THE REASONER

CONTENTS

GUEST EDITORIAL

Leszek Wroński is a professor at the Institute of Philosophy of the Jagiellonian University in Kraków. He has worked on philosophy of physics and probabilistic causality (*Reichenbach's Paradise*, De Gruyter 2014), but more recently his interests lie firmly in the realm of formal epistemology. In 2018 his book *In Good Form. Arguing for Epistemic Norms of Credence* appeared from the Jagiellonian University Press. In his spare time he prepares modern editions of Baroque music and runs a vocal group which focuses on early music. In 2020 he was awarded a 3-year research grant "Epistemic Inaccuracy and Foundational Issues in Formal Epistemology", financed by the Polish National Science Centre.

PAVEL JANDA
Czech Academy of Sciences

FEATURES

Interview with Leszek Wroński

PAVEL JANDA: Later this year, you are starting a big research project called "Epistemic Inaccuracy and Foundational Issues in Formal Epistemology". Could you give an overview of your project and its goals?

LESZEK WROŃSKI: Sure. I've been interested in informal epistemology for a few years, and there are a few issues I would like to spend more time on. These issues are usually at the formal heart of the philosophical issues discussed in formal epistemology.

One big area in modern epistemology revolves around the notion of epistemic accuracy. There are quite a few inaccuracy measures whose advantages and disadvantages are discussed in the literature. I would like to study this in detail, especially since my point of entry to the field was an interest in the inverse relative entropy and its connection to inaccuracy measures. I was reading up on update methods which minimize expected inaccuracy, and it occurred to me that the one which employed the local logarithmic inaccuracy measure was the same as the update method which minimized the inverse relative entropy. I would like to study this in detail because I think there is some confusion when it comes to the entropy-related notions in formal epistemology. I would like to slowly think about them and investigate them formally.

Also, there is, of course, the issue of perhaps the most famous inaccuracy measure, the Brier score. There are power-

ful arguments for this measure and in general for the class of quadratic measures of inaccuracy. I've contributed to a very small degree to those arguments. But, recently, there have been powerful counterarguments, by Fallis and Lewis, who show cases in which after clearly improving your epistemic situation you increase your inaccuracy as calculated by the Brier score. This is a problem. So, I think, the case of the Brier score is still interesting and I would like to study it.

So, this is one area of the project: What is the best inaccuracy measure? I think this connects closely to modern literature.

PJ: Are there any further lines of research you would like to pursue in the project?

LW: The other big thing I would like to tackle in the project is the proper formulation of the best-known candidates for norms of epistemic rationality and the investigation of logical relationships between them. There is a growing literature on how we should properly phrase something which I think people had thought to be really obvious, namely, conditionalization; this is a hot topic these days. But there are other candidates for norms of epistemic rationality which involve, almost explicitly or even just explicitly, credences about probabilities or credences about credences; which might or might not be the same thing: for example, the Principal Principle and the Principle of Reflection. I find that, usually, the discussion about these norms is not formal enough to my taste.

I'd like for an argument about the relationship between two norms, for example, that one norm follows from another, to eventually feature a theorem to the effect that if a structure suitable for representing the belief state of an agent satisfies one norm, then it does satisfy the other one. For this we should really have a proper structure modelling higher-order probabilities, so that we could speak about credences about chances etc. We shouldn't just slap labels on sets and say, well, that this set is the proposition X and that we assume that this other set is the proposition that X has the probability of 0.5. If we start by doing something like that, then, probably, if our math is correct, we will reach true theorems but, I think, it will be debatable whether what we're doing is really a matter of the relationship between the principles of interest. So what I would like to do in the project is to find—I don't want to create it from scratch, if possible—a framework which would be philosophically well-motivated and would allow a proper philosophical discussion about norms of epistemic rationality.

PJ: Could you give an example?

LW: For example, people are frequently hand-waving around Haim Gaifman's *A Theory of Higher Order Probabilities*, saying that if you want to have a proper structure for speaking about probabilities of probabilities, you can use the approach from that paper. And Gaifman himself writes that it actually models something like the Principal Principle. I've heard people say that you can also use it to model the Principle of Reflection. It seems to me that we are lacking a thorough and formal exploration of this option. For example, how would the structure look if it was supposed to correspond to a belief state of an agent who satisfied both the Principle of Reflection and the Principal Principle? Gaifman's formal approach can-

not just be literally taken and used there. We need to tweak it, and it's a non-trivial thing; I hope it will also be possible to philosophically justify the approach.

Once we have in place this proper structure, which we can use to model belief states of agents who may satisfy the important norms of rationality, we can then come back to the hot topic of the logical relationship between those norms. For example, does the Principal Principle imply the Principle of Indifference? The way I would like to tackle this question would be first to establish these types of structures and then ask whether any structure of this sort which satisfies the Principal Principle, satisfies the Principle of Indifference, or *vice versa*, or, lacking fully general relationships, whether similar connections hold in interesting types of these structures. It's possible, I think, that this turns out be a fruitful way of doing things.

There is, I think, another topic to be discussed when it comes to the Principal Principle itself. Some people are happy to consider it to be a learning rule: how should a rational agent set his or her credences once evidence about chance is received? This is the "dynamic" reading of the Principal Principle. But for the Principle to do the job David Lewis envisioned for it, I think, it's not needed for the chance to be even possibly learnable by anyone. Satisfaction of the Principle is just the matter of coordination of credences about chances with credences. This is the "static" reading of the Principal Principle. I think the existence of these two readings of the Principal Principle may point to the fact that there are actually two principles which might be legitimately discussed independently. I would like to investigate this.

PJ: The project seems to continue on your previous work. For example, your book *In Good Form. Arguing for Epistemic Norms of Credence* explored related topics of carefully formulated formalism in parts of epistemology. Is my impression correct?

LW:

This is exactly the case. I think there might be a fruitful way of tackling these issues, which is a little bit more formal than it is usually the case in what has been published so far on these matters.

PJ: Are you interested in any other continuations of your previous work?

LW: One last thing I would like to mention when it comes to the project is that I would like to think about the relationships between various sources of irrationality. You exhibit incoherence when you don't satisfy Kolmogorov's axioms. You can display epistemic inaccuracy, which is also a kind of an epistemic defect. But there is also the matter of exploitability, e.g. via Dutch Books.

I have strong doubts whether the classical Dutch Book arguments, especially for Probabilism, are actually valid arguments. I have studied variants of the arguments, which, I think, are better in the sense that they could convince non-probabilists of an error in their ways. Together with Michał Tomasz Godziszewski, we have published some research on incoherent and yet not Dutch-Bookable agents. Richard Pettigrew has responded to that (and primarily to the prior research on these issues by Brian Hedden). I would like to investigate this further and take this into the direction of the possible relationships between various sources of irrationality. For example, if you are incoherent but not Dutch-Bookable, is it the case that you are epistemically less inaccurate than someone who is not only incoherent but also Dutch-Bookable? This ties also into

the research done by Julia Staffel and Glauber de Bona.

PJ: Let us briefly consider more practical issues. You are advertising a postdoctoral position in your project, and you offer a very high salary with respect to the regional standards. Is this a strategy to attract people from the West?

LW: Firstly, due to the NCS rules, asking for as much money as possible for my co-workers wasn't detrimental to my chances of getting the grant. So, it was just natural to ask for the maximum. Secondly, at least before the pandemic, it was the case in Poland that anyone with a PhD in mathematics or computer science could easily find work for that kind of money. I have known people from abroad who finished their PhDs in formal philosophy and started working in computer science too. The money they received was incomparably better than anything the philosophical academia was able to offer them. It is kind of a problem, at least in Poland: finding people interested in doing formal research in the academia is becoming more and more difficult because the business sector takes these people and doesn't give them back. But I think the offer I'm making for the position makes it competitive against other options that a formally trained PhD might have immediately after obtaining the degree.

PJ: Finally, do you have any recommendations for researchers/students on how we should develop formal epistemology in the post-communist countries in our region such as Poland or the Czech Republic?

LW: That's a difficult question. First, some comments about the field in general. I think, on the whole, people should write less. (In other words: writing much should not be mandatory for career progress.) There should be fewer papers published. But another thing I would like to say is that we should read slowly and purposefully the work that's being published. Some people in our region are happy with reading just the literature from 10 or 15 years ago. It makes some sense, since you read material that has stood its first test of time, but it will be great if in our region more groups appear similar to the ones in Gdansk and Warsaw, which read through what's published now and interact with it.

Because publishing takes a long time in formal philosophy, one thing that's absolutely crucial for people from our region is that we manage to be included in the preprint circles. So that foremost researchers actually send us drafts of their output, and we can comment on it. This is, I think, the most important thing which would allow us not to always be two years behind. But how can we achieve this? We can only do so by writing good papers in the first place, meeting people, travelling to conferences, and having our students or PhDs ask good questions; also, having them write e-mails to foreign authors. I think this is something of an Eastern-European thing: we are somehow naturally ashamed, thinking, for example, "I am only a PhD student, and I will not harass the Great Professor from the West with my questions". We should do away with this. If you have a legitimate question, nothing bad can come from you writing an e-mail to a well-known researcher.

The main thing, then, is to make our way into the preprint circles. I think grants should help with that. Namely, we can now actually invite people to come, say, to Poland and establish some connections.

The Logic of Conceivability: Gettier cases and experimental philosophy

The method of cases (MoC) plays an outsize role in analytic philosophy. Hereby, a counter-example to a philosophical theory is posited by (i) conceiving of a scenario (possibly outlandish) of which (ii) one is immediately inclined to issue a judgment that contradicts said theory. According to Timothy Williamson (in *The Philosophy of Philosophy*), a satisfactory explication of MoC has various features. First, it is anti-exceptionalist: the induced judgment is treated as *ordinary* judgment, without alleging, for instance, an infallible faculty of 'intuition' that philosophers are specially attuned to. Second, it paints MoC as delivering *material-mode* conclusions: the conceived scenario is intended to be a metaphysical possibility, rather than a mere conceptual, epistemic or logical possibility. Third, it must explain why standard Gettier cases yield substantial philosophical knowledge, on the hypothesis that if any thought experiment succeeds, then Gettier's do.

These views are somewhat echoed by prominent *critics* of MoC. In *Philosophy Within Its Proper Bounds*, Edouard Machery argues that traditional MoC should effectively be shelved, in light of its experimentally confirmed unreliability. In support, Machery offers a comprehensive overview of existing experimental results, indicating that folk responses to many standard philosophical cases are significantly influenced by demographic or presentation variables. Machery agrees that traditional MoC is best described as anti-exceptionalist (lest folk surveys be rendered irrelevant). He agrees that it is in the material-mode. He agrees that Gettier cases stand out as particularly robust: the judgments elicited by typical Gettier cases have only negligible demographic variation and only small to moderate ordering and framing effects. This contrasts with early experimental studies (notably, the pioneering 2001 studies of Weinberg, Nichols and Stich) that concluded significant demographic variation, but failed to be replicated. To elaborate, consider a key Gettier case:

Hospital. Paul Jones was worried because it was 10 pm and his wife Mary was not home from work yet. Usually she is home by 6 pm. He tried her cell phone but just kept getting her voicemail. Starting to worry that something might have happened to her, he decided to call some local hospitals to ask whether any patient by the name of "Mary Jones" had been admitted that evening. At the University Hospital, the person who answered his call confirmed that someone by that name had been admitted with major but not life-threatening injuries following a car crash. Paul grabbed his coat and rushed out to drive to University Hospital. As it turned out, the patient at University Hospital was not Paul's wife, but another woman with the same name. In fact, Paul's wife had a heart attack as she was leaving work, and was actually receiving treatment in Metropolitan Hospital, a few miles away.

This seems a lightly coincidental arrangement of mundane elements. Philosophical orthodoxy takes Hospital to induce the judgment that Paul has a justified true belief (his wife is in hospital) that isn't knowledge. Call this a *singular Gettier judgment*. Credible studies indicate that Hospital induces widespread convergence on the singular Gettier judgment. Machery et al. (2017, 'The Gettier Intuition From South America to Asia') find both men and women made the singular Gettier judgment at a rate of about 80%. Participants across 23 countries and 16 languages made the singular Gettier judgment at rates between 70% and 90%. Machery et al. (2018, 'Gettier Across Cultures') report similar cross-cultural invariance: 86% of US respondents issued the singular Gettier judgment; 95% of Brazilians; 88% of Indians; 91% of Japanese.

Hospital represents an important class of Gettier case. In the terminology of John Turri (2019, 'Experimental Philosophy and "Gettier" Cases'), it exhibits the structure: *no detect with replacement*. Though the agent is reasonable to believe the proposition in question, they fail to genuinely detect its truth. The *presumed* truthmaker for the proposition has not in fact been realized; it is true in virtue of a 'replacement' truthmaker. Paul justifiably believes his wife is hospitalized, on the basis of a reasonable presumption that she was admitted to University. His presumption is incorrect: she was admitted to Metropolitan. This class is notable, as it plausibly includes Gettier's original cases. It contrasts with Gettier cases with so-called *detection with failed threat* structure - e.g. fake-barn cases - or *detection with replacement* structure - e.g. the 'authentic evidence' cases of Starmans and Friedman (2012, 'The Folk Conception of Knowledge'). Turri rightly cautions: that a certain type of Gettier case induces (or fails to induce) largely uniform judgment doesn't support conclusions about the abstract class of Gettier cases as a whole.

Strikingly uniform folk judgment about Hospital doesn't indicate *accurate* judgment if folk epistemic judgment is systematically inaccurate. But anti-skepticism counsels acceptance of the *general reliability thesis*: blind-spots granted, folk epistemic judgment is generally accurate when evaluating suitably mundane cases. Crucially, *anti-exceptionalism* and the *general reliability thesis* yield:

> *Epistemic anti-exceptionalism.* Absent specific defeat, a MoC judgment about a mundane case is rightly treated as expert judgment.

Nevertheless, Machery denies that Hospital-like Gettier cases can be treated as an exception to the rule that philosophical cases induce unreliable judgment, since, he claims, a significant framing effect has been witnessed for such cases. In Study 2 of Machery et al. (2018, 'Gettier Was Framed!'), 85% of respondents judge that Paul in Hospital has the impression that he knows, but doesn't know; while only 63% of respondents judge similarly for the agent in Clock, a second Gettier case. Clock is a variant on the classic case from Bertrand Russell. (Basically: a stopped clock happens to read 4pm on its face. At 4pm, a hapless agent observes the clock face and thereby forms a belief about the time.) Thus, Machery claims, superficial narrative detail (i.e. whether one is discussing Paul's wife rather than a stopped clock) significantly alters response rates.

However, it is questionable whether this amounts to a framing effect. A framing effect is exhibited by two cases when (i) there is a statistically significant difference in how subjects respond and (ii) the cases differ *only* in superficial narrative details: with respect to philosophically relevant structure, they are equivalent. But Hospital and Clock exemplify different underlying structures. In Hospital, the agent believes a proposition ('My wife is in hospital') on the basis of a presumed truthmaker (she was admitted to University) that differs substantially from the actual one (she was admitted to Metropolitan). Clock doesn't share this feature. Further, the nature of the defect in the agent's information source differs. In Hospital, the agent consults a device (a call to the hospital) that is (known to be) generally reliable with respect to the salient domain (admittance facts), but is, as a matter of (bad) luck, misleading in this one instance. In Clock, the agent consults a device (the stuck clock) that is (surprisingly) highly unreliable with respect to the salient domain (time facts), but is, as a matter of (good) luck, accurate in this one instance.

For further analysis of Machery's attack on Gettier cases, see 'Are Gettier Cases Disturbing?' by Peter Hawke and Tom Schoonen, forthcoming in *Philosophical Studies*.

Peter Hawke
University of Amsterdam

News

Calls for Papers

Philosophy of Medicine: special issue of *teorema*, deadline 10 July.

Simplicity out of Complexity? Physics and the Aims of Science: special issue of *Synthese*, deadline 31 July.

Foundations of Data Science: special issue of *Machine Learning*, deadline 30 September.

Evidential Diversity in the Social Sciences: special issue of *Synthese*, deadline 15 November.

What's Hot in . . .

Science Policy

The COVID-19 crisis raised more attention to science in the eyes of the general public. More and more people are reading news about science and turning to experts' opinions for advice. In particular, countries all over the globe seek to provide the best possible medical care, equipment, and testing facilities for their citizens. Also, we are witnessing the fact that in order to control a pandemic one has to be able to control it everywhere in the world. If the respiratory virus survives in any population, it can easily spread everywhere. Thus, the vital importance of equalized and high standards in education and science worldwide should be recognized as a way of protecting humanity. The question of how to improve these standards arises.

Unequal development and distribution of COVID-19 tests and national financial support for testing vaccine candidates are prime examples of the consequences that can occur when scientific resources are concentrated in relatively few countries. For example, the lack of access to molecular diagnostics delayed

the response to the virus in Africa (Nkengason 2020; Nature, 580(7805), pp. 565-565). Similarly, fears are spreading that a potential vaccine will not be available simultaneously in every country (Khamsi 2020; Nature, 580(7805), pp. 578-580).

In order to reach equity in these matters, we have to focus both on science and its funding, as well as on education. Moreover, even in regular circumstances, one must hope for a similarly high level of medical care in every country. Even a very simple example from the perspective of a rational egoist can be raised to support this claim: if one gets seriously ill during traveling, one will hope for the best possible immediate medical care on spot.

Increasing science funding, investing in the equipment, and realizing that this has public importance, are hopefully becoming prominent themes in public discourse. Apart from the increased interest in life sciences, some of the social science, such as psychology and sociology, are also being recognized as relevant factors in coping with the pandemic. Still, long-term investments in science are also necessary and beneficial for increasing the quality of healthcare worldwide. The inclusion of researchers from underrepresented groups in the mainstream scientific discourse will prepare us for the challenges that a globalized world faces.

When it comes to education, all aspects of equal opportunities play a role in reaching the goal of high and equalized standards: openness to students with different backgrounds, excellence in every higher education institution, respect, and the inclusion of lecturers from all over the world, etc. Academic prestige should become a thing of the past, keeping in mind the common theme that the opportunity for proper education is a right and not a luxury.

Apart from the need, the crisis also brought opportunities for inclusion. New technologies that are currently massively in use, such as online platforms for conferences and seminars, make it easier than ever to attend the talks from the internationally most famous scholars. Still, one should be careful to include participants from underrepresented groups not only as mere spectators but as active contributors on these platforms. As in the case of overcoming other types of discrimination, we can still change the picture by consciously deciding to support, include, invite, promote, etc., underrepresented lecturer and researchers.

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Vlasta Sikimić
University of Tübingen

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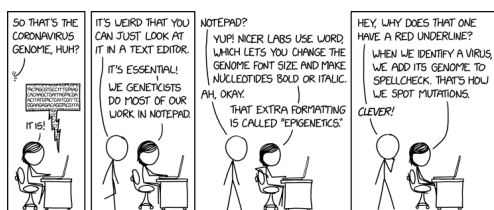
Events

AAL: Australasian Association for Logic, Sydney, Australia, 2–3 July.

August

SVaR: Set Visualization and Reasoning, Tallinn, Estonia, 24–28 August.
ConLogi: 6th Workshop on Connexive Logics, Mexico City, 27–28 August.

September

DMAH: Data Management and Analytics for Medicine and Healthcare, Tokyo, Japan, 4 September.
NMR: Workshop on Nonmonotonic Reasoning, Rhodes, Greece, 12–14 September.
PoKRR: Principles of Knowledge Representation and Reasoning, Rhodes, Greece, 12–18 September.
WUML: Workshop on Uncertainty in Machine Learning, Ghent, Belgium, 14–18 September.
VoAS: varieties of Anti-Skepticism, University of Navarra, Spain, 16–18 September.
N-CL: Non-Classical Logics, Poland, 26–28 September.

October

ArgStrenght: Workshop on Argument Strength, Koblenz, Germany, 12–14 October.

Courses and Programmes

Courses

SSA: Summer School on Argumentation: Computational and Linguistic Perspectives on Argumentation, Warsaw, Poland, 6–10 September.

Programmes

MA in Reasoning, Analysis and Modelling: University of Milan, Italy.
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.
Doctoral Programme in Philosophy: Department of Philosophy, University of Milan, Italy.
LogiCS: Joint doctoral program on Logical Methods in Computer Science, TU Wien, TU Graz, and JKU Linz, Austria.
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 and 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.

Research Master in Philosophy and Economics: Erasmus University Rotterdam, The Netherlands.

Jobs and Studentships

Jobs

Postdoc: in Philosophy of Science/Causal Inference, Purdue University, open until filed.

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

Doctoral Programme in Philosophy: Department of Philosophy, University of Milan, Italy.

LogiCS: Joint doctoral program on Logical Methods in Computer Science, TU Wien, TU Graz, and JKU Linz, Austria.

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

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

Research Master in Philosophy and Economics: Erasmus University Rotterdam, The Netherlands.

Jobs and Studentships

Jobs

Postdoc: in Philosophy of Science/Causal Inference, Purdue University, open until filed.

Postdoc: in Logic, University of Milano, deadline 3 September.

Postdoc: in Philosophy of Science, Munich Center for Mathematical Philosophy, deadline 9 July.

Postdoc: in Philosophy of Time, Durham University, deadline 5 July.

Research Associate: in The Epistemology of Wellbeing, University of Glasgow, deadline 7 July.

Post doc: in Theoretical Philosophy, University of Greifswald, deadline 15 July.

Lectureship/Professorship: in Statistics, Maynooth University, Ireland, deadline 17 May/30 September.