

Neuroscience and Philosophy: Brain, Mind, and Language. By Maxwell Bennett, Daniel Dennett, Peter Hacker, and John Searle. New York: Columbia Univ. Press, 2007. x + 215 pages. \$25.50.

Many believe that cognitive neuroscientific research has delivered invaluable insights concerning the human mind. We now allegedly know, among other things, how the brain is able to “think” and “perceive.” Against the tide of optimism generated by the putative successes of cognitive neuroscience, Maxwell Bennett, a neuroscientist, and Peter Hacker, a philosopher, have raised critical issues against the conceptual foundations of this endeavor. In a controversial book published in 2003, *Philosophical Foundations of Neuroscience* (Wiley-Blackwell), Bennett and Hacker mounted an attack against the conceptual framework that has been explicitly or implicitly adopted by the cognitive neuroscientific community at large. The book attracted immediate attention, and the authors were invited by the program committee of the American Philosophical Association to participate in a debate with prominent philosophers Daniel Dennett and John Searle, who were two of the main targets of Bennett and Hacker’s critique. *Neuroscience and Philosophy: Brain, Mind, and Language* is a collection of essays used in this important debate.

The book is organized into three sections. The first consists of three excerpts from *Philosophical Foundations of Neuroscience* that lay out the broad contours of Bennett and Hacker’s argument. The second consists of Dennett’s and Searle’s independent replies, and the third consists of Bennett and Hacker’s responses. The book closes with an assessment of the overall debate by Daniel Robinson.

In the first section Bennett and Hacker articulate their core thesis: Psychological concepts are often incoherently applied to the brain in neuroscientific research. Their main concern is that cognitive neuroscience, as a discipline that operates in two categorially distinct fields, neuroscience and psychology, is characterized by the nonsensical application of psychological concepts within the domain of neuroscience. It is nonsensical to say, for example, that the left hemisphere of the brain “thinks” or that the visual cortex “perceives.” Simply put, the brain is not a logically appropriate subject for psychological predicates. Only the human being as a whole can be said to think or perceive. By ascribing such psychological concepts to the brain, a constituent *part* of a human being, cognitive neuroscientists commit what Bennett and Hacker dub the “mereological fallacy” (pp. 21–22). To provide an example of this fallacy they cite the use of the term *representation*. In its ordinary sense it stands for a rule-governed symbol. I might say that the string of letters “dog” *represents* a dog. In its technical sense, however, it stands for causal correlation. When cognitive neuroscientists claim that a certain region of the visual cortex represents the visible surface of a tree they mean that this particular neural region is causally correlated with the visible surface. The problem is that cognitive neuroscientists invariably “forget this [distinction] and *proceed to cross the* [technical] *use with the* [ordinary], generating incoherence” (p. 26). It simply does not rise to the level of sense to claim that the visual cortex represents the visible surface of the tree by means of rule-governed symbols.

Dennett, in a spirited rebuttal, is flabbergasted, even insulted, that Bennett and Hacker accuse him of committing the mereological fallacy. According to Dennett, the mereological fallacy is nothing more than a banal recapitulation of

his earlier ideas. Years ago he made the distinction between *personal* and *subpersonal* levels of explanation to show why so many philosophers, by failing to acknowledge this distinction, have fallen into the insidious trap of Cartesian materialism. Indeed, in a critique of Searle's defense of the Chinese Room, Dennett explicitly rejected the Cartesian materialism latent in Searle's thesis by claiming, "I understand English, my brain doesn't" (p. 77). It is not difficult to see, therefore, that Dennett endorses Bennett and Hacker's claim that the literal attribution of fully fledged psychological predicates to the brain is to commit the mereological fallacy. There is nevertheless a legitimate ground for Bennett and Hacker's accusation given the observation that Dennett endorses the application of *attenuated* psychological predicates to neurological processes. It is something akin to a young child's "sort of believing"—believing in an attenuated form—that her father is a doctor without fully understanding what *father* or *doctor* really means (p. 87). Attenuated psychological predicates are deployed when characterizing the different systems that make up a whole person. By attending to the subpersonal parts of a whole person we are able to see how the person's psychological powers of thought and perception can be systematically decomposed into various homunculi carrying out simple processes. On this view there is an important sense in which the visual cortex is able to perceive. This, Dennett claims, is the "enabling move" that makes any cognitive neuroscientific analysis of our brains possible (p. 89).

Dennett is keen on developing a conceptually coherent account of attenuated psychological predicates to undermine Bennett and Hacker's critique, but Searle focuses on Bennett and Hacker's interpretation and usage of Wittgenstein's philosophy and ponders what conclusions can appropriately be drawn from its application to cognitive neuroscience. According to Searle, the lesson that Wittgenstein taught us is that "it only *makes sense* to ascribe [psychological] predicates to something that is, or behaves like, a living human being" (p. 101). This is because behavior does not simply provide inductive grounds for the proper ascription of psychological predicates; it provides a logical criterion for their application. Searle happily concedes this and affirms Bennett and Hacker's claim that we can say only of the whole human being that she thinks or perceives. But what exactly follows from this? Does it follow that consciousness cannot be caused by neurophysiological processes? Searle argues that it does not.

To elaborate on this point, Searle considers two different ways the brain can be considered the subject of psychological predicates: the "brain as agent" and the "brain as locus" (p. 107). He admits that there may be grounds for discounting the brain as agent as a proper subject of psychological predicates; it is "odd" to say that the brain thinks. But rejecting the brain as agent does not entail that the brain as locus must also be rejected. Searle argues that Bennett and Hacker need an additional argument to justify this inference but none is given. It simply does not follow that the logical incoherence of applying psychological predicates to the brain as agent entails a similar fate for the brain as locus. By keeping the brain as agent distinct from the brain as locus, Searle claims that psychology can be analogized to digestion. Even if we cannot say that the stomach digests food, because it is only the whole person who can digest food, "we can still ask where and how the specific digestive processes occur. And the answer is that they occur in the stomach and the rest of the digestive tract" (p. 109). In a similar vein, one can agree that it is the whole person who thinks but still coherently ask *where* the psychological

process of thinking occurs. Bennett and Hacker, by denying that the brain as locus is a viable candidate for psychological predicates, cannot offer a coherent account of the fact that thinking and perceiving occur at a specific space-time location.

There is much in this book to mull over. I do not cover here their debate over the concept of qualia, the nature and application of grammars, Bennett and Hacker's full responses, or Robinson's insightful conclusion. The ideas are provocative and the various positions are clearly developed. Insights gleaned from this debate can fruitfully be applied to other areas in the philosophy of mind and may even help to advance debates that have stagnated. There is no doubt that careful thought concerning the conceptual framework deployed in the cognitive sciences will be beneficial to everyone involved. Those interested in these issues will find the dialogue between these eminent thinkers of great value.

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Beauty in Science and Spirit. By Paul H. Carr. Center Ossipee, N.H.: Beech River Books, 2007. xxii + 171 pages. \$18.00 (paper).

It is refreshing to see in the vast literature that constitutes the science-and-religion dialogue a work about beauty. It has puzzled me why one characteristic of the universe—it is beautiful—and one of the divine names of God—Beauty—have played such a small role in the science-and-religion dialogue. If ever a term could be an interconnecting nexus between the two, Beauty would be that term. Yet, even if mentioned, Beauty has scarcely been used as a serious perspective to understand both the bridges and the chasms between science and religion. Therefore, it was with great delight that I received a copy of Paul Carr's *Beauty in Science and Spirit*.

Carr, a retired physicist who led an AF research laboratory for many years, takes a sustained look at the role Beauty plays between science and spirituality. His thesis, I believe, is expressed in these remarks: "Spirituality, the independent source of the world's religious traditions and wisdom, provides the 'why,' which beautifully complements the 'how' of science. Science, unraveling the intricacy of nature, and spirituality, revealing its ultimate purpose and meaning, have complementary beauty" (p.37). The complementary beauty of science and spirit lead to a "New Story" of cosmic import, a story that "transcends national and cultural differences" (p. 37). Carr attempts to tease out this thesis by demonstrating how the "mystical beauty" of spirituality nurtures and helps the "mathematical beauty" of science to emerge. He does this by reflections on art, intelligent design, the Music of the Spheres, the Big Bang, evolution, fractals, the Holy Land, technology, and the environment. These reflections lead to a proposal for a new paradigm between science and spirituality.

Taking a cue from Paul Tillich's famous work *The Courage to Be* (Yale Univ. Press, 1952), Carr proposes the courage to create Beauty as a way for science and spirituality to find common ground. As he puts it, "scientific insight and spiritual