Discovering Mechanisms: A Computational Philosophy of Science Perspective⋆

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Abstract. A task in the philosophy of discovery is to find reasoning strategies for discovery, which fall into three categories: strategies for generation, evaluation and revision. Because mechanisms are often what is discovered in biology, a new characterization of mechanism aids in their discovery. A computational system for discovering mechanisms is sketched, consisting of a simulator, a library of mechanism schemas and components, and a discoverer for generating, evaluating and revising proposed mechanism schemas. Revisions go through stages from how possibly to how plausibly to how actually.

⋆ The full version of this paper is published in the Proceedings of the 4th International Conference on Discovery Science, Lecture Notes in Artificial Intelligence Vol. 2226