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§1 Editorial

I would like to welcome you all to this issue of *The Reasoner* and I wish to thank Jon Williamson and Federica Russo for inviting me as a guest editor.

Last week I had a wonderful time in Canterbury. I spent three days talking and thinking about mechanisms during the Mechanisms and Causality in the Sciences conference. As was to be expected, MaCitS was splendid both socially and philosophically. One of the main *raisons d'être* of conferences and workshops is to gather academics from different universities and often even from different disciplines to effect an exchange (and perhaps a clash?) of ideas. In Canterbury this always happens in a very pleasant and amicable atmosphere. MaCitS certainly was no exception to this regularity.

There were many high-quality contributions discussing mechanisms from quite different perspectives. Several contributions addressed metaphysical questions regarding mechanisms and the nature of causation, propensities, dispositions, etc. Most papers tackled epistemic questions. How are mechanisms discovered? What is gained by discovering mechanisms? How does mechanistic knowledge relate to statistical procedures in areas such as epidemiology and evidence based medicine? What are mechanisms in ecology? Is natural selection a mechanism? Et cetera.

Apart from writing this brief editorial, it was my task to conduct an interview. I chose to interview Sandra Mitchell because her works have been a source of much inspiration for me during the past years. Most importantly, I have always been intrigued by the emphasis she lays on the complexity of the phenomena studied in the biological and the social sciences, and on the effects of this complexity on the ways scientific knowledge is gathered, represented and used in policy. In my view, this is especially relevant for any formal accounts in philosophy of science. Formal methods (be they adaptive logics, Bayesian methods, causal nets, or what have you) can serve as very fruitful tools for the philosopher of science. Yet we should always be aware

of the complex nature of what is out there.

Bert Leuridan
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§2
Features

Interview with Sandra Mitchell

Sandra Mitchell is professor in the Department of History and Philosophy of Science of the University of Pittsburgh. Her research focuses on epistemological and metaphysical issues in the philosophy of science—mainly in philosophy of biology and the social sciences. Her interests have centered on scientific explanations of complex behavior, and how we might best represent multi-level, multi-component complex systems. Her current interests include emergence, the methodological consequences of biological robustness and problems in representing deep uncertainty for policy decisions. These issues are the starting point of her new book *Unsimple Truths: Science, Complexity and Policy* (University of Chicago Press, forthcoming in December 2009; this is a revised version of *Komplexitten: Warum wir erst anfangen, die Welt zu verstehen*, Suhrkamp Verlag 2008).

Bert Leuridan: Before we tackle more profound questions, let me ask what made you choose to study philosophy?

Sandra Mitchell: I went to college in the early 1970's when US students were confronted with the Vietnam War, the Civil Rights and Feminist Movements, and it felt like we had to figure out from scratch how to live, how to organize our society, how to assign value, etc. These were questions that it seemed like philosophy could address, so I studied philosophy.

BL: And what made you choose to study philosophy of science, and more specifically philosophy of biology?

SM: I spent my junior year at the London School of Economics, and went back there for a Masters Degree working with Imre Lakatos just before he died. This was a very exciting time and place to be thinking about philosophy of science. New ideas were shaking the foundations of the field. I originally worked on Newtonian physics, then decided to study the ways in which the social sciences use biological concepts like "function" to better understand why they seemed to work in biology, but not in social science. On the way I became more and more interested in issues of explanation in biology. On the one hand biology was "problematic" on some philosophical frameworks that were developed based on the inspection of mathematics and fundamental physics, and on the other hand it was gaining more and more significance in research areas and in everyday life as the big science whose results make a difference to how we live.

BL: Can the biological sciences (as opposed to physics, for example) give us special insight in the sciences in general?

SM: Yes. Biological systems are generally complex, involving multiple levels of organization and causal feedback. Because of this, the scientific study of them requires different techniques and considerations than in much of physics.

BL: Have you collaborated with biologists? Is such collaboration easy?

SM: I have collaborated with biologists. I was a member of a working group on social insects for many years, and lately have been working with a structural biologist who studies protein folding and an expert in phage biology in a small group looking at modularity. I have found that sometimes scientists have difficulty understanding just what it is that philosophers of science do, and the philosopher needs to also learn to see the situation from the scientist's point of view. Effective collaboration requires mutual trust and respect, and learning how to see the world though the lenses of your collaborators is an important part of building that trust and respect.

BL: In your new book, *Unsimple Truths*, you lay much emphasis on complexity and emergence. But these words have many interpretations, most of which are rather anti-scientific. What do you mean by them?

SM: My views are based squarely on practice in the contemporary sciences, where I suggest there are three different features of complexity; compositional, i.e., non-aggregative ways in which a structure is built from its parts; dynamic, i.e., non-linear chaotic or feedback processes in space and time; and evolved, i.e., the historically contingent path-dependent features of existing complex systems. Complexity is explainable by natural science, not, as some would have it, a reason to abandon science. The meaning of "emergence" is currently contested in philosophy but of increasingly wide use in science. An indicator is by searching Google Scholar for "science", "emergence" and "properties" and you get almost 2 million hits—the first an article in *Science* and the second one from *Nature*. I believe that emergence should not be understood strictly epistemically—i.e., as what cannot be explained by the behavior of its parts. Rather, it identifies some distinctive ways of building stable and causally active higher level structures, like social organization or large scale bird flocking patterns.

BL: What consequences do complexity and emergence have for reasoning and inference in biology?

SM: There are a number of consequences. One is for strategies of causal inference. Single perturbation studies, like controlled experiments in which you try to keep all properties the same in the test and control situation except the test property and then infer its causal influence from the different behaviors of the two situations, will not work for dynamically reorganizing systems. Genetic regulatory networks with partial functional redundancies are a case in point. Around 30% of "knock-out" experiments where a targeted gene is nullified and then the knock-out organism is compared with a normal organism to see what is the causal role of that gene, give results where there is not much difference between the two. It has been suggested that this is because the genetic network reorganizes in the absence of the knocked out gene and other components take over its function to produce a normal individual. Hence from the absence of any difference between the knock-out and the normal organism we cannot straightforwardly conclude that the gene is causally inefficacious. If the causal structure itself changes when it is perturbed, then a simple inference akin to Mill's method of difference won't be applicable.

BL: If single perturbation studies do not work for dynamically reorganizing systems, what does? How do biologists cope with such cases?

SM: Clearly there is a computational intractability problem in large networks if you want to test all combinations of components to see which ones provide redundancy or robustness, but there are a number of experiments now being reported of robust substitutions. Let me illustrate this in a bit more detail. A recent study by Ishii et al. (*Science 2007*) on E. coli serves as an example of the new approach. They studied 24 mutant strains of E. coli in which a different gene that functions in carbon metabolism was removed from each strain. They looked at three levels of organization in the bacteria: gene, protein, and metabolites (the products of the carbon metabolism system) and discovered that metabolic rate for growth changed in light of environmental changes, but was robust to changes at the genetic level.

BL: In *Unsimple Truths*, you also pay much attention to policy issues. What consequences do complexity and emergence have in that respect?

SM: Cases like global climate, or effects on biodiversity of introducing genetically modified organisms, generate uncertainty about future states that is not easily accommodated by standard cost/benefit analysis, i.e. predict-and-act models, because there is no way to assign quantitative probabilities. In part this is due to the role of relatively random events. The epistemic counterpart is surprise and uncertainty. New methods of reasoning about such systems are being developed that take advantage of the computational power scientists now have by generating ensembles of future scenarios and testing different policy options for robustness in them. In addition, new types of policy strategies, in particular what is called "adaptive management", are better tuned to acting rationally in situations where both the system and our knowledge of it are changing. We should be monitoring, updating and revising our actions in light of new knowledge.

BL: In December the Center for Philosophy of Science (University of Pittsburgh) will organize a workshop *Emergence and Reduction in the Sciences* (in collaboration with the Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris). What are, in your view, the new directions this debate will take?

SM: What I find particularly interesting is the challenge to philosophical accounts of emergence that are coming from all parts of science, not just biology and the social sciences, but also from fundamental and statistical physics and chemistry. Scientists seem to be using "emergence" to identify something that differs from reductive accounts and philosophers are grappling with identifying the assumptions that support those practices. What is new, I believe, goes beyond new logical arguments about old views of emergence, but the development of new accounts of the explanatory import of scientific appeals to emergence.

BL: The biological sciences are increasingly open to formalization (AI, computer simulations, statistical analysis, etc.). Do you welcome this trend?

SM: New techniques let us "see" parts of the world we hadn't had access to before. It's similar to what happened with the invention of the microscope. A whole world that was beyond unaided human perception was made visible that both needed explanation and provided explanations. So too with the new techniques, especially in regard to complexities of evolving dynamics which are now "perceivable" using computational and visualization techniques that take us beyond human limitations.

BL: A similar trend is evident in epistemology and philosophy of science. After the reign of classical logic, questions in these disciplines are now tackled by means of a whole range of formal methods: non-classical logics, Bayes nets, causal nets, etc. Do you have the same opinion here?

SM: I am not an expert in these areas, but I would expect philosophical representations *of* science to change, not just in response to changes in scientific practice, but also to make use of computational advances.

BL: Carnegie Mellon is only within a stone's throw from the University of Pittsburgh ... People from the CMU Department of Philosophy engage in pioneering formal accounts of e.g. causal inference. Is there much interaction between your departments?

SM: Yes, but we don't usually throw stones at each other. There are many ties of collaboration, shared students, and shared interests with the departments of

Philosophy and History and Philosophy of Science between the two campuses. CMU has expertise in computation, but, as we have discussed, issues about computation intersect with causal reasoning in general, the epistemology of experimentation, and the like, which are areas of current focus in HPS at the University of Pittsburgh.

BL: What do you think are the major challenges for philosophy of science (or philosophy of biology) in the coming decades?

SM: Philosophy of science brings traditional questions of epistemology, metaphysics, ethics and so on to the practices and products of science and so one challenge is to maintain a sufficiently deep understanding of contemporary science. While reflecting on history is essential, the biology of the 21st century looks very different from what Darwin was doing in the 19th century. Philosophers can contribute today in foundational and conceptual debates, if we have a voice in the scientific communities. We can have that only if we keep up with the developments in those sciences.

BL: This brings us back to the relevance of philosophy and philosophy of science. Do you think philosophers can play an interesting part in society over and above finding out the "meaning of life"?

SM: There seems to be increasing interest among philosophers of science in playing a role in public discourse and decision making. This is great, as philosophers bring special skills of stepping outside the details and allegiances of particular theories to see what grounds them, what the implications are, what the logic requires us to accept or do in light of different commitments. Everyday there are new arenas in which science affects our lives, like in pharmaceutical claims about efficacy, or in household product toxicity, or in interpreting weather patterns for global warming and these are claims about evidence, about ethics, about ontology. Important results are often stated in terms that non-experts find confusing. Philosophers can and should step in, especially in disputes to help clarify the positions and the stakes.

BL: So philosophy education serves more than just training new academic philosophers?

SM: The kind of critical distance that philosophical reasoning requires is extremely valuable for everyone. How to see what is being presented as reasons for or against a position, to think backwards to the underlying assumptions and forward to the implications of alternative views helps not just the academic philosopher, but anyone engaged in making decisions for themselves and collectively in shaping policies for furthering our goals in a complex world.

BL: Thanks a lot!

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Justification of Strawson's Theory of Presuppositions

P.F. Strawson is known for introducing the logic of presuppositions. According to this theory the sentence

"The present king of France is wise" (1)

is neither true nor false if there is no king of France. Intuitively (1) is meaningful. Strawson considered the question of how a meaningful sentence can be neither true nor false as the main problem. Strawson (1950: *On Referring*, *Mind*, pp.321-324), Strawson (1952: *Introduction to Logical Theory*, Methuen & Co. Ltd., pp. 174-175, 185.) He proposed a solution. He made a distinction between a sentence and the *use* of a sentence. (1) is a sentence, but it can be used differently on different occasions. For example if someone uttered (1) in the era of Luis XIV he would be making a true assertion; if someone uttered it in the era of Luis XV he would be making a false assertion; and if somebody uttered it today it would be neither true nor false. Strawson defined meaning as follows: "to give the meaning of a sentence is to give *general directions* for its use in making true or false assertions" (Strawson, 1950: p. 327). He compared it to giving a meaning to "I" or "this". In short, Strawson emphasized that (1) was indexical.

This was too much for Bertrand Russell, who wrote:

> As regards "the present King of France", he fastens upon the egocentric word "present" and does not seem able to grasp that, if for the word "present" had substituted the words "in 1905", the whole of his argument would have collapsed. Russell (1957: Mr. Strawson on Referring, *Mind*, p. 385)

I will suggest a new justification of the logic of presuppositions. We will utilize the following three definitions:

Definition 1: A sentence is *meaningful* iff it expresses a possible state of affairs.

Definition 2: A sentence is *true* iff the possible state of affairs it expresses corresponds to an actual state of affairs.

Definition 3: A sentence is *false* iff the possible state of affairs expressed by its negation corresponds to an actual state of affairs.

Definition 1 is Ayer's interpretation of Wittgenstein: "A genuine proposition pictures a possible state of affairs" (Ayer 1984: *Philosophy in the Twentieth Century*, Vintage Books, p. 112). Whether Ayer intended it or not, definition 1 is *not* the same as the Verification Principle. I consider a state of affairs possible iff we can picture it to ourselves.

Definition 2 is very similar to "In order to tell whether a picture is true or false we must compare it with reality" (Wittgenstein, 1961: *Tractatus Logico-philosophicus*, Routlege & Kegan Paul, p. 10).

The "negation" in definition 3 means the denial of the predicate rather than the denial of the state of affairs. A negation in this sense asserts that the king of France does not posses the property of being wise. Instead of saying "the king of France is not wise" we could say "the king of France is unwise" or perhaps even "the king of France is foolish", that is, his decisions are not well thought out and his acts often have unintended or detrimental consequences. The denial of the state of affairs is a wider concept and includes the possibility that there is no king of France at all.

Clearly,

"The King of France in 1905 was wise" (2)

expresses a possible state of affairs. We can picture to ourselves what the sentence states. A novel could have been written in the era of Luis XIV about the French monarchy in 1905. Furthermore if we enumerate all the things that are wise and all the things that are not wise, the King of France in 1905 will not appear on either list. Therefore the sentence is neither true nor false.

Later Strawson modified his stance and he offered this definition: "It is enough that it should be possible to describe or *imagine* [emphasis added] circumstances in which its use would result in a true or false statement" (Strawson 1952: p. 185). When translated into our parlance this becomes "it should be possible to picture to ourselves circumstances in which its use would result in a true or false statement". This is very similar to our theory.

(1) is an indexical sentence and as such it changes its truth value according to the context. It convinced Strawson that if a sentence could be true or false in at least one context it was sufficient to make it meaningful. But indexical sentences can be translated into non-indexical sentences as the example of (2) shows. We still have to confront the problem that the grammatical subject of (2) does not refer to anything. As Russell pointed out, indexicality has nothing to do with it.

There are two interesting observations about the logic of presuppositions (LP). Firstly, it is compatible with the traditional Aristotelian logic (Strawson 1952: pp. 173-179). Secondly, LP is an alternative to the Theory of Definite Descriptions (TDD). It is illuminating to contrast the two.

Both LP and TDD hold that (1) can be true only if there is a king of France. LP also holds that (1) can be false only if there is a king of France. [The subject class must be non-empty for the sentence to have a truth value.] The purpose of TDD is to elucidate sentences where the grammatical subject is in the singular with the definite article. [It is not clear why we need to analyze the definite article considering that most languages including Latin do not have it.] LP treats such sentences and universally quantified sentences uniformly while TDD does not. LP teaches that both

"All the kings of Switzerland have been wise" (3)

and

"The present king of Switzerland is wise" (4)

are neither true nor false. But according to TDD, (4) is false, although (3) is usually considered [vacuously] true. I do not find this plausible. Perhaps Aristotle and Strawson were right while Frege and Russell were wrong.

X.Y. Newberry

What Simulations Can't Do: Reply to Fonseca and Gärtner

In *The Reasoner* 3(9) my colleagues Fonseca and Gärtner, henceforth called F&G, have laid out a thought experiment that is supposed to show a fundamental difference between a first-person and a third-person perspective on the Self. As I will argue, their scenario does not support this conclusion.

Leaving out some inessential details for lack of space, F&G's thought experiment can be described as follows. There are three persons P1, P2, and P3, who are regarded as physical objects in the sense of being regions in spacetime. The scientist P3 has developed a precise simulation of P1's physical life in which P2 is the exact physical clone of P1. P2's entire physical environment is replicated to match exactly that of P1. F&G go on to define two sets S1 and S2 containing all attitudes of P1 and P2 respectively and stipulate that S1 and S2 are extensionally identical. In fact F&G only consider belief and knowledge in their argument and only these attitudes will play a role in what follows, but the sets S1 and S2 are meant to represent the Self of P1 and P2 respectively. Now suppose bel* stands for a belief that would be expressed as

(1) I'm P1.

and k* stands for the knowledge that there is a clone. P1 holds both attitudes. From S1=S2 it then follows that k* and bel* must also be in S2. However, as F&G point out, neither P1 nor P2 are in a position to know that (1) is true. For suppose P1 would find out that bel* is veridical and add this knowledge to S1. Then it would also be part of S2, which would be absurd because P1≠P2. On the other hand, while P3 may also assume that S1=S2 he knows that P1≠P2. From this F&G conclude: "This captures the phenomenological intuition that, even if you know that there is an absolute replica of you, you can never know if you (a unique Self) are the original or the replica." They further claim that their thought experiment reveals " . . . that the identity of a self is always relative to an epistemological perspective: an egocentric-first person or an allocentric-third person one."

None of these lessons can be learned from the thought experiment. While the whole story vaguely reminds one of some of the famous arguments for self-locating belief like the Rudolf Lingens example by Perry ('Frege on Demonstratives', *Philosophical Review* 86 (1977), 474-97) or the Zeus-Jahwe example by Lewis ('Attitudes De Dicto and De Se', In Lewis, D. K.: *Philosophical Papers* Vol. I, Oxford UP, 1983, 133-55), it isn't nearly as compelling as these. To see this, recall that (strong) knowledge is a factive verb, i.e. from Kp it follows that p. So P2 cannot know that he is P1 if he isn't. This merely shows that the scientist cannot change facts as he likes. Knowledge depends on external facts and is at least partly individuated externally. Taking into account the abundant literature on semantic externalism (Burge, Putnam, etc.) this ought not come as a surprise. To make one thing clear, the scientist can develop a simulation in which P2 knows that he is P1 *inside the simulation*, but of course this is only simulated knowledge. Real knowledge requires the embedded sentence to be actually true. When P1 learns that he is P1 and adds this new knowledge to his belief base, P2 may add *simulated* knowledge to his belief base (meaning that P1=P2 within the simulation) but simulations do not have the magic power to turn a falsity into a truth. If on the other hand F&G had decided to lay out the perspectives of P1 and P2 from a truly anti-realist stance, which would have been much more compelling in light of their argumentative goals, they should only have taken belief or justified belief into account. In that case P2 can believe (1) without inconsistency, of course. To summarize, either P2 adds simulated knowledge or belief without any inconsistency, or F&G ask more from the scientist's simulation than is feasible.

There is another problem. F&G have devised their example in a manner such that P3 is by assumption in a better epistemic position than P1 and P2. But the fact that he is in a better epistemic position than P1 and P2 does not imply that he has a perspective on the world different from that of P1 and P2 or that there is any such perspective. He just knows more than they know, which is a very common phenomenon. In order to establish a difference between first-person and third-person perspectives a scenario has to be set up in which a mental phenomenon cannot be explained by knowledge of physical facts only. Puzzles on self-locating belief by H.N.-Castañeda, Perry, and Lewis, and Jackson's Mary case are examples of these kind of scenarios but F&G's thought experiment is not.

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§3
News

Memory and Self-Understanding: Self-Concept—Self-Image—Self-Deception, 3–5 June

The meeting, held at the Institute for Advanced Study in Delmenhorst (Germany), was initiated as a closing workshop of the research project on "Self-Consciousness" (2003-2009) under the leadership of Prof. Dr. Albert Newen, Bochum, in cooperation with Prof. Dr. Dr. Kai Vogeley, Köln. There were 45 participants. Of these, 16 among philosophers, psychologists and neuroscientists from Germany, Switzerland, Austria, the Netherlands and the USA gave talks and contributed to an intense discussion, while 12 junior researchers presented posters.

The conference explored the cognitive sources of self-understanding and understanding other minds, such as perception, proprioception and higher-order cognitive capacities, e.g., language-based attributions. A second focus was the contribution of memory to self-understanding. The third dimension of the discussion was dedicated to explore the sources of self-knowledge and self-deception.

The interdisciplinary endeavor will be continued by investigating new topics in recently started common project of Newen and Vogeley with the topic "Other Minds: Neurophilosophy and Neuroethics of Intersubjectivity" and "The natural foundations of cognitive and social abilities".

Concerning self-understanding and understanding other minds, F. Binkowski presented recent discoveries

of mirror neuron activities in humans, while W. Hirstein argued that we have to presuppose an executive self, i.e. that there are executive processes which constitute the sense of the self. K. Volz presented her work on implicit decisions based on gut feelings which is a central feature in evaluating oneself and making decisions. O. Güntürkün presented an evolutionary story of the development of higher cognition, especially focusing on self-representations in animals demonstrating that there are clear cases of self-representation in animals which are earlier than mirror recognition. O. Blanke presented his recent work on misplaced full-body ownership (seeing a picture of oneself from the back and feeling to be that body at a different location). A. Newen presented an alternative theory of understanding others, i.e. the person model theory which he defends as a new theoretical framework against Simulation Theory, Theory-Theory and Interaction Theory. One advantage is that the person model theory is able to account for both: understanding oneself and others. In line with this theoretical approach K. Vogeley presented evidences of the neural underpinnings of social gaze and joint attention as examples of intuitive understanding of others.

In the second group of talks dealing with memory, J. Bermúdez presented a theoretical discussion of a Fregean treatment of autobiographical knowledge while M. Brand discussed the neural correlates of disturbances of autobiographical memory and, more general, retrograde memory impairments. G. Vosgerau argued that in memory there are only incomplete schemata which we store. Schemata are the basis to generate detailed representations when retrieved from memory. D. Manahan-Vaughan presented recent results of the neural functioning of declarative memory through Synaptic Plasticity: Both, long-term potentiation (LTP) and long-term depression (LTD) enable distinct and separate forms of information storage. M. Sauvage presented new evidences for the distinction between familiarity and recollection as two different processes in memory. Her work bridges animal and human memory abilities illustrating a common functional architecture.

In the third group of talks we discussed the phenomenon of self-knowledge and self-deception: M. Werning argued for a constitutive role of imagination, especially in the form of inner speech, and of episodic memory for self-awareness while J. Perner argued for a Theory-Theory approach of "Directedness". A. Mele defended in detail his proposal of self-deception as biased belief-formation while C. Michel critically argued that biased belief-formation processes are not the core of self-deception since they do not account for the remaining rationality of self-deceiving subjects.

The meeting successfully initiated an interdisciplinary discussion, especially between junior researchers and renowned scientists working in philosophy, psychology and neuroscience. Scientific organization: Prof. Dr. Albert Newen, Christoph Michel (Ruhr-Universität Bochum); Prof. Dr. Dr. Kai Vogeley (Universität Köln).

Albert Newen
Institute of Philosophy, Ruhr-Universität Bochum

Mal'tsev Meeting, 24–28 August

The annual conference "Mal'tsev Meeting" was held on August 24–28 in Novosibirsk, Russia. It was organised by the Sobolev Institute of Mathematics and the Novosibirsk State University with participation of the Russian Foundation for Basic Research and the Siberian Fund of Algebra and Logic. The programme committee was headed by Academician Yuriĭ Ershov (chair) and Corresponding Member of the Russian Academy of Sciences Sergeĭ Goncharov (vice-chair).

This year, the conference was dedicated to the centennial of Academician Anatoliĭ I. Mal'tsev, an outstanding mathematician who founded the Siberian School of Algebra and Logic. Pioneering works of Mal'tsev based on applying logical methods to solving problems arising in algebra as well as investigating computational aspects of algebraic structures made a great impact in developing mathematical logic and algebra. The conference has gathered about 250 participants from 21 countries. About 200 contributed talks and 26 invited talks were presented.

At the opening ceremony, Academician Ershov presented Professor Dana Stewart Scott (Carnegie Mellon University, USA) and awarded him a Gold medal of the Sobolev Institute of Mathematics "For prominent contribution to mathematics".

The breadth of mathematical interests of Mal'tsev was reflected in the scientific programme of the conference. The latter revealed recent major directions and achievements of research in the area of algebra and logic. The scientific part was opened by Yuriĭ Ershov who spoke about (un)decidability of elementary theories and solutions of many open problems in the area. Sergeĭ Adian (Russia) presented his lecture on the Burnside problem. Anil Nerode (USA) spoke about computation in networks. Dana Scott (USA) reported on applications of the Boolean-valued analysis to modal logic. Larisa Maksimova (Russia) presented an algebraic approach to non-classical logics.

On the second day of the conference, two first talks by Viktor Mazurov (Russia) and Leonid Shemetkov (Belarus) were dedicated to group theory. The most recent achievements towards solving the dichotomy conjecture connected with the Constraint Satisfaction Problem were presented in the lecture of Moshe Vardi (USA). Application of ideas of Mal'tsev to studying computable models was the main topic of the lecture

of Sergeĭ Goncharov (Russia). Angus Macintyre (UK) spoke about exponential fields.

The third day began with the lecture of Elena Bunina and Aleksandr Mikhalev (Russia) on elementary equivalence of groups and rings. Olga Kharlampovich and Alexei Miasnikov (Canada) spoke their solution of Tarski's problems on elementary theories of free groups. The lecture by Bakhadyr Khoussainov (New Zealand) was dedicated to automatic structures. Julia Knight (USA) presented recent approaches to Turing computable embeddings.

The forth day contained plenary lectures of Marat Arslanov (Russia) on different aspects and problems of the computably enumerable hierarchy, Andreĭ Morozov (Russia) on automorphisms of computable structures, Marina Semenova (Russia) on first-order properties of certain classes of lattices, Vladimir Remeslennikov on model-theoretic results in algebraic geometry, Stanley Wainer (UK) on complexity of arithmetical proofs, and Sergeĭ Sudoplatov (Russia) on his recent solution of Lachlan's problem.

On the last day, Dag Normann (Norway) gave a lecture on computations and finite type functionals. Ivan Soskov (Bulgaria) presented results on ω-enumeration degrees. Boris Zilber (UK) spoke about application of model theory to physics. Nikolaĭ Romanovskiĭ (Russia) gave a lecture on algebraic geometry over solvable groups. Ulrich Kohlenbach (Germany) presented some recent applications of proof theory to various areas of mathematics. Klaus Weihrauch (Germany) reported about relations of computable separation axioms for computable topological spaces.

More information is available here.

Aleksandr Kravchenko & Marina Semenova
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Practice-based Philosophy of Logic and Mathematics, 31 August – 2 September

Between August 31st and September 2nd 2009 the workshop 'Practice-based philosophy of logic and mathematics' took place in Amsterdam. The goal was to bring together people from different areas—philosophers, logicians, mathematicians, computer scientists—in order to discuss the prospects of an approach to the philosophy of logic which, unlike more traditional approaches, would take into account actual practices of logicians, ranging from the remote history of the discipline to its most recent developments. The workshop was not intended to produce definitive answers but rather to explore different ways in which a practice-based philosophy of logic could be done as well as to inquire as to what could be gained from such an approach. The underlying idea was essentially a pluralist one, but in two levels: (i) to take into account the plurality and diversity observed in logical practices across time; (ii) to explore a different approach to the philosophy of logic, but one which is not meant to replace entirely more traditional approaches.

Some of the main themes and questions that emerged from the different talks were:

- Social aspects of the interactions among logicians and mathematicians (Moktefi & Schang, Marion, Aberdein, Van Bendegem).
- Considerations on the languages used by logicians (Dutilh Novaes, Macbeth) and mathematicians (Hodges, Gandon) in their practices.
- Practice-based philosophy of science as a starting point for practice-based philosophy of logic (Moktefi & Schang, Löwe & Müller).
- The importance of findings from cognitive science for the (practice-based) philosophy of logic (Parikh, Löwe & Müller, Dutilh Novaes).
- Expanding the scope of analysis for the philosophy of logic so as to include the recent developments in logic, in particular its interface with other areas such as computer science, linguistics, economics etc. (Van Benthem, Abramsky, Parikh).
- The importance of the history of logic (both remote and recent) for the characterization of logic as a multifaceted discipline (Read, Baldwin, Sundholm).

As was to be expected from a pilot, exploratory event, we did not reach an agreement on what exactly a practice-based philosophy of logic should be like, but a few pointers seem to have emerged, and many felt that the enterprise as a whole is definitely worth being pursued. Overall, the general impression seemed to be that bringing this somewhat unexpected group of people together to talk about this somewhat unusual theme turned out to be very fruitful. (Wilfrid Hodges drew a comparison with A. Christie novels: people are gathered in a big mansion, not knowing exactly in what way they are connected to each other, and then somebody gets killed. Fortunately, nobody was killed at the workshop, not even more traditional approaches to the philosophy of logic!) Pending funding, the plan is now to organize more events in the future dedicated to a practice-based approach to the philosophy of logic, so stay tuned!

(Slides of most of the talks are available at the workshop's website)

Catarina Dutilh Novaes
ILLC, University of Amsterdam

Metaphysics of Science, 12–14 September

The AHRC-funded Metaphysics of Science project held its final large conference in Nottingham and offered keynote presentations from Helen Beebee, Laurie Paul, Antony Eagle, Katherine Hawley, James Woodward, Marc Lange and Jennifer McKitrick as well as around 45 other contributed papers.

The project has run for three years and focuses on some of the key metaphysical concepts that apply to the sciences, namely laws of nature, causation, dispositions, natural kinds and essences. It has also involved some of the metaphilosophical questions of how the metaphysics of science and the empirical study of science relate. The project has encompassed a number of different approaches with Humeans and non-Humeans, essentialists and anti-essentialists, dispositionalists and non-dispositionalists all being represented.

Helen Beebee opened the conference with an attack on the new essentialism that has been pushed of late by the likes of Brian Ellis and Alexander Bird. The credentials of this being a 'scientific' essentialism were challenged, as opposed to it being familiar 'old-school' Aristotelian essentialism. The issue tied into the discussion of natural kinds and one major theme of the conference concerned whether we can have natural kinds without essences. Bird, Leary, Khalidi, Tobin and Yates all presented views on this. Katherine Hawley, on the other hand, considered the broader question of whether we need a notion of natural kind at all, in addition to the notion we have of natural properties. A detailed analysis was presented of all the roles natural kinds are expected to play and there was then a consideration of whether properties, or other items in our ontology, might fulfil those roles.

Another major strand in the conference was dispositions. A number of presentations concerned directly the metaphysics of dispositions themselves (Alastair Wilson, Kang, Cardoso, Keinänen) while some papers discussed the applications of dispositions. Hüttemann and Mumford both considered the prospects of gaining a theory of causation from an ontology of dispositions, while Bigaj used dispositionalism as a way of explaining quantum entanglement with reference to non-locality. McKitrick's keynote raised a problem for dispositionalism: namely, whether there was a vicious regress involved in the triggering of a power.

The philosophy of quantum physics also featured in Laurie Paul's paper, which considered what it was to be an object in quantum mechanics and what this said about the Indiscernibility of Identicals. Jim Woodward, in his keynote spoke on the link between laws and initial conditions, applied the interventionist model he has developed in his previous work. Marc Lange, meanwhile, gave a detailed, partly historical, paper on why forces compose according to the parallelogram law. That left one other keynote presentation, which was Antony Eagle's defence of so-called 'autonomous' metaphysics against the recent neo-positivist attack of Ladyman and Ross. Physics, it was argued, can't show us that an autonomous metaphysical thesis is false. Only metaphysics can do that. Apart from these main strands, there was a wide diversity of other papers on laws, modality, truthmakers and counterfactuals.

Stephen Mumford
Department of Philosophy, University of Nottingham

Reductionism, Explanation, and Metaphors in the Philosophy of Mind, 17–18 September

The workshop 'Reductionism, Explanation, and Metaphors in the Philosophy of Mind' was held after the conference of the German Society for Analytic Philosophy (GAP) at the University of Bremen, Germany. It tried to put forward an understanding of reductionism by discussing the necessity of ontological pluralism, by investigating the kinds of explanations we have presupposing ontological reductionism and by evaluating the status of metaphorical expression in the philosophy of mind.

In his opening talk, Albert Newen focused on explanations based on (developmental) stage models and their place in the reduction debate. He argued that these explanations can be used to develop a first systematic theory in a reductionist framework. If it can be shown that for each developmental stage, there is no emerging property, stage models form a special kind of reductive explanations.

Stephan Hartmann discussed the relation between Nagelian and what has come to be known as "New Wave" reduction. He showed that the latter collapses into a variant of the former, which is close to Schaffner's version of Nagelian reduction.

Marcus Eronen criticized functional approaches to reduction, arguing that what functional reduction aims at could best be described as mechanistic explanation, which, in turn, leads to explanatory pluralism.

Andreas Bartels proposed a functionalist account of representation, which is tied to the notion of information. Bartels then described mechanistic explanations as essentially functional and argued that for some neuroscientific explanations the assumption of a representational mechanism is indispensable.

Robert van Gulick described the role scientific models and metaphorical ways of speaking play in scientific explanations, taking their pragmatic role seriously. This interpretation was integrated in a framework of non-reductive teleo-pragmatic physicalism: the claim that

any property is either physical or realized by physical properties, and the denial of explanatory reductionism.

Michael Esfeld and Christian Sachse presented their work on functional sub-types and the underlying ontology. Michael Esfeld introduced the ontology of physical properties. Christian Sachse then described how the gap between special science types and physical types can be bridged using functional sub-types, such that an interesting version of type-identity theory can be rescued.

David Papineau argued that the computer metaphor is, at least in one respect, highly misleading. Computational states are realizable in various physical states because they are states of an artificial system, designed to be multiply realizable. The analogy between psychological states and computational statues is, therefore, highly problematic.

Thomas Sturm described how scientific techniques in psychology, such as statistics, led to metaphorical descriptions of the science's domain, and how this, in turn, affected scientific development.

Louise Röska Hardy investigated Singer's model of self consciousness, which, according to Singer, depends on brains in dialogue. Röska-Hardy criticized the idea behind this metaphor, embedding it in a coherent story of scientific levels of description.

Raphael van Riel discussed the source of the asymmetry of the reduction relation. Arguing that the notion of a scientific level should not be understood ontologically, he proposed a conceptual reading of scientific levels, based on the Fregean notion of a mode of presentation.

During the discussion, the notion of realizability played a crucial role. In some way or another it was pertinent in most of the talks. However, there seemed to be little agreement on how to describe this notion appropriately, and on how to relate multiple realization of special science kinds to multiple realization of fundamental kinds. This seems to be one topic worth investigating in more detail.

Albert Newen & Raphael van Riel
Institute of Philosophy, Ruhr-Universität Bochum

Calls for Papers

Normative Multiagent Systems: Special issue of Journal of Algorithms in Cognition, Informatics and Logic, deadline 6 October.

Non-Classical Mathematics: Special issue of *Logic Journal of the IGPL*, deadline 30 November.

Ordinary Language Philosophy: A Reappraisal: Special issue of *Essays in Philosophy*, deadline 31 December.

Popper prize: to the best essay in any area of the critical rationalist philosophy of Karl Popper, deadline 31 December.

Empirical Evaluations in Reinforcement Learning: Special issue of *Machine Learning*, deadline 26 February 2010.

Philosophy of Life: An edited volume of unpublished articles, deadline 1 June 2010.

Experimental Philosophy: Forthcoming issue of *The Monist*, deadline April 2011.

§4
What's Hot in ...

We are looking for columnists willing to write pieces of 100-1000 words on what's hot in particular areas of research related to reasoning, inference or method, broadly construed (e.g., Bayesian statistical inference, legal reasoning, scientific methodology). Columns should alert readers to one or two topics in the particular area that are hot that month (featuring in blog discussion, new publications, conferences etc.). If you wish to write a "What's hot in ...?" column, either on a monthly or a one-off basis, just send an email to features@thereasoner.org with a sample first column.

...Logic and Rational Interaction

In an effort to help those, like me, who couldn't attend all the interesting summer schools this year, Logic and Rational Interaction asked lecturers at ESSLLI and EASSS to write short reports on their course. From the first one we published three reports: *Individual and Collective Intentionality*, by Andreas Herzig and Emiliano Lorini, *Logic with Counting*, by Ian Pratt-Hartmann and *Logic and Agent Programming Languages*, by Natasha Alechina and Brian Logan. We had one report from the second one, the *European Agent Systems Summer School*, on Ulle Endriss's course on *Fair Division*.

Still on the reports, Nicolas Peltier wrote on the *First International Workshop on Theorem Proving*, held in Oslo at the beginning of July.

We were also glad to add an entry to our **glossary**, this time an extensive one, including a bibliography, by Hans van Ditmarsch on Dynamic Epistemic Logic.

You can stay in touch with loriweb.org by either registering to the **newsletter**, or to our **RSS feed**. Please visit the website for more details. As always, I end by reminding you that we welcome any contributions relevant to our theme, and that we are also constantly looking for new collaborators. If you would like to joint the team, of if you have information to share with the broader research community, please do not hesitate to

contact our web manager Rasmus Rendsvig.

Olivier Roy
Philosophy, Groningen

§5
Introducing . . .

In this section we introduce a selection of key terms, texts and authors connected with reasoning. Entries will be collected in a volume *Key Terms in Logic*, to be published by Continuum. If you have feedback concerning any of the items printed here, please email features@thereasoner.org with your comments.

Abelard

Peter Abelard (Latin: Petrus Abaelardus or Abailard) (1079—1142) was a French medieval philosopher, theologian, and logician. Abelard can be considered the father of Scholasticism, the medieval manner of philosophizing that aimed to ground Christian doctrine on the logical rigour of dialectical reasoning. In his commentaries on Aristotle, Porphyry and Boethius and in his large logic treatise (the four books of the 'Dialectica') he formulated a conceptualist solution to the problem of universals (according to which properties intended as single entities literally shared by many individuals only exist in the human mind), provided a thorough study of syllogism, and emphasized the role of propositions (rather than terms) in language and logic, developing a purely truth-functional propositional logic based on the notion of 'inferentia' (that is, of entailment between premises and conclusion). Moreover, Abelard introduced the de re/de dicto distinction that differentiates two types of modal statements, and is said to have been the first to recognise the Fregean distinction between the force and the content of a sentence.

Matteo Morganti
Philosophy, Konstanz

A system of logic

John Stuart Mill's *A System of Logic, Ratiocinative and Inductive: Being a Connected View of the Principles of Evidence and the Methods of Scientific Investigation* (1843), displays, in book one, an analysis of language. It restores the medieval distinction between denotation and connotation, and states that names denote things rather than ideas, a theory later much disparaged by Frege for neglecting the descriptive content of words.

The *System of logic* then puts forward a theory of deductive reasoning in book two, based on associationalism, James Mill's psychological doctrine. Books five and six address the fallacies and the logic of the moral sciences respectively. But its originality mostly lies in books three and four, which defend an empirical approach to mathematics and logics: no proposition being known a priori, all knowledge has grounds in natural facts.

Therefore, at the heart of the System lies the theory of induction, which is the operation of discovering and proving general propositions. A general proposition is a mere juxtaposition of particular cases. Therefore, reasoning is always an inference from particulars to particulars.

Why is it legitimate to generalize from samples? The grounds of induction is the axiom of the uniformity of the course of nature. It is the implicit major premise of all syllogisms from which scientific laws are deduced. Thus, Mill's theory of induction also provides a justification for deduction, which is most fundamental in his eyes. Mill developed a canon of scientific reasoning, within which he conceived inductive reasoning to be tantamount to Aristotle's theory of syllogism for deduction. Mill's Canon is composed of four methods of experimental inquiry (agreement, difference, residues and concomitant variations), which aim to identify the cause of a given phenomenon.

Jean-Marie Chevalier
Université Paris-XII

§6
Events

October

Amsterdam Graduate Philosophy Conference: Universiteit van Amsterdam, 1–3 October.

Joint Attention: Developments in Developmental and Comparative Psychology, Philosophy of Mind, and Social Neuroscience, Bentley University, Greater Boston, 1–4 October.

Buffalo All X-Phi Weekend: University at Buffalo, 2–3 October.

Paradigms of Model Choice: 3rd Young European Statisticians Workshop, Eindhoven, NL, 5–7 October.

IC3K: International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management, Madeira, Portugal, 6–8 October.

The Normativity of Belief and Epistemic Agency: Instituto de Investigaciones Filosóficas, UNAM, México City, 8–9 October.

A Priori Workshop: University of Nottingham, 9 October.

Hugh MacColl Centenary: Boulogne sur Mer, 9–10 October.

Boulder Conference on the History and Philosophy of Science: University of Colorado at Boulder, 9–11 October.

MWPMW: 10th annual Midwest PhilMath Workshop, University of Notre Dame, 10–11 October.

IMCSIT: International Multiconference on Computer Science and Information Technology, Mragowo, Poland, 12–14 October.

Pascal2: Workshop on Spatiotemporal Modelling, Edinburgh, 12–14 October.

EPIA: 14th Portuguese Conference on Artificial Intelligence, Universidade de Aveiro, Portugal, 12–15 October.

Linguistic Intuitions Workshop: Oslo, 15–16 October.

Case Studies of Bayesian Statistics and Machine Learning: Carnegie Mellon University, Pittsburgh, PA, 16–17 October.

The Background of Institutional Reality: Inaugural Meeting of the European Network on Social Ontology, University of Constance, Germany, 16–17 October.

Philosophy of Medicine Roundtable: EIPE, Erasmus University Rotterdam, The Netherlands, 19–20 October.

Breaking Down Barriers: Blackwell Compass Interdisciplinary Virtual Conference, 19–30 October.

P-NPMW: Paris-Nancy PhilMath Workshop, Nancy, 21–22 October.

EPSA: 2nd Conference of the European Philosophy of Science Association, Amsterdam, 21–24 October.

Understanding Mental Disorders: 12th International Conference for Philosophy and Psychiatry, Lisbon, Portugal, 22–24 October.

Science and Nonduality: San Rafael, California, 22–25 October.

Judgement and Truth in Early Analytic Philosophy and Phenomenology: University of Zürich, 23–25 October.

MAMLS: Rutgers University, 23–25 October.

Peterfest: A Workshop in Honor of Peter Machamer, Center for Philosophy of Science, University of Pittsburgh, 24 October.

The Logic of Denial: Foundations of Logical Consequence Workshop, St Andrews, Scotland, 24–25 October.

RR: 3rd International Conference on Web Reasoning and Rule Systems, Chantilly, Virginia, USA, 25–26 October.

Law and Neuroscience: Acquafredda di Maratea, Italy, 26–31 October.

Constructive Mathematics: Workshop and AMS Special Session, Florida Atlantic University, 28 October - 1 November.

Computing & Statistics: Cyprus, 29–31 October.

Darwin Conference: Chicago, Illinois, 29–31 October.

Knowledge and Performance in the Perception of Objects and Living Beings: ZiF, Bielefeld, Germany, 29–31 October.

Language, Epistemology and History: 2nd SIFA Graduate Conference, Bologna, Italy, 29–31 October.

November

Darwin in the 21st Century: Nature, Humanity, and God: University of Notre Dame, Indiana, USA, 1–3 November.

ACML: 1st Asian Conference on Machine Learning, Nanjing, China, 2–4 November.

FM: 16th International Symposium on Formal Methods, Eindhoven, the Netherlands, 2–6 November.

ICMI-MLMI: 11th International Conference on Multimodal Interfaces and Workshop on Machine Learning for Multi-modal Interaction, Boston, 2–6 November.

Logic, Epistemology, and Philosophy of Science: Universidad de los Andes, Bogotá, Colombia, 4–6 November.

AAAI Fall Symposium Series: Arlington, VA, 5–7 November.

Metaphysics: Fondazione Idente di Studi e di Ricerca, Rome, Italy, 5–7 November.

RuleML: 3rd International Symposium on Rules, Applications and Interoperability, Las Vegas, Nevada, USA, 5–7 November.

Concepts of Knowledge: Carleton University, Ottawa, Canada, 6–7 November.

Metaphysics and Psychology in Late Medieval and Renaissance Philosophy: A Conference in Honor of Edward P. Mahoney (1932-2009), Duke University, 6–7 November.

Virginia Tech Graduate Conference: Blacksburg, Virginia, 6–7 November.

Reverse Mathematics: Foundations and Applications: University of Chicago, 6–8 November.

AICI: Artificial Intelligence and Computational Intelligence, Shanghai, China, 7–8 November.

Arché Graduate Conference: CSMN, University of St Andrews, 7–8 November.

CoProD: Workshop on Constraint Programming and Decision Making, UTEP, El Paso, Texas, 9–10 November.

Epistemology, Context, and Formalism: Université Nancy 2, France, 12–14 November.

SPS: Science and Decision, Third Biennial Congress of the Societe de Philosophie des Sciences, Paris, 12–14 November.

M4M: 6th Workshop on Methods for Modalities, Copenhagen, Denmark, 12–14 November.

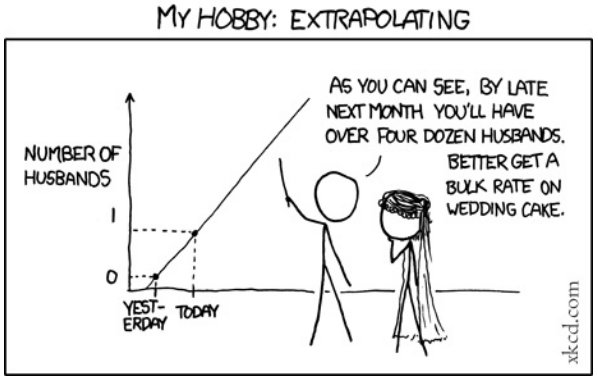
ICITE: International Conference on Information Theory and Engineering, Kota Kinabalu, Malaysia, 13–15 November.
PhML: Philosophy, Mathematics, Linguistics: Aspects of Interaction, St. Petersburg, 17–22 November.
VI Conference: Spanish Society for Logic, Methodology and Philosophy of Science, Valencia, Spain, 18–21 November.
CHiPS: Cave Hill Philosophy Symposium, Conversations V: Theories of Knowledge, University of the West Indies, Cave Hill, Barbados, 19–20 November.
LENLS: Logic and Engineering of Natural Language Semantics, Campus Innovation Center Tokyo, Minato-ku, Tokyo, 19–20 November.
Complex Data & High Dimensional Inference: Groningen, Netherlands, 23–25 November.
Extended Mind: ZiF, University of Bielefeld, 23–25 November.
Knowledge, Value, Evolution: An international conference on cross-pollination between life sciences and philosophy, Prague, 23–25 Novermber.
NDNS+: Statistics and the Life Sciences: High-dimensional inference and complex data, Groningen, 23–25 November.
Spatial and Network Analysis in Qualitative Research: European University Cyprus, Nicosia, 25–27 November.
Cognitive Systems and the Extended Mind: Institute of Cognitive Science, University of Osnabrueck, 26 November.
ISKE: The 4th International Conference on Intelligent Systems & Knowledge Engineering, Hasselt, Belgium, 27–28 November.

December

MS: International Conference on Modelling and Simulation in Trivandrum, Kerala, India, 1–3 December.
Context and Levels of Locutionary Content: IFL, Universidade Nova de Lisboa, Lisbon, 3–4 December.
Human Nature, Artificial Nature: Genoa, Italy, 3–4 December.
(Dis)Entangling Darwin:Cross-Disciplinary Reflections on the Man and his Legacy: University of Porto, Portugal, 4–5 December.
MindGrad: Graduate Conference in the Philosophy of Mind, University of Warwick, 5–6 December.
ICDM: The 9th IEEE International Conference on Data Mining, Miami, 6–9 December.
NIPS: 23rd Annual Conference on Neural Information Processing Systems, Vancouver, B.C., Canada, 7–12 December.
Interpretation and Sense-Making: University of Rouen, France, 9–11 December.
NaBIC: World Congress on Nature and Biologically Inspired Computing, Coimbatore, India, 9–11 December.
New Trends in the Study of Implicatures: Formal Epistemology Project, Institute of Philosophy, University of Leuven, 10–11 December.
PSBio: Philosophical Foundations for Systems Biology, University of Oslo, 10–12 December.
Emergence and Reduction in the Sciences: 2nd Pittsburgh-Paris Workshop, Center for Philosophy of Science, University of Pittsburgh, 11–12 December.
InTech: 10th International Conference on Intelligent Technologies, Guilin, China, 12–15 December.
Subjective Bayes: CRiSM, University of Warwick, 14–16 December.
FIT: International Conference on Frontiers of Information Technology, Abbottabad, Pakistan, 16–18 December.
Seventeenth Amsterdam Colloquium: University of Amsterdam, 16–18 December.
EUMAS: 7th European Workshop on Multi-Agent Systems, Ayia Napa, Cyprus, 17–18 December.
MBR: Abduction, Logic, and Computational Discovery, Campinas, Brazil, 17–19 December.
ICCS: 10th Islamic Countries Conference on Statistical Sciences, New Cairo, Egypt, 20–23 December.

January 2010

ISAIM: 11th International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, Florida, 6–8 January.
Use of Statistical Science in Decision Making: Applied Statistics Association of Sri Lanka, 8–10 January.
Miami Graduate Epistemology Conference: University of Miami, 14–16 January.
Graduate Conference on the Philosophy of Logic and Mathematics: University of Cambridge, 16–17 January.
SODA: ACM-SIAM Symposium on Discrete Algorithms, Hyatt Regency Austin, Austin, Texas, 17–19 January.
PADL: 12th International Symposium on Practical Aspects of Declarative Languages, Madrid, Spain, 18–19 January.



ISLA: 3rd Indian School on Logic and its Applications, University of Hyderabad, Gachibowli, India, 18–29 January.

Epistemology and Philosophy of Mind at The Crossroads: Conference of the Dutch-Flemish Association for Analytic Philosophy, Catholic University of Leuven, 20–22 January.

ICAART: International Conference on Agents and Artificial Intelligence, Valencia, Spain, 22–24 January.

ICCMS: 2nd International Conference on Computer Modeling and Simulation, Sanya, China, 22–24 January.

SofSem: 36th International Conference on Current Trends in Theory and Practice of Computer Science, Špindleruv Mlýn, Czech Republic, 23–29 January.

ICMSS: International Conference on Mathematical and Statistical Sciences, Cape Town, South Africa, 27–29 January.

February

Statistical Modelling and Inference: Conference to celebrate Murray Aitkin's 70th birthday, Brisbane, Queensland, Australia, 1–4 February.

Utterance Interpretation and Cognitive Models: Brussels, 5–7 February.

IUI: ACM International Conference on Intelligent User Interfaces, Hong Kong, China, 7–10 February.

IWCogSc-10: ILCLI International Workshop on Cognitive Science, Donostia-San Sebastian, 10–12 February.

ICMLC: 2nd International Conference on Machine Learning and Computing, Bangalore, India, 12–13 February.

Mind in Nature: Humboldt-University of Berlin, 15–17 February.

Logical Approaches to Barriers in Computing and Complexity: Alfried Krupp Wissenschaftskolleg, Greifswald, Germany, 17–20 February.

AILACT: Association for Informal Logic and Critical Thinking, Central APA Meeting in Chicago, Illinois, 19 February.

ICMSSC: International Conference on Mathematics, Statistics and Scientific Computing, Penang, Malaysia, 24 February.

BCPS: International Conference on Behavioral, Cognitive and Psychological Sciences, Singapore, 26–28 February.

March

STACS: 27th International Symposium on Theoretical Aspects of Computer Science, Nancy, France, 4–6 March.

AGI: 3rd Conference on Artificial General Intelligence, Lugano, Switzerland, 5–8 March.

Methods in Philosophy: Dublin Graduate Conference in Philosophy, Trinity College Dublin (TCD) and University College Dublin (UCD), 6–7 March.

Thought Experiments and Computer Simulations: Same End, Different Means?: IHPST, Paris, France, 11–13 March.

Philosophical Implications of Second-Order Modal Logic: International Graduate Workshop at the Centre for Logic and Language, Institute of Philosophy, University of London, 11–13 March.

SEP: 38th annual meeting of the Society for Exact Philosophy, Kansas City, Missouri, 19–21 March.

SW10: Operational Research Society 5th Simulation Workshop, Worcestershire, England, 23–24 March.

SOCREAL: Second International Workshop on Philosophy and Ethics of Social Reality, Hokkaido University, Sapporo, Japan, 27–28 March.

INFOS: 7th International Conference on Informatics and Systems, Cairo University, Egypt, 28–30 March.

AISB: Annual Convention of the Society for the Study of Artificial Intelligence and Simulation of Behaviour, De Montfort University, Leicester, 29 March - 1 April.

SBP: International Conference on Social Computing, Behavioral Modeling, & Prediction, Bethesda, MD, 29 March - 1 April.

April

Theory on Belief Functions: Brest, France, 1–2 April.

The Snowbird Workshop: The Learning Workshop, Cliff Lodge, Snowbird, Utah, 6–9 April.

JAIST: International Symposium on Integrated Uncertainty Management and Applications, Ishikawa, Japan, 9–11 April.

Newton and Empiricism: Center for Philosophy of Science, University of Pittsburgh, 10–11 April.

ADS: Agent-Directed Simulation Symposium, Orlando, Florida, USA, 12–15 April.

α1: 1st Latin American Analytic Philosophy Conference, Mérida, Yucatán, Mexico, 13–16 April.

The "backwards, forwards and sideways" changes of ICT: 11th ETHICOMP conference, Rovira and Virgili University, Tarragona, Spain, 14–16 April.

The Future of Philosophy of Science: Tilburg Center for Logic and Philosophy of Science, 14–16 April.

SSPP: Southern Society for Philosophy and Psychology annual meeting, Atlanta, GA, 15–17 April.

UNILOG: 3rd World Congress and School on Universal Logic, Lisbon, Portugal, 18–25 April.

FLOPS: 10th International Symposium on Functional and Logic Programming, Sendai, Japan, 19–21 April.

Non-classical Mathematics: a special session at World Congress on Universal Logic 2010, Lisbon, Portugal, 22–25 April.

Formal Semantics and Pragmatics: 6th International Symposium of Cognition, Logic and Communication, University of Latvia, Riga, 23–25 April.
ICCMNC: International Conference on Computer Mathematics and Natural Computing, Rome, Italy, 28–30 April.
RIAO: Adaptivity, Personalization and Fusion of Heterogeneous Information, Paris, France, 28–30 April.
SDM: SIAM Conference on Data Mining, Columbus, Ohio, 29 April - 1 May.
Reference and Referring: Inland Northwest Philosophy Conference, Moscow, ID & Pullman, WA, 30 August - 2 May.

May

AAMAS: 9th International Conference on Agents and Multi Agent Systems, Toronto, Canada, 10–14 May.
FOIS: 6th International Conference on Formal Ontology in Information Systems, Toronto, Canada, 11–14 May.
AISTATS: 13th International Conference on Artificial Intelligence and Statistics, Chia Laguna, Sardinia, Italy, 13–15 May.
FLAIRS: 23rd Florida Artificial Intelligence Research Society Conference, Daytona Beach, Florida, 19–21 May.
POBAM: Philosophy of Biology @ Madison Workshop, University of Wisconsin-Madison, 21–23 May.
PM@100: Logic from 1910 to 1927: Bertrand Russell Research Centre, McMaster University, Hamilton, Ontario, Canada, 21–24 May.
Algorithmic Randomness: Department of Mathematics, University of Notre Dame, 24–28 May.
LATA: 4th International Conference on Language and Automata Theory and Applications, Trier, Germany, 24–28 May.
ISMVL: 40th International Symposium on Multiple-Valued Logic, Barcelona, Spain, 26–28 May.
BSAP: First meeting of the Brazilian Society for Analytic Philosophy, Unisinos University, Brazil, 31 May - 2 June.

§7
Courses and Programmes

Courses

Small Area Estimation: Southampton Statistical Sciences Research Institute, 12–14 October.
Introduction to Graphical Models and Bayesian Networks for Social Scientists: Imperial College, London, 15–16 October.
Cluster Randomised Trials: University of Auckland, New Zealand, 25–26 November.
ISLA: 3rd Indian School on Logic and its Applications, University of Hyderabad, Gachibowli, India, 18–29 January.
Advanced Small Area Estimation: Southampton Statistical Sciences Research Institute, 15–16 February.
NASSLLI: 4th North American Summer School in Logic, Language and Information, Bloomington, Indiana, 21–25 June.
ESSLLI: European Summer School in Logic, Language and Information, University of Copenhagen, Denmark, 9–20 August.

Programmes

APTS: Academy for PhD Training in Statistics, University of Warwick, deadline 23 October.
HPSM: MA in the History and Philosophy of Science and Medicine, Durham University.
Master Programme: Philosophy of Science, Technology and Society, Enschede, the Netherlands.
MA in Metaphysics, Language, and Mind: Department of Philosophy, University of Liverpool.
MA in Rhetoric: School of Journalism, Media and Communication, University of Central Lancashire.
MSc in Mathematical Logic and the Theory of Computation: Mathematics, University of Manchester.
MSc in Artificial Intelligence: Faculty of Engineering, University of Leeds.

MA in Reasoning

An interdisciplinary programme at the University of Kent, Canterbury, UK. Core modules on logical, causal, probabilistic, scientific, mathematical and machine reasoning and further modules from Philosophy, Psychology, Computing, Statistics, History, Social Policy, Biosciences and Law.

MSc in Cognitive & Decision Sciences: Psychology, University College London.
MSc in Cognitive Science: University of Osnabrück, Germany.
MSc in Philosophy of Science, Technology and Society: University of Twente, The Netherlands.
Master of Science: Logic, Amsterdam.

§8
Jobs and Studentships

Jobs

Post-doc position: in data mining and machine learning, Computer Science Department, University of California Davis, until filled.
Post-doc position: theoretical developments of probabilistic graphical models with application to computer

vision, Rensselaer Polytechnic Institute (RPI) in Troy, NY, until filled.

FACULTY POSITION: in cognition, Department of Psychology, Brooklyn College, New York, until filled.

POST/DOC POSITION: in the research group "Theoretical Computer Science and Logic", Institute for Computer Science and Applied Mathematics, Bern University, available from 1 October.

POST-DOC POSITIONS: Instituto de Investigaciones Filosóficas, UNAM, Mexico, deadline 7 October.

RESEARCH POSITION: within the research project "Descriptive Complexity of Small Complexity Classes", Theoretical Computer Science, Humboldt-University Berlin, deadline 10 October.

POST-DOC FELLOWSHIP: in Interdisciplinary Science or Philosophy, Faculty of Philosophy, University of Oxford, deadline 14 October.

POST-DOC POSITION: in theoretical and applied probability, mathematical and applied statistics, University of Bern, deadline 15 October.

POST-DOC POSITION: in philosophy of physics/ metaphysics at Monash University, deadline 23 October.

FACULTY POSITION: in Psychology, Centre for Cognitive Neuroimaging, University of Glasgow, deadline, 30 October.

HANS RAUSING PROFESSORSHIP: of History and Philosophy of Science, University of Cambridge, deadline 30 October.

ASSISTANT PROFESSOR: Philosophy of Science, AOS: history of philosophy of science and evolutionary epistemology, Department of Philosophy at Concordia University in Montreal, Canada, deadline 2 November.

FULL PROFESSORSHIP: in Philosophy, emphasis on epistemology, philosophy of technology, philosophy of science and formal methods, Roskilde University, deadline 9 November.

ASSISTANT PROFESSOR: in Philosophy of Science, The University of the Sciences in Philadelphia, deadline 15 November.

ASSISTANT PROFESSOR: Metaphysics and Epistemology, Department of Philosophy at the University of Toronto Mississauga, deadline 16 November.

ASSISTANT PROFESSOR: Philosophy of Language or Philosophy of Mind, University of Western Ontario, Canada, deadline 16 November.

ASSISTANT PROFESSOR: Philosophy of Contemporary Science with emphasis on Ethical or Epistemological aspects, University of Western Ontario, Canada, deadline 16 November.

TEMPLETON RESEARCH FELLOWSHIP: for the year 2010–2011, Oxford University, deadline 19 November.

LECTURESHIP: in the areas of Metaphysics and Epistemology, University of Melbourne, deadline 20 November.

POST-DOC FELLOWSHIP: in Philosophy of Science, University of Western Ontario, Canada, deadline 30 November.

POST-DOC POSITIONS: Universität Konstanz, deadline 30 November.

VISITING FELLOWSHIPS: Centre for the Philosophy of Science, University of Pittsburgh, until filled, review starts on 15 December.

VISITING FELLOWSHIP: for advanced Ph.D. students or faculty, Tilburg Center for Logic and Philosophy of Science, deadline 15 December.

ASSISTANT PROFESSOR: Philosophy of Biology and Environmental Sciences at UQAM, Montreal, Canada, deadline 5 January 2010.

Studentships

PHD POSITIONS: Philosophy and Cognitive Sciences, Università San Raffaele, Milan, deadline 5 October.

PHD POSITION: in the area of philosophy of mind, Institute of Philosophy and at the Clinic of Psychiatry, Ruhr-University in Bochum, deadline 10 October.

PHD STUDENTSHIPS: in the IDEAS Research Institute at The Robert Gordon University in Aberdeen, deadline 14 October.

PHD STUDENTSHIP: in the Vidi project "A formal analysis of social procedures", Department of Philosophy and Tilburg Center for Logic and Philosophy of Sciences, deadline 15 October.

PHD SCHOLARSHIPS: in Machine Learning and Artificial Intelligence, ANU, Australia, deadline 31 October.

PHD SCHOLARSHIPS: in Philosophy of Mind, Universität Tübingen, deadline 31 October.