THE REASONER

CONTENTS

EDITORIAL

My interview for this issue is with Professor Guo Guichun and Dr Liu Jie, both of the Research Centre for Philosophy of Science and Technology (RCPST) at Shanxi University in China. I met with them at the Research Centre's International Conference on Scientific Explanation and Methodology of Science last Autumn. The conference itself—with 17 speakers from international Universities and 15 from within China—is a sign of how Philosophy of Science is thriving in China, and I was keen to discuss the development, in China, of philosophical research into mathematical and scientific reasoning.

I first met Liu Jie in Cambridge in 2005. During that time, I was a research fellow at St John's College, and Jie was a visiting scholar, working on her PhD in the Philosophy of Mathematics, at Cambridge's Needham Research Institute, which operates an exchange arrangement with the RCPST at Shanxi University. We both attended the Faculty of Philosophy's Logic Seminar, and I got to know Jie through that. I was delighted when, at the end of her visit, Jie invited me to visit her Research Centre to give a course of lectures on the Philosophy of Mathematics, which I gave in 2006. During this visit I was honoured to meet with Professor Guo Guichun, President of Shanxi University and Head of the RCPST. It was Professor Guo who initially set up the Research Centre in its current form, and who has been instrumental (via his own work on contextualism, and through the work of the research centre) in developing the Philosophy of Science as a discipline within China.

Since her visiting year in Cambridge, Liu Jie has completed her PhD in the philosophy of mathematics and has spent more time overseas, as a visiting researcher at Princeton University. Liu Jie's work in the philosophy of mathematics develops Professor Guo's own contextualist ideas in the philosophy of science in order to think about mathematical reasoning. In particular, as she explains below, she is interested in the question of whether appreciation of the contextualized nature of mathematical and scientific truth can provide a solution to Benacerraf's famous dilemma.

In returning to Shanxi University for my second formal visit, I was interested to find out more about Professor Guo's own intellectual history, and his involvement in the development of the Research Centre for Philosophy of Science and Technology.

MARY LENG
Philosophy, York

Interview with Guo Guichun and Liu Jie

Mary Leng: Could you start by telling me a bit about the history of Shanxi University and in particular the Research Centre for Philosophy of Science and Technology?

Guo Guichun: Shanxi University is one of the three earliest modern national Universities in China. The first was established in 1898—that's Beijing University. 1900 was Tianjin University. And 1902 was my University—Shanxi University. We just passed our 110 year anniversary.

The Research Centre for Philosophy of Science and Technology at Shanxi University was founded in 1978. In 2000, it was approved as one of the Key Research Bases of Humanities and Social Sciences by the Ministry of Education. In 2002, the subject of Philosophy of Science and Technology was recognized as one of the Key National Subjects by the State Council. At present, the centre has 25 research fellows, and its own library of Philosophy of Science and Technology, containing 30,000 books in Chinese, 10,000 books in foreign languages, and more than 100 kinds of academic periodicals. The centre is host to its own periodical, *Studies in Philosophy of Science and Technology*, founded in 1984, which is one of the three major periodicals in this research area in China. Since 2000, the centre has undertaken nearly 100 research programmes, with a total research fund of 30 million RMB. Over 50 books and 500 papers have been published, and it has become one of the most important and influential research centres for philosophy of science and technology in China.

Guo Guichun

ML: How about your own career as a philosopher. How was it that you first became interested in the Philosophy of Science?

GG: I was an undergraduate student from 1975 to 1978. Those days were at the end of the Chinese cultural revolution. I studied Philosophy, but in those days, there was no Philosophy of Science. We just studied the Dialectics of Nature, in Marxism. So we had no concept of 'Philosophy of Science', but I was very interested in the Dialectics of Nature—that was one of my favourite classes.

After that, from 1978 to 1981, I was a graduate student in Shanxi University. You know, in those days, the Chinese Cultural Revolution was over, and the Chinese policy was of an open door for the outside world, so there started to be western books, scholars, ideas, coming to us. So I got a lot of information from that time. Especially Kuhn, Lakatos, Feyerabend, and others. I got a lot of books and papers and read them, and began to write papers and publish. In those days I, with two of my friends, translated the book *Origins of Modern Sciences*, which we published in 1985. So I was very eager to study the philosophy of science abroad. In 1981, I graduated and worked as a lecturer in Shanxi University. I taught and introduced Western Philosophy of Science to students. But the classes were still called the Dialectics of Nature. I just wanted to get some new

knowledge about it. Fortunately I got support from the state fund, so I went to Cambridge, and studied there from 1986 to 1988, and later from 1992 to 1993—more than three years in total. When I first came there, Michael Hoskin was the Chair of the Department. He invited me there and he was my supervisor. It was in 1987 that Michael Redhead became the Chair of the Department, and I had quite a lot of contact with him. And Mary Hesse and others were there, and I had quite open contact with them. I got a lot of information from them—I would make appointments with them and ask them a lot of questions, so I got my knowledge from them.

So from those days, I was very eager to do philosophy of science with my life. I was very happy about it. When I came back the second time, I was supported by the British Council, who gave quite a lot of money. When I came back to China from Britain in 1993, the Chinese State Council began to change the list of disciplines. So from the mid-1990s, the Dialectics of Nature was gone, and the Philosophy of Science was the formal name in the list of disciplines in China. So from the middle of the 1990s we had the discipline of the Philosophy of Science.

ML: So you were allowed to teach what it was that you were teaching anyway!

GG: Yes, we could formally teach Philosophy of Science. And in 1998, we got the right to offer PhD degrees to students, so from 1999 we got our first group of students for the PhD programme in our centre. Liu Jie was about 2001. From that time, my centre was improving. And combined with the development of my centre, in the whole of China the Philosophy of Science was getting better because we had a formal name in the list of disciplines. That was very important.

ML: In your own research you advocate a contextualist approach to scientific reasoning. Could you explain a bit about your contextualism?

GG: Rather than present the basics of the position, I just want to make two points to explain why I think a contextualist approach is important in the philosophy of science.

The first one is about the key motivation behind contextualisation. We just want to construct a platform or stage for the philosophy of science. We can see that a lot of philosophers of science, they talk amongst themselves. You see they have different values, they're on different stages. For example in the debate between realism and anti-realism, they debate each other, but they are not on the same stage, they are on different stages. So the debate is meaningless. They talk past each other. They can't combine together. I think there that this tendency in the philosophy of science could be progressed by combining realism and antirealism. You see, in whichever side of the realism and antirealism debate, they both have some things that are very important for us to accept. So we must combine them together.

ML: Let me understand: there are truths in each position, but they need to find some common ground, a common context in which we can appreciate all those truths?

GG: That's right, so we must create the same platform, the same stage, with both of them standing on it and talking to each other, communicating with each other.

ML: What are the prospects of achieving this, do you think?

GG: It's a very big problem.

ML: Especially given that people like to defend their own corners!

GG: Yes. If you read a course of history of the philosophy of science in the past 100 years, you can see from logi-

cal positivism, historicism, and after historicism, they have no same stage. Especially in the past half century, you can see this kind of phenomenon. It's not better. It's a big problem in the methodology of philosophy of science, so we should make a platform for it. I think that the idea of contextualism, or contextualisation, will be where we do it, so this is my first purpose. I think it is very important.

You can see from today's discussion that a lot of people use the concept of context, but they understand it from different angles. Everyone uses it, but just at the operational level. I think we should see context at the level of the structure of the philosophy of science. That's very important. We must raise the level, raise it to the level of methodology. At the level of methodology, it's very important for us to see context. Some people just use it. They don't think it's a very important part of the methodology. This is the problem. Everybody knows about context, but they don't use it as a very important part of the methodology.

Secondly, I think that we must give an explanation of the philosophy of science as systematic integration. It's the whole structure of the philosophy of science. We use the methodology to construct it, and the contextualist idea, or contextual analysis, provides this method for us to construct it. We discussed this question with Liu Jie and some other members in our group. Now we are just trying to get a model of contextualisation. But finally we will make a logical structure and calculate it formally, and that will be very useful to get a new methodology.

ML: What do you think is distinctive about Chinese approaches to philosophy of science as compared with western philosophy of science?

GG: If we go back to the history of China, we see that in the history of China, we lack a systematic formulation of knowledge. For example, we have been very technologically advanced and civilized, but we had no real science, like for example, modern sciences. There is nothing like Newton's theories. So traditionally speaking, Chinese people have had a very strong rationality of humanities, but we lack the rationality of science. It's a very big problem. Even though we study philosophy of science in China—and a lot of people study it—the philosophy of science is penetrated a lot by the rationality of humanities. In some cases this is very misleading. It's a great difference between Chinese and western philosophy of science. Chinese people get western philosophy of science from two branches. One is from British-American traditions, and one is from the European—what you call the continental—tradition. These are very different. And a lot of Chinese people like to use the European tradition—the rationality of humanities—to analyse the philosophy of science. I don't like it! It's a way for people to study it, but I don't like it. I like to keep the British-American approach.

I don't mean that the European tradition is not important. No, it's very important. But we can't miss it, because in China traditionally we have a strong rationality of humanities. What we lack is the rationality of sciences. We must educate young people and scholars to have a very strong rationality of science, not the humanities. So we do the philosophy of science, or we do the contextualisation, with the aim to enhance or raise the philosophy of science in the British-American tradition, to penetrate the Chinese rationality of humanities.

ML: Liu Jie, in your own work you have focussed on the philosophy of mathematics, and have developed contextualist insights into this area. Could you say a few words about why you think contextualism is well suited to thinking about mathematical reasoning?

Liu Jie: Along with the influence of the philosophical debate between realism and anti-realism, recent research on the philosophy of mathematics has also concentrated on the interpretation of these two positions. Each has its own interpretation about the nature of mathematics. As is well known, mathematical realists or Platonists believe that mathematical entities such as numbers, sets, and functions, exist independently of the human mind. Without a doubt, such a position can strengthen our belief in the pursuit of mathematical truths and its direct application in scientific research. However, there are some serious challenges that realists have to face, as clarified in Paul Benacerraf's two distinguished articles. Especially, in 'Mathematical Truth', Benacerraf formulates a serious epistemological challenge to Platonism, which is an almost devastating blow to realism. This challenge makes anti-realism increasingly attractive in contemporary philosophy of mathematics. The formalist approach is one of the most influential. However, neo-formalists tie truth-conditions to proof in some way, and this precludes an understanding of how and why the truth-conditions have any bearing on truth. The cost of giving up realism in this way is a lack of sufficient explanation as to how mathematics can be broadly applied to science.

Liu Jie

Benacerraf stresses the importance of providing a uniform truth theory for mathematics and science, which should not only provide a reasonable explanation for mathematics, but also should coordinate with our understanding of truth elsewhere. So my research is mainly on how to provide an overall view of truth for both mathematics and science, which relies on the common progress of mathematics and science. In my opinion, contextualism provides one view of this kind.

According to the features of contexts, we can see contextualism is able to resolve Benacerraf's problem by providing a uniform semantics and a uniform epistemology for science and mathematics. In particular, in relation to the epistemological problem, according to contextualism objects of our theories (mathematical objects or scientific objects) are recontextualized objects within the use of human language or human knowledge. Anything 'super-contextual' or 'pre-contextual' is meaningless in this epistemology. What contextualism focuses on exclusively is knowledge we actually have in a given context. Not only knowledge is relevant to context, but also the determination standard of knowledge is relevant to context, and this will change with the change of communicative purpose. In this sense, the truth of theory is not determined by an external standard of reference, nor by a correspondence between proposition and fact, but rather by the constantly expanding completeness of the theoretical system. And it is this that provides the uniform epistemology for mathematics and science. Benacerraf wanted mathematical truth to be like scientific truth in the sense of being determined by an external standard of ref-

erence. What contextualism claims is that truth in science is not of this sort, so we can link mathematical and scientific truth without introducing a problematic realm of mathematical objects as truth makers.

To sum up, contextualism posits that all knowledge is knowledge which is conveyed within, and evaluated against, a context. According to it, the appropriateness of language is considered as the standard of determining whether propositions have meanings. Mathematical theory is understood in the same way as scientific theory, with syntax, semantics and pragmatics constantly evolving; both mathematical truth and scientific truth can be viewed only in dynamic context.

ML: Thank you, Prof. Guo Guichun and Dr. Liu Jie.

Reasoning and Normative Unity

Human beings have a diverse range of concepts to make use of when reasoning. We talk about what we *ought* to do, what we have *reason* to believe, what's *right* or *wrong*, what's *good* or *bad*, what's *obligatory*, *permitted* or *forbidden*, and so on. These are known as 'normative' concepts, and they are used to articulate rational judgements about things like beliefs, feelings and actions.

An increasingly popular view is that our normative concepts are unified. According to this line of thought, there is a single fundamental normative concept in terms of which our other normative concepts can be understood. For instance, many think that the concept of a reason is fundamental and unifying. On such accounts, what you ought to do is simply what there is most reason to do, and if something is good this just means that there are reasons to pursue or promote that thing, or to respond to it in some other positive way. The idea is that any given normative concept can be understood in terms of the concept of a reason. Treating reasons as fundamental is just one option.

In this article, I will not pretend to show that a unified account of our normative concepts can definitely be had, nor will I attempt to defend any particular version of normative unity. All I want to do here is to offer a brief suggestion for why we should make normative unity our aim. Aside from the fact that such an account would be parsimonious, a unified account of our normative concepts would avoid a problem that a disunified account would face regarding our understanding of rational judgement.

On a disunified account, the deliberating agent has to operate with more than one fundamental concept. Suppose that we have an account which treats both reasons and goodness as fundamental. On this dualistic account we cannot reduce one to the other, and we cannot reduce both to something more basic. There are two fundamental normative concepts that an agent can deliberate from in making rational judgements.

This might seem unproblematic: agents generally know how to weigh reasons and they generally know how to evaluate things as more or less good. But how does the agent decide what to do if her judgement about what the reasons favour comes into conflict with her judgement about what would be good, and there is no clear winner in this conflict? That is surely a possibility. After all, if there is a principled ground for thinking that what the reasons favour will always coincide with what would be good, that principled ground would be something that unified reasons and goodness. Without such a principled ground, it would be *ad hoc* to suppose that there will never by a conflict without a winner. In such cases of conflict, what is the agent to do?

Note that the issue is not merely that the agent faces a dilemma about what to do. This would be a practical conflict—a conflict between possible practical judgements. For instance, I face a practical conflict when I have to decide whether I should take this lowly paid job that allows me to stay here to care for my elderly mother, or whether I should instead take this highly paid job that requires me to relocate but allows me to pay for high quality care for her. Practical conflicts arise on both unified and disunified accounts of our normative concepts, but in a disunified account the agent might additionally face what we can call a 'deliberative conflict.'

A deliberative conflict is a conflict between competing ways of making reasoned judgements. There are two forms of reasoning, or two grounds of rational judgement, that are available to the agent. On the dualistic account we are discussing, these correspond to the two fundamental concepts—reasons and goodness—as facts about these are the things from which agents will deliberate. If what the reasons favour conflicts with what is good, the agent is stuck between two possible ways of reasoning. And she has no way to decide between them; neither concept has priority and there is no relevant concept that is more fundamental than both. This leaves the agent in a sort of deliberative paralysis, as the disunified concepts from which she is supposed to reason toward rational judgement are in conflict.

This makes it attractive to aim for a unified account. Such an account would not face the problem of deliberative conflict, because it takes there to be a single foundational element that grounds reasoning and rational judgement. There are a number of potential ways to attempt to unify our normative concepts, connecting to the various core concepts that might plausibly be seen as fundamental. I do not claim to know exactly which concept gives us the best chance of successfully unifying normativity, and I cannot say that we will definitely succeed in that endeavour. But I do believe that normative unity should be our aim.

Stephen Ingram
Philosophy, University of Sheffield

The Liar Paradox

Let 'L' name the self-referential claim expressed by 'L is not true'. Suppose that L is true. Then L is as 'L is not true' says it is: L is not true. From that contradiction we naturally conclude that our supposition was false, that it is not the case that L is true. But that means that the claim expressed by 'L is not true' is true. That is paradoxical, but from that contradiction we should conclude that one of our presuppositions was false. And we were presuming, if only implicitly, that either L is true or else it is not the case that L is true, exclusively and exhaustively.

Claims are true insofar as they describe how things are, as opposed to how they are not. But, consider a colour that is about as blue as not. There must be such colours, for each

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perceiver at a time, because otherwise some colour that was blue would be practically the same as some colour that was not blue. Are such colours blue? They are to some extent blue, but 'yes' is not a very good answer by itself because 'no' would be just as good. A better answer would be 'yes and no', or 'to some extent'. To say of such colours that they are blue is to say something that is, not so much true, and not so much not true, but about as true as not.

Since claims are true insofar as they describe how things are, as opposed to how they are not, it follows from our definition of L that insofar as L is true, L is not true, and that insofar as L is not true, it is not the case that L is not true. It follows that L is as true as not. To some extent L is true, but to the same extent it is false. The element of truth is that there is an element of untruth, because it is false that there is no element of truth. And while that is a bit circular, that is appropriate because L does not say much.

The following question is similarly vacuous: Is the answer to this question 'no'? If we say 'no', we contradict ourselves, but if we say 'yes' then we are agreeing that the answer is 'no', so we seem to be saying that it should have been 'no' instead of 'yes'. A better answer is therefore 'yes and no', or 'to some extent'. This variant of the paradox is not resolved by rejecting both 'yes' and 'no', but by justifying the answer 'yes' with the observation that 'no' is just as good. It is, similarly, not so much that it is not the case that L is true, or not true, as that L is as true as not. Note that I say 'not so much' rather than 'not'. It would have been inaccurate to say that it is not false that L is true (or not true), because it is as false as not that L is true (or not true). We do not, with 'as true as not', have a third possibility in between and distinct from both 'true' and 'not true'. Rather, we have a true description of statements that are unfit for ordinary logical reasoning because they are described as well by 'true' as by 'not true'.

Is there a revenge problem for this resolution? Let 'R' name the self-referential claim made by 'R is not even as true as not'. The problem with R being as true as not, or truer, is that it seems false to say, of any claim as true as not, or truer, that it is not even as true as not. And the problem with R being more false than true is that it seems true to say, of any claim more false than true, that it is not even as true as not. Nevertheless, R could be nearly as true as not, because 'as true as not' is not a third possibility. Being nearly as true as not is not so much a matter of not even being as true as not, as it is a matter of being about as true as not. If R is nearly as true as not, then there is some truth to 'R is not even as true as not', but that element of truth is due to there being a greater element of untruth, due to R being about as true as not. And while that is far from straightforward, that is appropriate because R takes us further that L did from ordinary logic.

Since this resolution is not straightforward, you might be wondering whether claims should be taken to be true, not just when, but insofar as they describe how things are. The Liar paradox is, I think, a good reason why they should. Richard Heck (2012: 'A Liar paradox', *Thought* 1(1), 36–40) was tempted by his formal version of the paradox 'to conclude that there can be no truly satisfying, consistent resolution of the Liar paradox' (p. 39), for example. And another reason is that other semantic paradoxes can be given similar resolutions. The paradox of Haskell Curry (1942: 'The Inconsistency of Certain Formal Logics', *The Journal of Symbolic Logic* 7(3), 115–7), for example, concerns such claims as C, the self-referential claim

made by 'if C, then black is white'. Suppose that C is true. Then we have C, and that if C then black is white, so we get that black is white. By supposing that C is true, we get that black is white, and so C is true. Black is white. That is paradoxical because the steps of that argument would be logical enough were we considering ordinary claims. But, it is as true as not that a contradiction follows from a claim that is as true as not, because contradictions follow from falsehoods but not from truths.

<div align="right">MARTIN COOKE</div>

NEWS

Honorary Doctorate for John Perry

There are philosophers who develop outstanding, comprehensive philosophical theories and there are philosophers who are able to present these topics to a broad public in a comprehensible way. And there are philosophers, who can do both. For his substantial contributions to philosophy of language, metaphysics and philosophy of mind, as well as his commitment in non-academic presentation of philosophical debates, Prof. Dr. John Perry (Stanford University) was granted an Honorary Doctorate from the Ruhr University Bochum. The Faculty of Philosophy and Educational Science awarded John Perry the degree on the 30st of January 2013 in order to recognize his significant scientific work at the interface on Consciousness, Language and I-Thoughts.

John Perry currently is Distinguished Professor at the University of California, Riverside, and Henry Waldgrave Stuart Professor of Philosophy Emeritus at Stanford University. His great body of work centers around the question: What is constitutive for having and expressing a thought about oneself and how can selfconscious beliefs be part of a world that is basically physical in nature? With his papers "Frege on Demonstratives" in 1977 and "The Problem of the Essential Indexical" in 1979 he succeeded in making important contributions to philosophical discussions about self-conscious thoughts. His analysis of self-referred thoughts changed their role in philosophical semantics: They have an important motivational function, initiating actions in daily life situations. A well-known example is "the supermarket shopper". In "The Problem of the Essential Indexical", Perry remembers himself shopping in a supermarket, following a trail of sugar on the floor. It takes a while until Perry realizes that he himself is the one losing sugar, but this insight serves as a transformation from a third-person thought to a self-conscious thought. Essential indexicals like *I*, *here*, and *now* are no longer parts of language that can be replaced by others but are seen as locating beliefs and are essential to understand the speaker's belief.

Perry's endeavour to answer this question culminated in the development of a new framework of meaning. The "situation semantics", which he developed together with Jon Barwise in 1981, proved to be a fruitful paradigm for linguistics and philosophy. In his 2001 book "Reference and Reflexivity", Perry developed a plurality view of truth-conditions and thereby contributed to new theories of meaning and reference, arguing against the standard view that the semantic content of one utterance can be characterized by one single truth-condition.

To make philosophical topics more available to a wide range of people, John Perry in 2004 became host of the radio program

"philosophy talk". The program that "questions everything, ... except your intelligence" relates fundamental problems of philosophy to contemporary, day-to-day events. But Perry had the most success with a well-known, ordinary and likewise unacademic topic: the joys and sufferings of procrastination. His essay "Structured Procrastination", published online, got an overwhelming response from people all over the world recognizing their own strategies of replacing high-priority actions, and was soon extended to a book. Today, Perry's expertise on procrastination is in great demand, there are "Structured Procrastinator" T-Shirts available and he regularly reports in a blog about his personal procrastination activities.

The work of John Perry is characterized by outstanding philosophical theories as well as popular science activities. John Perry was very pleased about being honoured by a German university and resumed his main thoughts of more 30 years of philosophy in his festival lecture "Meaning and the Self".

Lara Kirfel
Institut für Philosophie, Ruhr-Universität Bochum

Syntactical Treatment of Modalities, 6 February

The workshop took place in Leuven, Belgium, and was hosted by the KU Leuven's Centre for Logic and Analytic Philosophy. The workshop's theme was the syntactical treatment of (alethic, epistemic, etc.) modalities. The standard view on modalities nowadays is that they are operators. Syntactic theories, however, treat modalities as predicates, and thus have to assume a background theory which is sufficiently strong to encode its own formulas (usually, one works with some system of arithmetic and Gödel coding). As a consequence, such theories suffer from paradoxes of self-referentiality. For example, just as the liar sentence states of itself that it is false, the knower sentence states of itself that it is unknown. Kaplan and Montague (1960: 'A paradox regained', *Notre Dame J. Formal Logic*, vol. 1, pp. 79–90) famously showed that any sufficiently strong theory that contains the knower is inconsistent.

Martin Fischer (LMU Munich) explored paradoxes in systems with *two* syntactic modalities. Intuitively, some such paradoxes seem to be essentially due to the 'interaction' of the two modalities, whereas others seem to be 'reducible' to one of the two modalities. To investigate this formally, Fischer proposed to look at translations between logical systems, in particular, between the 'full' system (which has both modalities) and its 'subsystems' (which have only one modality). However, most ways of translating between logical systems that are available in the literature assume that those systems are consistent, which is not the case here (because of the paradoxes). Fischer therefore proposed a new notion of translation, which *is* able to deal with inconsistent systems.

Jan Heylen (KU Leuven) showed how his work on epistemic and modal-epistemic arithmetic sheds new light on the knower paradox. In particular, if 'knowability' is represented using the sequence of operators $\diamond K$ (with $\diamond$ an alethic possibility modality and K an epistemic knowledge modality), the distribution axiom for knowability reads: $\diamond K(\varphi \to \psi) \to (\diamond K\varphi \to \diamond K\psi)$. Heylen convincingly argued that this principle is too strong, and explored several weakenings, which are obtained by dropping one (or several) of the alethic modalities. However, if such weakenings are used, straightforward derivations of the Knower paradox are blocked. Since these weakenings are in-dependently philosophically motivated, we thus get a non-*ad hoc* way of blocking the knower paradox.

Walter Dean (University of Warwick) attempted to locate some results by Montague (1963: 'Syntactical treatment of modality, with corollaries on reflection principles and finite axiomatizability', *Acta Philosophica Fennica*, vol. 16, pp. 153–167) with respect to the broader role of proof-theoretic reflection principles. In particular, he suggested that Montague himself saw the various inconsistency results reported in the first part of the paper largely as a stepping stone to proving the non-finite axiomatizability of theories such as PA and ZF. In the second part of the talk, Dean discussed various forms of reflection principles in the light of results by Kreisel and Lévy (1968: 'Reflection Principles and their Use for Establishing the Complexity of Axiomatic Systems', *Mathematical Logic Quarterly*, vol. 14, pp. 97–142). In particular, he suggested that while the arithmetical versions of the Local and Uniform reflection principle differ significantly in mathematical strength, this issue is obscured by the syntactical treatment wherein the proof-like (or knowledge-like) operator is treated as a primitive predicate.

Next to these talks, Johannes Stern (LMU Munich) was scheduled to talk about modality and axiomatic theories of truth, but his talk had to be cancelled due to illness. The workshop's small scale encouraged interaction: each of the talks was followed by a long and vivid Q&A session.

Lorenz Demey
Jan Heylen
Philosophy, KU Leuven

Calls for Papers

The Square of Opposition: special issue of *History and Philosophy of Logic*, deadline 30 June.
Infinite Regress: special issue of *Synthese*, deadline 1 July.

What's Hot in . . .

Logic and Rational Interaction

The last month saw an event that has the potential of providing fascinating examples to research in informational cascades, strategic actions, political reasoning and many more areas. Unfortunately, the papal conclave is one of the best preserved black boxes in modern times, so probably none of these events will ever make it into the scientific literature.

However the novel event of a pope voluntarily resigning has drawn attention to a different topic: Dynamic reasoning about social choice or: What is the best time to schedule elections? (A question well known from the British parliamentary system). Obviously, knowing exactly when which member of the electorate loses his right to vote and having the right to appoint new members, as the pope does, adds some fun and complexity to this kind of reasoning. In a recent post, Forrest Maltzman and Melissa Schwartzberg attempt an ex-post rationalization of what kind of strategic considerations could have preceded the pope's resignation.

Fittingly, Jason Roy and Christopher Alcantara provide a recent experimental paper showing that the right to schedule an election can prove beneficial for the governing party—if there is not too much time between the decision to have new elections and the ballot.

LORIweb is always happy to publish information on topics relevant to the area of Logic and Rational Interaction—including announcements about new publications and recent or upcoming events. Please submit such news items to Rasmus Rendsvig, our web manager or to the loriweb address.

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DOMINIK KLEIN
TiLPS, Tilburg University

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Uncertain Reasoning

M.G. Kendall (1956: "Studies in the History of Probability and Statistics: II. The Beginnings of a Probability Calculus", *Biometrika*, Vol. 43, No. 1/2 pp. 1–14) notes that

> If any justification for the study of the history of probability and statistics were required, it would be found simply and abundantly in this, that a knowledge of the development of the subject would have rendered superfluous much of what has been written about it in the last thirty years.

Kendall's contention is that the "doctrine of chance" should have been kept separate from the "art of conjecture", as it used to be before Jacob Bernoulli recommended the application of the former to the analysis of the latter. This separation, in Kendall's view, would have spared the foundations and applications of probability and statistics the "confusion [that] has existed ever since and at the present time seems, if anything, to be getting worse".

One thing which I find very interesting about the history of probability is that its initial development—before, that is, the publication of Laplace's *Théorie Analytique* in 1812—took place essentially as a problem-solving activity. And problems did range over a considerable number of aspects of individual, strategic and social choice under uncertainty, from the doctrine of fair contracts, to the gambler's ruin, to the expected duration of marriages, to the social benefits of smallpox inoculation. In addition, some problems would squarely fit the "pure" or combinatorial side of probability, notably the problem of reasoning about sample-spaces, whilst others would require matching the calculus with "data", notably the problem of correctly pricing annuities based on mortality tables. Small wonder it took a long time for a coherent pattern to emerge in the mathematical and philosophical investigation of reasoning under uncertainty. If that ever emerged, that is.

There are a number of monumental reference works covering the mathematical, philosophical and statistical development of probability from the origins to the nineteenth century including Todhunter, I. (1865: *History of the Mathematical Theory of Probability from the Time of Pascal to that of Lagrange*, Cambridge University Press), Daston, L. (1988: *Classical Probability in the Enlightenment*, Princeton University Press) and Hald, A. (1990: *History of Probability and Statistics and Their Applications before 1750*, John Wiley & Sons, Inc.). Todhunter is freely available online and it truly deserves the adjective *monumental*.

In the light of this, the two hundred and eighty something pages of Gorroochurn, P. (2012: *Classic Problems of Probability*, Wiley) is a very welcome addition to the literature. The volume presents 33 problems, from Cardano's pioneering investigation on the combinatorics of the sample space (1564) to Parrondo's Perplexing Paradox (1996), with a very interesting format. Each problem is stated and solved, usually in one page or so. Then a discussion on the origin, background and significance of the problem and its (attempted) solutions is presented. This structure combines the mathematical and historical presentation in a way which I find very fortunate.

The book prompts two general considerations about uncertain reasoning. First, the problem-based approach to the development of the (mathematics of) uncertain reasoning has, in my opinion, the virtue of not being constrained by the top-down view offered by the competing "schools" or "epistemologies" of uncertain reasoning. To the contrary, a problem-based approach allows us to identify the methods which are most appropriate to our specific needs. Early uncertain reasoners did not seem to postulate distinct kinds of uncertainty. Rather they tackled distinct problems and felt happy to choose distinct methods for distinct problems.

Second, uncertain reasoning is a tricky subject. Problem 15, *Leibniz's error*, recounts how one of the greatest minds of the seventeenth century made a mistake which we find hard to believe. Quite simply Leibniz believed that 11 and 12 have the same probability of occurring as a result of throwing two dice. The moral of this error was pointed out by Todhunter (1865), who is quoted in the discussion of Problem 15:

> Leibniz however furnished an example of the liability to error which seems peculiarly characteristic of our subject.

This certainly helps us to explain why so much disagreement persists in uncertain reasoning about the norms of rational belief and decision under uncertainty.

<div align="right">

HYKEL HOSNI
Scuola Normale Superiore, Pisa
CPNSS, LSE

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EVENTS

HOW DO I GET TO YOUR PLACE FROM *LEXINGTON*?

HMM...

OK, STARTING FROM YOUR DRIVEWAY, TAKE EVERY LEFT THAT DOESN'T PUT YOU ON A PRIME-NUMBERED HIGHWAY OR STREET NAMED FOR A PRESIDENT.

xkcd.com

WHEN PEOPLE ASK FOR STEP-BY-STEP DIRECTIONS, I WORRY THAT THERE WILL BE TOO MANY STEPS TO REMEMBER, SO I TRY TO PUT THEM IN MINIMAL FORM.

				5		9	8	7
5		6	3					
		8	9		4			
1	2							4
	8	7				5	9	
6							2	8
			1		5	2		
					7	8		5
2	6	5		3				

IMLA: 6th Workshop on Intuitionistic Modal Logic and Applications, Rio de Janeiro, 3–7 April.

ICANNGA: 11th International Conference on Adaptive and Natural Computing Algorithms, Switzerland, 4–6 April.

PERCEPTION, MODELS, AND LEARNING: 15th Annual Pitt-CMU Graduate Conference, Carnegie Mellon University, 5–6 April.

ADS: Agent-directed Simulation Symposium, Bahia Resort, San Diego, CA, USA, 7–10 April.

INFORMATION: SPACE, TIME, AND IDENTITY: Milton Keynes, 8–10 April.

PHDS IN LOGIC: Munich, 8–10 April.

SWIP.NL: Society for Women in Philosophy, Amsterdam, 10 April.

MODELS & DECISIONS: 6th Munich-Sydney-Tilburg Conference, Munich, 10–12 April.

IDENTITY AND PARADOX: Lille, France, 11–12 April.

CDM: Workshop on Collective Decision Making, ILLC, Amsterdam, 11–12 April.

TvsUT: Typed vs. Untyped Approaches to Semantics, Oslo, 12–13 April.

FREGEFEST: UC Irvine, 12–13 April.

PAKDD: 17th Pacific-Asia Conference on Knowledge Discovery and Data Mining, Gold Coast, Australia, 14–17 April.

IEEE-SSCI: Symposium Series on Computational Intelligence, Singapore, 15–19 April.

ONTOLOGY OF EVIDENCE: Workshop, University of Geneva, 16–17 April.

GCTP: Graduate Conference in Theoretical Philosophy, Groningen, Netherlands, 18–20 April.

R&R: Reasons and Reasoning, Georgetown University, 20 April.

GSCL: Graduate Student Conference in Logic, University of Illinois, Urbana-Champaign, 20–21 April.

IMPLICIT BIAS: University of Sheffield, 20–21 April.

SOoSI: The Social Organization of Scientific Inquiry, Center for Philosophy of Science, University of Pittsburgh, 20–21 April.

GIRL@LUND: 2nd Conference on Games, Interactive Rationality, and Learning, Lund, 23–26 April.

EXPLANATORY POWER: Understanding Through Modeling. Epistemology, Semantics, and Metaphysics of "Inadequate", Ruhr-Universität Bochum, 25–26 April.

PoM&PSYCH: KCL Graduate Conference in Philosophy of Mind and Psychology, Institute of Philosophy, Senate House, London, 26 April.

PHILOSOPHY OF INFORMATION: The Value of Information, American University, Washington DC, 26 April.

NU/NDGC: 4th Annual Northwestern / Notre Dame Graduate Epistemology Conference, University of Notre Dame, South Bend, IN, 26–27 April.

AISTATS: 16th International Conference on Artificial Intelligence and Statistics, Scottsdale, AZ, USA, 29 April–1 May.

MAY

ICLR: 1st International Conference on Learning Representations, Scottsdale, Arizona, 2–4 May.

SDM: 13th SIAM International Conference on Data Mining, Austin, Texas, USA, 2–4 May.

O&M: Ontology and Methodology, Virginia Tech, 4–5 May.

CTFoM: Category-Theoretic Foundations of Mathematics, Irvine, California, 4–5 May.

IMLCS: 2nd International Conference on Machine Learning and Computer Science, Kuala Lumpur, Malaysia, 6–7 May.

MSDM: 8th Workshop on Multiagent Sequential Decision Making Under Uncertainty, Saint Paul, Minnesota, USA, 6–7 May.

EMAS: 1st International Workshop on Engineering Multi-Agent Systems, Saint Paul, Minnesota, USA, 6–7 May.

ALA: Adaptive and Learning Agents Workshop, Saint Paul, Minnesota, US, 6–7 May.

MSDM: Multiagent Sequential Decision Making Under Uncertainty workshop, Saint Paul, Minnesota, USA, 6–7 May.

AAMAS: 12th International Conference on Autonomous Agents and Multiagent Systems, Saint Paul, Minnesota, USA, 6–10 May.

ADMI: 9th International Workshop on Agents and Data Mining Interaction, Saint Paul, Minnesota, USA, 6–10 May.

AISB: Workshop on The Emergence Of Consciousness, London, 9 May.

PhiLang: 3rd International Conference on Philosophy of Language and Linguistics, University of Lodz, Poland, 9–11 May.

PoI&IQ: Philosophy of Information and Information Quality, Lund, Sweden, 10 May.

Intensionality in Mathematics: Lund, Sweden, 11–12 May.

Frege: International Frege Conference, Wismar, Germany, 12–15 May.

UK-CIM: Causal Inference in Health and Social Sciences, University of Manchester, 14–15 May.

Reduction and Emergence in the Sciences: LMU Munich, 15 May.

MCS: 11th International Conference on Multiple Classifier Systems, Nanjing University, China, 15–17 May.

Mathematising Science: University of East Anglia, Norwich, 16–17 May.

ISCLC: 9th International Symposium of Cognition, Logic and Communication: Perception and Concepts, Riga, Latvia, 16–18 May.

LMP: 13th Philosophy of Logic, Math and Physics Graduate Conference, Ontario, Canada, 18–19 May.

SLACRR: St. Louis Annual Conference on Reasons and Rationality, St Louis, MO, 19–21 May.

TAMC: 10th Conference on Theory and Applications of Models of Computation, Hong Kong, China, 20–22 May.

NIDISC: 16th International Workshop on Nature Inspired Distributed Computing, Boston, Massachusetts USA, 20–24 May.

Carnap: Lectures and Graduate Conference, Ruhr-Universität Bochum, 21–23 May.

Modes of Explanation: Paris, France, 21–25 May.

Uncertain Reasoning: St. Pete Beach, Florida, USA, 22–24 May.

NVWF: Philosophy of Science in a Forest, The Netherlands, 23–25 May.

EI&I: Evolution, Intentionality and Information, University of Bristol, 29–31 May.

SILFS: Postgraduate conference in Logic and Philosophy of Science, Urbino, Italy, 29–31 May.

AIME: Artificial Intelligence in Medicine, Murcia, Spain, 29 May–1 June.

LoQI: Logic, Questions and Inquiry, Paris, France, 30 May–1 June.

Frege Puzzles: Reference and Frege Puzzles, Umeå University, 31 May.

Graduate Epistemology Conference: University of Edinburgh, 31 May–1 June.

JUNE

Benelearn: 22nd Belgian-Dutch Conference on Machine Learning, Nijmegen, Netherlands, 3 June.

BSPS: British Society for the Philosophy of Science Annual Conference, University of Exeter, 4–5 June.

BAYSM: Bayesian Young Statistician Meeting, Milan, Italy, 5–6 June.

BISP: 8th workshop on Bayesian Inference in Stochastic Processes, Milan, Italy, 6–8 June.

Logic of Simplicity: Carnegie Mellon University, Pittsburgh, USA, 7–9 June.

LORI: 4th International Workshop on Logic, Rationality and Interaction, Hangzhou, China, 9–12 June.

CADE: 24th International Conference on Automated Deduction, Lake Placid, USA, 9–14 June.

Necessity, Analyticity & A Priori: Oslo, 10–11 June.

ICAIL: 14th International Conference on Artificial Intelligence & Law, Rome, Italy, 10–14 June.

IWINAC: 5th International Work-Conference on the Interplay between Natural and Artificial Computation, Palma de Mallorca, Spain, 10–14 June.

Priestfest: Conference in honour of Graham Priest, University of Melbourne, 12–14 June.

SPE: 6th Semantics and Philosophy in Europe Colloquium, St. Petersburg, Russia, 12–14 June.

INEM: Conference of the International Network for Economic Method, Erasmus University Rotterdam, The Netherlands, 13–15 June.

SocPhilPsych: 39th meeting of the Society for Philosophy and Psychology, Brown University, Providence, RI, 13–15 June.

AALP: Annual Meeting of the Australasian Association for Logic, University of Melbourne, 15–16 June.

ICML: 30th International Conference on Machine Learning, Atlanta, 16–21 June.

TRoREC: The Reach of Radical Embodied or Enactive Cognition, University of Antwerp, 17–19 June.

DGL: Decisions, Games, & Logic, Stockholm, Sweden, 17–19 June.

LOGICA: Hejnice, Czech Republic, 17–21 June.

TAP: 7th International Conference on Tests and Proofs, Budapest, Hungary, 18–19 June.

GP@50: The Gettier Problem at 50, University of Edinburgh, 20–21 June.

ICFIE: 2nd International Conference on Fuzzy Information and Engineering, Kanyakumari, India, 22–23 June.

ISF: 33rd International Symposium on Forecasting, Seoul, Korea, 23–26 June.

HDIA: High-Dimensional Inference with Applications, University of Kent, Canterbury, 24–25 June.

CMFP: Constructive Mathematics Conference, Serbia, 24–28 June.

IFSA-NAFIPS: Edmonton, Canad, 24–28 June.

CSR: 8th International Computer Science Symposium in Russia, Ekaterinburg, Russia, 25–29 June.

BW8: 8th Barcelona Workshop on Issues in the Theory of Reference, Barcelona, 26–28 June.

Cognitio: Montréal, Canada, 26–28 June.

Applied Philosophy: Society for Applied Philosophy Annual Conference, University of Zurich, 28–30 June.

JULY

LMiAP: 7th Latin Meeting in Analytic Philosophy, Institut Jean Nicod, Paris, 1–2 July.

CaEitS: Causality and Experimentation in the Sciences, Paris, 1–3 July.

CEPE: Ambiguous Technologies: Philosophical Issues, Practical Solutions, Human Nature, Lisbon, Portugal, 1–3 July.

SIROCCO: 20th International Colloquium on Structural Information and Communication Complexity, Ischia, Italy, 1–3 July.

Influences on the Aufbau: MCMP, Munich, 1–3 July.

CiE: The Nature of Computation, Milan, Italy, 1–5 July.

ISIPTA: 8th International Symposium on Imprecise Probability: Theories and Applications, Compiegne, France, 2–5 July.

IC-EpsMsO: 5th International Conference on Experiments/Process/System Modeling/Simulation/Optimization, Athens, Greece, 3–6 July.

YSM: Young Statisticians' Meeting, Imperial College London, 4–5 July.

Carnap on Logic: MCMP, Munich, 4–6 July.

ECSQARU: 12th European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty, Utrecht University, The Netherlands, 7–10 July.

AAP: Australasian Association of Philosophy Conference, University of Queensland, 7–12 July.

GDRR: 3rd Symposium on Games and Decisions in Reliability and Risk, County Cork, Ireland, 8–10 July.

ICALP: 40th International Colloquium on Automata, Languages and Programming, Riga, Latvia, 8–12 July.

Scepticism: New Perspectives on External World Scepticism, MCMP, LMU Munich, 9–10 July.

What Can Category Theory Do For Philosophy?

University of Kent, Canterbury, 9–11 July

Gödel: From Logic to Cosmology, Aix-en-Provence, 11–13 July.

IUKM: 3rd International Symposium on Integrated Uncertainty in Knowledge Modelling and Decision Making, Beijing, China, 12–14 July.

AAAI: 27th AAAI Conference on Artificial Intelligence, Bellevue, Washington, USA, 14–18 July.

StaRAI: 3rd Workshop on Statistical Relational Artificial Intelligence, Bellevue, Washington, USA, 15 July.

EetN: Formal Methods in Philosophy, Gdańsk, Poland, 15–17 July.

IACAP: Annual Meeting of the International Association for Computing and Philosophy, University of Maryland at College Park, 15–17 July.

PLS: 9th Panhellenic Logic Symposium, National Technical University of Athens, Greece, 15–19 July.

AI4FM: 4th International Workshop on the use of AI in Formal Methods, Rennes, France, 22 July.

LC2013: Logic Colloquium, Évora, Portugal, 22–27 July.

FoP: Foundations of Physics, LMU, Munich, 29–31 July.

AGI: 6th Conference on Artificial General Intelligence, Beijing, China, 31 July–3 August.

August

WL4AI: Weighted Logics for AI workshop, Beijing, China, 3–5 August.

GKR: Graph Structures for Knowledge Representation and Reasoning, Beijing, China, 3–5 August.

NRAC: 10th International Workshop on Nonmonotonic Reasoning, Action and Change, Beijing, China, 3–5 August.

IJCAI: 23rd International Joint Conference on Artificial Intelligence, Beijing, China, 3–9 August.

WCP: 23rd World Congress of Philosophy, Athens, Greece, 4–10 August.

KSEM: International Conference on Knowledge Science, Engineering and Management, Dalian, China, 10–12 August.

LMoGDM: Logical Models of Group Decision Making, Düsseldorf, Germany, 12–16 August.

WoLLIC: 20th Workshop on Logic, Language, Information and Computation, Darmstadt, Germany, 20–23 August.

Prior: Arthur Prior Centenary Conference, Oxford, 21–22 August.

RACR: 4th International Conference on Risk Analysis and Crisis Response, Istanbul, Turkey, 27–29 August.

EPSA: European Philosophy of Science Association, University of Helsinki, Finland, 28–31 August.

EoM: Epistemology of Modality, University of Lisbon, 29–31 August.

September

ICSCCW: 7th International Conference on Soft Computing, Computing with Words and Perceptions in System Analysis, Decision and Control, Izmir, Turkey, 2–3 September.

LSFA: 8th Workshop on Logical and Semantic Frameworks with Applications, Sao Paulo, Brazil, 2–3 September.

DiAL: Dialectic in Aristotle's Logic, Groningen, Netherlands, 2–4 September.

CSL: 22nd EACSL Annual Conference on Computer Science Logic, Turin, Italy, 2–5 September.

ECAL: 12th European Conference on Artificial Life, Taormina, Italy, 2–6 September.

ENPOSS: European Network for the Philosophy of the Social Sciences and the Philosophy of Social Science, University of Venice Ca' Foscari, 3–4 September.

Many-Val: Games, Decisions, and Rationality, Prague, Czech Republic, 4–6 September.

WPMSIIP: 6th Workshop on Principles and Methods of Statistical Inference with Interval Probability, Switzerland, 5–10 September.

MCU: Machines, Computations and Universality, University of Zurich, 9–12 September.

ITA: 5th International Conference on Internet Technologies and Applications, Glyndwr University, Wrexham, North Wales, UK, 10–13 September.

HAIS: 8th International Conference on Hybrid Artificial Intelligence Systems, Salamanca, Spain, 11–13 September.

SOCO: 8th International Conference on Soft Computing Models in Industrial and Environmental Applications, Salamanca, Spain, 11–13 September.

SUM: 7th International Conference on Scalable Uncertainty Management, Washington DC, 16–18 September.

CLPS: International Conference on Logic and Philosophy of Science, University of Ghent, 16–18 September.

ASAI: Argentine Symposium on Artificial Intelligence, UNC, Córdoba Capital, Argentina, 16–20 September.

KI: 36th Annual Conference on Artificial Intelligence, Koblenz, 16–20 September.

Progic

The sixth workshop on Combining Probability and Logic. Special focus: combining probability and logic to solve philosophical problems. Munich, 17–18 September

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CAEPIA: 15th Conference of the Spanish Association for Artificial Intelligence, Madrid, Spain, 17–20 September.

IJCCI: 5th International Joint Conference on Computational Intelligence, Algarve, Portugal, 20–22 September.

FotFS: History and Philosophy of Infinity, Cambridge, UK, 20–23 September.

PT-AI: Philosophy and Theory of Artificial Intelligence, Oxford, 21–22 September.

TbiLLC: 10th International Tbilisi Symposium on Language, Logic and Computation, Georgia, 23–27 September.

AIAI: 9th IFIP International Conference on Artificial Intelligence Applications and Innovations, Paphos, Cyprus, 30 September–2 October.

October

APMP: 2nd International Meeting of the Association for the Philosophy of Mathematical Practice, University of Illinois at Urbana-Champaign, USA, 3–4 October.

LORI: 4th International Workshop on Logic, Rationality and Interaction, Zhejiang University, Hangzhou, China, 9–12 October.

Experimental Philosophy: State University of New York, Buffalo, 11–12 October.

Inductive logic and confirmation in science

University of Kent, Canterbury, 17–18 October

IDA: 12th International Symposium on Intelligent Data Analysis, London, UK, 17–19 October.

FPMW: French PhilMath Workshop, Paris, France, 17–19 October.

ICPI: International Conference on Philosophy of Information, Xian, China, 18–21 October.

HaPoC: 2nd International Conference on the History and Philosophy of Computing, Paris, France, 28–31 October.

Courses and Programmes

Courses

BFAS: Spring School on Belief Functions Theory and Applications, Carthage, Tunisia, 20–24 May.

Nordic Spring School in Logic: Nordfjordeid, Norway, 27–31 May.

RISS-WOW: 2nd Robotic International Summer-School, Robots as Intelligent Systems Working in the Outer World, CAAS, Dubrovnik, Croatia, 17–22 June.

ACAI Summer School 2013: Computational Models of Argument, King's College London, UK, 1–5 July.

EASSS: 15th European Agent Systems Summer School, Kings College London, 1–5 July.

ESSLLI: 25th European Summer School in Logic, Language and Information, Heinrich Heine University in Düsseldorf, Germany, 5–16 August.

MLSS: The Machine Learning Summer School, Max Planck Institute for Intelligent Systems, Tübingen, Germany, 26 August–6 September.

EthicSchool: Virtual Summerschool on Ethics of Emerging Technologies, 9–13 September.

Programmes

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

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

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

Master Programme: in Statistics, University College Dublin.

LoPhiSC: Master in Logic, Philosophy of Science & Epistemology, Pantheon-Sorbonne University (Paris 1) and Paris-Sorbonne University (Paris 4).

Master Programme: in Artificial Intelligence, Radboud University Nijmegen, the Netherlands.

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

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

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

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

MA in Logic and Philosophy of Science: Faculty of Philosophy, Philosophy of Science and Study of Religion, LMU Munich.

MA in Logic and Theory of Science: Department of Logic of the Eotvos Lorand University, Budapest, Hungary.

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

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

MA in Philosophy: by research, Tilburg University.

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

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

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

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

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

MSc in Applied Statistics: Department of Economics, Mathematics and Statistics, Birkbeck, University of London.

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

MSc in Artificial Intelligence: Faculty of Engineering, University of Leeds.

MA in Reasoning

A programme at the University of Kent, Canterbury, UK. Gain the philosophical background required for a PhD in this area. Optional modules available from Psychology, Computing, Statistics, Social Policy, Law, Biosciences and History.

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

MSc in Cognitive Science: University of Osnabrück, Germany.

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

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

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

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

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

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

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

PhD School: in Statistics, Padua University.

Jobs and Studentships

Jobs

Assistant Professor: in Logic or Analysis, Department of Mathematics, University of Connecticut, until filled.

Post-doc Position: in Artificial Intelligence, Institute for Artificial Intelligence, University of Georgia, until filled.

Post-doc Position: in Artificial Intelligence / Biomedical Informatics, Stevens Institute of Technology, until filled.

Post-doc Position: in Statistics, University of Bristol, deadline 5 April.

Post-doc Position: Munich Center for Mathematical Philosophy, LMU Munich, deadline 7 April.

Assistant Professor: Munich Center for Mathematical Philosophy, LMU Munich, deadline 7 April.

Professor: in Philosophy of Science, Tilburg University, deadline 8 April.

Post-doc Position: in Theoretical Philosophy working on "Infinite Regress" project, University of Groningen, The Netherlands, deadline 8 April.

Post-doc Position: on the project "Probabilistic Representation of Linguistic Knowledge," Philosophy, King's College London, deadline 6 May.

Studentships

PhD Position: on project "Non-Classical Foundations of Mathematics," Department of Mathematics and Statistics, University of Canterbury, New Zealand, until filled.

PhD Position: on the project "Models of Paradox," Philosophy, University of Otago, until filled.

PhD Position: Munich Center for Mathematical Philosophy, LMU Munich, deadline 7 April.

PhD Position: in "Sequential Decision-making under Uncertainty," Machine Learning, INRIA, Lille, deadline 15 April.

PhD Position: on the project "Efficient and Natural Proof Systems," Computer Science, University of Bath, deadline 17 April.

PhD Positions: on the project "The Structure of Reality and the Reality of Structure," Philosophy, Erasmus University Rotterdam, The Netherlands, deadline 1 May.