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EDITORIAL

There is a topic I've been thinking about quite a bit lately: infinity. The infinite has always exerted a deep charm on man. In ancient Greece, Anaxagoras stated that of anything small there is always a smaller thing, and of the large there is always a larger thing. Zeno famously used the concept of infinite divisibility and the continuity of space and time to construct paradoxes, allegedly demonstrating the unreality of plurality and change. And Aristotle notoriously rejected actual infinities, claiming that the infinite only exists as mere potentiality—more or less coinciding with the possibility of something being progressively divided into parts. The concept of infinity remained important in medieval philosophy, where it was directly connected to disputes concerning the nature of God and the things created by God. Can an infinitely powerful creator only craft a finite cosmos? Infinity was also central in the modern era when, for instance, Descartes, Galileo and Leibniz—completing a process dating back to Plotinus, Saint Augustine and, later, Cusanus and Bruno—rehabilitated the concept. In particular,

these thinkers argued in favour of the acceptability, or even necessity, of actual infinities, and paved the way for a more sophisticated definition and conceptual treatment of it. The infinite became an even more respectable, and well-defined, notion in the 19th century, especially through the work of mathematicians such as Bolzano, Dedekind and, most importantly, Cantor—who, among other things, showed that there are infinities of various types, and indeed infinitely many!



However, the evolution of the philosophy and mathematics of the infinite by no means solved all the relevant conceptual problems. On the contrary, new issues and questions emerged: is there an absolute infinity? How is the notion of infinity to be grounded in set theory? What is the relationship between mathematical and the physical infinities? Indeed, the study of these and other questions concerning the infinite continues to be significant today: for example, philosophers of physics try to answer questions concerning Zenonian series of infinite actions to be carried out in finite times (so-called 'supertasks'); the possibility of Anaxagorean metaphysical frameworks, with no fundamental level whatsoever, is (again) taken seriously in metaphysics; people studying probabilities and decision theory deal with scenarios involving infinite magnitudes, such as, for instance, the potentially infinite resources that one seems to be in a position to win in the infamous 'Saint Petersburg's game'; and epistemologists have started exploring answers to the problem of justification of beliefs whereby what for a long time appeared to be the source of the problem—i.e.,

that if we justify x on the basis of y we then have to justify y in turn, and this leads to an infinite regress—is converted into the solution to it—the infinity of justificatory steps being regarded as acceptable. And these are just a few examples! In sum, despite perhaps not being a topic that one immediately thinks of when thinking about philosophy today, infinity is no doubt a very rich notion that surely deserves serious attention from philosophers. Perhaps some of the readers of our gazette would like to share their thoughts on this, for instance by submitting a short piece on some aspects of the infinite?

Among the philosophers that have recently done important work in this sense, Jeanne Peijnenburg certainly stands out. Jeanne is currently professor of theoretical philosophy at the University of Groningen, Netherlands. She has published a number of articles in international journals, and is very active in terms of research projects, participation in seminars and conferences and organization of events and research networks. I am therefore very pleased to be able to interview her for this month's issue of *The Reasoner*, and to ask her a few questions about the philosophical aspects of infinity—and more.

MATTEO MORGANTI
Roma Tre University

FEATURES

Interview with Jeanne Peijnenburg

Matteo Morganti: Dear Jeanne, first of all thanks a lot for accepting my invitation to be interviewed for this month's issue of *The Reasoner*. I am very glad that you did, and excited to be able to ask you a few things about your work, and about philosophy more generally.

Jeanne Peijnenburg: The pleasure is all mine, Matteo, and many thanks for this initiative. It is always nice talking to you.

MM: Starting on a general note, how are things going in Groningen? What's your opinion of the status of research (in philosophy, but also more in general) in the Netherlands?

JP: In Groningen the faculty of philosophy is thriving. Last week we hosted the 13th Formal Epistemology Workshop (for the first time in the Netherlands), followed by The Chance Encounter, the closing workshop of Jan-Willem Romeijn's four-year project 'What are the chances?', which was funded by the Dutch organization for scientific research. Both events were organized by our department of Theoretical Philosophy, but the other two departments are doing well, too. The historians just heard that they may host the HOPOS conference on the history and philosophy of science in 2018, and our dean Lodi Nauta, who specializes in Mediaeval and Renaissance philosophy, received the highest scientific prize in the Netherlands, the Spinoza Award, which comes with a grant of 2.5 million euros. The group of practical philosophers was recently enlarged by



the engagement of two new colleagues: Christine Straehle from Ottawa has been appointed adjunct professor for political philosophy and public affairs, while Andreas Schmidt from Princeton was hired as university lecturer. Both Christine and Andreas will play an active role in our new master programme in Philosophy, Politics and Economics, which, if everything goes as planned, will start in September. At present there are in the Netherlands two autonomous faculties of philosophy: in Groningen and in Rotterdam. There used to be several more, but they all became part of faculties of humanities, or of arts. Despite this development, however, the quality of philosophy in the Netherlands has increased enormously in the past thirty years or so. Philosophy has become much more international and professional, with many more papers in the main journals, and close contacts with philosophers all over the world. There are also many more Ph.D. students than in the past, which contributes a lot to the lively climate.

MM: As you know, *The Reasoner* is 'a monthly digest highlighting exciting new research on reasoning, inference and method broadly construed', and is particularly interested in research connecting more or less traditional philosophy with formal tools of various types. You certainly share this methodological attitude, but can you tell us in more detail what you think about the methodology of philosophy? Are formal tools necessary for / highly recommended to philosophers in general, or does it depend on the specific questions asked?

JP: Nice question! It is indeed tempting to say that the efficacy of formal methods depends on the sort of questions that are being asked, since often the formulation of a question indicates the kind of answer that one is looking for: if one hopes for a formal answer, then formal methods seem fitting, otherwise not. But questions are not the same as subjects, and I don't believe that there are subjects that in principle are immune to a formal approach. Take a concept like 'meaning' or 'expectation'. They have been fruitfully formalized, although before the formalization many people did not believe that they would lend themselves to such a treatment. It is true that there are topics for which a formal analysis appears ill-advised or even inappropriate; it seems entirely misplaced, for example, to try to give a formal account of emotions such as 'love' or 'anger'. Yet I would be reluctant to distinguish beforehand between subjects that are and those that are not susceptible to a formal approach, all the more so since there is such a great variety among formal methods—not all of them presuppose axiomatization or a completeness proof. One formal tool may be more or less 'formal' than another, and it may well turn out that the one is more suited to a particular job than another.

MM: Isn't there the risk that the use of formal methods in philosophy may excessively restrict the range of issues that can be tackled by philosophers, or at least that philosophers deem worth tackling? Something like a 'second-wave' logical empiricism of sorts, whereby problems and hypotheses not amenable to a formal treatment are discarded?

JP: Of course there is a risk. Ramsey noted as early as 1929: "The chief danger to our philosophy, apart from laziness and woolliness, is *scholasticism*, the essence of which is treating what is vague as if it were precise and trying to fit into an exact logical theory." Ramsey was right, of course, although we

should not forget that ‘formalization’ means more than ‘fitting something in a particular logical theory’. Indeed, after 1929 we have seen several formalizations of vague concepts, in which vagueness as such is fully respected.

But you are right to point out that formal methods can be misused. Sometimes they are used for their own sake, without having any relevance to the philosophical problem at hand. Or worse, they result in blinding people with an unnecessarily intricate labyrinth of symbols, thus creating a new sort of woolliness. The fact that formal tools can be misused is however no reason to shun them. Like informal philosophy, formal philosophy can be good or bad, and using a formal method is neither necessary nor sufficient for producing good work. A great advantage of expressing yourself by formal means, as I see it, is that it facilitates criticism: the formalization often makes it easier to identify the weak spots. So it enables you to improve your position and thereby achieve progress.

MM: In more detail, you have worked among other things on the problem of justification in epistemology, and lent further support via probabilistic tools to the sort of infinitism most strongly argued for by Peter Klein. Can you tell us more about this, both in terms of general motivation and ideas, and of specific results?

JP: In introductory textbooks of epistemology which I use in the first year, the epistemic regress problem is routinely explained on the basis of Agrippa’s trilemma, followed by the three solutions: foundationalism, coherentism and infinitism. It struck me, first, that infinitism was often mentioned only to reject it immediately as being obviously false, and second, that no serious attempt was being made to precisify ‘justification’. But how can one claim that an infinite chain of propositions justifying one another is obviously false if one does not know what it means that one proposition is justified by another?

While in older texts epistemic justification is—often tacitly—understood as some sort of entailment, recent textbooks interpret it as ‘probabilification’. They fail however to make that concept clear; for that, one has to go formal epistemology, where much work was done on confirmation and on the idea of proposition p ‘making probable’ proposition q . In his seminal paper of 1999, Branden Fitelson identifies about ten different measures of confirmation. Although these measures are not even ordinally equivalent to one another, they are all alike in presupposing what Carnap called incremental confirmation. This made me think that, whatever it may mean to say that p justifies q , it implies that the conditional probability of p given q is greater than that of p given $\neg q$: $P(p | q) > P(p | \neg q)$. By calling the latter inequality the condition of probabilistic support, one can now make the question more precise: is an infinite justificatory chain obviously incoherent if justification satisfies the condition of probabilistic support?

Most people have answered this question in the affirmative, albeit for different reasons. C.I. Lewis and Bertrand Russell, for example, argued that an infinite chain is nonsense because it yields probability zero for the target proposition. Others have claimed that such a chain fails to bestow on the target proposition a definite probability value. Both claims are mistaken. As I have shown in joint work with David (Atkinson), an infinite justificatory chain typically yields a unique and well-defined non-zero value for the target proposition. Lewis and Russell were right that something goes to zero, however this is not the

probability of the target, as they thought, but rather the contribution of the links in the chain to that probability: the further away a particular link is from the target, the smaller is its contribution, and in the limit the contribution goes to zero. This is a form of washing out, but totally different from the familiar washing out of the prior in Bayesian reasoning: the two phenomena don’t have anything to do with one another.

As we explain in a book that will shortly appear in the Synthese Library Series (this time for a very affordable price, I am happy to say), the effect is already noticeable in finite justificatory chains. This takes away any qualms that one might have about finite minds that can handle only a small number of reasons for a belief. In this view epistemic justification becomes a trade-off between the number of reasons that one is able to take into account and the accuracy that one desires for the target proposition.

The above result applies to linear chains, but we showed that it still holds if we go from one-dimensional chains to multi-dimensional networks. To our surprise, what we found were structures that display a great similarity to fractals. I don’t mean the strictly repetitive fractals of for example Sierpinski, but rather the more richly structured fractals of Mandelbrot, which one encounters in leaves and crystals and snow flakes. It seems that giving reasons for our beliefs is in a sense the building of fractals!

MM: Speaking of infinitism, in my short introduction to the interview I point out how fascinating, powerful but at the same time mysterious and elusive the subject of infinity is. Other than in epistemology, for example, it is central in metaphysics, in physics and in mathematics and the philosophy of mathematics. I expect you to agree with this, right? What is it, specifically, that you think philosophers can do with the infinite, or at least learn from the historical evolution of the subject?

JP: I am not an expert on the historical evolution of the infinite, but it is clear that the subject triggers the imagination. How is it possible that we can talk about the infinite at all, given that all we have encountered is finite? It is like the problem of theoretical terms, or of universalia, or of Plato’s forms: we somehow manage to detach ourselves from the things around us, and start thinking in abstract concepts that are only partly and indirectly connected to the world around us. What is the meaning and status of such concepts? This question is relevant for epistemology, but also for philosophy of mind, of science, of language. But one has to be careful. It is well-known that people readily go astray when dealing with the infinite, just as they easily err when reasoning with probabilities. By combining the two notions, David and I have in a sense been asking for trouble!

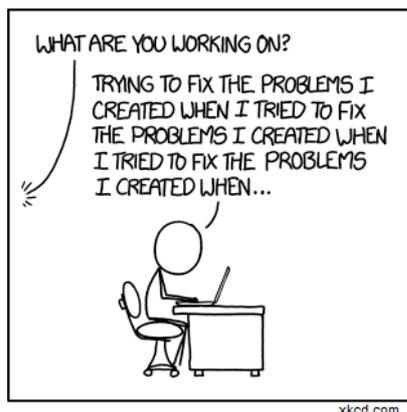
MM: Do you have any specific research projects going on, or that you are setting up, that you want to tell readers of *The Reasoner* about? Perhaps concerning the infinite?

JP: One thing that has bothered me for a while does not have anything to do with the infinite. In epistemology we continue to talk cheerfully about beliefs without having a criterion to identify them. Where does one belief stop and another begin? The same question can be asked about actions, although there it seems less pressing. Yet in the philosophy of action the

problem has been discussed much more than in epistemology, which seems strange. My ideas here are however somewhat half-baked, and I am not sure they will lead to something worthwhile.

MM: Well, Jeanne, thank you very much once again for accepting to be interviewed, and for your very stimulating answers, which I am sure will be of great interest for the audience of *The Reasoner*.

JP: Thank you for the great questions, Matteo, and for having given me the opportunity to talk about Groningen and my work.



Tiny proper classes

Cantor believed there are classes of objects that add up to a completed totality and classes of objects unable to do so. The former are the ones we now call sets. Cantor called the latter inconsistent multiplicities but they are nowadays more frequently known as proper classes. In the philosophy of set theory, it is usually assumed that inconsistent multiplicities or proper classes are simply too big to be sets. Those multiplicities that paradoxes have proven inconsistent (the multiplicity of all sets, the multiplicity of all well-founded sets, of all non self-membered sets, of all ordinals, of all cardinals) are in fact huge. And this conception of the difference between consistent and inconsistent multiplicities is represented in some axiomatics of set theory by axioms like the Axiom of Limitation of Size (in some presentations of the axiomatic NBG) or the Axiom of Replacement in the axiomatic ZF.

In set theory, two sets A and B are the same size iff there is a one-to-one function from each other. If A can be so paired with a subset of B but not with B , A is said to be smaller or less numerous than B . Roughly put, the Axiom of Limitation of Size states that all proper classes are the same size (the size of the universe) and the Axiom of Replacement states that whatever is the size of some set is a set.

We wish to suggest an alternative interpretation of the very existence of proper classes, that is, an interpretation of the difference between sets and proper classes based not on size but on the notion of availability: the members of a set are available once and for all whereas the members of a proper class are not. Proper classes are indefinitely extensible or open ended: whenever a portion of them is available as a completed totality, it is possible to use this availability to define an object of the class that is not in the portion. This type of construction is known

as diagonalization and, we suggest, it reveals the reason why not all members of a proper class can be simultaneously available: it is always possible to render new members available by diagonalization. This is why Russell called such classes self-reproductive classes (see Russell 1905: On some difficulties in the theory of transfinite numbers and order types, *Proceedings of the London Mathematical Society* s2, 4(1):29–53).

Assume, for instance, we have a set S of sets. We can immediately define a set not in S , namely, the set RS of all non self-membered sets of S (the possibility of this construction is guaranteed by the Axiom of Separation). If RS were in S , it would be self-membered if and only if it were not; so, it is not in S . RS diagonalizes out of S ; and as S was any set of sets, there can be no set of all sets.

The following example should contribute a bit of evidence for the availability interpretation of proper classes.

Consider a person—for instance, Andrew Wiles—and define the class CW of all sets Wiles will define in his lifetime. Whatever it is, CW is finite. Let us assume that CW is a set and let hand it to Wiles. Then Wiles could easily define the set RCW of all non self-membered sets in CW and RCW would not be in CW though it would have been defined by Wiles in his lifetime. This would reveal that CW was not the set of all sets Wiles will define in his lifetime. It seems that the class of all sets that Wiles will define along his lifetime is not available to Wiles as a completed totality. And it seems it is so for the same reason the class of all sets is not available to anyone as a completed totality: in each case, the purported completed totality could be diagonalized out of and exposed as an indefinitely extensible class.

CW might well not exist as a set, even if it would have only a finite number of members; at least, not for Wiles. For, if it is not a question of size but of availability, one could conjecture that while CW is not a set for Wiles, it could well be such for, say, Grigori Perelman. Perelman could not diagonalize out of CW : if Perelman defined a set not in CW , this would not extend CW as it would occur if Wiles did. However, if CW were available as a set to Perelman, then the class CP of all sets Perelman will define during his lifetime would surely be a set for Wiles. But, as CW is supposed to be a set for Perelman, CW could be a member of CP (Perelman could define it), which in turn would be available to Wiles as a completed totality, for Wiles could in turn define the set of all sets Perelman will define in his lifetime. Then CW , which could not be a set for Wiles, would be a member of what is possibly a set for him. This appears to be impossible, since proper classes are prohibited from being members of any classes.

It seems, therefore, that CW and CP will be finite proper classes for all of us while Andrew Wiles and Grigori Perelman, respectively, are still living and will only become sets for us afterwards. This is not as weird as it could prima facie appear to be. Consider that it is only while these great mathematicians are still alive that those tiny proper classes can be diagonalized out of. In any case, the existence of classes that are not sets though they are tiny, that is, much much smaller than the size of the universe (finite indeed!), would lend support to the interpretation of proper classes in terms of availability and not size, which we have merely outlined here.

LAUREANO LUNA

IES Doctor Francisco Marin
Siles. Spain

Rationality Summer Institute, September 4–16

The [First International Rationality Summer Institute](#) took place in Aurich, Germany, and was organized by Markus Knauff, Marco Ragni, Patricia Garrido-Vsquez, Regina E. Fabry, and Julia Wertheim.

With Gerd Gigerenzer and Johan van Benthem as keynote speakers—and faculty members such as John Broome, Vincenzo Crupi, Igor Douven, Hans Rott, Jan Sprenger, and Stephen Hartmann on the philosophy side and Valerie Thompson, Martin Monti, David Over, Aidan Feeney, Jérôme Prado, and Eva Rafetseder on the psychology side—the IRIS 2016 summer institute aimed high. Its ambition was to help overcome disciplinary boundaries in the field of rationality research by bringing together over 40 upcoming, young researchers from over 20 different countries from Philosophy, Psychology, Neuroscience, and Computer Science.

The courses covered a wide range of topics from the neural basis of reasoning, the relationship between language and thought, rationality, normativity, probability, inductive reasoning, causal reasoning, logic, belief revision, conditionals and much, much more.

With this level of quality, many courses could be singled out. But for me two highlights were Vincenzo Crupi's attempt to sort out the descriptive and normative questions in the rationality debates and Martin Monti's tour de force through the language and thought debates in philosophy and neuroscience. Both of them felt like they could have been books that I would very much have enjoyed to read.

In the midst of all this interdisciplinary, cross-culture, multilingual spectacle, the organizers cunningly thought that they could jazz things up through mentoring programs, tandem partners, a young scientist forum and by literally drawing its participants through the mud on one of the recreational activities on a hiking tour on the ocean floor during low tides.

So did they succeed? Being scientific about this, clearly there is no other way to address this issue than by directly asking the participants to sum up their experience in one word. Here is some of what they said: “Wicked awesome!”, “Mind bending!”, “Zarpadisimo!”, “zakon!”, “światny!”, “killer!”, “Wunderbar!”, “Gelweldig!”, “chévere!”, “Hellacious!”, “Stellar!”, “Oberaffengeil!”, and “Jolly Good!”.

I for my part remember sitting at the courses thinking that I would wish that this high quality teaching would never stop. Of course, the real test of IRSI2016 will be the test of time, when the participants rejoin at conferences and form collaborations. However, it is fair to say that the frame conditions for this have been set up and that the organizers have all done an amazing job to help shape the next generation of rationality research.

NIELS SKOVGAARD-OLSEN
University of Konstanz

Calls for Papers

[BIG DATA AND BUSINESS ANALYTICS ECOSYSTEMS](#): special issue of *Information Systems and e-Business Management*, deadline 16 October.

[ETHICAL RISK ASSESSMENT IN BIOMEDICAL BIG DATA](#): special issue of *Philosophy & Technology*, deadline 17 October.

[KNOWLEDGE TRANSFER AND ITS CONTEXT](#): special issue of *Studies in the History and Philosophy of Science*, deadline 30 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 IN THE SCIENCES](#): 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

Yet another major earthquake hit central Italy last August. The death toll is again in the hundreds—a tragic reminder of the enormous challenges related to coping with natural disasters (as well as with the largely unforeseeable effects of climate change). A good measure of how hard this sort of problem is, is given by the fact that we are still in the process of identifying the relevant concepts to talk about those extreme natural risks.



This is how the concept of *embodied uncertainty* has recently entered the literature: see V. Sword-Daniels *et al* (2016: *Embodied uncertainty: living with complexity and natural hazards*. *Journal of Risk Research* 9877:118.) In addition to understanding the aspects of uncertainty which are captured under this heading, it is quite interesting to have a look at how uncertainty is understood in this multidisciplinary field which includes geography, disaster studies, sociology, psychology, earth sciences, public policy and political science.

The authors take as a starting point the definition of risk provided by C. Benson, J. Twigg, and T. Rossetto (2007: *Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organisations*, Geneva, International Federation of Red Cross and Red Crescent Societies / the ProVention Consortium). According to this study, risk is “a function of the characteristics and frequency of hazards experienced in a specified location, the nature of the elements at risk, and their inherent degree of vulnerability or resilience.” This characterisation of risk is obviously much closer to the ordinary concepts of “danger” and “threat” than to decision-theoretic lotteries. This can hardly be surprising if we think at the difficulties related to modelling naturalistic settings and the societal impact of the issues at stake.

Building on this, the concept of *embodied uncertainty* is seen to incorporate the way people, individually and socially, respond to situations of risk. In other words it adds a performative dimension to the ordinary representation and quantification of the concept of uncertainty. Embodied uncertainty is then the

result of *us* being at risk and knowingly so.

Embodied uncertainty is differentially internalised, depending on past experiences, social identities, beliefs, values, institutional structures, resources available and social norms. In a situation of high uncertainty, internalised characteristics influence how the multiple dimensions are individually or collectively experienced, interpreted and acted upon.

The paper suggests that policy-making related to natural disasters, from wildfires to flooding, should take embodied uncertainty seriously. In particular it is emphasised that this should lead policy-makers to accept severe uncertainty as an ineliminable parameter of the problem, rather than (artificially) trying to sum up all the uncertainties to objectively given chances, an activity which leads often to the co-production of (model-) knowledge and (higher-order) uncertainty. The idea that society and politics alike should embrace uncertainty is, in my view, highly commendable. Its implementation, however, requires a culture of uncertainty which doesn't seem to be there yet—see, for instance H. Nowotny (2016: *The Cunning of Uncertainty*, Polity).

From the point of view of (formal) uncertain reasoning, getting to grips with embodied uncertainty looks no less than daunting. And yet the potential benefits of bringing the formal analysis to this subject can hardly overestimated.

HYKEL HOSNI

Philosophy, University of Milan

Evidence-Based Medicine

It's that time of year again: [The 26th First Annual Ig Nobel Prize Ceremony](#). The Ig Nobel prizes aim to honour 'achievements that first make people laugh, and then make people think'. In other words, 'The prizes are intended to celebrate the unusual, honor the imaginative—and spur people's interest in science, medicine, and technology'. The award ceremony takes place every September. This year's ceremony can be viewed on [the Improbable Research YouTube channel](#), and [past ceremonies](#) are also available there. This year, the ceremony was also [live tweeted](#). More details about the Ig Nobel Prize are available at a [section](#) of the [Improbable Research website](#). (The list of past award winners is also available on that [website](#).)

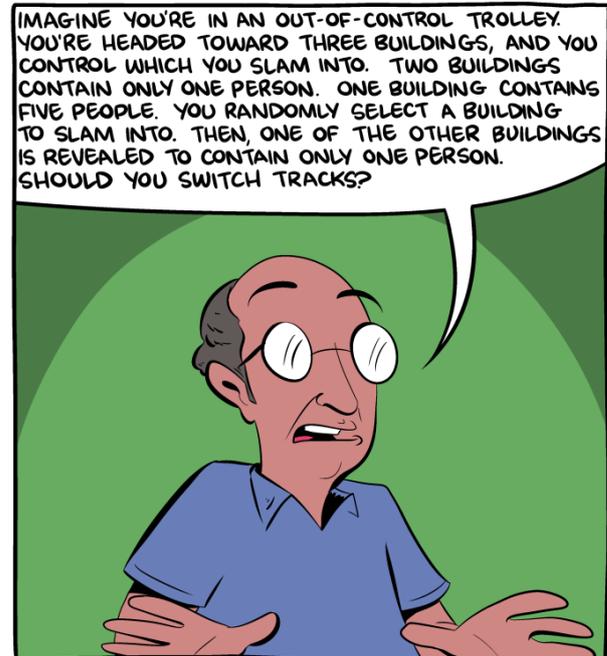
One of this year's highlights was the economics prize, awarded to Mark Avis, Sarah Forbes, and Shelagh Ferguson, 'for assessing the perceived personalities of rocks, from a sales and marketing perspective'. Their [original research](#) is available at the journal *Marketing Theory*. Another highlight was the peace prize, awarded to Gordon Pennycook, James Allan Cheyne, Nathaniel Barr, Derek Koehler, and Jonathan Fugelsang for their paper [On the Reception and Detection of Pseudo-Profound Bullshit](#).

There were also some medicine-related awards. For example, this year a reproduction prize was posthumously awarded to [Ahmed Shafik](#) for his work 'studying the effects of wearing polyester, cotton, or wool trousers on the sex life of rats, and for conducting similar tests with human males'. His research on [rats](#) is available in the journal *European Urology*. His research on [men](#) is available in the journal *Contraception*. The upshot seems to be that a polyester sling is an effective contraceptive. But this year's overall award for medicine went to

Christoph Helmchen, Carina Palzer, Thomas Münte, Silke Anders, and Andreas Sprenger, 'for discovering that if you have an itch on the left side of your body, you can relieve it by looking into a mirror and scratching the right side of your body (and vice versa)'. The paper is available at [PLoS ONE](#).

MICHAEL WILDE

Philosophy, Kent



So far, no ethicists are impressed with the Monty Hall Trolley Problem.

EVENTS

OCTOBER

[EPPM](#): Workshop on Experimental Philosophy and Philosophical Methodology, University of Warwick, 4–5 October.

[FMS](#): Foundations of Mathematical Structuralism, LMU Munich, 12–14 October.

NOVEMBER

[SFM](#): Symposium on Formal Methods, Limassol, Cyprus, 7–11 November.

[LOGICIC](#): The Logical Structure of Correlated Information Change, Amsterdam, 17–19 November.

[SoCALML](#): The Southern California Machine Learning Symposium, California Institute of Technology, 18 November.

[WoPL](#): Workshop on Philosophical Logic, Buenos Aires, 23–25 November.

December

[ML4HC](#): Workshop on Machine Learning for Health, Barcelona, 9 December.

[OtO](#): Optimizing the Optimizers, Barcelona, (9–10 December).

[IDM](#): Imperfect Decision Makers: Admitting Real-World Rationality, 9–10 December.

ASNM: Adaptive and Scalable Nonparametric Methods in Machine Learning, Barcelona, 10 December.

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.

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

ADJUNCT FACULTY: in Logic, Aurora University, Illinois, open until filled.

RESEARCH CHAIR: in Philosophy of Science, The University of Western Ontario, deadline 1 October.

POSTDOCTORAL RESEARCHER: in Logic, University of Amsterdam, deadline 2 October.

POSTDOCTORAL RESEARCHER: in Formal Epistemology, Prague, deadline 15 October.

ASSISTANT PROFESSORSHIP: in Metaphysics and Epistemology, University of California at Santa Barbara, deadline 28 October.

OPEN RANK: in History and Philosophy of Science, University of Pittsburgh, deadline 31 October.

PROFESSORSHIP: in Logic, University of California at Los Angeles, deadline 1 November.

ASSISTANT PROFESSOR: in Logic and Scientific Methodology, London School of Economics and Political Science, deadline 7 November.

Studentships

PHD POSITION: in Logic and Semantics, University of Barcelona, deadline 3 October.

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.