Astrobiology and the Evolutionary Contingency Thesis

Cory Lewis*[1]

[1]Institute for the History and Philosophy of Science (University of Toronto) (IHPST) – 91 Charles St. W., room 316, Toronto, Ontario. M5S 1K7, Canada

Abstract

This paper will argue that the field of astrobiology is direct, empirical exploration of the Evolutionary Contingency Thesis (ECT). There has been an ongoing debate in the philosophy of biology about the extent to which evolutionary outcomes are essentially contingent. John Beatty has argued that there are no distinctively evolutionary laws ? that what regularities exist in evolution are physical, chemical or mathematical. Against this, Simon Conway Morris has argued that the prevalence of convergence in evolution shows that evolutionary outcomes are predictable like any other physical phenomenon. While it is fairly clear that any answer to this question will be relative to a given framework of similarity, I hope to show that a substantive question about the distribution of contingent and necessary outcomes remains. I will argue that the emerging field of astrobiology provides a set of research projects which have the potential to directly answer this challenge. While we are not currently in a position to evaluate the ECT, I will try to show that we are pursuing the right research questions to eventually verify or falsify it.

*Speaker