

The background features a large, stylized graphic composed of overlapping shapes: a grey trapezoid on the left containing a white 'V', a grey square on the right containing a green play button icon, and a light green trapezoid at the bottom containing the word 'Vizle' in white. The text 'The Language of Nature' is centered over the grey shapes.

The Language of Nature

Vizle



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The core position: well-confirmed theoretical claims are true, on par with “homely truths” about everyday objects that we perceive with the senses. Just as we all trust our senses, we all trust the results of science.

Realists and antirealists then add controversial claims to this core position. Realists adopt a correspondence theory, taking truth to consist in correspondence with a mind-independent world. Antirealists add some other truth theory.

Fine’s NOA accepts the core position – and nothing more.

The standard objection to this is that antirealists do not accept the core position – they do not treat theoretical claims on par with “homely truths”. Musgrave: the core position is all that’s required to be a realist.

Similarly, Musgrave may say to Kuhn: realism does not assume that truth is correspondence, or that there is a “language of the world”, etc.

A more serious problem is that our best science tells us that we are endowed with representational tools that systematically misrepresent the world.

What matters for evolution is not true representation but useful representation, where utility is defined in terms of survival and reproduction.

Folk physics involves significant distortion and simplification of physical phenomena. It distorts even matters that are relatively easily observable.



Mapping account: Theories present mathematical structures, which can be mapped to the mathematical structures instantiated in the world. Take S_1 as a theoretical structure and S_2 as the structure of a target system.

This approach is appealing because from a structuralist point of view, the nature of the objects that instantiate the structure is irrelevant. A theory created by scientists, and a physical system in the world, can have the same structure!

Problem: I have spoken of target systems “instantiating” mathematical structures. However, the relation between mathematics and the physical world is controversial.

According to fictionalists, eliminative structuralists, and Meinongians, mathematical entities and structures do not exist. Talk of physical systems “instantiating” mathematical structures is merely a manner of speaking.

The differential equation that describes the motion of a simple ideal pendulum is not true for any real pendulum.

Some of the idealizations can be removed, which will lead to equations of much greater complexity and accuracy, but we can never remove all the idealizations.

The mathematization of science has proceeded not through attempts to describe how the world is directly, but through the introduction of idealizing assumptions.

There are many cases in which mathematical structures play a useful role in scientific representation, but they cannot be taken to objectively correspond to the world – at least, not in any obvious way.



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