

II
Concepts, Theories, and the
Mind-Body Problem

MINNESOTA STUDIES IN THE PHILOSOPHY OF SCIENCE

Minnesota Studies in the
PHILOSOPHY OF SCIENCE

VOLUME II

Concepts, Theories, and the Mind-Body Problem

EDITED BY

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AND GROVER MAXWELL

FOR THE MINNESOTA CENTER FOR PHILOSOPHY OF SCIENCE

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Preface

This second volume of *Minnesota Studies in the Philosophy of Science* presents further results of the collaborative research of the Minnesota Center for the Philosophy of Science in the area of the philosophical and methodological problems of science in general, psychology in particular. Again, some of the essays concern the broader philosophical foundations while others concentrate on more circumscribed logical or methodological issues.

In the course of the Center's work in recent years it has become increasingly clear that our publications will continue to reflect the sustained efforts of the research staff and some of its collaborators toward an analysis and clarification of a number of difficult and controversial topics. We expect to return to some of these in future volumes. For example, while it is expected that most of the material which will appear in the next volume will grow out of our current research in the philosophy of physics, some of it will undoubtedly still be concerned with the general foundations of science and the philosophy of psychology. Although none of the following essays presuppose knowledge of the contents of any of the others, there are a number of common themes which provide a large measure of integration. Some of these common concerns are suggested in the Synopsis which follows this preface and which also contains brief abstracts of all the papers which appear in the volume.

Despite a certain common basic orientation in logical analysis and the methodology of science among the staff and its collaborators, there remain divergencies which even very extensive and intensive discussion did not remove. But, this is hardly surprising in philosophy. Even in the philosophy of science, individual differences in background, training, and predilections manifest themselves in the finished product, no matter how thoroughly the ideas are thrashed out before their embodi-

Preface

ment in written and printed form. We are confident that this will prove advantageous to the reader who will, after all, have to decide for himself which ideas he finds most valid and fruitful.

As stated in the preface to the first volume, the core staff of the Center during the first three years of operation was drawn from the University of Minnesota's faculty and consisted of Paul E. Meehl (Chairman, Psychology Department), Wilfrid S. Sellars (Chairman, Philosophy Department), Michael Scriven (Philosophy Department; Center Research Associate; currently at Swarthmore College), and Herbert Feigl (Philosophy Department; Director of the Center). Additional research staff members since the summer or autumn of 1956 were H. Gavin Alexander (M.A., Oxford, Lecturer in Philosophy, University of Manchester), Dr. Grover Maxwell, Dr. William R. Rozeboom (Ph.D., Psychology, University of Chicago), and Professor Adolf Grünbaum (Lehigh University; visiting professor at the Center, autumn semester 1956-1957). Three conferences (1954, 1955, and 1956) were held at Princeton University where we profited from the collaboration, later greatly extended by correspondence, with Professors C. G. Hempel, Henry Mehlberg, Hilary Putnam, and Dr. Paul Oppenheim. Some of the results are incorporated in the essays of the present volume. Again, we wish to acknowledge with deep appreciation our indebtedness to the Louis W. and Maud Hill Family Foundation, to the administration of the University of Minnesota, and to its Graduate School, which generously provided a stipend for one of its research assistants, and to the visitors and collaborators named in the preface to the first volume of this series. We have received invaluable assistance from our secretary, Betty Jacobson; from William H. Capitan, who prepared the index; from Alvin H. Miller, who helped compile some of the bibliographies; and from the staff of the University of Minnesota Press.

Herbert Feigl, *Director*

Michael Scriven, *Research Associate*

Grover Maxwell, *Research Assistant*

MINNESOTA CENTER FOR PHILOSOPHY OF SCIENCE

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Synopsis

The following brief summaries are to provide a first orientation regarding the issues discussed in the essays contained in the present volume. The first essay deals with the very fundamental and controversial question concerning the possibility of attaining a unified conceptual system and a unity of laws which will be necessary and sufficient for all fields of scientific explanation.

1. *Unity of Science as a Working Hypothesis*: PAUL OPPENHEIM and HILARY PUTNAM. The aim of the paper is to formulate a precise concept of Unity of Science and to determine to what extent that unity can be attained. On the basis of precise definitions of the crucial concepts involved, it is argued in detail that tentative acceptance of a working hypothesis is justified, according to which full empirical Unity of Science can be attained. This justification is given, partly on methodological grounds, partly because there is a large mass of direct and indirect evidence in its favor.

A portion of the third paper presents a view which differs on several points from that of the first in the analysis of reduction of one science to another. This essay and the one preceding it reflect partly divergent views on a number of specific issues which arise in connection with scientific explanation and the concepts which it employs.

2. *The Theoretician's Dilemma*: CARL G. HEMPEL. This essay examines the significance, for scientific theorizing, of terms which purport to refer to non-observable, or "hypothetical" things or events; it discusses ways in which such terms may be interpreted by reference to an observational vocabulary, and it then deals with the question whether, and in what sense, theoretical terms might be altogether avoided in the formulation of effective scientific theories.

3. *Definitions, Explanations, and Theories*: MICHAEL SCRIVEN. In an attempt to deal with such problems as the analysis of laws and disposi-

tions, and the relation of theoretical concepts to the observation language, the author undertakes a rather extensive study of definitions. This approach to the *formulation* of the meaning of terms brings out the limitations there are on any brief summary of meaning such as a definition, and consequently the limitations on the programs of 'reducing' one language to another, for example, that of chemistry to that of physics, that of meaning to that of descriptions of linguistic usage, mental states to behavior, laws to event descriptions, and in general, theory to observations. Some interesting consequences appear for the usual analyses of scientific explanations, theories, and concepts, and also for analyses of names, rules, analyticity, and stipulative definitions.

The next three essays examine in detail some of the topics discussed in the preceding ones. It is interesting to note the important points of agreement and disagreement. For example, although there is some divergence on the analysis of generalizations and scientific laws, most of the writers agree that any purely extensional analysis of disposition terms is inadequate.

4. *Disposition Concepts and Extensional Logic*: ARTHUR PAP. The major attempts to analyze disposition concepts and counterfactual conditionals within the framework of extensional logic are critically examined. By an "extensional logic" is meant a logic that treats all compound statements as truth-functional, in particular implications as so-called material implications. Analytical philosophers and logicians who have approached the problem more or less within this framework include Bergmann, Hempel and Oppenheim, Carnap (reduction sentences), Kaila, Storer, Popper, and Braithwaite. But all such analyses are found inadequate for one reason or another. Instead it is proposed that the analysis of disposition concepts be built upon a primitive and nonextensional concept of "natural" implication (corresponding to A. W. Burks' "causal implication" and Reichenbach's "(synthetic) nomological implication"). With the help of this primitive concept an apparently adequate schema of explicit definition of disposition concepts is constructed. It is emphasized, however, that the abandonment of extensional logic as a tool of analysis of causal language does not involve a breach with any essential tenet of empiricism, such as the Humean theory of the logical contingency of laws of nature.

5. *Counterfactuals, Dispositions, and the Causal Modalities*: WILFRID SELLARS. This paper consists of an introductory section describing the

over-all structure of the argument, and four parts: I. Counterfactuals, II. Thing-Kinds and Causal Properties, III. Causal Connection: The Dialectic of the Controversy, and IV. Toward a Theory of the Causal Modalities. Readers primarily interested in logical problems relating to scientific inference and in the controversy between the 'regularity' and 'entailment' analyses of lawlike statements should note that the discussion of these topics in Parts III and IV does not presuppose familiarity with the arguments of the first two parts. Again, the discussion of thing-kinds and causal properties in Part II is reasonably independent of the analysis and resolution of Goodman's puzzle about counterfactuals, which is the burden of Part I.

6. *General Statements as Rules of Inference?*: H. GAVIN ALEXANDER. The view that general statements should be regarded as rules of inference or inference licenses has been supported in four ways. (1) We often infer directly from particular to particular with no major premise (Ryle). (2) The basis of induction must be a principle of inference rather than a statement of the uniformity of nature (Black, Braithwaite). (3) Laws in science are inference licenses not statements (Toulmin). (4) Counterfactual conditionals can only be derived from general truths which are expressed in the form of material rules of inference (Sellars). These four lines of argument are each examined carefully, and it is shown that none of them is at all conclusive.

The remaining papers are more directly relevant to the philosophy of psychology, specifically to the mind-body problem. The importance of the phenomenal field, emphasized in the Zener paper, is a theme which reappears in the detailed analysis of the traditional mind-body problem contained in the essay by Feigl.

7. *Persons*: P. F. STRAWSON. The author argues that certain traditional philosophical problems ('the unity of the self,' 'knowledge of other minds,' 'union of mind and body') are interdependent and can be finally resolved only by full recognition of the logical primacy of the concept of a person. This involves a complete repudiation both of the Cartesian tradition and its 'empiricist' variants. The argument pivots on the logical notions of individual and predicate, and on the requirement that individuals should be distinguishable and identifiable.

8. *The Significance of Experience of the Individual for the Science of Psychology*: KARL ZENER. This paper consists of a critique of current behavioristic methodology from the point of view of Gestalt theory

and of suggestions for changes in outlook and emphasis in the general methodology of psychology. It is argued that conscious experiences—direct awareness in the phenomenal field, including more rarely occurring experiences—are themselves (as opposed to mere verbal reports about them) not only legitimate as data but are of crucial importance for the science of psychology. It is contended that a too narrowly conceived principle of intersubjective testability has narrowed the range of experience accessible to scientific treatment, and a more liberal criterion is proposed and developed. Such changes “would involve clearer recognition of the peculiar necessity for the full development of psychology as a science that a sufficient number of its scientific observers and experimenters themselves be highly developed in those characteristics which may be thought of as most essentially and significantly ‘human.’”

9. *The “Mental” and the “Physical”*: HERBERT FEIGL. The subject matter and the methods of psychology can be successfully clarified only through a comprehensive logical analysis of the relations of the mental and the physical. This problem, perhaps because of its extreme complexity and its central place in the disputes between various “Weltanschauungen” is nowadays frequently ignored (or repressed?) by psychologists and even by many philosophers. It is contended that the philosophies of phenomenalism, neutral monism, as well as behaviorism (American or recent British) cannot do justice to the problem because of their (respective) reductionistic tendencies. Nevertheless, there is the possibility and plausibility of a monistic view based on a realistic, logical-empiricist analysis of the factual problems and the logical perplexities of the mind-body puzzle. Through such an analysis, utilizing some basic principles of logical syntax, semantics, and pragmatics, an identity or double-language view of the relation of the mental and the physical (anticipated in various metaphysical and epistemological versions by A. Riehl, M. Schlick, B. Russell and some American critical realists) can be more securely established. This requires, however, several fairly radical revisions of the traditional conceptions of acquaintance, description, subjectivity, objectivity, spatiality, qualitative and quantitative knowledge, teleology, and reference (intentionality). By allocating the various difficulties to their proper domains and by resolving them through logical analysis, the plausibility of dualistic doctrines (old and new) is greatly diminished. In the light of these clarifications a more

adequate understanding of the various approaches in current psychological theory can be achieved.

The last article and the appendix, by treating themes which appeared in Volume I, exemplify an important feature of this series—the opportunity for sustained research and for the continuation of fruitful controversy on specific problems. Meehl’s article supplements his own paper “Problems in the Actuarial Characterization of a Person” and some of the other papers of Volume I which were concerned with methodological issues of psychology and psychoanalysis. The Appendix contributed by Sellars and Chisholm concentrates on the problem of intentionality, which is an important part of the mind-problem, and thus connects with a corresponding section in Feigl’s essay.

10. *When Shall We Use Our Heads Instead of the Formula?*: P. E. MEEHL. In making his decision about an individual case the clinician may possess special information which, combined with psychological theory and plausible, “accepted” (but unverified) empirical generalizations, would lead to a prediction differing from that yielded by a tested statistical function which provides no place for insertion of the special information. It is argued that some circumstances justify a counteractuarial prediction. However, the present primitive state of theoretical knowledge in psychology does not justify “countermanding the formula” except in extremely clearcut cases.

Appendix: *Intentionality and the Mental*: RODERICK M. CHISHOLM and WILFRID SELLARS. The core of the Appendix is an exchange of correspondence between Wilfrid Sellars and Professor Roderick Chisholm of Brown University concerning the account of the logical character of statements about mental episodes and dispositions (thoughts, beliefs, desires, attitudes, etc.), which was sketched by the former in his essay, “Empiricism and the Philosophy of Mind,” printed in Volume I of this series. The correspondence is preceded by an introduction defining the problem in general terms, and by a reprinting, with additions and omissions, of Professor Chisholm’s recent paper, “Sentences about Believing,” in *Proceedings of the Aristotelian Society*, 56:125–148 (1955–1956)

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