

## Workshop on The Scientific Berkeley



Friday, May 13, 2016, 9:00a – 6:00p,  
Social and Behavioral Sciences Gateway, room #1517

The Irish Bishop George Berkeley is best known today for his immaterialism, but his opus includes a wide range of important and distinctive scientific efforts: his penetrating and still-cogent critique of Newton's calculus, his ground-breaking instrumentalist interpretation of Newton's forces, his more general views on the philosophy and methodology of science, and perhaps most original and influential of all, his psychological theory of vision. These and other aspects of Berkeley's scientific thought will be the focus of this workshop.

Organizers: Lisa Downing (OSU), Sean Greenberg (UCI), Jeremy Heis (UCI), Pen Maddy (UCI), Jeff Schatz (UCI), James Weatherall (UCI)

Sponsors: The School of Social Sciences (UCI), The Department of Logic & Philosophy of Science (UCI), the School of Humanities (UCI), the Department of Philosophy (UCI), Group for the Study of Early Cultures (UCI)

Continental Breakfast, 9:00-10:00

I. [Douglas Jesseph](#) (USF): "Compensating Errors and the Status of the Calculus: Berkeley on the Nature of Mathematical Demonstration", 10:00-11:30

It is well known that Berkeley critiqued the calculus of Newton and Leibniz for its reliance upon demonstrations that employ seemingly inconsistent assumptions. Yet Berkeley acknowledged that the calculus invariably delivered correct results in the solution of important mathematical problems. To explain this seeming paradox, Berkeley argued that the techniques of the calculus involved an intriguing "compensation of errors" that allowed erroneous assumptions to deliver true results. One puzzling feature of this account is that it seems to run counter to the instrumentalist sympathies that can be found in Berkeley's approach to physics and elsewhere in his discussions of mathematics. The aim of this talk is to examine Berkeley's treatment of the calculus and explain why the criteria of rigorous demonstration that he endorses in *The Analyst* rule out the possibility that the calculus could be justified on instrumentalist grounds.

II. [Lisa Downing](#) (OSU): "Berkeley on the Causal Commitments of Mechanism and Newtonianism", 11:30 - 1:00

Lunch Break, 1:00-2:30

III. [Margaret Atherton](#) (UWM): "Natural Philosophy and Mathematics and their Consequences for Berkeley's Theory in the *Principles*", 2:30-4:00

In the *Principles*, Berkeley is very careful always to signal where he has got to in his argument and what he plans to do next. Thus, when he embarks on the third and final part of the *Principles*, he tells us that he is going to be examining the consequences of the principles he has laid down for our knowledge of the two great ontological categories he has uncovered, spirits and ideas. While the first two parts of the *Principles* are presumably ontological in nature, he is going to direct his attention to epistemological issues in the last part. One striking feature of this final discussion is that Berkeley includes a substantial discussion of natural philosophy and mathematics. This feature is all the more striking since in the more epistemologically framed *Three Dialogues*, Berkeley does not discuss either natural philosophy or mathematics at any length. I intend to explore what the consequences for knowledge of ideas as laid out in Berkeley's theory he takes to be revealed by the account he gives of natural philosophy and mathematics in the *Principles*.

IV. [Kenneth Winkler](#) (Yale): "The First Person in Vision", 4:00-5:30

Abstractly considered, a theory of vision take us from the inputs to our visual system to its outputs. As it does so, something in the theory intervenes. A theory can therefore be characterized by its way of understanding the inputs, its way of understanding the outputs, and its way of understanding the intervening structure. (This abstract characterization conforms to one that Berkeley himself presents in his Theory of Vision Vindicated. There he asks "how it comes to pass that we apprehend by ideas of sight certain other ideas." The solution, he observes, "doth comprehend the whole theory of vision." The ideas we "apprehend by . . . sight" are the input; "certain other ideas" are the output; and the "how" of the output's coming to pass is a reference to whatever intervenes.) I begin the present paper by identifying three ways in which early modern theories addressed (or could have addressed) the study of vision: a resolutely first-personal approach; a resolutely third-personal approach; and a mixed approach. I suggest it was the mixed approach that Berkeley found in Descartes. Berkeley's response was to revise Descartes in a first-personal direction, but I argue that it was open to him to revise Descartes in a third-personal direction, and that the resulting view would have been both interesting in itself and one that Berkeley, or anyone sympathetic with his portrayal of science as the grammar of the language of nature, would have been able to admire. I then consider evidence that according to Berkeley's theory, human minds play a genuinely productive role in vision. I conclude by asking whether this should cause us to reconsider the prevailing image of Berkeley as a scientific instrumentalist. Was he, at least with respect to vision, a scientific realist?

<http://philevents.org/event/show/20046>

Attendance is free, but RSVPs are encouraged prior to April 29, 2016

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