



Neuroethics: A Guide for the Perplexed

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In this provocative excerpt from a recent special issue of Cerebrum: The Dana Forum on Brain Science, psychologist Martha J. Farah considers the possibility that what you see is what it is—that the neural universe is primary. “If mental processes prove to result from purely physical events,” the editors write, “this opens to question our notions of consciousness, spirituality, free will, and moral responsibility.”

PROVOCATIVE METAPHYSICAL QUESTIONS ARISE from the ways in which neuroscience challenges our understanding of human behavior. Of course, understanding behavior influences our policies and actions, but such consequences are secondary to a more fundamental reordering of our concepts of mental and physical. A major task in neuroethics is to reconcile our advancing knowledge of mind-brain relations with the traditional metaphysics of dualism, that is, the idea that brains are material systems, whereas minds are something very different.

Simple intuition, as well as the work of many great philosophers, points to a basic metaphysical distinction between persons—who have minds, are conscious, and behave for reasons—and the physical matter of the body, which behaves according to the laws of physics. However, this distinction becomes harder to maintain in the face of the advancing neuroscience of cognition and emotion, which seems to leave no aspect of human psychology outside the realm of physical systems implemented in neural tissue.

Most people believe in some essence of a person that is more than just the 100 or 200 pounds of matter we can see and touch. Yet as neuroscience advances, the human mind is increasingly understood to be no more than the

functioning of a material system. This first became clear in the realms of perception and motor control, where mechanistic models have been under development for decades. However, such models do not seriously threaten our intuitively “dualistic” view of mind and brain. You can still believe in “the ghost in the machine” and simply conclude that color, vision, and gait are features of the machine rather than the ghost.

However, as neuroscience begins to reveal the mechanisms of personality, this interpretation becomes strained . . . [B]rain-imaging work . . . indicates that important aspects of our individuality, including the psychological traits that matter most to us as people, have physical correlates in brain function. Pharmacologic influences on these traits also remind us that human personality has physical bases. If a selective serotonin reuptake inhibitor (SSRI) can help us take everyday problems in stride and if a stimulant can help us meet our deadlines and keep our commitments at work, then mustn’t unflappable temperaments and conscientious characters also be features of people’s bodies? And if so, is anything about people not a feature of their bodies?

A dualist might answer that consciousness and spirituality are not physical. Yet neuroscience is making inroads with these mental phenomena, too. Research on consciousness

in brain-damaged patients and normal individuals has succeeded in establishing reliable neural correlates of conscious awareness. Recent neuroimaging research has shown a characteristic pattern of brain activation associated with states of religious transcendence, which is common to Buddhist meditation and Christian prayer.*

Scientists and theologians have long struggled with the challenge of maintaining religious beliefs while accepting science's view of the natural world. The idea that a person is somehow more than his or her physical instantiation runs deep in the human psyche and is a central element in virtually all the world's religions. Neuroscience has begun to challenge this view by showing that not only perception and motor control but also character, consciousness, and sense of spirituality may be features of the machine. If they are, then why suppose the existence of a ghost in there at all?

The incompatibility between the intuitive or religious

view of people and the neuroscientific view joins the list of metaphysical incompatibilities between persons as continuous in time and brains as changeable pharmacologically, between persons achieving through effort and brains operating better or worse as a function of neurotransmitter levels, and between persons acting intentionally and brains reacting according to physical law. 🌐

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*Andrew Newburg, Eugene G. D'Aquili, Vince Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief* (New York: Ballantine Books, 2002).

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