

Patricia Churchland, *Brain-Wise*. Cambridge: MIT Press, 2002.

In *Brain-Wise*, Patricia Churchland tries to show us how the cognitive sciences, and the neurosciences in particular, are related to questions about the self, consciousness, religion and other traditional philosophical topics. This is not completely new, of course, as since the 1980s a number of highly successful philosophical publications by Dennett, Pinker, Damasio and others have had their roots in insights gained from psychological and neurological research. In 1986, Churchland's own *Neurophilosophy* promised to provide methodological structuring of this interaction between philosophy and cognitive science and to lead the way "toward a unified science of the mind/brain." *Brain-Wise* is conceived as a contemporary sequel to *Neurophilosophy*. Much like its predecessor, it seems to be mainly targeted toward students looking for a solid introduction to the discipline of neurophilosophy and includes typical textbook features such as concise conclusions and lists of suggested readings at the end of each chapter. There are nine chapters in total, divided into three main categories: metaphysics (dealing with the self, consciousness and free will), epistemology (representation and learning) and religion. Elaborate introductions to the book as a whole and to the parts on metaphysics and epistemology provide the general philosophical foundations for the chapters dealing with more specific neurophilosophical findings.

Churchland's willingness to dig fairly deep into the historical philosophical roots of the neurophilosophical methodology gives *Brain-Wise* the sort of academic solidity required to appeal to both scientists and philosophers. It also sets this book apart from many other 'popular scientific' publications that use highly speculative and often *ad hoc* interpretations of various experiments to make some broader philosophical claim. *Brain-Wise* does what it promises and successfully links actual philosophical questions to cognitive-scientific insights.

This is not to say most philosophers will necessarily agree with the picture Churchland paints. Inspired by Quine's refutation of the *a priori-a posteriori* distinction, and by pragmatist approaches to solving both scientific and philosophical problems, she heavily objects against purely *a priori* conceptual reflections on philosophical issues. Concepts can be refined or their referents re-described so they can figure in new and more accurate theories of the world. But this not a mere *a priori* task for the

philosopher. Through conceptual revolutions induced by neuroscientific progress, the troublesome and approximative concepts we presently use in philosophy and psychology will be re-defined in accurate, neurological terms. A complete neuroscience will have answered, or dissolved, all age-old philosophical and psychological questions.

For the time being, we still need cognitive science—including experimental psychology and neurophilosophy—to come up with well-defined questions for neuroscience to explain. Churchland goes to considerable lengths explaining psychology and neurology are not *mutually exclusive* but *mutually dependent*. The final goal of the enterprise, however, has to be a re-definition of psychological concepts in terms of neuroscientific particulars. Contemporary cognitive science thus conceived is like Wittgenstein's ladder: you use it to climb a wall, only to push it away once you are on top.

With a lot of pages spent on philosophical considerations, the space left for actual scientific results is rather limited. *Brain-Wise* does provide a genuine update of the empirical material presented in *Neurophilosophy*, but as that volume was published almost two decades ago, the new elements on offer here are experiments and interpretations mostly well-known to contemporary cognitive scientists, including most philosophers of mind. Thus, the positive part of the chapter on consciousness—the part not rebelling against *a priori*, non-reductionist philosophical arguments—revolves around binocular rivalry experiments, Edelman's loops and a short overview of global workspace theory. Nothing new for academics working in the field, but nonetheless an exciting, if rather coarse, exploration for students new to present-day debates on consciousness. The same is true for the other chapters. Although some of them have somewhat more explicit scientific content (the chapter on learning being a good example), the author mostly just provides an introduction to a certain aspect of cognitive research, mentioning both older and newer experiments as she goes along. This then culminates in mostly hopeful prospects of how generalisations of the presented empirical research could provide solutions to related philosophical problems. Although at times radical and speculative, Churchland's claims remain balanced, consistent and on par with her own methodological standards.

Throughout *Brain-Wise* Churchland does a good job substantiating her viewpoints and touches upon many valuable insights in the process.

It is unmistakably true that philosophy can learn a lot from cognitive-scientific insights and that the concepts philosophers use do not float in an *a priori* vacuum, but are susceptible to revision in the light of new scientific theories and empirical data. It is also very likely that experimental psychologists can learn a great deal from neuroscientific discoveries and should refrain from developing completely *brain-averse* explanations of mental phenomena. There is the occasional feeling Churchland is fighting ghosts when defending against opponents of these claims, but maybe this simply goes to show how much of an impact neurophilosophy has had in recent years. For many readers, Churchland's infamous thoughts on the complete reduction of philosophical and psychological concepts to the neurological level will be harder to stomach, but ultimately not a lot in *Brain-Wise* rides on these radical views on the future of cognitive science. Rather, the book's central focus is on showing how empirical findings from many different cognitive-scientific levels of explanation can augment each other and can ultimately help us to get a better grip on philosophical problems. *Brain-Wise* also offers a substantial exposition of the philosophical foundations and methodological requirements for the neurophilosophical inter-discipline. Although sometimes radical on the theoretical level and sketchy on the scientific plane, this book will provide a highly compelling introduction to neurophilosophy for students of both philosophy and the positive cognitive sciences.

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