Department of HISTORY AND PHILOSOPHY OF SCIENCE
Loránd Eötvös University, Budapest

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The web site of the colloquium: *http://philosophy.elte.hu/colloquium*

Philosophy of Science Colloquium
Room 1.817 (1st floor) Monday 4:00 PM

March 2006

6 March 4:00 PM 1st floor 1.817

Language: *English*

Gábor Kutrovátz

Department of History and Philosophy of Science
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Apriorism in the Sociology of Scientific Knowledge

The paper attempts to reconstruct and compare the epistemological positions taken by Kuhn in his later work and SSK (especially the Strong Programme), in terms of their relations to a broadly understood Kantian philosophical tradition. In some of his works discussing the role of what he called lexicons' in science, Kuhn admittedly characterised his philosophical stance as Kantian, specifying knowledge-conditioning categories as movable and to a large extent linguistic. While forms of Kantianism in SSK are not so explicit, criticisms of the Strong Programme (Latour) and analyses of science studies (Hacking, Sismondo) often place the field's epistemological commitments in a Kantian framework.

The paper addresses the following questions:

1. In what sense can we call late Kuhn's position Kantian, reconstructed from his related claims?

2. How Kantian is SSK in a Kuhnian sense, and what are the basic similarities and differences between Kuhn and SSK in this specific framework? In particular, is Kantianism reconcilable with naturalism at any philosophical, let alone methodological, level?

3. How does SSK, and especially the Strong Programme, relate in terms of Kuhnian-type Kantianism to trends in science studies which, because of their reliance on the construction metaphor, are often referred to as constructivist' (e.g. Knorr-Cetina)?

4. Reconsidering some aspects of Kant's original solution to the problem of cognition, what can we say about the prospects and scope of Kuhnian and SSK-type explanations of scientific knowledge? Are perceptual, besides conceptual, aspects of cognition open to a sociological reformulation of Kantian themes?

13 March 4:00 PM 1st floor 1.817

Language: *English*

Hideto Nakajima

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Robert Hooke as an Astronomer

Who was Robert Hooke? It has remained a longstanding question to be answered by historians of science. Of course, he is known as a natural philosopher who discovered Hooke's law of elastic bodies, and who

saw cells first in history with his microscopes. But even then, it has not been possible to give consistent picture on his researches, which covered vast areas from biology through physics to the re-building of London after the Great Fire in 1666. The only 'definition' researchers agreed was Hooke was a relentless but lesser enemy of his rival, Isaac Newton.

For example, in 1672, when Newton submitted his reflecting telescope, a totally brand-new telescope, to the Royal Society with his revolutionary theory of light and colors, Hooke, curator of the Society, harshly criticized both the instrument and the color theory, on which it was invented. It has been said that Hooke attacked Newton even without correct understanding of Newton's theory.

The talk is aimed at changing this image of Hooke being a lesser enemy of Newton. Starting from the analysis of Hooke's antagonism against Newton on optical theory, the speaker will gradually elucidate that Hooke was regarded as an able astronomer in Europe in the midst of the seventeenth century. Indeed, Hevelius, a leading observational astronomer in Danzig, wanted to acquire a telescope made under Hooke's supervision through Oldenburg. Hooke's criticism on Newton was not at all absurd, but based on his experience in observational astronomy.

The talk will end with the claim that we can interpret a considerable part (of course, not all) of Hooke's scientific activities consistently if we see them in the context of observational astronomy, one of the three important fields of experimental science (or natural philosophy) those days. Even though I agree with the importance to see science in its social context, it is also important to see it in its own context as well.

(Note) The essence of the talk will be published in *Robert Hooke Tercentennial Studies*, M. Cooper and M. Hunter (eds.), ISBN 075465265x (forthcoming, Ashgate Pub., 2006), which is composed of the selected articles delivered at Hooke's tercentennial memorial at the Royal Society of London in 2003.

20 March 4:00 PM 1st floor 1.817

Language: *English*

László E. Szabó
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The metaphysical basis of logic and mathematics
(A physicalist approach)

By 'physicalism' I mean something entirely different from what is sometimes called 'immanent realism'. Rather I mean the metaphysical commitment to the following two principles: 1) Genuine information about the world must be acquired by *a posteriori* means. 2) Experiencing itself, as any other mental phenomena, including the mental processing the experiences, can be wholly explained in terms of physical properties, states, and events in the physical world.

I will claim that mathematics is a system of meaningless signs and mechanical operations, and that all of these are living in the physical world, but without "representing" some platonic objects or Fregean abstract entities. In pure mathematics, the formulas of a formal system do not carry Tarskian truths. They are true only in the sense that they have proof, that is, there exists a derivation process, as a physical process, within the formal system in question.

Consequently, it is completely meaningless to talk about "intuitive arithmetic", "naive set theory", "intended interpretation", and the like, or to differentiate "numbers" from "numerals" or to use the phrase "axiomatization of ...", etc.

Finally, I would like to say a few words about the epistemological status of meta-mathematical theories, and to point out some weak points of the proofs like the "absolute proof of consistency" of sentence calculus, or the proof of Goedel's incompleteness theorem. I will argue that Goedel's theorems are clothed with meta-mathematical meanings which they do not have.

Related paper: L. E. Szabó: Formal Systems as Physical Objects: A Physicalist Account of Mathematical Truth, *International Studies in the Philosophy of Science*, **17** (2003) pp. 117–125 (preprint: http://philosophy.elte.hu/leszabo/Preprints/MAKOG2002/formfiz_preprint.pdf)

27 March 4:00 PM 1st floor 1.817

Language: *Hungarian*

Gábor Takács

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Relativisztikus kvantumelmélet: részecskék vagy mezők?
(Relativistic quantum theory: particles or fields?)

Az előadás a relativisztikus kvantumelmélet (kvantumtérelmélet) alapvető ontológiai problémáját veti fel. Mennyiben igazolható az elemi folyamatok leírására sokszor használt részecskekép? Hogyan függ ez össze lokalitással, lokalizálhatósággal? Milyen létezőket tekinthetünk a relativisztikus kvantumelméletben fundamentálisnak? A probléma nyitott. A jelenlegi ismereteink szintjén az első lépés a helyes kérdésfeltevés kidolgozása kell legyen. Az előadás ehhezkíván hozzájárulni.

The colloquium is open to everyone, including students, visitors, and faculty members from all departments!

The 60-minute lecture is followed by a 10-minute break. Then we hold a 30-60-minute discussion. The participants may comment on the talks and are encouraged to initiate discussion through the Internet. The comments should be written in the language of the presentation.

The organizer of the colloquium: László E. Szabó (email: leszabo@philosophy.elte.hu)