

Category and Physics

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I propose to begin an assessment of the debate on the intervention of the category theory in physics. 1- I begin by considering the classical relationship between geometry and physics using the example of Newton, of a formalism of the theory of GR and quantum mechanics. 2-I am going to show that categorical formulation provides numerous epistemological and philosophical benefits. I will then make a distinction between a local and a global reformulation. 2-I show why one must choose, and often develop a specific understanding of the theory categorized. The risk of the development of the theory of categories itself regardless of initial physical target is always incurred. At this level also the danger of leaving the physical out of it is always present. 4-I want to show how the risk itself is relevant for reasons both physical and mathematical. 5-I will discuss some relationships between geometrization and categorification. My analysis will focus on twistor theory.

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