connotation with the realism-antirealism debate. Our second keynote speaker Stephen Mumford (Nottingham) concluded the first day with a motivating presentation of the power in philosophy of science of accepting an irreducible modality of dispositionality.

The second day commenced with our third keynote by Mauricio Suárez (Institute of Philosophy) offering lessons from intriguing discussions in aesthetics on representation in art for our understanding of representation in science. We then heard from Michał Leśniak (KUL) about how methodological pluralism can be used to bridge the gap between feminist and mainstream philosophy of science.

In the next session, Vincenzo Politi (Bristol) discussed varieties and incompatibilities of concepts of naturalism in philosophy of science. This was followed by James Nguyen (LSE) who offered a response on behalf of the virtue pluralist to arguments from social choice theory that no principled algorithm for theory-choice can be established. Anna De Bruyckere (Durham) then motivated us to consider the phenomenology of science using the inconceivability of the 2008 financial crisis among mainstream economists as a case study.

Ruth Hibbert (Kent) began the penultimate session with some advice inspired by lessons learned from the increasing specialisation in science for a workable methodological pluralism in philosophy of science. We then heard from Liam Kofi Bright (CMU) about social choice theory's application to issues concerning judgement aggregation in science.

Our final session began with a presentation from Toby Friend (UCL) comparing the compatibility of holist and particularist attitudes in philosophy of science. The final keynote speaker Hasok Chang (Cambridge) concluded the workshop with an inspirational discussion of the light pluralist attitudes bring to discussions regarding the proper approach to philosophy of science.

During the two days which followed the workshop UCL hosted a summer school comprising four sessions run by Erman Sozudogru (UCL), Jack Wright (Cambridge), Neil Barton (Birkbeck) and Harriet Lloyd (UCL) in which we discussed works by Galison, Longino, Maddy and Cartwright.

We all made good friends over the course of the week and hope to run the second graduate workshop next summer.

<div align="right">

TOBY FRIEND
Science and Technology Studies, UCL

</div>

Robustness Analysis, 25–26 September

A two-day workshop on robustness analysis was held at the University of Helsinki, September 25–26. The Centre of Excellence in the Philosophy of the Social Sciences organized the event as part of a research project on Models and Simulations. The workshop brought together ten researchers who are currently working on the subject.

Robustness analysis is a method of inquiry investigated since long in the philosophy of science. The practice was first brought to the attention of philosophers by its use in biology (Levins, 1966) and econometrics (Leamer, 1983, 1985). Recently, there has been a revival of interest in the practice, motivated by the appeal to robustness

in economics, biology, climate sciences, statistics and neuroscience. Via robustness analysis, scientists try to ensure the predictions of models and experiments are robust, i.e., invariant under small changes in the theoretical or experimental setup from which they are derived.

The format of the workshop was novel in that the speakers were asked to pre-circulate their working papers in advance, two weeks before the meeting. During the workshop, each speaker presented his/her work in a very brief introduction (five to ten minutes), which mainly served to launch the discussion. The invited speakers were Lorenzo Casini (Geneva), Cedric Paternotte (Munich), Jonah Schupbach (Utah), Kent Staley (St. Louis) and Jacob Stegenga (Utah). Internal speakers were Alessandra Basso, Jaakko Kuorikoski, Aki Lehtinen, Chiara Lisciandra and Caterina Marchionni. The presentations were clustered around four main thematic areas, namely derivational robustness, robustness and the variety of evidence problem, measurement robustness and robustness reasoning. In what follows, a brief description of the talks will be given.

Jaakko Kuorikoski and Caterina Marchionni's presentation was on the epistemic rationale of triangulation as a form of robustness analysis. In their paper, triangulation was defined as the use of multiple and independent sources of evidence to check whether a phenomenon is an artefact of a particular method. Chiara Lisciandra presented a paper on robustness analysis and mathematical tractability. In the paper, she investigated whether robustness analysis is an effective strategy to assess the impact of the mathematical framework in which a certain model is formulated. Jacob Stegenga introduced a distinction between two kinds of independence, i.e., conditional independence and ontic independence. He claimed that ontic independence is mistakenly considered to be a necessary and sufficient condition for robustness arguments to be warranted. In his paper, Aki Lehtinen argued that in the case of derivational robustness some lack of independence is necessary for robustness to be confirmatory, whereas experimental robustness is different in this respect.

Cedric Paternotte presented a review of the uses of robustness in evolutionary biology. In his paper, he argued that when the phenomena to be explained are stable under perturbations or multiply instantiated, the appeal to within-model and across-model robustness can be justified. In the measurement robustness camp, first Kent Staley's presentation was on the distinction between statistical uncertainty and systematic uncertainty. He argued that the estimation of the latter is to be understood as a form of robustness analysis. Next, Alessandra Basso argued that measurement robustness is incompatible with the no-miracle argument, and that it is not exposed to the same kinds of objection.

Lorenzo Casini's presentation was on robustness explanation and how it squares with available causal and non-causal accounts of explanation. In his paper, he drew on the economic literature on agent-based models of asset pricing. Finally, Jonah Schupbach's work explored a variety of types of robustness analysis from a formal epistemological perspective. He claimed that many cases of robustness analysis follow a pattern of explanatory reasoning, and that this may even be a common feature that unifies the seeming diversity of types of robustness analysis.

The discussion was lively and the criticisms productive. The format has proved to be particularly successful. Finnish cuisine was served at a social dinner and apparently

very much appreciated!

Chiara Lisciandra
Philosophy, Helsinki

Calls for Papers

What's Hot in . . .

Uncertain Reasoning

Uncertain reasoning is one of those fields in which technical advances cannot be disentangled from philosophical reflection. As a particularly striking case in point, take de Finetti's 300-plus page treatise on the economics of insurance (published in 1967, in Italian). Right in the first chapter he quotes Harold Jeffreys's remark from his *Theory of Probability* to the effect that "language has been created by realists, and mostly very naive ones at that". Not exactly the kind of remark one would expect from a reference work on the quantification of uncertainty for actuarial purposes.

Within uncertain reasoning, the technical question which involves perhaps the greatest degree of philosophical sophistication concerns the choice of what are usually called *prior* probabilities. Put crudely, the issue arises when one grants that uncertainty should be quantified probabilistically even in the absence of an objective method to do so. This problem is particularly pressing for those (like de Finetti and Savage) who believe that the only normative requirement on rational degrees of belief is their coherence. Except in very specific cases, this leaves the decision-maker with a number of equally rational probability distributions and no formal criterion for selecting one for decision-making purposes. Hence the problem of choosing initial probability distributions is both practically and theoretically very challenging.

R. Kass and L. Wasserman (1996: The Selection of Prior Distributions by Formal Rules, *Journal of the American Statistical Association* 91 (435) pp. 1344–1370) provides a manageable yet detailed review with an annotated bibliography on the problem. One reason I particularly enjoy this somewhat dated review is the emphasis it puts on the development of Harold Jeffreys' ideas on the matter. As Kass and Wasserman argue, Jeffreys can be seen as the first to reason explicitly about methods for selecting priors.