

UCSD Center for Humanities  
Conference Program Proposal:  
Color Perception: Philosophical and Scientific  
Perspectives

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## 1 Project Rationale

Questions about color have played a central role in philosophy for virtually the whole history of the subject: such thinkers as Democritus, Aristotle, Epicurus, Lucretius, Galileo, Newton, Descartes, Locke, Berkeley, Hume, Reid, Goethe, Carnap, and Wittgenstein (to name a few) have appealed to color in their attempts to advance views about the nature of minds, the world, knowledge, language, meaning, perception, and morality. Color has been such a focus of interest because it is extremely unclear what colors are. The naïve perceiver sees color as a property of surfaces, but, as the atomist Democritus saw very early, it is unclear how surfaces can have such a property when atoms do not. The point was well put by Lucretius, a first century B.C. atomist: “All colors without exception change, but under no circumstances should the primary elements do this.” The variability of color presents another puzzle of very long standing: why is it that things look different colors to different people in different circumstances? To quote Lucretius again, “Consider the iridescence imparted by sunlight to the plumage that rings and garlands the neck of the dove: sometime it is glossed with red garnet, sometimes it appears to blend green emeralds with blue lazuli. Since these colors are produced by a certain incidence of light, obviously we must not suppose that they can be produced without it.” These problems, articulated in the ancient world, formed the basis for the treatment of color by scientists and philosophers around the Scientific Revolution of the seventeenth century such as Galileo, Newton, Descartes, and Locke.

Of course, color is of interest to fields outside of philosophy as well, including psychology, biology, physics, computer science, and anthropology. But, while the best philosophical treatments of color of the 17th and 18th centuries

(Locke’s, for example) took current empirical science of color very seriously, philosophical work on color in much of the 19th and 20th centuries proceeded largely in ignorance of the vast body of subsequent developments in color science. For example, the work of 19th century color psychophysicists Hering and Helmholtz was read by some philosophers (e.g., Carnap and Wittgenstein), but this seemed to make little difference to the content of their theories.

All this changed in the late 1980s and early 1990s, when a number of philosophers (including conference participants Broackes, Clark, Hardin, and Matthen) breathed new philosophical life into the subject by bringing recent results in physics, colorimetry, computational vision, physiology, psychophysics, evolutionary biology, and other fields of color science to bear on ontological and epistemological questions about color. By doing so, these authors made genuine inroads on problems on which there had been no significant advances for generations. Since this time, there has been a flowering of empirically informed philosophical work on color: color has become a prominent topic in the field, is now discussed in articles in the best philosophical journals, conferences, and graduate seminars, and has been the subject of a number of new anthologies and monographs (including those by conference participants Byrne, Broackes, Clark, Hardin, Matthen, Mausfeld, and Werner). Much of this work delivers on the often-made (but too seldom-realized) promises of interdisciplinary collaboration: new results from color science really have reframed old debates, suggested new arguments against old positions, inspired new views, and generally restructured the philosophical landscape. At the same time, philosophical attention to empirical color science has fostered inquiry into the conceptual and methodological foundations of the relevant sciences.

Despite the increased interest in topics at the intersection of philosophy and color science, there are a number of empirical phenomena surrounding color perception whose philosophical repercussions have been insufficiently acknowledged. We want to hold a conference devoted to these issues. In each case, our aim will be to set out the empirical phenomena as clearly and as broadly as possible, and then to consider what these phenomena imply about the ontology and epistemology of color. The empirical problems we have in mind are:

- variability of color perception across species and individuals, and in different kinds of perceptual circumstances;
- the co-evolution hypothesis (the view that the colors of plants and animals evolved together with systems for color perception in animals);
- color categorization (why do visual systems naturally break the continuous range of colors into a small number of categories — red, blue, orange, etc., and what determines the categories used by a given visual system?); and
- uses of color vision (i.e., what is color used for within the human or other cognitive systems?).

We believe that the time is ripe for substantive interchange on these matters between philosophers and color scientists, and that the envisioned conference

would provide an opportunity for sustained and focussed discussion of these topics.

## 2 Format

We plan to hold the conference in two installments: one in October of 2002 in San Diego, at which we hope to set up the empirical issues and the challenges they pose, and then another in October of 2003 in Vancouver, at which we would attempt to delineate viable philosophical accommodations to the problems posed at the first meeting. (The present application is for funding for the first meeting only; we shall apply to agencies connected with the University of British Columbia for funding for the second meeting). We envision holding the conferences as round-tables (rather than having concurrent sessions) at which a relatively small number of the best philosophers and scientists working on color could weigh in on all of our themes. It is our hope that this format, which includes a year's worth of time for reflection in the light of the first meeting, will result in a more unified set of discussions (and, ultimately, a more unified anthology of papers) than would otherwise be possible.

## 3 Budget

We estimate the cost of the conference at \$14600. Below is a breakdown of estimated expenses.

Expense	For	Cost/person	Total
Airfare	14	\$500	\$7000
Local transportation	14	\$50	\$700
Hotel (two nights)	14	\$300	\$4200
Meals (two days)	18	\$150	\$2700
Total			\$14600

## 4 Abbreviated Curriculum Vitae

Please see attached curriculum vitae of the principal conference organizers, Jonathan Cohen (Department of Philosophy, UCSD) and Mohan Matthen (Head, Department of Philosophy, University of British Columbia). Similar information regarding other conference participants has been omitted in the interest of brevity, but can be supplied (contact Jonathan Cohen).

## 5 Previous Support

Neither of the principal organizers has received any monetary support from the UCSD Center for Humanities up to this time.

## 6 Co-Sponsorship

The conference will be co-sponsored by the UCSD Department of Philosophy and the UCSD Department of Psychology. Letters of support from these departments are being sent under separate cover.

## 7 Participants

The following is a list of participants; all have agreed to participate.

1. Kathleen Akins, Department of Philosophy, Simon Fraser University
2. Justin Broackes, Department of Philosophy, Brown University
3. Alex Byrne, Department of Philosophy, MIT
4. Austen Clark, Department of Philosophy, University of Connecticut
5. Paul Churchland, Department of Philosophy, University of California, San Diego
6. Jonathan Cohen, Department of Philosophy, University of California, San Diego
7. C. L. Hardin, Department of Philosophy, Syracuse University (emeritus)
8. Kimberly Jameson, Department of Psychology, University of California, San Diego
9. Peter Lennie, Center for Neural Science, New York University
10. Don MacLeod, Department of Psychology, University of California, San Diego
11. Mohan Matthen, Department of Philosophy, University of British Columbia
12. Rainer Mausfeld, Institute of Psychology, Christian-Albrecht-University of Kiel
13. Brian McLaughlin, Department of Philosophy, Rutgers University
14. J. D. Mollon, Department of Experimental Psychology, University of Cambridge
15. Kathy Mullen, Department of Ophthalmology, McGill University
16. Stephen Palmer, Department of Psychology, University of California, Berkeley
17. John Werner, Department of Ophthalmology and Section of Neurobiology, Physiology and Behavior, University of California, Davis