# Personal Statement

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A note to external reviewers: In line with UMD guidelines the aim of this document is to "make a case for [the candidate's] promotion based on a demonstrated record of achievement in research, scholarship, creative and/or professional activity, teaching and mentoring, and service". And it is "directed toward readers who are not specialists in the candidate's field."

# 1 Research

My work focuses, from a variety of different angles, on our practices of explaining and understanding the world. Nearly every area of systematic intellectual inquiry centrally involves explanation. Physicists explain the pattern of marks on a phosphorescent screen by appealing to facts about the quantum mechanical nature of the electrons that were fired at the screen. Economists explain why inflation rose by describing certain supply-side shocks that led to increased costs for producers. Mathematicians explain why you can't untie a particular knot without cutting it by mathematically proving that it cannot be done. Art historians or art critics explain why a particular painting is lively by describing features of the brush strokes. Historians explain why the Vietnam war started by describing the global geopolitical landscape in the years leading up to the war. We explain why it is wrong to punch someone in the face by saying that it will cause them pain.

Most of my work has been, in one way or another, about investigating the nature of such explanations: What is the difference between a good explanation and a bad one? How do explanations allow us to understand the world? How are our decisions about which theory to accept shaped by explanatory considerations? In doing this I draw out implications for some classic philosophical issues. In fact, much of my work involves arguing that explanatory considerations – rather than, for example, considerations about what is possible or necessary – are at the core of some classic philosophical issues in ways that haven't been recognized previously. I have fourteen papers published or in press and two more very close to publication (one is "accepted for publication subject to minor revision"; one was commissioned for a forthcoming edited volume and has been submitted). Of those sixteen, twelve underwent full blind peer review. All of those twelve were published in prestigious venues, including six papers in the five generalist journals that are considered "top" in the field and another paper which won the Sanders Prize in Metaphysics (\$10,000). According to PhilPapers, a comprehensive index of papers published in philosophy, my work is in the top 1% for citations in the last five years in my main subfield of Philosophy of Science, Math and Logic and in the top 2% in philosophy overall. In addition, my papers have been taught in seminars at a variety of top philosophy departments, including Stanford University, University of Toronto and University of Pittsburgh.

There are four main strands to my research, though they are heavily overlapping and interconnected.

### 1.1 Laws of Nature

My primary project has been about investigating and defending a particular view of *scientific laws*, often called *laws of nature*. Are the things that scientists call laws merely *descriptions* of certain patterns that hold in the world? Or are they entities that are separate from those patterns – things which *govern* or *produce* the patterns we see? This is perhaps the most central issue in the metaphysics of science. I defend the former view, which traces its heritage back to David Hume. I've published seven papers on these issues. (Three of these papers were co-authored with one other author – all of them involved equal contribution at all stages of the process.)

The debate between Humean and anti-Humean views has sometimes seemed to be at a standstill with the two sides dug into their positions. My work takes seriously the problems that the Humean view faces and takes on those challenges directly, developing a novel Humean approach.

In particular, my guiding idea is that, for the Humean, scientific explanation works by *unifying* a variety of phenomena. On this view, when we explain something we show how it fits into larger patterns. In a series of papers, the key paper being **Nomothetic Explanation and Humeanism about Laws of Nature**, I argue that this view of explanation leads to novel Humean approaches to scientific possibility, chance and counterfactuals – ones which avoid objections that the Humean has previously faced. And in two papers co-authored with Zee Perry (a Research Fellow at the University of Birmingham) I discuss how to best develop the Humean approach to make it consistent with the "entanglement" phenomena of Quantum Mechanics.

This work has been influential in the field. It's been heavily cited (particularly given that philosophy as a whole is a low-citation field). And it's received substantial critical engagement – for example,

two recent papers by Marc Lange (Theda Perdue Distinguished Professor at UNC) are, to a large extent, directed at responding to my arguments.

### 1.2 Levels of Explanation

My PhD dissertation was focused on issues about the unity of science. As well as our fundamental science – fundamental physics – we have a variety of different sciences that investigate the world at different "levels". Assuming that everything in the world is made up of physical building blocks, why does our scientific investigation of the world consist in so much more than physics? Why, more specifically, is there chemistry, biology, neuroscience, psychology, economics, sociology, anthropology and all the other sciences – sciences which seem to be largely independent of physics?

The answer I gave has to do with the way in which higher-level sciences can explain certain phenomena better than physics – and I gave an account of what makes explanations better or worse that validated this. I've developed these ideas further in published papers. In **Difference-making and Deterministic Chance** I appeal to this account of what makes explanations better or worse and use it to give an account of a certain type of probability that is important in science. In **Coincidence and the Grain of Explanation** I build upon this to give an account of the nature of coincidence – I'll discuss this project more below. And in in-progress papers **Special Science Naturalness** and **Why are there High-level Regularities?** I address the question of why there are any stable properties and regularities in high-level sciences – why, as Jerry Fodor asks, does macro-level stability arise from the "buzzing, blooming confusion of microlevel interactions"?

### 1.3 Coincidences

A related project is about the nature and theoretical role of coincidences. In scientific practice and everyday life we reject, or at least are suspicious of, certain theories because they would imply that some striking phenomenon is a coincidence. There are a variety of "coincidence problems" in cosmology, for example. But it is deeply unclear what a coincidence is and why it should have such an effect on our practices of theory choice. In **Coincidence and the Grain of Explanation** I give an account of coincidence that connects it to the issues about levels of explanation discussed above. In **What's the Coincidence in Debunking?** I use this account to develop the idea that if there were "real" moral facts it would be a coincidence if we were right about what they were. And in **Strikingness** (in progress) I give an account of the closely related idea that certain facts *call out for explanation* in a way that others do not.

### 1.4 Scientific Explanation and Metaethics

The last strand of my research is more recent and is a substantial change of direction from my previous work – though it is still connected to and based in my prior work. In this project I investigate how considerations about the nature of explanation, particularly scientific explanation, can end up telling us a lot about the nature and foundations of ethical facts. In two papers on "debunking arguments" against moral realism (one of them mentioned above), I argue against the existence of a realm of moral facts separate from the natural world. There is a huge literature on such arguments but mine works in a distinctive way – using considerations from scientific practice to make progress on a dispute that might seem to have stalled. In addition I have two papers published on the nature of moral principles. And in in-progress work I use similar considerations to answer the classic question of when actions have moral worth – that is, when they reflect well upon the character of the agent performing the action.

In the future I hope to develop all of these projects more but particularly the last two, on coincidences and the connection between scientific explanation and metaethics. The projects are newer for me and also have been explored much less in the discipline as a whole. In my older projects about laws of nature and levels of explanation I entered long-standing and extremely active philosophical debates, taking those debates in new directions. In my newer projects I'm aiming to push forward, and enhance the importance of, less-studied topics.

# 2 Teaching

At UMD I've taught a variety of classes, including introductory classes aimed at freshmen, advanced graduate seminars and everything in between. In addition I've been on the dissertation committee for six PhD students, and I've been the advisor of four undergraduate honors theses.

I've taught many classes in my main areas of metaphysics and the philosophy of science. In addition I developed a brand new 'I-series' class 'Are Sports Ethical?'. This class introduces students to philosophical and ethical theorizing by focusing on ethical issues about sports. A large part of the motivation for developing the class was to attract a diverse range of students to philosophy. The idea of philosophy can be very off-putting and alien to many students. I think showing how philosophy is relevant to questions that students already have opinions on – for example, questions about the morality of cheating in sport or about whether fans of a team should be loyal – is important for attracting a wide range of students. Further, I've played an active part in the new Philosophy, Politics and Economics major – regularly teaching the PPE "Capstone Class". For everything but the most advanced graduate seminars my focus in teaching is not primarily to impart to my students a body of knowledge but rather to help them develop skills which they can use in whatever life they choose to lead. In particular, skills to do with writing, reasoning, and with understanding perspectives and viewpoints other than your own. For example, I spend large amounts of class time focusing on writing skills and I give students multiple opportunities to revise their assignments after they have been graded, in light of my comments. My discussions with students and my consistently high evaluations suggest that students value this approach.

[A full teaching statement and portfolio will be attached to my college file.]

# **3** Service

I've taken on a variety of service roles and completed them with energy and enthusiasm. Every year since joining UMD (even while on research leave) I have been placement director for the philosophy department. My role is to prepare graduate students for the process of applying to academic jobs. In that role I regularly run seminars about the job market, as well as about professional development for grad students more generally (to do with conferences, publications, how to communicate with your advisor and so on). Further I meet individually with students as they move towards the end of the program, and through this have built substantial mentoring relationships with many of them.

I've taken on many other roles within the department as well. For example, I volunteered to be on a search committee for two searches where we reviewed several hundred applications; I was part of the committee that developed a new major at UMD – in Philosophy, Politics and Economics; and I was part of the committee that wrote the most recent strategic plan for the department. At the collegiate level I represented the philosophy department on the ARHU Collegiate Council, and I'm currently on the ARHU Research Advisory committee.

I referee regularly for top journals in the field, as well as for Oxford University Press. And for the past 4 years I've been on the program committee for the major annual conference in my subfield – the British Society for the Philosophy of Science annual conference.

I look forward to taking up new important roles within the university and the profession as a whole.