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Unification and Emergence in Physics: the Problem of Articulation

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(Submitted on 25 Jan 2010)

What is physics? What are the limits of what physics can say about the world? In seeking ever-broader theoretical 'umbrellas' for physical phenomena, we are seeking unifying principles. Emergent phenomena have turned out to be some of the most difficult to explain, causing a 'clash of umbrellas' so-to-speak, at the interface between the quantum and classical domains. This essay explores the role of articulation in this particularly vexing problem and ultimately addresses the question of whether the language and mathematics we use to describe the universe is sufficient in its present form and application.

Comments: Third prize winner, 2009 FQXi essay contest, "What is ultimately possible in physics?"

Subjects: **History of Physics (physics.hist-ph)**; General Relativity and Quantum Cosmology (gr-qc); Quantum Physics (quant-ph)

Cite as: [arXiv:1001.4304v1](#) [physics.hist-ph]

Submission history

From: Ian Durham [[view email](#)]

[v1] Mon, 25 Jan 2010 02:37:54 GMT (13kb)

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