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Interview with Michela Massimi

By Michele Luchetti

On November 30th 2016 we interviewed Michela Massimi, Professor of Philosophy of Science at the University of Edinburgh. We met Prof. Massimi in Budapest, where she was invited as a guest of the Research & Publication workshop at Central European University in her role of Co-Editor-in-chief of the British Journal for Philosophy of Science, and as a guest speaker for the Department of Philosophy and the Science Studies program. We asked her questions concerning her career, work, and opinions on the relation between philosophy and science.

1) Last year the project "Perspectival Realism: Science, Knowledge and Truth from a Human Vantage Point", of which you are the main investigator, was awarded an important ERC grant. Can you give us an overview of the project?

This is an ERC Consolidator grant which started in January 2016, so we are now almost at the end of the first year out of five. It is a philosophy of science project, in which I am dealing with the question: "Can we be realist about science while also taking on board the fact that our knowledge is perspectival?". The notion of 'perspectival knowledge' — what it means for our knowledge to be perspectival — needs more clarification, but the overarching question that I am addressing is whether perspectivism can be made compatible with realism. I am looking at both scientific practice and the history of science, as well as philosophy of science.

The project is structured into five subprojects, one for each year. In the first two years, I will be looking at scientific practice, in particular at the role of models and modelling practices in making our knowledge perspectival while, at the same time, providing us with knowledge of the world as it is. I am looking at particle physics and cosmology because they are two fields in which it is particularly evident that there are limitations to our knowledge, due to the nature of our instruments and of the theories we endorse as best theories at the moment, the Standard Model in particle physics and

the Lambda-CDM model in cosmology. At the same time, however, we are on the verge of important scientific discoveries. For the past twenty years physicists have been looking for physics beyond the Standard Model, and collected evidence about the possible existence of dark matter and dark energy, so that now we have more reasons for believing there are such entities (Although we do not yet understand their nature). In the light of these changes, the question now becomes: how do we even go about looking for these new entities, and how can we be realist about them, once we take into account all the limitations of our theories and instruments? These are the issues that will be addressed in the first two years.

Year 3 and 4 will be concerned with more historical issues. I will ask the question about perspectival realism more from the point of view of the history of science. I am also interested in the origins of the idea of perspectival knowledge in the history of philosophy. When did it become important? Why does it still matter to us today? My take is that the question became important with the Enlightenment, and when Kant came up with the idea that knowledge is from a human vantage point. According to Kant, we should not ask questions about how our representations match a given world, but we should ask the opposite question: How is it that the world seems to respond so well and seems to be so congenial to what we learn about it? From the point of view of the history of science, I am interested in investigating questions about perspectivism in terms of controversies in science. I am looking at specific case studies, like the chemical revolution and the history of the electron, but I will also be looking at how scientists disagree because of coming from different perspectives in a broader sense, including technological and experimental perspectives, not just theoretical.

By the end of the fifth year, and thanks to insights from both scientific practice and the history of science, I will have made progress on my overarching question: How can we be realist about science despite the situated nature of our knowledge?

2) What is it like to be coordinating such a big project and pursuing research at the same time?

The structure of ERC grants is pretty unique. By contrast with many other grants, which are collaborative in that they involve a consortium of institutions, for example a

consortium of different universities, the ERC Consolidator grant is different. It is really about me, my project, and my team working for the project.

The team includes me and one post-doc, with a second post-doc joining us next year, plus two PhD students and one administrator. There is a certain amount of administrative work, and some effort is required to make sure that everyone is working towards the same goal.

3) What trajectory brought you to work on such a project?

Since the grant is called 'Consolidator', what the ERC expects is to consolidate my research to date. This is exactly what my project is about: in a way it brings together different strands of my research interests of the past fifteen years. I have always been working on the history of philosophy of physics, this is what my PhD thesis was about. I always had an interest in particle physics, and more recently in cosmology; I also did a MOOC[1] with the cosmologist John Peacock at the University of Edinburgh. However, the overarching question about realism and perspectivism is an old one, and one that has always been at the centre of my interests since I was a postdoc in Cambridge in 2003-4. I remember going to reading groups where we read Putnam and Kant. My interest for Kant actually dates back to my graduate times back in Italy. Of course, coming from Italy, I read Kant in all forms! I have always been interested in the question about the possibility of being realist, but from a human point of view. Attempts like Putnam's at developing internal realism, or pragmatist lines of thought are very congenial to the nature of my project. Having a five-year project allows me to investigate this question not as an armchair philosopher, but actually engaging with my other interests, making Kant interact with the history of science and with current scientific practice. I have eclectic interests, and this reflects in my idiosyncratic list of publications that span from Kant and Newton, to natural kinds, and simulations in high-energy physics, among other topics. What is great about the ERC grant is that it has given me a unique opportunity of further developing my interdisciplinary research to date, and take it in new directions.

[1] Massive Open Online Course

4) Speaking of interdisciplinarity, what is your view on the relationship between philosophy of science and the history of science?

I come from Italy, where there is a strong historically-oriented education. When I was an undergraduate student in philosophy I attended courses in the history of science, and my thesis was on the history of modern physics, in particular on the debate on the incompleteness of quantum mechanics. I have always been very interested in the history of science and the history of philosophy. When I moved to England, I was lucky to find other people that also had a general interest in certain ways of thinking about the history of science and philosophy, for example my colleague Hasok Chang. We were colleagues at UCL the year we started the integrated History and Philosophy of Science movement, in 2005. Steven French in Leeds, Hasok, and I decided to 'join forces' and have a little workshop that started as a UCL-Leeds initiative. After that, people contacted us from the other side of the Atlantic — John Norton in Pittsburgh and Don Howard in Notre Dame —suggesting to transform it into an international initiative. That was the beginning of the international committee for the History and Philosophy of Science (HPS), a committee that is still ongoing, and provides a network for people that think similarly about the relevance of the history and philosophy of science. There has indeed been a divide, which is mainly the consequence of what happened inside both philosophy and history. There has been an increasing specialisation in both disciplines, and the tendency towards specialisation has often been a wedge, so that people often cannot really see the relevance of history for philosophy or of philosophy for history. I am thinking of many areas within philosophy where asking historical questions is almost seen as second-class, since —as philosophers — one is expected to tackle questions from a purely logical point of view. And the opposite extreme has happened in the case of history, where there are people that are very interested in the social history or in the material culture, but — without denying the value of these traditions—often this approach leads to lose sight of the philosophical questions behind the history of science. Integrated HPS started as a way of overcoming those two opposite extremes that were pulling the two field fields in very different directions.

5) Do you think there is a sort of territorial aspect to some domains of philosophy and history?

Certainly integrated HPS is an attempt to overcome this gulf in the field; but there are perfectly good reasons both in philosophy and history as to why the disciplines got so far apart. In the case of history, it is fair to say that still in the 1940s and 50s there were people doing social history, intellectual history, and history of ideas. If you look at the panorama now, in terms of statistics, people doing intellectual history or history of ideas are just a handful. The vast majority of people in history of science today seem to be doing a certain kind of history of science that very often philosophers find a bit frustrating, because they think it does not have anything relevant to say to them. But the reverse is equally true: in philosophy sometimes we encounter very rarefied issues and logical expositions of topics without much engagement with the sciences or with the history of the discipline, which is frustrating for anyone with a historical sensitivity. Big topics like 'disagreement' or 'truth' in analytic philosophy are rarely asked with a historical sensitivity in mind. How did different communities in the past establish what it means to be true? Or how did they come to disagree? These questions are almost always asked in a very abstract and ahistorical way in philosophy. There is a lot of reliance on intuition and thought experiments. However, I think that gradually philosophers are coming to realise that it is important to look at scientific practice, at what scientists actually think and do.

6) Do you have yourself some 'heroes from the past' that inspire you in your attempt to integrate history and philosophy of science?

There are of course people, who introduced me to the field and played a role in leading me to think about these issues: first of all, my professors in Italy, Silvano Tagliagambe and Sandro Petruccioli. In terms of intellectual figures that inspired my trajectory, I would mention Alexandre Koyré, who carried out that sort of integration between history and philosophy of science I admire. His *From the closed world to the infinite Universe* is one of my favourite books, I remember studying it as an undergraduate student in Rome. I absolutely loved it.

Looking at philosophy and the history of philosophical ideas, I find inspiring also the generation of philosophers like Ludovico Geymonat in Italy, another example of scholars who were trying to bridge history and philosophy of science, or Émile Meyerson.

7) The relationship between science and philosophy has been at the centre of many debates ever since the category of 'science' acquired the meaning we still attribute to it. As a philosopher of science, what is your perspective on this relationship?

Also in this case, there are two extremes. There are philosophers who do not think much about philosophy of science, precisely because it is the part of philosophy that engages with empirical research, and as such is seen as not engaging with the purest philosophical reflection. I think one worrying aspect is that we see philosophy of science less represented in big philosophical meetings, such as the APA[2]. People systematically complain that philosophy of science is not much represented. The diagnosis is very simple: there are big portions of the philosophical community that think some philosophy of science has taken a trajectory that is not philosophical anymore, it does not really speak to mainstream philosophy.

In addition to that, there is a tendency to delegate philosophical questions to science, to make philosophy continuous to science, which can be a good thing, but also a bad thing. I think the naturalistic turn that philosophy experienced — the tendency to engage with the sciences and scientific practice —is absolutely important, because it avoids having to spin our wheels with logical paradoxes without engaging with what scientists are concerned with. But it is also true that there has also been a tendency in philosophy of science in recent years to get overspecialised. Fewer and fewer of us are working in general philosophy of science, and more and more are working in very specific topics. Within philosophy of physics, for example, it is not enough to say that one works in philosophy of physics. One has to specialise in a particular topic and publish more and more on that topic, in order to acquire a world-leading reputation in that field.

[2] The American Philosophical Association.

I think this is inevitable, to some extent, because it is part of what the field is like, and it is due to the fact that physics, economics, biology are very difficult disciplines to get acquainted with. If you want to be a very good philosopher of science in any of those fields, it requires a substantial amount of time to get trained, learn, and understand the subject. There is a growing tendency to get a reputation and publications for becoming an expert on particular topics, or for coming from a particular school that works on a certain topic.

On the other hand, I think we should try to bring philosophy of science back to philosophy, because it would be sad if philosophy of science becomes just a footnote at the end of a theorem. Sometimes I have this feeling when I see excellent pieces in some fields, but the philosophical discussion is very thin. It is a hard judgment to make, because it is the way the field is evolving, so there is no point in clinging back to the way philosophy of science was at the time of Popper or the logical empiricists, but I think it is a very delicate balance. When colleagues in mainstream philosophy complain about philosophy of science, they have a point, and the point is that certain kinds of super-specialised topics do not speak anymore to them.

8) What recommendation would you give to your students and young graduates in philosophy of science with respect to navigating this tendency to 'over-specialise' while still keeping their own interests to pursue as philosophers?

When I was a first-year undergraduate student in Rome, I remember my first class with Prof. Tullio De Mauro, who was a linguist and the head of the degree program in Rome. He came to class and said "I know you are not here because you want to make money or do business". It was a very honest thing to say. People study philosophy because that's what they like. I think it is important to follow one's own intuitions and passions. There is going to be some reality check as you go along. You start with an idea of what philosophy is and then, when you start studying it, you might realise that probably it is not exactly what you thought it was going to be like. In my case that realisation came at one point during my training. Still, doing something you have the passion for is crucial. That is the most difficult thing to do. As an undergraduate student or a PhD student, we all approach the field with our own ideas and preconceptions, but then the reality check

is going to come at some point. That is a crucial moment, when rather than giving up, the key thing is to take the lesson on board and try to get the best you can out of it.

9) What is your impression of the current state of 'health' of Science Studies, and of the prospects of current graduate students in the field? How has the scenario changed in the past two decades?

Before taking my current position at the University of Edinburgh, I was for seven years at the Science and Technology Studies unit at UCL. Even though I consider myself more an HPS person than an STS person, beyond the labels I have to say that STS as a field in general has done terribly well in recent years. Many new units have been founded, and what is distinctive about them is that they are highly interdisciplinary research they produce. There is not just history and philosophy of science, but also sociology and science communication. A few decades ago there were just a few units, like the Edinburgh school with David Bloor, but now there are many more at the international level. STS units sit in between the humanities and the sciences in a way that philosophers of science do not normally do. At UCL I was part of a unit at the intersection with the faculties of mathematics and natural sciences: there were students coming from mathematics and natural sciences, so we would teach students with a scientific background. Science studies bridge the gap between the sciences and the humanities and this is the reason behind their success in recent times. The division between disciplines becomes very blurred and there is more room for doing genuine interdisciplinary research.

As for the prospects of graduate students in Science Studies, I think they are very good and healthy prospects. We see an increasing number of students from science studies programs in American universities, for example, applying for jobs in Europe, and you can see that Science Studies programs produce very high-quality students that get jobs in top universities. It is a very positive indication that the field is healthy. Obviously it is not a huge field, but I think we will see a change in the future.