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The Language of Classical Physics

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Abstract

ABSTRACT. The objectivity of physics has been called into question by social theorists, Kuhnian relativists, and by anomalous aspects of quantum mechanics. Here we focus on one neglected background issue, the categorical structure of the language of classical physics. The first half is an historical overview of the formation of the language of classical physics (LCP), beginning with Aristotle's Categories and the novel idea of the quantity of a quality introduced by medieval Aristotelians. Descartes and Newton attempted to put the new mechanics on an ontological foundation of atomism. Euler was the pivotal figure in basing mechanics on a macroscopic concept of matter. The second scientific revolution, led by Laplace, took mechanics as foundational and attempted to fit the Baconian sciences into a framework of atomistic mechanism. This protracted effort had the unintended effect of supplying an informal unification of physics in a mixture of ordinary language and mechanistic terms. The second half treats LCP as a linguistic para-site that can attach itself to any language and effect mutations in the host without changing its essential form. This puts LCP in the context of a language of discourse and suggests that philosophers should concentrate more on the dialog between experimenters and theoreticians and less on analyses of theories. This orientation supplies a basis for treating objectivity.

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