Review of: "Zeno and Einstein"

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In the concluding section of his reflections, Ted Dace admits that abstraction is essential to scientific inquiry; nonetheless, he warns us, “so powerful are the abstract concepts that enable us to systematically investigate the world that we readily confuse the two, treating the menu as the meal, so to speak” (p. 11). Abstraction is essential not only in scientific inquiry, but in our daily life too. If a need to go from Universitet to Dubrovka, I consult Moscow’s metro line map and can orient myself; yet, the metro line map is a great abstraction from reality - therefore I have to know how to use it, but this is another can of worms. It is actually its absence of reality that allows us to interpret reality - as Edgar Morin more or less said in his “Knowledge of Knowledge” (1986). In science it is not much different. According to a contemporary way of interpreting science and its methods and goals, scientific theories are sets of (mathematical) models. Van Fraassen tells us that they play the same role as maps do (1993, p. 7). We use models to depict some aspects of the world surrounding us and orient ourselves in it, as when we use a map to understand where we are and how to go from one place to another. Can someone confuse the two, treating the model as if it were reality itself?

Dace interprets three of the well-known paradoxes about motion that Zeno of Elea proposed 2,500 years ago as if the disciple of Parmenides, in the wake of the Greek primacy of the intellect over experience, actually claimed that his master was right and motion was just an illusion. Something similar Dace says about Einstein and his denial of an objective, i.e. frame-independent, present moment.

It is not my intention to delve deeper into his text, that looks to me like a sort of stream of consciousness of a well-informed author who nonetheless dared to share with the public several questionable thoughts, especially about relativity and quantum mechanics (along with objectivity and reality, I want to add). I just want to point out that one way of interpreting Zeno’s four paradoxes on motion (his ‘stadium paradox’ is frequently neglected in the works in the English language) is that they constitute a very-well-concocted argument against both continuous and discrete mathematical models. Either that we describe our world with the former or that we use the latter, we get into trouble. This just means that our efforts to grasp reality always find important limitations (we are human, after all), even when we use mathematics; not that reality is illusory. Think of how we describe the decrease in temperature of a cup of tea, when we just leave it on the table instead of drinking it. Newton’s law of cooling is notoriously an exponential decay model. According to that, only after an infinite amount of time would the tea reach the same temperature of the sorroundings. Is this what actually happens? Of course not. Does this mean that we should get rid of Newton’s law? Of course not.

Zeno showed that no matter how much we try and how sophisticated our models are or our mathematics gets, we will never be able to describe reality in a completely satisfactory way. He did this 2,500 years ago. So many authors have talked about the impossibility for us to grasp reality since then. Dace seems to put a lot of faith in the capacity of quantum

mechanics to change this situation. I do not share his enthusiasm.

References

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