

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

## WHAT SCIENCE OFFERS THE HUMANITIES

*What Science Offers the Humanities* examines some of the deep problems facing current approaches to the study of culture. It focuses especially on the excesses of postmodernism but also acknowledges serious problems with postmodernism's harshest critics. In short, Edward Slingerland argues that, in order for the humanities to progress, its scholars need to take seriously contributions from the natural sciences – in particular research on human cognition – which demonstrate that any separation of the mind and body is entirely untenable. The author provides suggestions for how humanists might begin to utilize these scientific discoveries without conceding that science has the last word on morality, religion, art, and literature. Calling into question such deeply entrenched dogmas as the “blank slate” theory of nature, strong social constructivism, and the ideal of disembodied reason, *What Science Offers the Humanities* replaces the humanities-sciences divide with a more integrated approach to the study of culture.

Edward Slingerland taught in the School of Religion and the Department of East Asian Languages and Cultures at the University of Southern California, where he was recipient of the 2002 General Education Teaching Award. He is currently an associate professor of Asian Studies and a Canada Research Chair in Chinese Thought and Embodied Cognition at the University of British Columbia. His previous books include *The Analects of Confucius* and *Effortless Action: Wu-wei as Conceptual Metaphor and Spiritual Ideal in Early China*, which won the American Academy of Religion's 2003 Best First Book in the History of Religions Award.

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

---

# What Science Offers the Humanities

*Integrating Body and Culture*

EDWARD SLINGERLAND

University of British Columbia



CAMBRIDGE  
UNIVERSITY PRESS

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press

32 Avenue of the Americas, New York, NY 10013-2473, USA

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9780521877701](http://www.cambridge.org/9780521877701)

© Edward Slingerland 2008

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2008

Printed in the United States of America

*A catalog record for this publication is available from the British Library.*

*Library of Congress Cataloging in Publication Data*

Slingerland, Edward G. (Edward Gilman)

What science offers the humanities : integrating body and culture / Edward Slingerland.

p. cm.

Includes bibliographical references and index.

ISBN 978-0-521-87770-1 (hardback) – ISBN 978-0-521-70151-8 (pbk.)

1. Philosophy. 2. Science and the humanities. 3. Humanity. 4. Body, Human. I. Title.

B53.S5355 2008

001.3–dc22 2007016575

ISBN 978-0-521-87770-1 hardback

ISBN 978-0-521-70151-8 paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party Internet Web sites referred to in this publication and does not guarantee that any content on such Web sites is, or will remain, accurate or appropriate.

Contents

<i>Figures</i>	<i>page</i> ix
<i>Preface</i>	xi
<b>Introduction</b>	1
Two Worlds: The Ghost and the Machine	2
Beyond Dualism: Taking the Body Seriously	4
Vertical Integration	9
Embodied Cognition and the Humanities	11
The Trouble with Embodiment	14
Clearing the Way for Embodiment	16
Why Embodiment Matters	27
PART I: EXORCISING THE GHOST IN THE MACHINE	
<b>1 The Disembodied Mind: Problems with Objectivism</b>	31
Characterization of Objectivism	32
Problems with Objectivism	34
Human Knowledge Not Fully Propositional: The Importance of Tacit Know-How	34
No Unitary Subject: The Objectivist Knower Is Not Master of Its Own House	38
Embodied Emotions in Human Cognition: The Role of “Fast and Frugal” Heuristics	42
The Purpose of Our Body-Brain Is Not Accurate Representation but “Enacted Perception”	47
Human Concepts Are Primarily Perceptually Based	56
Prototypes and Radial Categories	59
The Crucial Role of Metaphor in Abstract Thought	60
Problems with Objectivist Science: What Does It Mean to Live in a Post-Kuhnian World?	62
Inductionism and Deductivism	63
There Is No Clear Distinction Between Facts and Theories	65
Hypotheses Are Not Clearly Falsifiable	66

	Underdetermination: Facts Consistent with an Infinitude of Hypotheses	68
	The Disunity of Science	69
	Absolute, Disinterested Objectivity Is an Illusory Goal	70
	Objectivism on the Ropes	72
2	<b>They Live Among Us: Characterizing Postmodernism in the Academy</b>	74
	Do as I Say, Not as I Do	74
	Poststructuralist Theory: World as Text	79
	The Standard Social Scientific Model: The Social Construction of Reality	81
	Science Studies and the Slide into Relativism	84
	The Almost-Pragmatist Turn: Philosophical Hermeneutics and “Neo-Pragmatism”	88
	The Almost-Nondualist Approach: The Later Latour	92
	The Almost-Embodied Approach: Pierre Bourdieu	94
	The Last Gasp of Postmodernism	96
3	<b>Pulling the Plug: Laying to Rest Postmodern Epistemology and Ontology</b>	99
	Self-Refutation and Internal Incoherence	99
	Opacity of Reference, and Stylistic and Political Conformity	102
	Cultural Essentialism and Romanticism	105
	Thought Is Not Language	110
	Perceptual Paradigms Are Not All-Determining	115
	No Blank Slate: The “Evolutionary Kantian” Position and the Modular View of the Mind	117
	Basic-Level Categories	121
	Folk Physics	122
	Folk Biology and Essentialism	125
	Innate Body Schemas	127
	Folk Psychology: “Theory of Mind” and the “Intentional Stance”	129
	Folk Mathematics: The “Number Sense”	136
	Human Metaculture: A Suite of Innate Modules Combined with “Good Tricks”	138
	Finally: The Pragmatic Response to Extreme Skepticism, or What’s Really Wrong with Postmodernism	142
	PART II: EMBODYING CULTURE	
4	<b>Embodying Culture: Grounding Cultural Variation in the Body</b>	151
	Cognitive Fluidity	152
	Synaesthesia and Human Creativity	156
	Are Synaesthesia and Metaphor the Same?	160

CONTENTS	vii
Conceptual Metaphor: Voluntary, Partial, and Communicable	
Synaesthesia	161
Putting the Body in Mind: Concepts as Image Schemas	162
Conceptual Metaphor Theory	166
Pervasiveness of Conceptual Metaphor	170
Experimental Evidence for the Cognitive Reality of Conceptual Metaphor	171
Some Limitations of Conceptual Metaphor Theory	174
Mental Space Theory and Conceptual Blending	176
Double-Scope Blends: Beyond Source to Target Mappings	177
Blending and Human Creativity	180
Seeing “As If”	182
Blends and the Recruitment and Transformation of Emotion	185
An Example from Ancient China	188
Multiple-Scope Blends and the Accumulation of Difference:	
<i>Mencius</i> 2:A:2	196
Stage 1	196
Stage 2	199
Stage 3	203
Embodying Cultural Variety	206
Ratcheted Innovation	206
Reification of Blends in Material Culture	207
Perceptual and Motor Plasticity	209
Putting the Culture in Body	210
An Epidemiological Model of Culture	212
Fine-Tuning and Minor Violations	214
The Human Body-Mind as Universal Decoding Key	217
 PART III: DEFENDING VERTICAL INTEGRATION	
 5 Defending the Empirical: Commonsense Realism and Pragmatic Truth	221
Pragmatism: The “Mother Tongue” of Thought	222
The Empirical Prejudice: KNOWING AS SEEING	223
Possible Counterexample 1: The Humanities	226
Possible Counterexample 2: Religion	228
Science as an Extension of Commonsense Empiricism	232
Extension Through “Helps”	233
Novel Cross-Domain Mappings	234
A Pragmatic Conception of Truth	237
Truth as Successful Achievement of Goals	238
From Representation to Engagement	238
Pragmatic Response to the Problems with Science	240
Underdetermination and Occam’s Razor	240

viii	CONTENTS
	Preserving a Notion of Progress 245
	Limited Realism Concerning Observables and Unobservables 246
	So What’s So Great About Science? 248
6	Who’s Afraid of Reductionism? Confronting Darwin’s Dangerous Idea 250
	Darwin’s Dangerous Idea 252
	The Bogeyman of Reductionism 258
	From Physicalism to the Humanities: Levels of Explanation 261
	Levels of Explanation and Emergent Qualities 262
	The Emergence of Free Will and Intentionality 267
	Weak Versus Strong Emergence: Blocking the Move to Mysterianism 270
	The Limits of Physicalism: Why We Will Always Be Humanists 278
	Why Physicalism Does not Matter 279
	We Are Robots Designed Not to Believe That We Are Robots 281
	Human Reality Is Real 287
	The Importance of Physicalism: Why Physicalism Both Does and Does Not Matter 290
	Why Physicalism <i>Does</i> Matter 290
	Dual Consciousness: Walking the Two Paths 293
	Embracing Vertical Integration 295
	Conclusion 297
	Moving from a Biversity to a True University 298
	Why Humanists Need to Work Harder 299
	In What Sense Does Vertical Integration Represent Progress? 302
	Beyond Objectivism: Embodying Ethics 306
	Accounting for Taste: The Embodied Approach to Aesthetics 308
	Other Applications 310
	Appendix: Embodying Culture: Selected Bibliography and Other Resources 313
	General Resources for Embodied Approaches to Culture 313
	Programs and Centers 313
	Books 314
	Embodied Approaches to Specific Disciplines 315
	Aesthetics 315
	Literature 315
	Morality and Ethics 316
	Religion 319
	References 321
	Index 357

Figures

1. “Breakfast Theory”	<i>page</i> 5
2. Human cultural explosion as the result of cognitive fluidity	154
3. “Kiki” and “booba” (after Ramachandran & Hubbard 2001 b: 19)	158
4. Udo statue from Benin	165
5. Digging a financial grave	178
6. Digging a financial grave (emotional implications)	186
7. <i>Mencius</i> 6:A:1 (Gaozi’s position)	190
8. <i>Mencius</i> 6:A:1 (Mencius’s response)	191
9. <i>Mencius</i> 6:A:2 (Gaozi’s position)	192
10. <i>Mencius</i> 6:A:2 (Mencius’s response)	195
11. <i>Mencius</i> 2:A:2 (Stage 1)	198
12. <i>Mencius</i> 2:A:2 (Stage 2)	201
13. <i>Mencius</i> 2:A:2 (Stage 3)	205
14. The fate of three initial configurations in the “Game of Life” (after Gardner 1970)	263
15. One glider consuming another (after Poundstone 1985: 40)	264



Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

## Preface

The intellectual autobiographies of academic researchers are normally expected to remain invisible as they go about producing their work, which in turn is intended to stand alone and be understood and judged on its own merits. One of the many contributions to intellectual life made by the loose collection of movements I am going to be calling “postmodernism” in the pages that follow is the claim that the author’s biography is not intellectually irrelevant. Although this – like many other postmodernist claims – has too often been taken to absurd extremes, explaining how I came to this project will, I think, help to clarify its motivation and the thrust of its argument. This will then also, I hope, make it clearer why someone might want to read this book.

When my colleagues and friends from graduate school see what I am reading these days, their reactions range from puzzled to horrified. When I mention the term “behavioral neuroscience” among a group of religious studies scholars or sinologists, most smile politely and begin slowly backing away, casting about for a safe exit route. As they slip away, I sometimes note wistful expressions of regret: they know that I had a perfectly respectable humanistic upbringing. What went wrong? I was first trained as a sinologist and specialist in early Chinese texts (both my B.A. and M.A. are in the classical Chinese language), and then my interest in comparative thought led me to a doctoral program in religious studies, where I received a firm grounding in my specialty of early Chinese thought, as well as in related areas of Western thought, such as German philosophical hermeneutics and the “virtue ethics” movement in philosophy. My dissertation was a fairly traditional work of intellectual history, from a more or less analytic philosophical angle.

Things began to go awry after graduate school, a few months into my first job, when a student recommended a book that had just come out, George Lakoff and Mark Johnson’s *Philosophy in the Flesh* (1999). It immediately became clear to me upon reading this work how conceptual metaphor theory could solve some deep theoretical problems that had been bothering me in my dissertation. Even more, Lakoff and Johnson’s work pointed to a way of approaching human thought and culture that seemed to me to avoid the pitfalls of both the traditional objectivism informing the work of my colleagues in philosophy and the postmodern relativism that I saw as paralyzing most other areas of the humanities. The central claim of Lakoff and Johnson’s book is that human cognition – the production,

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

communication, and processing of meaning – is not the product of an entirely free and autonomous rational faculty, as the Anglo-American analytic tradition would have it, but is rather heavily dependent on more fundamental, bodily based cognitive processes. These mappings take several forms, but the most dramatic is cross-domain projection, where part of the structure of a more concrete or clearly organized domain (the *source* domain, for instance *darkness*) is used to understand and talk about another, usually more abstract or less clearly structured, domain (the *target* domain, for instance *ignorance*). It is this sort of projective mapping that cognitive linguists refer to as “metaphor,” which – understood in this way – encompasses simile and analogy as well as metaphor in the more traditional sense. Conceptual metaphor, Lakoff and Johnson argue, serves as one of our primary tools for reasoning about ourselves and the world – especially about relatively abstract or unstructured domains such as the self, morality, or time. I found their theory to be an extremely powerful tool for approaching Warring States Chinese thought. The theoretical stance of “embodied realism” that Lakoff and Johnson presented also seemed to me to be an ideal path out of the mire of cultural relativism that I continue to see as impeding substantive work in comparative studies.

To invoke the common LIFE AS JOURNEY metaphor, this initial encounter with conceptual metaphor theory turned out to be not a detour, but rather the first step in an entirely new intellectual direction. I hosted a conference at the University of Southern California attended by both Lakoff and Johnson, and also got to know Mark Turner and Gilles Fauconnier, pioneers in the field of mental space theory and conceptual blending. Blending theory encompasses conceptual metaphor theory but goes beyond it to argue that *all* of human cognition – even literal and logical thought – involves the creation of mental spaces and mappings between them. As I explored more widely in the cognitive linguistics literature, I came to see that this work formed just one part of a rich and growing field focused on the imagistic basis of thought and the grounding of abstract human cognition in recurring features of perception and action. This led me to work explaining how these features of perception and action are in turn subserved by an integrated physical system, the body-brain, that evolved gradually from other life-forms. Hence a burgeoning interest in evolutionary psychology, behavioral neuroscience, nonhuman animal cognition, and various branches of psychology. The relatively new field of evolutionary psychology seeks to explain how the human brain and the workings of human cognition can be seen as a response to adaptive pressure in the human “ancestral environment,” while the study of nonhuman animal cognition helps to put the achievements of human cognition in their proper phylogenetic context. Behavioral neuroscience attempts to provide an account of, among other things, how the structure of the human brain is related to the workings of human cognition and human perception, how neurological events are related to overall behavior, and how analogue schematic structures such as conceptual metaphors might be neurologically instantiated. Cognitive and developmental psychology look for evidence

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

## PREFACE

xiii

for the emergence of the sorts of mental “organs” or modules that an evolutionarily informed model of the human brain would expect to find – bolstering their universalist claims with cross-cultural studies of prelinguistic infants and children – and recent work in social psychology fundamentally calls into question folk models of human agency and the relationship of conscious processes to actual behavior.

My contact with scholars in these fields eventually led to my current position at the University of British Columbia, where I have been hired not only as a traditionally trained sinologist and scholar of early Chinese thought but also as part of an emerging interdisciplinary field of embodied approaches to the study of human culture. I now find myself surrounded by colleagues trained in social psychology, neuroimaging, cross-cultural psychology, developmental psychology, evolutionary psychology, nonhuman animal cognition, biological anthropology, poststructuralist economics, and the neuroscience of perception – all eager to share their knowledge with, learn from, and engage in collaborative projects with scholars from more traditional humanistic disciplines.

This book essentially represents a field report to my fellow humanists concerning the long, strange intellectual journey into the cognitive and natural sciences that I have been on for the past five or six years. I believe that I have come back with something of interest: an outline of what a coherent and empirically responsible alternative to objectivist or postmodernist approaches to the study of culture might look like, and some strong feelings about how we humanists can benefit from establishing collaborative ties with our colleagues in the sciences. The central conviction behind this work is that it would behoove humanists to start paying a lot more attention to what is happening on the other side of campus. Almost any randomly selected issue of *Science* or *Nature* has at least one article that directly addresses some matter of central humanist concern, and journals from the more human-level disciplines, such as *Cognition* or *Behavioral and Brain Sciences*, are invariably rich minefields of relevant material that is, for the most part, entirely unexploited by scholars in the humanities. Cognitive scientists and neuroscientists, for instance, are making extraordinary discoveries concerning the relationship of human thought, language, and perception – a central and venerable issue in philosophy and cultural studies but hitherto explored by humanists primarily by means of armchair speculation. Similarly, recent work on the role of emotions, bodily biases, and “fast and frugal” heuristics in human reasoning processes bears intimately on lively debates in moral philosophy and calls into question rational-actor models that have traditionally dominated economics. Fields on the fringe of the humanities such as economics – more immediately and directly concerned with applications to the real world, and therefore where getting things wrong is more immediately apparent and consequential – have been relatively quick to respond to this sort of work, but little of it has penetrated to the core humanities disciplines.

If we humanists have much to learn from the natural sciences, the reverse is also true: humanists have a great deal to contribute to scientific research. As discoveries

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

in the biological and cognitive sciences have begun to blur traditional disciplinary boundaries, researchers in these fields have found their work bringing them into contact with the sort of high-level issues that traditionally have been the domain of the core humanities disciplines, and often their lack of formal training in these areas leaves them groping in the dark or attempting to reinvent the wheel. This is where humanist expertise can and should play a crucial role in guiding and interpreting the results of scientific exploration – something that can occur only when scholars on *both* sides of the humanities–natural science divide are willing to talk to one another. This book is designed to help my colleagues in the core humanities disciplines see where the points of contact between their own work and the research coming out of the cognitive and biological sciences may lie, as well as how an “embodied” view of the person fundamentally problematizes the dualistic model of the self that informs most of our work. It is becoming increasingly evident that the traditionally sharp divide between the humanities and natural sciences is no longer viable, and this requires that researchers on both sides of the former divide become radically more interdisciplinary. This book is intended as an argument for *why* an integrated approach to human culture is, in fact, necessary, as well as a hint of what such an approach might look like.



This project has consumed the last five years of my academic life, and over the course of those years I have been aided by countless individuals and organizations, so I apologize in advance for any omissions in these acknowledgments.

First I would like to thank my acquisitions editor at Cambridge University Press, Andy Beck. When I approached him years ago with the idea for this rather speculative project he was immediately supportive, and over its development Andy has provided a steady stream of sound editorial advice that has shaped the final product in many ways. I am very grateful to him for having faith in me and in this project.

I also owe a debt of gratitude to Peter Nosco, Darrin Lehman, and Nancy Gallini at the University of British Columbia, who were not at all deterred by this crazy project and made it possible for me to find an institutional home that genuinely values interdisciplinary work. “Interdisciplinarity” has become a fashionable buzzword in recent years, but UBC has turned out to be one of the few places I know of that is genuinely serious about humanities–natural science dialogue and eager to encourage it. In this regard, this project also owes a great deal to the Canada Research Chairs program. My CRC position has provided me not only with the time and resources to complete this manuscript but also with a higher, more broadly appealing research profile that has directly led to a variety of helpful connections and new research collaboration opportunities. This is particularly important for a sinologist, since Chinese studies – especially early Chinese studies – is too often viewed by outsiders as an overly specialized, hermetically sealed discipline.

Cambridge University Press

978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture

Edward Slingerland

Frontmatter

[More information](#)

## PREFACE

xv

In the early stages of my research at the University of Southern California I benefited from a Templeton/Metanexus grant for the study of science and religion awarded to USC, which provided me with a wonderful venue for interdisciplinary conversation and facilitated my contact with scholars such as Michael Ruse, Owen Flanagan, and Michael Arbib. A Pew Foundation grant for the study of religion and civic culture awarded to USC similarly gave me an opportunity to meet and to benefit from conversation with one of my intellectual heroes, Charles Taylor, whose work features so prominently in Chapter 6. Thanks also to my former chair at USC, Donald Miller, for having involved me in these grants.

Mohammad Reza Memar-Sadeghi very generously offered to read Chapters 1 and 5, and Brian Boyd heroically slogged through the entire manuscript and provided detailed and extremely helpful feedback. For a variety of reasons, I was unable to make all of the changes they recommended, and if my treatment of the philosophy of science material, in particular, is found by some to be lacking in sophistication or nuance it is entirely my own fault. Substantial and very helpful comments on the manuscript were also provided by Joel Sahleen, Jason Slone, Mark Collard, Joe Henrich, Tim Rohrer, Jon Gottschall, and the anonymous referees who reviewed this manuscript for Cambridge University Press. I have also benefited from feedback from Sharalyn Orbaugh, Jonathan Schooler, Owen Flanagan, Ara Norenzayan, Steve Heine, Mark Turner, Ray Corbey, Todd Handy, Randy Nesse, Coll Thrush, Simon Martin, Barbara Dancygier, Andrew Martindale, Jess Tracy, Liz Dunn, Emma Cohen, and David Anderson. Thanks also to Ian McEwan for a bit of music criticism that helped to smooth out a hastily conceived chapter conclusion.

Monika Dix, Douglas Lanam, and Lang Foo provided research assistance at various stages of the project. I am grateful for the assistance of my production editor Camilla T. Knapp, as well as for the meticulous and sensitive work of my copy editor, Susan Greenberg, who smoothed out the many rough spots in earlier versions of this manuscript. Thanks also to Mark Johnson, Steven Mithen, Marty Smith, *In These Times*, and *The Onion* for permission to use copyrighted images or text.

Most of all I would like to thank my wife, Stefania Burk. She not only has put up with me for the last several years as I feverishly worked on this project but also has been a constant source of conceptual critique, stylistic and editorial advice, and plain good sense. This book would have a very different shape had it not been subjected to the force of her sharp mind, intolerance for jargon, and infallible sense of what is important and what is not. I dedicate this book to her and to my daughter, Sofia Gianna, who was born just as this manuscript was taking its final shape, and who remains a constant source of joy, wonder, and profound sleep deprivation.

Cambridge University Press  
978-0-521-70151-8 - What Science Offers the Humanities: Integrating Body and Culture  
Edward Slingerland  
Frontmatter  
[More information](#)

---

WHAT SCIENCE OFFERS THE HUMANITIES