Neglect of Metaphysics

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Abstract

"Not even false" is a saying that is part of the lore of academic physics. Metaphysics is said to be meaningless. But there are compelling arguments, that originate from the work of the rationalist philosopher Spinoza, and from the work of Godel, Church and Turing in the foundations of computer science, which relate physics to metaphysics. The principle of possibility from Spinoza and the understanding of metamathematics by computer scientists do apply to physics.

Discussion

Both the falsificationists, and the verificationist school of logical positivists, reject the relevance of metaphysics. But this is implicitly theistic, allowing for the universe to be the object of arbitrary design, metaphysical alternatives to arbitrary design not being discussable. But this can not be; design is a causal concept. And causation can not exist without the mandate of a particular mathematical system in the first place. It is better to allow Spinoza's principle of possibility - that every mathematical system has its place in metaphysics. After all, the denial of metaphysics is itself metaphysics, and is thus self-negating.

And so metaphysics is not really different from metamathematics, which is rather well understood by computer scientists. This category includes material beyond the range of expression of a particular mathematical system, as well as symbolic and self referential expressions in a system capable of that expression.

For me, the symbolic behavior of computers is a conclusive refutation of the rejection of metaphysics. Simple mathematical systems are not symbolic and self referential, but computers for practical purposes are. Consider Church's thesis: all mathematical systems can be symbolically emulated by all other sufficiently powerful mathematical systems. There is no reason not to extend this principle to human language and to the real world.

The best portion of physics is actually not falsifiable, instead it is a consequence of theorems. And the very simple axioms needed for these results attain in turn their apparent primacy by lock in theorems. Exceptions to these axioms simply are not available to the constituents of the universe (short of symbolic discourse).

Of course this is convincing to no human in the absence of knowledge of the particular axioms and theorems. But these exist in the mathematical literature (not in the rather backwards academic physics tradition, of course).

The most relevant axiom is the existence of the metric: qualified observers can be compelled to agree on the magnitude of the spacetime interval between two events. (The Pythagorean theorem is related to the concept of the metric.)

From this single premise follow the other essentials of classical physics - namely causation and conservation. The theorems that provide these results, as well as the implied lock in, are the two Bianchi identities - the boundary of a boundary is zero - applied to the metric.

(Physicists are untrained in this mathematics, and taught wrongly about metaphysics, but I find this lack to be pathetic.)

The denial of metaphysics allows the undiscussed imposition of an implicit metaphysics by a patriarchal style of authority. Vectors, by reason of their psychological symbolism, are imposed by authority on physical systems - this though other geometric objects are plainly required for a good fit. Standards of reasoning are prone to be hypocritically set aside.