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§1
EDITORIAL

I am delighted to return as guest editor. I wish to thank Federica Russo, Jon Williamson and Lorenzo Casini for their invitation and for all their editorial work of putting together the issue.

This month I have decided to interview Jane Spurr, of King's College London. Jane is Administrator of several journals, Managing Director of College Publications, and she is in charge of Dov Gabbay's publications (which could be a job on its own). After my PhD, I had the privilege to work with her for a couple

of months. I was amazed by her ability to run and be in control of several parallel book projects and journal issues, often with very tight deadlines. And, as if I were not enough impressed, one day she asked me to check a (quite complex) logical formula in a paper she was working on. She thought it was not correct and ... she was absolutely right!

Jane has been active in the world of academic publishing for more than 25 years. I asked her for an interview because I was curious to hear how someone who has been dealing with academics for so long sees us, and how she thinks the community has changed over these years. Also, I wanted to know her opinion about issues that we often debate, like the peer review system and its problems. I am very happy she agreed to have a chat with me on all these topics. Some of her answers surprised me, others made me realize how things were different only a few years ago.



A note before passing the word on Jane. The idea of a conversation with her came several months ago, therefore completely independently of the [current happenings at King's College London](#), which—as many of you know—may imply rather difficult times for some of our colleagues. Thus, I wish to conclude by saying that I very much hope that the planned cuts will be reconsidered and that King's College London will continue to enjoy its outstanding international reputation. I now

leave the floor to Jane Spurr!

Gabriella Pigozzi

Computer Science and Communication, University of
Luxembourg

§2 FEATURES

Interview with Jane Spurr

Gabriella Pigozzi: You are the Administrator of several journals, Managing Director of College Publications, and you also take care of all Dov Gabbay's books and articles. In the community, you are justly known as 'Super Jane'. How did you start and how did you become 'Super Jane'?

Jane Spurr: Well, to be honest, it's a job I never wanted!!! In 1987, Dov offered me the job of Publications Administrator. Since I was pregnant at the time with my second child, and had decided that a full time job in London with two small children wasn't practical, I had privately decided to find another job following my maternity leave and told Dov that I thought I was unemployable. Well—as many of you are aware—"resistance is futile", and the rest, as they say, is history! The original job specification was to deal with the Oxford University Press Handbooks (Theoretical Computer Science and Logic in Artificial Intelligence) as well as Dov's own papers, books and correspondence. Little did I know!

I'm not sure about when or why 'SuperJane' came into existence—it must have been when I did a twirl in the local telephone box! One of Dov's great strengths is that he is not shy of showing appreciation. I think that there must have been a particularly busy period which had me juggling several challenging projects at the same time, and I didn't drop any balls! The term has stuck, and has now become international! Just as well I'm not embarrassed by such things!

GP: The availability of more sophisticated technologies must have massively affected and shaped your profession. How did your work change over the years and what are the aspects that had the greatest impact on it? I wonder whether the increasing pressure on academics to publish also had an influence on it ...

JS: There are several technological changes I've seen that have changed the way I work:

1. In 1987/1988, it became apparent that scientific/mathematical publications were expected by publishers to be prepared using LaTeX. This was a change that I didn't welcome, and felt that it was

completely outside my comfort zone. Whilst on maternity leave, I was encouraged to try preparing a paper (not the easiest to cut your teeth on—Samson Abramsky's seminal paper "Abstract interpretation, logical relations and Kan extensions") in LaTeX. I was extremely fortunate to be able to have a "correspondence course" with Mark Dawson, who received my file by email, compiled it, debugged it and sent it back with a synopsis of consistent faults. Since then I haven't stopped learning! Some years ago, I wrote a very basic introduction to LaTeX for complete beginners. One of the benefits (!) of working with so many authors is that I see more original LaTeX documents than anybody else I know. Therefore, I'm able to see how others find solutions to problematic typesetting situations. It seems that some people think that I'm a bit of an expert and I've been consulted about difficulties by others!

2. At about the same time the university communication system "Janet" was being rolled out. This enabled the transmission of documents and communication in a way that was quite revolutionary.
3. The development of the internet and email has been a revolutionary change. For example, when we started the *Journal of Logic and Computation* 21 years ago, submissions were received in triplicate by post. Anonymous cover sheets were attached to them and they were posted back out to referees who you might (or might not) hear from some weeks hence. With email and/or web-based systems for the submission of manuscripts and dealing with reviewing processes, the procedures are much less time-consuming (or should be).
4. On a more fundamental level, the change in physical size of the computers I've worked on over the years has been dramatic. My first day at work at Imperial College in 1982, I had a WordStar computer on my desk, that used 5.25" floppy discs (anybody else remember those?). The screen was not very big, and was green and black! I then progressed to a Macintosh—in fact the one that now resides in the "Computer Museum" at King's. There were many advantages with this—an icon driven system for one, but the screen was smaller! Now we have computers that are incredibly fast, with screens that allow me to have two full size A4 sheets side by side, which is an invaluable tool for me!

You ask whether pressure on academics to publish has affected my work. Well, I certainly have no shortage of work! Submissions to the Journals I manage are about stable, with the number of papers received for review being the same most years. This, of course, is



supplemented by Guest Editors putting together special issues—and that phenomenon has risen dramatically over the last few years. Perhaps this is an indication of the reluctance of Academic Publishers to publish conference and workshop proceedings as books.

GP: How do you view your work?

JS: People ask me what I do, and I find it difficult to give them an accurate description in a short sentence! I might have started as an administrator, but over the years, the job and I have “grown up” together and the appointment I’ve held since being at King’s is as a Research Associate. It’s a position that I’ve made my own and, I think, quite unique.

I love what I do. I get involved with publishing projects from their initial conception, and am fortunate to be able to develop relationships with editors and authors as the projects progress. By attending the odd meeting/workshop or conference, I have met many people that I’ve worked with over the years, and have finally been able to put a face to a name!

Job satisfaction comes from seeing a project through to its successful completion, even though the deadlines might have stretched somewhat in the process. In many ways, Dov and I have managed to carve out quite a reputation—while he has the ideas, I’m the one who usually brings reality to the project. The benefits to contributors to all our major book projects are that (1), Dov is keen for authors to take as much space as they need to “do the subject justice”, and (2) that I am happy to continue making revisions and corrections until authors are entirely happy with their contribution before delivery to the publisher.

GP: Your observation point on academic life is a privileged one. You have been working with a variety of academics (from PhD students to eminent professors) for many years. Would you say that the community has changed over the years? And, if so, how?

JS: Yes, the community has changed—it’s getting younger!! When I started at Imperial in 1982, every Professor had a two-room suite of interconnecting offices (Dov had 3!) and they all had their own private secretary. In addition, there was a general office staffed by several people who dealt with everything from finance, to copying lecture notes to responding to students. Whilst I realize that technological changes over the years have meant that things such as lecture notes no longer need to be copied and distributed, the fact that academics did have a lot of administrative support is unequivocal. These days, lecturers seem to have to do absolutely everything themselves, fitting administrative tasks around their teaching and research.

GP: There are often lively discussions about the peer review system for journal submissions, and the same holds for conferences. Some say the current system cannot ensure an objective and qualified assessment of one’s work but, on the other hand, it is acknowledged

that it is difficult to find valid alternatives. How do you experience this?

JS: Peer review. I believe that this is intrinsically important in order to maintain control over the quality and standards of published papers. It is becoming increasingly difficult to find willing reviewers these days. Academic life, as I’ve mentioned previously, is becoming more and more demanding and for people to find the time to critically review somebody else’s work and gain no tangible reward is truly generous. (There have been occasions where I’ve thought that after a 3rd revision, the referee deserves to be acknowledged as a co-author!) Done properly, reviewing is a way in which young (and sometimes not so young) researchers are encouraged to meet the commonly expected standards of publication. Constructive criticism is always valuable. Over the years, I’ve had responses from reviewers saying that they’ve received the same paper from an editor of another Journal; seen and rejected the paper before; seen something remarkably similar published by somebody else . . . and a variety of other similar scenarios. Without the vigilance of such reviewers, where would we be? I’m not sure what the alternatives are—certainly this is not a job that can be done by a machine.

With areas of research becoming tighter and communities becoming more distinct, it’s not always easy to find objective reviewers, since everybody / collaborates with / visits / shares an office with / knows everybody else!

There is, of course, a counter argument which suggests that anonymous peer review discourages innovation. I’m sure that there have been occasions where reviewers are reluctant to acknowledge that others’ work is good and have hidden behind their anonymity in order to repress publication. I would like to think that the processes we have in place for the review of submissions to our Journals highlight instances where this might be the case.

GP: How do you see the future of academic publications?

JS: I think that all publications, academic or otherwise (with the possible exception of very popular books and periodicals) will disappear altogether in their current format. The writing is already on the wall with respect to other forms of media, especially music.

With technology constantly moving forwards, and accessibility being made easier and easier, I believe that everything will eventually be purchasable electronically—how many people do you know who got an e-book reader last Christmas? (There have even been articles in the press about school textbooks being made available in this format.) The future is in “micro-chunking”, delivering small sections of media, whether it’s music, video or text to consumers who want a specific focus. In terms of books, it is an obvious move to be able to make individual chapters available to readers.

The trick will be to alert the potential customer to what he needs. Giving every chunk or chapter logical, simple, predictable and findable tags/keywords is the challenge. Your search engine will do the rest!

The printer that we use for College Publications titles is in partnership with “Espresso Book Machines”—a world-wide network of sophisticated printers in bookshops and libraries, etc., where a customer is able to select a title from the library and buy it as a print-on-demand title there and then. The whole process only takes a matter of minutes to print and bind a single paperback book!

It is telling that even the world’s great publishers, Oxford University Press, Springer, etc., are moving into print-on-demand technology.

College Publications was possible because of this revolution in technology. A print-on-demand publishing process means that we don’t have to be a bookseller as well as a publisher! In setting up College Publications, we have hoped that we have been able to plug the hole that traditional publishers have left. It became quite evident over the last few years that key academic publishers were no longer interested in collections, whether conference proceedings, thematic multi-author volumes, or “Festschriften”. These were not considered to be viable financially, and the publishers were concentrating their efforts on adopting books that would provide them with large sales. Even so, the retail price of such books makes them unaffordable to most individual pockets.

The idea of College Publications is that there is still a need for books to be published of all types, quickly and affordably. To date, we have a library of more than 100 titles. Our reputation is growing, and we get proposals on an almost daily basis for books covering the topics of Computer Science, Philosophy, Logic, Software Engineering, Computational Semantics, Communications Mind and Language, and we are successfully publishing Series in French and Portuguese.

And my penultimate words must be that I consider myself to have been privileged during my working life to have crossed paths with many of the world’s greatest logicians, computer scientists, mathematicians and philosophers....

And finally. Without the support and confidence of my closest colleagues, I am sure that I would have fallen at many of the hurdles along the way. There are too many to thank here, but they know who they are!

So ... “have we shown them”???

Quine’s other way out

There was a change in the notion of predicate when Fregean ‘predicate logic’ was developed. A predicate in the old sense is a proper part of a sentence: it is that part of a sentence that remains after the subject is removed. Thus commonly, in English, the predicate is the latter part of a sentence, the part that follows the subject that commonly comes first. In this way the predicate in ‘ x is not a member of x ’ is ‘is not a member of x ’, and the subject is the ‘ x ’ that has then been removed. On the other hand the form of the whole sentence is ‘(1) is not a member of (1)’, and this has been thought of as a kind of ‘predicate’, following Frege. On this variant understanding of ‘predicate’ there is also a different understanding of ‘subject’. A subject in this alternative sense is not what is maybe at the start of a sentence, but becomes a term or expression that may recur throughout the sentence. Thus if ‘(1) is not a member of (1)’ is taken as the ‘predicate’ in ‘ x is not a member of x ’, then ‘ x ’ becomes the ‘subject’ in this second sense, because it replaces ‘(1)’ at all occurrences, and not just at the start.

The clarification reveals that it was this confusion between forms of sentences and predicates that led Frege into Russell’s Paradox, through substituting ‘ x is not a member of x ’ for ‘ Fx ’ in the naive abstraction schema:

$$(\exists y)(x)(x \text{ is a member of } y \equiv Fx).$$

For if the substituted ‘ F ’ had to be a predicate in the old style, then the substitution of ‘is not a member of x ’ for ‘ F ’ would violate a formal restriction. If one tried to derive Russell’s Paradox from the above abstraction schema by substituting the predicate ‘is not a member of x ’ for ‘ F ’, to get ‘ x is not a member of x ’ for ‘ Fx ’, then this would violate the restriction that variables free in the predicate must not be such as to be captured by quantifiers in the schema into which the predicate is substituted (c.f. Quine W.V.O. 1959: *Methods of Logic*, Rev. Ed. Holt, Rinehart and Winston, New York, pp. 141, 144). For the variable ‘ x ’ in ‘is not a member of x ’ would become bound by the quantifier ‘ (x) ’, i.e. the schema is not ‘free for x ’.

Quine himself overlooked the way this point provides a way out from Russell’s Paradox. That was no doubt because the novel Fregean grammar was burnt well into him. In the way Fregeans think of it, it is quite proper that, in the schema of naive abstraction, ‘ $F(1)$ ’ be replaced by ‘(1) is not a member of (1)’, to yield

$$(\exists y)(x)(x \text{ is a member of } y \equiv x \text{ is not a member of } x).$$

Putting it this way, one is using Quine’s device of ‘placeholders’ to indicate the argument-places of ‘ $F(1)$ ’.

The point to note is that the complex ‘predicate’ (strictly ‘form of a sentence’) that then replaces ‘F(1)’ does not contain any occurrences of ‘ x ’, hence the above bar on capturing seemingly does not apply. Fregeans would think of themselves as substituting ‘(1) is not a member of (1)’ not for ‘ Fx ’ but for ‘F(1)’, where the argument places marked by ‘(1)’ are filled by whatever fills the argument place of ‘F(1)’, i.e. in the above case ‘ x ’.

But if we keep to the traditional notion of predicate as the remainder of a sentence after the removal of (in English) the first occurrence of its subject, then clearly Quine’s restriction will enable us to escape the paradox that results from the Fregean way of looking at the matter. More exactly, it will enable us to escape from paradox with any substitution into the abstraction schema

$$(\exists y)(x)(x \text{ is a member of } y \equiv Fx),$$

that does not violate the above bar on capturing. For the further point that needs to be made is that that does not preclude having further abstraction schemas applying when there is reflexivity in the predicate. There is no problem with replacing the ‘ F ’ above with any constant, old style predicate, or even such a predicate involving another variable, like ‘ Rz ’. But being unable to replace the above ‘ F ’ with ‘ Rx ’ leaves us with the need for an abstraction schema applicable when ‘ Rxx ’ is on the right hand side. That is no problem, however, since the way to handle relations quite generally, and so equally when the subject is repeated, is to bring in sets of ordered pairs. If a is shaving a , then a has the property of shaving a , and the property of being shaved by a . But a also stands in a relation to himself: he and himself form a shaving (i.e. shaver-shaved) pair. Hence, in general,

$$(\exists y)(x)(\langle x, x \rangle \text{ is a member of } y \equiv Rxx),$$

and specifically, in the particular case

$$(\exists y)(x)(\langle x, x \rangle \text{ is a member of } y \equiv x \text{ is not a member of } x),$$

there is no contradiction. If a is shaving a , and b is shaving b , so that each is shaving himself, don’t they share the same property of self-shaving? No, for there is no such, fixed property. The term ‘himself’ is a pronoun with a variable referent dependent on its contextual antecedent, so all ‘each is shaving himself’ means is that a is shaving a , and b is shaving b , making the properties they separately have the property of shaving a , and the property of shaving b .

Of course the above generalises, since, once sets for elementary predicates are defined, those for non-elementary predicates can be constructed out of them

by standard set-theoretic processes.

Hartley Slater
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On Brandom’s “logical functionalism”

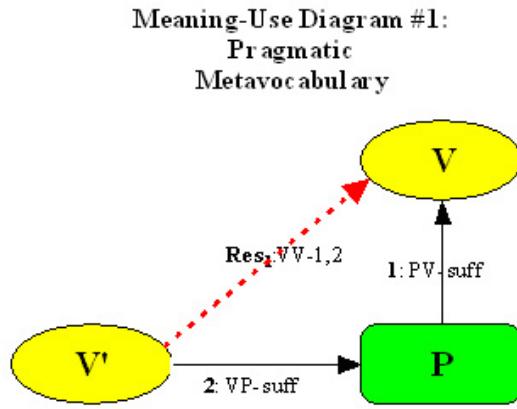
Bob Brandom’s original book *Between Saying and Doing* (Oxford University Press, Oxford, 2008) encloses the *Locke Lectures* he discussed on several occasions (Prague 2007, Münster 2008, Genoa 2009). The next meeting will take place in Latvia (19-29 July, 2010). Brandom wants to continue the “semantic project” he presented in *Making It Explicit* (Harvard University Press, Cambridge, 1994) that introduces an original theory of meaning as use based on a notion of normativity along the lines of Kant, Frege, Wittgenstein and Sellars.

Between Saying and Doing develops a “logic” of the relation between meaning and use; in this sense it describes discursive practices and introduces norms for deploying an autonomous vocabulary. Brandom aims to present a “logical functionalism” along the lines of Gilbert Ryle’s account of conditionals that clearly contrasts “strong” and “weak” functionalism in Artificial Intelligence. According to Brandom, we are not only creatures who possess abilities such as to respond to environmental stimuli we share with thermostats and parrots, but also “conceptual creatures” i.e. we are logical creatures in a peculiar way, but these conceptual capacities cannot be elaborated by a Turing Machine.

The title of the book suggests that we must look at what it is to use locutions as expressing meaning, namely at what we must *do* in order to count as *saying* what the vocabulary lets practitioners express. We introduce “practice-vocabulary sufficiency” or “PV-sufficiency” which obtains when exercising a specific set of abilities is sufficient for someone to count as deploying a specified vocabulary. These are for instance “the ability to mean red by the word red” or “the capacity to refer to electrons by the word electrons” (Brandom includes even *intentions* to refer). Together with these basic abilities we must consider the relationship between these and the vocabulary in which we specify them. A second basic meaning-use relation is the “vocabulary-practice sufficiency” or just “VP-sufficiency” namely the relation that holds between a vocabulary and a set of practices-or-abilities when that vocabulary is sufficient to specify those practices-or-abilities.

PV-sufficiency and VP-sufficiency are the basic meaning-use relations (MUR’s). Starting from them we can introduce a more complex relation namely the relation between vocabulary V' and vocabulary V when V' is VP-sufficient to specify practices-or-abilities P that are PV-sufficient to deploy vocabulary V . This VV-

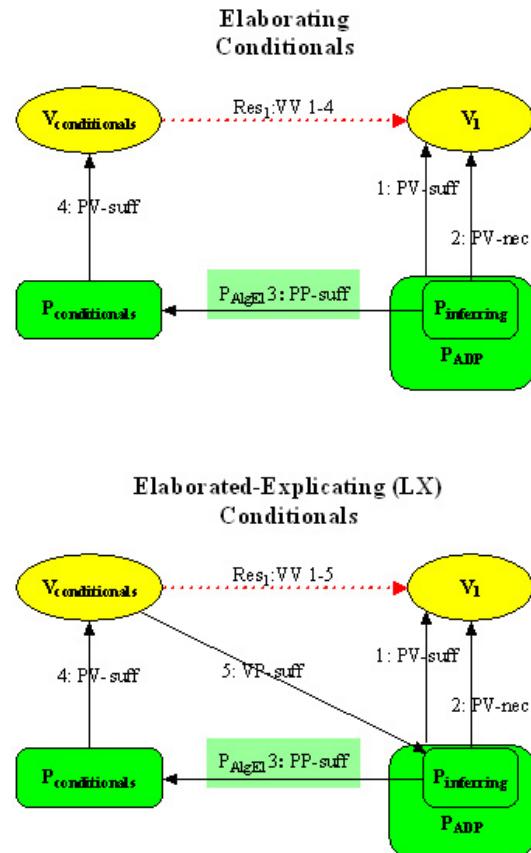
relation is the *composition* of the two basic MUR's so that V' is a *pragmatic metavocabulary* for V . It allows one to say what one must do in order to count as saying the things expressed by vocabulary V . Let's introduce the meaning-use-diagram (MUD) (BSD, p. 10, Diagram 1 below).



MUD defines a resultant MUR as the relation that obtains when all of the basic MURs listed on its label obtain. V' is a pragmatic metavocabulary and is the simplest species of the genus Brandom presents. The play of the MURs relations that is developed in different steps recursively generates an infinite set of such pragmatically mediated semantic relation (Pragmatic expressive bootstrapping). In order to deploy any autonomous vocabulary we must consider the necessity of certain discursive practices defined as “asserting” and “inferring”. According to the PV-necessity thesis, there are two abilities that must be possessed by any system that can deploy an autonomous vocabulary: the ability to respond differentially to some sentence-tokenings as expressing claims the system is disposed to *assert* and the ability to respond differentially to moves relating one set of such sentence-tokenings to another as *inferences* the system is disposed to *endorse*. These abilities are PP-sufficient for the purpose of algorithmic elaboration as the following diagram shows (BSD, p. 44):

What is important is that if we want to sort inferences into good or bad we must focus on conditionals that are PP-necessary to deploy an autonomous vocabulary. What is the relationship between these abilities? By hypothesis, the human system has the ability to respond differentially to the inference from p (premise) to q (conclusion) by accepting or rejecting it. It also must have the ability to produce tokenings of p and q in the form of asserting (for example “If Vic is a dog then Vic is a mammal”). The following diagram shows the algorithmic elaboration of conditionals (BSD, p. 44):

Conditionals are the paradigm of *logical* vocabulary to remain in the spirit of Frege's *Begriffsschrift*. But, the meaning-use analysis of conditionals Brandom pro-



vides specifies the genus of which logical vocabulary is a species. This genus is ascribed three characteristics: (1) being deployed by practices-or-abilities that are algorithmically elaborated from (2) practices-or-abilities that are PV-necessary for *every* autonomous vocabulary (and hence every vocabulary whatsoever) and that (3) it should suffice to specify explicitly those PV-necessary practices-or-abilities.

Any vocabulary meeting these conditions is called by Brandom “universal LX-vocabulary”. A crucial consequence of this proposal is that only algorithmic elaboration is required to turn the ability to distinguish material incompatibility into ability to deploy logical *negation*. For example if the ability to distinguish a monochromatic patch is deployed, it (together of the conditional) lets one say *that* two claimable claims are incompatible: “If a monochromatic patch is red, then it is *not* blue”.

Frege's notion of substitution seems not to fulfill this requirement as it does not *provide* but *presuppose* a criterion of demarcation of logical vocabulary. According to Brandom, Frege makes the notion of formality promiscuous because we can pick any vocabulary we like to privilege substitutionally. For instance, an inference is good and a claim true in virtue of its *theological* or *geological* form just in case it is good or true and remains so under all substitutions of non-theological

for non-theological vocabulary, or *non*-geological for *non*-geological vocabulary. The sense-dependence in Frege's terms implies that theological and geological formality will not just depend upon but will express an important aspect of the *content* of theological and geological concepts. Frege's notion of substitution "presupposes" a criterion of demarcation of logical vocabulary so that logic loses its semantic transparency.

My conclusion contrasts Brandom's criticism to Frege and briefly refers to some ideas from his famous essay *Negation*. Brandom underscores a notion of "negation" bounded (as we have seen above) to a precise notion of material incompatibility. Consequently, negation seems to possess a sort of "dissolving or separating power" and this is what Frege plausibly refuses. Inferences involved in affirmative or negative judgments that people perform correspond to affirmative and negative "thoughts"; this distinction is not unnecessary for logic but its ground must be seen "outside" logic. Coming back, for example, to the theological vocabulary, we can observe that it is very difficult to state what is a negative thought. In Frege's words:

Consider the sentences 'Christ is immortal', 'Christ lives for ever', 'Christ is not immortal', 'Christ is mortal', 'Christ does not live for ever'. Now which of these thoughts we have here is affirmative, which negative?

Frege's philosophy of language shows important epistemological dimensions worthy of further development, and the very complexity involved in human judgment. Logic itself could profit by the consideration of the cognitive value of several sorts of linguistic expressions and their context.

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§3 NEWS

Abductive Cognition

Lorenzo Magnani (2007). *Morality in a Technological World. Knowledge as Duty*, Cambridge University Press

Knowledge is fundamental in ethical reasoning and behavior. First of all the book takes advantage of a combination between ethics, epistemology, and cognitive science. The author is convinced that moral concerns involve reasoning that bears important similarities to reasoning in the sciences and this can be used to address moral reasoning about problems not foreseen

by moral philosophers. Second, two basic ideas of *respecting people as things* and of *moral mediators* are proposed. Both are in turn intertwined with the recognition of an increasing *hybridization* between humans and things, natural things and artefacts, and with the important ethical concept of *intrinsic value*. If various acts of cognition currently make things able to acquire new values and/or moral values, the book provocatively maintains that we will very soon expect humans beings to reclaim and benefit from the same good values already held by some "external things" and commodities. Moreover, we can reclaim and benefit from the same good values already held by them. In this process a new way of ethical thinking can be envisaged: indeed these objects and structures play the role of what Lorenzo Magnani calls *moral mediators* in the sense that they mediate moral new ideas, so as they can grant humans new precious ethical information and values. It is critically important for current ethics to address the relationships between human and non-human entities—not only among humans beings. Moreover, by exploiting the concept of "thinking through doing" and of manipulative abduction, the book illustrates that a considerable part of moral actions is performed in a tacit way, so to say, "through doing", and that, part of this "doing" can be seen as an activity of manipulation of the external word for building various new types of moral mediators, that function as an enormous new source of information and knowledge.

It is in chapters six and seven that the concept of moral mediator is fully explained, together with other methodological problems related to the status of ethical reasoning and moral deliberation. Ethical knowledge and reasoning are not only expressed with words at a verbal/propositional level. Also model-based (visual for example), and manipulative/"through doing" aspects are important: for example imagination (which is, together with analogy, visualization, simulation, thought experiment, etc., a form of model-based reasoning), play an important role in ethics. Creativity is also important, because moral knowledge changes and new perspectives are created and assessed by human beings. To describe morality "through doing" the author provides a list of "moral templates" as forms of invariant behaviors that are able to illustrate the so-called *manipulative ethical reasoning*. They are embodied possible forms of moral behavior (creative or already cognitively present in the people's mind-body system, and ordinarily applied) that enable a kind of moral "doing". The author also thinks that it is useful to illustrate a cognitive comparison of moral reasoning and deliberation with the old tradition of casuistry and with diagnosis, in this last case taking advantage of the concept of abduc-

tion.

Lorenzo Magnani
Department of Philosophy, University of Pavia

Paraconsistent Foundations of Mathematics, 2010–2013

From 1 March 2010, the University of Melbourne will be hosting a three-year project funded by the Australian Research Council, “Paraconsistent Foundations of Mathematics”. The chief investigators of the project are Professor Graham Priest and Associate Professor Greg Restall. Franz Berto of the Northern Institute of Philosophy, University of Aberdeen, is a research associate. (Franz has just published a book touching on the topic of paraconsistent mathematics, *There's Something About Gödel*.) I am a postdoctoral research fellow.

Our project is to construct, for the first time, a fully articulated foundation for mathematics—paraconsistent versions of the major pillars of foundational studies: arithmetic and recursion theory; model theory; and unified theories of proof and truth. The driving thought is that one need not founder on the paradoxes that halted older foundational projects. One recasts, accepts and even studies some contradictions, controlling pernicious effects with a paraconsistent logic. If the project succeeds, it could show that a paraconsistent formal system is free of the well-known limitations inherent in classical approaches.

The first phase of the project will concern paraconsistent arithmetic and recursive function theory, with the first of several workshops scheduled for (southern) winter 2010.

Zach Weber
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Calls for Papers

THE METHODS OF APPLIED PHILOSOPHY: special issue of the *Journal of Applied Philosophy*, deadline 1 April.

ADVANCES AND PERSPECTIVES IN THE MECHANIZATION OF MATHEMATICS: special issue of *Mathematical Structures in Computer Science*, deadline 28 June.

FINAL CAUSES AND TELEOLOGICAL EXPLANATIONS: special issue of *Logical Analysis and History of Philosophy*, deadline 30th June.

BIOLOGICAL AND ECONOMIC MODELLING: special issue of *Biology and Philosophy*, deadline 31 August.

LOGIC AND NATURAL LANGUAGE: special issue of *Studia Logica*, deadline 3 September.

THE EXTENDED MIND: special issue of *Teorema*, deadline 1 October.

PHILOSOPHICAL HISTORY OF SCIENCE: special issue of *The Monist*, deadline 31 October.

EXPERIMENTAL PHILOSOPHY: special issue of *The Monist*, deadline 30 April 2011.

FORMAL AND INTENTIONAL SEMANTICS: special issue of *The Monist*, deadline 30 April 2012.

§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.

...Formal Epistemology

What's hot (and what's not) in formal epistemology. Handy tips and helpful advice from the Formal Philosophy Seminar series at the Formal Epistemology Project, University of Leuven.

Katya Tentori spoke to us on the conjunction fallacy. The conjunction fallacy has been a key topic in debates on the rationality of human reasoning and its limitations. Despite extensive inquiry, however, the attempt to provide a satisfactory account of the phenomenon has proved challenging. Katya elaborated on the suggestion that in standard conjunction problems, the fallacious probability judgements observed experimentally are typically guided by sound assessments of confirmation relations, meant in terms of contemporary Bayesian confirmation theory. Her main formal result was a confirmation-theoretic account of the conjunction fallacy, which was proven robust (i.e., as not depending on various alternative ways of measuring degrees of confirmation). The analysis was shown distinct from contentions that the conjunction effect is in fact not a fallacy, and was compared with major competing explanations of the phenomenon, including earlier references to a confirmation-theoretic account.

Jan Sprenger spoke to us on the bounded strength of weak expectations. The platform, the Pasadena Game was a variation on the St. Petersburg Game from decision theory. The main question concerned the price which a rational agent should assign to the game, and Jan analyzed the scope of the weak expectations

approach. Ultimately, the normative force of weak expectations was undercut by the arbitrariness inherent in the Weak Expectation Rule. There was seen to be no unique rational price for a single Pasadena Game. In a bounded utility framework (with different utility functions), the weak expectation determines the rational price for a repeated, averaged game. A conjecture by Easwaran was vindicated by choosing a psychologically realistic framework. The suggestion was that marrying bounded utility to weak expectations preserves the best of both worlds.

Photos of our fun may be found [here](#).

The full FPS programme is available [here](#). Next time: Johan van Benthem and Rainer Hegselmann!

[Sebastian Sequoiah-Grayson](#)

Formal Epistemology Project, University of Leuven

...Probabilistic Reasoning

BBC Radio 4's 'Today' programme (2nd February 2010) covered a news article concerning an individual who found, in a box of six eggs, that every egg was "double-yolked." Reporting that the probability of finding a single double-yolked egg is $P(E) = 1/1000$, and assuming independence, the probability of this succession of events was calculated as $P(6E) = (1/1000)^6$. The presenters, arguing that this number—one in a quintillion—was disproportionately high with regards to egg production and the number of people phoning in to say that they had had similar experiences, argued that either:

- (i) The single-case probability was incorrect, i.e., $P(E) \neq 1/1000$, or
- (ii) The events were not in fact independent, i.e., $P(6E) \neq (1/1000)^6$.

To arrive at either or both of these conclusions, the presenters of the 'Today' programme cannot be strictly subjective Bayesians in the style of De Finetti (1937 'Foresight: Its Logical Laws, Its Subjective Sources' in 1964 Kyburg et al. *Studies in Subjective Probability*, Wiley). Bayesians argue that the probability of an event is the degree to which an individual believes that the event will occur, i.e., a probability function is a belief function. Strictly subjective Bayesians argue that, to be considered 'rational,' a belief function need only output degrees of belief which satisfy the axioms of the probability calculus; there are no additional constraints on what these degrees of belief should be. Many Bayesians advocate that further constraints (beyond probabilistic consistency) must be met before degrees of belief can

be deemed rational. For example, beyond merely lying anywhere in the unit interval $[0,1]$, an individual's degrees of belief ought to be approximately *correct*. This, however, would be to assuming a level of objectivity which de Finetti denied:

any event whatever can only happen or not happen, and neither in one case nor in the other can one decide what would be the right degree of doubt with which it would be 'reasonable' or 'right' to expect the event before knowing whether it has occurred or not. (De Finetti 1937 pp. 112-3)

On de Finetti's account, because an egg is either double-yolked or not, the respective probabilities are not Physical entities but exist only inasmuch as an individual is ignorant with regards to which of these exclusive events will occur. There is, then, nothing for an individual's degree of belief to approximate because probabilities are purely mental constructions and these cannot be called incorrect because each individual alone knows how much they believe that a certain event will occur. In arguing for (i), therefore, the presenters of the 'Today' programme cannot be strictly subjective Bayesians. In fact, the presenters of the 'Today' programme seemed to believe, on the assumption that frequencies supply information as to a correct probability, that probabilities ought to be corrected in accordance with observed frequencies. Indeed, they were being persuaded by the testimony of their phone-in listeners that the discovery of double-yolked eggs is in fact more frequent than reported.

For the strictly subjective Bayesian, however, these frequencies tell us very little because the correct probability they might inform us about does not exist. Therefore, an individual shouldn't swap their belief function for one which appears to output degrees of belief corresponding more accurately with a "correct" probability, but should keep their original belief function which, because it can never be deemed incorrect, should never be corrected.

What an individual ought to do, says de Finetti (1937 p.146), on observing frequencies A , is recognise that the original argument of their belief function is no longer event E but is now the event considered on the condition that certain frequencies have been observed, i.e., $P(E|A)$. This process of Conditionalisation, de Finetti argued, is what really goes on when updating degrees of belief; if this is indeed the case, however, the presenters of the 'Today' programme could not reach conclusion (ii) having originally assumed $P(6E) = (1/1000)^6$. This is because a probability function which assumes independence between events cannot be updated by Conditionalisation to posit dependence; such an update would require a strategy more radical than Conditionalisation, e.g., swapping belief functions—see Gillies

(2000, *Philosophical Theories of Probability*, Routledge pp. 73-80).

The presenters of the ‘Today’ programme, then, are clearly not strictly subjective Bayesians. In fact, to reach their desired conclusions the presenters must adopt an interpretation of probability which:

- (a) Allows for correct/incorrect probabilities;
- (b) Allows for update strategies more radical than Conditionalisation.

To this end, the presenters of the ‘Today’ programme might adopt Von Mises’ (1928, *Probability, Statistics and Truth*, Allen and Unwin) *Frequency* interpretation of probability which says that $P(E) = 1/1000$ should be interpreted as saying that in every 1000 eggs cracked open (on average) 1 of these will be double-yolked. This seems acceptable but it should be noted that de Finetti’s motivation for adopting a strictly subjective Bayesian interpretation was to avoid accepting (a) and (b) because they implicitly endorse what was for him a reprehensible metaphysical assumption: namely, the existence of mind-independent physical probabilities. Indeed, if we do not have a collective of 1000 eggs but merely a single egg, things might seem a little less acceptable and a little more metaphysical. It might be, therefore, that in order to reach either of their conclusions (i) or (ii) as to the probability of discovering double-yolked eggs, the presenters of the ‘Today’ programme are forced to accept that an egg is not just a combination of shell, yolk, and white that is either double-yolked or not. It just might be that the presenters of the ‘Today’ programme must accept the possibility that every egg has an additional property which we might call, after Popper (1959 ‘The Propensity Interpretation of Probability’ *British Journal for the Philosophy of Science*, 10, pp. 25-42) a *propensity*. This propensity is a disposition to produce a collective of 1000 eggs which, under specific conditions, yields a single double-yolked egg. Recognising this possibility may be enough to leave the presenters of the ‘Today’ programme with metaphysical egg on their faces.

Michael Wilde
Philosophy, Kent

... Mathematical Reasoning

Back in the July 2007 issue of *The Reasoner* I wrote that “[a] blogging phenomenon is taking place right now in mathematics, with a flourishing of exposition and discussion”. Since that time four major developments in online mathematical activity have taken place:

1. Books of blog postings by Terence Tao: in a sense this is the least radical of the developments. Tao’s

exposition in his [What’s New](#) blog is of such high quality that it makes sense to collect them in more convenient book format. The draft of Tao’s third such book is announced [here](#).

2. *n*Lab: there was a feeling at the blog I cohost—[The *n*-Category Café](#)—that many of the fine things being said in discussion were rapidly lost to the world. We have since set up a wiki—[nLab](#)—which aims to gather systematically the definitions and results which go to make up the revolutionary research programme we expect higher category theory to be.
3. Math Overflow: this is a [site](#) which is open to anyone to ask of the mathematical community a ‘research level’ question. Points and badges are distributed for asking interesting questions and for giving good answers.
4. Polymath: initiated by Timothy Gowers, [Polymath](#) projects concentrate the collective efforts of the world’s leading researchers on open problems. The first project explored a particular combinatorial approach to the density Hales-Jewett theorem. At the successful end of a period of intense activity between himself, fellow Fields’ medallist Terence Tao and a handful of others, Gowers [wrote](#) “for me personally this has been one of the most exciting six weeks of my mathematical life”.

We have only just begun to realise the potential of the internet to allow collaborative mathematical research to be undertaken. For anyone interested in collective reasoning there is already some extremely valuable material out there to consider for case studies.

David Corfield
Philosophy, Kent

§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.

Novum Organum, Francis Bacon

The *Novum Organum* (1620: London) is the principal philosophical work of Sir Francis Bacon, the English scholar and statesman. It contains his pioneering

account of scientific method. The title stakes a bold claim: that this account should supersede Aristotle's *Organon*, the dominant theory of logic for two millennia. The *Novum Organum* comprises the incomplete second part of a projected six-part Latin work, the *Institutio Magna*, a proposed "Great Reconstruction" of human knowledge. The first part translated his earlier vernacular work *The Advancement of Learning* (1605: London), but the later parts dealing with specific sciences were never finished.

The two completed books of the *Novum Organum* offer guidance on the avoidance of past error and the establishment of new knowledge, respectively. In the most influential passage from the first part, Bacon distinguished four important sources of error in received ideas, which he described as "Idols". The "Idols of the Tribe" are subjective opinions so widespread amongst humanity that we accept them as necessary; the "Idols of the Cave" are individual prejudices which we fail to recognise: the cave represents the self by allusion to Plato's Myth of the Cave; the "Idols of the Marketplace" are errors that result from the imprecision of language: words acquire their meanings from vulgar exchange; the "Idols of the Theatre" are the tenets of prevailing philosophical or scientific theories, which come and go like actors on the stage.

Part Two begins the exposition of Bacon's account of scientific method. Bacon first explores an example, an inquiry into the nature of heat. Bacon recommends the compilation of three tables: firstly of "Existence and Presence", a list of circumstances in which the phenomenon occurs, made as diverse as possible; secondly of "Deviation, or Absence in Proximity", which seeks to correlate each of the entries in the first table with similar circumstances in which the phenomenon is not found; lastly of "Degrees" or "Comparison", which itemises cases where the phenomenon may occur to a greater or lesser degree. From these three tables Bacon is able to compile a further table, of "Exclusion or Rejection of Natures", which uses the accumulated data to rule out explanations inconsistent with that data. Once this has been attempted, Bacon recommends proceeding to a "First Vintage": a draft explanation of the phenomenon.

The novelty of Bacon's method lies in the systematic and thorough appraisal of evidence behind the First Vintage. Nonetheless, overemphasis on its significance lies behind the widespread interpretation of Bacon as advocating a mechanical procedure for extracting watertight theories from pretheoretic observation. Although Bacon's name has become strongly linked to this naive inductivist position, more accurate readings stress that the First Vintage is itself subject to revision in the light of further data.

The remainder of Part Two addresses twenty-seven "Prerogative Instances". This is Bacon's term for different circumstances in which empirical data can be-

come manifest. Notable examples include "Shining Instances", evidence which provides overwhelming *prima facie* support for a specific theory, and "Crucial Instances", or "Instances of the Fingerpost", experiments whose outcome promises to settle disputes between competing theories.

Andrew Aberdein
Humanities and Communication, Florida Institute of Technology

Complexity

There is no single, agreed upon definition of what it is to be complex, but rather a cluster of related notions covering both epistemological and ontological aspects of complexity. Of those most relevant to logic are definitions of algorithmic complexity arising from information theory, and applied to strings in some specified formal language. The best-established of this class of definitions is *Kolmogorov complexity* (KC). The KC of a string of binary digits is measured by the length of its shortest description. Thus the string "1010101010101010101010" can be (fully) described as "12 repetitions of '01'", whereas the most efficient way to describe a disordered string such as "011000101011101101100010" may be to write down the entire string. One implication of the KC measure is that random strings have the highest complexity. They are also *incompressible* in the sense that there is no way of providing a specification of a random string that is shorter than the string itself. To make the KC measure precise, it must be relativised to a particular (formal) language of description. A quite separate notion of complexity in logic, sometimes known as *quantifier complexity*, measures the complexity of propositions in predicate logic based on the number of alternating blocks of quantifiers occurring in the proposition.

Alan Baker
Philosophy, Swarthmore College

§6 EVENTS

MARCH

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

RELATIONAL VERSUS CONSTITUENT ONTOLOGIES: University of Notre Dame, South Bend, Indiana, 5–6 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.

CONSCIOUSNESS, OTHER MINDS AND NATURALIZING THE MIND: Ruhr-University Bochum, Germany, 9 March.

PGSA: Philosophy Graduate Student Association, University of Waterloo, Canada, 11–12 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.

THOUGHT EXPERIMENTS AND COMPUTER SIMULATIONS: SAME END, DIFFERENT MEANS?: IHPST, Paris, France, 11–13 March.

ICKD: 2nd International Conference on Knowledge Discovery, Bali Island, Indonesia, 19–21 March.

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

PROPOSITIONS, CONTEXT, AND CONSEQUENCE: Arché Research Centre, University of St Andrews, 20–21 March.

CICLING: 11th International Conference on Intelligent Text Processing and Computational Linguistics, Iasi, Romania, 21–27 March.

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

SELF-LOCATING BELIEFS: Institut Jean Nicod, Paris, France, 25–26 March.

JUSTIFICATION REVISITED: University of Geneva, Switzerland, 25–27 March.

MIDiSoVa: Modelling Interaction, Dialog, Social Choice, and Vagueness, ILLC, Amsterdam, 26–28 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.

APPROACHES TO THEORY OF MIND: Perspectives from Philosophy and Psychology, Lancaster University, UK, 30 March.

MATCHING AND MEANING: Automated Development, Evolution and Interpretation of Ontologies, Leicester, UK, 31 March - 1 April.

APRIL

THEORY OF 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.

WHERE'S YOUR ARGUMENT?: Informal Logic, Critical Thinking and Argumentation, Manchester Metropolitan University, Cheshire UK, 12–13 April.

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

RSC: 33rd Research Students' Conference in Probability and Statistics, Department of Statistics, University of Warwick, 12–15 April.

SCIENTIFIC PHILOSOPHY: PAST AND FUTURE: Tilburg University, The Netherlands, 13 April.

PROGRESS IN MEDICINE: University of Bristol, 13–15 April.

VISIONS OF COMPUTER SCIENCE: Edinburgh University, 13–16 April.

THE FUTURE OF PHILOSOPHY OF SCIENCE: Tilburg Center for Logic and Philosophy of Science, 14–16 April.

SYNTHESE CONFERENCE: Columbia University, New York, 15–16 April.

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

NORTHWESTERN/NOTRE DAME EPISTEMOLOGY CONFERENCE: Northwestern University, 16 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.

FORMAL ETHICS WEEK: University of Groningen, 20–23 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.

INSTRUMENTS: MENTAL AND MATERIAL: 6th Annual HAPSAT Conference, Institute for the History and Philosophy of Science and Technology, University of Toronto, 25 April.

LPAR: 16th International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Dakar, Senegal, 25 April - 1 May.

ICCMNC: International Conference on Computer Mathematics and Natural Computing, Rome, Italy, 28–30 April.

RIAOP: Adaptivity, Personalization and Fusion of Heterogeneous Information, Paris, France, 28–30 April.

SDM: SIAM Conference on Data Mining, Columbus, Ohio, 29 April–1 May.

IGCC: 2nd annual Interdisciplinary Graduate Conference on Consciousness, Boston University, 30 April–1 May.

REFERENCE AND REFERRING: Inland Northwest Philosophy Conference, Moscow, ID & Pullman, WA, 30 April–2 May.

MAY

GRADUATE STUDENT LOGIC CONFERENCE: CUNY Graduate Center, New York, USA, 7–8 May.

MODELS AND SIMULATIONS: University of Toronto, 7–9 May.

REASON TODAY. FROM DIFFERENTIATION TO UNITY: Babes-Bolyai University, Cluj-Napoca, Romania, 7–9 May.

KR: 12th International Conference on the Principles of Knowledge Representation and Reasoning, Toronto, Canada, 9–13 May.

AAMAS: 9th International Conference on Agents and Multi Agent Systems, Toronto, Canada, 10–14 May.

FORMAL EPISTEMOLOGY FESTIVAL: Learning From Experience & Defeasible Reasoning, University of Toronto, 11–13 May.

AISTATS: 13th International Conference on Artificial Intelligence and Statistics, Chia Laguna, Sardinia, Italy, 13–15 May.

LOGIC IN COGNITIVE SCIENCE: Torun, Poland, 13–15 May.

NMR: Workshop on Commonsense and Non-Monotonic Reasoning for Ontologies, Sutton Place, Toronto, Canada, 14–16 May.

AUTOMATED KNOWLEDGE BASE CONSTRUCTION: Grenoble, France, 17–19 May.

MEANING, MODALITY AND APRIORITY: University of Cologne, Germany, 17–20 May.

INFINITY: Infinite and Infinitesimal in Mathematics, Computing, and Natural Sciences, Cetraro, Italy, 17–21 May.

FLAIRS: 23rd Florida Artificial Intelligence Research Society Conference, Daytona Beach, Florida, 19–21 May.

IDA: 9th International Symposium on Intelligent Data Analysis, Tucson, Arizona, 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.

SLACRR: 1st St. Louis Annual Conference on Reasons and Rationality, University of Missouri-St. Louis, 23–25 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.

BENELEARN: 19th Annual Machine Learning Conference of Belgium and The Netherlands, Katholieke Universiteit Leuven, Belgium, 27–28 May.

SPE3: Semantics and Philosophy in Europe, Institut d'Histoire et de Philosophie des Sciences et des Tech-

niques (IHPST) and Ecole Normale Supérieure (ENS), Paris, 27–29 May.

MODEL UNCERTAINTY: Centre for Research in Statistical Methodology (CReSM), Warwick, 30 May - 1 June.

BSAP: First meeting of the Brazilian Society for Analytic Philosophy, Unisinos University, Brazil, 31 May–2 June.

JUNE

PHILOSOPHY AND MODEL THEORY: History and Contemporary Developments, Philosophical Issues and Applications, Paris, 2–5 June.

BLAST: Boolean Algebras, Lattices, Algebra, Set Theory, and Topology, Boulder, Colorado, 2–6 June.

COGNITIVE ECOLOGY: THE ROLE OF THE CONCEPT OF KNOWLEDGE IN OUR SOCIAL COGNITIVE ECOLOGY: Episteme Conference, University of Edinburgh, 3–4 June.

VALENCIA INTERNATIONAL MEETINGS ON BAYESIAN STATISTICS: Benidorm, Spain, 3–8 June.

ICIC: 3rd International Conference on Information and Computing Science, Jiangnan University, Wuxi, China, 4–6 June.

ICMS: 3rd International Conference on Modelling and Simulation, Jiangnan University, Wuxi, China, 4–6 June.

IIS: Intelligent Information Systems, Siedlce, Poland, 8–10 June.

SOCIETY FOR PHILOSOPHY AND PSYCHOLOGY: 36th Annual Meeting, Lewis & Clark College, Portland, Oregon, 9–12 June.

ICCSS: IEEE International Conference on Computational and Statistical Science, Manila, Philippines, 11–13 June.

ICDDM: IEEE International Conference on Database and Data Mining, Manila, Philippines, 11–13 June.

FOUNDATIONS OF LOGICAL CONSEQUENCE: Arche Research Centre, The University of St Andrews, 11–15 June.

ICAISC: 10th International Conference on Artificial Intelligence and Soft Computing, Zakopane, Poland, 13–17 June.

DM: SIAM Conference on Discrete Mathematics, Hyatt Regency Austin, Austin, Texas, 14–17 June.

OBJECTIVITY IN SCIENCE: University of British Columbia, 17–20 June.

SQUARE OF OPPOSITION: Corte, Corsica, 17–20 June.

PCC: 9th Proof, Computation and Complexity, Bern, Switzerland, 18–19 June.

FROM PRACTICE TO RESULTS IN LOGIC AND MATHEMATICS: Nancy, France, 21–23 June.

LCM: 4th International Conference on Language, Culture and Mind, Turku, Finland, 21–23 June.

MPC: 10th International Conference on Mathematics of Program Construction, Québec City, Canada, 21–23 June.

PAKDD: 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining, Hyderabad, India, 21–24 June.

CCA: 7th International Conference on Computability and Complexity in Analysis, Zhenjiang, China, 21–25 June.

ICML: 27th International Conference on Machine Learning, Haifa, Israel, 21–25 June.

LOGICA: Hejnice, northern Bohemia, 21–25 June.

HUMAN-ROBOT PERSONAL RELATIONSHIPS: Leiden University, The Netherlands, 23–24 June.

HOPOS: International Society for the History of Philosophy of Science, Central European University, Budapest, Hungary, 24–27 June.

MIND, SCIENCE AND EVERYTHING!: University of Glasgow, 25–26 June.

POP III: 3rd Graduate Conference in Philosophy of Probability, Centre for Philosophy of Natural and Social Science, London School of Economics, 25–26 June.

ILP: 20th International Conference on Inductive Logic Programming, Firenze, Italy, 27–30 June.

IPMU: 13th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, Dortmund, Germany, 28 June - 2 July.

CiE: Computability in Europe: Programs, Proofs, Processes, Ponta Delgada (Azores), Portugal, 30 June - 4 July.

JULY

AAL: Australasian Association for Logic Conference, Sydney, Australia, 2–4 July.

METHODS OF APPLIED PHILOSOPHY: St Anne's College, Oxford, 2–4 July.

MAXENT: 30th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering, Chamonix, France, 4–9 July.

AISC: 10th International Conference on Artificial Intelligence and Symbolic Computation, CNAM, Paris, France, 5–6 July.

LOFT: 9th Conference on Logic and the Foundations of Game and Decision Theory, University of Toulouse, France, 5–7 July.

IWAP: 5th International Workshop on Applied Probability, Universidad Carlos III de Madrid, Colmenarejo, Madrid, Spain, 5–8 July.

IWSM: 25th International Workshop on Statistical Modelling, Department of Statistics, University of Glasgow, 5–9 July.

CONFERENCES ON INTELLIGENT COMPUTER MATHEMATICS: Paris, France, 5–10 July.

INC: 8th International Network Conference, Heidelberg, Germany, 6–8 July 2010.

WoLLIC: 17th Workshop on Logic, Language, Information and Computation, Brasília, Brazil, 6–9 July.

DEON: 10th International Conference on Deontic Logic in Computer Science, Florence, 7–9 July.

ISPDC: 9th International Symposium on Parallel and Distributed Computing, Istanbul, Turkey, 7–9 July.

IPTA: International Conference on Image Processing Theory, Tools & Applications, Paris, France, 7–10 July.

BSPS: British Society for the Philosophy of Science Annual Conference, University College, Dublin, 8–9 July.

UAI: 26th Conference on Uncertainty in Artificial Intelligence, Catalina Island, California, 8–11 July.

ICCSIT: 3rd IEEE International Conference on Computer Science and Information Technology, Chengdu, China, 9–11 July.

FLoC: 5th Federated Logic Conference, University of Edinburgh, 9–21 July.

LICS: Logic in Computer Science, Edinburgh, Scotland, UK, 11–14 July.

SCSC: 2010 Summer Computer Simulation Conference, Ottawa, ON, Canada, 11–14 July.

TMFCS: International Conference on Theoretical and Mathematical Foundations of Computer Science, Orlando, FL, USA, 12–14 July.

UNCERTAINTY IN COMPUTER MODELS: Sheffield, UK, 12–14 July.

WORLDCOMP: World Congress in Computer Science, Computer Engineering, and Applied Computing, Las Vegas, Nevada, 12–15 July.

CBR-MD: International Workshop Case-Based Reasoning on Multimedia Data, Berlin, Germany, 14 July.

BICS: Brain-Inspired Cognitive Systems Conference, Madrid, Spain, 14–16 July.

ICCBR: 18th International Conference on Case-Based Reasoning, Alessandria, Italy, 19–22 July.

WCCM/APCOM: 9th World Congress on Computational Mechanics and 4th Asian Pacific Congress on Computational Mechanics, Sydney, Australia, 19–23 July.

NACAP: Simulations and Their Philosophical Implications, Carnegie Mellon University, 24–26 July.

KDD: 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Washington, DC, 25–28 July.

BWGT: Brazilian Workshop of the Game Theory Society, University of São Paulo, 29 July–4 August.

AUGUST

FLINS: 9th International FLINS Conference on Foundations and Applications of Computational Intelligence, Chengdu (Emei), China, 2–4 August.

THOUGHT IN SCIENCE AND FICTION: 12th International Conference of the International Society for the Study of European Ideas, Ankara, 2–6 August.

MSN-DS: 2nd International Workshop on Mining Social Network for Decision Support, Odense, Denmark, 9–11 August.

ICNC-FSKD: the 6th International Conference on Natural Computation and the 7th International Conference on Fuzzy Systems and Knowledge Discovery, Yantai, China, 10–12 August.

ICCP: 10th International Conference on Philosophical Practice, Leusden, Netherlands, 11–14 August.

MAKING DECISIONS: Singapore Multidisciplinary Decision Science Symposium, Nanyang Technological University, Singapore, 12–13 August.

CONFERENCE ON MATHEMATICAL LOGIC AND SET THEORY: Chennai, India, 15–17 August.

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

EUROPEAN MEETING OF STATISTICIANS: Department of Statistics and Insurance Science, University of Piraeus, Greece, 17–22 August.

TRUTH MATTERS: Toronto, 18–20 August.

ARTIFICIAL LIFE: 12th International Conference on the Synthesis and Simulation of Living Systems, Odense, Denmark, 19–23 August.

COMPSTAT: 19th International Conference on Computational Statistics, Paris, France, 22–27 August.

CIPP: Collective Intentionality VII, Perspectives on Social Ontology, University of Basel, Switzerland, 23–26 August.

CSL: Annual Conference of the European Association for Computer Science Logic, Brno, Czech Republic, 23–27 August.

CONCEPT TYPES AND FRAMES: in Language, Cognition, and Science, Düsseldorf, Germany, 24–26 August.

ESPP: Meeting of the European Society for Philosophy and Psychology, Bochum and Essen, Germany, 25–28 August.

AiML: 8th International Conference on Advances in Modal Logic, Moscow, 25–29 August.

ASAI: 11th Argentine Symposium on Artificial Intelligence, Ciudad Autónoma de Buenos Aires, 30 August – 3 September.

SEPTEMBER

KSEM: 4th International Conference on Knowledge Science, Engineering and Management, Belfast, Northern Ireland, UK, 1–3 September.

FEW: 7th Annual Formal Epistemology Workshop, Konstanz, 2–4 September.

CAUSATION AND DISEASE IN THE POSTGENOMIC ERA: 1st European Advanced Seminar in the Philosophy of the Life Sciences, Geneva, Switzerland, 6–11 September.

LOGIC, ALGEBRA AND TRUTH DEGREES: Prague, Czech Republic, 7–11 September.

PGM: 5th European Workshop on Probabilistic Graphical Models, Helsinki, Finland, 13–15 September.

AS: Applied Statistics, Ribno, Bled, Slovenia, 19–22 September.

IVA: 10th International Conference on Intelligent Virtual Agents, Philadelphia, Pennsylvania, USA, 20–22 September.

LRR: Logic, Reason and Rationality, Centre for Logic and Philosophy of Science, Ghent University, Belgium, 20–22 September.

WORLD COMPUTER CONGRESS: International Federation for Information Processing, Brisbane, Australia, 20–23 September.

&HPS3: Integrated History and Philosophy of Science, Indiana University, Bloomington, 23–26 September.

LOGIC AND LANGUAGE CONFERENCE: Northern Institute of Philosophy, University of Aberdeen, 24–26 September.

SMPS: 5th International Conference on Soft Methods in Probability and Statistics, Mieres (Asturias), Spain, 28 September - 1 October.

OCTOBER

E-CAP: 8th European Conference on Computing and Philosophy, Muenchen, Germany, 4–6 October.

AIAI: 6th IFIP International Conference on Artificial Intelligence. Applications & Innovations, Ayia Napa, Cyprus, 5–7 October.

THE NATURE OF BELIEF: The Ontology of Doxastic Attitudes, University of Southern Denmark, Odense, 18–19 October.

FMCAD: International Conference on Formal Methods in Computer-Aided Design, Lugano, Switzerland, 20–23 October.

ADT: 1st International Conference on Algorithmic Decision Theory, Venice, Italy, 21–23 October.

NonMon@30: Thirty Years of Nonmonotonic Reasoning, Lexington, KY, USA, 22–25 October.

IJCCI: 2nd International Joint Conference on Computational Intelligence, Valencia, Spain, 24–26 October.

ICTAI: 22th International IEEE Conference on Tools with Artificial Intelligence, Arras, France, 27–29 October.

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COURSES AND PROGRAMMES

Courses

COST-ADT: Doctoral School on Computational Social Choice, Estoril, Portugal, 9–14 April.

OPEN PROBLEMS IN THE PHILOSOPHY OF SCIENCES: Cesena, 15–17 April.

NASSLLI: 4th North American Summer School in Logic, Language and Information, Bloomington, Indiana, 21–25 June.

ISSSEO: International Summer School in Social and Ecological Ontology, Castello Tesino and Cinte Tesino, Italy, 5–9 July.

THE SCIENCE OF THE CONSCIOUS MIND: Vienna, 5–16 July.

UCLA LOGIC CENTER: Undergraduate Summer School in Mathematical Logic, Los Angeles, USA, 5–23 July.

NN: Summer School on Neural Networks in Classification, Regression and Data Mining, Porto, Portugal, 12–16 July.

ANALYTIC PRAGMATISM, SEMANTIC INFERENTIALISM, AND LOGICAL EXPRESSIVISM: 2nd Graduate International Summer School in Cognitive Sciences and Semantics, University of Latvia, Riga, 19–29 July.

MEANING, CONTEXT, INTENTION: Central European University (CEU), Budapest, Hungary, 19–30 July.

ESSLLI: European Summer School in Logic, Language and Information, University of Copenhagen, Denmark, 9–20 August.

Programmes

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 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 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.

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, 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 PHILOSOPHY OF SCIENCE, TECHNOLOGY AND SOCIETY: University of Twente, The Netherlands.

MASTER OF SCIENCE: Logic, Amsterdam.

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JOBS AND STUDENTSHIPS

Jobs

Two Post-doc Positions: in philosophical logic and the philosophy of mathematics, Department of Philosophy, Birkbeck College, University of London, deadline 2 March.

Post-doc Stipends: in philosophy and neuroscience, Ruhr University Bochum, Germany, deadline 7 March.

Research Associate: in Computer Science, Newcastle University, deadline 8 March.

BALZAN Postdoctoral Research Fellowships: St John's College, University of Oxford, deadline 12 March.

Lectureship: in Philosophy of Science, Department of History and Philosophy of Science, University of Cambridge, deadline 12 March.

One-Year Fellowship: in Philosophy, City College of New York (CUNY), deadline 6 April.

Studentships

PhD Studentship: "Multilevel Search Methodologies for Problem Solving", School of Computer Science, University of Nottingham, until filled.

Doctoral Studentships: Department of Philosophy, University of Lund, deadline 1 March.

PhD Studentships: Experimental Psychology, University of Bristol, deadline 1 March.

PhD Stipends: in philosophy and neuroscience, Ruhr University Bochum, Germany, deadline 7 March.

Lakatos MSc Scholarship: for study in philosophy of science, LSE, deadline 19 March.

Pre-doctoral Positions: in philosophy, PETAf FP7 Marie Curie Initial Training Network, deadline 19 March.

PhD Position: in "Imprecise Probabilities for Reasoning With Risk", University College Cork, deadline 4 April.

PhD Studentship: "A Constraint Solver Synthesiser", School of Computer Science, University of St Andrews, deadline 11 April.

PhD Position: in Philosophy of Science, Department of Philosophy and Tilburg Center for Logic and Philosophy of Science, Tilburg University, deadline 15 April.

JACOBSEN FELLOWSHIPS AND ROYAL INSTITUTE OF PHILOSOPHY BURSARIES: for the academic year 2010–2011, deadline 11 June.