

INFORMATIVE TITLE HERE

The Mind Incarnate by Lawrence A. Shapiro, The MIT Press, 2004

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To what degree must the brains and bodies of creatures with minds have to be similar to the brains and bodies of human beings? Since the late 1960's, most philosophers and cognitive scientists have supposed that there are relatively few constraints on what sorts of brains and bodies can realize minds. It is widely believed that minds are multiply realizable. Of course there were always dissenters, and in recent years their grumbling has grown harder to dismiss. In *The Mind Incarnate*, Lawrence Shapiro provides the first book-length study of the multiple realizability thesis. Such an examination is long overdue, and Shapiro's treatment is sure to set the standard for the budding debate.

The idea that minds are multiply realizable is central to much thinking in the cognitive sciences. For philosophers who are concerned to provide accounts of the metaphysical relation between minds and brains, the multiple realization thesis entails that mental states cannot be identical to brain states. The reason is that identity is a one-to-one relation and multiple realizability requires that the brain-mind relation be many-to-one. But the importance of the multiple realizability thesis is not limited to the metaphysical concerns of some philosophers. The very coherence of a substantial research program in artificial intelligence requires that brains are not the only way to build minds. And it is the alleged multiple realizability of minds that seems to justify cognitive psychology as an autonomous science in its own right, able to pursue its explanatory goals without waiting on progress in the neurosciences. Conceptions of minds as essentially intentional, representational, computational, or information processing systems all

suppose that one can understand minds without knowing much about the stuff of which they are made. That is, they free the sciences of the mind from the sciences of the brain by taking for granted that there are many ways to construct a mind.

Shapiro's cleanly written book forgoes the esoteric and fanciful examples that populate many discussions of multiple realizability. After laying out a framework for thinking about multiple realizability, he argues that an important and interesting version of the multiple realizability thesis has practical consequences and is therefore open to empirical investigation. His argument is delightfully novel and yet entirely straightforward. Consider two alternatives: either the physical constraints on minds are few or none (the multiple realization thesis) or else they are many (the mental constraint thesis.) Clearly these alternatives stand near opposing ends of a spectrum of possibilities. What we'd like to know is where the truth about human minds falls on that spectrum. Now we can make some predictions. If the constraints on minds are few or none, then from facts about minds we should not be able to predict much or anything about the physical structures that realize them. After all, minds could just as well be realized by many other structures. On the other hand, if we can make predictions about the realizers of minds, this suggests that there are some substantial constraints on how minds are built. Shapiro argues that we can in fact make interesting predictions about brains and bodies from facts about minds. This shows that minds are not as multiply realizable as many have supposed, and therefore that we ought to favor the mental constraint thesis.

The opening chapters of Shapiro's book are dedicated to clarifying the thesis of multiple realizability and laying out the overall argument structure. The middle portion of the book takes up the task of demonstrating that we can indeed make substantial predictions about brains from what we know about minds. In the later chapters Shapiro argues that his tentative conclusions

can be brought to bear on some philosophical issues concerning explanation and embodiment. Compared to other recent books on related topics, Shapiro's is clearly the most broadly accessible. This book can be read by cognitive scientists who are not already familiar with the issue of multiple realizability, and by undergraduate students. Shapiro is so matter-of-fact that novices may need to read other works to find out why anyone would disagree. Yet it lays a solid groundwork for further explorations in philosophy of science, philosophy of neuroscience, or philosophy of mind.

Shapiro is very careful to set boundaries for his exploration. He is concerned with naturally occurring terrestrial minds, and with what is or is not possible given the actual conditions and history of our world. These limits are among the strengths and the weaknesses of *The Mind Incarnate*. Shapiro's is the best introduction to the thorny issues of multiple realizability for the vast majority of researchers and students in the cognitive sciences. Ultimately the book is a systematic critique of the multiple realizability thesis. Yet it presents the core issues as practical and important to cognitive science; and it keeps the arguments, examples, and conclusions to those of some empirical consequence. This will be a welcome relief to those who are tired of philosophical books about zombies, robots, and aliens. Shapiro couches the abstract issues in sensible terms. He leans heavily on familiar examples of corkscrews or mousetraps, as well as somewhat less familiar but easily grasped examples concerning eye structure or metabolic regulation.

This is not to say that Shapiro eschews philosophy. Indeed one of my favorite features of this book is that, unlike some authors who have written philosophy for cognitive scientists, Shapiro does not bash philosophers or gripe that complicated philosophical questions are frivolous. Instead, he clearly and simply explains philosophical issues and helps the reader to

understand what is at stake and how the questions can be located in a broader context. All this is good. A negative consequence is that Shapiro's arguments are vulnerable to attack on some of the traditional philosophical avenues. He tries to protect himself by qualifying his conclusions in some spots and extending them in others. But some readers will complain that he has not faced-up to the core logical problems concerning multiple realizability and explanation. Multiple realizability enters the discourse because we want to answer metaphysical questions about the nature of minds, but Shapiro shies away from metaphysical conclusions. So much the worse for metaphysics, you may think. (Perhaps Shapiro would agree.) My own view is that a distaste for metaphysics is itself an artifact of an outdated way of thinking about science and philosophy, and that one can pursue an empirically responsible metaphysical investigation of minds. If so, then other sympathetic readers may join me in wanting to know whether Shapiro can extend and develop his account to address the critics. I think that he has laid the groundwork for doing so.