

Preface

Possibly the most striking feature of research in the Philosophy of Mind during the last few decades has been the growing discussion of scientific investigations of mental phenomena: results from psychology and neuro-science are discussed; biological models of cognition have been judged relevant to a philosophical understanding of thought, perception, reasoning and other mental phenomena. This is surprising only against the background of the puritan approach to the mind characteristic of some other philosophical approaches. There have been those who saw no role for philosophy in moving beyond the analysis of psychological concepts to an interest in explanatory psychological theories. It is less so in the light of the history of philosophy. For example the empiricist tradition developed and used a distinctive (albeit flawed) theoretical model of cognition, the theory of ideas. If epistemologists are interested in the norms that govern reasoning and the search for knowledge, it is natural to expect them to benefit from our best knowledge of mental representation and the structure of inference.

The background to this growing interest in the sciences of mind is a more general breaking down of disciplinary boundaries. Those working in Artificial Intelligence have attempted to emulate various human cognitive achievements; psychologists have used computer simulations in formulating or testing hypotheses. Cognitive Science has emerged from this new and distinctively multi-disciplinary investigation of cognitive phenomena, of cognition and the mind. What unifies most of the studies under the umbrella of Cognitive Science is the use of computational, information processing models, techniques and concepts. The emergence of computers has produced new approaches to mental phenomena and new ways of thinking about the mind body problem: the earliest functionalist accounts of mind were presented through the assertion that the mind is a Turing machine. And computer simulations of complex cognitive activities provided ways of acquiring a new clarity about their structure and organization. Cognitive Science is now sufficiently unified and self-conscious that it has its own degree programmes, journals and academic conferences.

Philosophy engages with Cognitive Science in a number of ways. There are philosophers who react to it as yet another symptom of the philosophically confused idea that a 'science' of mind is either possible or desirable, or who insist that if it is possible it is

Preface

of no philosophical importance. These views are not our concern here. Others are intrigued by the faltering attempts to forge a unified inter-disciplinary model of mind and address theoretical issues about the adequacy of computational models of mind and about the role of computer simulations in contributing to the understanding of mental phenomena. Still others seize on the growing repertoire of theories and concepts as ways of enriching their own thought about the mind, insisting that knowledge of psychological information and other material from Cognitive Science can contribute to our ability to make progress with traditional philosophical problems, and can make us aware of new philosophical problems about the mind and cognition. The hope is that interaction between those primarily involved in these different disciplines will be mutually beneficial.

The papers contained in this volume derive from a conference, sponsored by the Royal Institute of Philosophy, which was held at the University of Birmingham from 11 to 13 September 1992. Most have been revised, partly in the light of the discussion at what was a very rewarding, lively and enjoyable occasion. It is not our intention to provide a detailed introduction to them, but a few comments are in order. Some papers were concerned with particular mental phenomena, showing how knowledge of psychological research can help us to come to terms with the complexity of phenomena of traditional philosophical interests, while others are concerned with philosophical issues arising out of the attempt to develop cognitive models of psychological phenomena. Striking examples of the former include Michael Tye's discussion of blindsight and Andrew Woodfield's examination of some puzzling questions about the acquisition and growth of concepts. Stephen's Stich's development of his 'pragmatist' approach to epistemology is another example of how work in this area can be used to contribute to relatively traditional philosophical debates.

The papers concerned with the nature of cognitive science address a variety of issues: Aaron Sloman offers a general introduction to his distinctive view of the role and nature of work in artificial intelligence and Antony Galton offers a computer scientist's perspective on some foundational issues. It is no surprise that an issue of great theoretical importance within Cognitive Science—but also of considerable philosophical interest—receives most attention. This is the controversy between two general approaches to the study of cognitive phenomena, the debate between 'classical cognitivism' and connectionism. Classical cognitivism takes its inspiration from work in artificial intelligence, and sees the mind as a symbol processing system in which explicit

Preface

symbolic data are manipulated by the application of rules. The connectionist view, on the other hand, takes its inspiration from work with artificial 'neural networks', and sees knowledge as essentially involving patterns of 'activation' and 'weighting' over networks of neurons. It is an open question how far these views are incompatible; and there has been extensive discussion of the theoretical underpinnings and importance of the new connectionist approaches. Several of the papers in this volume, contributed by philosophers and others involved in cognitive science, push these debates further; and the contribution of Stephen Mills discusses the intriguing relations between connectionist approaches to cognitive modelling and the view of the mind found in the work of Ludwig Wittgenstein.

Christopher Hookway
Department of Philosophy, University of Birmingham

Donald Peterson
Department of Computer Science, University of Birmingham