

New issues in philosophy of biology – new perspectives for philosophy of science

Postgraduate Workshop in Philosophy of Biology organized by the ESRC Centre for Genomics in Society, University of Exeter, May 24-27 2005

The ESRC Centre for Genomics in Society at the University of Exeter is inviting postgraduate students to attend a three days workshop in philosophy of biology taught by Professor John Dupré, Dr Christine Hauskeller, Professor Paul Griffiths and Dr Staffan Mueller-Wille. The workshop will provide postgraduate students with an opportunity for an in-depth discussion of recent literature in the field that addresses classical topics of philosophy of science — classification, conceptual change, and causation— in a fresh way.

In the past, this field was to a large extent dominated by problems that came out of the biological disciplines themselves. Philosophers of biology asked questions like: What are the units of selection? What is the true nature of biological species? What is a gene? Leading figures in the field were often biologists, such as Ernst Mayr, Richard Lewontin, and Stephen Jay Gould, to name just the most prominent, and their recourse to philosophy had very often as much to do with the politics of the discipline as with genuine philosophical interest.

While this was and remains to be a productive and legitimate way of pursuing philosophy of biology, the rapid advances of genomics in the past three decades offer new perspectives, not only for the philosophy of biology, but for the philosophy of science in general. The life sciences have grown in prominence and have replaced physics as the paradigm science. Strategies of data collection and experimentation, processes of concept formation, and the relationship between basic science and its application in biology deviate considerably from their counterparts in the physical sciences. Current strategies in biology do not lend themselves easily to the empiricist, hypothetico-deductive model that has long dominated the philosophy of science. On the other hand it has become a pressing issue to understand the sciences in a more descriptive rather than prescriptive manner, due to the far reaching practical and ethical implications that contemporary genomic research has for society at large.

Session 1: Species, tokens, names – The art of classifying

Turning from ontological to epistemological questions, recent literature on the history and philosophy of taxonomy has revealed surprising new answers to some old questions. Classification is a fundamental aspect of any scientific activity. Looking at the pragmatic side of it reveals how classificatory schemes are constituted through the naming, collection, and exchange of exemplars, while they remain open for revision and a plurality of interpretations.

Daston, Lorraine. 2004. Type Specimens and Scientific Memory. *Critical Inquiry* 31:153-182.

Dupré, John. 2001. In defence of classification. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 32:203-219.

Müller-Wille, Staffan. 2003. Joining Lapland and the Topinambes in flourishing Holland: Center and periphery in Linnaean botany. *Science in Context* 16:461-488.

May 26, 2005

Session 2: Genes – A concept in flux

There has never been a generally accepted definition of the “gene” in genetics. Today, in the era of postgenomics voices are being raised to abandon the concept of the gene altogether. Yet the reductionist, gene-centered view of life enjoyed tremendous successes in the twentieth century. Newer research suggests that this was due to the fact, that genes were first and foremost handled by geneticists as entities of epistemological rather than ontological value. They figure so prominently in biology because they provide highly successful entry points for the investigation of biological processes.

Kitcher, Philip. 1982. Genes. In *The British Journal for the Philosophy of Science* 33:337-359.

Rheinberger, Hans-Jörg. 2000. Gene Concepts: Fragments from the Perspective of Molecular Biology. In *The concept of the gene in development and evolution : historical and epistemological perspectives*, edited by P. Beurton, R. Falk and H.-J. Rheinberger. Cambridge: Cambridge Univ. Press.

Waters, K. 1994. Genes made molecular. *Philosophy of Science* 61:163-185.

Conference dinner

May 27, 2006

Session 3: The language of genomics

Talk of DNA as embodying genetic ‘information,’ as being the ‘blueprint of life’ is governing scientific and public discourse until today. Recent advances of developmental genetics have led some philosophers to criticize the terminology as a misleading, reductionist metaphor. The role of semantics in science, its conduct and its governance, is increasingly reflected. The conscious and unconscious ways in which personality and social circumstances interact with the course of science and its practices, especially in biology and biotechnology, becomes expressed in the rhetorics employed and debated. Where biology and its philosophy address what humans are they operate in a field where facts and values are not clearly distinguishable.

Griffiths, Paul E. 2001. Genetic Information: A Metaphor In Search of a Theory. *Philosophy of Science* 2001 (68):394-412.

Hauskeller, Christine. 2005. Science in Touch. Functions of biomedical terminology. *Biology and Philosophy* (in press).

Moss, Lenny. 2003. *What Genes Can't Do*. Cambridge, Mass.: The MIT Pr (chapter 5).