Modest Surrealism: An Explanation of "Success" in the Sciences
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The contemporary scientific realism debate centers around the realist's claim that successful scientific theories are at least approximately true. Realists, such as Hilary Putnam justify this claim by arguing that it would be a miracle were our successful scientific theories not at least approximately true. Denying the possibility of miracles, the scientific realist must defend a theory's approximate truth as the only possible explanation for its success. Anti-realist Bas van Fraassen responds to the realist's argument by offering a Darwinian explanation for the success of scientific theories, an explanation that involves neither truth nor miracles: we have successful theories because we reject those that do not succeed. Realists object that – although van Fraassen's alternative may explain why we have successful theories – it fails to explain why any particular theory is successful. Striking at realism from another direction, Larry Laudan offers a list of historically successful scientific theories that are not even approximately true. Faced with a list of such false yet successful theories, while nonetheless seeking an explanation for the success of particular theories, one is pressed to find some alternative explanation of success that does not appeal to a theory's approximate truth. Timothy Lyons presents one such alternative explanation which he terms modest surrealism. In contrast with van Fraassen's Darwinian explanation, modest surrealism is put forward as an explanation of the success of individual theories. It claims that the mechanisms postulated by the theory would, if actual, bring about all relevant phenomena observed and some yet to be observed at time t; and these phenomena are brought about by actual mechanisms in the world. I critically analyze modest surrealism, exploring its strengths and weaknesses against competing explanations. Doing so, I apply modest surrealism to a host of successful scientific theories, revealing its potential application to the sciences and their history.

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