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# THE REASONER

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VOLUME 11, NUMBER 11

NOVEMBER 2017

[thereasoner.org](http://thereasoner.org)

ISSN 1757-0522

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82 which he is widely recognized among economists. Perhaps he should be more widely recognized as a philosopher too (although I am not entirely sure how he would feel about being called one!), for as some readers of THE REASONER already know, his decision-theoretic work has an unmistakable conceptual beauty. I am very happy that Edi accepted to give this interview. I hope that you will enjoy knowing more about him and his journey in decision theory.

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JEAN BACCELLI

Munich Center for Mathematical Philosophy

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## FEATURES

### Interview with Edi Karni

JEAN BACCELLI: Edi – it's a very special pleasure for me to interview you for The Reasoner. Thank you so much for taking the time to make this happen. My first question is simply: How did you come to research? Were you naturally destined to be an academic?

EDI KARNI: That's not clear at all. But my story may be worth telling. My high school, in Tel Aviv, had tracks. I chose the social science track, because I was interested in social issues. I was interested in studying political science and political philosophy to understand how society works, but I found the reasoning too loose, too anything goes. One day one of our teachers said, "Look, I don't know much about economics, which I'm supposed to teach you. But a book on the topic was recently translated into Hebrew. A copy is in the school library." That day I went to the library during a break, took out the book (Paul Samuelson's Economics)—and didn't go back to class for the rest of the day. I started reading it and could not put it down. All of a sudden everything came together. The book explained the functioning and evolution of social institutions in a disciplined way. I was fascinated by the idea that social institutions

## EDITORIAL

I am delighted to be serving as the Guest Editor for this issue of THE REASONER, and to bring to you an interview with Edi Karni. Edi is the Scott and Barbara Black Professor of Economics at Johns Hopkins University and a Distinguished Research Environment Professor at the Warwick Business School. He specializes in the axiomatic theory of decision-making under risk and uncertainty. He has been a leading researcher in this field since the late 1970s, with many important contributions for



come about and evolve in response to scarcity and the need to allocate resources. This was an epiphany for me. From that day on I knew I wanted to study economics and had an idea of pursuing an academic career in this field.

JB: You went on to get a PhD in economics from Chicago. What kind of economics did you do then? Was it decision theory right away?

EK: My work was very far from decision theory! In fact, I never heard about decision theory at Chicago. I was a student of Milton Friedman, Gary Becker, and Stanley Fisher. I was attracted by the intellectual powers of my advisors and therefore studied monetary economics—at that time the most exciting game in town. My PhD was in the Chicago style. It was based on very little theory, mainly empirical investigation: Here is a hypothesis that seems to make sense, here are data I can use to test the hypothesis, and so on. I was very far away from mathematical economics, game theory, decision theory, or anything like that. But that was what Chicago, at the time, was all about, and I was part of it.

With retrospect, not much of what I learned at the University of Chicago is relevant to my work in decision theory. However, my years there did shape my general outlook on economics. I still consider economic competition to be of critical significance in the evolution and development of human societies and civilizations, and I still adhere to the Chicago view that competition should be promoted as an engine of progress. However, this view should not be confused with the blank defense of laissez-faire economics in which large corporations can use their power to stifle competition. Elaborating on this outlook would take us too far afield from our main topic today, which is decision theory.

JB: Yes, let's try to zoom in on decision theory now. What, then, attracted you to decision theory after your PhD?

EK: After I finished my studies, in the early 1970s, I took a position at Tel Aviv University. There, I started to read and to talk to people about topics I had not been exposed to at the University of Chicago. I remember, for example, the first time I heard of Arrow's impossibility theorem. I started to read about social choice theory, search theory, and the theory of risk aversion. Many questions came to my mind, which turned out to be good research questions. So I started devoting time and effort to improve my understanding of economic theory. Intellectually and emotionally, I found it much more rewarding than doing research in macroeconomics. I realized that I was much more attracted to abstract thinking than to analyzing data. It took me a while, but after a few years, I decided to make a complete switch. I "retooled" by taking classes in mathematics and game theory. Eventually I ended up doing work in decision theory because most of the questions that came to my mind, or those about which I was most excited, belonged to this field.

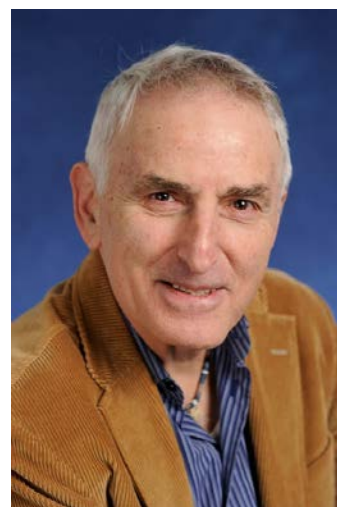
JB: Now, you have a sort of signature topic, on which you started working at the beginning of your career as a decision theorist and on which you've worked continuously ever since: state-dependent utility. How did you come to work on this topic, and what kept you working on it?

EK: Unlike my discovery of economics, there was no moment of epiphany. I was working on developing measures of multivariate risk aversion and started to think about decision-making in situations in which the risks one faces are not purely financial. For instance, health insurance, life insurance, and unemployment insurance—are all contractual relations designed to improve the allocation of risk-bearing in situations in which

it is almost unnatural not to think about the state of health, or longevity, as influencing individual risk preferences.

So looking at state-dependent preferences was a natural starting point. I can't remember when exactly I started to think about the topic, but I remember that at some point it occurred to me that, when considering health insurance, there are two arguments in the utility function—wealth and health—and that I should start looking into that. Of course, I realized that if you relax the state-independent assumptions of, say, Savage's theorem, you lose the unique separability of utilities and probabilities. So I started thinking about what it would take to obtain uniqueness of the subjective probability when the preferences are state-dependent. There are two main approaches to addressing this issue, which I discovered in my research. One is to abandon the methodology of revealed preference. The other is to change the analytical framework of Savage so as to allow the decision-maker to influence the likely realization of events by his or her actions. I explored both directions.

But in the early 1990s, I realized that even in the case of state-independent preferences, in the analytical framework of Savage, the unique separation of utilities and probabilities is based on an arbitrary, non-testable, presumption that the same outcome yields the same utility in different states. All of a sudden I asked myself: "Wait a minute, where, in the Savage axioms, do I find that the same outcome is assigned the same utility in different states?" It does not follow from the axioms. It is a



sort of convention that is introduced on top of the axiomatic structure describing the preference relation. In other words, state-independent utility it is not implied by state-independent preferences [see, e.g., Karni (1996: "Probabilities and Beliefs," *Journal of Risk and Uncertainty* 13(3): 249–62)]. I realized that this issue runs deep. If utilities and probabilities cannot be separated, one can use any prior as a starting point, and Bayesian statistics lacks the solid behavioral foundations that Savage was looking for. At that point, I concluded that Savage did not deliver what he was supposed to deliver—namely, the foundations of Bayesian statistics—and that the way he defined subjective probabilities contains an arbitrary element. At the same time came the realization that my previous work—with David Schmeidler, on state-dependent preferences, which involved choice among hypothetical lotteries and is therefore outside the realm of the revealed preference methodology—made it possible to identify probabilities that could honestly claim to represent the decision-maker's beliefs [see especially Karni and Schmeidler (2016: "An Expected Utility Theory for State-Dependent Preferences", *Theory and Decision* 81(4): 467–478)]. And later I realized that the same objective could also be attained by enriching the analytical framework of Savage with more levers to separate the probabilities from the utilities.

JB: Over the years, you've worked not just on state-dependent utility but on many of the most foundational issues in the theory of decision-making under risk or uncertainty. I'm

curious: Is there any particular piece of work you're proudest of, and if so, why? Conversely, is there any particular decision-theoretic issue you wished you'd worked on more or made more significant progress on?

EK: The work I'm proudest of is the series of papers from the 2000s dealing with the representation of beliefs by subjective probabilities based on choice behavior and the extensions of the Savage analytical framework [see especially Karni (2011: *Subjective Probabilities on a State Space* in *American Economic Journal: Microeconomics* 3(4): 172–85)]. Within the realm of the revealed preference methodology, this work contains a solution to the identification issues I'd worked on for many years. Regarding your second question, there are at least two issues I think are important, on which I have started working but am still far from fully understanding. One has to do with situations in which the decision-maker is unable to make a clear comparison between alternatives. Formally, the decision-maker's preferences are incomplete. Indeed, in many situations, the completeness assumption is not appropriate. I (among others) did some work on the representation of incomplete preferences [see especially Galaabaatar and Karni (2013: *Subjective Expected Utility with Incomplete Preferences*, *Econometrica* 81(1): 255–84)]. But the following question remains: How do people choose when faced with a choice between alternatives that are not comparable? I entertain the idea that choice in these situations is random. But then the natural question is: What is the structure of this randomness? I am far from having a satisfactory answer to this question, but it is something that's on my mind.

The other thing that's on my mind is the modeling of unawareness. The issue is how to model the idea that there might be something out there that decision-makers cannot even conceive of but that may affect the outcomes of their decisions. Here the core of the issue seems to be the decision framework itself. If one starts with a state space as a primitive concept, one is already deprived of the possibility of discoveries that expand one's universe. If one knows all the states, one knows everything. In particular, Bayesian updating implies that every time one learns something, one's world shrinks. This idea runs contrary to the sense that, in many situations, one's world is expanding. I did some work on unawareness that has this flavor [see, e.g., Karni and Viero (2017, *Awareness of Unawareness: a Theory of Decision-Making in the Face of Ignorance*, *Journal of Economic Theory* 168: 301–38)]. But this is still very much work in progress. Modeling unawareness is a fascinating topic.

JB: I have a last question for you. In your view, what are the next research frontiers in decision theory, the big questions on which the next generation should try to make significant progress?

EK: I think that decision theory is far from having reached its limits. One aspect of decision theory I find unsatisfactory is that it takes the existence of a preference relation as a primitive concept. It seems natural to ask how these preferences are formed, how they evolve. Obviously, some choice behavior is genetically determined. But many decisions and choice patterns are the results of social interactions. To some degree, the norms affecting one's choice behavior depend on the society in which one is born and grows up in. The issue of the formation and the evolution of preferences has not been sufficiently unexplored. Starting the whole theory of decision-making from the idea that there exist static preferences – or, equivalently, a choice function that satisfies well-known properties – is not en-

tirely satisfactory.

Another big question is how new advances in neuroscience and the understanding of the working of the brain will affect our understanding of all aspects of the decision-making process. It may well be that, in the process of exploring these frontiers, decision theory will undergo a metamorphosis. In particular, it may not have the same mathematical structure we have been investigating for the last hundred years or so. I am curious to see what decision theory will look like in, say, 30 years. We could bet on that today—but presumably, I won't be around to settle these bets! And, at any rate, we should be careful, for surely there are contingencies that we are yet unaware of...

JB: These unforeseen contingencies are awaited for with much excitement, dear Edi! Thank you for your time.

## NEWS

### Conference Report: SOPhIA 2017

The 8th Salzburg Conference for Young Analytic Philosophy was held from the 13th till 15th September 2017 at the Department of Philosophy, University of Salzburg, Austria. The conference brought together over 150 participants from 19 different countries to share their research and to discuss problems. The conference featured five parallel satellite workshops and included about 90 contributed talks and four plenary lectures. The SOPhIA conference covered nearly all areas in analytic philosophy. The contributed talks were divided into eleven sections. Hence, the conference was attended by a wide range of participants coming from many different areas of philosophy, unified by the idea that the methods exemplified in analytic philosophy can help to clarify philosophical problems. The first day of the conference started with the satellite workshops on September 13. The first workshop was on *Values in Science: Perspectives from Philosophy of Science, Ethics, and Language Philosophy* which was organised by Frauke Albersmeier and Alexander Christian (both from the University of Düsseldorf). The workshop aimed at bringing together philosophers working in philosophy of science and moral philosophy to discuss intersections between their areas. The second workshop *The Power to Change: Dispositions and Persistence* was organised by Florian Fischer (University of Bonn) and Thorben Petersen (University of Bremen). It focused on present and new perspectives on the metaphysics of dispositions and the persistence of dispositions. *Probabilistic Approaches to (Prototype) Concepts*, was the third workshop. It was organised by Anika Schuster and Corina Ströbner (both from the University of Düsseldorf). This workshop aimed at presenting and comparing current interdisciplinary research projects with regard to prototype concepts. The workshop *Grounding in and after Bolzano* was organised by Jan Claas (University of Hamburg) and Antje Rumberg (University of Konstanz). This workshop focused on Bolzano's role as a predecessor of the current debate on grounding and aimed at uncovering interesting insights into Bolzano's account of grounding. The last workshop *Modeling Physical Reality* was organised by Florian Boge (University of Wuppertal) and brought together researchers from many different fields such as the philosophy of climate science, physics and mathematics. It was part of a collaboration with the inter-

disciplinary DFG research unit *The Epistemology of the Large Hadron Collider*. It focused on a crucial aspect of physical science, namely different scientific models, to discuss *inter alia* the relation of different types of models.

After the workshops, the winner of the SOPhiA Best Paper Award was announced in the opening ceremony of the conference. Nina Retzlaff (University of Düsseldorf) received the award for her paper *Another Counterexample to Markov Causation from Quantum Mechanics: Single Photon Experiments and the Mach-Zehnder Interferometer* (KRITERION – Journal of Philosophy, 31:2). The first plenary lecture *Laws and Powers in the Frame of Nature* by Stathis Psillos (University of Athens) focused on a current debate in metaphysics of science. Psillos introduced major and relevant arguments from the 17th century debate concerning laws of nature and natural powers. He defended a Newtonian claim, that to introduce a law is to introduce a power and vice versa. This claim was used by him to elucidate the idea of natural necessity and to clarify the relation between laws and powers in the current debate. The second plenary lecture was entitled *What is perspectival pluralism?* and given by Michela Massimi (University of Edinburgh). Pluralism was widely discussed in recent philosophy of science. In her talk Massimi focused mostly on what she calls “perspectival pluralism”, one variety of pluralism which goes back to Ronald N. Giere. According to Massimi this view deserves more attention. She then discussed the problems this view faces and how one could respond to them. The third plenary lecture was given by Johannes L. Brandl (University of Salzburg). The lecture was entitled *Why Language Matters for Self-Awareness: The Conceptual and the Narrative Route*. Brandl began his talk by examining two routes one can take in

answering the question whether language can have a formative influence on our reflective self-awareness via a conceptual route and via a narrative route. The former traces back to the

competence to use the first-person pronoun to acquire a self-concept. According to the latter our self-concept turns out to be more reflective when we see ourselves as protagonists of stories. Brandl then argued, that this second approach can be developed without being committed to strong or even implausible claims. The conference ended with a plenary talk on *Free Will as a Higher-Level Phenomenon* by Christian List (London School of Economics). In this talk List attacked the view that free will is an illusion. This view is often stated in popular science media. The argument List attacked goes like this: Free will requires the possibility to do otherwise. But if the world is deterministic, such a possibility seems not to exist. List claims that the argument is not conclusive, since free will should be understood as a higher-level phenomenon rather than a phenomenon described by fundamental physics. He then argued that if this is correct, then there might still be room for the possibility to do otherwise even if the fundamental physical level is fully determined.

The conference was organised by Albert J.J. Anglberger, Christian J. Feldbacher-Escamilla, Alexander Gebharter, Markus Hierl, Laurenz Hudetz, Sebastian Krempelmeier, Pascale Lötscher and Stephanie Orter. The SOPhiA conference offers a diversity of topics and the possibility to encounter thoughtful ideas shared in contributed talks, plenary lectures, discussions in and after the sessions and the workshops. Thus, many thanks to the organising committee, all the speakers and chairs, the workshop organisers, participants and finally all sponsors, among others: Springer, Mentis,

Metzler, DCLPS, GAP, KRITERION – Journal of Philosophy, without whom a great (free of charge) conference for young analytic philosophers would not have been possible.

TILL GALLASCH

Philosophy, Heinrich Heine University Düsseldorf

JESSICA STRUCHHOLD

Philosophy, Heinrich Heine University Düsseldorf

## Calls for Papers

**FORMAL MODELS OF SCIENTIFIC INQUIRY:** special issue of *Journal for General Philosophy of Science*, deadline 1 December.

**NEW DIRECTIONS IN THE EPISTEMOLOGY OF MODALITY:** special issue of *Synthese*, deadline 31 December.

**CONNEXIVE LOGICS:** special issue of *Logic and Logical Philosophy*, deadline 31 December.

**DEFEASIBLE AND AMPLIATIVE REASONING:** special issue of *International Journal of Approximate Reasoning*, deadline 15 February.





## (Formal) Argumentation Theory

Once in a while, practice exemplifies the relevance of our theoretical research, and we eagerly point to these real-world examples in order to ground our ivory tower abstractions. And so it was when Jacob Rees Mogg, a politician on the right of UK politics, spoke recently in an interview of his pro-life convictions, arguing against abortion in *any* circumstances (even in the event of rape). When asked to justify his position, he argued that human life was sacrosanct. Now, I'm not aware of his position on the death penalty, but a best guess would be that he is against the death penalty, in keeping with his self-avowed Catholicism (the Catholic consensus - not codified - being against the death penalty). On the other hand, it reminded me of the views typical of many on the American Christian right (and their Trump supporting brethren): pro-life and pro death penalty. They too, when asked to justify their pro-life position, typically appeal to the sanctity of life. Now if Socrates were plying his inquisitorial trade in the shopping malls of the mid-west, rather than in the agoras of ancient Athens, he would respond to this argument by suggesting that by upholding the sanctity of life, it follows that the pro-lifer should be against the death penalty. Whereupon the logically trained shopper would have to acknowledge the inconsistency of his position and revise his beliefs if he is intent on justifying his pro-life views. A revision that cites an exception, stating that "life is sacred except when one takes the life of another" would not suffice, on pain of contradicting the very notion of the sanctity of life (unless a more nuanced attribution of sanctity to individual lives is proposed).

The dialectical move whereby an interlocutor's arguments are challenged on the grounds that the interlocutor implicitly contradicts himself, is a feature of both 'everyday' argumentation, as well as critical engagement with scientific theories. For example, in his *Dialogues Concerning Two New Sciences*, Galileo presents a famous refutation of Aristotle's theory of falling bodies, in the form of a dialogue between their respective alter-egos Salviati and Simplicio. Salviati demonstrates that the premises of Simplicio's arguments justifying that heavier bodies fall faster than lighter bodies, lead to a contradiction. However, such dialectical moves are relatively under-explored by formal logic-based theories of argumentation, in part because the validity of a constructed argument – valid in the sense that its premises are consistent – is assumed to be verified prior to the actual use of the argument in a dialectical exchange. Indeed, it may well be that an interlocutor introspects on the premises of an argument she is about to make use of, and checks for consistency. However I would suggest that this is the exception rather than the rule. More typically, we are not aware that we implicitly commit to inconsistent premises, and that this is so is brought to our attention by the kinds of Socratic moves described above. This then suggests a number of challenges for formal argumentation theory, where the current focus is on attacks encoding conflict amongst the claims of the attacking arguments and the premises or conclusions of the at-



tacked arguments, rather than the inconsistent propositions that the attacked arguments commit to. Moreover, attacks may instigate revision of beliefs, as suggested by the above Socratic challenge to the pro-lifer.

SANJAY MODGIL

Informatics, King's College London

## Medieval Reasoning

Last month this column was just a little short of turning into a panegyric for the Scholastic quaestio, suggesting that its structure should be taken as a model of academic writing; this is a brief follow-up of sorts. Recently I happened to overhear a conversation on the bus: "You philosophers are a quarrelsome lot", somebody said – and how right they were!



Throughout the history of philosophy (and of thought in general) there is a recurring idea that philosophy is intrinsically dialogical and disputational or that to think philosophically is to argue for something. The idea that dialectic lies at the very core of philosophical reasoning is both a widespread way of conceiving the discipline and a constant of philosophical practices. Unsurprisingly Plato's dialogues are the first example that comes to mind, not only for their interlocutory structure but for the Socratic questionative method itself. Nonetheless if you skim through Book 5 and Book 6 of the Republic you'll also stumble upon a somewhat stronger and more general view that to understand something means to be able (and ready) to argue for it. "To carry on an argument when you are yourself only a hesitating enquirer, which is my condition", says Socrates, "is a dangerous and slippery thing...". Hard to disagree. And yet just as Socrates, most of the time we have to argue anyway – especially when we are not convinced – in order to understand or reach a conclusion. While the medievals did not have access to the majority of Plato's works, their approach to philosophical enquiries – embodied in the structure of the quaestio – is deeply dialectical in this sense. The disputational method permeated all levels of medieval education and intellectual life, even beyond strictly academic contexts. The disputatio ('argument', 'debate', 'dispute') was a common classroom exercise for students enrolled in the Arts: the master assigned an either/or question and half of the class would argue for one solution, the other half for the opposite. Professional philosophers were periodically engaged in public disputations and twice a year they would have to answer any question whatsoever that a general audience could pose to them (quaestiones quodlibetales). The public disputation remains a common and popular way of settling all kinds of controversies of general interest well into Early Modernity: people would dispute about anything from theological matters to scientific theses, or even about historical facts.

The importance of dialogical structures in medieval philosophy and logic in particular has caught the attention of a number of scholars. Moreover, the technical sophistication of some me-

dieval logical texts has been shown to be enlightening for our own endeavours in dialogical and dialectical settings. Curious? I recommend checking out Sara Uckelman's studies on the subject.

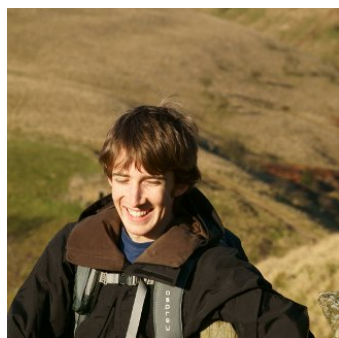
However, besides the importance of the technical detail, the Scholastic approach itself shows us a way of analysis and of good reasoning that still seems to be at the core of what doing philosophy is. We are a quarrelsome lot indeed! "When in doubt, fight it out" (figuratively speaking) is every bit as medieval as it sounds – and it might not be such a bad thing after all.

GRAZIANA CIOLA

Philosophy, Scuola Normale Superiore, Pisa

## Uncertain Reasoning

"The boy who cried wolf" is one of Aesop's more famous fables. In the story, the boy plays a prank on the villagers by shouting that a wolf is chasing the sheep is supposed to be watching. The villagers run up the hill to help the boy chase the wolf away and protect the sheep. They are annoyed to discover they have been tricked and this amuses the boy greatly.



The boy decides to repeat the trick and again, the villagers react, but they are beginning to learn that the boy can't be trusted. So when a wolf does in fact start harrassing the sheep, the boy's cries go unanswered and his flock of sheep are scattered across the hillside. In recent months, I've seen a few instances of news stories that reminded me of this fable. For example, I read about some people refusing to evacuate from hurricane-prone areas, the reason they gave being that "the scientists had been wrong before" I suppose the person making this claim thinks they are acting like the villagers in the story of the boy who cried wolf. In a sense, this is a perfectly understandable instance of confirmation bias: the successes of science are so commonplace, so ubiquitous that they pass un-noticed, whereas the few times science gets things wrong receive a lot of attention.

But the person refusing to evacuate is not like the villagers in this fable. The boy is not playing a prank on the villagers, he is earnestly and carefully trying to give them the best information possible about the wolf. He isn't gleefully tricking the villagers by shouting "wolf" he is saying "there might be a wolf and it might be best to run up the hill to make sure he doesn't get the sheep". And when the boy's cries aren't heeded, the wolf doesn't just scatter the flock of sheep, but it destroys the whole village. Even if most of the time it's a false alarm, it's probably best to take precautions.

This seems like a smaller-scale version of something one often hears in discussions of climate change: that the science is uncertain. Well, there are uncertainties in many of the details of climate modelling and projection, but none that seriously threaten to undermine confidence that the Earth is warming at an unprecedented rate. But even if there were reasons to be more uncertain in the probability of catastrophic future warming, wouldn't a level of precaution be advisable? Uncertainty is no reason not to take more action than we currently do on pre-

venting future carbon emissions. This is a case where the boy doesn't trick the villagers, but merely is clear about the fact that what he saw might have been a wolf, or it might have been a trick of the light. And the wolf won't just destroy the whole village, but it will put the whole province underwater. It seems like it would be sensible for the villagers to run up the hill to chase the wolf away, just in case...

In the past couple of years, there has been a worrying turn against expertise, and scientific expertise in particular in a number of public discussions. Scepticism about the role scientists can and should play is especially pernicious and dangerous when the science suffers from serious uncertainties. It seems it isn't necessary to even claim that the science has been wrong: it's enough to say that it is uncertain. (This isn't a new phenomenon: it has been a popular tactic of various kinds of denialists since the 1950s, as Naomi Oreskes and Erik M. Conway's book "Merchants of Doubt" (2010, Bloomsbury) makes clear).

Those of us who study reasoning and particularly uncertain reasoning ought to be more involved in the public discussion of uncertainty, prediction and decision making. We have a responsibility to moderate and to intervene in the public discourse when people are misunderstanding or abusing the fact of uncertainty in science.

The rhetoric is similar to those expressing scepticism of political polling after most polls "failed to predict" Trump's win in the US presidential election by giving him only a 30 to 40% chance to win. This clearly betrays a misunderstanding of what counts as a good probabilistic prediction. That's not to say that there weren't issues in the way pollsters were extrapolating from their data, but the relatively low probability given to the eventual winner does not count as a failure in the polling. What makes for a good probabilistic prediction (especially for a one-off event like an election or in a climate context) is a subtle and difficult topic, and one that some of us spend a lot of time thinking about. However, I am sure that we can do *something* to improve the public understanding of this issue.

This isn't so much a "what's hot" column, but rather a "what should be hot, given recent events". I appreciate that most of this column will be old news to most of the audience here, but ask yourselves: why does this flawed discourse persist? Because not enough people are trying to improve the public's understanding of uncertainty. Despite the great work of the [understandinguncertainty.org](http://understandinguncertainty.org) and [fivethirtyeight.com](http://fivethirtyeight.com) websites, and various contributors to BBC's More or Less radio show and podcast, the level of public understanding of uncertainty and risk is still disappointingly low. We are the ones best placed to improve things, and we should be doing better.

SEAMUS BRADLEY

Philosophy, University of Tilburg

## Philosophy and Economics

Richard Thaler was awarded the 2017 Nobel Prize in economics. Saying it like this is usually asking for trouble. If you have been part of conversations about Nobel Prizes in economics in learned company, then you know that there is always someone who simply has to say the following at some point: 'You know, *there is no 'Nobel Prize' in Economics*. It is the 'Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel', only given out since 1969, and so it was simply

added later to the *real* Nobel Prizes, and did you know that the Nobel family disagrees with this prize in economics being part of the Nobel Prizes?’ And so on. Now, the fact that economics as a discipline somehow managed to get on the Nobel Prize stage is worth discussing. But maybe it is not worth doing so every year, at the occasion and at the expense of a new Nobel laureate in economics?

Given this year’s Nobel Laureate in economics (there, I said it!), it does seem worthwhile to bring up the issue, though. Complaints about ‘Nobel Prizes in economics’ like the above are usually linked with two more complaints. One is that many people think the prize is more like one in applied *mathematics* rather than economics. Another bone of contention of some is that economics simply does not belong to the group of ‘real sciences’, usually meaning the natural sciences, which are engaged in more ambitious empirical work and which test their theories against the facts in a way that economists don’t - after all, aren’t many Nobel Prizes in economics ‘shared’ between economists who disagree with each other? – This is where the 2017 Nobel Prize in economics comes in. It has been awarded to someone who has not only contributed by developing some branch of mathematical economics. Rather, like some other recent Nobel Laureates in economics, Richard Thaler’s contributions are also related to developing new kinds of policy interventions, and draw heavily on empirical work. What is more, one of his main contributions is to import methods and questions from psychology into economics. Taken together with some other recent prizes on scholarship in economics that has a decidedly empirical bent and integrates methods from different disciplines (think of Elinor Ostrom 2009 and Angus Deaton 2015, for instance), the broadening of what kind of economics is deemed Nobel-worthy by the committee thus continues. Regardless of what one may think of the prize and its labelling, that is a noteworthy development.

Thaler’s contributions are mainly in the field of behavioural economics. Behavioural economics investigates empirically where and how individual choices differ from the predictions and recommendations of standard rational choice theory by, for instance, weighting probabilities, evaluating gains and losses of similar magnitude differently, and responding to framing effects, to name but a few key topics. A good online resource for behavioural economics is the [Behavioural Economics Guide](#). And I also want to kindly refer you to a previous column of mine on ‘What’s hot in philosophy & economics’, in [THE REASONER](#), 11(8), where you can find an overview of textbooks and other resources on behavioural economics. Thaler’s contributions are manifold: he has done a lot of empirical work on the role of fairness in individual decisions, notably by analysing how individuals behave in ‘dictator games’. He has also analysed individual intertemporal decisions with the ‘planner-doer’ model. But he is perhaps most famous for his work on nudging, in which insights from behavioural economics are used to design interventions on choices of individuals (see *Nudge: Improving Decisions about Health, Wealth, and Happiness*, 2008, YUP).



The [Nobel Prize scientific background document](#) does a good job summarizing the main themes of his work.

The 2017 prize for Thaler is not the first one for work in behavioural economics. There have been Nobel Prizes for Herbert Simon (1978), Daniel Kahneman and Vernon Smith (2002), and Robert Shiller (2013). This, amongst other things has prompted philosopher-economist Erik Angner to claim that ‘[We are all behavioural economists now](#)’. Behavioural economists used to develop their research in opposition and contrast to standard economists for many decades. However, as Erik Angner says: ‘...recently something has changed. Now, neoclassical and behavioral economists alike often go out of their way to downplay the differences.’ He goes on to analyse a recent lecture by the influential economist Raj Chetty to demonstrate this.

I agree with the view that behavioural economics has become more mainstream. But there is still the question of how the different theories and approaches integrate with each other. [Noah Smith at Bloomberg](#) maintains that the rise of behavioural economics coincides with economists having given up a general explanatory framework that is unifying. I think the issue is more complex. There are a number of ways in which behavioural economists have sought to unify their own contributions, which suggests that there is still much more theoretical work to be done. One family of approaches aims to unify behavioural economics (or all of the decision sciences) via different types of so-called ‘multi-self’ models that posit different entities within one individual to model. For a variety of reasons, I think they are unsuccessful (see: Heilmann, C. (2016) Behavioral Economics. In: McIntyre, L. and Rosenberg, A. (eds) ‘Routledge Companion to the Philosophy of Social Science’, 310–20.). A more promising approach is to seek models that explain a number of different phenomena, for instance, by cumulative prospects theory (see, for instance, Wakker, P.P. (2010), ‘Prospect Theory: For Risk and Ambiguity’, CUP). Clearly, unifying behavioural economics itself, and unifying its contributions with traditional rational choice theory is ongoing work.

When I heard of the prize being awarded to Thaler, I planned to write down all the things, some of which quite critical, I have to say specifically about his work on the planner-doer model of intertemporal decision-making. It models two different personas within one individual, the planner and the doer, to capture failures of, well, doing what one has planned. But it seems that I am now approaching the allotted length of my contribution. I’ll have to do it later. . .

CONRAD HEILMANN

Erasmus Institute for Philosophy and Economics (EIPE)  
Erasmus University Rotterdam

## Evidence-Based Medicine

Currently, the most read paper on [the BMJ website](#) is a [Comparison of postoperative outcomes among patients treated by male and female surgeons: A population based matched cohort study](#). The objective of the paper is ‘[t]o examine the effect of surgeon sex on postoperative outcomes of patients undergoing common surgical procedures’. It is written by Christopher JD Wallis, Bheeshma Ravi, Natalie Coburn, Robert K Nam, Allan S Detsky, and Raj Satkunasivam.

The paper is at least partly motivated by gender inequality in surgical medicine. The authors point out that surgical dis-



ciplines are disproportionately male, because there are a number of barriers preventing women from entering the disciplines. They think that '[a]ssessing outcomes for female and male surgeons is important for combating implicit bias and gender schemas that might perpetuate current inequalities'. In particular, if there is no significant difference in postoperative outcomes between female and male surgeons, then this might help to break down those barriers associated with sex-based discrimination.

The study reports that there were in fact differences in postoperative outcomes between patients treated by female and male surgeons. In particular, patients treated by female surgeons had a statistically significant decreased risk of short-term postoperative death.

*Do these results recommend preferring a female surgeon?* There are a number of reasons to be cautious here. Firstly, the observed differences in outcome are pretty small, and they may simply be due to the play of chance. Secondly, this was an observational study, and there is a risk that the observed difference is due to residual confounding. In particular, such confounding is suggested by the fact that the observed benefit of being treated by a female surgeon was restricted to elective operations. Indeed, the authors of the study are cautious to not draw any causal conclusions, because they cannot rule out these alternative explanations of the observed difference in postoperative outcomes, namely, chance and confounding. However, they also seem to think that these alternative possible explanations are salient because '[w]e don't know the mechanism that underlies better outcomes for patients treated by female surgeons'. They suggest some candidate mechanisms, including one that involves the barriers preventing women from becoming surgeons: 'These barriers might create a higher standard for women to gain entrance into the surgical workforce than men, resulting in the selection of a cohort of women that are proportionately more skilled, motivated, and harder working.' But this candidate mechanism is far from established. As a result, the authors say that the results do not recommend preferring female surgeons, rather 'they support the examination of surgical outcomes and mechanisms related to physicians and the underlying processes and patterns of care to improve mortality, complications, and readmissions for all patients'.

As may have been expected, the study has sparked some debate in the [rapid responses](#) on the *BMJ* website.

MICHAEL WILDE  
Philosophy, Kent

## EVENTS

### NOVEMBER

**THwD:** Transforming Healthcare with Data, Los Angeles, California, 3 November.

**MRIS:** International Workshop Models and Representation in Science, University of Edinburgh, 6 November.

**IASP:** Inconsistency and Scientific Pluralism, Ghent University, 8 November.

**LogWi:** Logic in the Wild, Ghent University, 9–10 November.

**DD:** Debating Debates, New College of the Humanities, London, 10 November.

**WoR:** Workshop on Reference, University of Düsseldorf, 16–17 November.

**EW:** Epistemology Workshop, University of Copenhagen, 16–17 November.

**MSASK:** Memory, Self, and Self-Knowledge, University of York, 21 November.

**LogPoT:** Logic and Philosophy of Time: Themes from Prior, Copenhagen, 22–24 November.

**NACE:** Norms and Capacities in Epistemology, Freie Universität Berlin, 24–25 November.

**GPoR:** Global Perspectives on Reasoning and Scientific Method, University of Salzburg, Austria, 30 November–1 December.

### DECEMBER

**NW:** Fourth Normativity Workshop, Uppsala University, Sweden, 4–5 December.

**APxBaysINF:** Advances in Approximate Bayesian Inference, Long Beach, California, 8 December.

**CIaML:** Workshop on Causal Inference and Machine Learning, Long Beach, California, 8 December.

**AKBC:** Automated Knowledge Base Construction, Long Beach, California, 8 December.

**HLATS:** Workshop on Hyperintensional Logics and Truthmaker Semantics, Ghent University, 15 December.

**PEW:** Political Epistemology Workshop, University of Copenhagen, 18–19 December.

## COURSES AND PROGRAMMES

### Courses

**COMPUTER SIMULATION METHODS:** Summer School, High Performance Computing Center Stuttgart (HLRS), 25–29 September.

### 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.

**DOCTORAL PROGRAMME IN PHILOSOPHY:** Department of Philosophy, University of Milan, Italy.

**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.

#### 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.

**RESEARCH MASTER IN PHILOSOPHY AND ECONOMICS:** Erasmus University Rotterdam, The Netherlands.

## JOBS AND STUDENTSHIPS

### Jobs

**POSTDOCTORAL FELLOW:** in Philosophy of Science, University of Cincinnati, deadline open.

**PROFESSOR:** in Machine Learning, Aalto University, Finland, deadline open.

**ASSISTANT PROFESSOR:** in Analytic Philosophy, Stanford University, deadline 1 November.

**ASSISTANT PROFESSOR:** in Metaphysics and Epistemology, University of Toronto, deadline 1 November.

**LECTURER:** in Theoretical Philosophy, University of Kent, deadline 5 November.

**LECTURESHIP:** in Theoretical Philosophy, University of Leeds, deadline 7 November.

**LECTURER:** in Epistemology, Metaphysics and Logic, University of Sydney, deadline 12 November.

**POST-DOC:** in Causal Inference, Bremen, Germany, deadline 15 November.

**POST-DOC:** in Causality, University of Copenhagen, deadline 15 November.

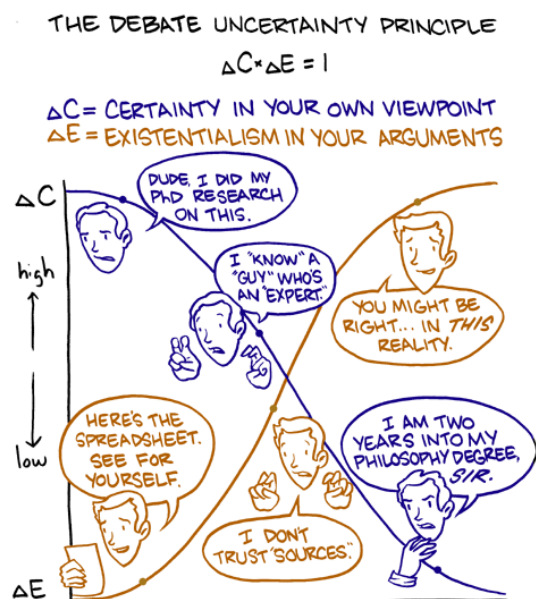
**ASSISTANT PROFESSOR:** in Statistics, University of Michigan, deadline 30 November.

**PROFESSOR:** in Philosophy of Science and Technology, Technical University of Munich, deadline 30 November.

**ASSISTANT PROFESSOR:** in Cognitive Science/Epistemology, Utica College, New York, deadline 1 December.

**ASSOCIATE PROFESSOR:** in Critical Thinking, Manhattan Community College, New York, deadline 2 December.

**SCIENTIFIC COLLABORATOR:** in Philosophy of Physics or Metaphysics, University of Geneva, deadline 31 December.



### Studentships

**PhD:** in Causal Inference, Bremen, Germany, deadline 15 November.

**PhD:** in Statistics and Probability, University of Sussex, deadline 1 December.