

Effectiveness of mathematics! An answer, not a question.

Why is mathematics so effective in describing physical processes? We may find the answer in the foundation of mathematics. Mathematics is based on logic and this apparent effectiveness only points to one thing: this universe, luckily enough, appears to obey rules of logic. Now, for a universe to obey the rules of logic requires that it be operational on logic i.e. that its constituent and internal rules work by the rules of logic, or better, be actual simple rules of logic, like the rule of non-contradiction.

For a universe to be operational on logic, all of its constituent must be, although different in appearance, of the same nature because we can't add apples and oranges. Better, it can only work using one cause. This is because no rule of simple logic could decide which of two causes would have priority. All in all, there would be only one type of stuff, only one cause for its spontaneous evolution.

You see, the effectiveness of mathematics is not a question, no. It is an answer, a fact. It is the answer to the question physics does not dare ask because it is outside its mandate; what is the universe made of and what cause makes it evolve spontaneously. (For details, see my previous essays)

This logical description is the actual process the universe uses to exist and evolve. This logical description and the physical description of science are complementary but mutually exclusive. If one wants to understand how the universe works by itself, logically, he will use the logical description. If he wants to do something with this universe, he will use the metrics of the scientific description. Logical understanding and scientific description are the two elements of the complete knowledge of things.

Every 100 years or so, the science of the day has an appointment with philosophy. Simple matter of stepping back and figuring out where we stand. Now, Science has to stop poking the black box and must start figuring out what's in it. Use ontology and logic; add it to your mandate. That would be **a paradigm shift!** To me, that is what the effectiveness of mathematics is telling us to do.