Symposium: *The Bases of Cognition: medium-(in)dependence, biological constraints, and the feasibility of computational-mechanistic explanation*

Beate Krickel: *Can Computational Explanations Be Mechanistic?*

Computational models are ubiquitous in cognitive neuroscience, yet their explanatory role remains unclear. New mechanists typically maintain that explanations are explanatory insofar as they describe mechanisms. However, computational explanations seem difficult to accommodate within standard mechanistic accounts. In this short talk, I argue that two challenges arise: computational properties often fail to satisfy traditional criteria of constitutive relevance, and model-to-mechanism mappings alone do not explain why computational descriptions are explanatorily informative. Drawing on the case of collision avoidance in locusts, I propose a contrastive account of mechanistic explanation according to which computational models contribute by identifying difference-making features across possible mechanisms.

Dimitri Coelho Mollo: *Explanatory pluralism, cognitive ontologies, and medium-(in)dependence*

In this short talk, I will try and defend a pluralist approach to the discussion about the medium-(in)dependence of cognition and consciousness. I will suggest that it may be a mistake to think that there is a single answer to whether those capacities are medium-(in)dependent or else. In brief, medium-(in)dependent explanations are likely to be better suited for certain kinds of explanatory purposes and targets, in their turn better captured by specific choices of explanatory and target ontologies, some of which involving medium-dependent, some of which medium-independent individuation criteria.

Federico Adolfi: *What medium (in)dependence could mean for the feasibility of neurocognitive explanations*

In this short talk I will examine the epistemic consequences of medium (in)dependence assumptions, drawing on (applied) theoretical computer science. I will first discuss how computational complexity considerations can be brought to bear regardless of whether one rejects computationalism or indeed computation as a pragmatic perspective on cognitive systems. I will then explore the idea that medium (in)dependence plausibly affects the resource demands of obtaining certain epistemically useful objects, with consequences for the feasibility of neurocognitive explanations and knowledge discovery. Finally, I will argue that the complexity-theoretic interplay between medium (in)dependence and our explanatory goals has implications of broad interest that scientists and philosophers should explore together.