
Gradualism: Complications and Implications.

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Abstract

Claims that evolution is gradual play various important roles in evolutionary theory – from defending the plausibility of evolutionary theory’s explanations of biological phenomena to bestowing ”creativity” to natural selection (Gould, *The Structure of Evolutionary Theory*). Darwin was a great gradualist and gradualism remains central to Darwinism, but I shall argue that the concept is more imperiled than it is generally assumed to be. I distinguish relative gradualism from absolute gradualism and show how each notion carries out different roles in evolutionary theory. Relative gradualism faces the problems of what a trait is and how trait value change should be measured. Absolute gradualism also requires determining how much trait value change in one event disqualifies a period of evolution from being gradual. Finding no objective direct answer to this problem, I propose, instead, an objective notion of transition length and ask: what is the maximum proportion of change within that transition that could happen in one event while that transition remains gradual? I shall use these notions to investigate the logical relations of gradualism between parts and wholes. Finally, I shall suggest what systems are prime candidates for gradual evolution and what are not.

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