress in positive direction, establishing mathematical support for an assumption for the same concept to retreat in opposite direction is certainly a misuse of advantage provided by mathematics. There are many such indulgences in contemporary physics. Time appears to progress only in forward direction (cause precedes an effect or effects follows a cause). There is no need for time to retreat in negative direction. By definition, gravitational 'attraction' is an attraction. Using mathematics to establish a concept of repulsion by gravitational attraction is a vain exercise. Why should there be a phenomenon that is opposite to gravitational attraction? Causeless random motion of fluid molecules is another example.

In mathematics, associated with physics, use of undefined (imaginary) entities is rampant. When notations in equations are equated with these non-entities (like; energy, charge, time, space, temperature, etc.), resulting equations appear impressive. As long as notations represent real entities, they can only misguide rather than provide logical explanations to physical phenomena. Using these non-entities with sufficient deliberations, any type of relations can be mathematically established in physical theories.

Mathematics has no ability to think. It is the human mind that control and regulate mathematical analyses. Minds of intelligent human beings can either (1) control mathematics to support logical concepts that provide rational solutions or (2) use mathematical analyses to provide impressive but illogical theories.

Author of aims and intentions:

Road signs along a highway are notations in letters, numbers and symbols. They have no mind of their own. But they have goal oriented aims and intentions. Usually they do effectively regulate traffic along the highway. However, their effectiveness is rooted in minds of traffic authorities, who build the signs, and drivers using the highway. Notations in road signs are given certain meanings by authorities, which are publicized to drivers along with penalties for non-conformation. Consensus drivers understand the road signs and by obeying traffic rules regulate the traffic as per given directions. In a way, we can say that although they have no mind of their own, road signs are controlling the traffic. However, ultimately, it is the authorities and drivers, who are controlling the traffic by the aid of road sign. A wrong road sign may divert the traffic to dangerous goals. Here, aims and intentions are determined by traffic authorities and fulfilled by drivers. Signs act as a medium of communication between authorities and drivers to fulfill intentions of authorities, who aim smoother traffic. Signs neither do physical acts nor have direct intention to regulate the traffic.

Mathematics also works like road signs for physics. Mathematics guides a concept towards a theorem. Wrong step in mathematics can take the concept to heights of illogicalness. For certain theory, random motions of molecules in gas were assumed as reason for gaseous pressure on container walls. Cause of motion was assigned to undefined entity – the energy. No reasons or mechanisms were theorized or established for this assumption. Increase in pressure during heating was then understood as faster movements of molecules. This produced a relation between temperature/heat and energy. Step by step reasoning in this direction, has made energy as basis of all actions in contemporary physics. Yet, even today, energy remains an undefined entity. It is merely understood as ‘ability to do work’, a quality of undefined entity. Similar assumptions carried physics to rely on advanced mathematics to prove various theories, without considering conceptual basis.

Another example is of three-body (n-body) problem. [It is worth mentioning that by simple dynamics, it is physically impossible for a free body to orbit around another moving body, in any type of geometrically closed path. Yet most of contemporary theories in cosmology rely on the assumption of elliptical planetary orbits around a central body. Sun (central body) is moving, planetary bodies are free and circular/elliptical orbits are geometrically closed paths]. Assuming planetary orbits are indeed around central body, multi-body problem tries to define paths of more than one planetary body about different central bodies in the same system. That is, more than one body in the system have to be simultaneously static and dynamic – an impossible situation. It is interesting to note that many able physicists are investing their talent and time to solve this impossible problem, mathematically. Without a doubt, they may succeed one day!

Universe is made of real entities. Only requirement for nature (universe) to survive is the existence of substance that forms and controls real entities. In material world, existence of matter is nearest to absolute truth. Therefore, it is safe to assume that matter provides substance to all real entities. And hence, existence of matter should be the only assumption, on which all physical theories are based. No other assumptions or postulations are required for a consistent concept on physical nature of universe. Whole of physical phenomena in nature can be logically explained on the basis of this single assumption - on existence of matter. This type of conceptual approach with support of suitable mathematics can avoid all assumptions and associated mathematics, used in contemporary physics.

Diverse objects in nature, many of them exhibiting different or opposite properties, are all made from matter. Therefore, matter (itself) cannot have any particular property except its ability to exist. Ultimately it is this property that causes all real entities and physical actions in nature. Relative arrangements of basic 3D matter-particles in superior matter-particles/bodies determine their properties. Further, arrangements of 3D

matter-particles in a system determine system's properties, including biological nature, intelligence, information processing, reproduction, etc.

Cause and effect relation is exhibited in all physical phenomena. Working of a physical system is the combined result of works of all its sub-systems. No actions, themselves, are goal-oriented. Relative arrangements of sub-systems determine current actions. Similar causes and sequence of identical actions by similar sub-systems may produce similar results. Humans observe these actions and store associated information in their mind. Through previously gained knowledge, human mind can compare and determine causes and sequences of actions (causes) required to achieve a desired result. This goal-orientation is a process related only to human mind. 'Orientation' towards a goal by mathematics is an assumption by human mind rather than intended by nature. To an egotistic mind, this can appear as goal-oriented actions mysteriously initiated by unknown forces or as results of physical laws promulgated by physicists.

Due to their inability to act or think, mindless mathematical laws (on their own) do not give rise to aims and intention. It is the vanity of human nature that assigns causes of aims and intentions of physical phenomena to their own creations – the mathematical laws and theorems. It is the human mind that determines certain physical laws are infallible just because they appear mathematically impressive. Nature or mathematical laws have no such intentions. Irrespective of existence or non-existence of mathematical laws, universe will go on in its natural course. Natural phenomena do not require mathematical laws to occur. Human beings need mathematical laws to better understand natural phenomena.

In olden days, magic or uncommon knowledge made persons priests or leaders of human groups. Present case is not different. Persons with knowledge of complicated mathematics become leaders in physics. By mathematical proofs, they are able to show transfer of actions through empty space, create virtual particles out of nothing, deform or transform formless entities, make functional entities to act or be acted up on, describe motion/action without a mechanism, base all actions and apparent interactions on undefined energy, etc.

Conclusion:

Mathematical laws have no mind of their own. They are initially invented by human mind to suit observations. When such laws are found useful to predict results of all actions in similar phenomena, they become parts of universal theorem. If used properly, mathematical laws can define aims and intentions of physical concepts for us. However, it is the human intelligence that gives rise to aims and intention by the help of mathematics, rather than mindless mathematical laws themselves.

Reference:

References are self-published by the author. They are neither reviewed nor edited.

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