A Theory of Theories

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Abstract

On the basis of examples from mathematical physics, theoretical hypotheses are distinguished from generative theories. An example of the former is Green ' s claim that light is the vibrations of a certain type of elastic solid. An example of the later is the wave theory of light. Both hypotheses and theories are characterized in terms of theoretical principles and models, but unique to a theory is a language frame for generating its many models. The aim of theory is defined in terms of both accommodating nature and unifying nature through assimilation. The structure and use of generative theories closely resembles the structure of paradigms and their use in normal science [Kuhn 1970].

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