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Editorial

It is a pleasure to welcome everyone to this month's edition of *The Reasoner*. Many thanks to Federica Russo and Jon Williamson for inviting me to act as 'guest-editor', this being in scare quotes because I am really only doing the glamorous editing jobs, as many readers know, and none of the hard work.

My favourite part of *The Reasoner* is the monthly interview; it is great to read the stories and thoughts of people I admire, stories that go beyond the academic paper. For this month's interview, I was lucky to catch up with Richard Bradley, my colleague at the LSE, between the various activities that occupy him while on sabbatical. We spent a most pleasant hour or so chatting about his academic history, and thoughts on rational choice theory and philosophy in general. I was glad for the excuse of this formal task to listen to these tales.

Richard's academic story is great because he describes a delightful mix of accident and, well, non-accident. (Admittedly the interview dwells on Richard's chronology, but actually I think this is the best way to understand his current philosophical approach.) Looked at one way, Richard tells this winding tale of happenstance events that lead to him being obsessed with a particular problem in decision theory that eventually brought him to the position he is in now. There is the sense that things could have turned out quite differently, if only something else had grabbed his attention at the critical time. This rings true to me when I think about the series of accidental meetings, ill-informed decisions, and moments of misguided inspiration that led me to where I am now (which I am nonetheless very happy about!)

On the other hand, it seems clear that Richard was always going to be a foundation-setting, big-system thinker, and his ending up a rational choice theorist, in particular, also makes a lot of sense. He has not played the academic game, but has rather sought problems that seemed important and interesting, even if somewhat inconvenient (the dissertation topic is a case in point). Indeed, everyone who works with Richard is impressed by his wisdom and integrity. He does not publish for the sake of it, yet is also not precious about making mistakes. This is such a nice thing in our profession.

OK I am sure that is enough drum roll. It is probably a good idea to start the interview proper . . .

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Katie Steele
Philosophy, LSE

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FEATURES

Interview with Richard Bradley

Richard Bradley is a Professor in the Department of Philosophy, Logic and Scientific Method at the London School of Economics (LSE). His chief interests are in decision theory, social choice theory, conditionals and hypothetical reasoning, and he has numerous publications on these topics in various philosophy journals.

Katie Steele: Hello Richard. The plan here is to take a leisurely trip from your past to your present/ future, in particular tracing your academic path, but feel free to add other details! Let's start at school age: were you already a budding philosopher or did you have other strong interests and envision doing something else at that stage?

Richard Bradley: I did have an interest in philosophy during school, but really just the existentialist variety, as this resonated well with teenage angst and all that. After school I went on to do a Bachelor of Arts at the University of Witwatersrand in Johannesburg—our local university and also where my father worked (as a chemist). Still no serious interest in philosophy—my majors were in politics and economics . . . I do remember a discussion with a leftie friend about whether I should take a philosophy option, but he convinced me that academic philosophy was a bourgeois activity and encouraged me to take 'industrial sociology' instead. And so I did.

KS: I see, so would you have identified as a Marxist at that time?

RB: Sure. Political opinion was very polarised amongst students in South Africa at that time. It seemed that everyone was either a Marxist or a supporter of Apartheid; a less state-oriented third way was not really on the agenda. Perhaps the reason for this was that liberal politicians had failed to deliver on important issues—they had failed in dismantling apartheid, to begin with, but also they had not halted the growing militarisation of South Africa. The general feeling was that circumstances called for more urgent means and methods—only the more radical ideologies with their calls for mass collective action seemed capable of bringing about significant change.

KS: So in this charged political environment, you nonetheless found your way to philosophy?

RB: Well, I found that my interests in politics and economics gravitated towards the theoretical end of the spectrum. I was more interested in general theory than empirical studies of particular situations, and I was reading a lot of political philosophy. Moreover, it turned out that the reasons for my initial rejection of philosophy—that it was too abstract and disconnected from social facts (too bourgeois)—became the very reasons for my later attraction to the subject. Philosophy was a kind of escape-hatch from a cloistered and suffocating intellectual environment where ideas were applauded or hounded down depending on their perceived political consequences.

KS: Just as an aside, did you take any maths courses?

RB: I hardly did any maths. There was one general maths course that involved a bit of computer science, a bit of statistics and a bit of applied maths, but I did quite poorly

at it.

KS: OK so we've reached the end of your Bachelor degree. What happened next? You didn't join the ANC?

RB: I wanted to continue further study elsewhere in the world, partly because I was due for military service in South Africa, and the UK was a natural destination. I came to London and did an MSc in social philosophy at the LSE. This was a wonderful year—I was like a kid in a candy store, skipping from one London college to the next, attending lectures on all sorts of topics, and generally enjoying the intellectual freedom.

KS: Did the LSE experience change your approach to philosophy? Was there anyone in particular who influenced you?

RB: Prior to LSE I had been mainly reading continental-style philosophers, for instance Hegel, Lukacs and Adorno and had acquired some of the habits of these writers. In fact, my LSE tutor, Peter Urbach, could not get all the way through my first essay, he was so horrified by the grandiose ambitions of the piece and the obscure language. I still remember him saying that if I wanted to learn to write, I should 'go and read *The Sun*'.

As far as influential people are concerned, David Ruben had the most impact, more for his sheer encouragement than anything else. He urged me to apply for PhD positions in the States (there was hardly any funding in the UK), and he helped a lot with the whole process. I eventually accepted an offer at Chicago, but deferred this a couple of years because I wanted to earn some money—I did a 6-month stint as an electrician's mate before working as a computer programmer for a consultancy.

KS: That is quite a long break: 2.5 years. Did you then have a well-baked idea for your PhD thesis by the time you arrived in Chicago? Were you already in contact with Richard Jeffrey, who I understand was your supervisor?

RB: Not well-baked at all. The initial plan was to work with Jon Elster on a topic in the philosophy of social science: I wanted to consider the nature of ideology or ideological thinking, and to make some progress on the Marxist line that thought/action is a product of the social structure. But I found that Elster was not too enthused with the project—he wasn't much of a Marxist by then, and neither was I really.

KS: So you switched over to rational choice?

RB: Elster taught a course in rational choice which I attended, in the interests of 'knowing one's enemy'. I was convinced that the rational-choice approach was simply wrong—the very idea of assuming an agent to have self-given motivations (preferences, beliefs, desires) was, from my perspective, flawed from the start.

Despite this shortcoming (and in fact I still consider the origins of motivational attitudes to be an important issue neglected by rational-choice theory), I was seduced by the subject. It often happens that way—you start out just imitating some method or way of doing things, and then later genuine interest develops. I read Jeffrey's *Logic of Decision* and found it fascinating. There seemed to me some interesting problems in Jeffrey's work that I thought could be easily solved. In particular, I was bothered by the non-uniqueness aspect of Jeffrey's expected utility theorem: Jeffrey's rationality constraints are not sufficient to pin down a unique probability-utility representation. That is, there may be more than one way to represent the same ordinal preferences, and moreover, it may be the case that according to one representation $Pr(x) > Pr(y)$, while

according to another, $Pr(y) > Pr(x)$. Jeffrey makes a feature of this, claiming that it shows the deep inseparability of belief and desire. But I found it disturbing.

KS: That seems a rather subtle and technically advanced issue to pick up on after reading a couple of books in decision theory, and at a time when you considered yourself more a social philosophy guy than a mathematician (?)

RB: At the time I was also reading Davidson, who was using Jeffrey's decision theory for interpretive reasons. It was important for Davidson's project that we could uniquely determine the beliefs of agents, because he held that the way to derive meaning is to consider an agent's responses to sentences in light of their beliefs.

As far as the technical nature of Jeffrey's work was concerned, I was in awe of what can be achieved, when it comes to making progress on philosophical problems, with the right mathematical tools. I have never much loved technical stuff for its own sake, but there are occasions when this kind of structured thinking can yield deep insights, and I recognised it then in Jeffrey's decision theory.

KS: So this problem in Jeffrey's theory that sparked your interest and that you thought could be solved in a term paper . . . how long did you end up working on it? (Actually I know the answer to this question.)

RB: This was the topic of my thesis and it occupied me for the next 5 or so years! My idea was to consider preferences over indicative conditional prospects, that is, prospects of the sort 'If inflation continues to rise, then Labour will not be re-elected'. Note that this is not the same as considering conditional preferences: the idea is not to assume the truth of the antecedent and then judge the desirability of the consequent, but rather to judge the desirability of the conditional as a whole. It will depend on how probable one thinks the antecedent actually is.

KS: That seems to further muddle belief and desire . . .

RB: It seems to but in effect we get a more information-rich preference ordering. What I was looking for was a way to capture independence in desirability. For example, the value of winning a lottery has nothing to do with the number of the winning ticket—you wouldn't care if it was ticket 98 that won you the prize or ticket 99. The thought was that preferences over conditionals could expose such independence. Here you'd be indifferent between 'If I pick ticket 98, then I win the prize' and 'If I pick ticket 99, then I win the prize'. Of course, such conditionals need to be interpreted, and early on a fellow student pointed out to me that I wouldn't achieve my aims with the material conditional. So I needed a different interpretation. To cut a long story short, it turns out that given a particular interpretation of conditionals, and a corresponding set of axioms for preferences over conditional prospects, we get the uniqueness result that Jeffrey was lacking.

KS: I am still amazed that, at the time, you persisted with this idea that was clearly going to be technically demanding. Was Jeffrey a big help and motivator?

RB: Jeffrey thought the idea interesting but perhaps too hard . . . he was a very self-effacing person, and perhaps not a great listener, but then again I came to realise that his seemingly low-key suggestions were often very astute. What was nice about Jeffrey was that he was not one of those inhumanly bright mathematical people. He was not super quick, for instance, and this may have been a good thing. His wading carefully through the technical stuff may well have resulted in a more thorough understanding of

the terrain. Or at least, a better ability to articulate the terrain to others.

It was my other supervisor, David Malament, however, who provided most help with the technical aspect of my thesis. It worked well: I had these ideas about what was true/what results I was seeking, but not the experience with mathematical argument, while David had no shortage of the latter. He didn't contribute ideas about content, but he certainly spotted all the mathematical weaknesses . . . David basically taught me how to write proofs.

KS: Were you ever tempted to cut your losses and move on to something new during this time?

RB: Sure. It was taking so long and getting difficult . . . I was lost for a year or so, stuck in thinking that the conditionals needed to be regular Boolean propositions, and trying different proofs. Then finally it dawned on me that the conditionals couldn't be regular propositions, and things gained momentum . . . but by this time my wife was pregnant, and I was feeling some financial anxiety. I might have taken a position outside academia but for Philippe Mongin organising a postdoc for me. That settled things—I finished my thesis, intending to stay in France for the postdoc, but then in 1997 (now with a three-month-old baby), I got a temporary teaching job at the LSE. This later turned into a permanent job.

KS: Are you glad now that you read that book of Jeffrey's and entered this odyssey that has lead to you being an expert in rational choice?

RB: I am not displeased, although my more fundamental worries about rational choice have not gone away—it still seems a huge omission to ignore the causes of our motivational attitudes. Moreover, I do not for a second believe that all social theory can be reduced to rational choice theory. This is not to say that rational choice models cannot provide useful predictions, if taken at the right level. We need more than these models, that is all.

What I really like about rational choice theory is the way in which it tackles problems. I like rational choice at a very general level: the method of stating precisely one's assumptions and then exploring the consequences of these assumptions.

KS: What now of that earlier tension between pursuing some bourgeois intellectual activity versus pursing the greater good, or whatever?

RB: Well, there is always an opportunity cost to one's actions. And no doubt I could be doing something that produced more good in the world. But at the very least, professional philosophy is surely not harmful. There may be an element of bourgeois indulgence—we academics all have a good time together doing philosophy—but that is not the whole story. The most valuable thing that philosophy offers I think are critical reasoning tools; it would be good if everyone 'got a bit of philosophy' on these grounds alone. And if that is right, then it makes sense to have people working on the refinement of these critical reasoning tools . . .

KS: Glad that's settled (!) Speaking of the refinement of critical reasoning tools, and decision theory in particular: What do you think are the pressing problems in the field that deserve attention? You have spoken a lot about the failure to address the origins of motivational attitudes . . .

RB: Indeed. I think decision theory needs to move from being a predominantly static theory—an equilibrium theory—to a more dynamic theory. We have been mainly pre-

occupied with what constitutes a consistent static state (a consistent set of preferences). I would like to see more work on how attitudes change, how we might act to bring about particular attitudinal changes and prevent others, how we should respond to evidence of different kinds, and so on. Even a more comprehensive account of how we should respond to others' opinions would go a long way to making decision theory more social and dynamic.

KS: So you are proposing a move towards normative decision models that involve more substantive assumptions (about reasonable beliefs, available acts and so on) and are to some extent situation specific.

RB: You could say that. But we might also want to drop certain assumptions in the ideal theory. Normative decision theory should present a model that ordinary bounded agents can aspire to. We would do well to drop the requirement of logical omniscience, for instance, which would open the door to modelling an incremental deliberation process, where agents learn, gradually, the logical consequences of their beliefs/preferences, and repair local inconsistencies. Add other agents into the mix and it could get quite complicated, but in a good way.

KS: So I take it that you will have enough to keep you occupied during your newly-begun sabbatical?

RB: The plan is to write a book. There will be two parts, essentially. The first part will bring together the accumulated wisdom of my dissertation, which we spoke of earlier. This is more or less settled opinion for me.

The second part will make a move on some of the 'live' issues just mentioned. I'll begin by considering the many proposals for dropping the 'completeness' axiom of preference—different motivations for this move have led to different suggestions regarding what weaker assumption should be added back in to replace completeness. My initial aim is to assess these motivations and bring some order to the issue . . . Beyond that, we'll see.

KS: Great. We won't make you reveal all just now. Many people will look forward to and welcome this book, I'm sure. So I had better let you get on with your philosophising. Thanks a lot for your time Richard, and for a good story!

To Follow the Argument Wherever it Leads

That we should follow the argument wherever it leads is a principle put into the mouth of Socrates by Plato: 'we must go wherever the wind of the argument carries us' (*The Republic*, tr. D. Lee, second edition, Penguin, Harmondsworth, 1974, 394d). The principle has seemed to be not only reasonable, but to be a *demand* of rationality. Thus, it appears to be commonly accepted in contemporary philosophy that a rational person will believe the conclusion supported by the strongest argument, sometimes expressed as a requirement to accept or believe the best explanation (for example, Harman, 'Inference to the Best Explanation,' *Philosophical Review*, 1965, 74/1: 88–95). And in response to the accusation that what he said at one time conflicted with what he said at

another, the economist J.M. Keynes is reputed to have replied: 'When the facts change, I change my mind. What do you do sir?'. On such a view it becomes a puzzle that apparently rational people who share the same information nevertheless disagree (see, for example, Rik Peels' report in *The Reasoner* 3(9), 2009, 15–16). But the fact that rational disagreement among equally well-informed people seems problematic should tell us that something has gone wrong.

In the mid-nineteenth century, the observed motions of Uranus conflicted with the predictions of Newton's theory. Scientists could have just 'followed the argument' to the conclusion that Newton's theory is false; they could have changed their mind about Newton's theory because the facts had changed; and perhaps some of them did. But leading scientists responded by developing a counter-argument. Realising that the refuted predictions followed from the conjunction of Newton's theory with accepted background knowledge, Leverrier responded by proposing a replacement for some of this background knowledge. He denied that the known planets are all the planets there are and he hypothesised a new fact, namely, the existence of a previously unseen planet with just the properties necessary to account for Uranus' anomalous motions in terms of Newton's theory. This was an imaginative and unjustified hypothesis; but it was falsifiable. Scientists tested it by looking for the planet in the portion of the sky where it was supposed to be; and they discovered it (Neptune). By refusing to follow the argument wherever it leads and instead thinking up a new hypothesis and then testing it, scientists created new knowledge and a stronger counter-argument.

Leverrier's hypothesis was only one among any number of ways of revising background knowledge to save Newton's theory (Duhem, *The Aim and Structure of Physical Theory*, Atheneum, New York, 1962, 180-90). For example, several new planets could have been posited instead of one; or some novel kind of force might have been introduced, as Oersted had previously postulated electrical forces to explain the deflection of a needle from magnetic north. But many of these possible hypotheses would not have produced new knowledge, either because they would have reduced falsifiability or because they would have been refuted if tested (Popper, *The Logic of Scientific Discovery*, sixth impression (revised), Hutchinson, London, 1972, 78-84). For example, falsifiability would have been reduced by the hypothesis that Newton's theory does not apply to Uranus, or by the hypothesis that the perturbations of Uranus are explained by a previously unknown force the existence of which could not be tested independently. And Leverrier was lucky on this occasion. When the observed motions of Mercury similarly failed to comply with the predictions of Newton's theory, Leverrier again hypothesised a new planet to account for it; and he even gave the planet a name, 'Vulcan;' but this hypothesis was falsified. In the late seventeenth century, the best explanation of planetary motion was Kepler's, while the best explanation of bodies falling to earth was Galileo's. But instead of simply accepting these best explanations, Newton set out to construct a better one; and he eventually succeeded in proposing a hypothesis which contradicted and replaced *both* Kepler's and Galileo's (Popper, 'The Bucket and the Searchlight,' in his *Objective Knowledge*, corrected edition, OUP, Oxford, 1973, 341-61).

Plato's principle is not reasonable and cannot be a demand of rationality: only an unimaginative dolt would always follow the argument wherever it leads. But nor can it be a demand of rationality always to think up a counter-argument, for two reasons. First,

since a counter-argument is itself an argument, it would lead to an infinite regress: one would never be able to get off the topic. Second, arguments abound, but our resources of time, attention, concentration and ingenuity are limited, so we have to choose which arguments to try to overturn, and which to accept for the time being (Popper, 'Towards a Rational Theory of Tradition,' in his *Conjectures and Refutations*, fourth (revised) edition, Routledge and Kegan Paul, London, 1972, 120-135). A rational person is entitled either to follow the argument wherever it leads or to challenge it by producing a counter-argument, and which way he decides is up to him. Since developing a counter-argument, testing it and improving it may take some time, rational disagreement between equally informed people, far from being puzzling, is exactly what we should expect. It is perfectly rational to acknowledge that one's interlocutor has the better arguments and still to disagree with him, if one accepts the burden of *seeking* better contrary arguments. This seems to be the position attributed to Socrates in Plato's *Crito*, 46b: 'it has always been my nature never to accept advice from any of my friends unless reflexion shows that it is the best course that reason offers. I cannot abandon the principles which I used to hold ... unless we can find better principles ...' (Plato, *The Last Days of Socrates*, tr. H. Tredennick, third (revised) edition, Penguin, Harmondsworth, 1969, 83-84).

Danny Frederick

Presuppositions & Truth Relevance

Presuppositions

P. F. Strawson is known for introducing the logic of presuppositions. In his view a sentence is neither true nor false if its subject class is empty Strawson (1952: *Introduction to Logical Theory*, Methuen, 163–179)

Strawson has observed that the natural language sentence

$$\text{"All John's children are asleep"} \tag{1}$$

can be analyzed either as

$$\neg(Ex)(fx \wedge \neg gx) \tag{2}$$

or as

$$\neg(Ex)(fx \wedge \neg gx) \wedge (Ex)(fx) \tag{3}$$

or as

$$\neg(Ex)(fx \wedge \neg gx) \wedge (Ex)(fx) \wedge (Ex)(\neg gx) \tag{4}$$

where

$$(Ex)(fx) \tag{5}$$

stands for "John has children", and

$$(Ex)(gx) \tag{6}$$

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stands for "Something is asleep." If John does not have any children then, according to classical logic, 2 is true, 3 and 4 are false.

Accepting 3 or 4 would open the question of what the translation into English of "¬(Ex)($fx \land \neg gx$)" is. "All John's children are asleep" is now a conjunction of three formulas of which ¬(Ex)($fx \land \neg gx$) is only one. 1 and ¬(Ex)($fx \land \neg gx$) can no longer be equivalent.

Strawson has rejected all three interpretations and proposed a different approach: the sentence 1 is *neither true nor false* if John has no children. In other words the two following conditions hold:

1. If "All John's children are asleep" is *true*, then "John has children" is true.

2. If "All John's children are asleep" is *false*, then "John has children" is true.

We say that 1 *presupposes* "John has children".

Note that if we accept this solution then "(Ex)(fx)" is no longer a part of the translation of "All John's children are asleep." The reason is that it is not possible to express both 1 and its negation as a conjunction of some wff with "(Ex)fx." Therefore, we can let "¬(Ex)($fx \land \neg gx$)" stand as the formalization of "All John's children are asleep." Then

1. If "¬(Ex)($fx \land \neg gx$)" is *true*, then "(Ex)(fx)" is true.

2. If "¬(Ex)($fx \land \neg gx$)" is *false*, then "(Ex)(fx)" is true.

"¬(Ex)($fx \land \neg gx$)" *presupposes* "(Ex)fx." The logic is no longer classical. This generalizes to any Fx and Gx. In particular, we have

1. If "¬(Ex)(($Px \land \neg Px$) $\land \neg Qx$)" is *true*, then "(Ex)($Px \land \neg Px$)" is true.

2. If "¬(Ex)(($Px \land \neg Px$) $\land \neg Qx$)" is *false*, then "(Ex)($Px \land \neg Px$)" is true.

But "(Ex)($Px \land \neg Px$)" is not true. Hence,

$$\neg(\mathrm{E}x)((Px \land \neg Px) \land \neg Qx) \tag{7}$$

is *neither true nor false*. The same applies to its equivalent:

$$(x)((Px \land \neg Px) \to Qx) \tag{8}$$

So 7 and 8 are neither true nor false because it is always true that

$$\neg(\mathrm{E}x)(Px \land \neg Px). \tag{9}$$

But 2 is equivalent to

$$(x)(fx \to gx) \tag{10}$$

By Modus Tollens, we obtain

$$(x)(\neg gx \to \neg fx) \tag{11}$$

Now $\neg gx$ is the subject class and it ought to be nonempty. Therefore, for a sentence of the form "¬(Ex)($fx \land \neg gx$)" to be either true or false, both "(Ex)(fx)" and "(Ex)($\neg gx$)" must hold.

In 1981 Richard Diaz published a monograph, in which he presented truth-relevant logic Diaz (1981: *Topics in the Logic of Relevance*, Philosophia Verlag, 65–72.) It has certain similarities with the logic of presuppositions.

When evaluating formulae of classical propositional calculus, we often find ourselves using shortcuts:

1. If p is false, then $p \rightarrow q$ is true, regardless of the value of q.

2. If q is true, then $p \rightarrow q$ is true, regardless of the value of p.

"There are even some formulae whose truth value may be determined in every valuation, even if we do not know the truth value assigned to one of its variables *in any valuation*. A case in point is $p \rightarrow (q \rightarrow p)$. Suppose p is true. Then $q \rightarrow p$ is true by shortcut 2, and hence $p \rightarrow (q \rightarrow p)$ is true, again by 2. If p is false, then by 1, $p \rightarrow (q \rightarrow p)$ is true" Diaz (1981: 65). q is not relevant to the determination of $p \rightarrow (q \rightarrow p)$. We will call this kind of relevance *truth-relevance*. A formula is truth-relevant if all the variables occurring in it are truth-relevant.

The shortcut tables for disjunction and conjunction are below. "x" stands for "unknown."

∨	F	x	T
F	F	x	T
x	x	x	T
T	T	T	T

Table 1

∧	F	x	T
F	F	F	F
x	F	x	x
T	F	x	T

Table 2

And here is an example how to use these tables to evaluate $\neg((P \wedge \neg P) \wedge \neg Q)$.

P	Q	¬((P	∧	¬P)	∧	¬Q)
T	x	T	F	F	F	x
F	x	T	F	T	F	x

Table 3

We do not need to use the truth value of Q to determine that the formula is a tautology. "Of special interest is the set of tautologies that are also t-relevant" Diaz (1981: 67). The tautologies that are not t-relevant are the propositional counterparts of the "vacuously true" sentences of classical logic. Examples:

$$(P \wedge \neg P) \rightarrow Q$$

$$\neg((P \wedge \neg P) \wedge \neg Q)$$

$$(\neg P \vee P) \vee Q$$

An example of t-relevant tautology is Modus Tollens

$$(P \rightarrow \neg Q) \rightarrow (Q \rightarrow \neg P)$$

We note the strong similarity between the tautologies that are *not* t-relevant and the formulas that are neither true nor false because their subject class is empty or their predicate class is universal.

Non t-relevant tautology	Formula with an empty subject class
$(P \wedge \neg P) \rightarrow Q$	$(x)((Px \wedge \neg Px) \rightarrow Qx)$
$\neg((P \wedge \neg P) \wedge \neg Q)$	$\neg(Ex)((Px \wedge \neg Px) \wedge \neg Qx)$

Non t-relevant tautology	Formula with universal predicate class
$R \rightarrow \neg(S \wedge \neg S)$	$(x)(Rx \rightarrow \neg(Sx \wedge \neg Sx))$
$\neg(R \wedge (S \wedge \neg S))$	$\neg(Ex)(Rx \wedge (Sx \wedge \neg Sx))$

The formulae on the right are but generalizations of the formulas on the left.

In all likelihood truth-relevant logic can be used as the basis for formalizing the logic of presuppositions.

X.Y. Newberry

Some new propositional inferences

Surely if my proposal is that we go to the cinema tonight, and you accept my proposal then you accept that we go to the cinema tonight? Likewise if what I say is that there is someone at the door, and you believe what I say. Don't you then believe that there is someone at the door? These are rhetorical questions, of course, since the answers are obvious. But getting such arguments formalised requires a substantial revision of standard formal languages, even if the validation of the resultant inferences is then quite straightforward.

For a quite new form of expression comes out of the shadows and into logical theory as a result of having terms referring to propositions like 'that we go to the cinema tonight' and 'that there is someone at the door': propositional identities of the form 'x = λp', where 'λ' is the sentence nominaliser 'that'. It is a sad reflection on twentieth century logic that these were not noticed, or discussed before (especially, of course, by Quine). But there are many such even with names in place of 'x' — for instance those making explicit Pythagoras' Theorem, Goldbach's Conjecture, the Peter Principle, and Murphy's Law. Likewise such names for propositions can occur as the complements in belief attributions, in entailments, and as the subject of truth predications. For Pythagoras' Theorem, for instance, is true, and entails that a 3-4-5-triangle is right angled. And why does it do this? Because Pythagoras' Theorem, explicitly, is that the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides. A new symbol, replacing the nominaliser 'that', is needed, and the one involving the extension of the Lambda Calculus that Nino Cocchiarella provided recognises most clearly the continuity with concepts developed in the past (1986: *Logical Investigations of Predication Theory and the Problem of Universals*, Bibliopolis, Naples).

Using Cocchiarella's symbol it becomes easy to formalise and validate intensional inferences of the sort instanced at the start of this paper, which previously have been overlooked. In fact we can now show, formally, that there are critical inadequacies in Priorian propositional quantification that are overcome in its more subtle, referential counterpart. Thus

My proposal is that we go to the cinema tonight,

(i.e. m = λp) with

You accept my proposal,

(i.e. Aym, with 'A' a relation), entails

You accept that we go to the cinema tonight,

(i.e. Ayλp). What is primarily significant, of course, that neither of these inferences can be validated using an operator expression, 'Oyp' (in which 'Oy' is the Priorian operator 'you accept that'), for the second premise. For then no place would be available in which substitution of the above identity could take place. The 'p' that would complete 'Oy' is an expressed sentence, and expressed sentences (despite Frege) are not themselves referring phrases, like 'm' and 'λp', only their nominalisations are.

More significant still, though, is that there are formal discriminations between the related forms of propositional quantification. For, first of all, we can now symbolise *entailments* properly. 'A → B' is not 'A entails B' (for any sentence connective '→'), since 'entails' is a verb, and so, again, needs *referential terms* rather than expressed sentences on either side of it. It is John's being a bachelor that entails his being unmarried, for instance, and so the general form for an entailment is 'that A entails that B', i.e. 'λAEλB'. This is not just a minor grammatical matter, however, since without the nominalising facility provided by 'that'-clauses, and the like, there are major formal difficulties when one turns to modal logic. For, in that area, many might follow Prior, who did not use such referential constructions, and say that

(∃p)([□(p ⊃ B) v □(p ⊃ ¬B)] & p) was provable.

For instances of its matrix (call it 'Cp') seemingly follow from B, and also from ¬B, i.e. B ⊃ ([□(B ⊃ B) v □(B ⊃ ¬B)] & B), and ¬B ⊃ ([□(¬B ⊃ B) v □(¬B ⊃ ¬B)] & ¬B). But if something is provable it is necessary (the rule of Necessitation) and if □(p ⊃ q) then (□p ⊃ □q) (the rule 'K'), so if there were propositional epsilon terms in this style, i.e. if (∃p)Cp ≡ CϵpCp, then we could prove that

[□(ϵpCp ⊃ B) v □(ϵpCp ⊃ ¬B)] & ϵpCp,

and so, by Necessitation on the second conjunct, □ϵpCp, and, by rule K on the parts of the first conjunct,

(□ϵpCp ⊃ □B) v (□ϵpCp ⊃ □¬B).

Hence □B v □¬B (for any 'B'), and so modal collapse.

But if one uses referential propositional quantification, no such conclusion can be drawn. For then '□B' can be represented 'NλB', with 'N' the predicate of 'that'-clauses

and similar nominals, 'is necessary'. Likewise 'Tr' says that r is true, with $T\lambda A \equiv A$, and rule K becomes: if rEs then Nr $\supset$ Ns. Certainly then there is a true proposition that either entails that B or entails that ¬B, i.e.

$(\exists r)([rE\lambda B \lor rE\lambda\neg B] \& Tr)$.

But if the matrix there is 'Dr' then, in the referential epsilon equivalent, we only get

$[\epsilon rDrE\lambda B \lor \epsilon rDrE\lambda\neg B] \& T\epsilon rDr$,

and so $\square T\epsilon rDr$, and $(N\epsilon rDr \supset N\lambda B) \lor (N\epsilon rDr \supset N\lambda\neg B)$.
So $N\lambda B \lor N\lambda\neg B$ is not obtainable.

If ϵrDr was necessary ($N\epsilon rDr$) we could again draw the conclusion that there was modal collapse, but all that is necessary is that ϵrDr is true ($\square T\epsilon rDr$, i.e. $N\lambda T\epsilon rDr$), which allows ϵrDr to be contingent. In understanding this difference it is important to remember that the referential epsilon term is not itself an expressed proposition, but merely a pro-form referring to the proposition alluded to in the existentially quantified form before.

Hartly Slater
Philosophy, Western Australia

§3
News

Argentine Symposium on Artificial Intelligence, 24–25 August

The Argentine Symposium on Artificial Intelligence (ASAI) is an annual event held continuously since 1999. Its main objective is to provide an international forum for discussion and exchange of experiences in the field of Artificial Intelligence. This Symposium is part of the Argentine Conference on Informatics (JAIIO) organized by the Argentinean Society of Informatics (SADIO). The tenth edition of the symposium, ASAI 2009, was placed in Mar del Plata between 24th and 25th of August of 2009, as part of the 38th edition of JAIIO.

ASAI 2009 received 40 papers, each evaluated by 3 experts in the paper's main topic. Members of the program committee selected 19 out of the 40 papers for presentation at the symposium. The program committee was formed by around 30 renowned researchers from around the world, with expertise covering a wide spectrum of areas in the field of Artificial Intelligence. In addition to the PC members, 20 reviewers collaborated in the evaluation process.

The topics addressed at the symposium were wide and rich. Aspects such as feature selection to improve prediction algorithms, their precision, performance or minimizing training errors were discussed. Also, topics related to intelligent assistance during

software development were introduced, from recommender systems to natural language processing. Applications of 3D facial recognition had their space, as well as topics such as personalized assistance to groups of users; the application of multi agent systems in education or robotics; and intelligent labeling of network traffic for supervised learning approaches of intrusion detection. All the presentations showed a wide variety of AI techniques, allowing a good interaction with the audience.

In addition to these presentations, the Symposium had three invited talks. Dra. Rosanna Costaguta, from the Catholic University of Santiago del Estero (Argentina) talked about the use of multi-agent systems in computer-supported collaborative learning environments. Dr. Diego Milone, from the National University of Litoral, Santa Fe (Argentina), gave a brief tutorial on Hidden Markov models, theory, practice, and current research. Finally, Dr. Hector Geffner, ICREA, Universitat Pompeu Fabra, Barcelona (Spain), gave an entertaining and quite informative talk about "Problem Solvers", a journey form the beginnings of Artificial Intelligence to its current state, and beyond. All the talks had a full auditorium, which, combined with enough time for discussion, resulted in a fluid exchange of opinions and questions. The invited speakers' clear presentation and the deep knowledge and expertise in their subject area was highly appreciated by the audience, leaving the auditorium grateful for having learned something new.

As chairs of ASAI we are proud of successfully providing a place for discussion and direct contact of AI experts and the general audience.

Luis Berdún

ISISTAN, Universidad Nacional del Centro de la Provincia de Buenos Aires

Facundo Bromberg

Departamento de Sistemas de la Información,
UTN, Facultad Regional Mendoza

Agency and Control: Philosophical and Psychological Aspects, 7 September

The symposium 'Agency and Control: Philosophical and Psychological Aspects' was organized by the section Philosophy of Behavioural Science of the Behavioural Science Institute at the Radboud University Nijmegen, the Netherlands. It was held on the occasion of the public defence of Dorothee Horstkötter's thesis, 'Self-Control Revisited, Varieties of Normative Agency'. Its main aim was to bring together philosophers and psychologists working on the topic of self-control (or self-regulation).

The first presentation was given by Jeanette Kennett (Macquarie University, Sydney). She pointed out that it is of crucial importance to realize that successful exercises of self-control require evaluations and that they are essentially normative. Evaluations manifest themselves in agents' plans, goals and commitments. Reverting to cases of amnesia and frontal lobe damage, Kennett argued that such evaluations can only be car-

ried out by agents who possess the capacity of *mental time travel*. Mental time travel is the capacity to evaluate one's past and to plan for one's future. It provides us with diachronic values. It are these diachronic values which constitute us as normative agents for whom self-control is possible.

The second presentation was given by Daniel Cervone (University of Illinois at Chicago). He presented a conceptual approach to 'personality' that is able to point out consistencies in personality that previously dominant theories on the same topic have overlooked. This approach is called *The Knowledge-and-Appraisal-Personality-Architecture* (KAPA). Its focus on appraisal as an essential ingredient of a personality and a person, allows for interesting and hitherto overlooked connections to the concept of autonomous or self-controlled agency as being inherently evaluative and normative (cf. the talk by Kennett and the thesis by Horstkötter).

The third speaker was Edmund Henden (University of Oslo). Referring to both recent philosophical and psychological literature, he discussed the issue of psychological compulsion. He presented a recent trend within the philosophy of action that argues that compulsions do not remove an agent's ability to resist certain-unreasonable, undesirable, or otherwise unfortunate-desires. Henden distinguished two such views and critically assessed the arguments for them. He then proposed an alternative account of compulsion which he based on the self-control strength model developed by the psychologists M. Muraven and R. F. Baumeister.

The final speaker was Jan Bransen (Radboud University Nijmegen). His talk was on 'Self-control without conscious control'. He argued that a person counts as self-controlled in case she is 'present as an agent'. What does that mean? First, it does not mean that the person who controls has a causal relationship with the event that she controls. Instead, the relevant questions when determining a person's self-controlled involvement in any action circle around the agent being a respondent. Does this piece of behaviour represent *me*? Do I approve of this behaviour? Am I committed to this behaviour? Whenever the answer is 'yes', the person is in control of the behaviour at stake. Agency, and therewith self-control, is about appropriation, not about origination.

Dorothee Horstkötter
Maastricht University

Mechanisms and Causality in the Sciences, 9–11 September

The conference held in Canterbury is the fourth event in the Causality in the Sciences series of conferences organised by the Centre for Reasoning at the University of Kent. The three-day long discussion on mechanisms and causality engaged more than forty researchers. Mechanisms have been subject of lively debates in the philosophy of science in the last years. In this perspective the conference met with widespread interest which seems to be growing larger even among young generations of scholars.

Invited speakers addressed most challenging philosophical questions regarding the ontological and epistemic status of mechanisms. Some contributors focussed on the very concept of mechanism and its controversial status: what mechanisms are, how

they behave and how we should view them. Many discussed their role in explanation: how mechanisms explain phenomena and whether they explain differently in different sciences. Some contributions examined more closely the mechanistic approach to causation and how it differs from other causal accounts. Finally, a few scholars proposed methodological analyses of mechanistic evidence for grounding causal claims. Interestingly, most of them selected medicine as a case-study.

This extensive debate benefited further from the contribution of prominent speakers such as Carl Craver, Lindley Darden, Stephen Mumford, Stathis Psillos and Stuart Glennan. Carl Craver engaged in a brilliant speech that opened officially the conference. He discussed Boyd's theory of homeostatic property clusters and asked whether the mechanistic structure of the world can offer an objective foundation to the taxonomy of natural kinds. He noticed that pragmatic considerations are unavoidably involved in the distinction between types of mechanisms and concluded declaring the regression of Boyd's account. Lindley Darden talked of mechanisms in molecular biology: what they do, what their main features are, how they are generally represented. During the conference she drew attention repeatedly to the distinction between evidence of mechanisms and mechanisms qua evidence for. Also, she remarked the need for a deeper understanding of how scientists actually proceed to detect mechanisms. Stephen Mumford proposed the view that the causal mechanisms of biology should be seen essentially as dispositional in nature. In particular, he rejected genetic determinism. Genes respond to the context and dispose towards particular traits rather than strictly determine them: they are not blueprints for development. Stathis Psillos discussed the productive approach to causation and, in particular, the power-based mechanistic account. He showed how both approaches to mechanisms therein (powerful vs non-powerful) run into some troubles. He concluded by defending the idea of mechanisms *sans* metaphysics. Finally, Stuart Glennan brought the conference to closure. He contrasted the singularist and generalist views of causation and made a case for the former. Properties of complex things are mechanically explicable: higher level properties and laws depend upon particulars.

Overall, the conference was a lively and enriching experience. Good conversations and a friendly environment, properly combined with delicious food, contributed to its success. The next appointment is at the Erasmus University of Rotterdam in 2010 where the focus will be on causality in the social and biomedical sciences.

Attilia Ruzzene
EIPE, Erasmus Universiteit Rotterdam

Metacognition, Belief Change and Conditionals, 11–12 September

Metacognition, i.e. "thinking about thinking" or introspection, is a crucial topic in various areas of philosophy. The main goal of the workshop, hosted by the Department of Philosophy of the University of Bristol, was to explore two main questions: (i) Under which respects the revision of beliefs by factual information differs from the revision of beliefs by introspective and conditional information? (ii) How introspective processes might interfere with dispositional processes of revision and inference?

The first speaker of the meeting was Richard Bradley with a paper on "Conditionals as Random Variables?" He argued that the semantic value of a conditional at a world is the expected truth of the proposition determined by the random variable at that world.

Igor Douven unfortunately could not make the workshop, so, in spite of the extremely short notice, Hannes Leitgeb gave a paper on "An Impossibility Theorem on Belief Revision Derived from . . . 's Theorem", in which he proved a new impossibility theorem on belief revision with conditionals, equivalent to Arrow's famous impossibility theorem on social choice.

The third talk "More or Less Remote Possibilities" was delivered by André Fuhrmann and aimed to explore the view that epistemic agents are functions from flows of evidence to paths of inquiry. This allowed for a new analysis of several kinds of modalities, such as serious possibility, corrigibility and stability.

The last speaker of the first day was Simone Duca, who presented a joint paper with Hannes Leitgeb titled "How Serious Is the Paradox of Serious Possibility?" The so-called paradox of serious possibility was defused by introducing a set of amended postulates for introspective belief change. A probabilistic version of the paradox was also introduced and blocked.

Paul Egré opened the second day with a paper on "If-clauses and Probability Operators". Firstly, he argued that Lewis's triviality results for Adams' thesis are akin to well-known undefinability results for proportionality quantifiers like "most". Secondly, he suggested the possibility that triviality might not be a threat to Adams' thesis in practice, if indeed our probabilistic beliefs are syntactically constrained in the way suggested by the Lewis-Kratzer view.

In his paper "Ramsey Test for Contionals and Iterated Theory Change", Hans Rott argued against the view that the Preservation condition of AGM should hold in languages containing nested conditionals. He then suggested a constructive approach for models of iterated theory change, as opposed to an overly 'postulational' approach to the semantics of nested conditionals.

The last speaker of the day (and of the workshop) was professor Sten Lindström. In his paper "Church-Fitch's Knowability Paradox Revisited", he discussed various ways of avoiding the famous paradox. In particular, he concentrated on the distinction between actual and potential knowledge and a rejection of the standard modal-logical formalization of the principle (K). The paper ended with a philosophical analysis of the latter type of solution, both from a realist and a non-realist perspective.

Simone Duca
Philosophy, University of Bristol

The New Ontology of the Mental Causation Debate, 14–16 September

An international conference was held in Durham on the 14th-16th September, as a part of the AHRC funded project *The New Ontology of the Mental Causation Debate*. The working hypothesis of the project is that the mental causation debate has been framed

with insufficient metaphysical precision, thus giving rise to the apparent insolubility of the problem of mental causation. The purpose of the conference was to present and discuss the latest research output of scholars attempting to re-assess the problem of mental causation in light of recent advances in metaphysics. A particular focus was on new accounts of powers and causation, and of ontological categories and levels of being.

In the opening talk, John Heil judged that the prospect of reconciling mental causation and non-reductive physicalism were 'vanishingly small'. He suggested that instead of accepting the sharp-edged distinction between the mental and the physical, and then trying to bridge the gap via relations of supervenience and/or realization, or by weakening the notion of causation to involve mere counterfactual dependence, we should treat the distinction between the mental and the physical as a mere difference in conception, not a distinction in reality.

Dave Robb defended a trope identity theory of the mental and physical, while at the same time accepting that the multiple realizability argument establishes that the mental is in some sense distinct from the physical. Robb attempted to reconcile the apparent contradiction by suggesting that identity reigns on the level of tokens while there is a type distinction between the mental and physical.

Tim Crane suggested that the question of how mental causation is possible in a physical world be separated from the question of how it works. His preferred solution to the first is to deny exclusion of the mental by the physical (like Loewer), arguing that it is compatible with both dualism and physicalism. As an answer to how it works, Crane drew on some of Jonathan Lowe's ideas, to suggest that we can combine an approach to causal relata in terms of powers with an approach that takes individual substances as causes.

Peter Simons, on the other hand, challenged the view that in cases of mental or agent causation we are dealing with events caused by an enduring particular; a continuant. His reason for denying fundamental status to continuants in causal interactions, is that we otherwise lack plausible truthmakers for temporally specific existence statements of the form 'C exists at t'.

David Papineau discussed the ability of non-reductive physicalism to accommodate the autonomy of non-physical laws, while still assuming interaction between the physical and non-physical. Papineau argued that if we hold on to the autonomy of non-physical laws, the interaction between the physical and the non-physical remains unexplained, but if we acknowledge a connection between special laws and physical laws then special laws are reducible to physical laws.

Jessica Wilson argued that a powers-based subset strategy, *á la* Shoemaker, is a promising option for non-reductive physicalism. According to her, this strategy is sufficient, and plausibly necessary, for preserving the ontological and causal autonomy of the mental, in a way compatible with physicalism, while at the same time avoiding problematic causal overdetermination.

Paul Noordhof discussed whether a contrastive approach to causation provides a solution to the problem of mental causation, in particular, under the assumption that physicalism is true, and compared this approach with more overtly ontological accounts, e.g. those appealing to property-instance identity.

In the final talk, Tim O'Connor, criticised Shoemakers powers-based subset strategy

and opted for an emergentist account that, he claims, preserves both the causal powers ontology and the irreducibility and efficacy of mental properties. According to his view mental properties are unrealized, ontologically emergent features of their subjects.

Valdi Ingthorsson
Philosophy, Durham University

Combining Probability and Logic, 17–19 September

About one month ago, the fourth Workshop on Combining Probability and Logic (Progic) was held at the University of Groningen. The special focus of the workshop was "new approaches to rationality in decision making".

This theme ties in with a recently started research network, led by the authors, of which many invited speakers are part. Future meetings of this network will be held at the universities of Leuven and Lund, and at the London School of Economics; the eventual aim of the project is to write a rough guide for philosophy students travelling to rationality and decision.

The Groningen workshop brought together a lively group of philosophers, decision theorists, formal epistemologists and logicians. In total there were eight invited talks and sixteen contributed papers. The interested reader can visit the web page for a book of abstracts and for links to slides of the talks. Here we will point to some themes that run through the various presentations, illustrating how the workshop succeeded in highlighting common themes.

There are many ways in which an agent can rationally represent and process new information. But how can we deal with this plurality? First there is the option of employing an array of different update rules and representations. In this manner, Igor Douven discussed Jeffrey's rule, so-called Adams' conditioning, and the minimization of relative entropy on a standard notion of propositions. Johan van Benthem discussed various upgrade rules within dynamic epistemic logic, employing frames over possible worlds. And Richard Bradley discussed adapting the semantics of conditionals by means of the proximity of possible worlds.

One may also try to unify these approaches into a single "Update Rule to Rule Them All", and load all further structure onto the representation and semantics of the information. This perspective was taken by Luc Bovens, who attempted to bring together three infamous characters in the epistemological literature: Judy Benjamin, Sleeping Beauty and Monty Hall. Jon Williamson also took a unifying perspective, emphasising the use of objective Bayesian inference in both logic and decision theory. It seems that every approach to modelling the dynamics of belief will have to make this trade-off between the unity of the update rule and the complexity of its input.

Other key issues lay more on the side of practical rationality. Teddy Seidenfeld's talk showed the intricacies of Bayesian decision theory, showing a whole new side to the St. Petersburg paradox. And both Wlodek Rabinowicz and Jim Joyce considered the use of the probabilistic model of rationality for elucidating decisions to act. Rabinowicz critically assessed the notion of chance involved, while Joyce considered the underlying

deliberative processes, including their troublesome self-reflective aspects.

Progic proved that the encounter between decision theorists, logicians and and epistemologists has moved beyond the "blind date" stage, and that the communality of interest seems to overcome the language barriers. We are confident that this will lead to fruitful interaction, to be presented at the next Progic in 2011!

Jan-Willem Romeijn & Olivier Roy
Philosophy, University of Groningen

Evolution, Cooperation & Rationality, 18–20 September

This was the first conference of the Department of Philosophy, University of Bristol's AHRC project of the same name. Reflecting the project's interdisciplinary stance, the event brought together philosophers, biologists, economists and psychologists. The overall theme was the link between evolutionary theory and rational decision making, with an emphasis on the specific case of social behaviour and cooperation.

One main subtopic was the question of whether evolution favours rational or irrational behaviour. Gerd Gigerenzer (Max Planck Institute for Human Development) defended his adaptive heuristics program, in which the rationality of a decision procedure is relative to the environment in which it is usually deployed rather than the context independent optimisation of rational choice theory. Peter Hammerstein (Biology, Humboldt University) offered an overview of the history of the interplay between rational choice and evolutionary game theory. He then presented recent work on the biology of addiction. Alasdair Houston (Biology, Bristol) demonstrated that natural selection can produce foraging responses that yield apparently intransitive preferences in short-run experiments. Jean-Baptiste Andre, Christophe Heintz, Fabio Paglieri, Armin Schulz and Pete Trimmer gave talks on related themes.

Another closely related subtopic was the analysis of the evolutionary process itself. Samir Okasha (Philosophy, Bristol) showed that evolution itself acts as a fitness maximizing agent where absolute and relative fitness respectively correspond to nonexpected and expected utility in rational models. Stuart West (Zoology, Oxford) argued that there remains a great deal of conceptual confusion in the literature on the evolution of cooperation in humans. Researchers in the recent "Strong Reciprocit" tradition came in for criticism for promoting misconceptions. Till Grüne-Yanoff and Jack Vromen spoke on related issues.

A last subtopic concerned the modelling of social and cooperative behaviour. Ken Binmore (Economics, UCL) stressed the importance of evolutionary drift as a force for moving from a suboptimal to an optimal equilibrium and suggested that sexual recombination can act as a mechanism for such drift. Werner Güth (Max Planck Institute of Economics) presented his "indirect" evolutionary approach that incorporates both a short timescale behavioural and longer timescale evolutionary tier. John McNamara (Mathematics, Bristol) argued that modellers should focus more on looking for evolutionarily stable behavioural response rules rather than the traditional search for stable hard-wired behaviours. He also stressed that variability in a population can dramatically

alter the result of an evolutionary model. Brian Skyrms (Philosophy, University of California) provided a non-intentional definition of deception based on information theory and related it to Kant's comments on truthtelling and the categorical imperative. Marco Archetti, Christine Clavien & Chloe Fitzgerald, Larissa Conradt, Simon Huttegger & Rory Smead, Alejandro Rosas-Lopez and David Wolpert presented talks on a variety of both empirical and modelling work. Athena Aktipis, Katrin Fehl and Karolina Sylvester & Gilbert Roberts contributed posters illustrating their modelling and experimental results.

The project's next event will be a workshop organised around the visit of Herbert Gintis on November 18th. More information on the project can be found on our internet page.

Jonathan Grose & Cédric Paternotte
Department of Philosophy, University of Bristol

Cognitive Approaches to Philosophy of Science and Technology, 28–29 September

On September the 28th and 29th, the Dutch-Flemish Network for Philosophy of Science and Technology held its thirteenth workshop in Ravenstein. Six lectures were held, focusing on those features of the cognitive approach that are of interest to philosophy of science and technology, both in general terms and in relation to specific disciplines.

In the opening lecture, Lieven Decock contrasted traditional epistemology and philosophy of science with the cognitive sciences, arguing that the latter provide a deeper understanding of scientific thinking and reasoning; an understanding which may shed light on some fundamental controversies in philosophy of science concerning the conception of science and clarify diverse issues such as scientific progress and incommensurability.

The second lecture by Anthonie Meijers focused on the concept of situated cognition, in particular the role of technological artifacts. Several views on the place and nature of mind and cognition were assessed. Meijers defended the extended mind/cognition hypothesis, arguing that in ascribing cognitive or mental states, theorists should take seriously the possibility of extending the scope of these notions to include not only conscious agents, but also cognitive artifacts in their environment.

Next, based on experimental evidence concerning basic mathematical skills in infants, Helen De Cruz argued that at least some mathematical knowledge is innate. From this starting point, three explanatory stages were distinguished: (1) attempts to characterize preverbal mathematical representations in terms of number theory, (2) drawing parallels between the processes of natural number acquisition in young children and the properties of number theory, (3) demonstrating that intuitive number concepts are important for later arithmetic skills.

On the second day, Hans Radder proposed a new interpretation of observation. The starting point was that there seems to be a significant correspondence between a human observer and a scientific instrument: the human observer can himself be understood

as an active, self interpreting observational instrument, operating within a structured environment. By focusing on the notions of 'material realization' and 'conceptual interpretation', Radder developed an account of observational processes that, in keeping with a general tendency of the cognitive approach, encompasses both scientific as well as everyday observation.

In a related lecture, Erik Myin contrasted traditional cognitivist approaches to perception with interactive approaches, most notably with the sensorimotor theory of perception. He rejected the traditional cognitivist notion of internal representations, arguing that problems like ambiguity in sense data could more plausibly be accounted for in terms of the interactive approach. This choice was motivated by experimental data on a number of experiments on the spot, in which the audience was actively engaged.

In the final lecture, Jack Vromen examined the increasing interest theoretical economists take in cognition, even at a neuronal level. This results in the study of 'neuroeconomics'. Drawing on a number of developments within both economy and the cognitive sciences, Vromen signaled a cross-disciplinary interaction between economics and cognitive science, from cognitive science to economics, and vice versa.

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Raoul Gervais
Philosophy, VU University Amsterdam

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Australasian Society for Cognitive Science, 30 September – 2 October

This 3-day conference at Macquarie University in Sydney was hosted by the Macquarie Centre for Cognitive Science (MACCS). Conferences of the Australasian Society for Cognitive Science (ASCS) have been roughly every two years since 1990. This time 163 people attended: there were 5 keynote speakers (Stephen Crain, Jakob Hohwy, Jason Mattingley, Thomas Metzinger, and Barbara Tversky), 106 contributed papers (in three parallel-track sessions) and 20 posters. The conference was preceded by a workshop on movement, music, and motion capture.

Perhaps because the cognitive science community in Australasia is relatively small, it retains a thoroughly multidisciplinary atmosphere. Most contributions were from psychologists, with sizable numbers from philosophy and linguistics: but many other areas were also represented in the programme, including computational neuroscience, neuropsychiatry, clinical psychology, computer science, human-computer interaction, anthropology, education, history and philosophy of science, cognitive archaeology, cognitive ethology, English literature, and cultural history.

Two keynote speakers, Thomas Metzinger and Jakob Hohwy, discussed bodily self-consciousness through detailed examinations of autoscopic phenomena, in which aspects of the seen self and the seeing self come apart: these included out-of-body experiences, full-body illusions, and the rubber hand illusion. Metzinger used these cases to identify conditions for minimal phenomenal selfhood, while Hohwy used them to apply the idea of the brain as a sophisticated hypothesis-tester. Both these philosophers presented impressive evidence from their own collaborative experimental work.

One emergent topic in presented papers was complex, culturally-embedded motor

activity, in symposia on dance and cognition and on skill acquisition in sport. Another central theme was autobiographical memory, addressed in papers from neural, clinical, cognitive, moral, social, and cultural perspectives. There were popular symposia on using hypnosis to explore theoretical predictions and clinical phenomena from a cognitive neuropsychological perspective, and on levels of explanation in understanding relations between mind and brain. In this symposium, philosophers, psychologists, and neuroscientists debated key concepts in Max Coltheart's controversial argument that neuroimaging has not yet told us anything new about the mind. In another passionate symposium, Tim van Gelder and Gerard O'Brien argued over dynamicism and connectionism in Michael Spivey's book *The Continuity of Mind*.

Jason Mattingley's keynote reviewed 20 years of research on unilateral spatial neglect, combining recent evidence about selective attention and spatial working memory with discussion of new treatment methods. Barbara Tversky offered a compelling overview of her research into spatial cognition, covering the space of our bodies, the space around us, spatial navigation, and our use of created spaces to augment and transform our thinking. In his keynote, Stephen Crain reinterpreted the distinction between core and peripheral linguistic properties. Criticising usage-based accounts, he offered rich examples and analyses of specific core properties, such as downward entailing expressions. Crain argued that advocates of a universal grammar can acknowledge dramatic linguistic diversity.

Researchers across the cognitive sciences in Australasia are studying cognition by looking both down into the brain, and out into the natural and cultural environment. Look out for news of the next ASCS conference, in 2011.

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John Sutton
MACCS, Macquarie University

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Calls for Papers

Essay prize: on 'ought', deadline 1 November.
Non-Classical Mathematics: Special issue of *Logic Journal of the IGPL*, deadline 30 November.
Popper prize: to the best essay in any area of the critical rationalist philosophy of Karl Popper, deadline 31 December.
Empirical Evaluations in Reinforcement Learning: Special issue of *Machine Learning*, deadline 26 February 2010.
The Methods of Applied Philosophy: special issue of the *Journal of Applied Philosophy*, deadline 1 April 2010.
Experimental Philosophy: Forthcoming issue of *The Monist*, deadline April 2011.

§4
WHAT'S HOT IN ...

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

... Logic and Rational Interaction

After the summer rush, filled with conferences and summer school reports, the last month on Logic and Rational Interaction has been rather quiet in comparison. We had a report on the *Progic 2009 Conference*, held in Groningen in the second half of September. We also posted Catarina Dutilh Novaes's report on the *Practice-based philosophy of logic and mathematics* workshop, and Jonathan Grose and Cédric Paternotte's report on the *Evolution, Cooperation & Rationality* conference, both of which have been published in parallel in *The Reasoner*.

Members of the Institute for Logic, Language and Computation in Amsterdam have been very active this summer. The *Computational Social Choice* group announced an impressive amount of prepublication entries, Johan van Benthem posted a new paper on S. Kripke's seminal contribution to modal logic, and there's been a new masters thesis, at the intersection of epistemology, logic and philosophy of language.

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

Olivier Roy
Philosophy, Groningen

§5
INTRODUCING ...

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

Computability and Logic by G.S. Boolos and R.C. Jeffrey

A textbook in classical computability theory and logic written by George Stephen Boolos (1940–1996) and Richard Jeffrey (1926–2002) and first published by Cambridge University Press (CUP) in 1974. This esteemed book got its reputation because it is highly readable and pedagogical. The book assumes a minimal mathematical background—some familiarity with propositional calculus. In fact, even readers with no prior knowledge of propositional calculus can easily read the book as there is a chapter that presents the relevant ideas. The book has three parts—the first part is about computability theory, the second part introduces basic as well as advanced topics in symbolic logic, and in the third part there is a discussion of more specialized topics. In particular, in the first part of the book there is a thorough discussion of Turing machines and Turing computability, abacus computability (i.e., an alternative but equivalent formulation of Turing computability), recursion theory and a presentation of the Church-Turing thesis, which is correctly characterized as a hypothesis. Interestingly enough in the second chapter, the authors introduce the Zeus character to explain enumerable sets and, thus, implicitly introduce the notion of a *supertask* (i.e., an infinite process that completes in finite time). The second part starts with a refresher of first order logic and goes on to discuss models, proof theory, arithmetization (i.e., Gödel numbers), and Gödel's incompleteness theorems. The third part of the book presents some special topics in proof theory and logic. Last, but certainly not least, the exercises at the end of each chapter have been designed to help students easily grasp topics that are introduced in later chapters.

Apostolos Syropoulos

Logic vs linguistics

Linguistics often incorporates logic to explain natural language understanding, but logic is independent, and sometimes at odds with natural language data. Consider S =“no one loves no one”. This can mean *everyone is a lover*—formally, $\neg(\exists x)\neg(\exists y)Lxy$—but linguists observing speakers don't interpret S as *everyone is loved* (= no one no one loves)—formally, $\neg(\exists y)\neg(\exists x)Lxy$—which is an equally possible logical interpretation. Further, speakers detect scope differences between “everyone loves someone”, $(Ay)(\exists x)Lyx$, and “someone (say, Ervin), everyone loves”, $(\exists x)(Ay)Lyx$, but detect no scope dominance in S's “easiest” reading, no one is a lover. Logic, however, assigns a dominant quantifier in its representation. (Branching quantifiers address this issue.)

Alan Brown

§6
EVENTS

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

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

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

LOGIC, EPISTEMOLOGY, AND PHILOSOPHY OF SCIENCE: Universidad de los Andes, Bogotá, Colombia, 4–6 November.

AAAI FALL SYMPOSIUM SERIES: Arlington, VA, 5–7 November.

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

CONCEPTS OF KNOWLEDGE: Carleton University, Ottawa, Canada, 6–7 November.

REVERSE MATHEMATICS: FOUNDATIONS AND APPLICATIONS: University of Chicago, 6–8 November.

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

CoProD'09: Workshop on Constraint Programming and Decision Making, UTEP, El Paso, Texas, 9–10 November.

THE EPISTEMOLOGY OF PERCEPTION: Geneva, 12–13 November.

EPISTEMOLOGY, CONTEXT, AND FORMALISM: Université Nancy 2, France, 12–14 November.

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

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

ICITE: International Conference on Information Theory and Engineering, Kota Kinabalu, Malaysia, 13–15 November.

FMCAD: Formal Methods in Computer Aided Design, Austin, Texas, USA, 15–18 November.

PHML: Philosophy, Mathematics, Linguistics: Aspects of Interaction, St. Petersburg, 17–22 November.

VI CONFERENCE: Spanish Society for Logic, Methodology and Philosophy of Science, Valencia, Spain, 18–21 November.

CHIPS: Cave Hill Philosophy Symposium, Conversations V: Theories of Knowledge, University of the West Indies, Cave Hill, Barbados, 19–20 November.

LENLS: Logic and Engineering of Natural Language Semantics, Campus Innovation Center Tokyo, Minato-ku, Tokyo, 19–20 November.

COMPLEX DATA & HIGH DIMENSIONAL INFERENCE: Groningen, Netherlands, 23–25 November.

EXTENDED MIND: ZiF, University of Bielefeld, 23–25 November.

KNOWLEDGE, VALUE, EVOLUTION: An international conference on cross-pollination between life sciences and philosophy, Prague, 23–25 Novermber.

NDNS+: Statistics and the Life Sciences: High-dimensional inference and complex data, Groningen, 23–25 November.

Spatial and Network Analysis in Qualitative Research: European University Cyprus, Nicosia, 25–27 November.

Cognitive Systems and the Extended Mind: Institute of Cognitive Science, University of Osnabrueck, 26 November.

Self-knowledge and Agency: IV Nomos Meeting, Madrid, 26–27 November.

ISKE: The 4th International Conference on Intelligent Systems & Knowledge Engineering, Hasselt, Belgium, 27–28 November.

December

MS: International Conference on Modelling and Simulation in Trivandrum, Kerala, India, 1–3 December.

Context and Levels of Locutionary Content: IFL, Universidade Nova de Lisboa, Lisbon, 3–4 December.

Human Nature, Artificial Nature: Genoa, Italy, 3–4 December.

MOVE: Workshop on Judgement Aggregation, Urrutia Elejalde Foundation, Barcelona, 4–16 December.

Mathematical and Scientific Philosophy: Indiana Philosophical Association Fall Meeting, IU Bloomington, 5–6 Ddecember.

MindGrad: Graduate Conference in the Philosophy of Mind, University of Warwick, 5–6 December.

EMAC: 9th Engineering Mathematics and Applications Conference, University of Adelaide, 6–9 December.

ICDM: The 9th IEEE International Conference on Data Mining, Miami, 6–9 December.

NIPS: 23rd Annual Conference on Neural Information Processing Systems, Vancouver, B.C., Canada, 7–12 December.

Interpretation and Sense-Making: University of Rouen, France, 9–11 December.

NaBIC: World Congress on Nature and Biologically Inspired Computing, Coimbatore, India, 9–11 December.

New Trends in the Study of Implicatures: Formal Epistemology Project, Institute of Philosophy, University of Leuven, 10–11 December.

Historical Epistemology: Leuven, Belgium, 10–12 December.

PSBio: Philosophical Foundations for Systems Biology, University of Oslo, 10–12 December.

Emergence and Reduction in the Sciences: 2nd Pittsburgh-Paris Workshop, Center for Philosophy of Science, University of Pittsburgh, 11–12 December.

InTech: 10th International Conference on Intelligent Technologies, Guilin, China, 12–15 December.

Cooperative Game Theory and Economics: Tinbergen Institute and VU University, Amsterdam, The Netherlands, 14–16 December.

Subjective Bayes: CRiSM, University of Warwick, 14–16 December.

FIT: International Conference on Frontiers of Information Technology, Abbottabad, Pakistan, 16–18 December.

SEVENTEENTH AMSTERDAM COLLOQUIUM: University of Amsterdam, 16–18 December.

EUMAS: 7th European Workshop on Multi-Agent Systems, Ayia Napa, Cyprus, 17–18 December.

MBR: Abduction, Logic, and Computational Discovery, Campinas, Brazil, 17–19 December.

ICCS: 10th Islamic Countries Conference on Statistical Sciences, New Cairo, Egypt, 20–23 December.

JANUARY 2010

ISAIM: 11th International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, Florida, 6–8 January.

USE OF STATISTICAL SCIENCE IN DECISION MAKING: Applied Statistics Association of Sri Lanka, 8–10 January.

MIAMI GRADUATE EPISTEMOLOGY CONFERENCE: University of Miami, 14–16 January.

GRADUATE CONFERENCE ON THE PHILOSOPHY OF LOGIC AND MATHEMATICS: University of Cambridge, 16–17 January.

SODA: ACM-SIAM Symposium on Discrete Algorithms, Hyatt Regency Austin, Austin, Texas, 17–19 January.

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

EPISTEMOLOGY AND PHILOSOPHY OF MIND AT THE CROSSROADS: Conference of the Dutch-Flemish Association for Analytic Philosophy, Catholic University of Leuven, 20–22 January.

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

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

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

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

FEBRUARY

STATISTICAL MODELLING AND INFERENCE: Conference to celebrate Murray Aitkin's 70th birthday, Brisbane, Queensland, Australia, 1–4 February.

UTTERANCE INTERPRETATION AND COGNITIVE MODELS: Brussels, 5–7 February.

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

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

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

MIND IN NATURE: Humboldt-University of Berlin, 15–17 February.

LOGICAL APPROACHES TO BARRIERS IN COMPUTING AND COMPLEXITY: Alfried Krupp Wissenschaftskolleg, Greifswald, Germany, 17–20 February.

PHD'S IN LOGIC: Tilburg University, The Netherlands, 18–19 February.

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

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

ONTOLOGY OF ORDINARY OBJECTS: 2nd Annual Auburn Philosophy Conference, Auburn, Alabama, 26–27 February.

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

March

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

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

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

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

PHILOSOPHICAL IMPLICATIONS OF SECOND-ORDER MODAL LOGIC: International Graduate Workshop at the Centre for Logic and Language, Institute of Philosophy, University of London, 11–13 March.

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.

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

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

SBP10: International Conference on Social Computing, Behavioral Modeling, & Prediction, Bethesda, MD, 29 March - 1 April.

AUTOMATED DEVELOPMENT, EVOLUTION AND INTERPRETATION OF ONTOLOGIES: Workshop on Matching and Meaning, Leicester, UK, 31 March - 1 April.

April

THEORY ON BELIEF FUNCTIONS: Brest, France, 1–2 April.

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

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

NEWTON AND EMPIRICISM: Center for Philosophy of Science, University of Pittsburgh, 10–11 April.

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

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

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

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

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

NON-CLASSICAL MATHEMATICS: a special session at World Congress on Universal Logic 2010, Lisbon, Portugal, 22–25 April.

FORMAL SEMANTICS AND PRAGMATICS: 6th International Symposium of Cognition, Logic and Communication, University of Latvia, Riga, 23–25 April.

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

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

SDM10: SIAM Conference on Data Mining, Columbus, Ohio, 29 April - 1 May.

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

MAY

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

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

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

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

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

POBAM: Philosophy of Biology @ Madison Workshop, University of Wisconsin-Madison, 21–23 May.

PM@100: LOGIC FROM 1910 TO 1927: Bertrand Russell Research Centre, McMaster University, Hamilton, Ontario, Canada, 21–24 May.

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.

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

§7
COURSES AND PROGRAMMES

Courses

AUTUMN SCHOOL ON MODAL LOGIC: IT University of Copenhagen, Denmark, 10–11 November.

CLUSTER RANDOMISED TRIALS: University of Auckland, New Zealand, 25–26 November.

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

MODERN BAYESIAN METHODS: Queensland University of Technology, Brisbane, 1 February.

ADVANCED SMALL AREA ESTIMATION: Southampton Statistical Sciences Research Institute, 15–16 February.

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

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

Programmes

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

MASTER PROGRAMME: Philosophy of Science, Technology and Society, Enschede, the Netherlands.

MA IN METAPHYSICS, LANGUAGE, AND MIND: Department of Philosophy, University of Liverpool.

MA IN PHILOSOPHY: by research, Tilburg University.

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 and Law.

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

MSc in Cognitive Science: University of Osnabrück, Germany.

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

Master of Science: Logic, Amsterdam.

§8
Jobs and Studentships

Jobs

Assistant/Associate Professor: AOS and AOC: some combination of Analytic Metaphysics, Epistemology, Philosophy of Mind, Philosophy of Science, Rhodes College, Memphis, Tennessee, until filled, review begins 3 November.

Post-doc position: theoretical developments of probabilistic graphical models with application to computer vision, Rensselaer Polytechnic Institute (RPI) in Troy, NY, until filled.

Faculty position: in cognition, Department of Psychology, Brooklyn College, New York, until filled.

Post-doc position: in the research group "Theoretical Computer Science and Logic", Institute for Computer Science and Applied Mathematics, Bern University, available from 1 October.

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

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

Research Fellowship: in Diagrammatic Reasoning and Formal Languages, School of Computing, Mathematical and Information Sciences, University of Brighton, deadline 10 November.

Assistant Professor: in Philosophy of Science, The University of the Sciences in Philadelphia, deadline 15 November.

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

Assistant Professor: Philosophy of Language or Philosophy of Mind, University of Western Ontario, Canada, deadline 16 November.

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

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

ASSISTANT PROFESSOR: Philosophy of science, East Tennessee State University, deadline 20 November.

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

ASSISTANT OR ASSOCIATE PROFESSOR: AOS: formal epistemology or related areas of philosophical logic, decision theory or game theory, University of Maryland, College Park, deadline 23 November.

ASSISTANT OR ASSOCIATE PROFESSOR: AOS: Epistemology, Philosophy of Science or Philosophy of Language, AOC: Logic, University of Kentucky, Lexington, deadline 23 November.

FACULTY POSITION: in cognitive science, The Central European University (CEU) in Budapest, Hungary, deadline 30 November.

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

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

ASSISTANT PROFESSOR: AOS: Philosophy of Science, Special Sciences, University of Cincinnati, Ohio, deadline 1 December.

LECTURESHIP: Philosophy Of Mind And Cognition, School Of Philosophy, Psychology And Language Sciences, University of Edinburgh, deadline 4 December.

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

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

POSITIONS AVAILABLE: in the field of speech and natural language processing, COE, Johns Hopkins University, Baltimore, Maryland, deadline 4 January.

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

JUNIOR FELLOWHSIP: in the Neural Computation and Adaptive Perception (NCAP) program, University of British Columbia, deadline 15 January.

Studentships

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

WOMEN'S TRAVEL AWARDS: for doctoral studies at the Berlin School of Mind and Brain, Humboldt-Universitaet zu Berlin, deadline 1 November.

PHD SCHOLARSHIP: in Philosophy of Language and Mind, University of Turin, Italy, deadline 10 November.

PHD FELLOWSHIP: the Department of philosophy and moral sciences at Ghent University, deadline 30 December.

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