Research Proposal: *The Human Side of Objectivity*

Science aims to discover the way the world is, independently of what anyone wants or thinks about the matter. Yet we also want science to answer to our needs. We want theories to help us control the world, shaping it to our liking. And we want theories to aid our understanding. This project develops an account of scientific objectivity that aims to reconcile both aspects: how science can be an objective enterprise that nevertheless answers to us. I begin by using case studies from physics and philosophy to show how human-centric standards already feature in fundamental physics. For example, we prefer theories to be simple and general because they help us reason. And we seek causal theories because they help us intervene in the world. Contemporary philosophy often downplays the role of such 'pragmatic' standards. I plan to foreground how pragmatic standards already feature in prominent accounts of laws, explanation and causation. It might seem that employing pragmatic standards would make science less than fully objective. I argue that this fear is misplaced. Science does not need to be grounded in standards beyond our own, or unquestionable foundations. Instead, scientific theories need to cohere together and help us achieve our ends.

My methodology for this project follows one I employed in my dissertation—drawing on a range of philosophical approaches and fundamental science—complementing the kind of pluralism at X, and the work of philosophers such as A, B and C. I will appeal to case studies from physics and metaphysics, and work from a variety of philosophical schools: the 18th century German idealist J. G. Fichte, the American pragmatists C. S. Peirce and John Dewey, and the 20th century analytic philosopher David Lewis. Part of my aim is to emphasise the continuity in their accounts, despite their radically different approaches. I envisage this work as a series of five self-contained journal articles. In 'Propensities for Agent-based Accounts of Causation', I consider what it is for one state of affairs to be evidence for another—a relation I appealed to in my dissertation in giving an agent-based account of causation. In this paper argue that these evidential relations are 'propensities', or chances, of a type explained by scientific theories. Here I take the unusual approach of relying on science, without seeking foundations beyond science—an ideal from pragmatism. The next four papers explore other ways in which human standards feature in science, while not compromising the objectivity of science. In 'Checking Science: Peirce and Fichte on the Limits of Science, I undertake a novel historical study of Fichte and Peirce's accounts of objectivity. Fichte and Peirce argue that we can't appeal to the nature of the world independently of our theorising when doing science. Yet the world still provides a 'check' on our enquiries—it tells us when we're wrong. This feature is crucial for explaining how a science that uses pragmatic standards can still be objective. In 'Epistemic Sabotage' I consider cases from physics where a theory's truth would undermine our reason for holding it. To take a non-science example, I might read a book that explains to me how all books ever written are false and misleading—but if the book were true, I'd have no reason to trust it. I argue that such cases suggest that the theory and our reasons for holding it must form a coherent package—a pragmatic ideal. In 'Whatever Happened to Unification?' and 'What's Wrong with "Primitive" in "Primitive Ontology"?' I consider further cases from physics concerning laws, explanation and theory choice where human standards feature—and I argue that these standards don't compromise scientific objectivity.

Overall, I aim to make sense of science by considering how our needs are built into investigation. I look to the methods and aspirations of even our most fundamental theories with an eye to understanding our place in science. And I proceed by drawing on an unusually wide range of approaches—connecting our contemporary ambitions for science with an evolving tradition of understanding and critique. To complement this work, I plan to run a reading group, *Possibilities for Scientific Metaphysics,* which considers how a detailed understanding of science might leave room for metaphysics—involving both philosophy, and science and technology studies. I plan to use this group to complement and strengthen existing ties between science and philosophy at X.