The Reasoner

Contents

Editorial

I am grateful for having been given the opportunity to guest-edit this edition of *The Reasoner*. I am especially grateful to Branden Fitelson for agreeing to the following interview. Branden is Professor of Philosophy at Rutgers University. He is also a Visiting Professor at the Munich Center for Mathematical Philosophy at the Ludwig-Maximilians-University and at the ILLC at the University of Amsterdam. Branden's main fields of research are (formal) epistemology, philosophy of science and logic. The main topic of our conversation today is his book manuscript, *Coherence*, which, though still awaiting completion, has already received a good deal of attention. The in-terested reader is referred to Branden's website for more information about the project and related work.

Florian Steinberger
Munich Center for Mathematical Philosophy

Features

Interview with Branden Fitelson

Florian Steinberger What is your academic background?

Branden Fitelson My dad is a theoretical physicist. As a result, I studied math and physics when I was younger (I earned an undergraduate degree in mathematics from UW-Madison). Then, after working for a NASA contractor in Maryland for a while, I returned to graduate school in Madison to pursue a masters degree and then a PhD in philosophy.

FS You are currently writing a much-anticipated book on coherence requirements of rationality. How did you get interested in the topic?

BF I've always been interested in philosophical topics that are conducive to the use of mathematical methods. My book project brings together various formal and philosophical tools from decision theory, probability theory, logic, and epistemology. It's sort of a culmination of many years of thinking about all of these different things.

FS Can you give the reader an outline of the project?

BF There is a tradition in philosophy of taking logic (especially deductive logic) as being "normative for thought". Ever since reading Gil Harman's book *Change in View* when I was in grad school, I've been increasingly skeptical about the "normativity of logic". The most fundamental of the traditional logico-epistemic principles is the requirement of deductive consistency of (full) belief sets. Philosophers have known about counterexamples to deductive consistency for many years. In the early 1960's the lottery and preface paradoxes came on the scene. To my mind, these kinds of examples show that epistemic rationality does not require deductive consistency. The

challenge has been to articulate a different notion of epistemic rationality that grounds requirements that are less demanding than deductive consistency. Dick Foley does a very good job of articulating such an alternative in his book *Working Without a Net*. My project can be seen as an attempt to provide a formal explication of this alternative conception of epistemic rationality. The basic idea is this. Belief aims at truth, in the sense that having true beliefs constitutes an alethic epistemic ideal. But rationality does not require that one's beliefs be true (or even that there be some possible world in which they are all true). In other words, epistemic rationality does not require that one's beliefs minimize inaccuracy (in some possible world). Rather, what rationality requires is something weaker—something like the minimization of expected inaccuracy—or, at least, that one's belief set is not dominated in accuracy by some alternative belief set. This is a more "economic" or "decision theoretic" (and less "logical") notion of epistemic rationality. There is already a well-established tradition of epistemic utility theory, which as been applied to ground probablism as a coherence requirement for degrees of belief (or credences). Jim Joyce's work, in particular, has been very influential in this connection. Basically, my book aims to generalize Joycean arguments for probablism to ground (formal, synchronic, epistemic) coherence requirements for other, more qualitative, judgment types (like full belief, and comparative confidence).

FS How do coherence norms relate to other kinds of norms?

BF I prefer to think of both practical and epistemic rational requirements in a unified way. Basically, rationality requires maximization of expected utility (or perhaps something weaker, like non-dominance in utility). This applies both to practical as well as epistemic contexts. The only (probative) difference involves the kinds of utilities that are involved in the evaluations. In the epistemic case, accuracy and evidential support (of the attitudes being evaluated) are the two main considerations that constrain an agent's utility function. In the practical case, all kinds of other considerations can factor into an agent's utilities. But, apart from that, the rational requirements will be (structurally) very similar.

FS In what sense are these requirements normative?

BF I think these structural/decision-theoretic requirements are generally evaluative in nature (in both practical and epistemic contexts). That is, they are not really normative in any thick, "advice-giving" sense. For instance, when we argue that rationality requires an agent's preferences to be transitive (or have some other structural property), we're not offering advice about how an agent should form their preferences. We're also not saying anything about what they ought to do to revise their preferences, if they discover that they are incoherent (in one of these structural senses). Similarly, when we argue that an agent's belief set should satisfy some formal coherence requirement, we're not offering advice about how they should form their beliefs (or how they should revise them were they to discover an incoherence among them). We're merely pointing to some "bad epistemic consequences" that ensue if the requirement is violated. In the case of (strict) preferences, "money pump" arguments are often used to explain what is defective about exhibiting intransitivity (or symmetry). The fact that someone is susceptible to being "pumped for money" does not necessarily have much normative significance, since it may be practically impossible for the agent to actually detect the intransitivity (and avoid the "money pump"). But, nonetheless, we think that there is something rationally defective about being susceptible to being "pumped for money" in this way. So, I think it's preferable to view these kinds of constraints as codifying necessary requirements of ideal rationality. I would say the same thing about the epistemic requirements we're grounding in our book. If someone's belief set is dominated in accuracy, then this reveals a rational defect in their doxastic state. Specifically, it reveals *both* that there is no possible world in which they are all true (*alethic inconsistency*) and that there is no possible body of evidence that could support all of them (*evidential inconsistency*). This doesn't provide substantive normative guidance about "what one should believe", but neither does the traditional requirement of deductive consistency (since that's also practically impossible to detect). In this sense, both the traditional formal coherence requirements as well as our new ones are in the same (evaluative) boat.

FS You propose coherence norms for both full beliefs and degrees of belief. Some philosophers like Gilbert Harman have sought to explain degrees of belief as epiphenomena of full beliefs. On the other hand, Richard Jeffrey famously proclaimed that "Ramsey sucked the marrow out of the ordinary notion". What do you make of such eliminativist or reductionist tendencies?

BF I don't really understand this persistent tendency toward reductionism and eliminativism of traditional concepts in epistemology. Interestingly, many philosophers (of mind and cognitive science) resist the temptation eliminate the traditional concept of belief from psychology—even if it does reduce to something more (physically) fundamental (like brain states, etc.). But, when it comes to the concept of belief in epistemology, many formal epistemologists seem insistent on eliminating belief—in favor of degrees of belief (or something else, like rankings or orderings). Moreover, as you point out, some philosophers try to "go the other way" and eliminate/reduce credence to belief (Kenny Easwaran—my co-author for the full belief part of my book—also has a paper in which he tries to execute this kind of "reverse reduction"). I am a pluralist. If concepts feature usefully in explanations, then I say let's keep them around—even if they supervene on something which is in some sense taken to be "more fundamental". I think full belief is a useful explanatory concept, both in cognitive science and in epistemology. So, I say let's keep the concept around—in both contexts. I tend to adopt the same sort of "explanatory pluralist" attitude across the board. Having said all that, I do not even think that qualitative attitudes *supervene* on degrees of belief (and, therefore, they cannot be reduced to them). Nor do I think that comparative confidence supervenes on credence. For instance, I think that rationality requires us to assign zero credence to some contingent claims (e.g., that a fair coin will land heads infinitely often)—even though it is also rational to rank those contingent claims strictly above contradictions in our comparative confidence orderings. This sort of counterexample to supervenience (of comparative confidence on credence) has been known for many years (at least since Koopman's papers on comparative probability, in the 1940's).

FS The slightly less familiar doxastic attitude of comparative confidence will also play a central role in your book. Can you say a bit more about the notion and about its role in the book?

BF Comparative confidence is a relation that can be interpreted as follows: "S's total evidence favors p over q". As I mentioned above, I think there is a clear sense in which our total evidence favors an infinite sequence of heads over a contradiction. But, numerically, both of these events must have probability zero. In this sense, the numerical concept is unable to make some distinctions that the comparative/ordinal concept can make. More generally, I think comparative confidence is a very useful and important concept in epistemology, and I think it has not received as much attention (in its own right) as it should have. People tend to think of comparative confidence as a kind of "emergent property" of a numerical credence distribution. But, I think this misses something important. David McCarthy (my co-author on this part of the book) and I have figured out how to apply Joycean (accuracy-dominance) arguments directly to comparative confidence orderings. I won't get into the details here, but—to make a long story short—our approach yields a novel, epistemic utility theoretic justification of Dempster-Shafer belief functions (as representers of comparative confidence relations). These are some of the most novel and interesting arguments in the book.

FS You (along with Rachael Briggs and Kenny Easwaran) have applied these ideas to judgement aggregation. Can you give the reader an idea of the advantages of so applying your framework?

BF It is well-known that if one uses majority rule to aggregate the beliefs of agents, then various paradoxes of consistency can arise. For instance, it is possible for each judge (in a set of judges) to have a deductively consistent belief set (on a simple agenda of propositions), while their majority-rule aggregate/consensus belief set is deductively inconsistent. This is known as the discursive dilemma (aka., the doctrinal paradox). Christian List, Philip Pettit, and others have done a lot of work on these paradoxes. What we show is that if we replace "deductive consistency" with "coherence" (in one of our Foley-style senses) then the discursive dilemma (largely) disappears. This seems to be a general phenomenon. Whenever deductive consistency is implicated in some paradox (e.g., lottery, preface, doctrinal), this paradox is (generally) dissolved when we move to one of our (more permissive) alternative notions of coherence. I take all of this as evidence that we're onto a more apt set of epistemic coherence requirements.

FS Your former colleague Niko Kolodny has argued that perhaps there are no 'requirements of formal coherence'. The requirements you propose presumably fall in this category. What do you make of his arguments?

BF Niko's view (for which he has given many powerful and sophisticated arguments over the past several years) is that there are no wide-scope, formal coherence requirements for *any* type of judgment (even credences—so here he deviates from someone like David Christensen, who is skeptical about coherence requirements for belief, but who thinks that credences *are* subject to probabilism as a coherence requirement). Rather, Niko thinks that all epistemic requirements are narrow-scope, evidential requirements. The slogan would be something like "believe whatever is most likely, given your total evidence". While I agree with Niko that there are (narrow-scope) evidential norms like this, I have two problems with his view. First, it doesn't do justice to the idea that belief aims at truth. What's nice about our approach is that it explains *why* the Lockean/Foleyan norm of "believing what is sufficiently likely" makes sense—from an alethic or accuracy-centered point of view. It turns out that if your full beliefs minimize expected inaccuracy (relative to your credences), then you will *automatically* obey this kind of Lockean requirement. That allows accuracy-centered (or veritistic) epistemologists to explain why rationality requires that we "believe what is sufficiently likely". Second, I think the same reasons why we don't think rationality requires all of our beliefs to be true (or even possibly true) will arise in connection with Niko's "evidential norm". I would say that rationality doesn't require that one believe what is actually supported by one's evidence. Rather, rationality requires that there be some *possible* body of evidence that supports each of one's judgments. In other words, as I alluded to above, *in*coherence implies *both* deductive/alethic inconsistency, *and* also *evidential* inconsistency (i.e., that *there is no possible body of evidence* that supports each of one's judgments). In other words, I would say that *neither* the alethic narrow-scope "truth norm" *nor* the evidential narrow scope "believe what is sufficiently likely" norm are (universal) requirements of rationality. They are both too demanding, and for similar reasons. Moreover, I think that epistemic utility theory does a nice job of explaining why they are too demanding, and also of furnishing an explication of the genuine (universal) requirements of rationality.

FS How do you see the future for the relationship between traditional and formal epistemology?

BF I think there is a very bright future here! There are so many wonderful junior scholars working at the intersection of formal and traditional epistemology nowadays. As a result, I am extremely optimistic about the future! I feel very fortunate to have been at the right place at the right time.

FS What is the next project?

BF I have three projects that are natural outgrowths of the book project. First, I will be working on the nature of *implicit commitment*. The old, deductive (e.g., Stalnakerian) way of thinking had the virtue of providing a very simple and elegant account of what one's implicit commitments are—in virtue of one's explicit commitments on a given agenda of propositions—namely, the *logical consequences of* one's explicit commitments/beliefs. Of course, in light of prefaces and lotteries, this simple idea breaks down (as you have beautifully argued in your recent paper "Explosion and the normativity of logic", forthcoming in *Mind*). So, we'll need a new way of thinking about implicit commitment. Second, I will be working on the nature of (indicative) conditional judgment (and judgments regarding indicative conditionals). The book is entirely about unconditional judgment. So, I'll need to think about how all of this generalizes to conditional judgment. Finally, I'll need to think about *diachronic* requirements, or the problem of "belief updating" (Ted Shear and I have just recently begun to work on the belief updating problem, from an epistemic utility theory perspective). These three projects should keep us busy for a while!

News

Graz Young Epistemology and Philosophy of Logic Workshop, 28 November

The institute of philosophy at the University of Graz hosted the "Graz Young Epistemology and Philosophy of Logic Workshop" on November 28. The five talks by early career philosophers focused in one way or another on the workshop's topic, *Communication and Inference*. Issues regarding the epistemic normativity of reasoning and of speech acts were a common thread to four of the five talks.

Robin McKenna (Vienna) put forth a speech act-theoretic account of recommending, starting from a Searlean template for the speech act of promising. According to McKenna, the necessary conditions for the speech act of recommending ϕ-ing to a hearer H include the condition that the speaker S *know* that ϕ-ing is in H's best interests. McKenna argued that his "knowledge account" of recommendations can solve a puzzle about deontic modals, e.g., from the miners' case in Kolodny and MacFarlane 2010.

Laura Celani (St Andrews) analyzed a number of ways (bridge principles) by which logical laws (such as LEM) can be turned into norms of reasoning—what Celani calls "logical norms"—thereby providing a connection between the validity of arguments and normative requirements on informal reasoning. Departing from the work of MacFarlane, Restall, and Broom, she compared these principles with respect to their verdicts on the lottery paradox and the preface paradox, and argued that the following principles fare best, all things considered, as a normative requirement on belief:

Wr+/- If $A, B \vdash C$, then you have reason to see to it that if you believe A and believe B, you believe C (**Wr+**) / don't disbelieve C (**Wr-**).

In the afternoon, Gil Sagi (Munich) presented her account of logicality—of what characterizes a logical constant—in model-theoretic terms. In model-theoretic semantics, logical terms are said to have their meaning fixed, while nonlogical terms have variable meanings. According to Sagi, a term that is considered logical in a (first-order) system has a fixed *intension* rather than extension. Moreover, Sagi's account makes logicality a matter of degree: the less structure a term requires, the more logical it is.

The final two talks dealt with epistemic norms of assertion. Mona Simion (Leuven) argued that an invariantist knowledge norm of assertion—Assert *p* (if and) only if you know *p*—best deals with cases where assertions' propriety seems to depend on practical factors. Her positive case for the invariantist knowledge norm of assertion is based on the idea that our judgments about assertions' propriety are often in part explained by general, non-epistemic norms for actions that may on occasion override the knowledge norm.

In the last talk of the day, Chris Kelp (Leuven) developed a novel account of the normativity of assertion that focuses on the epistemic *function* of assertion to generate knowledge in hearers. Taking his cue from the work of Millikan and Graham, Kelp argued that assertions are epistemically non-defective iff they have the disposition to (reliably) generate knowledge in hearers. One upshot of this account is that it can explain why a knowledge rule would regulate assertion.

The workshop received financial support from the Land Steiermark and the University of Graz, Forschungsmanagement. Poster and abstracts are available on the workshop website

Dirk Kindermann
University of Graz

Calls for Papers

Formal Epistemology and Inductive Logic: special issue of *Journal of Applied Logic*, deadline 15 January.
Probabilistic Logic Programming: special issue of *International Journal of Approximate Reasoning*, deadline 15 January.
Combining Probability and Logic: special issue of *Journal of Applied Logic*, deadline 15 January 2015.
Causation and Mental Causation: special issue of *Humana.Mente*, deadline 15 March 2015.

What's Hot in . . .

Uncertain Reasoning

This month I am reporting from the field, as it were. Editors of The Reasoner will hopefully excuse the private, personalistic use of this space, but I felt I'd share with the readers a real-life proof of the multiplicative law of probability.

The story takes place on 12th December 2014. It's Friday, The Last Day of Term, and therefore a rather busy Friday to fly. I was aware of this fact when I bought the flight, which was why I put some effort in booking well in advance. Advance booking usually allows you to fly cheaper (see my September 2014 column), but it has the obvious drawback that things happen between the time of booking and the time of flying. This time it's the general industrial action in Italy, where I'm due to land. On the evening before my scheduled flight, I get a notification from the carrier telling me that my flight is cancelled, and that the only option I have to get to Italy on the next day is that I fly to an alternative destination on a flight which is likely to be delayed for about six hours. Unlucky, I think, but not entirely surprising given the season and the political situation in Italy.

With all due patience I get to board with the expected 6 hours delay, at about 15:30 pm. Then the extremely unlikely happens. As the Airbus pushes back towards taxiing, it suddenly stops. Five minutes later the public announcement goes something like this:

> "Captain speaking—I would like to brief you on where we are now, in this long day which, for you

and the crew, is likely to get much longer than this."

Then he reports that the server where the southern UK air traffic control system operates had experienced a *power failure*, with the consequent break down of air traffic control and freezing of virtually all of London air traffic for about three and a half hours.

The following day I searched Google to find out whether anyone had put forward estimates of how (un)likely such an event was considered to be, and I found the following official press release by the Air Traffic Control's Chief Executive, Richard Deakin.

> "Failures like this are extremely rare, but when they occur it is because they are unique and have not been seen before."

I thought it was a pity that I couldn't find any numbers for the probability of such a 'unique' event, because in virtue of its independence of the Italian strike, I could have *proved* that the probability of a conjunction can be much smaller than the minimum of the probabilities of the conjuncts. Ah!, the consolations of uncertain reasoning . . . .

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Hykel Hosni
Marie Curie Fellow,
CPNSS, London School of Economics
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Evidence-Based Medicine

In a recent paper on sex differences and idiotic behaviour, Ben and Dennis Lendrem, Andy Gray, and John Dudley Isaacs put to the test the hypothesis that 'men are idiots and idiots do stupid things'. They argue that this hypothesis receives confirmation from data on the winners of the Darwin Awards, where winners of this award 'eliminate themselves from the gene pool in such an idiotic manner that their action ensures one less idiot will survive'. On their statistical analysis, it turned out that males 'made up 88.7% of Darwin Award winners, and this sex difference is highly statistically significant'.

Why am I telling you all this? First, the paper is full of examples of individuals removing themselves from the gene pool in ways I think readers of *The Reasoner* may find entertaining—although apologies if I got the wrong impression. For instance, 'the terrorist who posted a letter bomb with insufficient postage stamps and who, on its return, unthinkingly opened his own letter'. Second, this is something like a public service announcement. The authors of the paper suggest that the sex difference in winners of the Darwin Award may be 'attributable to sociobehavioural differences in alcohol use'. I think readers of *The Reasoner* would do well to bear this in mind as New Year celebrations get underway.

Meanwhile, over at the EBM+ blog, Federica Russo has written on the notion of environment in disease aetiology, and Phyllis Illari has written on new knowledge and what to measure. Do go take a look.

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Michael Wilde
Philosophy, Kent
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TIME COST

STRATEGY A ▮

STRATEGY B ▮

ANALYZING WHETHER STRATEGY A OR B IS MORE EFFICIENT ▬▬▬▬▬▬▬▬▬

THE REASON I AM SO INEFFICIENT

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

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Events
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SDSS: Scientific Discovery in the Social Sciences, London School of Economics, 30–31 January.

TFML: Theoretical Foundations of Machine Learning, Poland, 16–21 February.

RACT: Reasoning, Argumentation & Critical Thinking Instruction, Lund, Sweden, 25–27 February.

CIM: Causation in the MInd, Ruhr-Universität Bochum, 26–28 February.

March

AHR: Workshop on Behavior Coordination Between Animals, Humans, and Robots, Portland, Oregon, 2 March.

BICoB: 7th International Conference on Bioinformatics and Computational Biology, Honolulu, Hawaii, 9–11 March.

FON: Edinburgh Foundations of Normativity Workshop, University of Edinburgh, 13–14 March.

TRiP: Pictures and Proofs, Columbia, South Carolina, 19–21 March.

KRR: Knowledge Representation and Reasoning, Stanford University, 23–25 March.

SCS: SMART Cognitive Science: The Amsterdam Conference, Amsterdam, 25–28 March.

PI: Workshop on Philosophy of Information, University College London, 30–31 March.

April

L & R: Congress on Logic and Religion, Brazil, 1–5 April.

PROGIC: The 7th Workshop on Combining Probability and Logic, University of Kent, 22–24 April.

May

SLACRR: St. Louis Annual Conference on Reasons and Rationality, Moonrise Hotel / Washington University in St. Louis, MO, 17–19 May.

TAMC: Theory and Applications of Models of Computation, School of Computing, National University of Singapore, 18–20 May.

Truth and Grounds: Mount Truth, Ascona, Switzerland, 24–29 May.

June

ICCS: International Conference on Computational Science, Reykjavik, Iceland, 1–3 June.

TTL: 4th International Congress on Tools for Teaching Logic, Rennes, France, 1–4 June.

ECA: Argumentation and Reasoned Action, Lisbon, Portugal, 9–12 June.

TSC: Towards a Science of Consciousness, Helsinki, 9–13 June.

UNILOG: 5th World Conference on Universal Logic, Istanbul, 25–30 June.

Legal Argumentation: Rotterdam, 26 June.

July

ICML: International Conference on Machine Learning, Lille, France, 6–11 July.

ISIPTA: Society for Imprecise Probability, Pescara, Italy, 20–24 July.

August

CLMPS: 15th Congress of Logic, Methodology, and Philosophy of Science, Helsinki, 3–8 August.

Courses and Programmes

Courses

AAAI: Texas, USA, 25–29 January.

Combining Probability and Logic: University of Kent, 20–21 April.

EPICENTER: Spring Course in Epistemic Game Theory, Maastricht University, 8–19 June.

EPICENTER: Mini-course on Games with Unawareness, Maastricht University, 22–23 June.

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

Post-doc/Research Position: in Machine Learning and Statistics, John Hopkins University, until filled.

Post-doc Fellowship: in History and Philosophy of Science, University of Leeds, deadline 2 January.

Associate Professor: in Philosophies of Logic and Mathematics, University of Oslo, deadline 5 January.

Post-doc: in Machine Learning, Aalto University, deadline 7 January.

Research Associate/Fellow: in Statistical Modeling, University of Bristol, deadline 15 January.

Two-year Post-doc Position: to work on the topic "Mathematical Structuralism" in the ANR-DFG project "Mathematics: Objectivity by Representation", MCMP, LMU Munich, deadline 18 January.

Two-year 50% Post-doc Position: to work on the topic "Theoretical Terms in Science vs. Mathematical Terms" in the ANR-

DFG project "Mathematics: Objectivity by Representation", MCMP, LMU Munich, deadline 18 January.

Assistant Professor: in History of Modern Philosophy, University of British Columbia, deadline 19 January.

Lecturship: in Post-Kantian Philosophy, University of Kent, deadline 20 January.

Three Assistant Professorships: in Logic and Philosophy of Language, three years with the possibility of extension, MCMP, LMU Munich, deadline 28 February.

Studentships

PhD Position: in epistemology and philosophy of science, University of Kent, until filled.

PhD Position: in Cognitive Science, Macquarie University, deadline 9 January.

Studentship: in Philosophy of Science, London School of Economics, deadline 12 January.

PhD Position: in Philosophy of Social/Policy Sciences, Durham University, Deadline 12 January.

Studentship: in History and Philosophy of Science, Durham University, deadline 16 January.

Studentship: in Philosophy and Law, University of Keele, deadline 23 January.

Studentship: in Metaphysics/Philosophy of Science, University of Leeds, deadline 31 January.