
Contents

SYNOPSIS	vii
THE ONTOLOGICAL STATUS OF THEORETICAL ENTITIES, by <i>Grover Maxwell</i> , UNIVERSITY OF MINNESOTA	3
The Problem, 4. The Observational-Theoretical Dichotomy, 7. What If We could Eliminate Theoretical Terms? 15. "Criteria" of Reality and Instrumentalism, 20. The Ontological Status of Entities—Theoretical and Otherwise, 22.	
EXPLANATION, REDUCTION, AND EMPIRICISM, by <i>P. K. Feyerabend</i> , UNIVERSITY OF CALIFORNIA	28
1. Two Assumptions of Contemporary Empiricism, 32. 2. Criticism of Reduction or Explanation by Derivation, 43. 3. The First Example, 46. 4. Reasons for the Failure of (5) and (3), 48. 5. Second Example: The Problem of Motion, 52. 6. Methodological Considerations, 62. 7. Criticism of the Assumption of Meaning Invariance, 74. 8. Summary and Conclusion, 91. References, 95.	
DEDUCTIVE-NOMOLOGICAL VS. STATISTICAL EXPLANATION, by <i>Carl G. Hempel</i> , PRINCETON UNIVERSITY	98
1. Objectives of This Essay, 98. PART I. DEDUCTIVE-NOMOLOGICAL SYSTEMATIZATION, 99: 2. The Covering-Law Model of Explanation, 99. 3. Truth and Confirmation of Deductive Explanations, 101. 4. Causal Explanation and the Covering-Law Model, 103. 5. Covering Laws: Premises or Rules? 110. 6. Explanation, Prediction, Retrodiction, and Deductive Systematization—a Puzzle about 'About,' 113. PART II. STATISTICAL SYSTEMATIZATION, 121: 7. Laws of Strictly General and Statistical Form, 121. 8. The Ambiguity of Statistical Systematization, 125. 9. The Theoretical Concept of Statistical Probability and the Problem of Ambiguity, 128. 10. The Inductive Character of Statistical Systematization and the Requirement of Total Evidence, 133. 11. The Logical Form of Simple Statistical Systematizations: A Rough Criterion of Evidential Adequacy, 141. 12. On Criteria of Rational Credibility, 149. 13. The Nonconjunc-	

Contents

tiveness of Statistical Systematization, 163. 14. Concluding Remarks, 166. References, 167.

EXPLANATIONS, PREDICTIONS, AND LAWS, by *Michael Scriven*, INDIANA UNIVERSITY 170

1. Preface, 170. 2. Outline, 172. 3. Preliminary Issues, 172. 4. Fundamental Issues, 196. 5. The Alternative Analysis, 224. 6. Comments on Hempel's Account of Statistical Explanation, 226.

EXPLANATION, PREDICTION, AND "IMPERFECT" KNOWLEDGE, by *May Brodbeck*, UNIVERSITY OF MINNESOTA ... 231

The Attack on the Deductive Model, 231. Common-Sense Facts vs. Philosophical Claims, 233. The Appeal to Ordinary Usage and to "Understanding," 234. Language as Communication vs. Language as Description, 236. Why Explanation Must Be Deductive, 238. "Perfect" Knowledge and Deductive Explanation, 241. "Certainty" of Premises vs. Deductive Validity, 242. "Imperfect" Knowledge and Deductive Explanation, 245. Explanation by 'Causes' vs. Explanation by Laws, 249. Explanation and Imperfect Knowledge of History and Society, 252. Inference Tickets and Enthymemes, 254. "Conceptual Analysis" and Rejection of Hypothetico-Deductive Theories, 258. Criticism of the Premises of the Deductive Model, 262. "Lawlike" Hypotheticals vs. Causal Laws, 264. Motives, Meaning, and a Science of Man, 267. Concluding Remarks, 272.

THE FACTUAL CONTENT OF THEORETICAL CONCEPTS, by *William W. Rozeboom*, WESLEYAN UNIVERSITY .. 273

THE ANALYTIC AND THE SYNTHETIC, by *Hilary Putnam*, MASSACHUSETTS INSTITUTE OF TECHNOLOGY 358

Analytic and Nonanalytic Statements, 368. The Rationale of the Analytic-Synthetic Distinction, 381. The Analytic-Synthetic Distinction in Natural Language, 389.

THE NECESSARY AND THE CONTINGENT, by *Grover Maxwell* 398

GEOMETRY, CHRONOMETRY, AND EMPIRICISM, by *Adolf Grünbaum*, UNIVERSITY OF PITTSBURGH 405

1. Introduction, 405. 2. The Criteria of Rigidity and Isochronism: The Epistemological Status of Spatial and Temporal Congruence, 408: (i) The Clash between Newton's and Riemann's Conceptions of Con-

Contents

gruence and the Role of Conventions in Geochronometry, 408. (ii) Physical Congruence, Testability, and Operationism, 428. (iii) The Inadequacies of the Nongeometrical Portion of Riemann's Theory of Manifolds, 430. 3. An Appraisal of R. Carnap's and H. Reichenbach's Philosophy of Geometry, 432: (i) The Status of Reichenbach's 'Universal Forces,' and His 'Relativity of Geometry,' 432. (ii) Reichenbach's Theory of Equivalent Descriptions, 446. (iii) An Error in the Carnap-Reichenbach Account of the Definition of Congruence: The Non-Uniqueness of Any Definition of Congruence Furnished by Stipulating a Particular Metric Geometry, 447. 4. Some Chronometric Ramifications of the Conventionality of Congruence, 453: (i) Newtonian Mechanics, 453. (ii) The General Theory of Relativity, 463. (iii) The Cosmology of E. A. Milne, 465. 5. Critique of Some Major Objections to the Conventionality of Spatio-Temporal Congruence, 471: (i) The Russell-Poincaré Controversy, 471. (ii) A. N. Whitehead's Unsuccessful Attempt to Ground an Intrinsic Metric of Physical Space and Time on the Deliverances of Sense, 473. (iii) A. S. Eddington's Specious Trivialization of the Riemann-Poincaré Conception of Congruence and the Elaboration of Eddington's Thesis by H. Putnam and P. K. Feyerabend, 485. 6. The Bearing of Alternative Metrizable on the Interdependence of Geochronometry and Physics, 493: (i) The Fundamental Difference between the Linguistic Interdependence of Geometry and Physics Affirmed by the Conventionalism of H. Poincaré and Their Epistemological (Inductive) Interdependence in the Sense of P. Duhem, 493. (ii) Exegetical Excursus: Poincaré's Philosophy of Geometry, 505. 7. The Empirical Status of Physical Geometry, 506: (i) Einstein's Duhemian Espousal of the Interdependence of Geometry and Physics, 506. (ii) Critique of Einstein's Duhemian Thesis, 510. 8. Summary, 521. Bibliography, 522.

TIME AND THE WORLD ORDER, by Wilfrid Sellars, YALE UNIVERSITY 527

I. FACTS, EPISODES, AND THINGS, 528: 1. Truths about Other Times, 528. 2. Do Past and Future Episodes Exist? 541. 3. Time and Temporal Relations in a World of Things, 550. 4. Do Past and Future Things Exist? 556. 5. Relativity and the Objectivity of Becoming, 567. 6. The Problem Recast: an Ontology of 'Events'? 577. 7. More on 'To Exist,' 583. 8. Existence and Tense, 588. 9. Things or 'Events'? 593. **II. DETERMINISM AND TRUTH, 595:** 10. Decidability and Truth: Toward a Three-Valued Logic? 595. 11. Decidability and Truth: A Radical View, 604. 12. Decidability and Truth: Conclusion, 612.

NAME INDEX 619

SUBJECT INDEX 622