

He repeatedly says that he is explaining how our brains make us who we are, and tries hard to make the meaning of this mantra clear. He defines the self as 'the totality of the living organism', but also proposes that 'the self is created and maintained by arrangements of synaptic connections'. I was unable to find any clear coherent meaning linking these statements, or LeDoux's many other attempts to convey his conception of the self. More plausible to me is William James's pluralistic interpretation of the various concepts of self, including bodily, social, and 'spiritual' versions, and extending to those that are remote and potential, as well as to those that are immediate and actual.

That said, I do not regard my scepticism concerning LeDoux's concept of the self as a major criticism. I am enthusiastic about the broader project of building the discipline of molecular psychology, with synaptic interactions at its centre. My optimism for its prospects is greatly increased by the quality of the work reviewed by LeDoux in this valuable contribution to the task of building a better understanding of the relation between brain and mind, and of presenting it to as broad an audience as possible.

William A. Phillips

Center for Cognitive and Computational Neuroscience, Dept of Psychology, University of Stirling, Scotland, UK FK9 4LA.
e-mail: wap1@stir.ac.uk

Whose norm?

Common Sense, Reasoning, & Rationality

edited by Renée Elío,
Oxford University Press, 2002. £60.00 (hbk)
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Common Sense, Reasoning, & Rationality is a collection of 11 papers based on some of the invited talks at the Eleventh Vancouver Studies in Cognitive Science conference, held in 1998. A more accurate title would be *Commonsense Reasoning and Rationality*, and, indeed, that is the phrase used in the title of the editor's introductory chapter.

The 19 authors, mostly philosophers, along with several psychologists and a

couple of computer scientists, are engaged in a debate about the nature of human commonsense reasoning and the applicability of a normative notion of rationality to the study of human commonsense reasoning. The prime contenders, here, for a normative notion of rationality are deductive logic and Bayesian probability.

We might first wonder what a normative notion of rationality is. The answer provided is a standard of reasoning against which a person's reasoning might be judged to be right or wrong, whereas commonsense reasoning is however people actually reason. For example, consider, as several of these authors do, the well-known findings of Kahneman and Tversky (e.g. see [1]), where people consider the likelihood of a conjunction to be higher than that of either conjunct. If you think these subjects are making mistakes in their reasoning, you must be comparing their performance to some normative notion of reasoning, such as Bayesian probability theory. If, however, your goal is to understand or model how the subjects actually do reason, normative notions of reasoning are simply irrelevant.

Although deductive logic and Bayesian probability are the prime contenders for a model of normative rationality, Henry E. Kyburg, Jr. argues for non-monotonic acceptance theory as the normative theory. And Mike Oaksford and Nick Chater argue that deductive logic is not relevant for understanding commonsense reasoning, but that probability theory is the most promising candidate for a normative theory.

As far as models of commonsense reasoning are concerned, Stuart Russell argues for bounded optimality while Gerd Gigerenzer, Jean Czerlinski and Laura Martignon argue for a version of bounded rationality called 'fast and frugal heuristics', John L. Pollock argues for defeasible means-ends planning, and Paul Thagard, Chris Eliasmith, Paul Rusnock and Cameron Shelley argue for epistemic coherence. With quite different approaches, Denise Dellarosa Cummins argues that commonsense reasoning is mainly reasoning about social norms, and Gilbert Harman argues that commonsense reasoning derives from the logic of ordinary language (for more on that theme, see [2].)

There are two attempts at making peace. In his chapter on 'Reasoning

Imperialism', Lance J. Rips argues that people can evaluate both deductive correctness as well as inductive plausibility, and so both are needed for a complete model of commonsense reasoning. In their chapter entitled 'Ending the Rationality Wars', Richard Samuels, Stephen Stich and Michael Bishop argue that the proponents of the heuristics and biases tradition and the proponents of evolutionary psychology mostly differ in their 'rhetorical flourishes', but that when those are set aside, they largely agree on the extent of human rationality.

This book is a good introduction to the 'rationality wars' (and the commonsense wars); if, like me, you doubt they will end soon, this is a worthwhile entrée to the various sides.

Stuart C. Shapiro

Dept of Computer Science and Engineering, and Center for Cognitive Science, University at Buffalo, The State University of New York, Buffalo, NY 14260-2000, USA.
e-mail: shapiro@cse.buffalo.edu

References

- 1 Kahneman, D. et al. (1982) *Judgment under Uncertainty: Heuristics and Biases*, Cambridge University Press
- 2 Iwanska, L. and Shapiro, S.C., eds (2000) *Natural Language Processing and Knowledge Representation: Language for Knowledge and Knowledge for Language*, AAAI Press/MIT Press

A model approach to computational vision

Computational Neuroscience of Vision

by Edmund T. Rolls and Gustavo Deco,
Oxford University Press, 2002. £24.95 (pbk)
(xviii + 564 pages) ISBN 0 19 852488 9

This book provides an outstanding illustration and defence of the computational approach to brain research. Although it mainly focuses on high-level visual information processing, such as object perception and visual attention, it is of great interest for a large scientific community. Rarely does one find a theoretical work so tightly coupled with empirical evidence originating from biophysics, neurophysiology, neuroimaging, neuropsychology and psychophysics. This book shows precisely