THE REASONER

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§1
EDITORIAL

Welcome to all of you, dear readers. I hope you will enjoy this issue of *The Reasoner*. At the time you will read this, I will be back in Belgium after having spent eight months as a visiting fellow at the Center for Philosophy of Science at the University of Pittsburgh. It has been an enthralling experience, I can assure you of that. In fact, I would recommend it to everybody and I would like to describe my whole eight-month experience in this piece.

But how could I ever do that in 987 words? I would only have 4.11 words per day. Maybe I could try to describe the 'average week' at the Center. But how would

that week look like? What features should I average over? A better line of approach would be to portray a random sample of the weeks I spent here. That's a good idea. To keep things simple, I'll take a sample of size 1.

Monday. I get off the bus, walk to the Cathedral of Learning (a beautiful building!), and climb the stairs (eight floors!). I'm happy to find out that a pot of coffee is already percolating. In the corridor, I meet Karen, the assistant director. Together with Joyce and Carol, and under the auspices of John Norton and, ad interim, Jim Lennox, she does a wonderful job making sure that everything works out smoothly at the Center and trying to help the visiting fellows as much as possible. Their support is really invaluable. After a little chat, I'm ready to start the week. Today I want to finish a section of my paper. What should be the role of unification in a causal account of explanation? And can anything interesting be said about this issue by means of causal Bayes nets?

Tuesday. I'll have to devote some more time to the questions just raised. So much has been said about explanation, and causation, and unification! How naïve was I to think I would be ready by yesterday evening?

I have to interrupt my ponderings for today's 'lunchtime talk', though. Once or twice a week, people
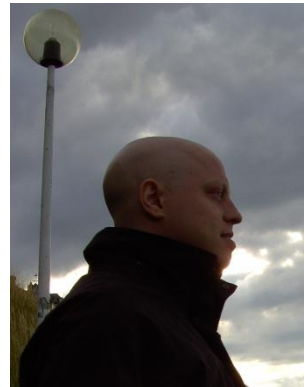
gather here in order to find the optimal combination of smart philosophy of science, coffee and bagels. Today, John Worrall talks about 'Evidence and risk', addressing problems relating to randomization and extrapolation. Really interesting.

Wednesday. Today will be quiet, so I'll have plenty of time to further reflect on unification and how that could be expressed by making use of causal Bayes nets. Thursday. In the morning, I join Jim Woodward's class on causation. This is really one of the nice things about being a visiting fellow here. You're free to join all graduate classes and they are really high-level. Today we will discuss Rubin and Holland's counterfactual account of causal inference. In the afternoon, we have a reading group. Each week, we read and discuss a paper of one of the fellows. Today, it's Kareem Khalifa's turn, his paper being entitled "Inaugurating understanding or repackaging explanation?". I must say these reading groups have been very helpful for me and I hope the same holds for the other fellows. The reading groups are typically concluded with a dinner. I'm curious as to where we will go tonight.

Friday. In the morning, I have to prepare an editorial for *The Reasoner*. I'm not sure what to write. Fortunately, Kareem jumps into my office. Not only do we discuss the relation between explanation and understanding and have some sly digs at each other, he also offers some good suggestions about what I could write. Really nice! In the afternoon, as happens about every month, there is an Annual Lecture Series lecture. This time it's about physics—measurement of Hawking radiation in an analog system (by Prof. William Unruh). I wonder whether I will understand any part of it. In the evening, we all gather in the Hempel apartment, where Elisabeth Nemeth hosts a movie night. That's something I forgot to mention. I'm very happy that the group of visiting fellows is sufficiently large to reach a critical social size. There's always something going on: movie nights, dinners, going to the Pittsburgh Symphony Orchestra. No time to get bored or lonely!

Saturday. Today's workshop, *Les Méchaniciens. Salon des Refusés*, promised to be very busy, but I really looked forward to it. And rightly so. It's always nice to discuss mechanisms. Many interesting topics were passed in review: mechanisms and regularity, understanding and mechanisms, the psychological literature on explanation, etc.

Sunday. Time to stay home and concentrate on unification again. As I said, there is no room for getting bored or lonely during the week. But every now and then it's nice to be on your own as well.

I now realize that this week did not have all the features that I would have liked to mention. I did not touch upon the spontaneously emerging discussions in the coffee room, where the blackboard would suddenly be filled with a schematic version of a possible new paper. Nor did I talk about the meetings with the faculty and/or emeriti you can have if you like. (Even though the faculty of the HPS and the Philosophy departments are top-level in their respective fields, they are very approachable as well.) Nor did I mention . . . In short, this week did not seem fully representative. Maybe John Worrall was right after all. Random sampling is no wonder drug (or was my sample size the problem?).

Monday again. I briefly meet Jim Woodward to add the final touch on the interview below. We discuss, among other things, causation and explanation, the role of philosophy of science in society, and its relation with metaphysics. I'm pretty sure these topics will interest a lot of you. So please feel free to have a look.

BERT LEURIDAN
Centre for Logic and Philosophy of Science, Ghent and
Visiting Fellow, Center for Philosophy of Science,
Pittsburgh

§2

FEATURES

Interview with Jim Woodward

Jim Woodward is Distinguished Professor of History and Philosophy of Science at the University of Pittsburgh and J.O. and Juliette Koepfli Professor of Humanities, Emeritus, California Institute of Technology. His work on causation and explanation, which can be found in many papers and in his book *Making Things Happen* (2003), is well known and has been very influential. I am curious to see how his views on these topics have evolved and I wonder what his stance is regarding the relation between philosophy of science and, say, metaphysics, other scientific disciplines or society in general. So let us ask him.

Bert Leuridan: Prof. Woodward, let me first thank you for your willingness to do this interview. Why did you choose to study philosophy and philosophy of science, and especially causation and explanation?

Jim Woodward: Philosophy and in particular philosophy of science attracted me because I have very wide and very interdisciplinary interests. Academic life and philosophy is currently structured in such a way that it is regarded as legitimate for philosophers to work on

a very wide range of topics. This sort of intellectual freedom appeals to me immensely. As for causation and explanation these connect with a very wide range of different disciplines—philosophy, psychology, statistics, artificial intelligence and so on.

BL: Your book, *Making Things Happen*, was very successful and influential. What do you think made it so successful?

JW: I think it is for others to say why MTH was successful (to the extent that it was). I will say that I tried to write in such a way that my book would be of interest to a wide audience, both within philosophy and outside of it.

BL: Would you consider writing a revised edition?

JW: I have thought about doing a revised edition, although it strikes me that it might make more sense to write a follow-up book. In my experience, trying to revise the text of something written years ago is a difficult undertaking—once you change one part, you find that you need to change other parts, and so on until you have rewritten the whole thing. In which case you might as well just write a new book.

BL: Which are the main new research questions you would want to tackle then?

JW: The list of additional questions that I might address is immense. Here are just a few possibilities. First, representations of causal relationships, whether by means of equations, directed graphs, or any other vehicle of course require choices about which variables to include in the representation. Can we formulate principles of some generality governing variable choice? Second, MTH focused mainly on the problem of distinguishing causal relationships (of various sorts) from non-causal (e.g., "merely correlational") relationships. This has been a traditional preoccupation of the literature on causation, both philosophical and non-philosophical. However, there are many other issues that might be explored. For example, both in ordinary life and in many areas of science, distinctions are made among different kinds or varieties of causal relationships—thus biologists speak of some causal relationships as more "specific" than others or as more "stable" or less "contingent". I think that exploring these features of causal relationships is a potentially very fruitful project for philosophers—I've tried to make a start in a recent paper. ("Causation in Biology: Stability, Specificity, and the Choice of Levels of Explanation" *Biol.Philos.* 25: 287-318, 2010). Third, there is a very rich literature in cognitive and developmental psychology that investigates the causal judgments that children and adults make, and how children and adults learn about causal relationships. I've been very fortunate in being part of a collaboration, funded by the McDonnell Foundation, with Alison Gopnik (psychology, UC-Berkeley) as principal investigator, that includes philosophers, psychologists, statisticians and others who have been working together in trying to understand human (and some aspects of non-human) causal learning. This collaborative work has persuaded me that there are all sorts of connections between the empirical study of causal learning and judgment and the more normative work carried out by philosophers and computationalists. I've been involved in some papers in this area—e.g., "Just do it? Just do it? Investigating the Gap between Prediction and Action in Toddlers' Causal Inferences" (co-authored with Bonawitz et al.), *Cognition* 115: 104-117, 2010, and "The Structure and Dynamics of Scientific Theories: A Hierarchical Bayesian Perspective" (Co-authored with Henderson et al.), *Philosophy of Science* 77: 172-200, 2010—and look forward to doing more work along these lines. Finally, at present, we (both philosophers and psychologists) understand very little about how the sorts of causal judgments captured by the interventionist theory defended in MTH (or in Bayes nets representations) relate to the kinds of judgments (e.g. those involved in launching or in support) that seem to be grounded in causal perception or intuitive ideas about contact mechanics. Are there two distinct "concepts" of causation here, as Ned Hall suggested at one point or, as I suspect, are these two sorts of judgments more closely intertwined? Sorting this out is another important issue on the agenda for philosophers of causation.

BL: The literature on causation has grown and evolved a lot during the past two or three decades. What do you think were the most fruitful developments and what are the most promising trends emerging nowadays?

JW: I think that there has been a lot of very valuable work coming from many different areas. I'll mention just a few contributions, with apologies to those who I do not mention. First, the development or revival (due to Peter Spirtes, Clark Glymour, Richard Scheines in *Causation, Prediction and Search* and Judea Pearl in his *Causality*, among others) of the use of directed graphs and systems of structural equations as devices for representing causal relationships, the articulation of principles such as the Causal Markov condition and the faithfulness condition connecting such representations to probabilistic information, and the development of algorithms for inferring to causal structure from probabilistic information. Second, the explosion of work in psychology on human causal cognition and learning referred to above, a substantial part of it inspired by the more formal work I just mentioned. In addition to work in this area from psychologists, David Danks has been a leader in this area among philosophers. Third, work in a more purely philosophical, even "metaphysical", vein due to philosophers like Ned Hall, Laurie Paul, and Jonathan Schaffer, among others. Related to this, some philosophers such as my former colleague Chris Hitchcock have been using structural equations and directed

graphs to explore in a very illuminating way such issues as whether causation is transitive and to characterize a notion of actual causation. I see the intellectual liveliness of the general area of causation as due in large part to the fact that it has received intellectual infusions from so many different sources.

BL: As you have stressed above, the literature on causation is undoubtedly interdisciplinary—witness also the audience of *The Reasoner*. Do you think this interdisciplinarity has lead to an increased influence of philosophy of science on the sciences themselves?

JW: I think that work on causation in philosophy of science has definitely had an impact on other disciplines. In addition to the influence on psychology mentioned above, ideas from philosophy (e.g., in *Causation, Prediction and Search*) have had a demonstrable impact among researchers interested in problems of causal inference in biology and in econometrics.

BL: Do you think such an influence is desirable?

JW: In these particular cases, I think that influence from philosophy of science has been very salutary. I would not say, however, that good work in philosophy of science *has* to have such an impact on other disciplines. I think that there are many different ways of doing philosophy of science that are worthwhile. Some very interesting and valuable work in philosophy of science consists in reflecting on what scientists do and in attempting to describe scientific activity in a general and abstract way, often with the aim of showing how that work exhibits various broad epistemic values connected to evidence, explanation, and so on. This sort of work need not have any direct influence back on science itself. In other cases, work in philosophy of science may have a direct impact on some area of science. To return again to one of the examples mentioned above, there is substantial body of experimental work in developmental psychology on learning about causal relationships by children that probably would not have been done at all (or at least would have been done in a quite different way) if it were not for the influence of philosophical and computational work on causal Bayes nets, learning from interventions, and so on. All of these models—influence going from the particular sciences to philosophy of science, influence going the other way, as well as more reciprocal or interactive models—can be legitimate and valuable.

In short, the question whether philosophy of science should have more influence on the empirical sciences has no general answer. Instead, the answer depends entirely on the details of particular cases. Obviously ideas about methodology deriving from naïve philosophies of science can have a deleterious influence. One thinks for example of the impact of various instrumentalist ideas (that realism of assumptions does not matter etc.) on economics.

BL: Do you think this interdisciplinarity has lead to an increased influence of philosophy of science on society in general (e.g. on policy decisions, etc.)?

JW: At present I don't think that philosophy of science has much impact at all on policy questions. Most philosophers of science, myself included, have no special expertise regarding policy questions. Whether it would be desirable for us to have more influence on policy again depends on how informed and sensible our recommendations are. In principle, good philosophy of science might have a constructive influence on policy, insofar as policy decisions depend on matters of interest to philosophers of science such as the assessment of evidence or the assessment of various assumptions in particular policy relevant disciplines such as economics. But for this sort of constructive influence to occur, philosophers of science will need to immerse themselves in the details of policy disputes (and the disciplines relevant to understanding those disputes) to a much greater extent than most of us have hitherto (again, this is certainly true of me). Without an understanding of such details, invocations of off-the-shelf methodological ideas from general philosophy of science are unlikely to prove very helpful, in my opinion.

Let me add (just to make sure this comes through clearly) that I certainly don't think that there is anything wrong or inappropriate about philosophers or philosophers of science interesting themselves in policy questions. On the contrary! I just think that one should be cognizant of the amount of background and training that is required to do this well. My guess is that in many cases philosophers of science interested in this kind of work would be well advised to collaborate with others outside of philosophy who have strong backgrounds in this area, at least initially.

BL: At the other side of the philosophical spectrum (at least, that's what many think), there is a whole metaphysical literature relating to topics such as laws of nature or causality. What is your stance towards such metaphysical approaches to causality and towards metaphysics as a discipline? Can philosophers of science and metaphysicians learn from one another?

JW: I try to be a pluralist (and to avoid being an ideologue) about issues like this. There are many different approaches out there. To the extent that this is possible, I believe one should try to identify what is most valuable in each and learn what one can from them. As readers of my work will probably recognize, my own orientation is not very metaphysical. Nonetheless, as I say above, I've certainly benefitted from and value work on causation that might be described as "metaphysical". I will say, however, that I do oppose an attitude which I sometimes find among those who think of themselves as metaphysicians: that the only worthwhile issues regarding causation (or at least the only legitimate ones for philosophers to attend to) are those having to do with the metaphysics of causation. I think that it is

possible to do interesting and worthwhile work on causation without trying to address metaphysical issues—I take people like Spirtes, Glymour and Scheines and Pearl to have successfully done this. So I get very impatient when I hear philosophers dismiss this work (as they sometimes do) as uninteresting because it fails to address issues about the "underlying metaphysics" of causation or when they interpret books of this sort as attempts at metaphysics and find them inadequate when assessed according to this standard.

BL: Apart from causation and explanation, what are your main topics of interest in philosophy of science and in philosophy in general?

JW: I've always been interested in other issues in general philosophy of science such as theories of evidence, and theories of scientific methodology. I also have an interest in the philosophy of several of the so-called special sciences, especially psychology, neurobiology, and economics. Outside of philosophy of science, as usually conceived, I have a long-standing interest in normative ethics and political theory and in the interaction between these and descriptive theories of human motivation and behavior. I've recently tried to do some work in this area—e.g., "Why Do People Cooperate as Much as They Do," in Mantzavinos (ed) *Philosophy of the Social Sciences*, OUP, 2009, pp. 219–265; and "Moral Intuition: Its Neural Substrates and Normative Significance", co-authored with John Allman, *Journal of Physiology Paris* 101, pp. 179–202, 2007.

BL: Thank you very much for this interesting conversation!

JW: You're welcome

Causality in the Sciences

Hot off the Oxford University Press: a volume of 42 research papers shedding light on causality and causal inference across the range of the sciences.

The no-proposition and the unfilled-proposition views on empty names

David Braun (1993: 'Empty names', *Noûs* 27(4), 449–469) proposes two attractive theories of empty names, both available within Direct Reference Theory (DRT): The No Proposition View (NPV) and The Unfilled Proposition View (UPV). The latter seems to improve NPV, but still some difficulties remain. My aim is to give a brief description of these views and to point out the difficulties.

According to DRT, the sole function of a name is to refer to an individual. Empty names don't name existing objects, so on DRT they seem to have no semantic content. Empty names raise several problems for DRT: *The Problem of the Proposition Expressed* (PE), *The Problem of Nonsense* (PN), *The Problem of Truth* (PT) and

The Problem of the Proposition Believed (PB). They occur because in propositions expressed by sentences containing empty names there is no semantic value to "fit into the subject position", and so it seems that such sentences fail to express propositions, are nonsensical, don't have truth values and don't express any beliefs. Braun's NPV and UPV are meant to resolve these problems.

According to NPV, sentences containing empty names fail to express propositions (thus NPV embraces PE). NPV resolves other problems by claiming that sentences don't have to express propositions to express beliefs (so PB vanishes), to be meaningful (PN vanishes) and to have a truth value (PT vanishes). To explain this Braun postulates a distinction between propositions (taken to be abstract objects) and beliefs. A belief is a mental state that—unlike propositions—is an enduring, event-like, and non-abstract entity that occurs in a brain, in time and location and can stand in causal relations to cognitive states. Braun claims that if this distinction is correct, then beliefs are independent of propositions and the mere fact that a sentence is connected to a real belief is a sufficient condition for its cognitive significance.

UPV, on the other hand, allows the problematic sentences to express so-called unfilled propositions (read on for details): semantical objects that (at the very least) strongly resemble propositions (so PE vanishes). A person uttering such a sentence believes an unfilled proposition (PB vanishes). Sentences connections with real belief states resolve PN, in the same way as on NPV.

UPV follows many proponents of DRT in taking propositions to be structured entities composed of individuals, properties and relations. E.g. 'Obama is a human' expresses a proposition consisting of Obama and the property of being a human:

⟨Obama, being-human⟩.

To permit the representation of unfilled propositions we need to add more brackets to mark the subject position. Thus:

⟨{Obama}, being-human⟩.

If a name in a sentence fails to refer, then the subject position is still there, but remains unfilled. E.g. we can represent the unfilled proposition expressed by 'Vulcan is a planet' by:

⟨{}, being-a-planet⟩.

The proposition ⟨{Obama}, being-human⟩ is true iff Obama is a human. We can state truth conditions for atomic propositions to get this result and to cover unfilled propositions: if P is a proposition having a single subject position and a one-place property position, then P is true iff the subject position is filled by a unique

object which has the property filling the property position. If the subject position is empty, this condition is not satisfied, P is not true, and therefore false. So atomic unfilled propositions, like

⟨{}, being-a-planet⟩

are false.

If atomic unfilled propositions are false, their negations are true, e.g.

⟨⟨{}, being-a-planet⟩, NEG⟩

is true. Thus (on UPV) if we suppose negative existential propositions have the following structure:

⟨⟨{}, existence⟩, NEG⟩

then they are straightforwardly true.

These truth conditions show how PT vanishes, especially with respect to negative existentials containing empty names. UPV respects our intuitions in taking such sentences to be always true. UPV seems to improve upon NPV, because it satisfies more of our intuitions concerning empty names: we are often inclined to say that a sentence containing empty names expresses a proposition, and that a person who utters such a sentence says and believes something. Also it resolves more problems than NPV (which bites the bullet of PE).

Still, UPV faces some difficulties. We usually admit that if two non-indexical sentences express the same proposition, they are necessarily equivalent. But it seems that on Braun's view they are not. Two negative existential sentences, expressing proposition ⟨⟨{}, existence⟩, NEG⟩, like 'Vulcan doesn't exist' and 'Ossian doesn't exist' are not equivalent, because there is a possible world in which Vulcan exists but Ossian doesn't. (So it seems that on this view sentences containing empty names are not rigid, which goes against the spirit of DRT.)

Another problem is that if sentences express the same proposition, they have the same truth value, no matter what empty name occupies the unfilled subject-position. All atomic unfilled propositions, like ⟨{}, being-a-planet⟩ or ⟨{}, being-a-character-in-a-novel⟩, are (on UPV) false. So sentences like 'Vulcan is a character in a novel' and 'Sherlock Holmes is a character in a novel' express the same proposition:

⟨{}, being-a-character-in-a-novel⟩,

and they both are false. But some philosophers, me included, have the intuition that they differ in truth value: only the second one is true.

To deal with this problem one might follow Braun in claiming that sentences (and beliefs) may differ in cognitive (and causal) respects, without differing in any semantical respect. The two sentences above differ in

cognitive value (this is a standard notion for many formulations of DRT, see e.g. http://plato.stanford.edu/entries/prop-attitude-reports/ for more details). Thus a competent speaker could accept one of them and reject the other. So far, this resembles the DRT approach to identity puzzles. The problem is that on Braun's view a person may do that even though she knows that the sentences express the same proposition, while DRT allows two sentences to differ in cognitive value without differing in semantics, but only when a speaker doesn't know the two sentences have the same semantic value (e.g., a person may accept 'Mark Twain wrote *Life on the Mississippi*' and reject 'Samuel Clemens wrote *Life on the Mississippi*' but only if she doesn't know that 'Mark Twain' and 'Samuel Clemens' refer to the same person).

A more general worry is that the philosophical job done by propositions within Braun's view is unclear, given that on NPV propositions are not needed for sentences to be acceptable or to express beliefs and that on UPV a difference in cognitive significance of different sentences may have nothing to do with the propositions they express.

Braun's views seem to resolve some of the problems which empty names raise to DRT. But still, some difficulties remain: the problem of rigidity, lack of semantic difference between sentences with differing terms occupying the unfilled subject-position, and the possibility of rejecting one and accepting the other of two sentences of the same semantic value while knowing that they don't differ semantically. So, although the theories are attractive, these further challenges need to be met or convincingly explained away.

ZUZANNA GNATEK
Institute of Philosophy, Sociology and Journalism,
Gdansk University

Replies to Weber and Cooke

Zach Weber ('A rose by any other name?', *The Reasoner* 5(2), pp. 19-21), and Martin Cooke ('English Numbers', *The Reasoner* 5(2), pp. 21-22) have made some comments about my previous discussion of numbers and sets ('Numbers are not sets!', *The Reasoner* 4(12), pp. 175-176). In this short note I provide some answers to their questions and criticisms.

Weber starts by acknowledging that I was (in part) answering an earlier question of Cooke's about whether Euler's '2' (and by implication any other ordinary numeral) refers to the corresponding element in von Neumann's designated set-theoretic omega series. But Weber does not discuss the details of my answer, merely complaining that there are other questions I did not address. I gave a more positive answer to the question

of what numbers are in the article I previously referred to (2007: 'Neo-Fregean Unnatural Numbers,' *The Reasoner* 1(8), pp. 7-8).

Alas, numbers are not sets there, unsurprisingly, so will that satisfy Weber? He continues 'The conversation can develop when we look at the *point* of taking some sets to be numbers: to give us a perspective that we decidedly did not have from the unreduced concept.' I think this perspective is highly problematic, because it does not take into account what goes on in counting. In counting one finds the number of some things by correlating them with the numerals, which are a series of arbitrary words starting with 'zero'. Specifically, then, one says that the number of Fs (Nx:Fx) is zero if and only if there are no Fs, and that Nx:Fx = n if and only if the Fs can be put into one-to-one correspondence with the non-zero numerals up to 'n'. So there is no reference to sets. This definition in terms of used numerals is a modification of the similarly non-set-theoretic, 'Neo-Fregean' basis for Arithmetic derived from Hume's Principle as found in, for instance, Hale, B. and Wright, C. 2001: *The Reason's Proper Study*, Clarendon, Oxford, and many other works.

Given this, I do not see it directly relevant to say more about what sets are. But on the question of whether there are just 'hopelessly informal' notions of set and number in ordinary language, then I can refer to some papers of mine: 2006: 'Grammar and Sets,' *Australasian Journal of Philosophy* 84, pp. 59-73; 2008: 'Natural Language Sets', *Logique et Analyse* 201, pp. 29-48.

Cooke grants me one point that emerges from the above when he says 'zero is of course a number . . . the number of elements in the empty set'. But his argument against my further conclusion (against von Neumann), that the number of elements in the empty set is not the empty set itself, is merely that 'if "the empty set" was a definite description of zero then we *could* say that the number of the elements in the empty set is the empty set (for all that we wouldn't usually)'. But this would apply equally no matter what definite description one replaced 'the empty set' with, so Cooke's argument has little force.

Cooke continues by talking about the number of twos 'in' four, for instance, which he tries to make out to be an argument for numbers like four being sets. Certainly there are a number of pairs in a quartet, which is what Cooke might be thinking of, since both a pair and a quartet are sets (sets with two, and four members respectively). But the fact that two twos are four, i.e. add up to four, in no way shows either of those twos are 'in' four. Cooke says: 'In general, for natural numbers n, the number of ones in n is n. . . . such equations all follow from the natural numbers . . . being essentially sums of ones, which seem to be *some* sort of collection'. But unfortunately {1, 1, 1, 1}={1} not 4, and {2, 2}={2} not

4.

Another of Cooke's arguments is: ' . . . in English, there being *a number of things* of some kind is just there being *some things* of that kind. So . . . surface grammar indicates that numbers . . . are some sort of collection.' No: it indicates merely that *a number of things* (such as the months in a year) form a collection, not *the number of those things* (in the case of the months: 12). It is no accident of course that this point is a grammatical one, or that Cooke misses it through presuming 'arguments based on surface grammar are unlikely to be of much help in this area' —even though he has just used one, immediately above.

In sum I have shown that Weber has provided no arguments against my non-set-theoretic account of the natural numbers, and that several arguments in Cooke's response can be easily turned.

HARTLEY SLATER
Philosophy, University of Western Australia

§3

NEWS

All Models Are Wrong..., 14–16 March

On the 14th, 15th and 16th of March, the conference 'All models are wrong...' was held at the University of Groningen. The conference was organized by Edwin van den Heuvel, Jan-Willem Romeijn and Ernst Wit. Combining both elaborate statistical approaches with philosophical considerations and insights from quantitative scientists, the focus of the conference was on discussing ways to deal with the issue of model uncertainty. Forty years after Hirotake Akaike came up with the general idea of the AIC as a way to deal with model comparison, the issue of model selection in the face of model uncertainty has only grown in importance, as was exemplified by the large variety of talks that were held at the conference.

MARCH 14TH. After some introductory and welcoming remarks by Ernst Wit, the conference started off with a short course by Gerda Claeskens, in which she provided a clear overview of the multitude of criteria that have been developed for the purpose of model comparison. Both the rationale behind these different criteria and their interpretation were discussed in detail, thereby providing a background that would prove to be highly useful for many of the talks that were to follow. As could be expected, different information criteria turn out to have different merits and downsides, and unfortunately there is not a single criterion that is superior in all respects. Claeskens showed that in addition to perhaps more well-known criteria such as the AIC and BIC, one

can also consider using a 'focussed information criterion', which takes the specific purpose of model selection into account. However, Claeskens also showed that in the face of uncertainty, model averaging could be preferable over simply selecting one particular model and discarding all nonselected models. This would prevent over-optimistic inference results, and would do justice to the uncertainty inherent in model selection.

The short course was followed by a keynote address, in which Peter Grunwald showed that while Bayesian inference in many ways provides the most general and coherent approach to model selection, crucial problems such as inconsistency may arise when all of the evaluated models are wrong. After this keynote address, the first day of the conference ended with a reception, which allowed for a first glance at the posters as well as some discussion over wine and cheese.

MARCH 15TH. The second day of the conference was opened by John Copas, who illustrated the effect that selecting the wrong model may have on the estimation of confidence intervals. After that, Angelika van der Linde provided a Bayesian view on model complexity, pointing out some of its specific benefits. The conference continued with two parallel sessions, one dealing with statistical perspectives and the other with philosophical perspectives on model selection and decision making. Topics in these sessions ranged from inference to the best explanation to the role of surprise in theory testing, and from modeling climate change to decision making in nuclear emergency management. After these parallel sessions, there was plenty of opportunity to enjoy the poster presentations during lunch.

The talks in the afternoon dealt with a variety of Bayesian topics, ranging from testing inequality constrained hypotheses using Bayes factors (Herbert Hoijtink) and Bayesian t-tests (Eric-Jan Wagenmakers) to methods of estimating Bayesian model evidence (Nial Freel) and the difficulty of moving from the computation of posterior model probabilities to solving the problem of model choice (Peter Green). The day was concluded with a conference dinner, which provided the participants with plenty of opportunity to reflect upon the topics discussed so far while enjoying a good meal.

MARCH 16TH. The last day of the conference started out with two parallel sessions on applications, again with one having a more statistical focus and the other with a more philosophical focus. During these sessions, a wide variety of topics were discussed, such as the epistemology and ontology of models, and the idea that a model cannot be useful without being dangerous, with model accuracy being both a virtue and a potential vice. The day continued with a talk by Arthur Petersen, who illustrated the difficulties of working with uncertain models in the context of climate change prediction. The final keynote address of the conference was given by Kenneth Burnham, who argued in favor of abandoning

the idea of a 'true model' and who provided an extensive and thorough comparison of the AIC and the BIC.

The conference was concluded by Ernst Wit with the awarding of the 'best poster prize'. This award was shared by three winners: Devon Barrow from Lancaster University, Thomas Deckers from the University of Groningen, and Paul Wilson from the National University of Ireland. Wit also indicated that a special edition of Statistica Neerlandica will be dedicated to the topic of the conference, providing the participants with the opportunity to publish a paper on the topic of their presentation. Given the importance of model selection and the range of interesting talks that were held at the conference, this edition will definitely be one to look forward to!

JESPER TIJMSTRA
Department of Methodology and Statistics,
Utrecht University

Experimental Philosophy, 25–26 March

People experience joy and pain, appreciate brilliant colors, want, reason, and remember. But how do we distinguish these mental states from one another? And what leads us to attribute these to other entities? Long the province of philosophy, psychologists have also begun to investigate these questions. And recently, philosophers, borrowing the methods of psychologists, have begun conducting experiments to test philosophical accounts of mind and mental state attribution. At the Metro Experimental Research Group's 2nd Annual Experimental Philosophy Conference, three very different perspectives on these questions were presented.

Kurt Gray (University of Maryland, Psychology) sketched a position according to which our perception of mind and morality share an interrelated structure. Gray's findings suggest that people perceive certain entities (e.g., God and Google) as having a high capacity for states such as self-control and memory. Whereas other entities (e.g., fetuses and frogs) are thought to have a high capacity for other states, like pleasure and fear. Still other entities (e.g., adult humans) are perceived as being high in both kinds of states. Thus we seem to perceive the mind along two dimensions: an entity can be high or low in agency or experience. Surprisingly, Gray and colleagues also found that these dimensions of mind correlate with distinctive moral roles. An entity that is thought to be high in agentic mental states will tend to be thought of as a moral agent, a potential producer of good and bad deeds. Whereas one that is high in experiential states will be thought of as a moral patient, a possible subject of moral violations and benefits. This interrelated dyadic structure of mind and morality, together with our tendency to conceive of each moral event as involving an entity who acts and

one who is acted upon, leads people to attribute an experiencer and an agent to every moral instance—even when no entity obviously fills one of the roles. Burning the flag is wrong, so it must be conceived as hurting veterans. A devastating earthquake must have been planned by God.

Gray's dyadic view of mentality implies a unified approach to experiential states. Entities who have a high capacity for sensory experiences presumably also have a high capacity for pain on his view. Edouard Machery (University of Pittsburgh, History and Philosophy of Science), however, challenged this supposition in his presentation. Philosophers have often supposed that being hungry, seeing red, and feeling joy are all similar in that it is like something to be in these mental states. David Chalmers has claimed that this makes experience, "the most central and manifest part of our mental lives", and thus seemingly impossible to explain as a congeries of physical processes and neuronal states. But if these mental states all share the same manifest properties, then ordinary people should group these mental states together, just as philosophers do. However, as Machery's experimental research suggests, ordinary people, but not philosophers, think of color vision in a way that leads them to attribute this state to non-human robots, whereas both philosophers and non-philosophers think only humans can feel pain. Thus, seeing red and feeling pain do not seem to share a manifest property that leads all people to think of these states in the same way. Machery went on to argue that people normally differentiate mental states according to whether or not they are thought to be negative or positive, or neutral. Feeling happy and smelling sulphur will be identified with one another, because both have a valence—one is good and the other is bad. But seeing red is neither good nor bad, so it will not be grouped with these other mental states by ordinary people, according to Machery.

Though Machery denied a unified approach to experiential states, like Gray he argued for a dichotomy in mental state attribution. Gray claimed that people distinguish agentic and experiential states. Machery cleaved valenced from non-valenced states. But these theorists agreed, and disagreed with Shaun Nichols (University of Arizona, Philosophy), in claiming that what ordinarily leads people to attribute one kind of mental state is separate from what leads them to attribute another. Nichols instead argued for a quick and computationally simple process that compels people to attribute desires and beliefs, as well as sensory experiences, pleasure, and pain to organisms that exhibit certain characteristic features, such as eyes, distinctive motion trajectories, and contingent interactions. The assessments of this simple process can be over-ridden, but only with effort. For instance, many people would reject the idea that insects experience pain. But Nichols reported results of a timing study that reveal people are significantly slower to reject attributions of pain to insects than they are to vehicles. Alternatively, an intellectual theory may suggest that something experiences consciousness, but in the absence of the simple features that lead us to automatically trigger consciousness, this theory will always seem suspect. This, Nichols conjectured, is why scientific and philosophical explanations of consciousness have always felt so unsatisfying. They generate an explanatory gap because, while the human brain may be theorized to be the seat of consciousness, it just doesn't exhibit the features that typically trigger consciousness attributions.

The three perspectives on mental state attribution presented at the MERG's 2nd Annual Experimental Philosophy Conference can't all be right. But they all certainly are interesting.

Mark Phelan
Department of Philosophy, Yale University

Epistemology of Modeling and Simulation, 1–3 April

The Epistemology of Modeling & Simulation conference took place at the University of Pittsburgh April 1st through 3rd, sponsored by the Center for Philosophy of Science at the University of Pittsburgh and the MIDAS Center for Excellence in the Graduate School of Public Health. The conference included keynote addresses by Paul Thagard, Mark Bedau, Nicholas Rescher, Ian Lustick, Marc Lipsitch and Wendy Parker, 40 paper and 30 poster presentations (for further details see here).

The purpose of the conference was to bring together serious work in philosophy of science with active and ongoing efforts in modeling across a range of disciplines: epidemiology, physics, biology, climate change, cognitive science and neuroscience. Many of the speakers raised issues of difficulty in evaluation of predictive models, with Rescher's, Lustick's, and Lipsitch and Parker's keynotes cases in point. But a main emphasis throughout the conference was on the different purposes to which models are put beyond point prediction, with different forms of evaluation appropriate to those purposes. Models can serve purposes of explanation and illuminate potential explanatory mechanisms, can stimulate hypothesis formation and eliminate early non-contenders, can guide data collection, reveal core uncertainties, make clear robustness and fragility of a phenomenon with regard to different inputs, indicate insufficiency of proposed accounts, format and guide policy decision, indicate efficiency of alternative interventions, reveal the simplicity in complex phenomena and the complexity behind apparently simple phenomena. Model building and use in none of these cases reduces to simple prediction, nor is evaluation in any of these cases entirely aligned with evaluation appropriate

to point prediction. The emphasis on varieties of models, varieties of model use, and varieties of appropriate evaluation came out particularly clearly in open interdisciplinary exchanges in break-out session on three classic models: the ancient Anasazi, the CCSM3 climate change model, and the Epstein-Burke model of smallpox and bioterrorism. All participants in the conference were invited to join a 'pro' group on the virtues or the 'con' group on the vices of one of these models, with access to an expert on the model but with someone else taking notes and reporting back to the group as a whole. It was here that inevitably conflicting virtues of simplicity and full realism, explanatory generality and predictive detail, scientific accuracy and policy accessibility came to the fore, along with a range of questions regarding necessary calibration and adjustment on the one hand and artificial tweaking and overfitting on the other.

It is hoped that the conference will mark a new step toward collaboration between philosophers of science and ongoing scientific and policy efforts in modeling and epistemology. There were certainly cases in which the modelers may have found philosophers' concerns, or their way of phrasing them, remote and isolated from the everyday demands of modeling. There were undoubtedly also cases in which the philosophers may have found the modelers' concerns, or their way of phrasing them, artificially restricted to a particular area or as yet unclearly articulated. But there were also many cases in which immediate methodological issues were seen to reflect larger epistemic concerns suitable for philosophical analysis, and in which claims in philosophy of science found instantiation, application, and occasionally refutation in the deetails of contemporary modeling. As Josh Epstein summarized the conference, "there were many fruitful collisions". The hope is that there will be many more.

Patrick Grim
Department of Philosophy, SUNY at Stony Brook

Three Rivers Philosophy Conference, 1–3 April

The University of South Carolina (Columbia, South Carolina) served as an inspiring location for the very first Three Rivers Philosophy Conference (April 1-3, 2011). 'Science, Knowledge and Democracy' were the key themes both invited and contributory lectures dealt with. The conference counted 4 plenary speakers, over 35 contributed papers, and a 5 paper strong poster session.

In the opening lecture of the first day, Elizabeth Anderson developed criteria for lay assessment of scientific testimony and demonstrated that applying these criteria is feasible for laypersons. The democratic legiti-macy of technical public policies is not up for discussion, given that citizens can make reliable second-order assessments of the consensus of trustworthy scientific experts.

In the afternoon plenary session, Miranda Fricker posed the question: 'Is the virtue of testimonial justice a virtue for scientists?' By referring to the historical case of Semmelweis, she answered the question affirmatively. Furthermore, different models for how communities of scientists might collectively possess the virtue of testimonial justice were sketched out.

At the start of the second day, Henry S. Richardson took us on a philosophical journey by investigating reliance on expertise as we reason together. Richardson investigated the underlying conceptual tension between reasoning and relying. Possible threats emerging could be averted by further institutional measures: by guaranteeing the possibility of public scrutiny of expert reasoning, by ordering the reasoning so that the threat to its unity is limited, and by providing adequate mechanisms for appeal, challenge, and reconsideration.

The final plenary session was given by Miriam Solomon, who talked about the evolution of consensus conferences. Starting from Arthur Kantrowitz's 1967 idea of 'science court' she traced the history behind consensus conferences, with special attention to the NIH consensus development program and the Danish consensus conference model. Through this historical examination she argued for consensus conferences as being 'social epistemic rituals', which claim to 'make knowledge' through satisfying ideals of fairness and objectivity.

Most of the contributed speakers were intrigued with similar issues as the ones addressed by the keynote speakers. In particular, interesting talks were given related to topics such as expertise (Heather Phillips, Pavel Hardos, David L. Rice), consensus (Boaz Miller, Jeroen Van Bouwel, Laszlo Kosolosky, Brent Ranalli), evidence (Heather Douglas, Robyn Bluhm), objectivity (Jeff Kochan, Amanda Roth, Eric Winsberg, Carole J. Lee), public participation (Daniel Steel, David Taylor, Frans A.J. Birrer, Cara O'Connor), political science/philosophy (Mark Brown, Karin Jonch-Clausen, Klemens Kappel, Justin Weinberg, Matthew Brown, Nicholas Zavediuk), geoengineering (Benjamin Hale), selective ignorance (Kevin Elliott), and many more.

Special thanks to Justin Weinberg and Kevin Elliott, who succeeded very well in organizing what turned out to be a splendid conference. Hopefully this event will be remembered as the starting point of a fruitful biennial tradition.

Laszlo Kosolosky
Centre for Logic and Philosophy of Science,
Ghent University

Calls for Papers

§4
What's Hot in . . .

. . . Logic and Rational Interaction

A number of new publications in the area of logic and rational interaction were highlighted this month at the LORIWEB site. Christian List and Philip Pettit have written a book-length study of group agency. The book is forthcoming with Oxford University press. In the Journal of Logic and Computation, Hans van Ditmarsch, Andreas Herzig and Tiago de Lima study Reiter's solution to the frame problem in the setting of Dynamic Epistemic Logic, and Olaf Beyersdorff, Arne Meier, Michael Thomas and Heribert Vollmer investigate the complexity of reasoning in fragments of default logic. In the journal Minds and Machines, Gregory Wheeler and Marco Alberti propose an operator for norm revision and contraction in multi-agent systems.

Contributions to LORIWEB on topics relevant to the area of Logic and Rational Interaction are always welcome. Please submit your news items to Rasmus Rendsvig, our web manager or to the loriweb address.

BEN RODENHÄUSER
Philosophy, Groningen

§5
EVENTS

FEW: 8th annual Formal Epistemology Workshop, University of Southern California, 19–21 May.

SYSTEMATICITY AND THE POST-CONNECTIONIST ERA: TAKING STOCK OF THE ARCHITECTURE OF COGNITION: San Jose, Andalucia, Spain, 19–21 May.

CONDITIONALS, COUNTERFACTUALS AND CAUSES IN UNCERTAIN ENVIRONMENTS: Faculty of Philosophy, University of Düsseldorf, 19–22 May.

SCOTTISH AND NORTHUMBRIAN ACADEMIC STATISTICIANS: University of St Andrews, 20 May.

PALMYR X: LOGIC AND THE USE OF LANGUAGE: Paris-Amsterdam Logic Meetings of Young Researchers, Paris, 20–21 May.

ICNCI: International Conference on Network and Computational Intelligence, Zhengzhou, China, 21–22 May.

EUROPEAN CONFERENCE ON COGNITIVE SCIENCE: Sophia, Bulgaria, 21–24 May.

SLACRR: St. Louis Annual Conference on Reasons and Rationality, St. Louis, MO, 22–24 May.

TAMC: 8th Annual Conference on Theory and Applications of Models of Computation, Tokyo, Japan, 23–25 May.

PAKDD: 15th Pacific-Asia Conference on Knowledge Discovery and Data Mining, Shenzhen, China, 24–27 May.

AI: 24th Canadian Conference on Artificial Intelligence, Saint John's, Newfoundland and Labrador, Canada, 25–27 May.

NORMATIVITY OF MEANING: SELLERSIAN PERSPECTIVES: Department of Logic, Institute of Philosophy, Prague, Czech Republic, 25–27 May.

SEP: Society for Exact Philosophy, University of Manitoba, Winnipeg, Canada, 26–28 May.

LATA: 5th International Conference on Language and Automata Theory and Applications, Tarragona, Spain, 26–31 May.

KANT ON METHOD AS A DEMARCATION OF THE SCIENCES: Faculty of Philosophy, University of Groningen, The Netherlands, 30–31 May.

AGNOTOLOGY: WAYS OF PRODUCING, PRESERVING, AND DEALING WITH IGNORANCE: ZiF, Bielefeld University, 30 May–1 June.

GREEK STOCHASTICS: Crete, Greece, 30 May–1 June.

CICIS: Contemporary Issues in Computer and Information Science, Zanjan, Iran, 31 May–2 June.

PHILOSOPHY IN AN AGE OF SCIENCE: A CONFERENCE IN HONOR OF HILARY PUTNAM'S 85TH BIRTHDAY: Harvard University and Brandeis University, 31 May–3 June.

MEANING, CONTEXT AND IMPLICIT CONTENT: Château de Cerisy-la-Salle, Normandy, France, 31 May–7 June.

JUNE

TICTTL: 3rd International Congress on Tools for Teaching Logic, Salamanca, Spain, 1–4 June.

PERCEPTION, ACTION, AND TIME: Department of Philosophy, Universitat Autònoma de Barcelona, 2–3 June.

XPRAG: Experimental Pragmatics, Barcelona, 2–4 June.

PHILOSOPHY AND MODEL THEORY: Paris, 2–5 June.

ASPECTS OF REASON: JUSTIFICATION AND EXPLANATION: Center for Advanced Studies, Munich, 3–4 June.

CHURCH'S THESIS: LOGIC, MIND AND NATURE: Krakow, Poland, 3–5 June.

ICFCC: 3rd International Conference on Future Computer and Communication, Iasi, Romania, 3–5 June.

UC: 10th International Conference on Unconventional Computation, Turku, Finland, 6–10 June.

CONTEXTS, PERSPECTIVES, AND RELATIVE TRUTH: University of Bonn, 9–11 June.

ASSC: Association for the Scientific Study of Consciousness, Kyoto, Japan, 9–12 June.

NEUROSCIENCE AND PRAGMATISM: Potomac Institute for Policy Studies, Arlington, VA, 10 June.

ICCSIT: 4th IEEE International Conference on Computer Science and Information Technology, Chengdu, China, 10–12 June.

WSOM: 8th Workshop on Self-organizing Maps, Espoo, Finland, 13–15 June.

THE EPISTEMOLOGY OF PHILOSOPHY: University of Cologne, 13–17 June.

BW7: 7th Barcelona Workshop on Issues in the Theory of Reference, Special Topic: Paradoxes of Truth and Denotation, 14–16 June.

ICANN: International Conference on Artificial Neural Networks, Espoo, Finland, 14–17 June.

LOGICISM TODAY: Besse-en-Chandesse, France, 14–17 June.

CSR: 6th International Computer Science Symposium in Russia, St. Petersburg, 14–18 June.

ANOTHER WORLD IS POSSIBLE: Conference on David Lewis, University of Urbino, Italy, 16–18 June.

KNOWING AND UNDERSTANDING THROUGH COMPUTER SIMULATIONS: IHPST, Paris, 16–18 June.

CONCEPTUAL ANALYSIS AND 2-D SEMANTICS: University of Cologne, 18–19 June.

PNSE: International Workshop on Petri Nets and Software Engineering, Kanazawa, Japan, 20–21 June.

EEIC: International Conference on Electric and Electronics, Nanchang, China, 20–22 June.

DEFENDING REALISM: ONTOLOGICAL AND EPISTEMOLOGICAL INVESTIGATIONS: University of Urbino, Italy, 20–23 June.

EMERGENCE AND PANPSYCHISM: International Conference on the Metaphysics of Consciousness, Munich, Germany, 20–24 June.

LOGICA: Institute of Philosophy, Academy of Sciences of the Czech Republic, Hejnice, Northern Bohemia, 20–24 June.

OPEN MIND: University of Bucharest, 21 June.

LICS: Logic in Computer Science, Toronto, Canada, 21–24 June.

ASC: 14th International Conference on Artificial Intelligence and Soft Computing, Crete, Greece, 22–24 June.

George Berkeley: Mind, Perception and Knowledge: University of Zürich, Switzerland, 22-24 June.

SPSP: Society for Philosophy of Science in Practice, University of Exeter, Exeter, UK, 22–24 June.

Ordinary Language, Linguistics, and Philosophy: Arché Research Centre, University of St Andrews, 23–25 June.

Metaphysics of Mind: Centre for the Study of Perceptual Experience, University of Glasgow, 24–25 June.

EPISTEME: Social Epistemology Meets Formal Epistemology: Recent Developments and New Trends, Center for Formal Epistemology, Department of Philosophy, Carnegie Mellon University, 24–26 June.

CMMSE: Computational and Mathematical Methods in Science and Engineering, Benidorm, Alicante, Spain.26–30 June

Extended cognition: Amsterdam, 27–28 June.

Evolution, Cooperation and Rationality: Philosophical Perspectives: University of Bristol, 27–29 June.

QI: 5th International Symposium on Quantum Interaction, Aberdeen, UK, 27–29 June.

Ershov Informatics Conference: Novosibirsk, Akademgorodok, Russia, 27 June–1 July.

Journées Arithmétiques: Vilnius, Lithuania, 27 June–1 July.

Models of Computation in Context: Sofia, Bulgaria, 27 June–2 July.

ICML: 28th International Conference on Machine Learning, Bellevue, WA, USA, 28 June–2 July.

Models and Mechanisms in Cognitive Science: School of Philosophy, Psychology, and Language Sciences, University of Edinburgh, 29 June.

ECSQARU: 11th European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, Belfast, Northern Ireland, UK, 29 June–1 July.

July

AAHPSSS: Australasian Association for the History, Philosophy and Social Studies of Science, Christchurch, New Zealand, 1–3 July.

Perceiving Others' Minds: University of Manchester, 1 July.

Rutgers-Arché Knowing How Workshop: University of St Andrews, 2–3 July.

Cognitio. Nonhuman Minds: Animal, Artificial or Other Minds: Montreal, Qc., Canada, 3–5 July.

Bayesian Capture-Recapture: Centre for Research into Ecological and Environmental Modelling (CREEM), University of St Andrews, 4–6 July.

ICMC: 2nd International Choice Modelling Conference, Leeds, UK, 4–6 July.

The Computational Turn: Past, Presents, Futures?: International Association for Computing and Philosophy, Aarhus University, 4–6 July.

ICALP: 38th International Colloquium on Automata, Languages and Programming, Zürich, Switzerland, 4–8 July.

Panhellenic Logic Symposium: Ioannina, Greece, 4–8 July.

TABLEAUX: Automated Reasoning with Analytic Tableaux and Related Methods, Bern, Switzerland, 4–8 July.

LGS7: 7th International Conference on "Logic, Games Theory and Social Choice", National School of Political Studies and Administration, Bucharest, Romania, 6–9 July.

ICLP: 27th International Conference on Logic Programming, Lexington, Kentucky, USA, 6–10 July.

Society for Philosophy and Psychology: Université du Québec à Montréal, Montreal, Canada, 6–10 July.

DGL: 5th Workshop in Decisions, Games & Logic, Maastricht University, The Netherlands, 7–9 July.

Reasoning About Other Minds: Logical and Cognitive Perspectives: Groningen, the Netherlands, 11 July.

IWSM: 26th International Workshop on Statistical Modelling, Valencia, 11–15 July.

TARK: Theoretical Aspects of Rationality and Knowledge, Groningen, the Netherlands, 11–15 July.

Logic Colloquium: Barcelona, Catalonia, Spain, 11–16 July.

Australasian Applied Statistics Conference: Palm Cove, Tropical North Queensland, Australia, 12–15 July.

UAI: 27th Conference on Uncertainty in Artificial Intelligence, Barcelona, Spain, 14–17 July.

WCT: Workshop on Computability Theory, Barcelona, Spain, 17 July.

ARCOE: Automated Reasoning about Context and Ontology Evolution, Barcelona, Spain, 17–18 July.

CLIMA: 12th International Workshop on Computational Logic in Multi-Agent Systems, Barcelona, Spain, 17–18 July.

SING: 7th Spain-Italy-Netherlands Meeting on Game Theory, Paris, 18–20 July.

WORLDCOMP: World Congress in Computer Science, Computer Engineering, and Applied Computing, Las Vegas, Nevada, USA, 18–21 July.

ICIAM: 7th International Congress on Industrial and Applied Mathematics, Vancouver, British Columbia, Canada, 18–22 July.

IJCAI: 22nd International Joint Conference on Artificial Intelligence, Barcelona, Spain, 19–22 July.

CLMPS: 14th Congress of Logic, Methodology, and Philosophy of Science, Nancy, France, 19–26 July.

ICMSA: 7th IMT-GT International Conference on Mathematics, Statistics and its Applications, Bangkok, Thailand, 21–23 July.

IADIS: International Conference Intelligent Systems and Agents, Rome, Italy, 24–26 July.

ISIPTA: 7th International Symposium on Imprecise Probability: Theories and Applications, University of Innsbruck, Austria, 25–28 July.

ICCS: 19th International Conference on Conceptual Structures, Derby, England, UK, 25–29 July.

ICBO: International Conference on Biomedical Ontology, University at Buffalo, NY, 26–30 July.

BEYOND THE POSSIBLE: IN MEMORIAM OF RICHARD SYLVAN: The University of Melbourne, 27–29 July.

IJCNN: International joint Conference on Neural Networks, San Jose, California, 31 July 31–5 August.

CADE: 23nd International Conference on Automated Deduction, Wroclaw, Poland, 31 July–5 August.

AUGUST

THE CLASSICAL MODEL OF SCIENCE II: The Axiomatic Method, the Order of Concepts and the Hierarchy of Sciences from Leibniz to Tarski, Vrije Universiteit Amsterdam, The Netherlands, 2–5 August.

SET THEORY AND HIGHER-ORDER LOGIC: FOUNDATIONAL ISSUES AND MATHEMATICAL DEVELOPMENTS: Institute of Philosophy, London, 5–6 August.

ICFOCS: International Conference on Frontiers of Computer Science, Bangalore, Karnataka, India, 7–9 August.

AAAI: 25th Conference on Artificial Intelligence, San Francisco, California, 7–11 August.

EPISTEMIC AUTONOMY: Humboldt-Universität zu Berlin, 8–10 August.

ECAL: European Conference on Artificial Life, Paris, France, 8–12 August.

LOGICAL CONSTANTS: Ljubljana, Slovenia, 8–12 August.

EPISTEMIC INCLUSIVENESS AND TRUST: 3rd Copenhagen Conference in Epistemology, University of Copenhagen, 15–17 August.

ECAI: 19th European Conference on Artificial Intelligence, Lisbon, Portugal, 16–20 August.

CONVENTIONAL PRINCIPLES IN SCIENCE: Department of Philosophy, University of Bristol, 18–19 August.

YSI: Young Statisticians Meeting, Dublin, Ireland, 19–21 August.

ISI: 58th Congress of the International Statistical Institute, Dublin, Ireland, 21–26 August.

KDD: 17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, San Diego, CA, 21–24 August.

FCT: 18th International Symposium on Fundamentals of Computer Theory, Oslo, Norway, 22–25 August.

AiML: 8th International Conference on Advances in Modal Logic, Moscow, 24–27 August.

ICDL-EPIROB: IEEE Conference on Development and Learning, and Epigenetic Robotics, Frankfurt am Main, Germany, 24–27 August.

PHILOSOPHY OF THE SOCIAL SCIENCES: University of Copenhagen, 25–26 August.

UNCERTAINTY MODELING IN KNOWLEDGE ENGINEERING AND DECISION MAKING: Istanbul, Turkey, 27–29 August.

SEPTEMBER

BISP: 7th workshop in Bayesian Inference for Stochastic Processes, Getafe, Spain, 1–3 September.

ECAP: 7th European Conference in Analytic Philosophy, Milan, Italy, 1–6 September.

INEM: Conference of the International Network for Economic Method, Helsinki, Finland, 2–3 September.

COMPUTER MODELLING AND SIMULATION: Brno, Czech Republic, 5–7 September.

DOMAINS: Swansea University, Wales, UK, 5–7 September.

ECML PKDD: European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, Athens, Greece, 5–9 September.

VARIETIES OF REPRESENTATION: Kazimierz Dolny, Poland, 5–9 September.

WPMSIIP: Workshop on Principles and Methods of Statistical Inference, University of Ljubljana, Slovenia, 5–10 September.

PERCEPTUAL MEMORY AND PERCEPTUAL IMAGINATION: University of Glasgow, 6–9 September.

PROGIC

The fifth workshop on Combining Probability and Logic, Columbia University, New York, 10–11 September

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CSL: 20th Annual Conference of the European Association for Computer Science Logic, Bergen, Norway, 12–15 September.

CP: 17th International Conference on Principles and Practice of Constraint Programming, Perugia, Italy, 12–16 September.

EANN/AIAI: Engineering Applications of Neural Networks and Artificial Intelligence Applications and Innovations, Corfu, Greece, 15–18 September.

PLM: Philosophy of Language and Mind, Stockholm University, 16–18 September.

EXPERIMENTAL PHILOSOPHY GROUP UK: University of Sheffield, 17–18 September.

ICSC: International Conference on Semantic Computing, Palo Alto, California, United States, 18–21 September.

CAUSALITY AND EXPLANATION IN THE SCIENCES

Faculty of Arts and Philosophy, Ghent University, 19–21 September

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FEDCSIS: Federated Conference on Computer Science and Information Systems, Szczecin, Poland, 19–21 September.

Statistical Computational & Complex Systems: University of Padua, 19–21 September.

Computer Simulations and the Changing Face of Scientific Experimentation: Stuttgart, Germany, 21–23 September.

Social Ontology: Metaphysical and Empirical Perspectives: Workshop of the European Network on Social Ontology (ENSO), Luiss Guido Carli, University, Rome, Italy, 21–23 September.

Kant and the Exact Sciences: University of Notre Dame, 23–24 September.

Semantics & Philosophy in Europe: Ruhr University Bochum, Germany, 26 September–1 October.

SYNASC: 13th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, Timisoara, Timis, Romania, 26–29 September.

Formal Epistemology Meets Experimental Philosophy: Tilburg Center for Logic and Philosophy of Science, 29–30 September.

§6
Courses and Programmes

Courses

Logic School: Instituto de Matemática/UFF, Niterói (RJ), Brazil, 7–8 May.

Reasoning and Argument: Computer and Cognitive Science Perspectives: 2nd Summer Institute on Argumentation, Centre for Research on Reasoning, Argumentation and Rhetoric, University of Windsor, Ontario, Canada, 9–27 May.

Is There a God?: Grimond Building, University of Kent, Canterbury, 14 May.

Carnegie Mellon Summer School in Logic and Formal Epistemology: Department of Philosophy, Carnegie Mellon University, Pittsburgh, 6–23 June.

Causal Inference: Summer Institute, University of Washington, 13–15 June.

MLSS Singapore: Machine Learning Summer School, Biopolis, Singapore, 13–17 June.

MLSS @ Purdue: Machine Learning Summer School, Departments of Statistics and Computer Science, Purdue University, 13–24 June.

Relativism and Disagreement, Fallibilism and Infallibism, Truth and Paradox: Northern Institute of Philosophy Summer School, University of Aberdeen, 28 June–30 June.

Advanced Statistics and Data Mining: Technical University of Madrid, 4–15 July.

EASSS: 13th European Agent Systems Summer School, Girona, Catalonia, Spain, 11–15 July.

David Lewis on Language and Mind: 3rd Graduate International Summer School in Cognitive Sciences and Semantics, University of Latvia, Riga, 18–21 July.

LxMLS: Lisbon Machine Learning Summer School, Instituto Superior Técnico (IST), Lisbon, Portugal, 20–25 July.

Experiments in Economics, Experiments in Philosophy: Summer school on Economics and Philosophy, San Sebastian, 27–29 July.

Interactivist Summer Institute: University of the Aegean, Syros, Greece, 29 July 29–1 August.

Set Theory and Higher-Order Logic: Foundational Issues and Mathematical Developments: Institute of Philosophy, London, 1–4 August.

ESSLLI: European Summer School in Logic, Language and Information, Ljubljana, Slovenia, 1–12 August.

Copenhagen Summer School in Phenomenology and Philosophy of Mind: Center for Subjectivity Research, University of Copenhagen, 8-12 August.

Network Dynamics: Groningen, the Netherlands, 29 August–6 September.

Analysis Methods for Cross-national Comparisons: Leuven, Belgium, 28 August–4 September.

MLSS France: Machine Learning Summer School, Bordeaux, France, 4–17 September.

Relying on Others. New Perspectives in Social Epistemology: University of Cologne, 7–10 September.

SPR: ILCLI International Workshop on Semantics, Pragmatics, and Rhetoric, Institute for Logic, Cognition, Language, and Information, University of the Basque Country at Donostia, 9–11 November.

Programmes

APhil: MA/PhD in Analytic Philosophy, University of Barcelona.

Doctoral Programme in Philosophy: Language, Mind and Practice, Department of Philosophy, University of Zurich, Switzerland.

HPSM: MA in the History and Philosophy of Science and Medicine, Durham University.

Master Programme: Philosophy and Economics, Institute of Philosophy, University of Bayreuth.

Master Programme: Philosophy of Science, Technology and Society, Enschede, the Netherlands.

MA in Cognitive Science: School of Politics, International Studies and Philosophy, Queen's University Belfast.

MA in Logic and the Philosophy of Mathematics: Department of Philosophy, University of Bristol.

MA in Metaphysics, Language, and Mind: Department of Philosophy, University of Liverpool.

MA in Mind, Brain and Learning: Westminster Institute of Education, Oxford Brookes University.

MA in Philosophy: by research, Tilburg University.

MA in Philosophy of Biological and Cognitive Sciences: Department of Philosophy, University of Bristol.

MA in Rhetoric: School of Journalism, Media and Communication, University of Central Lancashire.

MA programmes: in Philosophy of Language and Linguistics, and Philosophy of Mind and Psychology, University of Birmingham.

MRes in Cognitive Science and Humanities: Language, Communication and Organization: Institute for Logic, Cognition, Language, and Information, University of the Basque Country, Donostia, San Sebastian.

MRes in Methods and Practices of Philosophical Research: Northern Institute of Philosophy, University of Aberdeen.

MSc in Applied Statistics and Datamining: School of Mathematics and Statistics, University of St Andrews.

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 provided by Philosophy and further modules from Psychology, Computing, Statistics, Social Policy, Law, Biosciences and History.

MSc in Cognitive & Decision Sciences: Psychology, University College London.

MSc in Cognitive Science: University of Osnabrück, Germany.

MSc in Cognitive Psychology/Neuropsychology: School of Psychology, University of Kent.

MSc in Logic: Institute for Logic, Language and Computation, University of Amsterdam.

MSc in Mathematical Logic and the Theory of Computation: Mathematics, University of Manchester.

MSc in Mind, Language & Embodied Cognition: School of Philosophy, Psychology and Language Sciences, University of Edinburgh.

MSc in Philosophy of Science, Technology and Society: University of Twente, The Netherlands.

MRes in Cognitive Science and Humanities: Language, Communication and Organization: Institute for Logic, Cognition, Language, and Information, University of the Basque Country (Donostia San Sebastian).

Open Mind: International School of Advanced Studies in Cognitive Sciences, University of Bucharest.

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Jobs and Studentships

Jobs

Assistant Professor: AOS: possibly one among History of Philosophy, Metaphysics, Philosophy of Mind, Philosophy of Science, and Philosophy of Language, Department of Philosophy, Western Michigan University, Kalamazoo, MI, until filled.

Assistant Professor: AOS: Metaphysics and Epistemology broadly construed, Philosophy Department, Kansas State University, until filled.

Post-doc position: in the area of developmental robotics and robot learning, INRIA, Bordeaux, until filled.

Two Post-doc positions: in Machine Learning, in the project "Composing Learning for Artificial Cognitive Systems", INRIA Lille, until filled.

One-year Postdoctoral Fellowship: AOS: logic or philosophy of science, Department of Philosophy, University of Calgary, Alberta, Canada, deadline 15 April or until filled.

Lecturer or Assistant Professor: in Philosophy of Science, Department of Philosophy, Mount Allison University, Sackville, New Brunswick, review of applications begins 2 May.

Post-doc research fellow: in statistical methodology, theory and computing, School of Mathematical Sciences, University of Technology, Sydney, deadline 2 May.

Tenure-track Assistant Professor position: in Philosophy, AOS: Ethical Theory OR Epistemology/Philosophy of Science/Cognitive Science, Department of Philosophy, University of Minnesota, Duluth, review of applications begins 3 May.

Fixed-term Research Associate: in Natural Language Processing and Machine Learning, Department of Computer Science, Faculty of Engineering, University of Sheffield, deadline 5 May.

Fixed-term full-time Lectureship: in History of Medicine, Department of Philosophy, Durham University, deadline 6 May.

Research Fellowship: within the AHRC project on Science and Religious Conflict, Faculty of Philosophy, Oxford University, deadline 11 May.

Associate or Full Professor: in theoretical philosophy, Committee on Social Thought, University of Chicago, deadline 31 May.

Professor or Reader: in Philosophical Logic, Philosophy of Logic, Philosophy of Science, Metaphysics, Philosophy of Mathematics or Formal Epistemology, School of Philosophical, Anthropological & Film Studies, University of St Andrews, deadline 9 June.

Assistant Professor: Theoretical Information Science, School of Information Science, Japan Advanced Institute of Science and Technology, deadline 27 June.

Eight 3-year Research Fellowships: within the project "The Turing Centenary Research Project: Mind, Mechanism and Mathematics", John Templeton Foundation, deadline 16 December.

Studentships

13 Doctoral Training Grants: School of Computing, Faculty of Engineering, University of Leeds, until filled.

PHD SCHOLARSHIP: "Rating and ranking sports players and teams using Minimum Message Length", Clayton School of Information Technology, Monash University, to be filled asap.

PHD POSITION: in the area of developmental robotics and robot learning, INRIA, Bordeaux, until filled.

PHD STUDENTSHIP: "Hyper-heuristics for Grouping Problems", School of Computer Science, University of Nottingham, until filled.

PHD STUDENTSHIP: in Theoretical Philosophy with specialization in cognitive and non-cognitive theories about social cognition and rule-following, Department of Philosophy, Lund University, deadline 2 May.

PHD POSITION: in Machine Learning, within the project "Efficient Resource Allocation for Decision-Making under Uncertainty", SequeL (Sequential Learning), INRIA Lille, France, deadline 15 May.

PHD POSITION: in Philosophy of the Life Sciences, preferably medicine or anthropology, Department of Philosophy, Bielefeld University, deadline 15 May.

PHD STUDENTSHIP: "Formal Reasoning About Human-computer Interaction and Medical Devices", School of Electronic Engineering and Computer Science, Queen Mary, University of London, deadline 30 May.

PHD STUDENTSHIP: "Optimal Decision Making under Uncertainty", Department of Computing, Imperial College London, deadline 30 June.