1. Record Nr.   UNINA9910726288803321

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Titolo   Essays on the Extended Evolutionary Synthesis : Formalizations and Expansions / / by Rodrick Wallace

Pubbl/distr/stampa   Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023

ISBN   9783031298790
9783031298783

Edizione   [1st ed. 2023.]

Descrizione fisica   1 online resource (177 pages)

Collana   SpringerBriefs in Evolutionary Biology, , 2192-8142

Disciplina   576.8

Soggetti   Evolution (Biology)
Psychology
Model theory
Evolutionary Biology
Evolutionary Theory
Behavioral Sciences and Psychology
Model Theory

Lingua di pubblicazione   Inglese

Formato   Materiale a stampa

Livello bibliografico   Monografia

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| Sommario/riassunto | From the 'punctuated equilibrium' of Eldrege and Gould, through Lewontin's 'triple helix' and the various visions and revisions of the Extended Evolutionary Synthesis (EES) of Laland and others, both data and theory have demanded an opening-up of the 1950's Evolutionary Synthesis that so firmly wedded evolutionary theory to the mathematics of gene frequency analysis. It can, however, be argued that a single deep and comprehensive mathematical theory may simply not be possible for the almost infinite varieties of evolutionary process active at and across the full range of scales of biological, social, institutional, and cultural phenomena. Indeed, the case history of 'meme theory' should have raised a red flag that narrow gene-centered models of evolutionary process may indeed have serious limitations. What is attempted here is less grand, but still broader than a gene-centered analysis. Following the instruction of Maturana and Varela that all living systems are cognitive, in a certain sense, and that living as a process is a process of cognition, the asymptotic limit theorems of information and control theories that bound all cognition provide a basis for constructing an only modestly deep but wider-ranging series of probability models that might be converted into useful statistical tools for the analysis of observational and experimental data related to evolutionary process. The line of argument in this series of interrelated essays proves to be surprisingly direct. |