

BERGEN PHILOSOPHY OF SCIENCE WORKSHOP

DEPARTMENT OF PHILOSOPHY

UNIVERSITY OF BERGEN

Ground Floor Seminar Room | 12/13 Sydnesplass | Bergen 5007 | Norway

4-5 JUNE 2015

Thursday 4 June

14.00 – 15.00

Mark Steiner (Hebrew Univ. of Jerusalem)

The Silent Revolution of Wittgenstein in the Philosophy of Mathematics, 1937

15.15 – 16.15

Catherine Wilson (York Univ.)

The 'Hard Problem' of Consciousness: Scientific Explanation and Philosophical Ineffability

16.30 – 17.45

Juha Saatsi (Leeds Univ.)

Emergence and Explanation

19.00 Conference dinner

Friday 5 June

9.30 - 10.30

Mary Leng (York Univ.)

Mathematical Realism and Naturalism

10.45 – 11.45

Anjan Chakravartty (Notre Dame Univ.)

Property Ontology in Fundamental Physics

11.45 – 12.15 Lunch on site

12.15 – 13.15

Oystein Linnebo (Univ. of Oslo)

Mathematics and Inference to the Best Explanation

13.15 Farewell

Everyone welcome, no registration needed.

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Anjan Chakravartty (Univ. of Notre Dame)

Property Ontology in Fundamental Physics

I explore different conceptions of the ontological nature of properties as described in fundamental physics – more specifically, in the context of the Standard Model of particle physics. The theory itself describes the relevant properties (like mass, charge, and spin) simply as invariants of certain mathematical, symmetry group transformations, but this by itself leaves their ontology largely unspecified. Some think that symmetry principles suggest a kind of structural ontology. Others think that these properties are better described in terms of an ontology of dispositions. I consider the contrasting motivations for these markedly opposed conceptions of fundamental ontology.

Mary Leng (York Univ.)

Mathematical realism and naturalism

The label "Naturalism" is used to cover a range of philosophical views, some of which ('naturalism as physicalism') apparently speaking against mathematical realism, and others ('naturalism as scientific realism') apparently speaking in favour of realism about mathematical objects. In the context of the debate over the indispensability of mathematics in empirical science, it is widely assumed that Quine's naturalism implies scientific realism, which in turn implies mathematical realism (if mathematics is indispensable). Granting the indispensability of mathematics, debate over mathematical realism then transfers to whether elements of the Quinean picture hold together (e.g., Maddy's objection that Quine's naturalist trust of science is in tension with his insistence on confirmational holism). But even setting these (real or apparent) tensions aside, there remains a question of whether Quine's naturalism is really compatible with the "robust realism" he claims to uphold. This paper will question whether Quine's naturalism packs the ontological punch required by those Platonists who appeal to the indispensability argument to support their realism.

Øystein Linnebo (Univ. of Oslo)

Mathematics and inference to the best explanation

The method of "inference to the best explanation" is frequently invoked, not only in the empirical sciences but also in the philosophy of mathematics. After reviewing some appeals to this method in the philosophy of mathematics, I examine the conditions under which the method is justified. This examination calls into question the potential of the method as a way of justifying new mathematical axioms.

Juha Saatsi (Leeds Univ.)

Emergence and Explanation

In this talk I explore some arguments for (ontological, strong) emergence in the light of currently popular accounts of scientific explanation. Amongst the various arguments for emergence there are some that explicitly turn on the idea that any purportedly reductive theory is bound to be explanatorily incomplete. After discussing these arguments in general terms, I will focus more specifically on the explanatory indispensability of infinite limits in renormalisation group explanations of universality (as discussed by Batterman, Menon and Callender, and others).

Mark Steiner (Hebrew Univ. Jerusalem)

The Silent Revolution of Wittgenstein in the Philosophy of Mathematics, 1937

Sometime in late 1930's, Wittgenstein embarked on a new direction in the philosophy of mathematics. This "silent revolution," as I call it, involved how Wittgenstein viewed the relation between mathematics and its applications to the world. By studying Wittgenstein's notebooks, which track his philosophical and personal development, we can see when and where this revolution took place—in August, 1937, about 4 hours from this conference. The revolution was accompanied by great turmoil for Wittgenstein—intellectual, psychological, and even sexual.

Catherine Wilson (York Univ.)

The 'hard problem' of Consciousness: scientific explanation and philosophical ineffability

David Chalmers follows a long line of metaphysicians, going back perhaps to Leibniz with his 'mill' argument, who argue that consciousness cannot be explained by the natural sciences. This stance leads him to the conclusion that thermostats and other non-animals may have some form of awareness. To a biologist this supposition is absurd, and many neuroscientists do feel they are making progress on the hard problem. What does this standoff suggest about the relationship of these two disciplines, one apparently focused on possible worlds, the other on reality?