# Philosophy of Science

### Volume 62 1995

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.

## PHILOSOPHY OF SCIENCE

Official Journal of the Philosophy of Science Association



VOLUME 62, NUMBER 1

March, 1995

#### PHILOSOPHY OF SCIENCE

(ISSN 0031-8248)
JOURNAL OF THE PHILOSOPHY OF SCIENCE ASSOCIATION

#### **EDITORIAL BOARD:**

MERRILEE H. SALMON, *Editor-in-Chief*PETER MACHAMER AND JOHN D. NORTON, *Associate Editors* 

THOMAS NICKLES PETER ACHINSTEIN CLARK GLYMOUR FRANK ARNTZENIUS GARY GUTTING ILKKA NIINILUOTO PETER ASOUITH IAN HACKING ALEXANDER ROSENBERG WILLIAM HARPER JOHN BEATTY MICHAEL RUSE GEOFFREY HELLMAN JEFFREY BUB KENNETH SCHAFFNER DAVID HULL DUDLEY SHAPERE RICHARD BURIAN ROBERT BUTTS PAUL HUMPHREYS LAWRENCE SKLAR NANCY CARTWRIGHT PATRICIA KITCHER BRIAN SKYRMS LINDLEY DARDEN PHILIP KITCHER STEPHEN STICH JOHN EARMAN HENRY KYBURG, JR. FREDERICK SUPPE JAMES LENNOX PATRICK SUPPES ARTHUR FINE DAVID MALAMENT JERRY FODOR BAS VAN FRAASSEN DEBORAH G. MAYO STEVE FULLER LINDA WESSELS MICHAEL FRIEDMAN TIM MAUDLIN JAMES WOODWARD RONALD GIERE

ASSISTANT EDITOR: EDITORIAL ASSISTANT:

Judith Meiksin Mark A. Holowchak

#### GOVERNING BOARD OF THE ASSOCIATION:

Ronald N. Giere, President (1994)
Abner Shimony, President-elect (1994)
Bas C. van Fraassen, Past President (1994)

John Beatty (1994)
William Harper (1993)
William Bechtel (1994)
Richard Grandy (1993)
Paul Horwich (1993)
Paul Horwich (1993)
William Wimsatt (1993)

#### EXECUTIVE SECRETARY:

Peter D. Asquith

MADE AND PRINTED IN THE USA BY EDWARDS BROTHERS, INC., ANN ARBOR, MI

PHILOSOPHY OF SCIENCE is published quarterly by the Philosophy of Science Association, 503 South Kedzie Hall, Department of Philosophy, Michigan State University, East Lansing, Michigan 48824–1032. 1995 Subscription price \$65.00 U.S.A. (\$70.00 non-U.S.A.) per Volume. Single numbers \$20.00. 1995 Membership dues, which include subscription, are graduated based on income: income below \$40,000—\$55.00; \$40,000—\$49,999—\$65.00; \$50,000—\$59,999—\$75.00; \$60,000 or above—\$85.00. Subscription inquiries should be directed to the Executive Secretary. Second-class postage paid at East Lansing, Michigan and at additional mailing offices. POSTMASTER: Send address changes to Philosophy of Science Association, 503 South Kedzie Hall, Department of Philosophy, Michigan State University, East Lansing, Michigan 48824-1032. © 1995 by the Philosophy of Science Association.

#### **CONTENTS\***

CONSTRUCTION BY REDUCTION, JEFFRY L. RAMSEY	1
REDUCTIONISM AND THE UNIFICATION THEORY OF EX- PLANATION, TODD JONES	21
HARD AND SOFT ACCIDENTAL UNIFORMITIES, EDUARDO H. FLICHMAN	31
PHENOMENOTECHNIQUE IN HISTORICAL PERSPECTIVE: ITS ORIGINS AND IMPLICATIONS FOR PHILOSOPHY OF SCIENCE, Teresa Castelão-Lawless	44
HACKING'S EXPERIMENTAL REALISM: AN UNTENABLE MIDDLE GROUND, RICHARD REINER AND ROBERT PIERSON	60
FOR PLURALISM AND AGAINST REALISM ABOUT SPECIES, P. Kyle Stanford	70
THE LANGUAGES OF THOUGHT, LAWRENCE J. KAYE	92
BAYESIANISM AND DIVERSE EVIDENCE, ANDREW WAYNE	111
AN EMPIRICAL REPLY TO EMPIRICISM: PROTECTIVE MEA- SUREMENT OPENS THE DOOR FOR QUANTUM REAL- ISM, Michael Dickson	122
DISCUSSION: ARE PHYSICAL PROPERTIES DISPOSITIONS?, NICK REEDER	141
DISCUSSION: WAS CARTESIAN SCIENCE EVER MEANT TO BE A PRIORI? A COMMENT ON HATFIELD, ATHANASSE RAFTOPOULOS	150
BOOK REVIEWS  New Astronomy, Johannes Kepler—Bernard R. Goldstein; The Magic of Numbers and Motion: The Scientific Career of René Descartes, William S. Shea—Kenneth L. Manders; The Ambiguous Frog: The Galvani-Volta Controversy on Animal Electricity, Marcello Pera—	161

\*The contents of PHILOSOPHY OF SCIENCE are utilized in compiling the following bibliographic sources: Arts and Humanities Citation Index; Biological Abstracts; Bulletin Signalétique 519; Current Contents/Arts and Humanities; Current Contents/Social and Behavioral Sciences; Current Index to Statistics; Humanities Index; Index to Book Reviews in the Humanities; Isis Critical Bibliography; Language & Language Behavior Abstracts; Mathematical Reviews; Philosopher's Index; Philosophie; Psychological Abstracts; Repertoire Bibliographique de la Philosophie; Social Sciences Citation Index; Sociological Abstracts.

Wesley C. Salmon; Validation in the Clinical Theory of Psycho- analysis, Adolf Grünbaum—Patricia Kitcher; Freud's Dream: A Complete Interdisciplinary Science of Mind, Patricia Kitcher—Frank J. Sulloway.	
INSTRUCTIONS TO CONTRIBUTORS	171