



LIFE, EVOLUTION, SENTIENCE:  
A PHILOSOPHICAL COLLOQUIUM

UNED, MADRID, 8-9 FEBRUARY 2024

## **Organizers and Funding**

Departamento de Lógica, Historia y Filosofía de la Ciencia, Universidad Nacional de Educación a Distancia, Madrid, within the scope of the Project “NORMABioMed (2022-2024): Normatividad y Enfoque Mecanístico en la Filosofía de las Ciencias Biológicas y Biomédicas. De la Medicina a la Cognición Animal.”, principal investigator Cristian Saborido Alejandro, with the financial support of the Ministerio de ciencia e innovación, Gobierno de España (Grant N. PID2021-128835NB-I00)

Departamento de História e Filosofia das Ciências, Faculdade de Ciências, Centro de Filosofia das Ciências, Universidade de Lisboa, Campo Grande, Lisboa, within the scope of the Project EVORISE (Evolution of Sentience), principal investigator Davide Vecchi , with the financial support of the FCT–Fundação para a Ciência e a Tecnologia (DL57/2016/CP1479/ CT0072; Grants N. UIDB/00678/2020 and UIDP/00678/2020).

## SCHEDULING

			<b>Tuesday 8/2/2023</b>
			<b>MODULE 1 LIFE: MUTLIDISCIPLINARY VIEWPOINTS</b>
<b>morning</b>	10:00	10:15	welcome and introduction to module 1
	10:15	11:00	<b>Maurizio Esposito</b> “Misunderstanding” Life: Bergson’s Creative Evolution revisited.
	11:00	11:45	<b>Lorenzo Baravalle</b> Artificial Life, artificial sentience?
	11:45	12:15	coffee break
	12:15	13:00	<b>Santiago Ginnobili</b> The Metatheoretical Nature of the Violation of Expectation Paradigm
	13:00	13:15	Final discussion
	13:15	14:30	lunch

			<b>Tuesday 8/2/2023</b>	
			<b>MODULE 2 SENTIENCE: NEW PERSPECTIVES</b>	
<b>afternoon</b>	14:30	14:45	introduction to module 2	
	14:45	15:30	<b>Davide Vecchi</b> Does biology provide good reasons to cut phylogeny sharply between sentient and non-sentient	
	15:30	16:15	<b>Gustavo Caponi</b> Sentience as a cognitive-behavioral ability	
	16:15	16:45	coffee break	
	16:45	17:30	<b>Gil Santos</b> Sentience from a psychological point of view	
	17:30	17:45	Final discussion	
	20:30	22:30	dinner	

			<b>Friday 9/2/2023</b>
			<b>MODULE 3 EVOLUTION: FORMAL AND METAPHYSICAL ISSUES</b>
<b>morning</b>	10:00	10:15	introduction to module 3
	10:15	11:00	<b>Giorgio Airoidi</b> Trait or essence? The unsolvable conundrum of sentience in evolutionary biology
	11:00	11:45	<b>Victor Luque</b> A universal view of evolution
	11:45	12:15	coffee break
	12:15	13:00	<b>Vanessa Triviño &amp; Cristina Villegas</b> Characterizing the relation between dispositions and types in evo-devo: a metaphysical approach
	13:00	13:15	Final discussion & End of workshop

## ABSTRACTS

### MODULE ONE

#### LIFE: MUTLIDISCIPLINARY VIEWPOINTS

##### **Maurizio Esposito**

*“Misunderstanding” Life: Bergson’s Creative Evolution revisited.*

In the Introduction of his *Creative Evolution*, Bergson argues that our perceptive and cognitive systems did not evolve to understand life and evolution; they evolved to deal with the circumstantial challenges of our environments. Accordingly, as we do not expect hammers to be fit for writing novels, we should not expect our brains to provide “accurate” representations of living processes. Our brains - Bergson claimed - evolved for grasping generally static, synchronic, and simple geometrical structures, not for speculating over highly complex, dynamic, and diachronic systems. In short, our brains would unwittingly “misunderstand” organic phenomena because they did not evolve to understand them. To Bergson, the way out of the pessimistic conclusion that we are inherently unfit for grasping living processes is to introduce a new epistemic, intuitive “faculty” complementing empirical and logical methods of scientific investigation. In this talk, I address, analyze, and criticize what I call the “misunderstanding argument,” which, as far as I know, has never been properly settled. I suggest that while its premises might be sound, the conclusion is unnecessarily problematic. I finally argue that while most of the contents of Bergson’s book are scientifically outdated, there are a few fascinating insights that still deserve philosophical attention.

##### **Lorenzo Baravalle**

*Artificial Life, artificial sentience?*

In this talk, I shall critically review recent literature on the possibility of building conscious machines, starting from our knowledge of the evolutionary origins of sentience. In particular, I shall draw on Ginsburg and Jablonka’s (2019) Unlimited Associative Learning (UAL) framework, Bronfman et al.’s (2021) extension of the UAL framework to robotic devices, and Man and Damasio’s (2019) work on soft robotics. These accounts point to promising directions for future research in Artificial Life. However, I shall argue that the actual realisation of robotic devices that exhibit UAL would ultimately pose a challenge to the UAL framework itself.

**Santiago Ginnobili**

*The Metatheoretical Nature of the Violation of Expectation Paradigm*

The violation of expectation paradigm is a commonly used procedure for non-human animals or pre-linguistic humans. Surprisingly, there is little discussion about it in philosophical literature. The objective of this presentation will be to provide a first approach to the metatheoretical nature of the assumptions behind the procedure that appeals to the violation of expectation, and to extract some consequences. I will show that there is an empirical principle behind it that affirms that violating the expectation of certain mental rules produces surprise. Next, I will discuss the nature of these "mental rules." Theoretical concepts proposed by theories, such as mental rules, do not have a fixed interpretation, as is often the case. This will allow me to show that the usual relationship found in the developmental literature between this experimental paradigm and cognitive approaches (which interpret experimental results in terms of higher-level mental activities) is not necessary. Finally, I will explore the intertheoretical relationships between this experimental design, the mark test, and the inequity aversion test.

MODULE TWO

SENTIENCE: NEW PERSPECTIVES

**Davide Vecchi**

*Does biology provide good reasons to cut phylogeny sharply between sentient and non-sentient organisms?*

In this talk, I shall identify what kinds of empirical evidence and theoretical considerations should be used to support specific hypotheses concerning the evolutionary origin of sentience.

**Gustavo Caponi**

*Sentience as a cognitive-behavioral ability*

Cognitions are the records that a living being has of the functional adjustment of the patterns that guide some of its reactions and that make possible the optimization of these patterns in future occurrences of these same reactions. Accordingly, sentience can be thought of as a set of records that a living being has of its internal states and that allow it to react behaviorally to these states. This makes the existence of this sentience, and the forms it adopts, accessible to observation. We can attribute a syntentional register to a certain living being, to the extent that we can also attribute to it behavioral reactions that can be considered as responses guided by that cognition.

**Gil Santos**

*Sentience from a psychological point of view*

If sentience is to be understood in terms of "subjective, valenced experiences", "minimal consciousness", or "feelings" that a system may have about its own internal states, then sentience is, by definition, a psychological phenomenon. In this sense, the question of what types of structures can instantiate psychological properties can only be adequately addressed by taking human and comparative psychology into consideration.



MODULE THREE

EVOLUTION: FORMAL AND METAPHYSICAL ISSUES

**Giorgio Airoidi**

*Trait or essence? The unsolvable conundrum of sentience in evolutionary biology*

Whether sentience is an evolutionary novelty or a feature consubstantial to life is one of the main questions in evolutionary biology and philosophy. In this talk I analyse how biologists approach this question and show that neither formal models nor unformal narratives have solved the conundrum, and argue that neither can. As for mathematical models, many claim to formalise the theory of natural selection. Although they manage to capture changes in gene frequency or phenotypic traits caused by selection and other evolutionary phenomena within a population, I show that none can formalise the appearance of evolutionary novelties, least of all in the case of sentience, which lacks a clear definition and can hardly be treated as a trait. As for non-formal narratives applied to the rise of sentience, I argue that they are doomed to fail, as, due to the intrinsic essence of sentience, they have little chance of escaping the 'just-so-story' paradigm.

**Victor Luque**

*A universal view of evolution*

Due to its high degree of complexity and its historical nature (Bartholomew 1986), evolutionary biology has been traditionally portrayed as a messy science (Tawfik 2010). According to this view, evolutionary biology would be unable to formulate laws and robust theories, instead just delivering coherent narratives and local models focused on terrestrial life (Pigliucci 2002, Waters 2011). However, evolution is a phenomenon that must occur in any part of the Universe, if conditions permit. In addition, evolution can occur to non-biological entities (e.g. cultural entities; Lewens 2015). Therefore, there is an ever-growing need for a universal view of evolution, connecting all possible evolutionary systems: biological evolution (including astrobiology and synthetic biology; Irwing and Schulze-Makuch 2011, Moya et al. 2009), cultural evolution (including the evolution of human societies; Turchin 2011), algorithmic evolution (Basset et al. 2005), chemical evolution (Pross 2011), etc. My aim is to challenge the traditional (local) view of evolution by showing how the formalism developed by George Price (1970, 1995), the Price equation, can work as the core of a universal theoretical framework for evolutionary phenomena.

**Vanessa Triviño & Cristina Villegas**

*Characterizing the relation between dispositions and types in evo-devo: a metaphysical approach*

Biological traits have been interpreted as natural kinds in the philosophical literature. Here, we argue that current theories cannot properly explain how traits evolve, and, following the evo-devo approach to evolution, we propose to characterize them as natural dispositional kinds instead. We further argue that this particular case study constitutes an example of a kind of interaction between metaphysics and biology that we label Metaphysics from Biology, where the specific demands of a complex reality such as evolution require the development of metaphysical notions that seem to go beyond those given in the literature.

## HOW TO GET TO THE VENUE

### ADDRESS

UNED, Facultades de Humanidades

Paseo Senda del Rey 7

28040 Madrid

### PUBLIC TRANSPORT

From Moncloa:

Bus 46, stop: Puente de los Franceses

Bus 160, 161, stop: Avda. de Séneca

From Principe Pio:

Bus 46, stop: Parada Senda del Rey - Obispo Trejo

