

Book review

The Moral Brain **Essays on the Evolutionary and Neuroscientific Aspects of Morality**

Edited by **Jan Verplaetse, Jelle De Schrijver, Sven Vanneste, and Johan Braeckman**
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275 pages, 18 black/white illustrations and tables; index

Morality is considered to be one of the most complex and most human quality, defining and enabling life in community. No wonder, therefore, that the neural underpinnings of that „function“ have been an interesting aim for scientists all over the time. The Viennese neurologist Moritz Benedikt (1835-1920) situated morality in the occipital lobes, viewing morality as a sense organ. Oskar Vogt (1870-1959) saw morality as a function of the *lamina pyramidalis* of the frontal lobes, while phrenologists disputed about the precise location of morality, but did not doubt about its existence. Since then, many scientists up to modern times, have been either searching for or speculating about the cortical area that might explain (im)moral behavior, but we somehow have been deprived from a final answer. Particularly worrisome, hereby, sounds that (im)moral acting might be engineered.

The book contains twelve chapters. In the **Introduction**, Jan Verplaetse, Johan Braeckman, and Jelle de Schrijver give a very useful historical overview of the problem, a brain-imaging primer, and the plan of the book. Andrea Glenn and Adrian Raine deal with **The immoral brain**, studying specifically psychopathy (using The Prisoner's Dilemma). Jorge Moll and Ricardo de Oliveira-Souza present their concept of **„Extended attachment“ and the human brain: internalized cultural values and evolutionary implications**, subserving cooperation beyond kin and being considered to be uniquely human. **Neuro-cognitive systems involved in moral reasoning** is the topic of the paper by James Blair, advocating a multiple morality system (with at least four mechanisms of learning based on emotions: care-based – harm, reciprocity; disgust-based – purity; social convention – hierarchy; affect-free morality). Jean Decety and C. Daniel Batson deal with **Empathy and morality: integrating social and neuroscience approach**, proving that empathy operates by way of conscious and automatic processes. Kristin Prehn and Hauke R. Heekeren entitled their contribution **Moral judgement and the brain: a functional approach to the question of emotion and cognition in moral**

judgement integrating psychology, neuroscience and evolutionary biology, studying, among other, the role of emotions and intuitive feelings in moral judgement. Dirk De Ridder, Berthold Langguth, Mark Plazier, and Tomas Menovsky write about **Moral dysfunction: theoretical model and potential neurosurgical treatments**, in particular about antisocial personality disorders (APD)/psychopathy and pedophilia as well as the treatment of such diseases (electrical stimulation of the nucleus accumbens, anterior cingulate cortex, amygdala, orbitofrontal cortex, and dorsolateral prefrontal cortex). Matthijs van Veelen, from Department of Economics of Amsterdam University, investigates **Does it pay to be good? Competing evolutionary explanations of pro-social behaviour**, while Randolph M. Nesse poses the question **How can evolution and neuroscience help us understand moral capacities?** and, in a second contribution, writes about **Runaway social selection for displays of partner value and altruism**, insinuating that „our expectation that there is some sharp peak that defines „normal““ (in the sense of morality) may be wrong. The object of interest of John Teehan is **The evolved brain: understanding religious ethics and religious violence**, analyzing the approach to (non)violence in various religions. Finally, Jelle De schrijver concludes the book with **An evolutionary and cognitive neuroscience perspective on moral modularity**, suggesting that evolutionary biology raises and cognitive neuroscience tests different hypotheses on moral mechanisms.

It is positive that some younger authors were invited to contribute to the present book, but it is a pity that Bechara, Damasio, Eslinger, Nichelli, Schultz, and others studying the function of the orbitofrontal cortex, reward/punishment, and related phenomena, were not included among the authors.

Probably the most important conclusion of the present series of articles is that there is no single „moral center“. Several cortical and subcortical structures, like the cingulate cortex, medial and ventromedial prefrontal cortex, hippocampus, amygdala, insula, etc., play certain roles in preparing and executing moral behavior, and each moral task (processing personal vs. impersonal moral dilemmas; empathy; etc.) seems to have its own neural network. The present book might be regarded as an excellent insight into the *status quaestionis*, providing us with a precious evolutionary and neuroscientific update for all those interested in the curious interdisciplinary field of morality.

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