

ZAKŁAD FILOZOFII NAUK PRZYRODNICZYCH
INSTYTUTU FILOZOFII
UNIwersYTETU JagIELLOŃskiego

WYKŁAD GOŚCINNY

poniedziałek 3. czerwca 2019 r., godz. 14⁰⁰

sala nr 25 Collegium Broscianum

Kraków, ul. Grodzka 52

Explaining the behaviour of random ecological networks. The stability of the microbiome as a case of integrative pluralism

Javier Suárez (University of Barcelona & University of Exeter)

Abstrakt:

Explaining the behaviour of ecosystems is one of the key challenges for the biological sciences. Since 2000, new-mechanicism has been the main model to account for the nature of scientific explanation in biology. The universality of the new-mechanist view in biology has been however put into question due to the existence of explanations that account for some biological phenomena in terms of their mathematical properties (mathematical explanations). Supporters of mathematical explanation have argued that the explanation of the behaviour of ecosystems is usually provided in terms of their mathematical properties, and not in mechanistic terms. They have intensively studied the explanation of the properties of ecosystems that behave following the rules of a non-random network. However, no attention has been devoted to the study of the nature of the explanation in those that form a random network. In this paper, we cover that gap by analysing the explanation of the stability behaviour of the microbiome recently elaborated by Coyte and colleagues, to determine whether it fits with the model of explanation suggested by the new-mechanist or by the defenders of mathematical explanation. Our analysis of this case study supports three theses: (1) that the explanation is not given solely in terms of mechanisms, as the new-mechanists understand the concept; (2) that the mathematical properties that describe the system play an essential explanatory role, but they do not exhaust the explanation; (3) that a non-previously identified appeal to the type of interactions that the entities in the network can exhibit, as well as their abundance, is also necessary for Coyte and colleagues' account to be fully explanatory. From the combination of these three theses we argue for the necessity of an integrative pluralist view of the nature of behaviour explanation when this is given by appealing to the existence of a random network.

Zainteresowanych tematem serdecznie zapraszamy.