

Philosophy of Science

**Volume 63
Supplement
1996**

Reprinted with the permission of the original publisher
by
Periodicals Service Company
Hudson, NY
2021

Printed on acid-free paper.

**This reprint was reproduced from the
best original edition copy available.**

NOTE TO THE REPRINT EDITION:

**In some cases full page advertisements which do not add to
the scholarly value of this volume have been omitted.
As a result, some reprinted volumes may have irregular pagination.**

PSA 1996

PROCEEDINGS OF THE 1996
BIENNIAL MEETING
OF THE
PHILOSOPHY OF SCIENCE
ASSOCIATION

Part I Contributed Papers

Edited by
Lindley Darden



Philosophy of Science

Official Journal of the Philosophy of Science Association

Supplement to Volume 63, Number 3

PHILOSOPHY OF SCIENCE

JOURNAL OF THE PHILOSOPHY OF SCIENCE ASSOCIATION

EDITORIAL BOARD:

PHILIP KITCHER, *Editor-in-Chief*

PAUL CHURCHLAND, PATRICIA KITCHER, and PAUL TELLER, *Associate Editors*

PETER ACHINSTEIN	GARY GUTTING	THOMAS NICKLES
FRANK ARNTZENIUS	IAN HACKING	ILKKA NIINILUOTO
PETER ASQUITH	WILLIAM HARPER	JOHN NORTON
JOHN BEATTY	GARY HATFIELD	ALEXANDER ROSENBERG
WILLIAM BECHTEL	GEOFFREY HELLMAN	MICHAEL RUSE
JEFFREY BUB	DAVID HULL	KENNETH SCHAFFNER
RICHARD BURIAN	PAUL HUMPHREYS	DUDLEY SHAPER
ROBERT BUTTS	HENRY KYBURG	LAWRENCE SKLAR
NANCY CARTWRIGHT	LARRY LAUDAN	BRIAN SKYRMS
LINDLEY DARDEN	JAMES LENNOX	ELLIOTT SOBER
WILLIAM DEMOPOULOS	HELEN LONGINO	MIRIAM SOLOMON
JOHN EARMAN	PETER MACHAMER	STEPHEN STICH
ARTHUR FINE	PATRICK MAHER	FREDERICK SUPPE
JERRY FODOR	DAVID MALAMENT	PATRICK SUPPES
MICHAEL FRIEDMAN	TIM MAUDLIN	BAS VAN FRAASSEN
RONALD GIERE	DEBORAH MAYO	C. KENNETH WATERS
CLARK GLYMOUR	SANDRA MITCHELL	LINDA WESSELS
RICHARD GRANDY	MARGARET MORRISON	JAMES WOODWARD

ASSISTANT EDITOR:

Stanley Walens

EDITORIAL ASSISTANT:

Catherine M. Barrett

GOVERNING BOARD OF THE ASSOCIATION

Abner Shimony, President (1996)

Michael Friedman, President-Elect (1996)

Ronald N. Giere, Past-President (1996)

John Beatty (1996)

Richard Grandy (1997)

Daniel Hausman (1997)

Henry Kyburg (1997)

Helen Longino (1996)

Jane Maienschein (1996)

Nancy Nersessian (1996)

Barbara Von Eckardt (1997)

EXECUTIVE SECRETARY:

GEORGE GALE

PSA 1996

PROCEEDINGS OF THE 1996
BIENNIAL MEETING
OF THE
PHILOSOPHY OF SCIENCE
ASSOCIATION

Part I Contributed Papers

Edited by
Lindley Darden

1996

Philosophy of Science
Official Journal of the Philosophy of Science Association

Supplement to Volume 63, Number 3

CONTENTS

Philosophy of Biology

<i>Darwinism, Process Structuralism, and Natural Kinds</i> PAUL E. GRIFFITHS	S1
<i>Random Drift and the Omniscient Viewpoint</i> ROBERTA L. MILLSTEIN.....	S10
<i>Innateness and Canalization</i> ANDRÉ ARIEW.....	S19
<i>Theoretical Modeling and Biological Laws</i> GREGORY COOPER.....	S28
<i>Heroic Antireductionism and Genetics: A Tale of One Science</i> RUSSELL E. VANCE.....	S36

Space-time Issues

<i>Inferences from Phenomena in Gravitational Physics</i> WILLIAM HARPER AND ROBERT DISALLE.....	S46
<i>Is There a Syntactic Solution to the Hole Problem?</i> ROBERT RYNASIEWICZ	S55
<i>Strange Couplings and Space-time Structure</i> STEVEN WEINSTEIN.....	S63
<i>Gauge Invariance, Cauchy Problem, Indeterminism, and Symmetry Breaking</i> CHUANG LIU.....	S71
<i>Why General Relativity Does Need an Interpretation</i> GORDON BELOT.....	S80

Methodology Naturalized and Contextualized

<i>Understanding Bias in Scientific Practice</i> NANCY E. SHAFFER.....	S89
<i>The Empirical Character of Methodological Rules</i> WARREN SCHMAUS.....	S98
<i>Points East and West: Acupuncture and Comparative Philosophy of Science</i> DOUGLAS ALLCHIN.....	S107
<i>Instrumental Rationality and Naturalized Philosophy of Science</i> HARVEY SIEGEL.....	S116

Color and Color Vision

<i>The Evolution of Color Vision without Colors</i> RICHARD J. HALL.....	S125
<i>Can Colour be Reduced to Anything?</i> DON DEDRICK.....	S134
<i>Commentary: True Theories, False Colors</i> AUSTEN CLARK.....	S143

Philosophical Issues in Quantum Theory

<i>On What Being a World Takes Away</i> ROB CLIFTON.....	S151
<i>Exposing the Machinery of Infinite Renormalization</i> NICK HUGGETT AND ROBERT WEINGARD.....	S159

Causation and Explanation

<i>Evidence and Association: Epistemic Confusion in Toxic Tort Law</i> MARK PARASCANDOLA	S168
<i>Completeness and Indeterministic Causation</i> SCOTT DEVITO	S177
<i>Testament of a Recovering Eliminativist</i> ANDREW MELNYK.....	S185
<i>Stretched Lines, Averted Leaps, and Excluded Competition: A Theory of Scientific Counterfactuals</i> GREGORY M. MIKKELSON	S194

Philosophical Issues in Cognitive Science

<i>Theories in Children and the Rest of Us</i> ERIC SCHWITZGEBEL	S202
<i>Mental Models in Data Interpretation</i> CLARK A. CHINN AND WILLIAM F. BREWER.....	S211
<i>Similarity as an Intertheory Relation</i> GEOFFREY GORHAM.....	S220
<i>On the Use of Visualizations in the Practice of Science</i> PAULINE SARGENT	S230
<i>Tensor Products and Split-level Architecture: Foundational Issues in the Classicism-Connectionism Debate</i> MARCELLO GUARINI.....	S239

Confirmation

<i>Novelty, Severity, and History in the Testing of Hypotheses: The Case of the Top Quark</i> KENT W. STALEY.....	S248
<i>Confirmation and the Indispensability of Mathematics to Science</i> SUSAN VINEBERG.....	S256
<i>The Curve Fitting Problem: A Bayesian Approach</i> PRASANTA S. BANDYOPADHYAY, ROBERT J. BOIK, AND PRASUN BASU.....	S264
<i>Oracles, Aesthetics, and Bayesian Consensus</i> JEFFREY A. BARRETT	S273
<i>When Several Bayesians Agree That There Will Be No Reasoning to a Foregone Conclusion</i> JOSEPH B. KADANE, MARK J. SCHERVISH, AND TEDDY SEIDENFELD.....	S281

Realism and Anti-Realism

<i>A Paradox for Empiricism (?)</i> IGOR DOUVEN.....	S290
<i>Antirealist Explanations of the Success of Science</i> ANDRÉ KUKLA.....	S298
<i>Scientific Realism and the 'Pessimistic Induction'</i> STATHIS PSILLOS	S306
<i>Ontic Realism and Scientific Explanation</i> MICHAEL BRADIE.....	S315

Modal Interpretations of Quantum Theory

<i>Logical Foundations for Modal Interpretations of Quantum Mechanics</i> MICHAEL DICKSON.....	S322
<i>Possible Worlds in the Modal Interpretation</i> MEIR HEMMO.....	S330
<i>Van Fraassen on Preparation and Measurement</i> LAURA RUETSCHKE.....	S338
Index of Authors	S347