NEW

AFTER PHRENOLOGY
Neural Reuse and the Interactive Brain
Michael L. Anderson
The computer analogy of the mind has been as widely adopted in contemporary cognitive neuroscience as was the analogy of the brain as a collection of organs in phrenology. Just as the phrenologist would insist that each organ must have its particular function, so contemporary cognitive neuroscience is committed to the notion that each brain region must have its fundamental computation. In After Phrenology, Michael Anderson argues that to achieve a fully post-phrenological science of the brain, we need to reassess this commitment and devise an alternate, neuroscientifically grounded taxonomy of mental function. Anderson contends that the cognitive roles played by each region of the brain are highly various, reflecting different neural partnerships established under different circumstances. He proposes quantifying the functional properties of neural assemblies in terms of their dispositional tendencies rather than their computational or information-processing operations. Exploring larger-scale issues, and drawing on evidence from embodied cognition, Anderson develops a picture of thinking rooted in the exploitation and extension of our early-evolving capacity for iterated interaction with the world. He argues that the multidimensional approach to the brain he describes offers a much better fit for these findings, and a more promising road toward a unified science of minded organisms.

"Human neuroscience has been using 21st-century tools to investigate a 17th-century theory of the mind. Until now. Anderson provides his readers with front-row seats to the emerging paradigm shift in the human neurosciences. Modularity, Phrenology, faculty psychology. These assumptions led neuroscientists to search in vain for a compartmentalized brain. With powerful metaphors, useful conceptual tools, and inspiring research findings, Anderson paints a picture of a highly interactive human brain and the sort of 21st-century neuroscience framework that is needed to explain how it creates a human mind."
— Lisa Feldman Barrett, University Distinguished Professor of Psychology, Northeastern University

2015 — 432 pp. — 7 color, 26 b & w illus. — $45.00/£31.95
978-0-262-02810-3

NEW

PHILOSOPHY OF LANGUAGE
The Classics Explained
Colin McGinn
Many beginning students in philosophy of language find themselves grappling with dense and difficult texts not easily understood by someone new to the field. This book offers an introduction to philosophy of language by explaining ten classic, often anthologized, texts. Accessible and thorough, written with a unique combination of informality and careful formulation, the book addresses sense and reference, proper names, definite descriptions, indexicals, the definition of truth, truth and meaning, and the nature of speaker meaning, as addressed by Frege, Kripke, Russell, Donnellan, Kaplan, Evans, Putnam, Tarski, Davidson, and Grice. The explanations aim to be as simple as possible without sacrificing accuracy; critical assessments are included with the exposition in order to stimulate further thought and discussion. Philosophy of Language will be an essential resource for undergraduates in a typical philosophy of language course or for graduate students with no background in the field. It can be used in conjunction with an anthology of classic texts, sparing the instructor much arduous exegesis.

"McGinn has an enviable knack for explaining difficult texts in ways that don’t dumb them down but yet are strikingly intuitive and accessible, ways one wished one had thought of oneself. Even a professional philosopher who has been teaching and working in the philosophy of language for years will find more than a little illumination in this compact but commendably thorough book."
— Stephen Schiffer, Silver Professor of Philosophy, New York University

"The philosophy of language is an intimidating field, even to people who know a lot about language: filled with abstruse distinctions and traps for misunderstanding. Colin McGinn is a lucid and sure-footed guide through this murky terrain, and this is the book that many of us have been waiting for."
— Steven Pinker, Johnstone Family Professor of Psychology, Harvard University, and author of The Language Instinct and The Sense of Style

2015 — 232 pp. — $35.00/£24.95
978-0-262-02845-5

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mitpress.mit.edu/mitpress/digital
Cognitive Science

NEW

A NATURAL HISTORY OF NATURAL THEOLOGY
The Cognitive Science of Theology and Philosophy of Religion
Helen De Cruz and Johan De Smedt

Questions about the existence and attributes of God form the subject matter of natural theology, which seeks to gain knowledge of the divine by relying on reason and experience of the world. Arguments in natural theology rely largely on intuitions and inferences that seem natural to us, occurring spontaneously — at the sight of a beautiful landscape, perhaps, or in wonderment at the complexity of the cosmos — even to a nonphilosopher. In this book, Helen De Cruz and Johan De Smedt examine the cognitive origins of arguments in natural theology. They find that although natural theological arguments can be very sophisticated, they are rooted in everyday intuitions about purpose, causation, agency, and morality. Using evidence and theories from disciplines including the cognitive science of religion, evolutionary ethics, evolutionary aesthetics, and the cognitive science of testimony, they show that these intuitions emerge early in development and are a stable part of human cognition.

De Cruz and De Smedt analyze the cognitive underpinnings of five well-known arguments for the existence of God: the argument from design, the cosmological argument, the moral argument, the argument from beauty, and the argument from miracles. Finally, they consider whether the cognitive origins of these natural theological arguments should affect their rationality.

“In A Natural History of Natural Theology the enduring tradition of natural theology meets an academic newcomer, the cognitive science of religion. In this unique meeting, De Cruz and De Smedt offer a bold, fascinating, and remarkably clear account of the cognitive basis of theological arguments. A Natural History of Natural Theology will not only be appreciated by cognitive scientists and theologians, but will be of interest to anyone who has ever considered arguments for or against the existence of God.”

— Richard Sosis, James Barnett Professor of Humanistic Anthropology, University of Connecticut; cofounder and coeditor of Religion, Brain & Behavior

“A Natural History of Natural Theology is a bold and timely interdisciplinary effort to grapple with one of the most pressing intellectual questions of our time: How do we know of the existence of God? De Cruz and De Smedt go a step further: what happens to theology when the science in question is the science of theological thought itself? This ambitious book represents an exciting new chapter in the science–theology dialogue.”

— Justin L. Barrett, Thrive Professor of Developmental Science, Fuller Graduate School of Psychology; author of Born Believers: The Science of Children’s Religious Belief

2015 — 264 pp. — 1 illus. — $40.00/£27.95
978-0-262-02854-7

CULTURAL EVOLUTION

Society, Technology, Language, and Religion
edited by Peter J. Richerson and Morten H. Christiansen

Over the past few decades, a growing body of research has emerged from a variety of disciplines to highlight the importance of cultural evolution in understanding human behavior. Wider application of these insights, however, has been hampered by traditional disciplinary boundaries. To remedy this, in this volume leading researchers from theoretical biology, developmental and cognitive psychology, linguistics, anthropology, sociology, religious studies, history, and economics come together to explore the central role of cultural evolution in different aspects of human endeavor.

The contributors take as their guiding principle the idea that cultural evolution can provide an important integrating function across the various disciplines of the human sciences, as organic evolution does for biology. The benefits of adopting a cultural evolutionary perspective are demonstrated by contributions on social systems, technology, language, and religion. Topics covered include enforcement of norms in human groups, the neuroscience of technology, language diversity, and prosociality and religion. The contributors evaluate current research on cultural evolution and consider its broader theoretical and practical implications, synthesizing past and ongoing work and sketching a roadmap for future cross-disciplinary efforts.

2013 — 456 pp. — 25 illus. — $45.00/£31.95
978-0-262-01975-0
Strüngmann Forum Reports
**NEW**

**PROCESSING INACCURATE INFORMATION**

Theoretical and Applied Perspectives from Cognitive Science and the Educational Sciences

*edited by David N. Rapp and Jason L. G. Braasch*

Our lives revolve around the acquisition of information. Sometimes the information we acquire—from other people, from books, or from the media—is wrong. Studies show that people rely on such misinformation, sometimes even when they are aware that the information is inaccurate or invalid. And yet investigations of learning and knowledge acquisition largely ignore encounters with this sort of problematic material. This volume fills the gap, offering theoretical and empirical perspectives on the processing of misinformation and its consequences.

The contributors, from cognitive science and education science, provide analyses that represent a variety of methodologies, theoretical orientations, and fields of expertise. The chapters describe the behavioral consequences of relying on misinformation and outline possible remediations; discuss the cognitive activities that underlie encounters with inaccuracies, investigating why reliance occurs so readily; present theoretical and philosophical considerations of the nature of inaccuracies; and offer formal, empirically driven frameworks that detail when and how inaccuracies will lead to comprehension difficulties.


2014 — 480 pp. — 23 illus. — $50.00/£34.95
978-0-262-02829-5

**NEW**

**COMPUTER GAMES FOR LEARNING**

An Evidence-Based Approach

*Richard E. Mayer*

Many strong claims are made for the educational value of computer games, but there is a need for systematic examination of the research evidence that might support such claims. This book fills that need by providing, a comprehensive and up-to-date investigation of what research shows about learning with computer games.

**Computer Games for Learning** describes three genres of game research: the value-added approach, which compares the learning outcomes of students who learn with a base version of a game to those of students who learn with the base version plus an additional feature; the cognitive consequences approach, which compares learning outcomes of students who play an off-the-shelf computer game for extended periods to those of students who do not; and the media comparative approach, which compares the learning outcomes of students who learn material by playing a game to those of students who learn the same material using conventional media.

After introductory chapters that describe the rationale and goals of learning game research as well as the relevance of cognitive science to learning with games, the book offers examples of research in all three genres conducted by the author and his colleagues at the University of California, Santa Barbara; meta-analyses of published research; and suggestions for future research.

2014 — 296 pp. — 29 illus. — $35.00/£24.95
978-0-262-02758-8

**NEW**

**SPACE IN MIND**

Concepts for Spatial Learning and Education

*edited by Daniel R. Montello, Karl Grossner, and Donald G. Janelle*

The current “spatial turn” in many disciplines reflects an emerging scholarly interest in space and spatiality as central components in understanding the natural and cultural worlds. In *Space in Mind*, leading researchers from a range of disciplines examine the implications of research on spatial thinking and reasoning for education and learning. Their contributions suggest ways in which recent work in such fields as spatial cognition, geographic information systems, linguistics, artificial intelligence, architecture, and data visualization can inform spatial approaches to learning and education.

After addressing the conceptual foundations of spatial thinking for education and learning, the book considers visualization; embodied cognition and spatial understanding; and the development of specific spatial curricula and literacies.


2014 — 352 pp. — 36 illus. — $45.00/£31.95
978-0-262-02829-5
STORYTELLING AND THE SCIENCES OF MIND
David Herman

With Storytelling and the Sciences of Mind, David Herman proposes a cross-fertilization between the study of narrative and research on intelligent behavior. This cross-fertilization goes beyond the simple importing of ideas from the sciences of mind into scholarship on narrative and instead aims for convergence between work in narrative studies and research in the cognitive sciences. The book as a whole centers on two questions: How do people make sense of stories? And: How do people use stories to make sense of the world? Examining narratives from different periods and across multiple media and genres, Herman shows how traditions of narrative research can help shape ways of formulating and addressing questions about intelligent activity, and vice versa.

Using case studies that range from Robert Louis Stevenson’s Dr Jekyll and Mr Hyde to sequences from The Incredible Hulk comics to narratives told in everyday interaction, Herman considers storytelling both as a target for interpretation and as a resource for making sense of experience itself. In doing so, he puts ideas from narrative scholarship into dialogue with such fields as psycholinguistics, philosophy of mind, and cognitive, social, and ecological psychology. After exploring ways in which interpreters of stories can use textual cues to build narrative worlds, or storyworlds, Herman investigates how this process of narrative worldmaking in turn supports efforts to understand — and engage with — the conduct of persons, among other aspects of lived experience.

2013 — 440 pp. — 34 illus. — $45.00/£31.95
978-0-262-01918-7

THE COGNITIVE SCIENCE OF SCIENCE
Explanation, Discovery, and Conceptual Change
Paul Thagard

Many disciplines, including philosophy, history, and sociology, have attempted to make sense of how science works. In this book, Paul Thagard examines scientific development from the interdisciplinary perspective of cognitive science. Cognitive science combines insights from researchers in many fields: philosophers analyze historical cases, psychologists carry out behavioral experiments, neuroscientists perform brain scans, and computer modelers write programs that simulate thought processes.

Thagard develops cognitive perspectives on the nature of explanation, mental models, theory choice, and resistance to scientific change, considering disbelief in climate change as a case study. He presents a series of studies that describe the psychological and neural processes that have led to breakthroughs in science, medicine, and technology. He shows how discoveries of new theories and explanations lead to conceptual change, with examples from biology, psychology, and medicine. Finally, he shows how the cognitive science of science can integrate descriptive and normative concerns; and he considers the neural underpinnings of certain scientific concepts.

2014 — 384 pp. — 37 illus. — paper — $20.00/£13.95
978-0-262-52598-5
(Cloth 2012)
An increasingly influential school of thought in cognitive science views the mind as embodied, extended, and distributed, rather than brain-bound, “all in the head.” This shift in perspective raises important questions about the relationship between cognition and material culture, posing major challenges for philosophy, cognitive science, archaeology, and anthropology. In *How Things Shape the Mind*, Lambros Malafouris proposes a cross-disciplinary analytical framework for investigating the different ways in which things have become cognitive extensions of the human body. Using a variety of examples and case studies, he considers how those ways might have changed from earliest prehistory to the present. Malafouris’s Material Engagement Theory adds materiality — the world of things, artifacts, and material signs — into the cognitive equation definitively. His account not only questions conventional intuitions about the boundaries and location of the human mind but also suggests that we rethink classical archaeological assumptions about human cognitive evolution.

Arguing that the understanding of human cognition is essentially interlocked with the study of the technical mediations that constitute the central nodes of a materially extended and distributed human mind, Malafouris offers a series of archaeological and anthropological case studies — from Stone Age tools to the modern potter’s wheel — to test his theory. How do things shape the mind? Considering the implications of the seemingly uniquely human predisposition to reconfigure our bodies and our senses by using tools and material culture, Malafouris adds a fresh perspective on a foundational issue in the study of human cognition.

“Is the mind imprisoned in the brain? In this mix of neuroscience and philosophy, Lambros Malafouris suggests that mind and materiality are allied in ways that defy reductive world views. Engrossing.”

— *Nature* 2013 — 336 pp. — 31 illus. — $40.00/£27.95 978-0-262-01919-4
Many scholars believe that visual mental imagery plays a key role in reasoning. In *Space to Reason*, Markus Knauff argues against this view, proposing that visual images are not relevant for reasoning and can even impede the process. He also argues against the claim that human thinking is solely based on abstract symbols and is completely embedded in language. Knauff proposes a third way to think about human reasoning that relies on supramodal spatial layout models, which are more abstract than pictorial images and more concrete than linguistic representations. He argues that these spatial layout models are at the heart of human thought, even though about nonspatial relations in the world.

For Knauff the visual images that we so often associate with reasoning are only in the foreground of conscious experience. Behind the images, the actual logical work is carried out by reasoning-specific operations on these spatial layout models. Knauff also offers a solution to the problem of indeterminacy in human reasoning, introducing the notion of a preferred layout model, which is one layout model among others that has the best chance of being mentally constructed and thus guides the further process of thought. Knauff’s “space to reason” theory covers the functional, the algorithmic, and the implementational level of analysis and is corroborated by psychological experiments, functional brain imaging, and computational modeling.

“If you think you use mental ‘pictures’ to reason, this book puts you straight. Images impede reasoning. The book uses experiments, brain imaging, and the intuitions of a Nobel prize-winning novelist to show that what you rely on are spatial representations. Every psychologist’s bookshelves should make space for *Space to Reason*.”

— Philip Johnson-Laird, Stuart Professor of Psychology, Emeritus, Princeton University

2013 — 320 pp. — 16 illus. — $40.00/£27.95

978-0-262-01865-4
NEW

A MILLION YEARS OF MUSIC
The Emergence of Human Modernity
Gary Tomlinson

What is the origin of music? In the last few decades this centuries-old puzzle has been reinvigorated by exciting new archaeological evidence and by developments in the fields of cognitive science, linguistics, and evolutionary theory. In this path-breaking book, renowned musicologist Gary Tomlinson draws from these areas to construct a new narrative for the emergence of human music. Starting at a period of human prehistory long before Homo sapiens or music existed, Tomlinson describes the incremental attainments that, by changing the communication and society of prehuman species, laid the foundation for musical behaviors in more recent times. He traces in Neanderthals and early Homo sapiens the accumulation and development of these capacities, and he details their coalescence into modern musical behavior across the last hundred millennia.

But *A Million Years of Music* is not about music alone. Tomlinson builds a model of human evolution that offers a new view of the interaction of biology and culture across evolutionary time-scales, challenging and enriching current models of our deep history. As he tells his story, he draws in other emerging human traits: language, symbolism, a metaphysical imagination and the ritual it gives rise to, complex social structure, and the use of advanced technologies. His model of evolution allows him to account for much of what makes us a unique species in the world today, and in doing so it provides a new way of understanding the appearance of humanity in its modern form.

“Gary Tomlinson’s *A Million Years of Music* is a brilliant book opening up the frontier between the humanities and sciences. Music’s role in the development of the human capacity for abstract thinking is persuasively traced through an original and virtuosic interdisciplinary narrative. To read this book is to be astonished by the relevance of archaeology and coevolution for thinking through some of the most central questions for music and the humanities in the twenty-first century.”
— Ingrid Monson, Harvard University

Distributed for Zone Books
2015 — 385 pp. — 10 illus. — $29.95/£20.95
978-1-935408-65-9

YUCK!
The Nature and Moral Significance of Disgust
Daniel Kelly

People can be disgusted by the concrete and by the abstract — by an object they find physically repellent or by an ideology or value system they find morally abhorrent. Different things will disgust different people, depending on individual sensibilities or cultural backgrounds. In *Yuck!*, Daniel Kelly investigates the character and evolution of disgust, with an emphasis on understanding the role this emotion has come to play in our social and moral lives.

“Yuck! is a short, clear, engaging book that is likely to make a lasting impact on philosophical thinking about the emotions.”
— Timothy Schroeder, *Ethics*

2013 — 208 pp. — 5 illus. — paper — $17.95/£12.95
978-0-262-51855-0
(Cloth 2011)
Life and Mind series

INSIDE JOKES
Using Humor to Reverse-Engineer the Mind
Matthew M. Hurley, Daniel C. Dennett, and Reginald B. Adams, Jr.

Some things are funny — jokes, puns, sitcoms, Charlie Chaplin, *The Far Side*, Malvolio with his yellow garters crossed — but why? Why does humor exist in the first place? Why do we spend so much of our time passing on amusing anecdotes, making wisecracks, watching *The Simpsons*? In *Inside Jokes*, Matthew Hurley, Daniel Dennett, and Reginald Adams offer an evolutionary and cognitive perspective. Humor, they propose, evolved out of a computational problem that arose when our long-ago ancestors were furnished with open-ended thinking. Mother Nature — aka natural selection — cannot just order the brain to find and fix all our time-pressured misleaps and near-misses. She has to bribe the brain with pleasure. So we find them funny. This wired-in source of pleasure has been tickled relentlessly by humorists over the centuries, and we have become addicted to the endogenous mind candy that is humor.

“Hurley, Dennett, and Adams go at the problem with the ingenuity of first-rate scientists and the timing of first-rate comics.”
— Rebecca Newberger Goldstein, author of *36 Arguments for the Existence of God: A Work of Fiction*

2013 — 376 pp. — paper — $18.95/£13.95
978-0-262-51869-7
(Cloth 2011)
NEW

PATHWAYS TO PEACE
The Transformative Power of Children and Families
edited by James F. Leckman, Catherine Painter-Brick, and Rima Salah

Can more peaceful childhoods promote a culture of peace? Increasing evidence from a broad range of disciplines shows that how we raise our children affects the propensity for conflict and the potential for peace within a given community. In this book, experts from a range of disciplines examine the biological and social underpinnings of child development and the importance of strengthening families to build harmonious and equitable relations across generations. They explore the relevance to the pursuit of peace in the world, highlight directions for future research, and propose novel approaches to translate knowledge into concrete action.

The contributors describe findings from research in biology, neuroscience, evolution, genetics, and psychology. They report empirical evidence on children living in violent conditions, resilience in youth, and successful interventions. Their contributions show that the creation of sustainable partnerships with government agencies, community leaders, policy makers, funders, and service providers is a key ingredient for success. Taken together, they suggest possible novel approaches to translate knowledge into concrete action.

$40.00/£27.95
978-0-262-02798-4
Strüngmann Forum Reports

NEW

MEASURING HAPPINESS
The Economics of Well-Being
Joachim Weimann, Andreas Knabe, and Ronnie Schöb
translated by Brian Browne

Can money buy happiness? Is income a reliable measure for life satisfaction? In the West after World War II, happiness seemed inextricably connected to prosperity. Beginning in the 1960s, however, other values began to gain ground: peace, political participation, civil rights, environmentalism. “Happiness economics” — a somewhat incongruous-sounding branch of what has been called “the dismal science” — has taken up the puzzle of what makes people happy, conducting elaborate surveys in which people are asked to quantify their satisfaction with “life in general.” In this book, three economists explore the happiness-prosperity connection, investigating how economists measure life satisfaction and well-being.

The authors examine the evolution of happiness research, considering the famous “Easterlin Paradox,” which found that people’s average life satisfaction didn’t seem to depend on their income. But they question whether happiness research can measure what needs to be measured. They argue that we should not assess people’s well-being on a “happiness scale,” because that necessarily obscures true social progress. Instead, rising income should be understood as increasing opportunities and alleviating scarcity. Economic growth helps societies to sustain freedom and to finance social welfare programs. In this respect, high income may not buy happiness with life in general, but it gives individuals the opportunity to be healthier, better educated, better clothed, and better fed, to live longer, and to live well.

2015 — 224 pp. — 9 illus. — $27.95/£19.95
978-0-262-02844-8

EVOLUTION AND THE MECHANISMS OF DECISION MAKING
edited by Peter Hammerstein and Jeffrey R. Stevens

How do we make decisions? Conventional decision theory tells us only which behavioral choices we ought to make if we follow certain axioms. In real life, however, our choices are governed by cognitive mechanisms shaped over evolutionary time through the process of natural selection. Evolution has created strong biases in how and when we process information, and it is these evolved cognitive building blocks — from signal detection and memory to individual and social learning — that provide the foundation for our choices. An evolutionary perspective thus sheds necessary light on the nature of how we and other animals make decisions.

This volume — with contributors from a broad range of disciplines, including evolutionary biology, psychology, economics, anthropology, neuroscience, and computer science — offers a multidisciplinary examination of what evolution can tell us about our and other animals’ mechanisms of decision making.

2012 — 488 pp. — 7 color, 9 b & w illus. — $50.00/£34.95
978-0-262-01808-1
Strüngmann Forum Reports
NEW

THE INTERDISCIPLINARY SCIENCE OF CONSUMPTION
edited by Stephanie D. Preston, Morten L. Kringelbach, and Brian Knutson
Foreword by Peter Whybrow

Our drive to consume — our desire for food, clothing, smart phones, and megahomes — evolved from our ancestors’ drive to survive. But the psychological and neural processes that originally evolved to guide mammals toward resources that are necessary but scarce may mislead us in modern conditions of material abundance. Such phenomena as obesity, financial bubbles, hoarding, and shopping sprees suggest a mismatch between our instinct to consume and our current environment. This volume brings together research from psychology, neuroscience, economics, marketing, animal behavior, and evolution to explore the causes and consequences of consumption.


$40.00/£27.95
978-0-262-02767-0

NEW

LIBERALISM IN PRACTICE
The Psychology and Pedagogy of Public Reason
Olivia Newman

At the core of liberal theory is the idea — found in thinkers from Hobbes to Rawls — that the consent of the governed is key to establishing political legitimacy. But in a diverse liberal polity like the United States, disagreement runs deep, and a segment of the population will simply regard the regime as illegitimate. In Liberalism in Practice, Olivia Newman argues that if citizens were to approach politics in the spirit of public reason, couching arguments in terms that others can reasonably accept, institutional and political legitimacy would be enhanced.

Liberal theory has relied on the assumption of a unified self, that individuals are united around a single set of goals, beliefs, attitudes, and aptitudes. Drawing on empirical findings in psychology, Newman argues instead that we are complex creatures whose dispositions and traits develop differently in different domains; we hold different moral commitments in different parts of our lives. She argues further that this domain differentiation allows us to be good liberal citizens in the public domain while remaining true to private commitments and beliefs in other domains. Newman proposes that educational and institutional arrangements can use this capacity for differentiation to teach public reason without overwhelming conflicting commitments. The psychology and pedagogy of public reason proposed by Newman move beyond John Rawls’s strictly political liberalism toward what Newman terms practical liberalism. Although we cannot resolve every philosophical problem bedeviling theories of liberalism, we can enjoy the myriad benefits of liberalism in practice.

2015 — 220 pp. — $35.00/£24.95
978-0-262-02879-0

APPLIED ETHICS IN MENTAL HEALTH CARE
An Interdisciplinary Reader
edited by Dominic A. Sisti, Arthur L. Caplan, and Hila Rimon-Greenspan
Foreword by Paul S. Appelbaum

This book discusses some of the most critical ethical issues in mental health care today, including the moral dimensions of addiction, patient autonomy and compulsory treatment, privacy and confidentiality, and the definition of mental illness itself. Although debates over these issues are ongoing, there are few comprehensive resources for addressing such dilemmas in the practice of psychology, psychiatry, social work, and other behavioral and mental health care professions. This book meets that need, providing foundational background for undergraduate, graduate, and professional courses.

2013 — 416 pp. — 3 illus. — paper — $30.00/£20.95
978-0-262-52501-5

NURTURING THE OLDER BRAIN AND MIND
Pamela M. Greenwood and Raja Parasuraman

Although our physical abilities clearly decline as we age, cognitive decline in healthy old age is neither universal nor inevitable. In Nurturing the Older Brain and Mind, Pamela Greenwood and Raja Parasuraman show that scientific research does not support the popular notion of the inexorable and progressive effects of cognitive aging in all older adults. They report that many adults maintain a high level of cognitive function into old age and that certain experiential and lifestyle factors — including education, exercise, diet, and opportunities for new learning — contribute to the preservation of cognitive abilities.

$42.00/£28.95
978-0-262-01714-5
THE GEOMETRY OF MEANING
Semantics Based on Conceptual Spaces
Peter Gärdenfors

In The Geometry of Meaning, Peter Gärdenfors proposes a theory of semantics that bridges cognitive science and linguistics and shows how theories of cognitive processes, in particular concept formation, can be exploited in a general semantic model. He argues that our minds organize the information involved in communicative acts in a format that can be modeled in geometric or topological terms — in what he terms conceptual spaces, extending the theory he presented in an earlier book by that name.

Many semantic theories consider the meanings of words as relatively stable and independent of the communicative context. Gärdenfors focuses instead on how various forms of communication establish a system of meanings that becomes shared between interlocutors. He argues that these “meetings of mind” depend on the underlying geometric structures, and that these structures facilitate language learning. Turning to lexical semantics, Gärdenfors argues that a unified theory of word meaning can be developed by using conceptual spaces. He shows that the meaning of different word classes can be given a cognitive grounding, and offers semantic analyses of nouns, adjectives, verbs, and prepositions. He also presents models of how the meanings of words are composed to form new meanings and of the basic semantic role of sentences. Finally, he considers the future implications of his theory for robot semantics and the Semantic Web.

“Peter Gärdenfors is creating a new science of meaning. The recent ideas, expressed so clearly in The Geometry of Meaning, make his achievement even more impressive. The book leaves us with the impression that semantics may be a tractable problem after all.”
— Jean-Louis Dessalles, School of Telecom, ParisTech

2014 — 360 pp. — 62 illus. — $35.00/£24.95
978-0-262-02678-9

THOUGHT AND LANGUAGE
Revised and Expanded Edition
Lev S. Vygotsky
edited and with a new foreword by
Alex Kozulin

Since it was introduced to the English-speaking world in 1962, Lev Vygotsky’s Thought and Language has become recognized as a classic foundational work of cognitive science. Its 1962 English translation must certainly be considered one of the most important and influential books ever published by the MIT Press. In this highly original exploration of human mental development, Vygotsky analyzes the relationship between words and consciousness, arguing that speech is social in its origins and that only as children develop does it become internalized verbal thought.

In 1986, the MIT Press published a new edition of the original translation by Eugenia Hanfmann and Gertrude Vakar, edited by Vygotsky scholar Alex Kozulin, that restored the work’s complete text and added materials to help readers better understand Vygotsky’s thought. Kozulin also contributed an introductory essay that offered new insight into Vygotsky’s life, intellectual milieu, and research methods. This expanded edition offers Vygotsky’s text, Kozulin’s essay, a subject index, and a new foreword by Kozulin that maps the ever-growing influence of Vygotsky’s ideas.

2012 — 392 pp. — paper — $40.00/£27.95
978-0-262-51771-3

LANGUAGE, THOUGHT, AND REALITY
Selected Writings of Benjamin Lee Whorf
Second Edition
Benjamin Lee Whorf
edited by John B. Carroll, Stephen C. Levinson, and Penny Lee
Introduction by John B. Carroll
Foreword by Stephen C. Levinson

The pioneering linguist Benjamin Whorf (1897–1941) grasped the relationship between human language and human thinking: how language can shape our innermost thoughts. His basic thesis is that our perception of the world and our ways of thinking about it are deeply influenced by the structure of the languages we speak. The writings collected in this volume include important papers on the Maya, Hopi, and Shawnee languages, as well as more general reflections on language and meaning.

Whorf’s ideas about the relation of language and thought have always appealed to a wide audience, but their reception in expert circles has alternated between dismissal and applause. Recently the language sciences have headed in directions that give Whorf’s thinking a renewed relevance. Hence this new edition of Whorf’s classic work is especially timely.

2012 — 424 pp. — 18 illus. — paper — $37.00/£25.95
978-0-262-51775-1
Language allows us to express and comprehend an unbounded number of thoughts. This fundamental and much-celebrated property is made possible by a division of labor between a large inventory of stored items (e.g., affixes, words, idioms) and a computational system that productively combines these stored units on the fly to create a potentially unlimited array of new expressions. A language learner must discover a language’s productive, reusable units and determine which computational processes can give rise to new expressions. But how does the learner differentiate between the reusable, generalizable units (for example, the affix -ness, as in coolness, orderliness, cheapness) and apparent units that do not actually generalize in practice (for example, -th, as in warmth but not coolth)? In this book, Timothy O’Donnell proposes a formal computational model, Fragment Grammars, to answer these questions. This model treats productivity and reuse as the target of inference in a probabilistic framework, asking how an optimal agent can make use of the distribution of forms in the linguistic input to learn the distribution of productive word-formation processes and reusable units in a given language.

O’Donnell compares this model to a number of other theoretical and mathematical models, applying them to the English past tense and English derivational morphology, and showing that Fragment Grammars unifies a number of superficially distinct empirical phenomena in these domains and justifies certain seemingly ad hoc assumptions in earlier theories.

$45.00/£31.95 
978-0-262-02884-4
CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT
Second Edition
Laurence B. Leonard

Children with specific language impairment (SLI) show a significant deficit in spoken language that cannot be attributed to neurological damage, hearing impairment, or intellectual disability. More prevalent than autism and at least as prevalent as dyslexia, SLI affects approximately seven percent of all children; it is longstanding, with adverse effects on academic, social, and (eventually) economic standing. The first edition of this work established Children with Specific Language Impairment as the landmark reference on this condition, considering not only the disorder’s history, possible origins, and treatment but also what SLI might tell us about language organization and development in general. This second edition offers a complete update of the earlier volume.

Much of the second edition is completely new, reflecting findings and interpretations based on the hundreds of studies that have appeared since the publication of the first edition in 1997. Topics include linguistic details (descriptive and theoretical), word and sentence processing findings, genetics, neurobiology, treatment, and comparisons to such conditions as autism spectrum disorders, ADHD, and dyslexia. The book covers SLI in children who speak a wide range of languages, and, although the emphasis is on children, it also includes studies of adults who were diagnosed with SLI as children or are the parents of children with SLI.

Written by a leading scholar in the field, Children with Specific Language Impairment offers the most comprehensive, balanced, and unified treatment of SLI available.

A Bradford Book
2014 — 472 pp. — 32 illus. — $65.00/E44.95
978-0-262-02706-9
Language, Speech, and Communication series

LEARNABILITY AND COGNITION
The Acquisition of Argument Structure
New Edition
Steven Pinker with a new preface, “The Secret Life of Verbs,” by the author

Before Steven Pinker wrote best-sellers on language and human nature, he wrote several technical monographs on language acquisition that have become classics in cognitive science. Learnability and Cognition, first published in 1989, brought together two big topics: how do children learn their mother tongue, and how does the mind represent basic categories of meaning such as space, time, causality, agency, and goals? The stage for this synthesis was set by the fact that when children learn a language, they come to make surprisingly subtle distinctions: pour water into the glass and fill the glass with water sound natural, but pour the glass with water and fill water into the glass sound odd. How can this happen, given that children are not reliably corrected for uttering odd sentences, and they don’t just parrot back the correct ones they hear from their parents? Pinker resolves this paradox with a theory of how children acquire the meaning and uses of verbs, and explores that theory’s implications for language, thought, and the relationship between them.

2013 — 528 pp. — 69 illus. — paper — $37.00/E25.95
978-0-262-51840-6
Learning, Development, and Conceptual Change series

TAKING SCOPE
The Natural Semantics of Quantifiers
Mark Steedman

In Taking Scope, Mark Steedman considers the syntax and semantics of quantifier scope in interaction with negation, polarity, coordination, and pronominal binding, among other constructions. The semantics is “surface compositional,” in that there is a direct correspondence between syntactic types and operations of composition and types and compositions at the level of logical form. In that sense, the semantics is in the “natural logic” tradition of Aristotle, Leibniz, Frege, Russell, and others who sought to define a psychologically real logic directly reflecting natural language grammar.

The book reunites the generative-transformational tradition initiated by Chomsky — which views the formal syntactic component as entirely autonomous — with the older, strongly lexicalist, construction-based tradition, which has sought to define a more linguistically transparent theory of meaning representation. Steedman offers a logical formalism that relates directly to the surface form of language and to the process of inference and proof that it must support. Such a natural logic, although formal by definition, should be allowed to grow organically from attested language phenomena rather than be axiomatized a priori in terms of any standard logic. Steedman also considers the application of natural semantic interpretations to practical natural language processing tasks, emphasizing throughout the elimination of traditional quantifiers from semantic formalism in favor of devices such as Skolem terms and structure-sharing among representations in processing.

2012 — 398 pp. — 11 illus. — $37.00/E25.95
978-0-262-01707-7
SIGNALS AND BOUNDARIES
Building Blocks for Complex Adaptive Systems
John H. Holland

Complex adaptive systems (cas), including ecosystems, governments, biological cells, and markets, are characterized by intricate hierarchical arrangements of boundaries and signals. In ecosystems, for example, niches act as semi-permeable boundaries, and smells and visual patterns serve as signals; governments have departmental hierarchies with memoranda acting as signals; and so it is with other cas. Despite a wealth of data and descriptions concerning different cas, there remain many unanswered questions about “steering” these systems. In Signals and Boundaries, John Holland argues that understanding the origin of the intricate signal/border hierarchies of these systems is the key to answering such questions. He develops an overarching framework for comparing and steering cas through the mechanisms that generate their signal/boundary hierarchies.

Holland lays out a path for developing the framework that emphasizes agents, niches, theory, and mathematical models. He discusses, among other topics, theory construction; signal-processing agents; networks as representations of signal/boundary interaction; adaptation; recombination and reproduction; the framework itself, illustrated by a simple finitely generated version of the development of a multi-celled organism; and Markov processes.

“In his characteristic engaging style, John Holland elucidates the universal organizational principles that characterize hierarchical pattern formation across the spectrum of science.”
— Simon Levin, Mollfett Professor of Biology, Princeton University

“A remarkable achievement.”
— Robert Axelrod, author of The Evolution of Cooperation

2014 — 316 pp. — 27 illus. — paper — $20.00/£13.95
978-0-262-52593-0
(Cloth 2012)
NEW

ARTIFICIAL COGNITIVE SYSTEMS
A Primer

David Vernon

This book offers a concise and accessible introduction to the emerging field of artificial cognitive systems. Cognition, both natural and artificial, is about anticipating the need for action and developing the capacity to predict the outcome of those actions. Drawing on artificial intelligence, developmental psychology, and cognitive neuroscience, the field of artificial cognitive systems has as its ultimate goal the creation of computer-based systems that can interact with humans and serve society in a variety of ways. This primer brings together recent work in cognitive science and cognitive robotics to offer readers a solid grounding on key issues.

The book first develops a working definition of cognitive systems — broad enough to encompass multiple views of the subject and deep enough to help in the formulation of theories and models. It surveys the cognitivist, emergent, and hybrid paradigms of cognitive science and discusses cognitive architectures derived from them. It then turns to the key issues, with chapters devoted to autonomy, embodiment, learning and development, memory and prospection, knowledge and representation, and social cognition. Ideas are introduced in an intuitive, natural order, with an emphasis on the relationships among ideas and building to an overview of the field. The main text is straightforward and succinct; sidenotes drill deeper on specific topics and provide contextual links to further reading.

“Given the current popularity of ‘cognitive computing’ in industry and in academia alike, it is indeed very timely to present a broad overview of computational cognitive systems, and in particular, computational cognitive architectures. The author offers a wide-ranging survey of interesting ideas relevant to this emerging field. I recommend this book to anyone interested in the state of the art of this area of study, and in how general principles of the brain/mind may be articulated and applied.”

— Ron Sun, Professor of Cognitive Sciences, Rensselaer Polytechnic Institute; author of Duality of the Mind

2015 — 288 pp. — 27 illus. — $40.00/£27.95
978-0-262-02838-7

Intelligent Robotics and Autonomous Agents series

NEW

DEVELOPMENTAL ROBOTICS
From Babies to Robots

Angelo Cangelosi and Matthew Schlesinger

Developmental robotics is a collaborative and interdisciplinary approach to robotics that is directly inspired by the developmental principles and mechanisms observed in children’s cognitive development. It builds on the idea that the robot, using a set of intrinsic developmental principles regulating the real-time interaction of its body, brain, and environment, can autonomously acquire an increasingly complex set of sensorimotor and mental capabilities. This volume, drawing on insights from psychology, computer science, linguistics, neuroscience, and robotics, offers the first comprehensive overview of a rapidly growing field.

After providing some essential background information on robotics and developmental psychology, the book looks in detail at how developmental robotics models and experiments have attempted to realize a range of behavioral and cognitive capabilities. The examples in these chapters were chosen because of their direct correspondence with specific issues in child psychology research; each chapter begins with a concise and accessible overview of relevant empirical and theoretical findings in developmental psychology. The chapters cover intrinsic motivation and curiosity; motor development; examining both manipulation and locomotion; perceptual development, including face recognition and perception of space; social learning, emphasizing such phenomena as joint attention and cooperation; language, from phonetic babbling to syntactic processing; and abstract knowledge, including models of number learning and reasoning strategies. Boxed text offers technical and methodological details for both psychology and robotics experiments.

“If you build it, they will come...and we have! This volume distills the principles of the exciting new field of developmental robotics. Although researchers will undoubtedly find places to argue with the authors, that’s really the point — the volume states these principles in an accessible way that will promote progress. Developmental robotics has finally stood up and taken a big step forward.”

— John P. Spencer, Professor of Psychological and Brain Sciences, University of Iowa; coeditor of Toward a Unified Theory of Development: Connectionism and Dynamic Systems Theory Re-Considered

2015 — 408 pp. — 99 illus. — $60.00/£41.95
978-0-262-02801-1

Intelligent Robotics and Autonomous Agents series
ANIGRAFS
Experiments in Collaborative Cognitive Architecture
Whitman Richards

In this book, Whitman Richards offers a novel and provocative proposal for understanding decision making and human behavior. Building on Valentine Braitenberg’s famous “vehicles,” Richards describes a collection of mental organisms that he calls “daemons” — virtual correlates of neural modules. Daemons have favored choices and make decisions that control behaviors of the group to which they belong, with each daemon preferring a different outcome. Richards arranges these preferences in graphs, linking similar choices, which thus reinforce each other. “Anigrafs” refers to these two components — animals, or the mental organisms (agents or daemons), and the graphs that show similarity relations. Together these two components are the basis of a new cognitive architecture.

In Richards’s account, a collection of daemons compete for control of the cognitive system in which they reside; the challenge is to get the daemons to agree on one of many choices. Richards explores the results of group decisions, emphasizing the Condorcet voting procedure for aggregating preferences. A neural mechanism is proposed. Anigrafs presents a series of group decisions that incorporate simple and complex movements, as well as aspects of cognition and belief. Anigrafs concludes with a section on “metagrafs,” which chart relationships between different anigraf models.

Paper — $25.00/£17.95
978-0-262-52778-1

INTELLIGENCE EMERGING
Adaptivity and Search in Evolving Neural Systems
Keith L. Downing

Emergence — the formation of global patterns from solely local interactions — is a frequent and fascinating theme in the scientific literature both popular and academic. In this book, Keith Downing undertakes a systematic investigation of the widespread (if often vague) claim that intelligence is an emergent phenomenon. Downing focuses on neural networks, both natural and artificial, and how their adaptability in three time frames — phylogenetic (evolutionary), ontogenetic (developmental), and epigenetic (lifetime learning) — underlie the emergence of cognition. Integrating the perspectives of evolutionary biology, neuroscience, and artificial intelligence, Downing provides a series of concrete examples of neurocognitive emergence. Doing so, he offers a new motivation for the expanded use of bio-inspired concepts in artificial intelligence (AI), in the subfield known as Bio-AI.

One of Downing’s central claims is that two key concepts from traditional AI, search and representation, are key to understanding emergent intelligence as well. He first offers introductory chapters on five core concepts: emergent phenomena, formal search processes, representational issues in Bio-AI, artificial neural networks (ANNs), and evolutionary algorithms (EAs). Intermediate chapters delve deeper into search, representation, and emergence in ANNs, EAs, and evolving brains. Finally, advanced chapters on evolving artificial neural networks and information-theoretic approaches to assessing emergence in neural systems synthesize earlier topics to provide some perspective, predictions, and pointers for the future of Bio-AI.

June 2015 — 508 pp. — 196 illus. — $50.00/£34.95
978-0-262-02913-1

POSITIVE COMPUTING
Technology for Well-Being and Human Potential
Rafael A. Calvo and Dorian Peters

On the eve of Google’s IPO in 2004, Larry Page and Sergey Brin vowed not to be evil. Today, a growing number of technologists would go further, trying to ensure that their work actively improves people’s lives. Technology, so pervasive and ubiquitous, has the capacity to increase stress and suffering; but it also has the less-heralded potential to improve the well-being of individuals, society, and the planet. In this book, Rafael Calvo and Dorian Peters investigate what they term “positive computing” — the design and development of technology to support psychological well-being and human potential.

Calvo and Peters explain that technologists’ growing interest in social good is part of a larger public concern about how our digital experience affects our emotions and our quality of life — which itself reflects an emerging focus on humanistic values in many different disciplines. Synthesizing theory, knowledge, and empirical methodologies from a variety of fields, they offer a rigorous and coherent foundational framework for positive computing. Sidebars by experts from psychology, neuroscience, human–computer interaction, and other disciplines supply essential context. Calvo and Peters examine specific well-being factors, including positive emotions, self-awareness, mindfulness, empathy, and compassion, and explore how technology can support these factors. Finally, they offer suggestions for future research and funding.

2014 — 296 pp. — 16 illus. — $30.00/E20.95
978-0-262-02815-8
NEW

THE CONCEPTUAL MIND
New Directions in the Study of Concepts
edited by Eric Margolis and Stephen Laurence

The study of concepts has advanced dramatically in recent years, with exciting new findings and theoretical developments. Core concepts have been investigated in greater depth and new lines of inquiry have blossomed, with researchers from an ever broader range of disciplines making important contributions. In this volume, leading philosophers and cognitive scientists offer original essays that present the state-of-the-art in the study of concepts. These essays, all commissioned for this book, do not merely present the usual surveys and overviews; rather, they offer the latest work on concepts by a diverse group of theorists as well as discussions of the ideas that should guide research over the next decade. The book is an essential companion volume to the earlier Concepts: Core Readings, the definitive source for classic texts on the nature of concepts.

The essays cover concepts as they relate to animal cognition, the brain, evolution, perception, and language, concepts across cultures, concept acquisition and conceptual change, concepts and normativity, concepts in context, and conceptual individuation. The contributors include such prominent scholars as Susan Carey, Nicola Clayton, Jerry Fodor, Douglas Medin, Joshua Tenenbaum, and Anna Wierzbicka.

Contributors:

June 2015 — 640 pp. — 11 color, 46 b & w illus. — $58.00/£39.95
978-0-262-02863-9

NEW

SENSORY INTEGRATION AND THE UNITY OF CONSCIOUSNESS
edited by David J. Bennett and Christopher S. Hill

In this volume, cognitive scientists and philosophers examine two closely related aspects of mind and mental functioning: the relationships among the various senses and the links that connect different conscious experiences to form unified wholes. The contributors address a range of questions concerning how information from one sense influences the processing of information from the other senses and how unified states of consciousness emerge from the bonds that tie conscious experiences together. Sensory Integration and the Unity of Consciousness is the first book to address both of these topics, integrating scientific and philosophical concerns.

A flood of recent work in both philosophy and perception science has challenged traditional conceptions of the sensory systems as operating in isolation. Contributors to the volume consider the ways in which perceptual contact with the world is or may be “multisensory,” discussing such subjects as the modeling of multisensory integration and philosophical aspects of sensory modalities. Recent years have seen a similar surge of interest in unity of consciousness. Contributors explore a range of questions on this topic, including the nature of that unity, the degree to which conscious experiences are unified, and the relationship between unified consciousness and the self.

Contributors:

2014 — 416 pp. — 36 illus. — $45.00/£31.95
978-0-262-02778-6
MORAL PSYCHOLOGY

Free Will and Moral Responsibility
edited by Walter Sinnott-Armstrong

Traditional philosophers approached the issues of free will and moral responsibility through conceptual analysis that seldom incorporated findings from empirical science. In recent decades, however, striking developments in psychology and neuroscience have captured the attention of many moral philosophers. This volume of Moral Psychology offers essays, commentaries, and replies by leading philosophers and scientists who explain and use empirical findings from psychology and neuroscience to illuminate old and new problems regarding free will and moral responsibility.

The contributors — who include such prominent scholars as Patricia Churchland, Daniel Dennett, and Michael Gazzaniga — consider issues raised by determinism, compatibilism, and libertarianism; epiphenomenalism, bypassing, and naturalism; naturalism and rationality and situationism. These writings show that although science does not settle the issues of free will and moral responsibility, it has enlivened the field by asking novel, profound, and important questions.

2014 — 488 pp. — 9 illus. — paper — $35.00/£24.95
978-0-262-52547-3
Philosophy of Mind

**RADICALIZING ENACTIVISM**

*Basic Minds without Content*

*Daniel D. Hutto and Erik Myin*

Most of what humans do and experience is best understood in terms of dynamically unfolding interactions with the environment. Many philosophers and cognitive scientists now acknowledge the critical importance of situated, environment-involving embodied engagements as a means of understanding basic minds — including basic forms of human mentality. Yet many of these same theorists hold fast to the view that basic minds are necessarily or essentially contentful — that they represent conditions the world might be in. In this book, Daniel Hutto and Erik Myin promote the cause of a radically enactive, embodied approach to cognition that holds that some kinds of minds — basic minds — are neither best explained by processes involving the manipulation of contents nor inherently contentful. Hutto and Myin oppose the widely endorsed thesis that cognition always and everywhere involves content. They defend the counter-thesis that there can be intentionality and phenomenal experience without content, and demonstrate the advantages of their approach for thinking about scaffolded minds and consciousness.

“Anyone who is familiar with the field will be rewarded by reading Radicalizing Enactivism. The book engages philosophers on both sides of the representationalist/anti-representationalist divide with well-structured, compelling argument; and the original style makes reading enjoyable.”

— *Philosophical Psychology*

2013 — 250 pp. — 1 illus. — $37.00/£25.95

978-0-262-01854-8

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**THE HAND, AN ORGAN OF THE MIND**

*What the Manual Tells the Mental*

*edited by Zdravko Radman*

Cartesian-inspired dualism enforces a theoretical distinction between the motor and the cognitive and locates the mental exclusively in the head. This collection, focusing on the hand, challenges this dichotomy, offering theoretical and empirical perspectives on the interconnectedness and interdependence of the manual and mental. The contributors explore the possibility that the hand, far from being the merely mechanical executor of preconceived mental plans, possesses its own know-how, enabling “enhanded” beings to navigate the natural, social, and cultural world without engaging propositional thought, consciousness, and deliberation. The contributors consider not only broad philosophical questions — ranging from the nature of embodiment, enaction, and the extended mind to the phenomenology of agency — but also such specific issues as touching, grasping, gesturing, sociality, and simulation. They show that the capacities of the hand include perception (on its own and in association with other modalities), action, (extended) cognition, social interaction, and communication. Taken together, their accounts offer a handbook of cutting-edge research exploring the ways that the manual shapes and reshapes the mental and creates conditions for embodied agents to act in the world.

2013 — 464 pp. — 8 illus. — $50.00/£34.95

978-0-262-01884-5

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**ENACTION**

*Toward a New Paradigm for Cognitive Science*

*edited by John Stewart, Olivier Gapenne, and Ezequiel A. Di Paolo*

This book presents the framework for a new, comprehensive approach to cognitive science. The proposed paradigm, enaction, offers an alternative to cognitive science’s classical, first-generation Computational Theory of Mind (CTM). Enaction, first articulated by Varela, Thompson, and Rosch in *The Embodied Mind* (MIT Press, 1991), breaks from CTM’s formalisms of information processing and symbolic representations to view cognition as grounded in the sensorimotor dynamics of the interactions between a living organism and its environment. A living organism enacts the world it lives in; its embodied action in the world constitutes its perception and thereby grounds its cognition. *Enaction* offers a range of perspectives on this exciting new approach to embodied cognitive science.

Some chapters offer manifestos for the enaction paradigm; others address specific areas of research. Three themes emerge as testimony to the originality and specificity of enaction as a paradigm: the relation between first-person lived experience and third-person natural science; the ambition to provide an encompassing framework applicable at levels from the cell to society; and the difficulties of reflexivity. Taken together, the chapters offer nothing less than the framework for a far-reaching renewal of cognitive science.

2014 — 488 pp. — 31 illus. — paper — $25.00/£17.95

978-0-262-52601-2 (Cloth 2010)

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**OUTSTANDING ACADEMIC TITLE, 2013, CHOICE MAGAZINE**

**HONORABLE MENTION, 2013 AMERICAN PUBLISHERS AWARD FOR PROFESSIONAL AND SCHOLARLY EXCELLENCE (PROSE AWARD) IN PHILOSOPHY**

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It is through touch that we are able to interact directly with the world; it is our primary conduit of both pleasure and pain. Touch may be our most immediate and powerful sense — “the first sense” because of the central role it plays in experience. In this book, Matthew Fulkerson proposes that human touch, despite its functional diversity, is a single, unified sensory modality. Fulkerson offers a philosophical account of touch, reflecting the interests, methods, and approach that define contemporary philosophy; but his argument is informed throughout by the insights and constraints of empirical work on touch. Human touch is a multidimensional object of investigation, Fulkerson writes, best served by using a variety of methods and approaches.

To defend his view of the unity of touch, Fulkerson describes and argues for a novel, unifying role for exploratory action in touch. He goes on to fill in the details of this unified, exploratory form of perception, offering philosophical accounts of tool use and distal touch, the representational structure of tangible properties, the spatial content of touch, and the role of pleasure in tactual experience.

Fulkerson’s argument for the unique role played by exploratory action departs notably from traditional vision-centric philosophical approaches to perception, challenging the received view that action plays the same role in all sensory modalities. The robust philosophical account of touch he offers in The First Sense has significant implications for our general understanding of perception and perceptual experience.

2014 — 240 pp. — 2 illus. — $30.00/£20.95
978-0-262-01996-5

The extended-mind thesis (EMT), usually attributed to Andy Clark and David Chalmers, proposes that in specific kinds of mind-body-world interaction there emerges an extended cognitive system incorporating such extracranial supports as pencils, papers, computers, and other objects and environments in the world. In Feeling Extended, Douglas Robinson accepts the thesis, but argues that the usual debate over EMT — which centers on whether mind really (literally, actually, materially) extends to body and world or only seems to — oversimplifies the issue. When we say that mind feels as if it extends, Robinson argues, what extends is precisely feeling — and mind, insofar as it arises out of feeling.

Robinson explores the world of affect and conation as intermediate realms of being between the physical movements of body and the qualitative movements of mind. He shows that affect is transcranial and tends to become interpersonal conation. Affective-becoming-conative sociality, he argues, is in fact the primary area in which body-becoming-mind extends. To make his case, Robinson draws on a wide spectrum of philosophical thought — from the EMT and qualia debates among cognitivists to the prehistory of such debates in the work of Hegel and Peirce to continental challenges to Hegelianism from Bakhtin and Derrida — as well as on extensive empirical research in social psychology and important sociological theories of face (Goffman), ritual (Connerton), and habitus (Bourdieu).

2013 — 264 pp. — $35.00/£24.95
978-0-262-01997-6

In The Feeling Body, Giovanna Colombetti takes ideas from the enactive approach developed over the last twenty years in cognitive science and philosophy of mind and applies them for the first time to affective science — the study of emotions, moods, and feelings. She argues that enactivism entails a view of cognition as not just embodied but also intrinsically affective, and she elaborates on the implications of this claim for the study of emotion in psychology and neuroscience.

In the course of her discussion, Colombetti focuses on long-debated issues in affective science, including the notion of basic emotions, the nature of appraisal and its relationship to bodily arousal, the place of bodily feelings in emotion experience, the neurophysiological study of emotion experience, and the bodily nature of our encounters with others. Drawing on enactivist tools such as dynamical systems theory, the notion of the lived body, neurophenomenology, and phenomenological accounts of empathy, Colombetti advances a novel approach to these traditional issues that does justice to their complexity. Doing so, she also expands the enactive approach into a further domain of inquiry, one that has more generally been neglected by the embodied-embedded approach in the philosophy of cognitive science.

2014 — 288 pp. — $40.00/£27.95
978-0-262-01995-8
PLATO’S CAMERA
How the Physical Brain Captures a Landscape of Abstract Universals
Paul M. Churchland

In Plato’s Camera, eminent philosopher Paul Churchland offers a novel account of how the brain constructs a representation — or “takes a picture” — of the universe’s timeless categorical and dynamical structure. This construction process, which begins at birth, yields the enduring background conceptual framework with which we will interpret our sensory experience for the rest of our lives. But, as even Plato knew, to make singular perceptual judgments requires that we possess an antecedent framework of abstract categories to which any perceived particular can be relevantly assimilated. How that background framework is assembled in the first place is the motivating mystery, and the primary target, of Churchland’s book.

Unexpectedly, this neurobiologically grounded account of human cognition also provides a systematic story of how such low-level epistemological activities are integrated within an enveloping framework of linguistic structures and regulatory mechanisms at the social level. As Churchland illustrates, this integration of cognitive mechanisms at several levels has launched the human race on an epistemological adventure denied to all other terrestrial creatures.

“If a book’s success is judged both by the scope of its material and by the amount of the novelty it brings, then Churchland’s new book is an unqualified success.”
— Athanassios Raftopoulos, Metascience

“Paul Churchland delivers a measured and engaging account of the activation-vector-space framework for understanding the brain as an organ of thought, imagination, and reason. This delightful treatment takes us further, however, addressing in significant detail the impact of cultural and linguistic practice on learning and thought. Plato’s Camera is a must-read for those interested in the nature and possibility of human epistemic contact with the world.”
— Andy Clark, FRSE, Professor of Logic and Metaphysics, University of Edinburgh

2013 — 304 pp. — 12 color, 34 b & w illus. — paper — $25.00/£17.95
978-0-262-52518-3
(Cloth 2012)

MATTER AND CONSCIOUSNESS
Third Edition
Paul M. Churchland

In Matter and Consciousness, Paul Churchland presents a concise and contemporary overview of the philosophical issues surrounding the mind and explains the main theories and philosophical positions that have been proposed to solve them. Making the case for the relevance of theoretical and experimental results in neuroscience, cognitive science, and artificial intelligence for the philosophy of mind, Churchland reviews current developments in the cognitive sciences and offers a clear and accessible account of the connections to philosophy of mind.

For this third edition, the text has been updated and revised throughout. The changes range from references to the iPhone’s “Siri” to expanded discussions of the work of such contemporary philosophers as David Chalmers, John Searle, and Thomas Nagel. Churchland describes new research in evolution, genetics, and visual neuroscience, among other areas, arguing that the philosophical significance of these new findings lies in the support they tend to give to the reductive and eliminative versions of materialism.

Matter and Consciousness, written by the most distinguished theorist and commentator in the field, offers an authoritative summary and sourcebook for issues in philosophy of mind. It is suitable for use as an introductory undergraduate text.

Praise for earlier editions

“To read this book with attention is not just to find out about philosophy, but to do it. Churchland has written the best introduction available, for students and for general readers.”
— Margaret Boden, Times Higher Education Supplement

“This book is superb as an introductory text. Difficult matters are treated from an introductory perspective gracefully, interestingly, and with remarkably little in the way of distorting simplification. My prediction is that the word about this book will spread, and it will soon be a standard textbook.”
— Ned Block, NYU

2013 — 304 pp. — 21 illus. — paper — $25.00/£17.95
978-0-262-51958-8
NEW

CONSCIOUSNESS, ATTENTION, AND CONSCIOUS ATTENTION
Carlos Montemayor and Harry Haroutioun Haladjian

In this book, Carlos Montemayor and Harry Haladjian consider the relationship between consciousness and attention. The cognitive mechanism of attention has often been compared to consciousness, because attention and consciousness appear to share similar qualities. But, Montemayor and Haladjian point out, attention is defined functionally, whereas consciousness is generally defined in terms of its phenomenal character without a clear functional purpose. They offer new insights and proposals about how best to understand and study the relationship between consciousness and attention by examining their functional aspects. The book’s ultimate conclusion is that consciousness and attention are largely dissociated.

Undertaking a rigorous analysis of current empirical and theoretical work on attention and consciousness, Montemayor and Haladjian propose a spectrum of dissociation—a framework that identifies the levels of dissociation between consciousness and attention—ranging from identity to full dissociation. They argue that conscious attention, the focusing of attention on the contents of awareness, is constituted by overlapping but distinct processes of consciousness and attention. Conscious attention, they claim, evolved after the basic forms of attention, increasing access to the richest kinds of cognitive contents.

Montemayor and Haladjian’s goal is to help unify the study of consciousness and attention across the disciplines. A focused examination of conscious attention will, they believe, enable theoretical progress that will further our understanding of the human mind.

May 2015 — 292 pp. — 10 illus. — $40.00/£27.95
978-0-262-02897-4

PERPLEXITIES OF CONSCIOUSNESS
Eric Schwitzgebel

Do you dream in color? If you answer Yes, how can you be sure? Before you recount your vivid memory of a dream featuring all the colors of the rainbow, consider that in the 1950s researchers found that most people reported dreaming in black and white. In the 1960s, when most movies were in color and more people had color television sets, the vast majority of reported dreams contained color. The most likely explanation for this, according to the philosopher Eric Schwitzgebel, is not that exposure to black-and-white media made people misremember their dreams. It is that we simply don’t know whether or not we dream in color. In Perplexities of Consciousness, Schwitzgebel examines various aspects of inner life (dreams, mental imagery, emotions, and other subjective phenomena) and argues that we know very little about our stream of conscious experience.

Drawing broadly from historical and recent philosophy and psychology to examine such topics as visual perspective, the unreliability of introspection, Schwitzgebel finds us singularly inept in our judgments about conscious experience.

“The philosopher Eric Schwitzgebel, in Perplexities of Consciousness, contends that our minds, rather than being open-access, are largely hidden territory.”
— Nicholas Humphrey, New York Times Book Review

2013 — 240 pp. — 6 illus. — paper — $16.95/£11.95
978-0-262-52522-0
(Cloth 2011)

THE ILLUSION OF CONSCIOUS WILL
Daniel M. Wegner

“Witty, clear-eyed, grounded in empirical data, this book yields deeper insight into the ancient riddle of free will than shelves of mere philosophy.”
— Scientific American

A Bradford Book
2003 — 419 pp. — 57 illus. — paper $24.95/£17.95
978-0-262-73162-1
(Cloth 2002)

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THE ARCHITECTURE OF COGNITION
Rethinking Fodor and Pylyshyn’s Systematicity Challenge
edited by Paco Calvo and John Symons

In 1988, Jerry Fodor and Zenon Pylyshyn challenged connectionist theorists to explain the systematicity of cognition. In a highly influential critical analysis of connectionism, they argued that connectionist explanations, at best, can only inform us about details of the neural substrate; explanations at the cognitive level must be classical insofar as adult human cognition is essentially systematic. More than twenty-five years later, however, conflicting explanations of cognition do not divide along classicist-connectionist lines, but oppose cognitivism (both classicist and connectionist) with a range of other methodologies, including distributed and embodied cognition, ecological psychology, enactivism, adaptive behavior, and biologically based neural network theory. This volume reassesses Fodor and Pylyshyn’s “systematicity challenge” for a post-connectionist era.

The contributors consider such questions as how post-connectionist approaches meet Fodor and Pylyshyn’s conceptual challenges; whether there is empirical evidence for or against the systematicity of thought; and how the systematicity of human thought relates to behavior.


2014 — 480 pp. — 36 illus. — $50.00/£34.95
978-0-262-02723-6
MINDSHAPING
A New Framework for Understanding Human Social Cognition
Tadeusz Wieslaw Zawidzki

In this novel account of distinctively human social cognition, Tadeusz Zawidzki argues that the key distinction between human and nonhuman social cognition consists in our complex, diverse, and flexible capacities to shape each other’s minds in ways that make them easier to interpret. Zawidzki proposes that such “mindshaping” — which takes the form of capacities and practices such as sophisticated imitation, pedagogy, conformity to norms, and narrative self-constitution — is the most important component of human social cognition. Without it, he argues, none of the other components of what he terms the “human sociocognitive syndrome,” including sophisticated language, cooperation, and sophisticated “mindreading,” would be possible.

Challenging the dominant view that sophisticated mindreading — especially propositional attitude attribution — is the key evolutionary innovation behind distinctively human social cognition, Zawidzki contends that the capacity to attribute such mental states depends on the evolution of mindshaping practices. Propositional attitude attribution, he argues, is likely to be unreliable unless most of us are shaped to have similar kinds of propositional attitudes in similar circumstances. Motivations to mindshape, selected to make sophisticated cooperation possible, combine with low-level mindreading abilities that we share with nonhuman species to make it easier for humans to interpret and anticipate each other’s behavior. Eventually, this led, in human prehistory, to the capacity to attribute full-blown propositional attitudes accurately — a capacity that is parasitic, in phylogeny and today, on prior capacities to shape minds.

A Bradford Book
2013 — 320 pp. — $42.00/£28.95
978-0-262-01901-9

EXPLAINING THE COMPUTATIONAL MIND
Marcin Milkowski

In this book, Marcin Milkowski argues that the mind can be explained computationally because it is itself computational — whether it engages in mental arithmetic, parses natural language, or processes the auditory signals that allow us to experience music. Defending the computational explanation against objections to it — from John Searle and Hilary Putnam in particular — Milkowski writes that computationalism is here to stay but is not what many have taken it to be. It does not, for example, rely on a Cartesian gulf between software and hardware, or mind and brain. Milkowski’s mechanistic construal of computation allows him to show that no purely computational explanation of a physical process will ever be complete. Computationalism is only plausible, he argues, if you also accept explanatory pluralism.

2013 — 248 pp. — 12 illus. — $35.00/£24.95
978-0-262-01886-9

MINDVAULTS
Sociocultural Grounds for Pretending and Imagining
Radu J. Bogdan

The human mind has the capacity to vault over the realm of current perception, motivation, emotion, and action, to leap — consciously and deliberately — to past or future, possible or impossible, abstract or concrete scenarios and situations. In this book, Radu Bogdan examines the roots of this uniquely human ability, which he terms “mindvaulting.” He focuses particularly on the capacities of pretending and imagining, which he identifies as the first forms of mindvaulting to develop in childhood. Pretending and imagining, Bogdan argues, are crucial steps on the ontogenetic staircase to the intellect.

Bogdan finds that pretending and then imagining develop from a variety of sources for reasons that are specific and unique to human childhood. He argues that these capacities arise as responses to sociocultural and sociopolitical pressures that emerge at different stages of childhood. Bogdan argues that some of the properties of mindvaulting — including domain versatility and nonmodularity — resist standard evolutionary explanations. To resolve this puzzle, Bogdan reorients the evolutionary analysis toward human ontogeny, construed as a genuine space of evolution with specific pressures and adaptive responses. Bogdan finds that pretending is an ontogenetic response to sociocultural challenges in early childhood, a pre-adaptation for imagining; after age four, the adaptive response to cooperative and competitive sociopolitical pressures is a competence for mental strategizing that morphs into imagining.

2013 — 256 pp. — 1 illus. — $35.00/£24.95
978-0-262-01911-8
Philosophy of Mind

NEW
OUTSIDE COLOR
Perceptual Science and the Puzzle of Color in Philosophy
M. Chirimuuta

Is color real or illusory, mind independent or mind dependent? Does seeing in color give us a true picture of external reality? The metaphysical debate over color has gone on at least since the seventeenth century. In this book, M. Chirimuuta draws on contemporary perceptual science to address these questions. Her account integrates historical philosophical debates, contemporary work in the philosophy of color, and recent findings in neuroscience and vision science to propose a novel theory of the relationship between color and physical reality.

Chirimuuta offers an overview of philosophy’s approach to the problem of color, finds the origins of much of the familiar conception of color in Aristotelian theories of perception, and describes the assumptions that have shaped contemporary philosophy of color. She then reviews recent work in perceptual science that challenges philosophers’ accounts of color experience. Finally, she offers a pragmatic alternative whereby perceptual states are understood primarily as action-guiding interactions between a perceiver and the environment. The fact that perceptual states are shaped in idiosyncratic ways by the needs and interests of the perceiver does not render the states illusory. Colors are perceiver-dependent properties, and yet our awareness of them does not mislead us about the world. Colors force us to reconsider what we mean by accurately presenting external reality, and, as this book demonstrates, thinking about color has important consequences for the philosophy of perception and, more generally, for the philosophy of mind.

“What Patricia Churchland did for the philosophy of mind, Chirimuuta does for the philosophy of color. By redefining the central question of what color is, Chirimuuta restores philosophy to a central place in science. She stays true to the beauty of color, with lyrical, lucid writing. Chirimuuta rejuvenates the ancient philosophical problem of color by situating it firmly in the contemporary science of vision. Scientists, philosophers, and anyone who loves a good metaphor will take pleasure from this book.”
— Anya Hurlbert, Professor of Visual Neuroscience, Newcastle University

June 2015 — 256 pp. — 5 color, 5 b & w illus. — $40.00/£27.95
978-0-262-02908-7

SUBJECTIVE TIME
The Philosophy, Psychology, and Neuroscience of Temporality
edited by Valtteri Arstila and Dan Lloyd

Our awareness of time and temporal properties is a constant feature of conscious life. Subjective temporality structures and guides every aspect of behavior and cognition, distinguishing memory, perception, and anticipation. This milestone volume brings together research on temporality from leading scholars in philosophy, psychology, and neuroscience, defining a new field of interdisciplinary research.

The book’s thirty chapters include selections from classic texts by William James and Edmund Husserl and new essays setting them in historical context; contemporary philosophical accounts of lived time; and current empirical studies of psychological time. These last chapters, the larger part of the book, cover such topics as the basic psychophysics of psychological time, its neural foundations, its interaction with the body, and its distortion in illness and altered states of consciousness.


2014 — 656 pp. — 38 illus. — $65.00/£44.95
978-0-262-01994-1

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NEW

OSTENSION

Word Learning and the Embodied Mind

Chad Engelland

Ostension is bodily movement that manifests our engagement with things, whether we wish it to or not. Gestures, glances, facial expressions: all betray our interest in something. Ostension enables our first word learning, providing infants with a prelinguistic way to grasp the meaning of words. Ostension is philosophically puzzling; it cuts across domains seemingly unbridgeable — public–private, inner–outer, mind–body. In this book, Chad Engelland offers a philosophical investigation of ostension and its role in word learning by infants.

Engelland discusses ostension (distinguishing it from ostensive definition) in contemporary philosophy, examining accounts by Quine, Davidson, and Gadamer, and he explores relevant empirical findings in psychology, evolutionary anthropology, and neuroscience. He offers original studies of four representative historical thinkers whose work enriches the understanding of ostension: Wittgenstein, Merleau-Ponty, Augustine, and Aristotle. And, building on these philosophical and empirical foundations, Engelland offers a meticulous analysis of the philosophical issues raised by ostension. He examines the phenomenological problem of whether embodied intentions are manifest or inferred; the problem of what concept of mind allows ostensive cues to be intersubjectively available; the epistemological problem of how ostensive cues, notoriously ambiguous, can be correctly understood; and the metaphysical problem of the ultimate status of the key terms in his argument: animate movement, language, and mind. Finally, he argues for the centrality of manifestation in philosophy. Taking ostension seriously, he proposes, has far-reaching implications for thinking about language and the practice of philosophy.

2014 — 328 pp. — $40.00/£27.95
978-0-262-02809-7

REFERENCE AND REFERRING

edited by William P. Kabasenche, Michael O’Rourke, and Matthew H. Slater

These fifteen original essays address the core semantic concepts of reference and referring from both philosophical and linguistic perspectives. After an introductory essay that casts current trends in reference and referring in terms of an ongoing dialogue between Fregean and Russellian approaches, the book addresses specific topics, balancing breadth of coverage with thematic unity.

The contributors, all leading or emerging scholars, address trenchant neo-Fregean challenges to the direct reference position; consider what positive claims can be made about the mechanism of reference; address the role of a theory of reference within broader theoretical context; and investigate other kinds of linguistic expressions used in referring activities that may themselves be referring expressions.

The topical unity and accessibility of the essays, the stage-setting introductory essay, and the comprehensive index combine to make Reference and Referring, along with the other books in the Topics in Contemporary Philosophy series, appropriate for use in advanced undergraduate and graduate courses.

2013 — 439 pp. — 1 illus. — $50.00/£34.95
978-0-262-01830-2
Topics in Contemporary Philosophy series

WORD AND OBJECT

New Edition

Willard Van Orman Quine

Foreword by Patricia Smith Churchland

Preface to the new edition by Dagfinn Follesdal

Willard Van Orman Quine begins this influential work by declaring, “Language is a social art. In acquiring it we have to depend entirely on intersubjectively available cues as to what to say and when.” As Patricia Smith Churchland notes in her foreword to this new edition, with Word and Object Quine challenged the tradition of conceptual analysis as a way of advancing knowledge. The book signaled twentieth-century philosophy’s turn away from metaphysics and what Churchland calls the “phony precision” of conceptual analysis.

In the course of his discussion of meaning and the linguistic mechanisms of objective reference, Quine considers the indeterminacy of translation, brings to light the anomalies and conflicts implicit in our language’s referential apparatus, clarifies semantic problems connected with the imputation of existence, and marshals reasons for admitting or repudiating each of various categories of supposed objects. In addition to Churchland’s foreword, this edition offers a new preface by Quine’s student and colleague Dagfinn Follesdal that describes the never-realized plans for a second edition of Word and Object, in which Quine would offer a more unified treatment of the public nature of meaning, modalities, and propositional attitudes.

2013 — 304 pp. — paper — $38.00/£26.95
978-0-262-51831-4

Topics in Contemporary Philosophy series
In *The Measure of Madness*, Philip Gerrans offers a novel explanation of delusion. Over the last two decades, philosophers and cognitive scientists have investigated explanations of delusion that interweave philosophical questions about the nature of belief and rationality with findings from cognitive science and neurobiology. Gerrans argues that once we fully describe the computational and neural mechanisms that produce delusion and the way in which conscious experience and thought depend on them, the concept of delusional belief retains only a heuristic role in the explanation of delusion.

Gerrans proposes that delusions are narrative models that accommodate anomalous experiences. He argues that delusions represent the operation of the Default Mode Network (DMN) — the cognitive system that provides the raw material for humans’ inbuilt tendency to provide a subjectively compelling narrative context for anomalous or highly salient experiences — without the “supervision” of higher cognitive processes present in the nondelusional mind. This explanation illuminates the relationship among delusions, dreams, imaginative states, and rational beliefs that have perplexed philosophers and psychologists for over a century.

*The Measure of Madness* 
A Bradford Book 
2014 — 296 pp. — 3 illus. — $40.00/£27.95 
978-0-262-02755-7 
Life and Mind series

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Dreams, conceived as conscious experience or phenomenal states during sleep, offer an important contrast condition for theories of consciousness and the self. Yet, although there is a wealth of empirical research on sleep and dreaming, its potential contribution to consciousness research and philosophy of mind is largely overlooked. This might be due, in part, to a lack of conceptual clarity and an underlying disagreement about the nature of the phenomenon of dreaming itself. In *Dreaming*, Jennifer Windt lays the groundwork for solving this problem. She develops a conceptual framework describing not only what it means to say that dreams are conscious experiences but also how to locate dreams relative to such concepts as perception, hallucination, and imagination, as well as thinking, knowledge, belief, deception, and self-consciousness.

Arguing that a conceptual framework must be not only conceptually sound but also phenomenologically plausible and carefully informed by neuroscientific research, Windt integrates her review of philosophical work on dreaming, both historical and contemporary, with a survey of the most important empirical findings. This allows her to work toward a systematic and comprehensive new theoretical understanding of dreaming informed by a critical reading of contemporary research findings. Windt’s account demonstrates that a philosophical analysis of the concept of dreaming can provide an important enrichment and extension to the conceptual repertoire of discussions of consciousness and the self and raises new questions for future research.

*Dreaming* 
A Conceptual Framework for Philosophy of Mind and Empirical Research 
Jennifer M. Windt 
$65.00/£44.95 
978-0-262-02867-7
Philosophy of Mind

NEW

BEING AMORAL
Psychopathy and Moral Incapacity
edited by Thomas Schramme

Psychopathy has been the subject of investigations in both philosophy and psychiatry and yet the conceptual issues remain largely unresolved. This volume approaches psychopathy by considering the question of what psychopaths lack. The contributors investigate specific moral dysfunctions or deficits, shedding light on the capacities people need to be moral by examining cases of real people who seem to lack those capacities.

The volume proceeds from the basic assumption that psychopathy is not characterized by a single deficit — for example, the lack of empathy, as some philosophers have proposed — but by a range of them. Thus contributors address specific deficits that include impairments in rationality, language, fellow-feeling, volition, evaluation, and sympathy. They also consider such issues in moral psychology as moral motivation, moral emotions, and moral character; and they examine social aspects of psychopathic behavior, including ascriptions of moral responsibility, justification of moral blame, and social and legal responses to people perceived to be dangerous.

As this volume demonstrates, philosophers will be better equipped to determine what they mean by “the moral point of view” when they connect debates in moral philosophy to the psychiatric notion of psychopathy, which provides some guidance on what humans need in order to be able to feel the normative pull of morality. And the empirical work done by psychiatrists and researchers in psychopathy can benefit from the conceptual clarifications offered by philosophy.


2014 — 384 pp. — 1 illus. — $45.00/£31.95
978-0-262-02791-5
Philosophical Psychopathology series

CLASSIFYING PSYCHOPATHOLOGY
Mental Kinds and Natural Kinds
edited by Harold Kincaid and Jacqueline A. Sullivan

In this volume, leading philosophers of psychiatry examine psychiatric classification systems, including the Diagnostic and Statistical Manual of Mental Disorders (DSM), asking whether current systems are sufficient for effective diagnosis, treatment, and research. Doing so, they take up the question of whether mental disorders are natural kinds, grounded in something in the outside world. Psychiatric categories based on natural kinds should group phenomena in such a way that they are subject to the same type of causal explanations and respond similarly to the same type of causal interventions. When these categories do not evince such groupings, there is reason to revise existing classifications.

The contributors all question current psychiatric classifications systems and the assumptions on which they are based. They differ, however, as to why and to what extent the categories are inadequate and how to address the problem. Topics discussed include taxometric methods for identifying natural kinds, the error and bias inherent in DSM categories, and the complexities involved in classifying such specific mental disorders as “oppositional defiant disorder” and pathological gambling.

2014 — 312 pp. — 7 illus. — $40.00/£27.95
978-0-262-02705-2
Philosophical Psychopathology series

A METAPHYSICS OF PSYCHOPATHOLOGY
Peter Zachar

In psychiatry, few question the legitimacy of asking whether a given psychiatric disorder is real; similarly, in psychology, scholars debate the reality of such theoretical entities as general intelligence, superegos, and personality traits. And yet in both disciplines, little thought is given to what is meant by the rather abstract philosophical concept of “real.” Indeed, certain psychiatric disorders have passed from real to imaginary (as in the case of multiple personality disorder) and from imaginary to real (as in the case of post-traumatic stress disorder). In this book, Peter Zachar considers such terms as “real” and “reality” — invoked in psychiatry but often obscure and remote from their instances — as abstract philosophical concepts. He then examines the implications of his approach for psychiatric classification and psychopathology.

2014 — 288 pp. — 7 illus. — $40.00/£27.95
978-0-262-02704-5
Philosophical Psychopathology series

• Honorable Mention, 2014 American Publishers Award for Professional and Scholarly Excellence (PROSE Award) in Psychology
NEW

ZEN-BRAIN HORIZONS
Toward a Living Zen
James H. Austin, M.D.

In Zen-Brain Horizons, James Austin draws on his decades of experience as a neurologist and Zen practitioner to clarify the benefits of meditative training. Austin integrates classical Buddhist literature with modern brain research, exploring the horizons of a living, neural Zen.

When viewed in the light of today, the timeless wisdom of some Zen masters seems almost to have anticipated recent research in the neurosciences. The keen attentiveness and awareness that we cultivate during meditative practices becomes the leading edge of our subsequent mental processing. Austin explains how our covert, involuntary functions can make crucial contributions to the subtle ways we learn, intuit, and engage in creative activities.

Austin begins by looking back at ancient Buddhist narratives. He then weaves together the major themes of self, attention, emotion, language, and insight. He goes on to examine Zen and psychology as cultural developments, including recent information about how a clear, calm awareness can change the meditating brain. He considers the pathways through which intuitions develop on their way to becoming realized, exploring the phenomena of the spontaneous color imagery that arises during meditation.

Looking out even further into the future, Austin discusses the universal themes of creativity, happiness, openness, and selflessness. Along the way, he bows in homage to William James, explores “Buddhist Botany” and “Avian Zen,” demonstrates why living Zen means much more than sitting quietly indoors on a cushion, and provides simplified advice that helps guide readers to the most important points.

“This insightful book by neurologist and Zen practitioner James Austin is icing on the four-layered cake of his previous books on Zen and the brain. He provides a unique, informed, and readable account of the brain mechanisms generating egocentric and enlightened consciousness, cross-referenced with his earlier works.”
— Eberhard E. Fetz, Professor of Physiology and Biophysics, University of Washington, Seattle

2014 — 280 pp. — 5 color plates, 15 b & w illus. — $27.95/£19.95
978-0-262-02756-4

MEDITATING SELFLESSLY
Practical Neural Zen
James H. Austin, M.D.

This is not the usual kind of self-help book. Indeed, its major premise heeds a Zen master’s advice to be less self-centered. Yes, it is “one more book of words about Zen,” as the author concedes, yet this book explains meditative practices from the perspective of a “neural Zen.” The latest findings in brain research inform its suggestions. In Meditating Selflessly, James Austin guides readers toward that open awareness already awaiting them on the cushion and in the natural world.

Austin offers concrete advice — often in a simplified question-and-answer format — about different ways to meditate. He clarifies both the concentrative and receptive styles of meditation. Drawing widely from the exciting new field of contemplative neuroscience, Austin helps resolve an ancient paradox: why both insight wisdom and selflessness arise simultaneously during enlightened states of consciousness.

2013 — 280 pp. — 1 color, 8 b & w illus. — paper $14.95/£10.95
978-0-262-02519-0
(Cloth 2011)

THE BODHISATTVA’S BRAIN
Buddhism Naturalized
Owen Flanagan

If we are material beings living in a material world — and all the scientific evidence suggests that we are — then we must find existential meaning, if there is such a thing, in this physical world. We must cast our lot with the natural rather than the supernatural. Many Westerners with spiritual (but not religious) inclinations are attracted to Buddhism — almost as a kind of moral-mental hygiene. But, as Owen Flanagan points out in The Bodhisattva’s Brain, Buddhism is hardly naturalistic. In The Bodhisattva’s Brain, Flanagan argues that it is possible to discover in Buddhism a rich, empirically responsible philosophy that could point us to one path of human flourishing.

Some claim that neuroscience is in the process of validating Buddhism empirically, but Flanagan’s naturalized Buddhism does not reduce itself to a brain scan showing happiness patterns. “Buddhism naturalized,” as Flanagan constructs it, offers instead a fully naturalistic and comprehensive philosophy, compatible with the rest of knowledge — a way of conceiving of the human predicament, of thinking about meaning for finite material beings living in a material world.

2013 — 280 pp. — 1 line drawing — paper — $14.95/£10.95
978-0-262-02520-6
(Cloth 2011)
NEW

THE COGNITIVE NEUROSCIENCES
Fifth Edition
edited by Michael S. Gazzaniga and George R. Mangun

Each edition of this classic reference has proved to be a benchmark in the developing field of cognitive neuroscience. The fifth edition of The Cognitive Neurosciences continues to chart new directions in the study of the biological underpinnings of complex cognition—the relationship between the structural and physiological mechanisms of the nervous system and the psychological reality of the mind. It offers entirely new material, reflecting recent advances in the field.

Many of the developments in cognitive neuroscience have been shaped by the introduction of novel tools and methodologies, and a new section is devoted to methods that promise to guide the field into the future—from sophisticated models of causality in brain function to the application of network theory to massive data sets. Another new section treats neuroscience and society, considering some of the moral and political quandaries posed by current neuroscientific methods. Other sections, among other things, draw on developmental imaging to study the changing structure and function of the brain over the lifespan; progress in establishing increasingly precise models of memory; research that confirms the study of emotion and social cognition as a core area in cognitive neuroscience; and new findings that cast doubt on the so-called neural correlates of consciousness.

“This book provides a timely and comprehensive summarization of the human brain in the context of evolution, development, and learning. The results are a stunning demonstration of how new tools have transformed our understanding of how the brain supports the mind, and point the way toward future progress.”
—Michael I. Posner, Professor Emeritus, University of Oregon, and author of Attention in a Social World

2014 — 1144 pp. — 87 color, 183 b & w illus. — $195.00/£134.95
978-0-262-02777-9

BRAIN STRUCTURE AND ITS ORIGINS
Function, Evolution, Development
Gerald E. Schneider

In this book, two leading authorities on the thalamus and its relationship to cortex build on their earlier findings to arrive at new ways of thinking about how the brain relates to the world, to cognition, and behavior. Based on foundations established earlier in their book Exploring the Thalamus and Its Role in Cortical Function, the authors consider the implications of these ground rules for thalamic inputs, thalamocortical connections, and cortical outputs.

The authors argue that functional and structural analyses of pathways connecting thalamus and cortex point beyond these to lower centers and through them to the body and the world. Each cortical area depends on the messages linking it to body and world. These messages relate to the way we act and think; each cortical area receives thalamic inputs and has outputs to motor centers. Sherman and Guillery go on to discuss such topics as the role of branching axons that carry motor instructions as well as copies of these motor instructions for relay to cortex under the control of the thalamic gate. This gate allows the thalamus to control the passage of information on the basis of which cortex relates to the rest of the nervous system.

2013 — 304 pp. — 52 illus. — $40.00/£27.95
978-0-262-01930-9

FUNCTIONAL CONNECTIONS OF CORtical AREAS
A New View from the Thalamus
S. Murray Sherman and R. W. Guillery

This introduction to the structure of the central nervous system demonstrates that the best way to learn how the brain is put together is to understand something about why. It explains why the brain is put together as it is by describing basic functions and key aspects of its evolution and development. This approach makes the structure of the brain and spinal cord more comprehensible as well as more interesting and memorable. The book offers a detailed outline of the neuroanatomy of vertebrates, especially mammals, that equips students for further explorations of the field.

Gaining familiarity with neuroanatomy requires multiple exposures to the material with many incremental additions and reviews. Thus the early chapters of this book tell the story of the brain’s origins in a first run-through of the entire system; this is followed by other such surveys in succeeding chapters, each from a different angle. The book proceeds from basic aspects of nerve cells and their physiology to the evolutionary beginnings of the nervous system to differentiation and development, motor and sensory systems, and the structure and function of the main parts of the brain. Along the way, it makes enlightening connections to evolutionary history and individual development.

2014 — 656 pp. — 243 color, 127 b & w illus. — $75.00/£51.95
978-0-262-02673-4
NEW

TREES OF THE BRAIN, ROOTS OF THE MIND
Giorgio A. Ascoli

The human brain is often described as the most complex object in the universe. Tens of billions of nerve cells — tiny tree-like structures — make up a massive network with enormous computational power. In this book, Giorgio Ascoli reveals another aspect of the human brain: the stunning beauty of its cellular form. Doing so, he makes a provocative claim about the mind-brain relationship. If each nerve cell enlarged a thousandfold looks like a tree, then a small region of the nervous system at the same magnified scale resembles a gigantic, fantastic forest. This structural majesty — illustrated throughout the book with extraordinary color images — hides the secrets behind the genesis of our mental states. Ascoli proposes that some of the most intriguing mysteries of the mind can be solved using the basic architectural principles of the brain. After an overview of the scientific and philosophical foundations of his argument, Ascoli links mental states with patterns of electrical activity in nerve cells, presents an emerging minority opinion of how the brain learns from experience, and unveils a radically new hypothesis of the mechanism determining what is learned, what isn’t, and why. Finally, considering these notions in the context of the cosmic diversity within and among brains, Ascoli offers a new perspective on the roots of individuality and humanity.

2015 — 192 pp. — 44 color illus. — $30.00/£20.95
978-0-262-02898-1

NEUROSCIENCE
A Historical Introduction
Mitchell Glickstein

This introduction to neuroscience is unique in its emphasis on how we know what we know about the structure and function of the nervous system. What are the observations and experiments that have taught us about the brain and spinal cord? The book traces our current neuroscientific knowledge to many and varied sources, including ancient observations on the role of the spinal cord in posture and movement, nineteenth-century neuroanatomists’ descriptions of the nature of nerve cells, physicians’ attempts throughout history to correlate the site of a brain injury with its symptoms, and experiments on the brains of invertebrates.

After an overview of the brain and its connections to the sensory and motor systems, Neuroscience discusses, among other topics, the structure of nerve cells; electrical transmission in the nervous system; chemical transmission and the mechanism of drug action; sensation; vision; hearing; movement; learning and memory; language and the brain; neurological disease; personality and emotion; the treatment of mental illness; and consciousness. It explains the sometimes baffling Latin names for brain subdivisions; discusses the role of technology in the field, from microscopes to EEGs; and describes the many varieties of scientific discovery. The book’s novel perspective offers a particularly effective way for students to learn about neuroscience. It also makes it clear that past contributions offer a valuable guide for thinking about the puzzles that remain.

$50.00/£34.95
978-0-262-02680-2

DISCOVERING THE HUMAN CONNECTOME
Olaf Sporns

Crucial to understanding how the brain works is connectivity, and the centerpiece of brain connectivity is the connectome, a comprehensive description of how neurons and brain regions are connected. The human brain is a network of extraordinary complexity — a network not by way of metaphor, but in a precise and mathematical sense: an intricate web of billions of neurons connected by trillions of synapses. How this network is connected is important for virtually all facets of the brain’s integrative function. In this book, Olaf Sporns surveys current efforts to chart these connections — to map the human connectome.

$37.00/£25.95
978-0-262-01790-9

A HOLE IN THE HEAD
More Tales in the History of Neuroscience
Charles G. Gross

“A fascinating compendium of medical and science history wonderfully written, entertaining and informative, with striking, at times rather lurid photographs testifying to our enthrallment, over the centuries, with the mysteries residing within our own mostly unknowable brains.” — The Guardian

2012 — 368 pp. — 59 illus. — paper
$21.00/£14.95
978-0-262-51733-1
(Cloth 2009)
ANALYZING NEURAL TIME SERIES DATA
Theory and Practice
Mike X Cohen

This book offers a comprehensive guide to the theory and practice of analyzing electrical brain signals. It explains the conceptual, mathematical, and implementational (via Matlab programming) aspects of time-, time-frequency- and synchronization-based analyses of magnetoencephalography (MEG), electroencephalography (EEG), and local field potential (LFP) recordings from humans and nonhuman animals. It is the only book on the topic that covers both the theoretical background and the implementation in language that can be understood by readers without extensive formal training in mathematics, including cognitive scientists, neuroscientists, and psychologists.

Readers who go through the book chapter by chapter and implement the examples in Matlab will develop an understanding of why and how analyses are performed, how to interpret results, what the methodological issues are, and how to perform single-subject-level and group-level analyses. Researchers who are familiar with using automated programs to perform advanced analyses will learn what happens when they click the “analyze now” button. The book provides sample data and downloadable Matlab code. Each of the 38 chapters covers one analysis topic, and these topics progress from simple to advanced. Most chapters conclude with exercises that further develop the material covered in the chapter.

2014 — 600 pp. — 243 b & w illus., 28 color plates
$60.00/£41.95
978-0-262-01987-3
Issues in Clinical and Cognitive Neuropsychology series

NEW

PRINCIPLES OF NEURAL DESIGN
Peter Sterling and Simon Laughlin

Neuroscience research has exploded, with more than fifty thousand neuroscientists applying increasingly advanced methods. A mountain of new facts and mechanisms has emerged. And yet a principled framework to organize this knowledge has been missing. In this book, Peter Sterling and Simon Laughlin, two leading neuroscientists, strive to fill this gap, outlining a set of organizing principles to explain the whys of neural design that allow the brain to compute so efficiently.

Setting out to “reverse engineer” the brain — disassembling it to understand it — Sterling and Laughlin first consider why an animal should need a brain, tracing computational abilities from bacterium to protozoan to worm. They examine bigger brains and the advantages of “anticipatory regulation”; identify constraints on neural design and the need to “nanofy”; and demonstrate the routes to efficiency in an integrated molecular system, phototransduction. They show that the principles of neural design at finer scales and lower levels apply at larger scales and higher levels; describe neural wiring efficiency; and discuss learning as a principle of biological design that includes “save only what is needed.”

Sterling and Laughlin avoid speculation about how the brain might work and endeavor to make sense of what is already known. Their distinctive contribution is to gather a coherent set of basic rules and exemplify them across spatial and functional scales.

May 2015 — 488 pp. — 169 illus. — $45.00/£31.95
978-0-262-02870-7

AN INTRODUCTION TO THE EVENT-RELATED POTENTIAL TECHNIQUE
Second Edition
Steven J. Luck

The event-related potential (ERP) technique, in which neural responses to specific events are extracted from the EEG, provides a powerful noninvasive tool for exploring the human brain. This volume describes practical methods for ERP research along with the underlying theoretical rationale. It offers researchers and students an essential guide to designing, conducting, and analyzing ERP experiments. This second edition has been completely updated, with additional material, new chapters, and more accessible explanations. Freely available supplementary material, including several online-only chapters, offer expanded or advanced treatment of selected topics.

2014 — 392 pp. — 114 illus. — paper — $47.00/£32.95
978-0-262-52585-5

SINGLE NEURON STUDIES OF THE HUMAN BRAIN
Probing Cognition
edited by Itzhak Fried, Ueli Rutishauser, Moran Cerf, and Gabriel Kreiman

In the last decade, the synergistic interaction of neurosurgeons, engineers, and neuroscientists, combined with new technologies, has enabled scientists to study the awake, behaving human brain directly. These developments allow cognitive processes to be characterized at unprecedented resolution: single neuron activity. Direct observation of the human brain has already led to major insights into such aspects of brain function as perception, language, sleep, learning, memory, action, imagery, volition, and consciousness. In this volume, experts document the successes, challenges, and opportunity in an emerging field.

2014 — 408 pp. — 73 b & w illus., 16 color plates
$60.00/£41.95
978-0-262-02720-5
NEW

BRAIN COMPUTATION AS HIERARCHICAL ABSTRACTION
Dana H. Ballard

The vast differences between the brain’s neural circuitry and a computer’s silicon circuitry might suggest that they have nothing in common. In fact, as Dana Ballard argues in this book, computational tools are essential for understanding brain function. Ballard shows that the hierarchical organization of the brain has many parallels with the hierarchical organization of computing; as in silicon computing, the complexities of brain computation can be dramatically simplified when its computation is factored into different levels of abstraction.

Drawing on several decades of progress in computational neuroscience, together with recent results in Bayesian and reinforcement learning methodologies, Ballard factors the brain’s principal computational issues in terms of their natural place in an overall hierarchy. Each of these factors leads to a fresh perspective. A neural level focuses on the basic forebrain functions and shows how processing demands dictate the extensive use of timing-based circuitry and an overall organization of tabular memories. An embodiment level organization works in reverse, making extensive use of multiplexing and on-demand processing to achieve fast parallel computation. An awareness level focuses on the brain’s representations of emotion, attention and consciousness, showing that they can operate with great economy in the context of the neural and embodiment substrates.

“This is a straightforward and highly readable formalization of brain function that has been needed for many years. The author synthesizes widely diverse material and concepts and presents a charming text derived from many years of intensive reflections and thoughtful dialogues.”
— Wolfram Schultz, University of Cambridge

2015 — 464 pp. — 167 illus. — $55.00/£37.95
978-0-262-02861-5
Computational Neuroscience series

HUMAN ROBOTICS
Neuromechanics and Motor Control
Etienne Burdet, David W. Franklin, and Theodore E. Milner

This book proposes a transdisciplinary approach to investigating human motor control that synthesizes musculoskeletal biomechanics and neural control. The authors argue that this integrated approach — which uses the framework of robotics to understand sensorimotor control problems — offers a more complete and accurate description than either a purely neural computational approach or a purely biomechanical one.

The authors offer an account of motor control in which explanatory models are based on experimental evidence using mathematical approaches reminiscent of physics. These computational models yield algorithms for motor control that may be used as tools to investigate or treat diseases of the sensorimotor systems and to guide the development of algorithms and hardware that can be incorporated into products designed to assist with the tasks of daily living.

“The authors focus on the insights their approach offers in understanding how movement of the arm is controlled and how the control adapts to changing environments. The book begins with muscle mechanics and control, progresses in a logical manner to planning and behavior, and describes applications in neurorehabilitation and robotics.

“An outstanding resource for learning the fundamentals of computational motor control.”
— Reza Shadmehr, Professor of Biomedical Engineering and Neuroscience, Johns Hopkins School of Medicine

2013 — 288 pp. — 104 illus. — $45.00/£31.95
978-0-262-01953-8
The issues of mental causation, consciousness, and free will have vexed philosophers since Plato. In this book, Peter Tse examines these unresolved issues from a neuroscientific perspective. In contrast with philosophers who use logic rather than data to argue whether mental causation or consciousness can exist given unproven first assumptions, Tse proposes that we instead listen to what neurons have to say. Because the brain must already embody a solution to the mind–body problem, why not focus on how the brain actually realizes mental causation?

Tse draws on exciting recent neuroscientific data concerning how informational causation is realized in physical causation at the level of NMDA receptors, synapses, dendrites, neurons, and neuronal circuits. He argues that a particular kind of strong free will and “downward” mental causation are realized in rapid synaptic plasticity. Recent neurophysiological breakthroughs reveal that neurons function as criterial assessors of their inputs, which then change the criteria that will make other neurons fire in the future. Such informational causation cannot change the physical basis of information realized in the present, but it can change the physical basis of information that may be realized in the immediate future. This gets around the standard argument against free will centered on the impossibility of self-causation. Tse explores the ways that mental causation and qualia might be realized in this kind of neuronal and associated information-processing architecture, and considers the psychological and philosophical implications of having such an architecture realized in our brains.

“I love Tse’s book. It has literally set me free. It explains these ideas in full glory, in exquisite detail…”
— Stephen Macknik, Scientific American

“…a groundbreaking new paradigm about how the mind works.”
— New York Journal of Books

2013 — 384 pp. — 28 illus. — $39.00/£26.95
978-0-262-01910-1

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Empathy
From Bench to Bedside
Edited by Jean Decety

There are many reasons for scholars to investigate empathy. Empathy plays a crucial role in human social interaction at all stages of life; it is thought to help motivate positive social behavior, inhibit aggression, and provide the affective and motivational bases for moral development; it is a necessary component of psychotherapy and patient-physician interactions. This volume covers a wide range of topics in empathy theory, research, and applications, helping to integrate perspectives as varied as anthropology and neuroscience. The contributors discuss the evolution of empathy within the mammalian brain and the development of empathy in infants and children; the relationships among empathy, social behavior, compassion, and altruism; the neural underpinnings of empathy: cognitive versus emotional empathy in clinical practice; and the cost of empathy. Taken together, the contributions significantly broaden the interdisciplinary scope of empathy studies, reporting on current knowledge of the evolutionary, social, developmental, cognitive, and neurobiological aspects of empathy and linking this capacity to human communication, including in clinical practice and medical education.

“How we remember is an extremely valuable book, both as a resource for those who want to understand the current state of research on emotion and cognition, and as a coherent, well-supported challenge to the currently dominant understanding of the relationship between them.”
— Metapsychology

2014 — 336 pp. — 10 illus. — paper — $20.00/£13.95
978-0-262-52533-6
(Cloth 2011)

The Cognitive–Emotional Brain
From Interactions to Integration
Luiz Pessoa

The idea that a specific brain circuit constitutes the emotional brain (and its corollary, that cognition resides elsewhere) shaped thinking about emotion and the brain for many years. Recent behavioral, neuropsychological, neuroanatomy, and neuroimaging research, however, suggests that emotion interacts with cognition in the brain. In this book, Luiz Pessoa moves beyond the debate over functional specialization, describing the many ways that emotion and cognition interact and are integrated in the brain.

“...this is an extremely valuable book, both as a resource for those who want to understand the current state of research on emotion and cognition, and as a coherent, well-supported challenge to the currently dominant understanding of the relationship between them.”
— Metapsychology

2013 — 336 pp. — 70 b & w illus. — 14 color plates — $40.00/£27.95
978-0-262-01956-9

The Cognitive–Emotional Brain
From Interactions to Integration
Luiz Pessoa
RELIABILITY IN COGNITIVE NEUROSCIENCE
A Meta-Meta Analysis

William R. Uttal

Cognitive neuroscientists increasingly claim that brain images generated by new brain imaging technologies reflect, correlate, or represent cognitive processes. In this book, William Uttal warns against these claims, arguing that, despite its utility in anatomic and physiological applications, brain imaging research has not provided consistent evidence for correlation with cognition. Uttal bases his argument on an extensive review of the empirical literature, pointing to variability in data not only among subjects within individual experiments but also in the new meta-analytical approach that pools data from different experiments. This inconsistency of results, he argues, has profound implications for the field, suggesting that cognitive neuroscientists have not yet proven their interpretations of the relation between brain activity captured by macroscopic imaging techniques and cognitive processes; what may have appeared to be correlations may have only been illusions of association. He supports the view that the true correlates are located at a much more microscopic level of analysis: the networks of neurons that make up the brain.

Uttal carries out comparisons of the empirical data at several levels of data pooling, including the meta-analytical. Uttal’s investigation suggests a need for cognitive neuroscience to reevaluate the entire enterprise of brain imaging-cognition correlational studies.

2012 — 256 pp. — 16 illus. — $40.00/£27.95
978-0-262-01852-4

Now Available in Paperback

MIND AND BRAIN
A Critical Appraisal of Cognitive Neuroscience

William R. Uttal

Cognitive neuroscience explores the relationship between our minds and our brains, most recently by drawing on brain imaging techniques to align neural mechanisms with psychological processes. In Mind and Brain, William Uttal offers a critical review of cognitive neuroscience, examining both its history and modern developments in the field. He pays particular attention to the role of brain imaging — especially functional magnetic resonance imaging (fMRI) — in studying the mind-brain relationship. He argues that, despite the explosive growth of this new mode of research, there has been more hyperbole than critical analysis of what experimental outcomes really mean. With Mind and Brain, Uttal attempts a synoptic synthesis of this substantial body of scientific literature.

Uttal considers psychological and behavioral concerns that can help guide the neuroscientific discussion; work done before the advent of imaging systems; and what brain imaging has brought to recent research. Cognitive neuroscience, Uttal argues, is truly both cognitive and neuroscientific. Both approaches are necessary and neither is sufficient to make sense of the greatest scientific issue of all: how the brain makes the mind.

“A fascinating book and an important contribution to the field of cognitive neuroscience.”
— C. L. Iwema, Choice

2014 — 528 pp. — 24 illus. — paper — $30.00/£20.95
978-0-262-52665-4
(Cloth 2011)

INTERVENTION IN THE BRAIN
Politics, Policy, and Ethics

Robert H. Blank

New findings in neuroscience have given us unprecedented knowledge about the workings of the brain. Innovative research — much of it based on neuroimaging results — suggests not only treatments for neural disorders but also the possibility of increasingly precise and effective ways to predict, modify, and control behavior. In this book, Robert Blank examines the complex ethical and policy issues raised by our new capabilities of intervention in the brain.

“From the author of the groundbreaking Brain Policy, Robert Blank’s Intervention in the Brain is a well-informed, lucid, and thoroughly engaging discussion of the ethical, social, and political implications of the new neuroscience. It is an essential guide for anyone interested in how intervening in the brain can affect our lives.”
— Walter Glannon, Associate Professor, Department of Philosophy, University of Calgary

2013 — 344 pp. — 3 illus. — $34.00/£23.95
978-0-262-01891-3
Basic Bioethics series
Neuroscience

INFECTIOUS BEHAVIOR
Brain-Immune Connections in Autism, Schizophrenia, and Depression
Paul H. Patterson

In Infectious Behavior, neurobiologist Paul Patterson examines the involvement of the immune system in autism, schizophrenia, and major depressive disorder. Although genetic approaches to these diseases have garnered the lion’s share of publicity and funding, scientists are uncovering evidence of the important avenues of communication between the brain and the immune system and their involvement in mental illness. Patterson focuses on this brain-immune crosstalk, exploring the possibility that it may help us understand the causes of these common but still mysterious diseases. The heart of this engaging book, accessible to nonscientists, concerns the involvement of the immune systems of the pregnant woman and her fetus, and a consideration of maternal infection as a risk factor for schizophrenia and autism. Patterson reports on research that may shed light on today’s autism epidemic. He also outlines the risks and benefits of both maternal and postnatal vaccinations.

“Patterson’s book is so clear and compelling that it will appeal to clinicians awaiting novel disease models with new opportunities for prevention and cure, family members endlessly pondering the source of their loved one’s ailment, and any reader who enjoys medical detective stories.” — Dolores Malaspina, American Journal of Psychiatry

Paper — $19.95/£8.95
978-0-262-52534-3
(Cloth 2011)

GENETIC INFLUENCES ON ADDICTION
An Intermediate Phenotype Approach
edited by James MacKillop and Marcus R. Munafò

Although there is scientific consensus that genetic factors play a substantial role in an individual’s vulnerability to drug or alcohol addiction, specific genetic variables linked to risk or resilience remain elusive. Understanding how genetic factors contribute to addiction may require focusing on intermediary mechanisms, or intermediate phenotypes, that connect genetic variation and risk for addiction. This book offers a comprehensive review of this mechanistic-centered approach and the most promising intermediate phenotypes identified in empirical research. The contributors first consider the most established findings in the field, including variability in drug metabolism, brain electrophysiological profiles, and subjective reactions to direct drug effects; they go on to review highly promising areas such as expectancies, attentional processing, and behavioral economic variables; and finally, they investigate more exploratory approaches, including the differential susceptibility hypothesis and epigenetic modifications. Taken together, the chapters offer a macro-level testing of the hypothesis that these alternative, mechanistic phenotypes can advance the understanding of genetic influences on addiction. The book will be of interest to researchers and practitioners in a range of disciplines, including behavioral genetics, psychology, pharmacology, neuroscience, and sociology.

2014 — 344 pp. — 32 illus. — $45.00/£31.95
978-0-262-01969-9

SCHIZOPHRENIA
Evolution and Synthesis
edited by Steven M. Silverstein, Bita Moghaddam, and Til Wykes

Despite major advances in methodology and thousands of published studies every year, treatment outcomes in schizophrenia have not improved over the last fifty years. Moreover, we still lack strategies for prevention and we do not yet understand how the interaction of genetic, developmental, and environmental factors contribute to the disorder. In this book, leading researchers consider conceptual and technical obstacles to progress in understanding schizophrenia and suggest novel strategies for advancing research and treatment.

“There is a wide agreement that schizophrenia remains poorly understood, and this book marvelously summarizes not only the clinical problem, but also the beginnings of a plan for solving it.” — Journal of Clinical Psychiatry

2013 — 400 pp. — $50.00/£34.95
978-0-262-01962-0
Strüngmann Forum Reports
Neuroscience

BIRDSONG, SPEECH, AND LANGUAGE
Exploring the Evolution of Mind and Brain
edited by Johan J. Bolhuis and Martin Everaert
Foreword by Robert C. Berwick and Noam Chomsky

Scholars have long been captivated by the parallels between birdsong and human speech and language. In this book, leading scholars draw on the latest research to explore what birdsong can tell us about the biology of human speech and language and the consequences for evolutionary biology. They examine the cognitive and neural similarities between birdsong learning and speech and language acquisition, considering vocal imitation, auditory learning, an early vocalization phase (“babbling”), the structural properties of birdsong and human language, and the striking similarities between the neural organization of learning and vocal production in birdsong and human speech.

2013 — 544 pp. — 93 illus. — $52.00/£35.95
978-0-262-01860-9

LANGUAGE, MUSIC, AND THE BRAIN
A Mysterious Relationship
edited by Michael A. Arbib

This book explores the relationships between language, music, and the brain by pursuing four key themes and the crosstalk among them: song and dance as a bridge between music and language; multiple levels of structure from brain to behavior to culture; the semantics of internal and external worlds and the role of emotion; and the evolution and development of language. The book offers specially commissioned expositions of current research accessible both to experts across disciplines and to non-experts. These chapters provide the background for reports by groups of specialists that chart current controversies and future directions of research on each theme.

The book looks beyond mere auditory experience, probing the embodiment that links speech to gesture and music to dance. The study of the brains of monkeys and songbirds illuminates hypotheses on the evolution of brain mechanisms that support music and language, while the study of infants calibrates the developmental timetable of their capacities. The result is a unique book that offers compelling insights into the ways our buildings shape our interactions with the world. This expanded understanding can help architects design buildings that support both mind and body. In Mind in Architecture, leading thinkers from architecture and other disciplines, including neuroscience, cognitive science, psychiatry, and philosophy, explore what architecture and neuroscience can learn from each other. They offer historical context, examine the implications for current architectural practice and education, and imagine a neuroscientifically informed architecture of the future.


2015 — 264 pp. — 47 color, 24 b & w illus. — $34.95/£24.95
978-0-262-02887-5

NEW
MIND IN ARCHITECTURE
Neuroscience, Embodiment, and the Future of Design
edited by Sarah Robinson and Juhani Pallasmaa

Although we spend more than ninety percent of our lives inside buildings, we understand very little about how the built environment affects our behavior, thoughts, emotions, and well-being. We are biological beings whose senses and neural systems have developed over millions of years; it stands to reason that research in the life sciences, particularly neuroscience, can offer compelling insights into the ways our buildings shape our interactions with the world. This expanded understanding can help architects design buildings that support both mind and body. In Mind in Architecture, leading thinkers from architecture and other disciplines, including neuroscience, cognitive science, psychiatry, and philosophy, explore what architecture and neuroscience can learn from each other. They offer historical context, examine the implications for current architectural practice and education, and imagine a neuroscientifically informed architecture of the future.

2013 — 584 pp. — 93 illus. — $52.00/£35.95
978-0-262-01860-9

NEUROSCIENCE OF CREATIVITY
edited by Oshin Vartanian, Adam S. Bristol, and James C. Kaufman

This volume offers a comprehensive overview of the latest neuroscientific approaches to the scientific study of creativity. In chapters that progress logically from neurobiological fundamentals to systems neuroscience and neuroimaging, leading scholars describe the latest theoretical, genetic, structural, clinical, functional, and applied research on the neural bases of creativity. The treatment is both broad and in depth, offering a range of neuroscientific perspectives with detailed coverage by experts in each area.

2013 — 320 pp. — 9 color, 20 b & w illus. — $45.00/£31.95
978-0-262-01958-3

Strüngmann Forum Reports
THE NEW VISUAL NEUROSCIENCES
edited by John S. Werner and Leo M. Chalupa

Visual science is the model system for neuroscience, its findings relevant to all other areas. This essential reference to contemporary visual neuroscience covers the extraordinary range of the field today, from molecules and cell assemblies to systems and therapies. It provides a state-of-the-art companion to the earlier book The Visual Neurosciences (MIT Press, 2003). This volume covers the dramatic advances made in the last decade, offering new topics, new authors, and new chapters.

The New Visual Neurosciences assembles groundbreaking research, written by international authorities. Many of the 112 chapters treat seminal topics not included in the earlier book. These new topics include retinal feature detection; cortical connectomics; new approaches to mid-level vision and spatiotemporal perception; the latest understanding of how multimodal integration contributes to visual perception; new theoretical work on the role of neural oscillations in information processing; and new molecular and genetic techniques for understanding visual system development. An entirely new section covers invertebrate vision, reflecting the importance of this research in understanding fundamental principles of visual processing. Another new section treats translational visual neuroscience, covering recent progress in novel treatment modalities for optic nerve disorders, macular degeneration, and retinal cell replacement.

2013 — 1792 pp. — 575 b & w, 281 color illus. — $250.00/£172.95
978-0-262-01916-3

VISUAL PSYCHOPHYSICS
From Laboratory to Theory
Zhong-Lin Lu and Barbara Dosher

Vision is one of the most active areas in biomedical research, and visual psychophysical techniques are a foundational methodology for this research enterprise. Visual psychophysics, which studies the relationship between the physical world and human behavior, is a classical field of study that has widespread applications in modern vision science. Bridging the gap between theory and practice, this textbook provides a comprehensive treatment of visual psychophysics, teaching not only basic techniques but also sophisticated data analysis methodologies and theoretical approaches. It begins with practical information about setting up a vision lab and goes on to discuss the creation, manipulation, and display of visual images; timing and integration of displays with measurements of brain activities and other relevant techniques; experimental designs; estimation of behavioral functions; and examples of psychophysics in applied and clinical settings.

The book’s treatment of experimental designs presents the most commonly used psychophysical paradigms, theory-driven psychophysical experiments, and the analysis of these procedures in a signal-detection theory framework. The book discusses the theoretical underpinnings of data analysis and scientific interpretation, presenting data analysis techniques that include model fitting, model comparison, and a general framework for optimized adaptive testing methods. It includes many sample programs in Matlab with functions from Psychtoolbox, a free toolbox for real-time experimental control. Once students and researchers have mastered the material in this book, they will have the skills to apply visual psychophysics to cutting-edge vision science.

2013 — 528 pp. — 126 b & w illus., 10 color plates
$60.00/£41.95
978-0-262-01945-3

SCENE VISION
Making Sense of What We See
edited by Kestutis Kveraga and Moshe Bar

For many years, researchers have studied visual recognition with objects — single, clear, clear, and isolated objects, presented to subjects at the center of the screen. In our real environment, however, objects do not appear so neatly. Our visual world is a stimulating scenery mess; fragments, colors, occlusions, motions, eye movements, context, and distraction all affect perception. In this volume, pioneering researchers address the visual cognition of scenes from neuroimaging, psychology, modeling, electrophysiology, and computer vision perspectives.

Building on past research — and accepting the challenge of applying what we have learned from the study of object recognition to the visual cognition of scenes — these leading scholars consider issues of spatial vision, context, rapid perception, emotion, attention, memory, and the neural mechanisms underlying scene representation. Taken together, their contributions offer a snapshot of our current knowledge of how we understand scenes and the visual world around us.


$60.00/£41.95
978-0-262-02785-4
If everyone now agrees that human traits arise not from nature or nurture but from the interaction of nature and nurture, why does the “nature versus nurture” debate persist? In Beyond Versus, James Tabery argues that the persistence stems from a century-long struggle to understand the interaction of nature and nurture — a struggle to define what the interaction of nature and nurture is, how it should be investigated, and what counts as evidence for it.

Tabery examines past episodes in the nature versus nurture debates, offers a contemporary philosophical perspective on them, and considers the future of research on the interaction of nature and nurture. From the eugenics controversy of the 1930s and the race and IQ controversy of the 1970s to the twenty-first-century debate over the causes of depression, Tabery argues, the polarization in these discussions can be attributed to what he calls an “explanatory divide” — a disagreement over how explanation works in science, which in turn has created two very different concepts of interaction. Drawing on recent developments in the philosophy of science, Tabery offers a way to bridge this explanatory divide and these different concepts integratively. Looking to the future, Tabery evaluates the ethical issues that surround genetic testing for genes implicated in interactions of nature and nurture, pointing to what the future does (and does not) hold for a science that continues to make headlines and raise controversy.

2014 — 304 pp. — 26 illus. — $40.00/£27.95
978-0-262-02737-3
Life and Mind series

EVOLUTION IN FOUR DIMENSIONS
Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life
Revised Edition
Eva Jablonka and Marion J. Lamb illustrated by Anna Zeligowski

This new edition of the widely read Evolution in Four Dimensions has been revised to reflect the spate of new discoveries in biology since the book was first published in 2005, offering corrections, an updated bibliography, and a substantial new chapter. Eva Jablonka and Marion Lamb’s pioneering argument proposes that there is more to heredity than genes. They describe four “dimensions” in heredity — four inheritance systems that play a role in evolution: genetic, epigenetic (or non-DNA cellular transmission of traits), behavioral, and symbolic (transmission through language and other forms of symbolic communication). These systems, they argue, can all provide variations on which natural selection can act.

2014 — 520 pp. — 73 illus. — paper — $29.95/£19.95
978-0-262-52584-8
Life and Mind series

OUTSTANDING ACADEMIC TITLE, 2012, CHOICE MAGAZINE

THE EVOLVED APPRENTICE
How Evolution Made Humans Unique
Kim Sterelny

Over the last three million years or so, our lineage has diverged sharply from those of our great ape relatives. Change has been rapid (in evolutionary terms) and pervasive. Morphology, life history, social life, sexual behavior, and foraging patterns have all shifted sharply away from those of the other great apes. In The Evolved Apprentice, Kim Sterelny argues that the divergence stems from the fact that humans gradually came to enrich the learning environment of the next generation. Humans came to cooperate in sharing information, and to cooperate ecologically and reproductively as well, and these changes initiated positive feedback loops that drove us further from other great apes.

Sterelny develops a new theory of the evolution of human cognition and human social life that emphasizes the gradual evolution of information-sharing practices across generations and how these practices transformed human minds and social lives. Sterelny proposes that humans developed a new form of ecological interaction with their environment, cooperative foraging. The ability to cope with the immense variety of human ancestral environments and social forms, he argues, depended not just on adapted minds but also on adapted developmental environments.

2014 — 264 pp. — paper — $20.00/£13.95
978-0-262-52666-1
(Cloth 2012)
The Jean Nicod Lectures

COOPERATION AND ITS EVOLUTION
edited by Kim Sterelny, Richard Joyce, Brett Calcott, and Ben Fraser

This collection reports on the latest research on an increasingly pivotal issue for evolutionary biology: cooperation. The chapters are written from a variety of disciplinary perspectives and utilize research tools that range from empirical survey to conceptual modeling, reflecting the rich diversity of work in the field. They explore a wide taxonomic range, concentrating on bacteria, social insects, and, especially, humans.

A Bradford Book
2013 — 608 pp. — 11 illus. — $58.00/£39.95
978-0-262-01853-1
Life and Mind series
Now Available in Paperback

TRANSFORMATIONS OF LAMARCKISM
From Subtle Fluids to Molecular Biology
edited by Snait B. Gissis and Eva Jablonka
Drawings by Anna Zeligowski

In 1809—the year of Charles Darwin’s birth—Jean-Baptiste Lamarck published Philosophie zoologique, the first comprehensive and systematic theory of biological evolution. The Lamarckian approach emphasizes the generation of developmental variations; Darwinism stresses selection. Lamarck’s ideas were eventually eclipsed by Darwinian concepts, especially after the emergence of the Modern Synthesis in the twentieth century. The different approaches have important implications for the kinds of questions biologists ask and for the type of research they conduct. Essays in this book focus on new developments in biology that make Lamarck’s ideas relevant not only to modern empirical and theoretical research but also to problems in the philosophy of biology.

Contributors discuss topics including the historical transformations of Lamarckism; the Modern Synthesis and its emphasis on Mendelian genetics; and the importance of a developmental approach to evolution in the philosophy of biology. The book shows the advantages of a Lamarckian perspective on evolution. Indeed, the development-oriented approach it presents is becoming central to current evolutionary studies—as can be seen in the burgeoning field of Evo-Devo.

“This is an important book, one that is destined to become a classic.”
— Brian K. Hall, Metascience

2015 — 480 pp. — 23 illus. — paper — $30.00/£20.95
978-0-262-52750-7
Vienna Series in Theoretical Biology

DEVELOPING SCAFFOLDS IN EVOLUTION, CULTURE, AND COGNITION
edited by Linnda R. Caporael, James R. Griesemer, and William C. Wimsatt

“Scaffolding” is a concept that is becoming widely used across disciplines. This book investigates common threads in diverse applications of scaffolding, including theoretical biology, cognitive science, social theory, science and technology studies, and human development. Despite its widespread use, the concept of scaffolding is often given short shrift; the contributors to this volume, from a range of disciplines, offer a more fully developed analysis of scaffolding that highlights the role of temporal and temporary resources in development, broadly conceived, across concepts of culture, cognition, and evolution.

The book emphasizes reproduction, repeated assembly, and entrenchment of heterogeneous relations, parts, and processes as a complement to neo-Darwinism in the developmentalist tradition of conceptualizing evolutionary change. After describing an integration of theoretical perspectives that can accommodate different levels of analysis and connect various methodologies, the book discusses multilevel organization; differences (and reciprocality) between individuals and institutions as units of analysis; and perspectives on development that span brains, careers, corporations, and cultural cycles.

2013 — 448 pp. — 24 illus. — $60.00/£41.95
978-0-262-01955-2
Vienna Series in Theoretical Biology

INVESTIGATING THE PSYCHOLOGICAL WORLD
Scientific Method in the Behavioral Sciences
Brian D. Haig

This book considers scientific method in the behavioral sciences, with particular reference to psychology. Psychologists learn about research methods and use them to conduct their research, but their training teaches them little about the nature of scientific method itself. In Investigating the Psychological World, Brian Haig fills this gap. Drawing on behavioral science methodology, the philosophy of science, and statistical theory, Haig constructs a broad theory of scientific method that has particular relevance for the behavioral sciences. He terms this account of method the abductive theory of method (ATOM) in recognition of the importance it assigns to explanatory reasoning. ATOM offers the framework for a coherent treatment of a range of quantitative and qualitative behavioral research methods, giving equal treatment to data-analytic methods and methods of theory construction.

Haig draws on the new experimentalism in the philosophy of science to reconstruct the process of phenomena detection as it applies to psychology; he considers the logic and purpose of exploratory factor analysis; he discusses analogical modeling as a means of theory development; and he recommends the use of inference to the best explanation for evaluating theories in psychology. Finally, he outlines the nature of research problems, discusses the nature of the abductive method, and describes applications of the method to grounded theory method and clinical reasoning. The book will be of interest not only to philosophers of science but also to psychological researchers who want to deepen their conceptual understanding of research methods and methodological concerns.

2014 — 312 pp. — $32.00/£22.95
978-0-262-02736-6
Life and Mind series
NEW
THE CONSCIOUS MIND
Zoltan Torey

How did the human mind emerge from the collection of neurons that makes up the brain? How did the brain acquire self-awareness, functional autonomy, language, and the ability to think, to understand itself and the world? In this volume in the Essential Knowledge series, Zoltan Torey offers an accessible and concise description of the evolutionary breakthrough that created the human mind.

Drawing on insights from evolutionary biology, neuroscience, and linguistics, Torey reconstructs the sequence of events by which Homo erectus became Homo sapiens. He describes the augmented functioning that underpins the emergent mind—a new (“off-line”) internal response system with which the brain accesses itself and then forms a selection mechanism for mentally generated behavior options. This functional breakthrough, Torey argues, explains how the animal brain’s “awareness” became self-accessible and reflective—that is, how the human brain acquired a conscious mind. Consciousness, unlike animal awareness, is not a unitary phenomenon but a composite process. Torey’s account shows how protolanguage evolved into language, how a brain subsystem for the emergent mind was built, and why these developments are opaque to introspection. We experience the brain’s functional autonomy, he argues, as free will.

2014 — 208 pp. — paper — $15.95/£10.95
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The MIT Press Essential Knowledge series

FREE WILL
Mark Balaguer

In our daily life, it really seems as though we have free will; that what we do from moment to moment is determined by conscious decisions that we freely make. You get up from the couch, you go for a walk, you eat chocolate ice cream. It seems that we’re in control of actions like these; if we are, then we have free will. But in recent years, some have argued that free will is an illusion. The neuroscientist (and best-selling author) Sam Harris and the late Harvard psychologist Daniel Wegner, for example, claim that certain scientific findings disprove free will. In this engaging and accessible volume in the Essential Knowledge series, the philosopher Mark Balaguer examines the various arguments and experiments that have been cited to support the claim that human beings don’t have free will. He finds them to be overstated and misguided.

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NEW
UNDERSTANDING BELIEFS
Nils J. Nilsson

Our beliefs constitute a large part of our knowledge of the world. We have beliefs about objects, about culture, about the past, and about the future. We have beliefs about other people, and we believe that they have beliefs as well. We use beliefs to predict, to explain, to create, to console, to entertain. Some of our beliefs we call theories, and we are extraordinarily creative at constructing them. Theories of quantum mechanics, evolution, and relativity are examples. But so are theories about astrology, alien abduction, guardian angels, and reincarnation. All are products (with varying degrees of credibility) of fertile minds trying to find explanations for observed phenomena. In this book, Nils Nilsson examines beliefs: what they do for us, how we come to hold them, and how to evaluate them. We should evaluate our beliefs carefully, Nilsson points out, because they influence so many of our actions and decisions.

2014 — 176 pp. — 5 illus. — paper — $14.95/£10.95
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PARADOX
Margaret Cuonzo

Thinkers have been fascinated by paradox since long before Aristotle grappled with Zeno’s. In this volume in The MIT Press Essential Knowledge series, Margaret Cuonzo explores paradoxes and the strategies used to solve them. She finds that paradoxes are more than mere puzzles but can prompt new ways of thinking.

A paradox can be defined as a set of mutually inconsistent claims, each of which seems true. Paradoxes emerge not just in salons and ivory towers but in everyday life. (An Internet search for “paradox” brings forth a picture of an ashtray with a “no smoking” symbol inscribed on it.) Proposing solutions, Cuonzo writes, is a natural response to paradoxes. She invites us to rethink paradoxes by focusing on strategies for solving them, arguing that there is much to be learned from this, regardless of whether any of the more powerful paradoxes is even capable of solution.

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GENERAL INTEREST

NEW

LATE-TALKING CHILDREN
A Symptom or a Stage?

Stephen M. Camarata

When children are late in hitting developmental milestones, parents worry. And no delay causes more parental anxiety than late talking, which is associated in many parents’ minds with such serious conditions as autism and severe intellectual disability. In fact, as children’s speech expert Stephen Camarata points out in this enlightening book, children are late in beginning to talk for a wide variety of reasons. For some children, late talking may be a symptom of other, more serious, problems; for many others, however, it may simply be a stage with no long-term complications.

Camarata describes in accessible language what science knows about the characteristics and causes of late talking. He explains that today’s greater awareness of autism, as well as the expanded definition of autism as a “spectrum” of symptoms, has increased the chances that a late-talking child will be diagnosed — or misdiagnosed — with autism. But, he reminds us, late talking is only one of a constellation of autism symptoms. Although all autistic children are late talkers, not all late-talking children are autistic.

Camarata draws on more than twenty-five years of professional experience diagnosing and treating late talkers — and on his personal experience of being a late talker himself and having a late-talking son. Camarata offers parents valuable guidance on seeking treatment, advising them to get second and third opinions if necessary, and warning them against false diagnoses, unqualified practitioners, and ineffective therapies. He provides information that will help parents navigate the maze of doctors, speech therapists, early childhood services, and special education; and he describes the effect that late talking may have on children’s post-talking learning styles.

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NEW

TOUCH
Second Edition

Tiffany Field

Although the therapeutic benefits of touch have become increasingly clear, American society, claims Tiffany Field, is dangerously touch-deprived. Many schools have “no-touch” policies; the isolating effects of Internet-driven work and life can leave us hungry for tactile experience. In this book Field explains why we may need a daily dose of touch.

The first sensory input in life comes from the sense of touch while a baby is still in the womb, and touch continues to be the primary means of learning about the world throughout infancy and well into childhood. Touch is critical, too, for adults’ physical and mental health. Field describes studies showing that touch therapy can benefit everyone, from premature infants to children with asthma to patients with conditions that range from cancer to eating disorders.

This second edition of Touch, revised and updated with the latest research, reports on new studies that show the role of touch in early development, in communication (including the reading of others’ emotions), in personal relationships, and even in sports. It describes the physiological and biological effects of touch, including areas of the brain affected by touch, and the effects of massage therapy on prematurity, attentiveness, depression, pain, and immune functions. Touch has been shown to have positive effects on growth, brain waves, breathing, and heart rate, and to decrease stress and anxiety. As Field makes clear, we enforce our society’s touch taboo at our peril.

2014 — 280 pp. — 28 illus. — paper
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UNDERSTANDING PAIN
Exploring the Perception of Pain

Fernando Cervero

In Understanding Pain, Fernando Cervero explores the mechanisms and the meaning of pain. You touch something hot and your brain triggers a reflex action that causes you to withdraw your hand, protecting you from injury. That kind of pain, Cervero explains, is good for us; it acts as an alarm that warns us of danger and keeps us away from harm. But, Cervero notes, not all pain is good for us. There is another kind of pain that is more like a curse: chronic pain that is not related to injury. This is the kind of pain that fills pain clinics and makes life miserable.

Cervero reminds us that pain is the most common reason for people to seek medical attention, but that it remains a biological enigma. It is protective, but not always. Its effects are not only sensory but also emotional. There is no way to measure it objectively, no test that comes back positive for pain; the only way a medical professional can gauge pain is by listening to the patient’s description of it. Cervero’s account brings us closer to understanding the meaning of pain.

2014 — 192 pp. — 7 illus. — paper — $14.95/£10.95
978-0-262-52606-7 (Cloth 2012)
HUMANITY’S END
Why We Should Reject Radical Enhancement
Nicholas Agar

Proposals to make us smarter than the greatest geniuses or to add thousands of years to our life spans seem fit only for the spam folder or trash can. And yet this is what contemporary advocates of radical enhancement offer in all seriousness. They present a variety of technologies and therapies that will expand our capacities far beyond what is currently possible for human beings. In Humanity’s End, Nicholas Agar argues against radical enhancement, describing its destructive consequences.

“Agar’s analysis is philosophically astute, empirically informed, and historically shrewd. It is a welcome corrective to the occasional extravagancies of the human sciences.” — Peter Takacs, Quarterly Review of Biology

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Life and Mind series

WHAT WE KNOW ABOUT EMOTIONAL INTELLIGENCE
How It Affects Learning, Work, Relationships, and Our Mental Health
Moshe Zeidner, Gerald Matthews, and Richard D. Roberts

Emotional intelligence (or EI) — the ability to perceive, regulate, and communicate emotions, to understand emotions in ourselves and others — has been the subject of best-selling books, magazine cover stories, and countless media mentions. It has been touted as a solution for problems ranging from relationship issues to the inadequacies of local schools. But the media hype has far outpaced the scientific research on emotional intelligence. In What We Know about Emotional Intelligence, three experts who are actively involved in research into EI offer a state-of-the-art account of EI in theory and practice. They tell us what we know about EI based not on anecdote or wishful thinking but on science.

2012 — 464 pp. — 44 illus. — paper — $18.95/£13.95
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NEW
THE LEAST LIKELY MAN
Marshall Nirenberg and the Discovery of the Genetic Code
Franklin H. Portugal

The genetic code is the Rosetta Stone by which we interpret the 3.3 billion letters of human DNA, the alphabet of life, and the discovery of the code has had an immeasurable impact on science and society. In 1968, Marshall Nirenberg, an unassuming government scientist working at the National Institutes of Health, shared the Nobel Prize for cracking the genetic code. He was the least likely man to make such an earth-shaking discovery, and yet he had gotten there before such members of the scientific elite as James Watson and Francis Crick. How did Nirenberg do it, and why is he so little known? In The Least Likely Man, Franklin Portugal tells the fascinating life story of a famous scientist that most of us have never heard of.

2015 — 192 pp. — 15 illus. — $27.95/£19.95
978-0-262-02847-9

PAUL LAUTERBUR AND THE INVENTION OF MRI
M. Joan Dawson

On September 2, 1971, the chemist Paul Lauterbur had an idea that would change the practice of medical research. Considering recent research findings about the use of nuclear magnetic resonance (NMR) signals to detect tumors in tissue samples, Lauterbur realized that the information from NMR signals could be recovered in the form of images — and thus obtained noninvasively from a living subject. It was an unexpected epiphany: he was eating a hamburger at the time. Lauterbur rushed out to buy a notebook in which to work out his idea; he completed his notes a few days later. He had discovered the basic method used in all MRI scanners around the world, and for this discovery he would share the Nobel Prize for Physiology or Medicine in 2003. This book, by Lauterbur’s wife and scientific partner, M. Joan Dawson, is the story of Paul Lauterbur’s discovery and the subsequent development of the most important medical diagnostic tool since the X-ray.

2013 — 296 pp. — 42 illus. — $27.95/£19.95
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**IN PRAISE OF REASON**

*Why Rationality Matters for Democracy*

*MICHAEL P. LYNCH*

Why does reason matter, if (as many people seem to think) in the end everything comes down to blind faith or gut instinct? Why not just go with what you believe even if it contradicts the evidence? Why bother with rational explanation when name-calling, manipulation, and force are so much more effective in our current cultural and political landscape? Michael Lynch’s *In Praise of Reason* offers a spirited defense of reason and rationality in an era of widespread skepticism — when, for example, people reject scientific evidence about such matters as evolution, climate change, and vaccines when it doesn’t jibe with their beliefs and opinions.

Although skeptical questions about reason have a deep and interesting history, Lynch argues, they can be answered. In particular, appeals to scientific principles of rationality are part of the essential common currency of any civil democratic society. The idea that everything is arbitrary — that reasoning has no more weight than blind faith — undermines a key principle of a civil society: that we owe our fellow citizens explanations for what we do. Reason matters — not just for the noble ideal of truth, but for the everyday world in which we live.

2014 — 184 pp. — paper — $12.95/£8.95
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**DEMOCRACY DESPITE ITSELF**

*Why a System That Shouldn’t Work at All Works So Well*

*DANNY OPPENHEIMER and MIKE EDWARDS*

Voters often make irrational decisions based on inaccurate and irrelevant information. Politicians are often inept, corrupt, or out of touch with the will of the people. Elections can be determined by the design of the ballot and the gerrymandered borders of a district. And yet, despite voters who choose candidates according to the boxer–brief dichotomy and politicians who struggle to put together a coherent sentence, democracy works exceptionally well: citizens of democracies are healthier, happier, and freer than citizens of other countries. In Democracy Despite Itself, Danny Oppenheimer, a psychologist, and Mike Edwards, a political scientist, explore this paradox: How can democracy lead to such successful outcomes when the defining characteristic of democracy — elections — is so flawed?

Oppenheimer and Edwards argue that democracy works because regular elections, no matter how flawed, produce a variety of unintuitive, positive consequences. The brilliance of democracy, write Oppenheimer and Edwards, does not lie in the people’s ability to pick superior leaders. It lies in the many ways that it subtly encourages the flawed people and their flawed leaders to work toward building a better society.

“A useful corrective to the cynicism that pervades so much political commentary.”

— John J. Pitney Jr., Washington Post

2013 — 256 pp. — 12 illus. — paper — $16.95/£11.95
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Quarterly
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NEW

CATEGORIZING COGNITION
Toward Conceptual Coherence in the Foundations of Psychology
Graeme S. Halford, William H. Wilson, Glenda Andrews, and Steven Phillips

All sciences need ways to classify the phenomena they investigate; chemistry has the periodic table and biology a taxonomic system for classifying life forms. These classification schemes depend on conceptual coherence, demonstrated correspondences across paradigms. This conceptual coherence has proved elusive in psychology, although recent advances have brought the field to the point at which it is possible to define the type of classificatory system needed.

This book proposes a categorization of cognition based on core properties of constituent processes, recognizing correspondences between cognitive processes with similar underlying structure but different surface properties. These correspondences are verified mathematically and shown not to be merely coincidental.

The proposed formulation leads to general principles that transcend domains and paradigms and facilitate the interpretation of empirical findings. It covers human and nonhuman cognition and human cognition in all age ranges. Just as the periodic table classifies elements and not compounds, this system classifies relatively basic versions of cognitive tasks but allows for complexity. The book shows that a more integrated, coherent account of cognition would have many benefits. It would reduce the conceptual fragmentation of psychology; offer defined criteria by which to categorize new empirical results; and lead to fruitful hypotheses for the acquisition of higher cognition.

2015 — 352 pp. — 46 illus. — $45.00/£31.95
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NEW

MINDS WITHOUT MEANINGS
An Essay on the Content of Concepts
Jerry A. Fodor and Zenon W. Pylyshyn

In cognitive science, conceptual content is frequently understood as the “meaning” of a mental representation. This position raises largely empirical questions about what concepts are, what form they take in mental processes, and how they connect to the world they are about. In Minds without Meanings, Jerry Fodor and Zenon Pylyshyn review some of the proposals put forward to answer these questions and find that none of them is remotely defensible.

Fodor and Pylyshyn determine that all of these proposals share a commitment to a two-factor theory of conceptual content, which holds that the content of a concept consists of its sense together with its reference. Fodor and Pylyshyn argue instead that there is no conclusive case against the possibility of a theory of concepts that takes reference as their sole semantic property. Such a theory, if correct, would provide for the naturalistic account of content that cognitive science lacks — and badly needs. Fodor and Pylyshyn offer a sketch of how this theory might be developed into an account of perceptual reference that is broadly compatible with empirical findings and with the view that the mental processes effecting perceptual reference are largely preconceptual, modular, and encapsulated.

2014 — 216 pp. — 13 illus. — $30.00/£20.95
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FEELING BEAUTY
The Neuroscience of Aesthetic Experience
G. Gabrielle Starr

In Feeling Beauty, G. Gabrielle Starr argues that understanding the neural underpinnings of aesthetic experience can reshape our conceptions of aesthetics and the arts. Drawing on the tools of both cognitive neuroscience and traditional humanist inquiry, Starr shows that neuroaesthetics offers a new model for understanding the dynamic and changing features of aesthetic life, the relationships among the arts, and how individual differences in aesthetic judgment shape the varieties of aesthetic experience.

Starr, a scholar of the humanities and a researcher in the neuroscience of aesthetics, proposes that aesthetic experience relies on a distributed neural architecture—a set of brain areas involved in emotion, perception, imagery, memory, and language. More important, it emerges from networked interactions, intricately connected and coordinated brain systems that together form a flexible architecture enabling us to develop new arts and to see the world around us differently. Focusing on the “sister arts” of poetry, painting, and music, Starr builds and tests a neural model of aesthetic experience valid across all the arts, examining particular works that include a poem by Keats, a painting by van Gogh, and Beethoven’s Diabelli Variations.

“An elegantly written (lucid and even literary) examination of the neurobiology of aesthetic experience crossing poetry, visual art, and music. . . . promises to become a classic.”
— Gregory F. Tague, ASEBL Journal

2015 — 279 pp. — 19 illus. — paper — $16.00/£11.95
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