
Beyond Tractability: Microbes as Model Systems

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Abstract

Session: Microbes as model systems (Maureen O'Malley, Jessica Bolker, Michael Travisano, Gregory Velicer)

Beyond tractability: other reasons for microbes as model systems

Tractability is a good reason to use microbes as model systems in evolutionary and ecological experiments. It is not the only reason, however, and I will explore in this talk other reasons – several of which should be of particular relevance to philosophers. Microbes are the most numerous, ancient and physiologically diverse forms of life on the Earth. The ways in which they survive, reproduce and evolve are multiplicitous. Often, when philosophers discuss general properties of living systems, they begin with multicellular organisms and work backwards from them, with the consequence that large organisms become the exemplars of units of reproduction, selection, evolution and biodiversity. I will take three such cases and compare what happens when the analysis starts with microbes against what happens when it starts with macrorganisms (specifically animals). The three cases are the notion of organism (including modes of reproduction), multicellularity (with relevance for developmental processes), and evolutionary transitions (specifically the evolution of eukaryotic characteristics such as sex). In all three cases, I will suggest philosophers at least are better off starting with microorganismal consortia than they are starting with macrorganismal 'individuals'.

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