



Emergence, Causality, and Complexity

Workshop at the Käte Hamburger Kolleg: Cultures of Research

25-26 November 2024, Aachen

Organized by Erica Onnis, Ana María Guzmán, Alexander Schubert

Abstract

According to many authors involved in the debate about emergence, ontological emergent phenomena can be characterized as partially dependent on a more fundamental base and causally novel in instantiating new causal properties able to make them autonomous. Moreover, emergence is often recognized as a relevant feature in complex systems, namely those systems composed of several parts mutually influencing each other and producing unexpected and sometimes highly organized behaviors. The significance of the relationship between emergence, causal efficacy, and complexity is clear. However, how to conceive more precisely this connection and the notions at play is far from straightforward.

From a historical point of view, one particular type of complex object sparked the debates that continue today: the organism. After the advent of biology as a science, the question of whether the complexity of biological phenomena introduces some kind of non-linear causality shaped the search for a middle position between mechanism and vitalism in, for example, post-Kantian idealism and, subsequently, British Emergentism which gave the middle position its contemporary name. Debates about constraints and their causal relevance in biology prove that such historical considerations are still relevant today.

The international workshop *Emergence, Causality, and Complexity* aims to bring together contemporary and historically inspired philosophical perspectives on the nature of emergent phenomena, their causal dimension, and their role in shaping our view of complexity.

Program

25th November

9:00 Coffee

9:15 Welcome, Introduction

9:30 Gabriele Gramelsberger – Complexity in Science

10:00 Discussion

10:30 Fausto Fraisopi – Intra-theoretical causations, inter-theoretical constraints and meta-ontological modelling of complexity

11:00 Discussion

11:30 Break

11:45 Erica Onnis – Emergent novelty: causal and qualitative

12:15 Discussion

12:45 Lunch break

14:30 Olivier Sartenaer & Maxime Hilbert – The Rise and Fall of a Myth about British Emergentism

15:00 Discussion

15:30 Alex Schubert & Ana María Guzmán – Metaphysics of Emergence after Kant

16:00 Discussion

16:30 Anna Marmodoro (online) – The emergence of numerical novelty: an ancient proposal for modern discussion

17:00 Discussion

17:30 Break

17:45 General discussion

18:30 Workshop dinner

26th November

11:00 Michele Paolini Paoletti – Emergent Powers (and Properties) without Collapse

11:30 Discussion

12:00 Phoebe Stone – Schelling's 1809 Law of Identity and the Problem of searching for First-In-Series Origins in Traditional Emergentism

12:30 Discussion

13:00 Lunch break

14:30 Andrea Garbarotto - Emergence and Constraints

15:00 Discussion

15:30 Vanessa Seifert (online) – Does special science realism imply emergence? The case of chemical bonds

16:00 Discussion

16:30 Break

17:00 Jessica Wilson (online) – Is Strong Emergence Incompatible with Quantum Field Theory?

17:30 Discussion

18:00 General discussion

18:30 End of Workshop