The Reasoner

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Contents

Editorial

It is with great pleasure that I have the opportunity to introduce Romina Padró to the readers of *The Reasoner*. Romina is the Director of the Saul Kripke Center and is also a Visiting Assistant Professor of Philosophy at the Graduate Center at the City University of New York (CUNY). She received her PhD from CUNY and was previously at the University of Buenos Aires in Argentina. Her main research interests are in epistemology, especially in the epistemology of logic and in philosophy of language, and she has worked on various other topics during her time at the Saul Kripke Center.

Romina has worked with Saul Kripke on a number of projects. Their first project was *Philosophical Troubles*, the first volume of Kripke's collected papers series, which contains many previously unpublished papers. They also worked together on another book, *Reference and Existence*, which is based on Saul Kripke's John Locke lectures, and is a continuation of his ideas from *Naming and Necessity*, but applied to the topic of fiction and other issues involving apparently vacuous reference. They are now working on the second volume of the collected papers, *Logical Troubles*, which will focus on Kripke's technical work (with the exclusion of his work on modal logic, which will appear in *Modal Troubles*), and a second edition of *Naming and Necessity* that will contain the original audio of the lectures.

I would like to take this opportunity to thank Romina warmly, not only for taking the time to do this interview, but also for her willingness to discuss exciting aspects of currently unpublished work so that readers of *The Reasoner* get a preview of what is to come in the future from her and the Saul Kripke Center.

Suki Finn
University of York

Features

Interview with Romina Padró

Suki Finn: Hello Romina! Before we begin talking about your own research in the epistemology of logic, perhaps you could start us off by telling us a bit about the work that you do at the Saul Kripke Center. What actually goes on there?

Romina Padró: The main work we do at the Center has to do with the preservation of the archive and the publication of Saul Kripke's work. As many people know, about 70% of Saul's work is still unpublished, and a lot of it is on old reel to reel or cassette tapes. These tapes go back to the 70's at least, and

we also have manuscripts, letters, notes, and transcriptions of lectures from the late 50's onwards on very diverse topics. Because over time all this material—especially the tapes—will obviously deteriorate, we are making a digital archive of everything we have. A second aspect of the work we do at the Center is bringing this material to publication.

SF: And as I am sure many people are wondering, what is it like to work with Saul Kripke?

RP: Well, I have been working with Saul for a very long time, even before the establishment of the Saul Kripke Center. It is actually a lot of fun to work with him, he really enjoys doing philosophy and he does it in a way that probably most people don't, letting himself be genuinely surprised by philosophical problems. When he gets down to it, his enthusiasm can be contagious. He really cares about what he is arguing, and working with him constantly reminds me that the whole point of doing philosophy is really to enjoy the process of thinking about the issues and trying to remain true to, as he would probably say here, 'your own intuitions'. I think it is important for Saul to have someone to work with, and probably not at all accidental that most of his work is based on transcripts of lectures. Having feedback from an audience seems to be an important part of the process for him. And I guess that going over the manuscripts with me reproduces a bit of that situation: we spend a lot of time discussing examples, possible objections, and so on, and I think all that helps. I would say he is kind of Socratic in his approach.

SF: Aside from your work with Saul, what is it that you are currently working on and are interested in now?

RP: I have been interested in the epistemology of logic for quite a while now. This is something I started working on when I was in Argentina. At the time, I spent quite a bit of time thinking about intuitionism and Dummett. When I moved to New York I started reading other things and, while working at the Center, I came across a set of unpublished lectures that Saul gave on the nature of logic and logical revisionism. His main target in these lectures was Putnam's proposal for the revision of classical logic in favor of quantum logic, but among the arguments he gives against this proposal there is one that I found particularly interesting. It is inspired by Lewis Carroll's famous note "What the Tortoise said to Achilles", and I thought that it was not only interesting for the question of revisionism but also for thinking about some central issues in the epistemology of logic more related to the nature of inferring and the question of the justification of logic. I wrote my dissertation on this problem, which I call the 'adoption problem', and now I am continuing that work and turning the dissertation into a book.

SF: Given that this work on the adoption problem is currently unpublished, would you describe it for those readers who haven't heard of the problem before?

RP: Well, it is best explained by means of an example. Think of someone—I call him "Harry"—who has never inferred in accordance with a very basic logical principle such as Universal Instantiation. We want to help him out, so we state the principle for him and tell him to 'adopt' it. Adopting it would mean that Harry picks up a way of inferring in accordance with this principle on the basis of having accepted the principle we stated for him. So it is a two-phase process: first comes Harry's acceptance of the principle and then, in virtue of it, he is supposed to develop a practice of inferring in accordance with the principle. But now we want to see if he has indeed *adopted* UI, whether he has developed an inferential practice that accords with UI on the basis of the acceptance of the principle. So imagine the following: we tell Harry that all the animals in the movie *Madagascar* talk and that Alex the lion is the cutest animal featured in the movie *Madagascar*, and then we ask him whether Alex the lion talks. And, to our surprise, he says 'I have no idea, I haven't seen the movie'.

SF: Why is it that he is unable to perform this inference when we appear to have given him what he needs?

RP: Basically, the idea is that our stating the principle for him and his acceptance of it would not help him; in order to apply the principle to particular cases he already needs to be able to perform universal instantiations, as the principle itself is a universal statement. The situation does not improve if we switch from a logical implication to a rule of inference, and similar problems arise with other logical principles, such as *Modus Ponens* and Adjunction. It would be impossible when it comes to certain very basic logical principles for someone to develop the corresponding inferential practice merely in virtue of the acceptance of these principles themselves, because the capacity to infer in accordance with them is presupposed in their application. So acceptance is insufficient to put the principles to use. In short, I state the problem by saying that certain basic logical principles cannot be *adopted* because, if a subject already infers in accordance with them, no adoption is needed, and if the subject does *not* infer in accordance with them, no adoption is possible.

SF: This all sounds pretty devastating! What do you think the wider moral of the story is here?

RP: The problem challenges calls into question the idea that basic rules of inference play a fundamental role in a thinker's basic inferential transitions. We have this amazing capacity for performing inferential transitions that accord with basic logical rules in extremely different contexts and with very diverse contents. And it is natural to suppose that it is because we have somehow accepted, either explicitly or implicitly, the relevant rules of inference that we are able to perform such transitions. How else would we explain this capacity? But, at least in my view, the adoption problem brings exactly that into question.

SF: You already mentioned that this targets Putnam's views on the revision of classical logic, but who else exactly do you think this problem targets?

RP: I believe it has consequences for a range of views on the

justification of the logical principles themselves. Saul argues that the Quinean conception of logic presupposes that the adoption of such basic principles ought to be possible (and this is why it also applies to Putnam, who presupposes such conception). I argue that appeals to rational intuition are either subject to the adoption problem or trivial. And I also think that another popular view, the so-called meaning-constituting or concept based accounts, run into trouble with the adoption problem. And all this suggests another moral to me: that we ought to pay closer attention to the nature of basic inferring itself before trying to solve the problem of justifying the logical principles.

SF: This sounds like a familiar rule-following problem—how do you think this all relates to Kripkenstein?

RP: It is clear that the problems are related. Saul says in his lectures on the nature of logic that they are, but since at the time *Wittgenstein: On Rules and Private Language* had not been published, his audience was not familiar with it and so he doesn't say anything about what the relation is supposed to be. I think the adoption problem could be seen as a different way of formulating the rule-following problem. In the Wittgenstein book it is first formulated in terms of the impossibility of determining which rule is being followed. This leaves the person being challenged by the skeptic without any justification for his present application of the rule. But, ultimately, the conclusion is metaphysical: if we 'looked into our minds' we would simply realize that there is no rule to be found. So if rule-following is thought that way, as an instruction that each of us accesses in the privacy of our own minds, it would seem that the conclusion has to be that it is not possible. In the case of the adoption problem, the issue is not how to determine the rule and account for its application, since there is in fact no application of the rule of inference. The problem is rather how to apply it *at all*. We have stated the rule Harry is supposed to 'adopt', but because the application of the rule to particular cases requires an inferential transition in accordance with Universal Instantiation—something that by hypothesis he doesn't do—he is unable to put it to use. It looks as if for Harry the rule is unfollowable, it doesn't give any guidance to someone who doesn't infer in accordance with it already. And this is very puzzling because that is what rules in general are supposed to do, and we may wonder what the role of a rule that cannot be followed if not followed already could possibly be. So these are clearly two different ways of bringing up problems related to rule-following, but I think that ultimately they bring up the same main issue: how is rule-following possible? And both emphasize the importance of having a practice already in place for rule-following to be possible.

SF: So analogously to the Kripkenstein position, do you think that you, Romina Padró, have developed a *Padripke* position on the basis of Kripke and the adoption problem?

RP: I think Saul would certainly want to distance himself from the solution to the rule-following problem given in the Wittgenstein book. At some points in the book he expresses some sort of uneasiness with the skeptical solution, and though this is very well kept from the readers, his heart truly is with views related to what he there calls 'Platonism'—which is surprising, since he dismisses it very quickly. This is clear in the case of logic: he thinks that some kind of rational intuition is at play when it comes to basic inferences. Unfortunately, as I said, I don't think that rational intuition views are helpful with the adoption problem. My main concern is that if we accept that rules such as Universal Instatiation don't have a fundamental or constitutive role to play in a subject's basic inferential transitions, a Wittgensteinian-like position, where practices and communities are central, becomes hard to avoid. So the worry is that the adoption problem may be leaving us dangerously close to the skeptical solution Saul gives on Wittgenstein's behalf.

SF: So is this what we can expect to see from you in future work, a way of avoiding a Wittgensteinian position as a response to the adoption problem?

RP: Well, it is a very difficult issue. We should still be able to give a meaningful explanation of this capacity that we have of performing inferences that accord with basic rules of inferences. And the question is whether this is possible once the rules are denied a grounding role. And, at least for me, it would be important to salvage as much as possible of the objectivity of logic. As I said, most of this material is in my dissertation and I am working to turn it into a book.

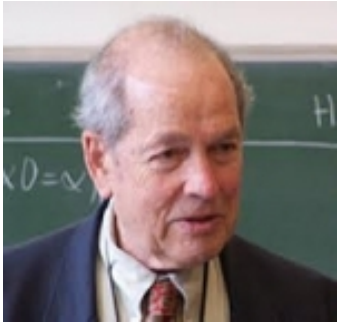
SF: Can we already access your dissertation somewhere to get a sneaky preview of what to expect in the book?

RP: My dissertation is available online under the title 'What the Tortoise said to Kripke: the Adoption Problem and the Epistemology of Logic'. We are also working on the publication of a group of papers on the adoption problem that will contain Saul's original lecture and papers by others, including myself.

News

Solomon Feferman, John Mayberry

Soloman Feferman (Stanford) passed away on July 16. R. Lainer Anderson writes in a tribute:



'Feferman's field-shaping body of work included major contributions to all of the main domains of mathematical logic "the four pillars"): proof theory, set theory, recursion theory, and model theory. In the dissertation work, he obtained important results that sharpened and considerably extended the method of arithmetization of metamathematics that Kurt Gödel introduced in the 1930s to show the incompleteness of arithmetic. This launched Feferman on a long term project of exploring the limits of the incompleteness results and the extent to which they could be overcome. Pursuing this general research program led to Feferman's important work in the 1960s and afterward about transfinite progressions of theories and about predicative analysis—including

results which have served as the basis for much subsequent progress in proof theory. In the early 1960s, Feferman was also a constant sounding-board for his Mathematics colleague Paul Cohen while Cohen was working out his novel method of forcing and generic sets, which he used to solve the long outstanding problem about the independence of the Axiom of Choice and the Continuum Hypothesis. Feferman was then one of the first to build on those methods to achieve further results in set theory, including a negative result concerning a conjecture from Hilbert's 1900 list of outstanding mathematical problems (Feferman showed that it is consistent with ZFC set theory together with the Generalized Continuum Hypothesis that there is no formula of set theory that can define a well-ordering of the continuum). By building on the Cohen methods in this way, Feferman helped to pioneer what became something of an industry in late twentieth century set theory. Later on, Feferman also made major contributions to the technical theory of truth, developing what has come to be known as the Kripke-Feferman (KF) theory of truth. Feferman showed that KF is proof-theoretically equivalent to the theory of ramified analysis up to certain limits, and he also devised a strengthening of KF that is as strong as full predicative analysis, or ramified analysis up to the Feferman-Schütte ordinal, thereby connecting the truth work back to his research program on transfinite progressions and predicative analysis.'

John Mayberry (Bristol) passed away on 19th August. From an announcement:

'His work was always in the Foundations of Mathematics and particularly set theory. He said that he felt that he had done his best work in his 60's and indeed most of his thinking culminated in his book "The Foundations of Mathematics in the theory of sets" (Cambridge Encyclopaedia of Mathematics series, CUP 2000). He was interested in the concept of number and the axiomatic system he devised was a theory of strictly finite sets, but with limitations on the complexity of inductions possible. This book was well received and sparked the most interest of his work in that community, particularly on the philosophical side. There were resonances between its axiomatic system and the influential work of Sam Buss in the mid-80's and 90's on weak sub-systems of the standard Peano system of axioms.'

Calls for Papers

Big Data and Business Analytics Ecosystems: special issue of *Information Systems and e-Business Management*, deadline 16 October.

The Background of Constitutive Rules: special issue of *Argumenta*, deadline 10 November.

Modelling and Representation: How to Make World(s) with Symbols: special issue of *Synthese*, deadline 31 December.

Epistemic Dependence: special issue of *Synthese*, deadline 31 December.

The Scientific Turn: Studies in Materialism and Metaphysics: special issue of *Synthese*, deadline 31 December.

Evidence Amalgamation: special issue of *Synthese*, deadline 17 February 2017.

Formal and Traditional Epistemology: special issue of *MANUSCRITO*, deadline 1 July 2017.

What's Hot in ...

Uncertain Reasoning

The Rio 2016 Olympic Games have been, as usual, a great illustration of the Laplacian dictum according to which probability is partly due to our ignorance and partly to our knowledge. Without the certainty that the best athlete(s) will win and, at the other end of the spectrum, the impossibility of figuring out who will actually win, the greatest sporting event on the planet would turn into a very dull couple of weeks.

Laplacian romanticism notwithstanding, sport generates data, lots of it. Not only does this allow for high-tech betting, it also feeds uncertain reasoning research. In particular SportVU, a body-tracking system which builds on Israeli military technology, played an unexpected role in addressing a long-standing question: Is the Hot Hand phenomenon real, or is it just one of the many ways in which we tend to see patterns where there aren't any?

In the lingo popularised by arcade games, a basketball player is "heating up" when he makes two hits in a row. After that he is believed, primarily by himself, to be more likely to score again, until the lucky streak ends. Everyone in the business appears to believe in it, and after three decades of controversy it may turn out that the popular belief is right. Yes, after three successful shots, players are more likely to score again. This conclusion is supported by data collected with SportVU technology which has been (re)interpreted in the light of a recent subtle and quite surprising finding by theoretical economists Joshua Benjamin Miller (Bocconi University) and Adam Sanjurio (University of Alicante). Intuitively, they identify a surprisingly subtle property of randomness which had so far managed to escape statistical analysis. The idea is that in finite series of coin tosses the probability of getting alternating results is strictly less than one half. This indeed proves the existence of a "cold hand" against which players have always been fighting, unknowingly so far. This result is fundamental, for previous SportVU data did not highlight a significant variation in the success rate of NBA players as a consequence of the Hot Hand. With the adjustments provided by the cold-hand effect, increases of up to 12% in scoring rates become observable. As Woody Allen would put it, the entire Hot Hand Fallacy is wrong. The details are of course rather subtle. The "user-friendly" explanation by J.B. Miller and A. Sanjurio (2016: *A Primer and Frequently Asked Questions for 'Surprised by the Gamblers and Hot Hand Fallacies? A Truth in the Law of Small Numbers'*, Available at SSRN: http://ssrn.com/abstract=2728151) is indeed quite useful.

As reported on Andrew Gelman's blog about a year ago this result generated some controversy among specialists. Those include T. Gilovich, who had contributed with A. Tverski and R. Vallone to guide the probability and statistics community towards the belief the Hot Hand should be thought of as fallacious. Back in 1985 they were convinced of the contrary, and sought to establish this experimentally, without success. Whilst

players and experts believed the phenomenon was real, the data eventually pointed in the opposite direction. The Hot Hand was then relegated to a "misperception of random sequences". Not so for basketball players, who, as it turned out, knew better.

Two quick observations. First, however big, data is of little help in the absence of an adequate context for its interpretation. The reason as to why the SportVU data alone confirmed, wrongly, the fallacy is interesting in its own right, and is nicely summed up in this recent piece by Jesse Singal on the New York Magazine. Second, when modelling social behaviour, mathematics must be sometimes bent to accommodate common sense. Daniel Bernoulli's dissolution of the St. Petersburg Paradox is an early, spectacular, example of that.

Hykel Hosni
Philosophy, University of Milan

Evidence-Based Medicine

The Philosophy Thematic Issue of the Journal of Evaluation in Clinical Practice is now available. It is full of interesting papers on topics such as medical ethics, the epistemology of medicine, the nature of health and disease, and the goals of medicine. In their editorial, the editors describe the issue as 'a range of papers that raise questions or problems about not only the intellectual basis for practice but also the dangers inherent in theorizing about practice—the sense that the wrong sort of theorizing can actually be harmful'.

A number of papers are explicitly on evidence-based medicine. In one paper, Rodolfo Gaeta and Nelida Gentile argue that there are a number of difficulties with interpreting evidence-based medicine as a Kuhnian paradigm. In another paper, S. Joshua Thomas defends evidence-based health care against the charge that it 'fails to recognize the patient as the complex self she is, treating her instead as merely a quantifiable, medical-scientific object'. He argues that the evidence-based approach to health care is in fact neutral with regard to questions about the self.

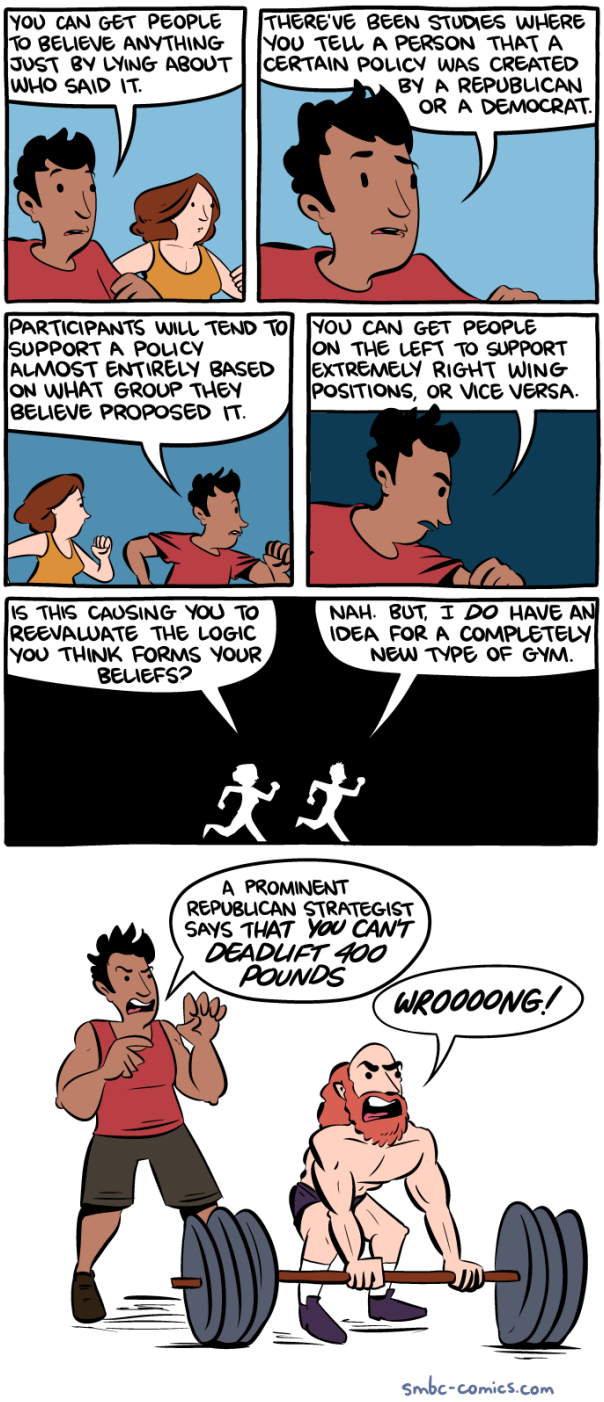
There are many more interesting papers on related topics in the issue. In particular, Emily Bingeman argues that it is reasonable to believe that evidence-based medicine is unlikely to achieve a high level of objectivity. The relevant notion of objectivity is due to Helen Longino. Longino proposes a number of criteria against which a scientific community can be assessed in terms of objectivity. For example, the greater the equality of intellectual authority in the scientific community, the more likely it is that the community has a high level of objectivity.

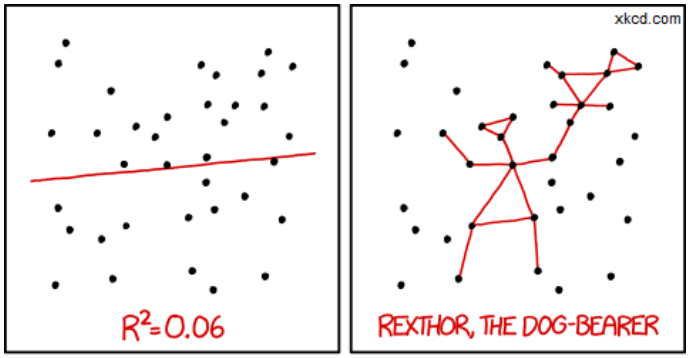
Bingeman argues that evidence-based medicine does not perform well when assessed against these criteria. Among other things, she claims that there is a challenge to the equality of intellectual authority in the evidence-based medicine community because of the privileged status given to organizations that produce systematic reviews of clinical trials. Bingeman contrasts this with a case-based approach, which has the following goal:

> To ensure the production and use of high quality medical knowledge by requiring clinicians to value all types of medical knowledge equally and to create intersubjectively available case arguments that make use of all available facts and warrants.

She argues that this case-based approach fares better in terms of the equality of intellectual authority: It does not privilege evidence from epidemiology, but instead treats it as equal to evidence from pathophysiology and clinical experience. Bingeman also argues that the case-based approach fares better according to the other criteria for greater objectivity. As a result, she concludes that the case-based approach promises a more objective epistemic community than the evidence-based medicine community.

Michael Wilde
Philosophy, Kent





I DON'T TRUST LINEAR REGRESSIONS WHEN IT'S HARDER TO GUESS THE DIRECTION OF THE CORRELATION FROM THE SCATTER PLOT THAN TO FIND NEW CONSTELLATIONS ON IT.

Events

September

CS&ML: Workshop on Computational Statistics and Machine Learning, University of Edinburgh, 1 September.
PoSGC: Philosophy of Science Graduate Conference, University College London, 1–2 September.
PLP: Probabilistic logic programming, London, 3 September.
ILP: International Conference on Inductive Logic Programming, London, 4–6 September.
BiC: Bias in Context: Psychological and Structural Explanations, The University of Sheffield, 5–6 September.
EoM: Epistemology of Metaphysics Workshop, Helsinki, 6 September.
EPoSA: Conference of the European Philosophy of Science Association, university of Exeter, 6–9 September.
GPoS: Ground in Philosophy of Science, University of Geneva, 13–14 September.
IMM: Idealism and the Metaphilosophy of Mind Conference, London, 15–16 September.
GQW: Grounding the Quantum World, University of Neuchâtel, Switzerland, 19 September.
CMB: Complex Models in Biology, University College London, 19 September.
ME: Metaphysical Explanation, University of Gothenburg, Sweden., 20–21 September.
SR&QFT: Scientific Realism and Quantum Field Theory, University of Leeds, 24 September.

October

EPPM: Workshop on Experimental Philosophy and Philosophical Methodology, University of Warwick, 4–5 October.

Courses and Programmes

Programmes

APhil: MA/PhD in Analytic Philosophy, University of Barcelona.
Master Programme: MA in Pure and Applied Logic, 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.
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 Programmes: in Philosophy of Science, University of Leeds.
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, Science and Society: TiLPS, 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 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 Systems: Language, Learning, and Reasoning, University of Potsdam.
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 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 Sebastián).
Open Mind: International School of Advanced Studies in Cognitive Sciences, University of Bucharest.

Jobs and Studentships

Jobs

Professorship in Theoretical Philosophy: The Frankfurt School of Finance & Management, deadline 1 September.
Post doc: in statistics, King's College London, deadline 8 September.
Research Associate: in Complex Systems Modelling, University of Sheffield, deadline 9 September.
Research Fellow: in Metaphysics and Psychology, University of Warwick, deadline 13 September.
Postdoctoral Fellowship: in Philosophy of Mind, University of Antwerp, deadline 15 September.
Lectureship: in Statistics, Loughborough University, deadline 18 September.
Lecturer: in Statistics, Newcastle University, deadline 30 September.
Professorship: in Statistics and Data Mining, University of Melbourne, deadline 30 September.
Research Chair: in Philosophy of Science, The University of Western Ontario, deadline 1 October.

Studentships

PhD position: in Statistics, La Trobe University, Melbourne, open until qualified candidate is selected.
PhD position: in Knowledge Representation and Reasoning, University of Luxembourg, deadline 15 September.