THE SYDNEY SYMPOSIUM OF SOCIAL PSYCHOLOGY

Social Thinking and Interpersonal Behavior



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CONSTANTINE SEDIKIDES

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SOCIAL THINKING AND INTERPERSONAL BEHAVIOR

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Mark Van Vugt, Rob Kurzban, Jamin Halberstadt, Oscar Ybarra, Matthew C. Keller, Emily Chan, Andrew S. Baron, Jeffrey Hutsler, Stephen Garcia, Jeffrey Sanchez-Burks, Kimberly Rios Morrison, Jennifer R. Spoor, Kipling D. Williams, Mark Schaller, and Lesley A. Duncan.

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SSSP 13. SOCIAL CONFLICT AND AGGRESSION* ISBN 978-1-84872-932-2 (Edited by J.P. Forgas, A. Kruglanski, & K.D. Williams). Contributors: Joseph P. Forgas, Arie Kruglanski, Kipling D. Williams, Mario Mikulincer, Phillip R. Shaver, Eric D. Wesselmann, Deborah South Richardson, Georgina S. Hammock, Daniel Ames, N. Pontus Leander, Tanya L. Chartrand, Adam D. Galinsky, Debra Gilin, William W. Maddux, Hui Bing Tan, Thomas F. Denson, Emma C. Fabiansson, Edward Orehek, Chris Eckhardt, Gráinne M. Fitzsimmons, Joanna E. Anderson, Lisa Zadro, Laura B. Luchies, Eli J. Finkel, Mark Van Vugt, Craig A. Anderson, Matt DeLisi, Ed Donnerstein, Robert Kurzban, John Christner, L. Rowell Huesmann, Eric F. Dubow, and Paul Boxer.

* Published by Psychology Press
** Published by Cambridge University Press

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Joseph P. Forgas
University of New South Wales

Klaus Fiedler
University of Heidelberg

Constantine Sedikides
University of Southampton

Psychology Press
Taylor & Francis Group
New York London

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Psychology Press
Taylor & Francis Group
711 Third Avenue
New York, NY 10017

Psychology Press
Taylor & Francis Group
27 Church Road
Hove, East Sussex BN3 2FA

© 2012 by Taylor & Francis Group, LLC
Psychology Press is an imprint of Taylor & Francis Group, an Informa business

Printed in the United States of America on acid-free paper
Version Date: 20120125

International Standard Book Number: 978-1-84872-990-2 (Hardback)

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Library of Congress Cataloging-in-Publication Data

Social thinking and interpersonal behavior / editors, Joseph P. Forgas, Klaus Fiedler, Constantine Sedikides.
p. cm. -- (Sydney Symposium of Social Psychology series)
Includes bibliographical references and index.
ISBN 978-1-84872-990-2 (hbk. : alk. paper)
1. Interpersonal relations. 2. Social interaction. 3. Social perception. 4. Social psychology. I. Forgas, Joseph P. II. Fiedler, Klaus, 1951- III. Sedikides, Constantine.

HM1106.S656 2012
302--dc23 2011050426

Visit the Taylor & Francis Web site at
http://www.taylorandfrancis.com

and the Psychology Press Web site at
http://www.psypress.com

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Preface

Although philosophers and writers have long speculated about the subtle link between social thinking and social behavior, the connection between mental and social life remains one of the most intriguing topics in all of psychology. The collection of chapters in this book reviews some of the most recent advances in research exploring the links between how people think and behave in interpersonal situations. The chapters represent a variety of theoretical orientations, ranging from evolutionary approaches to cognitive and affective theories, all the way to considering social and cultural influences on the relationship between social cognition and interpersonal behavior.

This book aims to provide an up-to-date integration of some of the most recent developments in social psychological research on this issue, offering an informative, scholarly yet readable overview of recent advances in research on the relationship between social cognition and interpersonal behavior. Few topics are as important as the question of how human beings deal with the immensely complex cognitive demands of organizing and coordinating their social lives. The chapters included here share a broad integrative orientation and argue that interpersonal behavior is best understood as the joint product of both intrapsychic and sociocultural mechanisms, and is best studied through the careful analysis of the cognitive, affective, and motivational processes within individuals, supplemented by a broad-based understanding of the evolutionary and biological, as well as the social and cultural, contexts within which social interaction occurs.

This book is divided into four sections. Section I deals with evolutionary and adaptive aspects of interpersonal behavior. Section II explores the role that fundamental automatic and embodied mechanisms play in linking social thinking and interpersonal behavior. Section III analyzes the role of cognitive and affective processes in producing effective interpersonal behavior, and the chapters in Section IV deal with the social and cultural variables that influence our interpersonal strategies.

Section I deals with the evolutionary and adaptive influences that shape social cognition and interpersonal behavior. The chapters ask basic questions, such as: What role do evolutionary mechanisms play in determining our heuristic strategies when making sense of social situations (Kenrick, Li, White, & Neuberg, Chapter 2)? Could it be that occasionally misperceiving the behaviors and intentions of our interaction partners and potential mates may serve important adaptive functions (Galperin & Haselton, Chapter 3)? Even some apparently counterproductive

cognitive distortions such as self-deception may actually serve useful purposes, perhaps improving people's ability to deceive others in strategic encounters (von Hippel & Trivers, Chapter 4). It appears that even basic mental representations about abstract concepts such as time, affect, power, and valence are grounded by conceptual metaphors that are based on concrete representations of action, space, and bodily experiences. These adaptive evolutionary links in turn shape language and interpersonal behaviors (Semin & Garrido, Chapter 5).

Section II explores the role that fundamental and embodied automatic mechanisms play in linking social thinking and interpersonal behavior. Chapters in this section analyze the subliminal influence of motivation and goal pursuit on intuitions and social behaviors (Dijksterhuis, Chapter 6). Even the experience of time, one of the most fundamental mental representations, may have sensory–motor groundings, and moving through space may be a basic metaphor for thinking about moving through time (Macrae, Miles, & Best, Chapter 7). The profound influence of emotional stimuli on social thinking and interpersonal behavior may also involve subconscious mechanisms of "embodiment"—the activation of somatosensory representations (Winkielman & Kavanagh, Chapter 8). Interestingly, forming impressions about public figures also appears to be based on spontaneous and unconscious inferential mechanisms: It turns out that certain facial characteristics automatically trigger specific, and often accurate, impressions (Wänke, Samochowiec, & Landwehr, Chapter 9).

Section III turns to analyzing the role of cognitive and affective processes in producing effective interpersonal behavior. For example, the way people remember past events has a crucial role in how interpersonal behavior is constructed, and adopting a first person vs. a third person perspective when remembering seems partly influenced by social and cultural variables (Eich, Handy, Holmes, Lerner, & McIsaac, Chapter 10). The biased sampling of available environmental information appears to be an important source of influence on the way the social world is perceived and responded to (Fiedler, Chapter 11), and the automatic activation and use of intersecting social categories tend to shape interpersonal judgments and behaviors (Johnson & Carpinella, Chapter 12). There is also good evidence to suggest that mild, everyday affective states and moods significantly influence social cognition and behavior; remarkably, it turns out that negative moods often confer important cognitive and social benefits in some situations (Forgas, Chapter 13). Research also suggests that strivings for self-enhancement and self-protection play a major role in how individuals construe themselves and plan their social encounters (Sedikides & Skowronski, Chapter 14).

Finally, Section IV explores the influence of social and cultural factors in linking social thinking and interpersonal behavior, focusing on the cultural dynamics that place interpersonal processes at the heart of the microgenesis of culture (Kashima, Chapter 15). The way people construe and justify the social systems they live under can play an important psychological function in explaining reality (Jost & Kay, Chapter 16). Another chapter explores this question: What are the consequences of thinking as an individual, or thinking as a group member for interpersonal behavior (Blackman & Cooper, Chapter 17)? Individual cognition and sociocultural processes also interact in regulating such critically important interpersonal functions

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such as the assignment of blame to others (Malle, Guglielmo, & Monroe, Chapter 18).

Of course, no single book could possibly include everything that is interesting and exciting in current research on the interface of social cognition and interpersonal behavior. In selecting and inviting our contributors, we aimed to achieve a broad and varied coverage that is nevertheless representative of the major new developments in the social–psychological research linking mental and social life. The chapters included here represent some of the best recent examples by leading international researchers of clear theorizing and careful research in this critically important area.

THE ORIGINS OF THIS BOOK: THE SYDNEY SYMPOSIUM OF SOCIAL PSYCHOLOGY SERIES

This book is the fourteenth volume in the Sydney Symposium of Social Psychology Series, held every year at the University of New South Wales in Sydney. Perhaps a few words are in order regarding the origins of this volume, and the Sydney Symposium of Social Psychology Series in general. First, we should emphasize that this is not simply just an edited book in the usual sense. The objective of the Sydney Symposia is to provide new, integrative understanding in important areas of social psychology by inviting leading researchers in particular fields to a three-day residential symposium in Sydney. This symposium has received financial support from a variety of sources, including the University of New South Wales and the Australian Research Council, which allows for the careful selection and funding of a small group of leading researchers as contributors. Draft papers by all contributors are prepared and circulated well in advance of the symposium and are placed on our dedicated website. Thus, participants have an opportunity to review and revise their papers in the light of everybody else's draft contributions even before they arrive in Sydney.

A vital part of the preparation of this book has been the intensive three-day face-to-face meeting between all invited contributors. Sydney Symposia are characterized by an open, free-ranging, critical, and often fun discussion among all participants with the objective to explore points of integration and contrast between the proposed papers. A further revision of each chapter is prepared soon after the symposium, incorporating many of the shared points that emerged in our discussions. Thanks to these collaborative procedures, the book does not simply consist of a set of chapters prepared by researchers in isolation. Rather, this Sydney Symposium volume represents a collaborative effort by a leading group of international researchers intent on producing a wide-ranging and up-to-date review of research linking social cognition and social behavior.

We hope that the published papers will succeed in conveying some of the sense of fun and excitement we all shared during the Sydney Symposium. For more information on the Sydney Symposium Series and details of our past and future projects (as well as background information and photos of our contributors in, more or less, flattering situations) please visit our website at www.sydneysymposium.unsw.edu.au. Thirteen previous volumes of the Sydney Symposium Series

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have been published. All Sydney Symposium books feature original contributions from leading researchers on key issues in social psychology. Detailed information about our earlier volumes can be found on the series page in this book and also on our website.

Given its breadth of coverage, the present book should be useful both as a basic reference book and as an informative textbook to be used in advanced courses dealing with social cognition and interpersonal behavior. The main target audience for this book comprises researchers, students, and professionals in all areas of the social and behavioral sciences, including social, cognitive, clinical, counseling, personality, organizational, forensic, and applied psychology, as well as sociology, communication studies, and social work. This book is written in a readable yet scholarly style, and students at undergraduate and graduate levels should find it an engaging overview of the field and useful as a textbook in courses dealing with social cognition and social interaction. The book should be also of particular interest to people working in applied areas where dealing with and understanding the processes involved in interpersonal behavior are important, including organizational, forensic, clinical, counseling, educational, sports, health, and marketing psychology.

We want to express our thanks to the people and organizations who helped to make the Sydney Symposium of Social Psychology Series, and this thirteenth volume in particular, a reality. Producing a complex multiauthored book such as this is a lengthy and sometimes challenging task. We have been very fortunate to work with such an excellent and cooperative group of contributors. Our first thanks must go to them. Because of their help and professionalism, we were able to finish this project in record time and ahead of schedule. Past friendships have not been frayed and we are all still on speaking terms; indeed, we hope that working together on this book has been as positive an experience for them as it has been for us, and that all our contributors take happy memories with them from our time together in Sydney.

The idea of organizing the Sydney Symposia owes much to discussions with, and encouragement by, Kevin McConkey, Peter Lovibond, and numerous others at the University of New South Wales. Our past and present colleagues at the School of Psychology at UNSW, such as Marilynn Brewer, Kip Williams, Bill von Hippel, Tom Denson, and others, as well as friends and colleagues from further afield, have helped with advice, support, and sheer hard work to share the burden of preparing and organizing the symposium and the ensuing book. We are especially grateful to Suellen and Bill Crano, who helped in more ways than we could list here. We also wish to acknowledge financial support from the Australian Research Council and the University of New South Wales, support that was, of course, essential to get this project off the ground. Most of all, we are grateful for the love and support of our families who have put up with us during the many months of work that went into producing this book.

Joseph P. Forgas, Klaus Fiedler, and Constantine Sedikides
Sydney, Australia

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Editors

Joseph Paul Forgas is scientia professor of psychology at the University of New South Wales in Sydney, Australia. He studied psychology at Macquarie University and obtained his doctorate from the University of Oxford. His research focuses on the influence of cognitive and affective processes on interpersonal behaviors. Dr. Forgas's work received uninterrupted support from the Australian Research Council, including a Special Investigator Award and an ARC Professorial fellowship, as well as international funding from the German Research Foundation, the Alexander von Humboldt Foundation, and the Rockefeller Foundation. He has published 19 books and over 180 articles and chapters. He received his doctor of science degree from the University of Oxford and was elected fellow by the Academy of Social Sciences in Australia, the American Psychological Society, the Society of Personality and Social Psychology, and the Hungarian Academy of Sciences. He is coeditor of the international book series Frontiers of Social Psychology (Psychology Press, New York) and is organizer and editor of the Sydney Symposium of Social Psychology series. Dr. Forgas maintains highly productive research collaboration with several overseas laboratories (Stanford, Heidelberg, British Columbia, Mannheim, etc.), and his current project investigates affective influences on information processing, language, and strategic interpersonal behaviors.

Klaus Fiedler is a professor of social psychology at the University of Heidelberg. He is a fellow of the Society for Personality and Social Psychology, a member of two Academies of Science, and has received several prestigious awards, such as the Leibniz Award and a generous personal grant in the Reinhard Koselleck program of the Deutsche Forschungsgemeinschaft. Dr. Fiedler has been an executive board member of the European Association of Social Psychology. He has published various monographs and edited volumes in his major areas of research: language and social cognition, judgment and decision making, stereotyping, and on the interplay of cognitive and ecological processes. Dr. Fiedler serves as an editorial board member of many international journals and as an associate editor of several journals, including *Psychological Review* and *Journal of Experimental Social Psychology*. Currently, he serves as an associate editor of the *Journal of Experimental Psychology: General*.

Constantine Sedikides obtained his PhD from The Ohio State University in 1988 and is currently a professor at the University of Southampton. He formerly taught at the University of Wisconsin and the University of North Carolina at Chapel Hill. His research interests are in self and identity with foci on emotions, relationships, and groups. He is a fellow of the American Psychological Association, the American Psychological Society, and the Society for Personality and Social Psychology, as well as a past president of the International Society for Self and Identity. Dr. Sedikides has served on international grant panels and the editorial boards of various journals, has received several awards and grants, and has coedited *Psychological Inquiry*.

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List of Contributors

Sarah B. Best
University of Aberdeen
Aberdeen, United Kingdom

Shane F. Blackman
Princeton University
Princeton, New Jersey

Colleen M. Carpinella
University of California, Los Angeles
Los Angeles, California

Joel Cooper
Princeton University
Princeton, New Jersey

Ap Dijksterhuis
Radboud University Nijmegen
Nijmegen, the Netherlands

Eric Eich
University of British Columbia
Vancouver, Canada

Klaus Fiedler
University of Heidelberg
Heidelberg, Germany

Joseph P. Forgas
University of New South Wales
Sydney, Australia

Andrew Galperin
University of California, Los Angeles
Los Angeles, California

Margarida V. Garrido
CIS/ISCTE, Lisbon University Institute
Lisbon, Portugal

and

Utrecht University
Utrecht, the Netherlands

Steve Guglielmo
Brown University
Providence, Rhode Island

Todd C. Handy
University of British Columbia
Vancouver, Canada

Martie G. Haselton
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Palo Alto, California

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Aberdeen, United Kingdom

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Social Thinking and Interpersonal Behavior *Classical Theories and Contemporary Approaches*[*]

JOSEPH P. FORGAS
University of New South Wales

KLAUS FIEDLER
University of Heidelberg

CONSTANTINE SEDIKIDES
University of Southampton

Homo sapiens is an intensely gregarious species. This book is about the ways that mental life and social life interact and influence each other. The sophisticated ability of human beings to engage in highly complex and finely regulated interpersonal behaviors is probably one of the cornerstones of the evolutionary success of our species and the foundation of the increasingly complex forms of social organization that our species has been able to develop. According to the "social brain" hypothesis, it was evolutionary pressures and the cognitive demands of managing increasingly large and ever-more complex social groups that drove the development of the human brain, that most amazing computational

[*] Part of the Sydney Symposium of Social Psychology series: www.sydneysymposium.unsw.edu.au. The research underlying the present paper was supported by a professorial fellowship by the Australian Research Council to Joseph P Forgas and a Koselleck grant from the Deutsche Forschungsgemeinschaft (FI 294/23-01) to Klaus Fiedler. Correspondence regarding this article should be addressed to jp.forgas@unsw.edu.au.

organ (Dunbar, 2007). The astounding development of humans' mental and cognitive abilities and their impressive record of achievements are intimately tied to the interpersonal demands of coordinating increasingly large social groups. In fact, we might argue that social thinking and interpersonal behavior are in a symbiotic relation: It is the demands of social life that drive sophisticated mental strategies, and social thinking is the necessary prerequisite for effective social interaction (Forgas, 1981; Sedikides, Schopler, & Insko, 1998). Interpersonal behavior is also the essential "glue" that holds families, groups, and even whole societies together.

The objective of this book is to survey recent developments in research on the way social cognitive processes shape and inform interpersonal strategies and the way interacting with others in turn influences social thinking. The four parts of the book will cover recent developments in (1) evolutionary approaches to interpersonal behavior, (2) the role of automatic and embodied mechanisms in social thinking and behavior, (3) affective and cognitive processes in interpersonal behavior, and (4) social and cultural approaches linking social thinking and interpersonal behavior. In this introductory chapter, we will review historical antecedents of this line of inquiry and discuss some of the major issues and challenges facing the field of social cognition and interpersonal behavior.

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SOME HISTORICAL REFLECTIONS: INTERPERSONAL BEHAVIOR THEN AND NOW

Understanding the various ways that people think about, plan, and execute their interaction strategies and the role of cognitive, motivational and affective mechanisms in these processes has probably never been of greater importance than today. As modern industrialized societies become ever more complex and impersonal and as social interactions increasingly involve people known only superficially or not at all, interpersonal strategies also need to become more sophisticated, elaborate, and complex.

Contemporary mass societies present people with a social and cultural environment that is far removed from the ancestral social world in which humans lived and to which they became adapted over thousands of years. Yet the mental habits that were honed by the evolutionary pressures of thousands of years of living in small group societies are still evident today (Buss, 1999; Sedikides & Skowronski, 1997), as several chapters in this volume illustrate (Galperin & Haselton; Kenrick et al.; Semin & Garrido; von Hippel & Trivers). However, interpersonal behavior in modern anonymous mass societies is far more problematic and demanding than was the case in earlier epochs. The last few hundred years in particular produced a form of social living that is profoundly different from the way human beings lived throughout previous centuries and imposes entirely new cognitive demands on them.

Evolutionary history could have scarcely prepared humans for life in the anonymous mass societies of today. Since the dawn of evolution, human beings mostly lived in small, close, face-to-face groups. From our earliest hunter-gatherer ancestors to life in small-scale villages that was dominant everywhere as recently as in the eighteenth century, human social interaction typically involved intimately known others, mostly members of a small and immediate group. The eighteenth

century brought with it a fundamental revolution in social relationships. Several historical factors contributed to the rapid disappearance of traditional, face-to-face society and the fundamental change in interpersonal behavior and social integration that occurred (Durkheim, 1956; Toennies, 1887).

It was the philosophy of the enlightenment that laid the conceptual groundwork for the idea of the liberated, self-sufficient, and mobile individual, freed from the restrictive influence of unalterable social norms and conventions. This ideology found its political expression in the French Revolution and the American Revolution. Industrialization produced large-scale dislocation and the reassembly of massive working populations as required by technologies of mass production and also provided the economic foundation on which this new kind of anonymous society consisting of liberated, self-seeking individuals could exist.

These developments had crucial consequences for the way people relate to each other to this day. In stable, small-scale societies social relationships are highly regulated. One's place in society is largely determined by ascribed status and rigid norms. Mobility is restricted, and social interaction mainly occurs between people who intimately know each other. Compare this with life in modern mass societies. Most people we encounter are strangers. Our position in society is flexible, personal anonymity is widespread, mobility is high. Yet interacting with others remains the cornerstone on which our ability to achieve our personal, social, and economic objectives rests in this fluid social environment (Kenrick et al., this volume).

The fact that most people we deal with are not intimately known to us makes the appropriate use of interpersonal strategies ever more problematic. It is perhaps no coincidence that the emergence of psychology, and social psychology in particular, as a science of interpersonal behavior so clearly coincided with the advent of mass societies. It is for the first time in human history that social interaction—once a natural, automatic process almost entirely enacted within the confines of involving relationships with intimately known others—has become uncertain and problematic and, thus, an object of concern, reflection, and study (Goffman, 1972). Although many interpersonal behaviors continue to be guided by deep-seated, embodied internal mechanisms (see chapters by Dijksterhuis; Macrae et al.; Semin & Garrido; von Hippel & Trivers; Winkielman & Kavanagh), the role of high-level reflective and inferential cognitive processes has become ever more important (see chapters by Eich et al.; Fiedler; Forgas; Johnson & Carpinella; Sedikides & Skowronski).

To be able to interact with unfamiliar others in an increasingly globalized, impersonal, and liberated world, people need to employ ever more sophisticated and elaborate cognitive and motivational strategies. Emile Durkheim (1956), the father of modern sociology, described this profound shift in social relations in terms of a change from mechanical solidarity (a natural by-product of daily interaction with intimately known others) to organic solidarity (based on the rule-bound cooperation of strangers). Mechanical solidarity refers to the complex web of face-to-face interdependencies and social interaction processes that provide cohesion and unity to small-scale, primary social groups. Mechanical solidarity is based on direct, personal relationships. Organic solidarity in turn refers to the indirect, impersonal, and disembodied web of relationships and interdependencies that characterize mass societies. People have come to depend on, and interact with,

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strangers whom they hardly know, and their relationships are increasingly regulated by rules and contractual expectations that are no longer based on personal contact. Several of the chapters in this volume discuss the operation of social and cultural mechanisms that are essential for such impersonal interactions to work (Cooper; Jost & Kay; Kashima; Malle, Guglielmo, & Monroe; Waenke et al.).

Classical Approaches Linking Social Thinking and Interpersonal Behavior

The close relationship between mental processes and interpersonal behaviors has long been recognized by writers and philosophers (Forgas, 1981). Indeed, much social philosophy from Plato to Kant consists of speculations about the interdependence of mental life and social life, the way internal "human nature" determines social relationships and social structures. Several classical social science theorists (discussed next) have also studied this issue, emphasizing the close interdependence between symbolic mental processes and direct interpersonal behaviors.

We would like to argue in this book that the currently dominant social cognitive research paradigm ought not to be confined to the study of cognitive processes and behaviors that take place solely within the individual person. Rather, we should aim to understand individual behavior in the context of superordinate social and ecological structures that transcend the individual as the sole unit of analysis. Groups, organizations, and cultures call for their own theories that are distinct from intraindividual theories (Cooper; Jost & Kay; Kashima, this volume) and situations and social episodes impose constraints on individual behavior (Forgas, 1982). Interpersonal behavior is thus always a genuinely socially and culturally embedded process, relying on common ground shared by different people.

A glance at the historical origins of social psychology reveals that many pioneers were well aware of the discipline's social and interpersonal scope. A number of then very prominent theoretical concepts (see discussion herein) testify to deliberate attempts to realize the ambitious original research agenda to create a genuinely social, supraindividual social psychology. However, regrettably, and rather interestingly from a historical perspective, the interpersonal approaches to social cognition that were so promising at the outset had a conspicuously small impact on the rapid growth of empirical research over the last several decades. Let us first consider some of those fascinating early conceptions, before we turn to the almost purely intrapersonal theories that have come to dominate current research and discuss reasons for the neglect of interpersonal social cognition.

Symbolic Interactionism Perhaps the first comprehensive theory of interpersonal behavior developed by George Herbert Mead, symbolic interactionism offers one important example of such an integrative framework for the study of social interactive processes. Symbolic interactionists assumed that to understand people's behavior toward objects in their environment we have to analyze the meanings that people associate with those objects through social interaction and interpretation. Rooted in American pragmatism, this perspective informed

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the work of both Mead (1934) and his student Herbert Blumer. For Mead, social cognition and social behavior were not distinct, separate domains of inquiry, but were intrinsically related. Mead explicitly sought to reconcile the behaviorist and the phenomenological, mentalistic approaches to human behavior. He argued that interpersonal behavior occurs as a result of the symbolic mental representations and expectations formed by social actors based on their experience of past interpersonal episodes. Thus, cognitive representations of how to behave in any given situation are partly "given," determined by prior experiences and symbolic representations of past social encounters.

However, behavior is not fully determined; to some extent, social actors are free to deviate and to construct their encounters in unique, creative, and individualistic ways. According to Mead, it is the uniquely human ability for symbolic representations that allows the abstraction and internalization of social experiences, and it is such mental models that are the key to understanding social systems in general and interpersonal behavior in particular. Several of chapters in this volume describe research that is strongly reminiscent of Mead's emphasis on symbolic representations in explaining behavior (Cooper; Jost & Kay; Kashima; Malle et al.; Sedikides & Skowronski, this volume).

It is perhaps unfortunate that symbolic interactionism did not become an important theory within social psychology, probably due to the lack of suitable methodologies for studying individual symbolic representations at the time. The currently dominant social cognitive paradigm has changed much of this, as it essentially deals with the same kinds of questions that were also of interest to Mead: How do the mental and symbolic representations that people form of themselves and their interpersonal encounters come to influence their behaviors (Eich et al.; Fiedler; Forgas; Sedikides & Skowronski, this volume)? Recent social cognitive research has produced a range of ingenious techniques and empirical procedures that for the first time allow a rigorous empirical analysis of the links between mental representations and strategic behaviors (Bless & Forgas, 2000; Wegner & Gilbert, 2000). Several chapters included here provide excellent illustrations of how the merging of cognitive and behavioral approaches can provide important new insights into the intricate relation between social thinking and interpersonal behavior (Dijksterhuis; Forgas; Semin & Garrido; Macrae et al.; Winkielman & Kavanagh, this volume).

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Culture and the Individual

Another important yet frequently neglected historical approach that is highly relevant to contemporary theorizing about the links between social thinking and interpersonal behavior is associated with the name of Max Weber. Foremost among the classic sociologists, Weber was always interested in how social processes and individual cognitions interact. He assumed a close and direct link between how individuals think about and cognitively represents social situations and their actual interpersonal behaviors (see also Fiedler, this volume). For Weber, it was precisely these mental representations and ideas about the social world that provided the crucial link between understanding individual behaviors and the operation of large-scale sociocultural systems. The chapters here by Kashima and by Malle et al. offer an almost Weberian analysis of interpersonal behavior as a process that is properly located within the larger sociocultural

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context. Perhaps the best example of Weber's cultural analysis is his theory linking the emergence of capitalism with the spread of the values and beliefs—and behaviors—associated with the protestant ethic. This work, linking the mental and the social realms, is profoundly social psychological in orientation, in that its key emphasis is on individual social behaviors as they are influenced by shared ideas and norms. These mental representations in turn create and are the foundation of large-scale and enduring social systems.

The social and economic system that surrounds people and exerts such a profound influence on their thoughts and everyday behaviors is, to a large extent, a product of the spontaneous and socially influenced behaviors of countless individuals and the choices and decision made by members of society as they affirm, modify, or neglect the cultural habitual practices of their milieu. Weber (1947) assumes that individual beliefs and motives—for example, the spreading acceptance of the protestant ethic—are the fundamental influence that ultimately shapes large-scale social structures and cultures such as capitalism.

The richness of Weber's approach linking social thinking, interpersonal behavior, and large-scale sociocultural structures is particularly well illustrated by his seminal work on bureaucracies. This analysis probes the intricate relation between the rigid external rules and norms that are an intrinsic feature of bureaucratic systems, and the internal representations and beliefs of the inhabitants of such systems, the bureaucrats themselves. On one hand, the explicit rule systems that define bureaucracies play a critical role in shaping and maintaining the mental world and behavior of the bureaucrat. On the other hand, the mental worlds of bureaucrats cannot but impact on the functioning of the bureaucratic organization. Role theory owes much to Weber in its analysis of how external constraints and internalized representations interact to determine interpersonal behavior.

Max Weber was also among the first to show that a clear understanding of the effects of social interaction processes must necessarily involve both the study of externally observable behavior as well as the subjectively perceived meanings that are attached to an action by the actor. Although rarely credited so explicitly, Max Weber is one of the originators of the kind of social psychological research that is becoming increasingly popular today and is also represented by several contributions to this volume (Jost & Kay; Kashima; Waenke et al.). This approach seeks to unify the insights derived from the social cognitive approach, with a genuine concern with real-life social behavior and its role in larger social systems.

Of course, Weber was not a social psychologist; because of his interest in larger social systems, experimentation was not one of his methods. However, he was a creative empiricist and pioneered a variety of ingenious techniques to obtain reliable empirical data about social processes. Several of this volume's chapters also feature innovative ways to study socially and culturally anchored interpersonal behaviors (Malle et al.; Sedikides & Skowronski; von Hippel & Trivers; Waenke et al.). These techniques will certainly enrich our methodological armory and create greater interest in the links between social thinking and interpersonal behavior.

Microsociology Even though the work of Max Weber and George Herbert Mead is rarely acknowledged by social psychologists, these pioneers nevertheless

exert an important, albeit indirect, influence on the discipline. The microsociological tradition represented by the work of Erving Goffman (1972) and others owes much to Weber's theories, and, in turn, it has had a definite impact on social psychologists. Goffman produced some illuminating analyses of the delicate interaction between the influence of externally imposed norms and roles on social behavior on one hand and individuals' thoughts, plans, and self-presentational strategies in public encounters on the other. Goffman used the metaphor of the theater to study interpersonal behavior, and his dramaturgical account of social influence strategies continues a unique tradition in the discipline.

Phenomenology Yet another important conceptual orientation that is highly relevant here is a rich phenomenological tradition. In fact, the work of classic theoreticians such as Fritz Heider and Kurt Lewin owed much to the phenomenological perspective. For example, Heider's (1958) thinking explored the kind of information-gathering strategies and cognitive processes on which social actors must necessarily rely as they plan and execute their interpersonal strategies. Heider's phenomenological theorizing produced some of the most productive empirical paradigms, including work on such key questions as attribution processes and person perception phenomena, balance and dissonance theories, and research on attitude organization and attitude change (Cooper, this volume).

The other great figure of classical social psychology, Kurt Lewin, was also profoundly committed to the study of interpersonal behavior, as it is influenced by the mental representations and motivations of individuals. Lewin's (1943) field theory in particular represents a framework that allows researchers to conceptualize interpersonal behavior in terms of the subtle influences that occur within the subjectively defined life space of individuals. Lewin saw field theory as a conceptual framework for examining patterns of interaction between the individual and the total field, or social environment. This approach emphasizes the joint determination of behavior by both the person and the environment. For Lewin, and other phenomenological theorists, what mattered was not the objectively defined and measured social situation but rather the subject situation as it was seen and interpreted by unique individuals (Forgas, 1982). The Lewinian approach affirms the principle that the way people mentally represent and experience social interactions should be the focus of social psychological research. This approach generated some of the most productive research paradigms, including much research on group behavior.

Mead, Weber, Heider, and Lewin represent just a few of the classic social science theorists for whom the internal and external world of social actors was integrally related. In referring to their work, we simply wanted to demonstrate that social psychology has an impressive tradition of theorizing that is directly relevant to the objectives of this book. The very same questions that occupied the minds of these authors continue to be reflected in the contributions to this volume.

There are several more recent theoretical frameworks and research paradigms in social psychology and related disciplines that also focus on the intricate interplay between social thinking and interpersonal behavior. *Social role theory* became another promising candidate for a theoretical framework that pointed to a level of analysis beyond the isolated individual. According to the role-playing metaphor

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borrowed from the vocabulary of the theater, everyday activities involve the acting out of rights, duties, expectations, norms, and behaviors associated with socially circumscribed roles (teacher, parent, husband, consultant). Taking these role constraints into account should greatly enhance the predictability of behavior and produce a better understanding of how individuals think and behave in social situations.

Another supraindividual perspective is provided by *social exchange theory*, which has multiple roots in economics, psychology, and sociology. This theory is based on the strong assumption that human beings are essentially rational, selfish, and profit-maximizing creatures, a view that is strongly rooted in the eighteenth-century rationalist and utilitarian philosophies of Hume and Adam Smith. Social exchange theory posits that performing an interpersonal cost-benefit analysis (a kind of Humean "utilitarian calculus") is of fundamental importance to understanding the dynamics of social behavior. According to exchange theory, the basic interdependence between social individuals can be formalized in terms of payoff matrices (Thibaut & Kelley, 1959) that define suitable strategies for cooperative and competitive behavior.

The assumption of the rational, self-focused individual is also central to *game theoretical* attempts to capture mathematically those strategic moves that motivate and determine the behavior among animals and human beings, who are facing social dilemmas and tricky problem environments. Such situations often call for the adoption of broad-minded long-term strategies in contrast with narrow-minded short-term preferences. Soon after game theory was developed by von Neumann and Morgenstern (1944), it was also discovered by Morton Deutsch (1949) and other pioneers of social psychology, who applied it to the experimental analysis of interpersonal competition and negotiation tasks. Research rapidly established, however, that, when it comes to meaningful social behavior, purely selfish and rational behavior is rarely displayed in conflict situations. Rather, nonrational influences, such as concern with social norms, interpersonal approval and acceptance, and the personality of the interactants often come to influence peoples' behavior in antagonistic games. Even such fleeting mental states as positive or negative mood were recently found to exert a significant influence on people's behavior in economic games such as the dictator game and the ultimatum game (Tan & Forgas, 2010; see also Forgas, this volume).

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THE SOCIAL COGNITIVE APPROACH

What is the status of these interpersonal approaches in the presently dominant social cognitive paradigm? What attempts have been made to elaborate the old ideas theoretically? And of course, are there any fundamentally new approaches to genuinely interpersonal social cognition that were not anticipated half a century ago?

No doubt, the success story of social cognition as a metatheoretical approach is largely based on the empirical study of intrapsychic processes of attitude change, attribution, person memory, cognitive biases, motivated cognition, affective influences on social behavior, implicit social cognition, neobehaviorist approaches to explaining social behavior, and more recently social cognitive neuroscience. It seems fair to interpret these currently dominant trends as a special branch of

cognitive psychology that dares to deal with socially meaningful and affectively involving stimulus entities, like persons, groups, and goal-directed action.

This affinity to cognitive psychology is most clearly evident at the theoretical level. Although the study of cognitive contents is often reminiscent of genuinely social phenomena—such as stereotypes, social hypothesis testing, or self-esteem (Eich; Sedikides & Skowronski, this volume)—the theories and process assumptions used to explain these phenomena are hardly different from the intrapsychic theories of cognition, emotion, and motivation (Forgas, 1981). These intrapsychic theories are constructed from such basic cognitive modules as selective attention, top-down influences of expectations on perception and encoding, selective memory access, associative learning, capacity constraints, motivated response biases, and automatic versus reflective inferences (see also Dijksterhuis; Macrae et al.; Winkielman & Kavanagh, this volume).

Thus, although social cognition researchers have made many substantial contributions to interpersonal phenomena—aggression and prosocial behavior, projection and self-presentation, intra- and intergroup processes, cross-cultural psychology—the theoretical models and assumptions used to explain these phenomena remain deeply entrenched in an intrapsychic metatheory that emphasizes the internal cognitive world of the individual above all (Crouch, Milner, Skowronski, Farc, Irwin, & Neese, 2010; Fontaine, Tanha, Yang, Dodge, Bates, & Pettit, 2010). In a similar way, the individual's striving for social identity has been invoked as a suitable account to explain intergroup relations and conflict (Tajfel & Forgas, 1981). And individual attributions, excitation-transfer processes, and the study of attachment styles have been applied to offer sensible explanations of love and attraction. Indeed, the currently dominant intrapsychic accounts have turned out to be so flexible and commonsensical that they now naturally suggest themselves as the foundation for the explanation of interpersonal phenomena as well.

The very success and generality of intrapsychic theories offers a plausible explanation for the paucity of genuinely interpersonal theories and explanations. Even alluding to such alternative accounts may actually appear strange to some readers, because it may not be clear in the first place what an "interpersonal theory" is. The answer, however, is simple and straightforward, and it was actually anticipated in many of the earlier theoretical conceptions we reviewed.

An interpersonal theory is one that is not confined to causes and processes located entirely within individuals but also refers to the interdependence and the dialectic interplay between individuals, the social and cultural worlds that they inhabit, and their connecting structures and joint payoff matrices, environmental constraints, symbol systems used for communication and interaction, and the necessary prudence and constraints inherent in strategies that transcend individuals' insights and associations. Although these arguments were made over 3 decades ago, there is still a conspicuous neglect and paucity of social cognitive research and theorizing along these lines (Forgas, 1981).

To illustrate this point, let us first consider what happened to the classic theoretical ideas we previously surveyed. The idea of symbolic interactionism had remarkably little influence on empirical research in social cognition and in social psychology in general. It has virtually ceased to be cited or even mentioned. A check

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on the PsychInfo data base yields four references to "symbolic interactionism" in the major social psychology journals altogether (two in *Journal of Personality and Social Psychology*, one in *Journal of Experimental Social Psychology*, one in *Personality and Social Psychology Bulletin*).

One notable exception is Snyder and Swann's (1978) work on social hypothesis testing, in which the authors explicitly located their work in a symbolic interactionist framework. Accordingly, the well-known tendency of social hypothesis testing to confirm rather than to disconfirm the focal cognitive hypothesis reflects an interaction process that is driven by the motive to get along with others and to cooperate in meaningful communication games. One might similarly interpret Kashima's work (this volume) on the role of communicability and shareability, as well as the related work by Schaller and Crandall (2004), as modern incarnations of an essentially symbolic interactionist approach. However, these notable exceptions are just that—exceptions. They can hardly distract us from concluding that symbolic interactionism has almost disappeared from modern research.

Social role theory, too, neither has become a prominent meta-theory nor has been substantially expanded and refined in contemporary social cognition. One principal feature of this framework lies in the assumption that generally defined (professional, political, institutional) roles, which are detached from individual persons and personalities, regulate and place constraints on routinized and institutionalized behaviors. Pertinent theories must therefore be multilevel theories, in which low-level individual behaviors are nested in higher-level social roles. Such theories are rarely if ever proposed, even though suitable methodological tools have now been developed (Kenny, 2004). For a prominent exception one might point here to Eagly and Steffen's (1984) role-theoretical account of gender stereotyping, which constitutes a distinct multilevel approach. To illustrate, even though being male does not correlate with being an effective leader at the level of individuals, a strong correlation does exist at the aggregate level of social roles or environments. Those professions or situations that entail strong leadership roles are typically occupied more by males than by females. It is interesting to note that Eagly's theory has been readily accepted and frequently cited, suggesting that interpersonal role theories can be welcomed by the scientific community and can be helpful for the author's scientific career. Yet, influential multilevel role theories in contemporary social psychology are still relatively rare.

Social exchange theory and game theory have been largely appropriated by other disciplines than social psychology. The basic idea of social exchange principles has played a critical role in cognitive psychologists' research on deontic reasoning (Cheng & Holyoak, 1985, Cosmides, 1989; Gigerenzer & Hug, 1992) or in the behavioral-economist idea of altruistic punishment (Fehr & Gächter, 2002), and there is wide consensus among biologists and decision researchers that deontic rules (related to promise and obligation) date back to the era of hunters and gatherers (von Hippel & Trivers, this volume). Game theory has become a major domain of economists, fostering a huge research program that has been decorated with many Nobel prizes. Students of social cognition, in contrast, have been reluctant in adopting explanatory constructs from game theory. A glance at social psychological textbooks reveals that concepts like *payoff matrix, Nash equilibrium, minimax*

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strategy, tit for tat, social contract, or *cheater-detector roles* are hardly ever referred to in chapters on altruism, intergroup conflict, self-presentation, communication, and close relationships. The neglect of deontic, strategic, and utilitarian approaches in current social cognition may be one of the reasons an increasing number of scientists emigrate from social psychology to business schools and economics departments that harbor these flourishing research domains.

Lewin's (1943) field theory and group dynamics also failed to have a compelling influence on the construction of a new class of theories that link the structures of the environment and the mental worlds of individuals (Fiedler, 2007; Fiedler & Wänke, 2009; Gigerenzer, Fiedler, & Olsson, in press) or on behavioral laws that hold at the level of groups (Abele & Stasser, 2008; Stasser & Titus, 1985). Even the major paradigms of group research appear to be dominated by intrapersonal theories and motives and focus on cognitive abilities and motivations of individuals as the major explanatory devices. For example, interference of memory retrieval can explain the productivity loss in brainstorming groups (Diehl & Stroebe, 1991). Learning and memory processes and affective states seem to constrain the phenomenon of group polarization (Brauer, Judd, & Gliner, 1995; Fiedler, 1996). Finally, the cognitive and metacognitive ability to understand a hidden profile as well as the motive to please others can account for problems in group decision making (Hollingshead, Jacobsohn, & Beck, 2007; Mojzisch & Schulz-Hardt, 2006).

FROM SOCIAL THINKING TO INTERPERSONAL BEHAVIOR?

Another feature of the currently dominant social cognitive paradigm is the assumption—albeit often implicit—that how one behaves depends on how one thinks rather than the other way around. In other words, the assumption is that the direction of causation flows from internal cognitive processes (social thinking, both conscious and unconscious) to observable external interpersonal behaviors. This view is in contrast to the more subtle, interactionist perspectives between the intrapsychic and interpersonal realms advocated by Mead, Weber, Lewin, and others. Such a unidirectional approach produces at best a partial explanation of complex interdependence of social cognition and interpersonal behavior. There are several examples illustrating such unidirectional approaches.

For example, research on aggression often suggests that intrapsychic cognitive processes are the antecedent cause of the aggressive response (Crick & Dodge, 1994). In this social information-processing model, a series of steps are identified as leading from cognition to behavior, such as encoding of cues, interpretation of cues, clarification of goals, response assessment, and, finally, response decision. There is ample evidence linking cognitive encoding biases and social information processing to aggressive behavior in children (Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002), adolescents (Fontaine et al., 2010), and, more recently, young adults (Pettit, Lansford, Malone, Dodge, & Bates (2010), but the role of social and cultural forces in producing aggressive behavior is rarely

considered. Other research shows that hostile attributional bias leads to aggressive behavior (Orobio et al., 2002; Pettit et al., 2010).

Additional research suggests that child abuse can be explained in terms of cognitive mechanisms, as a result of parents' biased interpretation of their children's behavior. Thus, according to Crouch et al. (2010), greater accessibility of hostile cognitions leads to abusive parenting behavior. The link between social rejection and aggression has also been analyzed using a social information-processing model (DeWall, Twenge, Gitter, & Baumeister, 2009), suggesting that social rejection activates hostile thoughts. Rejected individuals are more likely to rate ambiguous words as aggressive, to complete word fragments with aggressive endings, and to interpret another person's ambiguous behavior as hostile.

Another area where the unidirectional "social thinking causes interpersonal behavior" approach has been adopted is recent research linking implicit attitudes at the level of associations to prejudice and discriminatory behavior (Greenwald & Banaji, 1995). The suggestion that not only conscious cognition but also implicit associations can be construed as somewhat responsible for prejudice and discrimination has been criticized on both theoretical and methodological grounds (Blanton, Jaccard, Klick, Mellers, Mitchell, & Tetlock, 2008; Fiedler, 2010; Tetlock & Mitchell, 2009). Critics of this approach point out that current research revolves around a few hard-to-interpret latency-based measures that define an attitude as a mere implicit association in semantic memory and are assessed using a single tool, the Implicit Association Test (IAT). The causal chain from implicit associations to explicit associations to behaviors is neither simple nor unidirectional. This intrapsychic approach makes diagnostic behavioral predictions based on test scores that may be prone to false alarms. Thus, IAT scores may reflect many attitude-irrelevant influences. In the absence of an empirically proven causal path that leads from implicit attitudes to explicit attitudes, to behavior intentions, and finally to actual behaviors, the use of this measure as a reliable indicator of prejudice is questionable (Blanton et al., 2009; Fiedler, 2010; Tetlock & Mitchell, 2009).

These examples illustrate that, although much can be gained by analyzing the cognitive determinants of interpersonal behavior, the view that assumes a unidirectional causal relation flowing from internal mental processes (social thinking) to external observable interpersonal behavior offers at best a partial explanation. In contrast with this view, several chapters in this volume show evidence for a complementary approach, highlighting the role of sociocultural factors in determining cognitive processes (Cooper; Eich; Kashima; Kenrick et al.; Malle et al.). Social thinking and interpersonal behavior are necessarily in a bidirectional, interdependent, and interactive relation (Fiedler; Sedikides & Skowronski, this volume), as suggested by such classic theorists of social behavior as Mead, Weber, and Lewin.

CURRENT TRENDS IN INTERPERSONAL SOCIAL COGNITION

We believe that there are good reasons historically that social cognition has followed cognitive psychology more than microsociology, mathematical game theory,

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symbolic interactionism, role theory, and linguistic pragmatics. Concentrating instead on approaches such as the attitude research program, attribution research, the person memory approach, and more recently implicit and automatic reactions and regulative functions within the individual may have been beneficial for the discipline's empirical growth and its methodological development (see also Dijksterhuis; Forgas; Macrae et al.; Semin & Garrido; Winkielman & Kavanagh, this volume). Exploiting the development of new research instruments that have characterized the last decades, the micro-computers, multi-media facilities, and software tools has certainly fostered intrapersonal paradigms more than interpersonal approaches. As commonly acknowledged by historians of science, rapid developments in computer technology and instrumentation have also been a major force in driving the adoption of ever more sophisticated techniques to analyze intrapsychic cognitive processes.

Nevertheless, we believe that it is important to become aware of the continuing neglect of interpersonal theories and their theoretical potential to open new insights and scientific progress way beyond what has so far been achieved relying on intrapsychic theories. With the advent of new instruments and technologies, such as the Internet, social networks, cloud computing, and the new globalization and mobility of populations throughout the world, we believe the time is ripe to reconsider some of the old theoretical conceptions and to look out for new ones.

Indeed, some interesting new trends toward interpersonal social cognition are already apparent on the horizon. For example, Grice's (1975) logical analysis of conversations has recently led to a fundamentally new interpretation of fallacies and anomalies in survey research, rational decision making, and cognitive illusions, based on the pragmatics on cooperative communication between language participants (Schwarz, 1996). The growing evidence on embodiment phenomena (Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005; Semin & Smith, 2008; see also Semin & Garrido; Macrae et al., this volume), on psychological distance (Trope & Liberman, 2010), and on information sampling processes (Fiedler & Juslin, 2006; see also Fiedler, this volume) has increased the attention given to how subtle environmental influences may impact interpersonal behavior. Finally, renewed interest in theories of motivational and affective regulation (Carver & Scheier, 2011; Gross & Thompson, 2007; Higgins, Cesario, Hagiwara, Spiegel, & Pittman, 2010; Higgins, Kruglanski, & Pierro, 2003) also highlights the interface of the organism's embeddedness in the social and physical environment as a new major paradigm.

Other major developments include the growing influence of evolutionary, functionalist theories emphasizing that social thinking and interpersonal behavior continue to be influenced by mental habits and adaptations shaped by the evolutionary pressures of the ancestral environment (Buss, 1999; Sedikides & Skowronski, 1997; see also chapters in Section I of this volume). Further, many of the higher cognitive and behavioral processes that make social living possible are based on the operation of more basic, automatic, spontaneous, and embodied mechanisms, such as the experience of space and time, and these links are also closely reflected in language and mental representations (see chapters in Section II of this volume). The objective of this book is thus to bring together the most recent research and

theorizing addressing the age-old question that has occupied philosophers and writers since time immemorial: What is the nature of the relation between mental life and social life, and, more specifically, how do social thinking and interpersonal behavior interact?

THE PRESENT VOLUME

Contemporary research on the links between social thinking and interpersonal behavior is characterized by a number of exciting new developments. There is now belated acceptance that human social behavior is necessarily shaped by the distant evolutionary past and the mental habits and heuristics humans inherited from their stone-age ancestors. The chapters in this book were selected to represent a broad cross section of contemporary research linking social thinking and interpersonal behavior. Contributions are arranged into four sections:

Section I deals with evolutionary and adaptive aspects of interpersonal behavior.
Section II explores the role fundamental automatic and embodied mechanisms linking social thinking and interpersonal behavior.
Section III discusses the operation of cognitive and affective processes.
Section IV deals with the social and cultural variables.

Section I: Evolutionary Influences on Social Thinking and Behavior

Kenrick, Li, White, and Neuberg argue that many heuristic influences on social decisions that may at first sight appear irrational are in fact based on a deeper rationality—including heuristics that were adaptive for human ancestors many years ago. They propose a model that links fundamental human motives (i.e., self-protection, mate acquisition, status, or affiliation) to simple cognitive processes (attention, encoding, memory) and downstream social behaviors (aggression, conformity, creative displays). The chapter reviews recent research using this model to explain various economic decisions and behaviors (e.g., conspicuous consumption, loss aversion, budget allocations).

Galperin and Haselton take an evolutionary perspective to explain some common judgmental and interpersonal errors, such as the common tendency for men to overperceive sexual interest in women and for women to underperceive commitment in men. They argue that these tendencies, although inaccurate, are not "errors" but can be understood as adaptations produced by evolution, a bias that may reduce accuracy but might maximize evolutionary fitness.

Von Hippel and Trivers look at the role of self-deception in strategic interpersonal behavior. They argue that self-deception evolved to facilitate interpersonal deception by eliminating the costly cognitive load typically associated with deception. Self-deception allows people to display more confidence than is warranted. Self-deception is achieved through a variety of dissociations of mental processes, including conscious versus unconscious memories, conscious versus unconscious attitudes, and automatic versus controlled processing.

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Semin and Garrido outline an integrated model drawing attention to the adaptive, embodied, and dynamic nature of social cognitive processes. Abstract concepts such as time, affect, power, and valence are grounded by conceptual metaphors that involve concrete representations of action, space, and bodily experiences, and these links are explicitly reflected in language. For example, warm and cold act as central "traits" when describing people, and these concepts are closely linked to salient physical features of the environment.

Section II: Automatic Mechanisms Linking Social Cognition and Behavior

Dijksterhuis explores how the subliminal influence of motivation and goal pursuit can influence intuitions. Although intuitions often feel as if they entered consciousness suddenly, there may be elaborate antecedent unconscious processes. The chapter reviews evidence showing that goals can set into motion unconscious thought processes, leading to shifts in attention and to changes in the accessibility of information relevant to goals, thus producing apparently unconscious intuitive insights.

Macrae, Miles, and Best are concerned with one of the most fundamental mental representations, the experience of time. They suggest that the symbolic ability to travel mentally through time may have sensory-motor grounding. This mental conflation between space and time appears bidirectional. Just as thinking about time entails associated movements in space, moving through space also shapes the temporal locus of mental activity. Thus, social thinking may be intimately linked and highly sensitive to the experience of space.

Winkielman and Kavanagh present recent studies that examine the influence of emotional stimuli on social thinking and interpersonal behavior and suggest that many of these emotional influences involve "embodiment"—an activation of somatosensory representations. For example, understanding and remembering pictorial and verbal emotional information involve bodily reactions, and social decisions are often biased by low-level bodily "spillovers."

Wänke, Samochowiec, and Landwehr examine the spontaneous and automatic mechanisms involved as people form impressions based on observed or described behaviors and traits. The chapter discusses questions such as what are the inferred characteristics that influence voting, what physical characteristics trigger particular impressions, and how accurate are impressions based on facial and nonverbal cues alone? In particular, they present evidence that impressions based on faces and nonverbal behavior may often be more accurate than commonly assumed.

Section III: Cognitive and Affective Mechanisms

Eich, Handy, Holmes, Lerner, and McIsaac suggest that the way people remember past events has a crucial role in how interpersonal behavior is constructed. They review the cognitive and social aspects of the first-person–third-person distinction in autobiographical memory and discuss recent functional magnetic resonance imaging (fMRI) evidence identifying the neural networks engaged by field versus

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observer perspectives. Results also show that social and cultural variables play an important role in how people remember social events. Easterners take a more outside-in (observer) perspective, but Westerners take a more inside-out (actor) perspective. Although autobiographical memory is a quintessentially intrapersonal phenomenon, it seems that even such basic representations are influenced by social and cultural variables.

Fiedler argues that to understand intrapsychic processes we first have to understand how people sample environmental information. Often, the causal origins of behavior can be found in the biased samples provided by the environment. Fiedler describes a simulated sampling paradigm, the virtual school class, whereby participants play the role of a teacher who is to sample information about the students' behavior and performance. Biases in information search process, which lead to corresponding biases in final student evaluations, are shown to be a joint function of intrapsychic influences (e.g., teachers' hedonic preference for smart students) and external constraints imposed by the students' participation rate on the sampling process.

Johnson and Carpinella investigate how intersecting social categories may shape interpersonal judgments and interpersonal behaviors. For example, the gender typicality of faces may influence response latencies and mouse trajectories as judges make classifications, suggesting that the unfolding of category distinctions can be reliably measured online in terms of observable movements. Dealing with intersecting identities may be a fundamental aspect of the social categorization process and can have a significant influence on interpersonal behavior.

Forgas argues that affective states have a major influence on how social information is processed and on ensuing social behaviors. The chapter presents a series of experiments demonstrating the potentially adaptive and functional social consequences of mild negative moods. It turns out that people in a negative mood are less prone to judgmental errors, are more resistant to eyewitness distortions, and are better at producing high-quality and effective persuasive messages. These findings are broadly consistent with the idea that, over evolutionary time, affective states became adaptive or functional triggers eliciting information processing styles that are appropriate in a given situation.

Sedikides and Skowronski analyze the role of self-evaluation in interpersonal behavior and suggest that self-protection and self-enhancement are basic motives that manifest themselves through a large repertoire of cognitions, emotions, and behaviors. These self-enhancement and self-protection strivings play a major role in how individuals construe themselves and plan their social encounters. New evidence on priming effects on the judgment of the self and others suggests, however, that deliberative processing places limitations on self-enhancement and self-protection.

Section IV: Social and Cultural Factors in Social Thinking and Interpersonal Behavior

Kashima outlines a theory of cultural dynamics that puts interpersonal processes as the engine of microgenesis of culture and regards the transmission of cultural

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information between people as a central mechanism of cultural evolution. In this view, most of the cultural transmission occurs as an unintended consequence of a joint activity, and culture acts as a tool for interpersonal coordination. Kashima also discusses what happens when this fluent interpersonal process is perturbed even by a minor culture inconsistent event.

Jost and Kay summarize their system justification theory, suggesting that people are motivated to defend, bolster, and justify aspects of the societal status quo at both conscious and nonconscious levels. Their work shows that system justification can operate as a nonconscious goal that is triggered by, among other things, feelings of threat or dependence on the social system. System justification is also linked to underlying epistemic, existential, and relational needs and serves a palliative function for its adherents. System justification also has important societal implications, motivating resistance to change in a variety of public policy domains.

Cooper's chapter analyzes the consequences of thinking as an individual or thinking as a group member on interpersonal behavior. Does this difference matter in the way that information is processed and attitudes are changed? The chapter argues that the consequences of the two perspectives matter in important ways. Using the lens of vicarious dissonance, the chapter proposes that attitude-discrepant behavior creates different opportunities for attitude change, depending on the perspective that is accessible in memory. Identification, motivation, and the direction of change depend on the individual versus group perspective that the individual adopts.

Malle, Guglielmo, and Monroe analyze the social psychology of blame and suggest that moral cognition is firmly grounded in unique properties of human social cognition. An intriguing implication of their analysis is that people can be blamed for not only intentional but also unintentional behavior, if they can be expected to foresee and prevent an unwanted event. In addition, however, the authors highlight the role of interpersonal communication and negotiation for blame and its social consequences.

CONCLUSIONS

Understanding the relation between mental life and social life, the way social thinking is related to interpersonal behavior, has long been one of the key issues for social philosophy and more recently for social psychology. For some decades now, the social cognitive paradigm has dominated research in this area, focusing attention on intrapsychic processes and unidirectional causation where social thinking is assumed to determine interpersonal behavior. Despite the important achievements of this approach, it now appears that the paradigm is shifting, and a more realistic framework for studying interpersonal behavior is emerging. We argued in this introductory chapter that many classical theoretical frameworks could inform a more social and intrapersonal conceptualization of the genesis of interpersonal behavior, and several of the chapters here illustrate the potential of this approach (see Section IV, this volume). We also suggested that the emergence of evolutionary theories (Section I) and models emphasizing automatic, embodied processes (Section II) offer an important complementary perspective to the more traditional

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social cognitive paradigm (Section III). Research on interpersonal behavior will always be a core topic for social psychologists. By advocating the adoption of a broader and more comprehensive theoretical framework, we hope that this volume will make a useful contribution to this important research domain.

REFERENCES

Abele, S., & Stasser, G. (200H8). Coordination success and interpersonal perceptions: Matching versus mismatching. *Journal of Personality and Social Psychology*, *95*, 576–592.

Blanton, H., Jaccard, J., Klick, J. B. A., Mellers, B. A., Mitchell, G., & Tetlock, P. (2009). Strong claims and weak evidence: Reassessing the predictive validity of the race IAT. *Journal of Applied Psychology*, *29*, 567–582.

Bless, H., & Forgas, J.P. (Eds.). (2000). *The message within: Subjective experiences and social cognition*. Philadelphia, PA: Psychology Press.

Brauer, M., Judd, C. M., & Gliner, M. D. (1995). The effects of repeated expressions on attitude polarization during group discussions. *Journal of Personality and Social Psychology*, *68*, 1014–1029.

Buss, D. M. (1999). *Evolutionary psychology*. Boston, MA: Allyn & Bacon.

Carver, C. S., & Scheier, M. F. (2011). Self-regulation of action and affect. In K. D. Vohs, R. F. Baumeister, K. D. Vohs, & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (2nd ed., pp. 3–21). New York: Guilford Press.

Cheng, P. W., & Holyoak, K. J. (1985). Pragmatic reasoning schemas. *Cognitive Psychology, 17,* 391–416.

Cosmides, L. (1989). The logic of social exchange: Has natural selection shaped how humans reasons? Studies with the Wason selection task. *Cognition, 31*, 187–276.

Crick, N. R., & Dodge, K. A., (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74–101.

Crouch, J. L., Milner, J. S., Skowronski, J. J., Farc, M. M., Irwin, L. M., & Neese, A. (2010). Automatic encoding of ambiguous child behavior in high and low risk for child physical abuse parents. *Journal of Family Violence, 25*, 73–80.

Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations, 2*, 129–151.

DeWall, C. N., Twenge, J. M., Gitter, S. A., & Baumeister, R. F. (2009). It's the thought that counts: The role of hostile cognition in shaping aggressive responses to social exclusion. *Journal of Personality and Social Psychology, 96*, 45–59.

Diehl, M., & Stroebe, W. (1991). Productivity loss in idea-generating groups: Tracking down the blocking effect. *Journal of Personality and Social Psychology*, *61*, 392–403.

Dunbar, R. I. M. (2007). The social brain hypothesis and its relevance to social psychology. In J. P. Forgas, M. G. Haselton, & W. von Hippel (Eds.), *Evolution and the social mind* (pp. 21–33). New York: Psychology Press.

Durkheim, E. (1956). *The division of labor in society*. New York: Free Press.

Eagly, A. H., & Steffen, V. J. (1984). Gender stereotypes stem from the distribution of women and men into social roles. *Journal of Personality and Social Psychology*, *46*, 735–754.

Fehr, E., & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, 415(6868), 137–140.

Fiedler, K. (1996). Explaining and simulating judgment biases as an aggregation phenomenon in probabilistic, multiple-cue environments. *Psychological Review, 103,* 193–214.

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Fiedler, K. (2007). Information ecology and the explanation of social cognition and behavior. In A. W. Kruglanski, E. Higgins, A. W. Kruglanski, & E. Higgins (Eds.) , *Social psychology: Handbook of basic principles* (2nd ed., pp. 176–200). New York: Guilford Press.

Fiedler, K. (2010). The asymmetry of causal and diagnostic inferences: A challenge for the study of implicit attitudes. In J. P. Forgas, J. Cooper, & W. Crano (Eds.), *Attitudes and attitude change* (pp. 75–95). New York: Psychology Press.

Fiedler, K., & Juslin, P. (Eds.). (2006). *Information sampling and adaptive cognition.* New York: Cambridge University Press.

Fiedler, K., & Wänke, M. (2009). The cognitive-ecological approach to rationality in social psychology. *Social Cognition, 27,* 699–732.

Fontaine, R. G., Tanha, M., Yang, C., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2010). Does response evaluation and decision (RED) mediate the relation between hostile attributional style and antisocial behavior in adolescence? *Journal of Abnormal Child Psychology, 38*, 615–626.

Forgas, J. P. (Ed.) (1981). *Social cognition: Perspectives on everyday understanding*. London and New York: Academic Press.

Forgas, J. P. (1982). Episode cognition: internal representations of interaction routines. *Advances in Experimental Social Psychology,* pp. 59–104, New York: Academic Press.

Forgas, J. P. (1983). What is social about social cognition? *British Journal of Social Psychology*, *22*, 129–144.

Gigerenzer, G., & Hug, K. (1992). Domain-specific reasoning: Social contracts, cheating, and perspective change. *Cognition*, *43*(2), 127–171.

Gigerenzer, G., Fiedler, K., & Olsson, H. (in press). Rethinking cognitive biases as environmental consequences. In P. Todd & G. Gigerenzer (Eds.), *Ecological rationality*. New York: Cambridge University Press.

Goffman, E. (1972). *Strategic interaction*. New York: Ballantine Books.

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4–27.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics 3: Speech acts* (pp. 41–58). New York: Academic Press.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). New York: Guilford Press.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Higgins, E., Cesario, J., Hagiwara, N., Spiegel, S., & Pittman, T. (2010). Increasing or decreasing interest in activities: The role of regulatory fit. *Journal of Personality and Social Psychology*, *98*, 559–572.

Higgins, E., Kruglanski, A. W., & Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna, *Advances in Experimental Social Psychology* (vol. 35, 293–344). New York: Academic Press.

Hollingshead, A. B., Jacobsohn, G., & Beck, S. J. (2007). Motives and goals in context: A strategic analysis of information sharing in groups. In K. Fiedler (Ed.), *Social communication* (pp. 257–280). New York: Psychology Press.

Kenny, D. A. (2004). PERSON: A general model of interpersonal perception. *Personality and Social Psychology Review*, *8*, 265–280.

Lewin, K. (1943). Defining the "field" at a given time. *Psychological Review, 50*, 292–310.

Mead, G. H. (1934). *Mind, self, and society* (C. W. Morris, Ed.). Chicago, IL: University of Chicago Press.

Mojzisch, A., & Schulz-Hardt, S. (2006). Information sampling in group decision making. In K. Fiedler & P. Juslin (Eds.), *Sampling and adaptive cognition* (pp. 299–326). New York: Cambridge University Press.

Niedenthal, P. M., Barsalou, L. W., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality and Social Psychology Review*, *9*, 184–211.

Orobio de Castro, B., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attribution of intent and aggressive behavior: a meta-analysis. *Child Development, 73*, 916–934.

Pettit, G. S., Lansford, J. E., Malone, P. S., Dodge, K. A., & Bates, J. E. (2010). Domain specificity in relationship harmony, social information processing, and violent behavior in early adulthood. *Journal of Personality and Social Psychology, 98*, 190–200.

Schwarz, N. (1996). *Cognition & communication*. Mahwah, NJ: Lawrence Erlbaum.

Schaller, M., & Crandall, C. S. (2004). (Eds.). *The psychological foundations of culture*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Sedikides, C., Schopler, J., & Insko, C. A. (1998). *Intergroup cognition and intergroup behavior*. Mahwah, NJ: Lawrence Erlbaum Associates.

Sedikides, C., & Skowronski, J. A. (1997). The symbolic self in evolutionary context. *Personality and Social Psychology Review, 1*, 80–102.

Semin, G., & Smith, E. (Eds.). (2008). *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches*. New York: Cambridge University Press.

Snyder, M., & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology, 36*, 1202–1212.

Stasser, G., & Titus, W. (1985). Pooling of unshared information in group decision making: Biased information sampling in group discussion. *Journal of Personality and Social Psychology, 48*, 1467–1478.

Tajfel, S., & Forgas, J. P. (1982). Social categorisation: cognitions, values and groups. In J. P. Forgas (Ed.), *Social cognition*. (pp. 113–140). London & New York: Academic Press.

Tan, H. B., & Forgas, J. P. (2010). When happiness makes us selfish, but sadness makes us fair: Affective influences on interpersonal strategies in the dictator game. *Journal of Experimental Social Psychology, 46*, 571–576.

Tetlock, P., & Mitchell, G. (2008). Calibrating prejudice in milliseconds. *Social Psychology Quarterly*, *71*, 12–16.

Toennies, F. (1887). *Gemeinschaft und Gesellschaft*. Leipzig: Fues's Verlag.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.

Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology, 79*, 876–889.

Trope, Y., & Liberman, N. (2010). Construal level theory of psychological distance. *Psychological Review*, *117*, 440–463.

von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior.* Princeton, NJ: Princeton University Press.

Weber, M. (1947). *The theory of social and economic organisation* (T. Parsons, Ed.). Glencoe, IL: Free Press.

Wegner, D. M., & Gilbert, D. T. (2000). Social psychology—The science of human experience. In H. Bless & J. P. Forgas (Eds.), *The message within: Subjective experiences and social cognition* (pp. 1–13). Philadelphia, PA: Psychology Press.

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Section I

Evolutionary Influences on Social Cognition and Behavior

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2

Economic Subselves
Fundamental Motives and Deep Rationality

DOUGLAS T. KENRICK, YEXIN JESSICA LI, ANDREW E. WHITE, and STEVEN L. NEUBERG

Arizona State University

What is the psychology of economic decision making? Prevailing answers to that question have focused on the extent to which human decisions are flawed and irrational. We will suggest instead that many common biases and heuristics reflect a deeper adaptive rationality. We will further suggest that, instead of a single human mind constrained by a single set of biases and striving toward a monolithic goal of utility maximization, our brains contain several distinct subselves, each with a different set of priorities and each pursuing a different set of utility functions. We also consider a number of testable hypotheses that flow from this perspective.

ECONS VERSUS HUMANS VERSUS MORONS

In recent decades, ideas from economics and psychology have merged into the field of behavioral economics. Behavioral economists stress how economic decision making is severely constrained by the brain's information processing limitations (Simon, 1955, 1956). Because it is impossible to take account of all potentially relevant costs and benefits, decision makers must rely instead on simple heuristics (Tversky & Kahneman, 1974). Behavioral economists thus take issue with a central assumption of traditional economics—that people's decisions are eminently "rational," in the sense of maximizing future satisfaction (Vohs & Luce, 2010). Along

these lines, some behavioral economists like to distinguish between *econs* and *humans*:

> If you look at economics textbooks, you will learn that *homo economicus* can think like Albert Einstein, store as much memory as IBM's Big Blue, and exercise the willpower of Mahatma Gandhi. Real people have trouble with long division if they don't have a calculator, sometimes forget their spouse's birthday, and have a hangover on New Year's Day. They are not *homo economicus*; they are *homo sapiens*. (Thaler & Sunstein, 2008, pp. 6–7)

Behavioral economists are fond of recounting the ways real people are "susceptible to irrelevant influences from their immediate environment, irrelevant emotions, shortsightedness, and other forms of irrationality…" (Ariely, 2008, p. 240). Ariely's book *Predictably Irrational* provides an entertaining compendium of people's decision-making foibles. For example, merely exposing someone to a randomly high (or randomly low) number that has absolutely nothing to do with a purchasing decision (such as the last 3 digits of their social security number) will inspire him or her to pay much more (or much less) for the same item (Ariely, Loewenstein, & Prelec, 2003). Such findings suggest that real people making real decisions are not the omniscient economic savants of classic models; indeed, one could easily get the impression that real humans are rather dim-witted decision makers.

Human information processing is indeed limited, and people are possessed of numerous irrational biases, but we argue that actual humans are neither econs nor morons. Our general approach here is consistent with others who have considered decision making as reflecting underlying adaptive biases (Cooper, 1987; Gandolfi, Gandolfi, & Barash, 2002; Todd & Gigerenzer, 2007; Wang, 2002). As Todd and Gigerenzer and their colleagues have pointed out, simple heuristics often lead to more accurate and efficient choices than deep consideration of all potentially relevant information. For example, a few simple heuristics can allow a person to win chess games against opponents exerting much greater cognitive effort considering all possible next moves of all pieces on the board.

We agree that decision making is influenced by heuristics and other psychological biases, but we propose that these biases are anything but arbitrary and irrational. Instead, those biases are outputs of mental and emotional mechanisms designed to maximize not immediate personal satisfaction but long-term genetic success. Furthermore, we incorporate the notion of modularity in a central way. Rather than a single rational decision maker operating according to a single set of utility-maximizing rules, our view presumes we all have a number of different decision-making subselves inside our heads. Each of our subselves attends to different costs and benefits and weights them differently, in ways designed to deal with the most prominent threat or opportunity on our life's horizon. Together, these proposals create a model of human decision making grounded in what is called *deep rationality* (Kenrick, Griskevicius, Sundie, Li, Li, & Neuberg, 2009).

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Life History Theory: Economics Isn't All About Money

At the broadest level, economics is about how people allocate scarce resources to attain utility (or expected satisfaction). When we think about economics we typically think about money and how people allocate financial budgets in exchange for goods or services on the market. Much of the field of economics is concerned with the exchange of money and with mathematically modeling how quantities of money are exchanged at the individual and aggregate levels. Money is a convenient and quantifiable way to represent the otherwise squishy concept of "utility," making it possible to put a precise numeric value on the expected satisfaction a consumer will derive from an apple, a pear, a Macbook air, or a jewel-encrusted iPhone.

But in everyday life, most of our decisions about scarce resources do not involve the exchange of cash. Instead, people's budget allocation decisions often involve whether to invest time and effort in salvaging particular social relationships, maintaining their homes and yards, traveling to visit relatives and friends who live in distant cities, increasing their own human capital (by further education, reading, attending conferences), and so on. Indeed, before our ancestors used money in any form, they made economic decisions.

Considered in this light, even nonhuman animals engage in economic decision making—continually facing decisions about how and when to allocate inherently limited budgets of time and energy. A whole subfield of biology, called *life history theory,* is devoted to studying such decisions (Kaplan & Gangestad, 2005; Stearns, Allal, & Mace, 2008). Life history theory describes how organisms make decisions about allocating scarce resources over the life span and attempts to answer questions such as:

- Why do organisms invest relatively more or less time and energy developing their bodies before reproduction? (Humans and elephants spend over a decade in prereproductive development, for example; other mammals take only a few months).
- Once an animal becomes reproductively mature, does it devote all its resources to one short reproductive burst (as in the case of salmon) or spread its reproductive efforts over several episodes spanning months or years (as in the case of oak trees and humans)?
- Does the organism allocate resources to caring for its offspring after birth, and, if so, how much should be invested before leaving offspring to fend for themselves?

Life history models assume that resources are always limited and that development involves trade-offs in when and how to allocate those scarce resources. What constitutes a favorable or unfavorable trade-off depends on a dynamic interaction of environmental pressures (current threats and opportunities), inherited predispositions (useful traits and constraining traits the animal inherited), and the animal's current stage of development.

Life histories are commonly divided into two broad categories: *somatic effort* and *reproductive effort* (Alexander, 1987). Somatic effort is energy expended to

build and maintain the body. It is analogous to making investments to build a larger bank account. Reproductive effort is analogous to spending that bank account in ways that will replicate the individual's genes. Reproductive effort can be further divided into *mating*, *parental care*, and *investment in other relatives* (Alexander, 1987). Investment in other relatives is considered reproductive effort because grandchildren, siblings, nieces, nephews, or cousins share common genes.

The key life history tasks can be arranged into a simple developmental hierarchy. Somatic efforts form the necessary developmental base required before mating efforts can unfold, and parenting efforts build on the base of earlier somatic and mating efforts. In any species reproducing more than once, these goal systems do not replace one another. For example, adult mammals divide current resources between somatic effort (eating, drinking, and protecting themselves), attracting and keeping mates, and caring for offspring. Given that resources are inherently finite, time and energy invested in one activity must be taken from others. For example, more mating effort means fewer resources available for parenting.

Combining ideas from life history theory with emerging ideas about modular motivational systems (discussed in more detail herein), we suggest some architectural modifications to Abraham Maslow's familiar pyramid of motives (Figure 2.1). Young children devote their energy resources mainly to satisfying very simple somatic needs, such as hunger and thirst. Highly self-centered and dependent on their parents, young children initially invest little in social capital. In the preschool years, children begin to invest in social capital via developing affiliative networks. Once they develop a few friends, they begin to invest energy to gain respect.

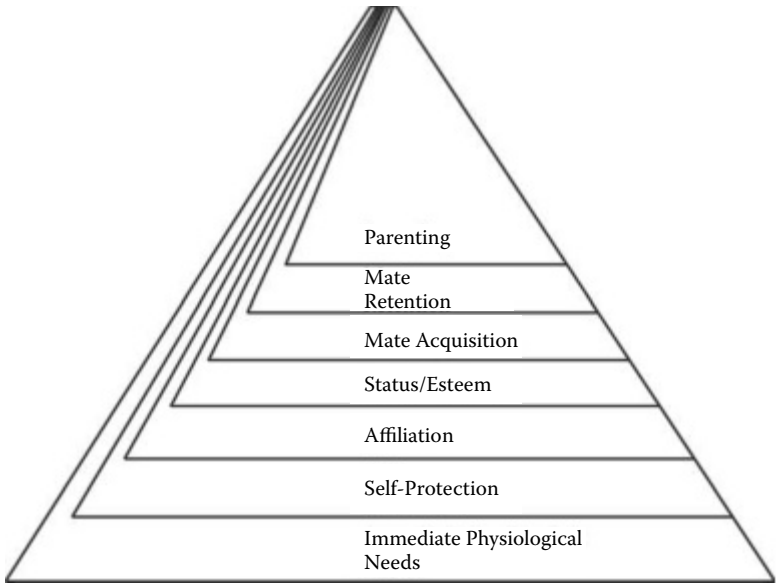


Figure 2.1 A hierarchy of fundamental motives. See Kenrick et al. (2010) for more discussion.

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Humans do not invest energy in mating goals until they reach puberty. Parenting motives are necessarily later, since individuals cannot invest in offspring until they have first found a mate. Different motivational systems come online at different developmental phases, but early developing systems remain available when particular environmental challenges arise.

This view, then, conceptualizes human motivational systems as sets of plans for efficiently allocating resources to achieving different goals, in ways that ultimately increase the odds of successful reproduction. In this sense, it is inherently economic.

Subselves and Fundamental Motives

Different motivational systems are associated with different sets of decision biases, each designed to deal with particular environmental threats and opportunities (Ackerman & Kenrick, 2008; Kenrick, Griskevicius, Neuberg, & Schaller, 2010; Neuberg, Kenrick, & Schaller, 2011). Situations involving affiliation, status, self-protection, mate acquisition, mate retention, kin care, and disease avoidance thus invoke different, and sometimes incompatible, cognitive biases. Our model follows on several decades of research demonstrating that humans have different domain-specific systems for dealing with different types of adaptive problems, including learning aversions to different types of objects, language learning, long-term memory for different types of objects, facial recognition, spatial location, object perception, and fear conditioning (Barrett & Kurzban, 2006; Klein, Cosmides, Tooby, & Chance, 2002; Sherry & Schacter, 1987). These decision biases often operate automatically and without conscious awareness (Dijksterhuis, this volume).

One can think about these fundamental motivational systems in terms of Martindale's (1980) notion of "subselves"—as sets of subprograms for dealing with general categories of adaptive problems, linked in associative networks (Kenrick, 2006; Kenrick & Shiota, 2008; Kurzban & Aktipis, 2007). For example, seeing an attractive member of the other sex can prime a network of thoughts and feelings involving one's own partner and one's own mate value and activate strategies designed to increase or decrease commitment to the relationship (Gutierres, Kenrick, & Partch, 1999; Maner, Rouby, & Gonzaga, 2008; Roney, 2003). Being on a dark street in a strange city, on the other hand, triggers a self-protective motivational system (Öhman & Mineka, 2001; Neuberg et al., 2011) and increases attention to, and memory for, angry male strangers (Becker, Kenrick, Neuberg, Blackwell, & Smith, 2007; Schaller, Park, & Mueller, 2003). Concerns about disease trigger a different, yet functionally specific, system of avoidant behaviors and cognitions (Mortensen, Becker, Ackerman, Neuberg, & Kenrick, 2010).

How many motivational subsystems are there? If one takes a "massive modularity" position, the mind is composed of a large number of independent functional information-processing systems—one for avoiding poisonous snakes, another for avoiding poisonous foods, yet another for avoiding dangerous people, and so on. Another approach is analogous to what has guided the study of emotions since Darwin's time. Adaptationist models of emotion posit broader executive systems that deal with general classes of problems (Plutchik, 1980; Scott, 1980). Although these broad-level systems can be divided into subcomponents and may even share

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many subcomponents, we have found it heuristically useful to think about a small set of motivational systems linked to the key challenges of social life.

Self-Protection Our ancestors faced physical safety threats not only from nonhuman predators (such as large cats and wolves) but also from members of other human groups and from in-group members (Daly & Wilson, 1988). Human beings have unique motivational systems for dealing with these types of threats. For example, people are quick to learn associations to stimuli that would likely have threatened our ancestors and to attune their attentional systems to angry expressions, particularly on the faces of unfamiliar males, who would have posed an especially great threat (Ackerman et al., 2006; Becker et al., 2007; Öhman & Mineka, 2001).

As mentioned earlier, a key feature of modern evolutionary analyses is the consideration of trade-offs (Gangestad & Simpson, 2000; Kaplan & Gangestad, 2005); a functional analysis of any behavioral proclivity requires an assessment of the perils and prospects associated with performing different behaviors within any particular ecological context. On one hand, fearful avoidance is necessary when confronted with predatory or poisonous animals or when outnumbered by hostile strangers. On the other hand, fear can lead people to avoid risky situations that, if confronted, could yield payoffs (e.g., gaining access to new resources). Because the risk of physical damage is highly costly, threat-avoidance systems are likely to be set like smoke detectors, favoring false positive alarms rather than false negative complacency (Galperin & Haselton, this volume; Nesse, 2005); it is better to unnecessarily flee a safe stranger misperceived as a potential threat than to mistakenly remain in a dangerous situation.

Disease Avoidance Besides their potential for violence, other people also threaten human survival via their role in transmitting disease. The threat of infectious disease has existed throughout history, at times to a nearly incomprehensible degree (Ewald, 1994; Wolfe, Dunavan, & Diamond, 2007). In the 1500s, for example, European travelers introduced exotic diseases (e.g., smallpox, measles, and typhus) into the Americas that, by some estimates, killed over 75% of the population of Mexico (Dobson & Carter, 1996). Even in modern times, millions of people die every year from infectious diseases transmitted from humans to humans (e.g., influenza, tuberculosis, HIV/AIDS; WHO, 2004).

Most disease-causing pathogens are not visible to the human eye, making the detection and avoidance of infection a challenging endeavor. Before the advent of modern medicine, however, the effects of pathogens on the human body would frequently manifest in the form of visible morphological shifts from the normal (e.g., rashes, skin lesions) and behavioral anomalies (e.g., vomiting, diarrhea, ill-coordinated movements). And just as the self-protection system is generally more likely to err by misidentifying a safe stranger as dangerous, given the great costs of failing to escape an actually dangerous individual, the behavioral immune system is generally more likely to err by misidentifying objectively harmless morphological abnormalities in others (e.g., facial scar) as instead implying the threat of infectious disease. Indeed, recent research suggests that people

heuristically associate a variety of physical features with disease threat, including obesity, physical disability, facial manifestations of aging, and unpleasant human odors (Ackerman, Becker, Mortensen, Sasaki, Neuberg, & Kenrick, 2009; Park, Faulkner, & Schaller, 2003; Park, Schaller, & Crandall, 2007; Tybur, Bryan, Magnan, & Caldwell-Hooper, 2011).

Avoidance of other people can also be triggered by situations that suggest one's heightened vulnerability to disease. For example, after seeing photographs that make germs and infections salient, people view themselves as less extraverted and less open to new experiences—altered self-perceptions that will reduce one's likelihood of approaching strangers and novel circumstances, both of which pose increased risk of disease contagion because they are more likely than familiar people and circumstances to carry pathogens unfamiliar to one's immune system (Mortensen et al., 2010). Not surprisingly, then, disease-linked social avoidance is especially directed toward individuals perceived to be potential carriers of disease, such as foreigners from exotic unknown places, and this inclination is especially pronounced in those who dispositionally view themselves as highly vulnerable to disease (Park et al., 2003). Some individuals are more sensitive to such concerns (Duncan, Schaller, & Park, 2009), and such sensitivity can vary within a person. For example, during the first 10 weeks of pregnancy (when vulnerability to infection is highest), women show an enhanced sensitivity to disgust and stronger xenophobic attitudes toward subjectively foreign groups (Navarrete, Fessler, & Eng, 2007).

When the disease avoidance subself is active, therefore, people are attuned others who are heuristically associated with disease and are likely to respond by avoiding contact.

Affiliation Many animal species live relatively solitary lives outside the mating season. However, our hunter-gatherer ancestors lived in groups, as did most of the primates from which they evolved (Lancaster, 1976). Consistently, people are highly sensitive to cues of social rejection and respond to such cues using some of the same neural circuits used to register physical pain (Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005). There are numerous adaptive functions of affiliating with others (Boyd & Richerson, 1985; Sedikides & Skowronski, 1997; Wisman & Koole, 2003), and there appear to be some general oxytocin-based neurophysiological systems associated with social attachment (Brown & Brown, 2006; Carter, 1992; Taylor, Klein, Lewis, Gruenewald, Gurung, & Updegraff, 2000).

The inclination to befriend others, like all behavioral inclinations, is not free but involves trade-offs. For example, affiliation may entail costs such as intragroup competition over local resources, socially transmitted diseases, exploitation by fellow group members, and obligations to engage in intergroup competition. It may also entail the inhibition of certain self-serving biases that, under ordinary circumstances, can confer physical and psychological benefits (Sedikides & Skowronski, this volume). Counter these costs, humans everywhere profit from sharing extensive resources, knowledge, and parenting chores with other group members (Henrich & Boyd, 1998; Hill & Hurtado, 1989).

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When the affiliative subself is in control, individuals are attuned to information about which of their acquaintances might make good friends, whether they are being accepted or rejected by those people, and whether they are getting along with old friends. As an inherently social species, it would seem essential to consider this affiliation motivation when developing models of behavior. Indeed, as one particular example, recent research has demonstrated the superiority of interpersonal models, rather than individual models, in predicting behavior in classroom settings (Fiedler, this volume).

Status Around the world, "dominant" versus "submissive" is one of the two primary dimensions with which people categorize members of their groups (White, 1980). As in other animals, higher status results in benefits for both men and women because it often translates into others performing favors for them. Attempts to gain status or appear higher in status may result in greater self-enhancement and, ultimately, even self-deception about one's real status (von Hippel & Trivers, this volume). Such acts of self-deception could have been functional to the extent that they increased the likelihood of deceiving others and gaining status. Status also has an additional benefit for human males in increasing their access to mates (Betzig, 1992; Hill, 1984; Li & Kenrick, 2006; Sadalla, Kenrick, & Vershure, 1987; Turke & Betzig, 1985). This helps explain why males are often more willing to take social and physical risks to attain status, a proclivity that is enhanced when mating motives are salient (Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Griskevicius, Tybur, Gangestad, Perea, Shapiro, & Kenrick, 2009; Wilson & Daly, 1985). But there are trade-offs associated with status as well, and respect does not come for free. Leaders have to give to the group more than followers do, and people do not like it when their friends step over them.

When the status subself is active, people are tuned in to where they stand in the dominance hierarchy and to which others are above and below.

Mate Acquisition Given that differential reproduction is central to natural selection, decisions about mating have significant adaptive consequences. The problems of mate selection can be divided into two categories: those involving relationship type (e.g., short-term versus long-term); and those involving mate characteristics (e.g., physical attractiveness, status). Because of differences in obligatory parental investment (with females being required to invest more in potential offspring), there are a number of sex differences in mate acquisition motives. For example, women are more reticent about entering short-term relationships and more selective about the minimum characteristics they will accept in a partner for such relationships. Because men and women contribute different resources to the offspring of long-term relationships, there are also sex differences in criteria for mate choice, with women prioritizing status and resources and men prioritizing physical attractiveness (Li & Kenrick, 2006).

When mating goals are salient, people are attentive to features of potential mates, the interest expressed by desirable others, and the prevalence and quality of potential same-sex competitors.

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Mate Retention Because human infants are helpless and slow to develop, the continued inputs of both parents are often essential to ensure the offspring's survival (Geary, 1998; Hrdy, 1999). Although human mating arrangements vary from culture to culture, all involve long-term cooperative relationships in which both the male and female contribute to the offspring's welfare (Daly & Wilson, 1983; Geary, 1998). Hence, a key adaptive problem for both sexes, involving issues beyond mate choice, is to maintain mating bonds with desirable partners (Buss, 2007; Hazan & Diamond, 2000).

When mate retention goals are salient, people will be attentive to the presence and the characteristics of potential same-sex interlopers and also to signals of satisfaction or dissatisfaction in one's partner.

Kin Care As we just noted, parental care is critical to the survival of human offspring (Geary, 2000). However, the motivation to nurture offspring is not a constant across all parents. Evolutionary theorists have hypothesized that decisions about caring for any particular offspring are contingent on various factors that affect the payoffs for their parental investment (Daly & Wilson, 1980; Hrdy, 1999). Children are more likely to receive care to the extent they are biologically related to their parents, and people make smaller investments in stepchildren and in children for whom there is lower certainty of paternity (Daly & Wilson, 1996; Laham, Gonsalkorale, & von Hippel, 2005).

When the kin-care subself is active, people will be attentive to the well-being of their children and other close relatives, particularly young relatives who are dependent on their care.

DISTINCTIONS BETWEEN DIFFERENT MOTIVATIONAL SUBSELVES

A number of findings from our labs and others have supported general assumptions regarding functionally distinct motivational systems, suggesting that these different motives orchestrate attention, memory, and social inference in functionally specific ways (Kenrick, Neuberg, Griskevicius, Becker, & Schaller, 2010). For example, people are especially accurate and rapid in detecting threats from other people who might be dangerous (e.g., angrily expressive male strangers; Becker et al., 2007). Likewise, memory is enhanced for other people who might be threatening: Although out-group members are normally poorly remembered, this reverses if those out-group members are angry males (Ackerman et al., 2006). People are also especially good at making difficult cognitive judgments if the results of such judgments might result in catching cheaters on social contracts (Cosmides & Tooby, 1992). Attention and encoding are enhanced for opposite-sex targets with mating-relevant characteristics and for same-sex competitors with desirable mating-relevant characteristics (Dijkstra & Buunk, 1998; Gutierres, Kenrick, & Partch, 1999; Kenrick, Neuberg, Zierk, & Krones, 1994; Maner et al., 2003). These biases are also presumed to vary depending on relevant contextual features in

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interaction with individual differences relevant to life history strategies (Haselton & Nettle, 2006).

We have thus found this general approach fruitful in generating hypotheses regarding basic cognitive processes and have begun exploring implications for downstream social behaviors. For example, although both men and women increase conformity and desire to fit in with others' judgments when they are motivated by self-protection, mating motivation leads to displays of independence and creativity in males, but not females (Griskevicius, Goldstein, et al., 2006; Griskevicius, Cialdini, & Kenrick, 2006). Also in line with such models, males, but not females, primed with mating-relevant motivations overattribute sexual interest to attractive strangers of the opposite sex (Maner et al., 2005).

On a strict modular view, mental mechanisms or systems (such as the motivational subselves we are discussing) are completely encapsulated and even physically distinct from one another. However, very few modern evolutionary theorists believe that these criteria apply to most psychological systems, instead preferring a view of functional modularity (Barrett & Kurzban, 2006; Kenrick, Sadalla, & Keefe, 1998). The fact that there are numerous domain-specific mechanisms does not exclude the possibility that there are also domain-general mechanisms. We suspect, for instance, that different motivational systems share the same constituent processes (e.g., attention, encoding) even while they input different information into these processes and operate on this information using somewhat different decision rules. And even though there may be some degree of sharing of general mechanisms, the specifics of how these mechanisms operate may change in important ways in motivational systems governing the solution of different problems.

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ECONOMIC ASPECTS OF THE MOTIVATIONAL SYSTEMS

The implication of the work on domain specificity is that, although it may make some sense to try to equate different kinds of utility, the human mind does not equate them. In fact, it responds to different kinds of utility using different cognitive processing rules and applies those rules in flexible, but predictable, ways across different contexts. Thus, whereas the idea that utility = fitness suggests that human decision making is geared to maximize fitness generally, the idea of *deep rationality* suggests that human decision making is geared specifically toward different fitness-enhancing solutions to recurring adaptive problems in different domains. The notion of deep rationality builds on previous work showing that human decision biases can be better understood by considering the ecological context for which such biases evolved (Gigerenzer, 2000; Haselton & Nettle, 2006).

To appreciate the importance of domain specificity to economic decision making, consider what a typical *prisoner's dilemma* would look like if you were playing with different partners, such as a brother or a child or a romantic partner instead of an anonymous stranger. Recall that a prisoner's dilemma is a situation in which the immediate payoff for each individual is such that defection yields a higher reward than cooperation. What makes it a dilemma is that the joint interests of both players are best served by cooperating, but from an individual's "rational" perspective the most rational decision is to defect.

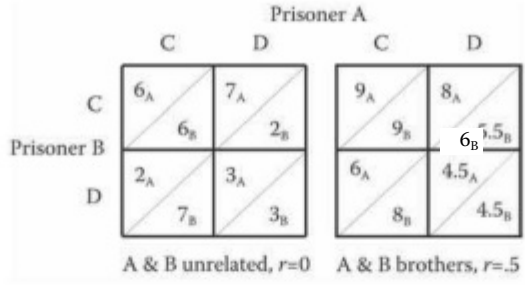


Figure 2.2 The left box depicts the standard prisoner's dilemma. The payoffs for player A are above the diagonal, those for player B are below. For player A, the best payoff always comes from defecting (choosing option D) rather than cooperating (choosing option C) (7 vs. 6 if B cooperates; 3 vs. 2 if B defects). If the two players are brothers, however, then each prisoner's payoffs can be recalculated to include half of his brother's gains (because they share half their genes). In this case, then, the best choice is to cooperate, regardless of his brother's choice (as shown on the right).

If you think in evolutionary terms, playing with a brother changes the payoff structure. Because you share half your genes with your brother, your bank of inclusive fitness points gets to add half of his gains to your gains (and also to subtract half of his losses to your losses). The evolutionary banker in my head gives me a 50% rebate for every dollar I spent on a brother. Figure 2.2 shows how that works for one set of typical payoffs.

A child and parent share half their genes, just as two brothers do. Because the aging parent has decreasing reproductive potential and the child has increasing potential, the parent benefits more from cooperating than the child does, leading to a different matrix of payoffs, with the child more likely to defect and the parent more likely to cooperate. This evolutionary math helps us understand why, in everyday life, parents give and children take. Moreover, male and female parents have slightly different weights to consider. As females age, their reproductive potential decreases more rapidly than does males (older men can still reproduce for decades after females pass menopause). Also, there is some uncertainty in the relatedness between a father and a child; there is no uncertainty for a female. These considerations should lead women to be more willing to sacrifice for their children than males (Kenrick, Sundie, & Kurzban, 2008).

The classic economic models presume that people are interacting with strangers in the marketplace, people who have neither reciprocal alliances nor shared genes. The evolutionary life history model suggests that people will calculate economic utility in very different ways and will exercise different biases in decision making when their current problem instead involves caring for kin. Still another set of biases should be involved in cooperating with nonrelatives, likewise for forming relationships with new mating partners, getting along with those with whom one has already had children, or negotiating a status hierarchy. Each set of problems involves different patterns of outcomes that will yield anticipated satisfaction or avoid anticipated dissatisfaction.

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Table 2.1 depicts some of the biases associated with each subself and also examples of outcomes likely to yield differential utility when different subselves are activated (Kenrick et al., 2009). In the next sections, we review two illustrative lines of recent research exploring how activation of different fundamental motivational subselves can influence a range of economic behaviors.

INDIVIDUAL DIFFERENCES IN THE LINKS BETWEEN MATING AND CONSPICUOUS CONSUMPTION

In his 1899 classic *Theory of the Leisure Class*, Thorstein Veblen coined the term *conspicuous consumption* to refer to the tendency to buy and show off expensive goods with the main goal of impressing others with one's wealth or status. Although conspicuous consumption is sometimes regarded as a symptom of modern capitalist society, flashy displays of wealth have been common across human societies and throughout history. Egyptian and Incan societies are perhaps the most salient, but even in less absolutely wealthy societies high-status individuals have frequently displayed their relative wealth by giving away beaded necklaces, pigs, blankets, or whatever is locally valued. A number of studies have linked conspicuous consumption to sexual selection and have suggested that conspicuous displays of wealth may be linked to efforts to signal to the opposite sex (Sundie, Kenrick, Griskevicius, Tybur, Vohs, & Beal, 2011). This research begins with the assumption that human conspicuous consumption may be what biologists call a "costly signal," designed to communicate: "I am healthy and resourceful enough to be able to throw resources away, hence I have good genes, and you should pick me as a mate." If frivolous spending is linked to mating, it ought to become more prominent when mating motives are active. And such displaying ought to be more prevalent amongst males, especially when they are following a short-term, low-investment approach to mating.

As part of a series of studies designed to test this idea, people were asked to think of a time when they had witnessed someone engaging in conspicuous consumption (Sundie et al., 2011). The majority of subjects thought of a man—buying a flashy car or picking up an oversized group tab at a restaurant, for example. This is not because men simply have more money to consume things in general. When a similar group of subjects was asked to think of the person they knew who was most likely to shop, the majority nominated a woman. So people perceive women as liking to spend money but men as liking to throw it around in conspicuous ways.

To examine the possibility that men's conspicuous consumption was a form of showing off linked to mating, Sundie et al. (2011) ran several experiments. In one, they asked participants to imagine they had just received an unexpected windfall of $2,000. The research examined how much of the money subjects would spend on purchases that might convey their newfound wealth, such as a $1,900 Tag Heur watch, a $139 Ralph Lauren shirt, or taking 10 friends out for a night on the town (compared with shopping more carefully). Before asking subjects how they would spend the money, the researchers put some of the subjects in a mating frame of mind by having them look at dating profiles of fellow students who were not only

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TABLE 2.1 Biases and Different Forms of Utility Associated With Different Subselves

Subself	Typical Decision Biases	Outcomes Yielding Relative Utility	Outcomes Yielding Relative *Dis*utility
Affiliation	Propensity to affiliate and conform when feeling fearful Sensitivity to reciprocity violations	Proximity to alliance partners Equal sharing of resources among alliance partners	Social exclusion Reciprocity violations
Status	Risky status-yielding activities more attractive for young unmated men and less attractive for women	Dominating competitors (relatively more for men) Basking in reflective glory of group members' achievements	Deference to more powerful others Public losses of relative status
Self-Protection	Rapid detection of anger in male (versus female) faces Enhanced memory of angry outgroup male faces	Higher ratio of ingroup to outgroup members when threats salient Barriers to outgroup members (e.g., walls, locks)	Being in a numerical minority when threat salient Presence of approaching outgroup members who are male and/or large
Disease Avoidance	Sensitivity to behaviors (e.g., sneezing) and morphological cues (e.g., open sores) associated with contagious diseases.	Avoidance of individuals from exotic foreign places Avoidance of individuals with overt cues suggesting pathology	Contact with strangers Contact with people perceived as heuristically likely to carry disease (e.g., poorer or elderly individuals)
Mate Search	Males take more risks and resist conformity when mating opportunities are salient Females are more publicly (but not privately) generous under mating motivation	For males judging females: Cues to youth, health and fertility For females judging males: Cues to investment as long-term mates; cues to social dominance and physical symmetry in short-term mates	Poor health, aging cues, asymmetry Conformity and deference to other males among potential male mates
Mate Retention	Attention by women to physically attractive women Attention by men to socially dominant men	Communal sharing with relationship partner, rather than equality-based sharing Investment in partner's offspring	Cues to emotional infidelity (relatively more salient to females judging males) Cues to sexual infidelity (relatively more salient to males judging females
Kin Care	Grandparental investment highest by grandmother in daughter's offspring (tracking paternity certainty)	Benefits to offspring, and to other relatives (discounted by degree of relatedness)	Threats to kin versus non-genetically related alliance partners Perceived favoritism of one's parent towards one's siblings

Note: The table entries are only illustrative examples.

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single and available but also highly attractive. Other subjects looked at photos of campus dormitory buildings.

Romantic motivation had a different effect on men than on women: Women's spending was unaffected by mating motivation. Men in a romantic frame of mind, though, blew more of their newfound $2,000 on conspicuous purchases. Moreover, consistent with hypotheses, this effect was found mainly for men inclined toward a low-investment mating strategy—who scored as "unrestricted" on the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991), meaning they agreed with statements such as "sex without love is OK," and "I can imagine myself enjoying sex with more than one partner at a time." Another study extended this finding by having participants imagine either a short-term or a long-term romantic relationship. Conspicuous consumption was boosted only among men who imagined a short-term relationship and who were also temperamentally inclined toward low-investment relationships.

A final study in the series demonstrated that conspicuous consumption communicates the intended message. Women find men who spend frivolously desirable as short-term dating partners but not as long-term mates.

LOSS AVERSION BY DOMAINS

Kahneman and Tversky's (1979) classic work on loss aversion demonstrated that a loss of a given size (say $100) has more psychological impact than a gain of the same size. This idea has now made its way into introductory economics textbooks and has been amply supported by research. Indeed, one recent review concludes, "There has been so much research on loss aversion that we can say with some certainty that people are impacted twice as much by losses as they are by gains" (Vohs & Luce, 2010). But why the bias, and is it the same for every type of gain and loss?

Ancestral humans would have survived better if they put a higher priority on avoiding losses than on acquiring gains because they frequently lived close to the margin of survival; whereas extra food would have been nice, insufficient food could have been deadly. Consistent with this idea, loss aversion has been found not only in humans but also in other species whose ancestors, like ours, would have suffered more from falling below the line of subsistence than they would have profited from an overabundance of resources. This is a plausible functional hypothesis about past conditions, but it does not fully exploit the scientific strengths of the modern evolutionary approach, which we can use to generate specific new hypotheses about when and how loss aversion should ebb and flow with functionally important motivations.

For example, the usual inclination toward loss aversion should be erased or even reversed when a mating motive is activated—but only for males. This is because women, as female mammals, have an intrinsically high minimum investment in their young, which inspires them to be relatively more selective in choosing mates (Kenrick et al., 1990, 1993; Li & Kenrick, 2006). As a consequence, males must compete to be chosen as mates. One method is to flash a noticeably wasteful display (such as a peacock's feathers or a Porsche Carrera); another is to directly outcompete the other males (butting horns or politicking for the well-appointed

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executive office). To beat out the competition, it helps to take risks, and male mammals indeed become especially risky during the mating season. It follows that men primed to think about mating should act like bighorn sheep during the rutting season, when too great an aversion to losses would prevent the kind of risky competition that can beat out the other males.

If our logic is correct, the shape of that famous loss aversion function should change in predictable ways for men under the influence of a mating motive (Li, Kenrick, Griskevicius, & Neuberg, in press). Men primed to think about mating ought to shift their attention toward gains and away from losses. In one experiment designed to test this hypothesis, we had some people (in the mating condition) think about a romantic first encounter with someone they found very attractive, whereas others (in the control condition) thought simply about organizing their desk.

After the motive manipulation, all our subjects answered a series of questions of the following sort: Imagine that you are at the 50th percentile of financial assets (in other words, half the population makes less money than you, and the other half makes more). How happy or unhappy would you be if you dropped to the 40th percentile? In other cases, they were asked how happy or unhappy they would be if they went up to the 60th percentile, or the 70th or 80th or 90th (and conversely, for drops to 30th, 20th, and 10th).

In the control condition people were inclined to be loss averse—that is, they expected their happiness level to change more after a loss than after a gain. A mating motive had no effect on women's responses, but it did have an impact on men's judgments. Men in a mating frame of mind focused more on the gains and reduced their normal high sensitivity to losses—they changed in a way that would encourage them to be riskier. This finding accords with other findings that activating a mating frame of mind increases risky behavior in men (Ronay & von Hippel, 2010). The result is not a general effect of some simple psychological artifact, such as becoming more physiologically aroused. In a later study, both men and women in a self-protective frame of mind—we had them imagine a scenario in which someone was breaking into their house—became even more loss averse. More generally, these findings suggest that a basic behavioral economic function—loss aversion—changes in response to fundamental motives in a way that makes adaptive sense (Li et al., in press).

CONCLUSION: RATIONALITY, IRRATIONALITY, AND DEEP RATIONALITY REVISITED

This volume is dedicated to considering the critical links between how we think about others and how we behave toward them. To the extent that our choices involve strategic consideration of other people's reactions to those choices, this perspective has obvious implications for understanding those linkages. A critical insight has been that we think about other people in dramatically different ways depending on which domain of social life is currently salient, and this in turn has profound implications for how we act toward those people.

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More broadly, integrating behavioral economics with evolutionary psychology leads to a new way of thinking about economic rationality. Although behavioral economists have demonstrated that we are often "predictably irrational" (Ariely, 2008), this depiction captures only half the truth. It is certainly true that people do not systematically calculate all the potential costs and benefits of various alternative choices and then reliably choose the one most likely to maximize their future, "selfish" gains; the behavioral economists are correct in pointing out that people instead use simple heuristics, ignoring a great deal of relevant information and thus making biased decisions that do not incorporate all the available options. They are incorrect, however, in labeling these biases as irrational; they are irrational in only the shallowest, most proximal sense. Rather, at a deeper level, these biases often reflect the influence of profoundly important functionally relevant motivations—motivations fundamental to addressing recurrent, ancestral challenges. Neither classically rational nor stupidly irrational, the human mind is, instead, exquisitely, elegantly, deeply rational.

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REFERENCES

Ackerman, J. M., Becker, D. V., Mortensen, C. R., Sasaki, T., Neuberg, S. L., & Kenrick, D. T. (2009). A pox on the mind: Disjunction of attention and memory in the processing of physical disfigurement. *Journal of Experimental Social Psychology, 45*, 478–485.

Ackerman, J., Kenrick, D. T., & Schaller, M. (2007). Is friendship akin to kinship? *Evolution & Human Behavior, 28*, 365–374.

Ackerman, J., Shapiro, J. R., Neuberg, S. L., Kenrick, D. T., Becker, D. V., Griskevicius, V., et al. (2006). They all look the same to me (unless they're angry): From out-group homogeneity to out-group heterogeneity. *Psychological Science, 17*, 836–840.

Ackerman, J. M., & Kenrick, D. T. (2008). The costs of benefits: Help-refusals highlight key trade-offs of social life. *Personality & Social Psychology Review, 12*, 118–140.

Alexander, R. D. (1987). *The biology of moral systems*. New York: Aldine de Gruyter.

Ariely, D. (2008). *Predictably irrational: The hidden forces that shape our decisions*. New York: HarperCollins.

Ariely, D., Loewenstein, G., & Prelec, D. (2003). Coherent arbitrariness: Stable demand curves without stable preferences. *Quarterly Journal of Economics*, 118, 73–105.

Barrett, H. C., & Kurzban, R. (2006). Modularity in cognition: Framing the debate. *Psychological Review, 113*, 628–647.

Becker, D. V., Anderson, U. S., Neuberg, S. L., Maner, J. K., Shapiro, J. R., Ackerman, J. M., et al. (2010). More memory bang for the attentional buck: Self-protection goals enhance encoding efficiency for potentially threatening males. *Social Psychological and Personality Science, 1*, 182–189.

Becker, D. V., Kenrick, D. T., Neuberg, S. L., Blackwell, K. C., & Smith, D. M. (2007). The confounded nature of angry men and happy women. *Journal of Personality & Social Psychology, 92*, 179–190.

Betzig, L. (1992). Roman polygyny. *Ethology and Sociobiology, 13*, 309–349.

Boyd, R., & Richerson, P. J. (1985). *Culture and the evolutionary process*. Chicago, IL: University of Chicago Press.

Brown, S. L., & Brown, R. M. (2006). Selective investment theory: Recasting the functional significance of close relationships. *Psychological Inquiry, 17*, 1–29.

Buss, D. M. (2007). *Evolutionary psychology: The new science of mind* (3rd ed.). Boston, MA: Allyn & Bacon.

Campbell, K. W., Sedikides, C., Reeder, G., & Elliot, A. T. (2000). Among friends? An examination of friendship and the self-serving bias. *British Journal of Social Psychology, 39*, 229–239.

Carter, C. S. (1992). Oxytocin and sexual behavior. *Neuroscience and Biobehavioral Reviews, 16,* 131–144.

Cooper, W. S. (1987). Decision theory as a branch of evolutionary theory: A biological derivation of Savage axioms. *Psychological Review, 94*, 395–411.

Cosmides, L., & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 163–228). New York: Oxford University Press.

Daly, M., & Wilson, M. (1980) Discriminative parental solicitude: A biological perspective. *Journal of Marriage & Family, 42,* 277–288.

Daly, M., & Wilson, M. (1983). *Sex, evolution, and behavior* (2nd ed.). Belmont, CA: Wadsworth.

Daly, M., & Wilson, M. (1988). *Homicide*. New York: Adine de Gruyter.

Daly, M., & Wilson, M. I. (1996). Violence against stepchildren. *Current Directions in Psychological Science, 5,* 77-81

Diamond, L. M. (2004). Emerging perspectives on distinctions between romantic love and sexual desire. *Current Directions in Psychological Science, 13,* 116–119.

Dijkstra, P., & Buunk, B. P. (1998). Jealousy as a function of rival characteristics: An evolutionary perspective. *Personality & Social Psychology Bulletin, 24,* 1158–1166.

Dijksterhuis, A. (2011). Exploring the relation between motivation and intuition. In J. Forgas, K. Fiedler, & C. Sedikides (Eds.), *Social thinking and interpersonal behavior: The 14th Sydney Symposium of Social Psychology*. New York: Psychology Press.

Dobson, A. P., & and Carter, E. R. (1996). Infectious diseases and human population history. *Bioscience, 46*, 115–126.

Duncan, L. A., Schaller, M., & Park, J. H. (2009). Perceived vulnerability to disease: Development and validation of a 15-item self-report instrument. *Personality and Individual Differences*, 47, 541–546.

Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290–292.

Epley, N., & Whitchurch, E. (2008). Mirror, mirror on the wall: Enhancement in self recognition. *Personality and Social Psychology Bulletin, 34*, 1159–70.

Ewald, P. W. (1994). *Evolution of infectious disease.* New York: Oxford University Press.

Fiedler, K. (2011). The formation of attitudes and social judgments in a virtual school class environment. In J. Forgas, K. Fiedler, & C. Sedikides (Eds.), *Social thinking and interpersonal behavior: The 14th Sydney Symposium of Social Psychology*. New York: Psychology Press

Fiske, A. P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review, 99,* 689–723.

Galperin, A., & Haselton, M. C. (2011). Error management and the evolution of cognitive bias. In J. Forgas, K. Fiedler, & C. Sedikides (Eds.), *Social thinking and interpersonal behavior: The 14th Sydney Symposium of Social Psychology*. New York: Psychology Press.

Gandolfi, A. E., Gandolfi, A. S., & Barash, D. P. (2002). *Economics as an evolutionary science: From utility to fitness.* Piscataway, NJ: Transaction.

Gangestad, S. W., & Simpson, J. A. (2000). On the evolutionary psychology of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, 23, 573–587.

Geary, D. C. (1998). *Male, female: The evolution of human sex differences*. Washington, DC: American Psychological Association.

Geary, D. C. (2000). Evolution and proximate expression of human paternal investment. *Psychological Bulletin, 126,* 55–77.

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Gigerenzer, G. (2000). *Adaptive thinking: Rationality in the real world*. New York: Oxford University Press.

Griskevicius, V., Cialdini, R. B., & Kenrick, D. T. (2006). Peacocks, Picasso, and parental investment: The effects of romantic motives on creativity. *Journal of Personality & Social Psychology, 91,* 63–76.

Griskevicius, V., Goldstein, N., Mortensen, C., Cialdini, R. B., & Kenrick, D. T. (2006). Going along versus going alone: When fundamental motives facilitate strategic (non) conformity. *Journal of Personality & Social Psychology, 91,* 281–294.

Griskevicius, V., Tybur, J. M., Gangestad, S. W., Perea, E. F., Shapiro, J. R., & Kenrick, D. T. (2009). Aggress to impress: Hostility as an evolved context-dependent strategy. *Journal of Personality & Social Psychology, 96,* 980–994.

Gutierres, S. E., Kenrick, D. T., & Partch, J. (1999). Contrast effects in self assessment reflect gender differences in mate selection criteria. *Personality & Social Psychology Bulletin, 25,* 1126–1134.

Haselton, M. G., & Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. *Personality and Social Psychology Review, 10*, 47–66.

Hazan, C., & Diamond, L.M. (2000). The place of attachment in human mating. *Review of General Psychology, 4,* 186–204.

Henrich, J., and Boyd, R. (1998). The evolution of conformist transmission and between-group differences. *Evolution and Human Behavior*, *19*, 215–242.

Hill, J. (1984). Prestige and reproductive success in man. *Ethology and Sociobiology*, *5*, 77-95.

Hill, K., & Hurtado, M. (1989). Hunter-gatherers of the new world. *American Scientist, 77*, 437–443.

Hrdy, S. H. (1999). *Mother Nature: A history of mothers, infants, and natural selection.* New York: Pantheon.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291.

Kaplan, H. S., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *Handbook of evolutionary psychology* (pp. 68–95). Hoboken, NJ: John Wiley & Sons.

Kenrick, D. T. (2006). A dynamical evolutionary view of love. In R. J. Sternberg & K. Weis (Eds.), *The new psychology of love* (pp. 15–34). New Haven, CT: Yale University Press.

Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science, 5*, 292–314.

Kenrick, D. T., Griskevicius, V., Sundie, J. M., Li, N. P., Li, Y. J., & Neuberg, S. L. (2009). Deep rationality: The evolutionary economics of decision-making. *Social Cognition, 27,* 764–785.

Kenrick, D. T., Groth, G. R., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology, 64,* 951–969.

Kenrick, D. T., Neuberg, S. L., Griskevicius, V., Becker, D. V., & Schaller, M. (2010). Goal-driven cognition and functional behavior: The fundamental motives framework. *Current Directions in Psychological Science, 19*, 63–67.

Kenrick, D. T., Neuberg, S. L., Zierk, K. L., & Krones, J. M. (1994). Evolution and social cognition: Contrast effects as a function of sex, dominance, and physical attractiveness. *Personality & Social Psychology Bulletin, 20,* 210–217.

Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality, 58*, 97–116.

Kenrick, D. T., Sadalla, E. K., & Keefe, R. C. (1998). Evolutionary cognitive psychology: The missing heart of modern cognitive science. In C. B. Crawford & D. L. Krebs (Eds.), *Handbook of evolutionary psychology: Ideas, issues, and applications* (pp. 485–514). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Kenrick, D. T., & Shiota, M. N. (2008). Approach and avoidance motivation(s): An evolutionary perspective. In A. J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (pp. 273–288). New York: Psychology Press.

Kenrick, D. T., Sundie, J. M., & Kurzban, R. (2008). Cooperation and conflict between kith, kin, and strangers: Game theory by domains. In C. Crawford & D. Krebs (Eds.), *Foundations of evolutionary psychology* (pp. 353–370). New York: Lawrence Erlbaum Associates.

Klein, S. B., Cosmides, L., Tooby, J., & Chance, S. (2002). Decisions and the evolution of memory: Multiple systems, multiple functions. *Psychological Review, 109,* 306–329

Kurzban, R., & Aktipis, A. (2007). Modularity and the social mind: Are psychologists too self-ish? *Personality & Social Psychology Review, 11,* 131–149.

Laham, S. M., Gonsalkorale, K., & von Hippel, W. (2005). Darwinian grandparenting: Preferential investment in more certain kin. *Personality and Social Psychology Bulletin, 31*, 63–72.

Lancaster, J. B. (1976). *Primate behavior and the emergence of human culture.* New York: Holt.

Li, N. P., & Kenrick, D. T. (2006). Sex similarities and differences in preferences for short-term mates: What, whether, and why. *Journal of Personality and Social Psychology, 90,* 468–489.

Li, Y. J., Kenrick, D. T., Griskevicius, V., & Neuberg, S. L. (in press). Decision biases and fundamental motivations: Loss aversion, mating, and self-protection. *Journal of Personality & Social Psychology.*

MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin, 131*, 202–223.

Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T. E., Hofer, B., Neuberg, S. L., et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, *88*, 63–78.

Maner, J. K., Rouby, D. A., & Gonzaga G. C. (2008). Automatic attention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution and Human Behavior, 29,* 343–349.

Maner, J. K., Kenrick, D. T., Becker, D. V., Delton, A. W., Hofer, B., Wilbur, C. J., et al. (2003). Sexually selective cognition: Beauty captures the mind of the beholder. *Journal of Personality and Social Psychology, 6,* 1107–1120.

Martindale, C. (1980). Subselves. In L. Wheeler (Ed.), *Review of personality & social psychology* (pp. 193–218). Beverly Hills, CA: Sage.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370–396.

Mortensen, C. R., Becker, D. V., Ackerman, J. M., Neuberg, S. L., & Kenrick, D. T. (2010). Infection breeds reticence: The effects of disease salience on self-perceptions of personality and behavioral avoidance tendencies. *Psychological Science, 21,* 440–447.

Navarrete, C. D., Fessler, D. M. T., & Eng, S. J. (2007). Elevated ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior, 28,* 60–65.

Nesse, R. M. (2005). Natural selection and the regulation of defenses: A signal detection analysis of the smoke detector principle. *Evolution and Human Behavior, 26*, 88–105.

Neuberg, S. L., Kenrick, D. T., & Schaller, M. (2011). Human threat management systems: Self-protection and disease avoidance. *Neuroscience and Biobehavioral Reviews, 35,* 1042–1051.

Öhman, A., & Mineka, S. (2001). Fears, phobias, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review, 108*, 483–522.

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Park, J. H., Faulkner, J., & Schaller, M. (2003). Evolved disease-avoidance processes and contemporary anti-social behavior: Prejudicial attitudes and avoidance of people with physical disabilities. *Journal of Nonverbal Behavior, 27,* 65–87.

Park, J. H., Schaller, M., & Crandall, C. S. (2007). Pathogen-avoidance mechanisms and the stigmatization of obese people. *Evolution and Human Behavior, 28,* 410–414.

Plutchik, R. (1980). *Emotion: A psychoevolutionary synthesis.* New York: Harper and Row.

Ronay, R., & von Hippel, W. (2010). The presence of an attractive woman elevates testosterone and physical risk taking in young men. *Social Psychological and Personality Science, 1*, 1 57–64.

Roney, J. R. (2003). Effects of visual exposure to the opposite sex: Cognitive aspects of mate attraction in human males. *Personality and Social Psychology Bulletin, 29,* 393–404.

Sadalla, E. K., Kenrick, D. T., & Vershure, B. (1987). Dominance and heterosexual attraction. *Journal of Personality and Social Psychology, 52*, 730–738.

Schaller, M., & Murray, D. R. (2008). Pathogens, personality and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology, 95*, 212–221.

Schaller, M., & Park, J. H. (in press). The behavioral immune system (and why it matters). *Current Directions in Psychological Science*.

Schaller, M., Park, J. H., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology, 14,* 105–137.

Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality and Social Psychology Bulletin, 29,* 637–649.

Scott, J. P. (1980). The functions of emotions in behavioral systems: A systems theory analysis. In R. Plutchik & H. Kellerman (Eds.), *Emotions: Theory, research, and experience* (Vol. 1). New York: Academic Press.

Sedikides, C., & Skowronski, J. A. (1997). The symbolic self in evolutionary context. *Personality and Social Psychology Review, 1*, 80–102.

Sedikides, C., & Skowronski, J. A. (2011). Construct accessibility and interpretation of self-behaviors: Tracing and reducing the signatures of the self-protection motive and self-enhancement motive. In J. Forgas, K. Fiedler, & C. Sedikides (Eds.), *Social thinking and interpersonal behavior: The 14th Sydney Symposium of Social Psychology*. New York: Psychology Press

Sherry, D. F., & Shachter, D. L. (1987). The evolution of multiple memory systems. *Psychological Review, 94*, 439–454.

Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics, 69,* 99–118.

Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review, 63,* 129–138.

Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*, 870–883.

Stearns, S. C., Allal, N., & Mace, R. (2008). Life history theory and human development. In C. Crawford & D. Krebs (Eds.), *Foundations of evolutionary psychology* (pp. 47–70). New York: Lawrence Erlbaum Associates.

Sundie, J. M., Kenrick, D. T., Griskevicius, V., Tybur, J., Vohs, K., & Beal, D. J. (2011). Peacocks, Porsches, and Thorsten Veblen: Conspicuous consumption as a sexual signaling system. *Journal of Personality & Social Psychology, 100,* 664–680.

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review, 107,* 411–42.

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Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness.* New Haven, CT: Yale University Press.

Todd, P. M., & Gigerenzer, G. (2007). Mechanisms of ecological rationality: Heuristics and environments that make us smart. In R. I. M. Dunbar & L. Barrett (Eds.), *Oxford handbook of evolutionary psychology* (pp. 197–210). Oxford: Oxford University Press.

Turke, P. W., & Betzig, L. L. (1985). Those who can do: Wealth, status, and reproductive success on Iflauk. *Ethology and Sociobiology, 6*, 79–87.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185,* 1124–1131.

Tybur, J. M., Bryan, A. D., Magnan, R. E., & Caldwell-Hooper, A. E. (2011). Smells like safe sex: Olfactory pathogen primes increase intentions to use condoms. *Psychological Science*, *22,* 478–80.

Veblen, T. (1899). *The theory of the leisure class.* New York: Macmillan.

Vohs, K. D., & Luce, M. F. (2010). Judgment and decision making. In R. F. Baumeister & E.J. Finkel (Eds.), *Advanced social psychology: The status of the science* (pp. 733–756). New York: Oxford University Press.

von Hippel, W., & Trivers, R. (2011). Self-deception to deceive others. In J. Forgas, K. Fiedler, & C. Sedikides (Eds.), *Social thinking and interpersonal behavior: The 14th Sydney Symposium of Social Psychology*. New York: Psychology Press.

Wang, X. T. (2002). Risk as reproductive variance. *Evolution and Human Behavior*, *23*, 35–57.

White, G. M. (1980). Conceptual universals in interpersonal language. *American Anthropologist*, *82*, 759–781.

Wilson, M., & Daly, M. (1985). Competitiveness, risk-taking, and violence: The young male syndrome. *Ethology and Sociobiology, 6*, 59–73.

Wisman, A., & Koole, S. L. (2003). Hiding in the crowd: Can mortality salience promote affiliation with others who oppose one's worldviews? *Journal of Personality & Social Psychology, 84,* 511–526.

Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature, 447*, 279–283.

World Health Organization. (WHO). (2004). The world health report (Annex Table 2). http://www.who.int/whr/2004/annex/topic/en/annex_2_en.pdf

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3

Error Management and the Evolution of Cognitive Bias

ANDREW GALPERIN
University of California, Los Angeles

MARTIE G. HASELTON
University of California, Los Angeles

In the 1990s comedy *Dumb and Dumber*, Jim Carrey plays a dim-witted character named Lloyd Christmas. Lloyd is chasing after an attractive woman, Mary, and at one point asks her directly: "What are my chances?" When she replies that his chances are not good—namely, one out of a million—Lloyd pauses, seemingly disappointed. Gradually, a huge smile comes over his face, and he exclaims, "So you are telling me there is a chance? YEAH!"

This response is funny because it seems irrationally optimistic, but in fact it illustrates a well-documented phenomenon: Men systematically overestimate women's sexual interest (Abbey, 1982; Haselton & Buss, 2000). Psychologists have offered a variety of explanations for this bias. Perhaps men are simply not very good at perceiving or remembering women's nonverbal cues (Farris, Treat, Viken, & McFall, 2008a; Treat, Viken, Kruschke, & McFall, 2010) or, possibly, interacting with women imposes a high cognitive load on men and confuses their thinking (Karremans, Verwijmeren, Pronk, & Reitsma, 2009). Another possibility is that social pressure, perhaps transmitted via the popular media, causes men to view women as sexual objects and therefore encourages them to view social interactions through a *sexualized lens* (Harnish, Abbey, & DeBono, 1990). These explanations share in common the implication that something has gone wrong in men's thinking—some sort of limitation or confusion is to blame.

An alternative view, and the one that is the focus of this chapter, is that men's bias and a variety of other social cognitive biases (Fiedler; Johnson; Kenrick, Li,

White, & Neuberg; Sedikides & Skowronski; von Hippel, this volume) can be understood as adaptations produced by evolution. In short, from the perspective of error management theory (EMT), one expects the evolution of a bias when it minimizes the net fitness cost of errors in judgment and decision making—even if that bias produces more errors than alternative psychological designs. In this chapter, we review EMT and relevant research. The theory, we argue, has been influential in explaining cognitive biases such as men's sexual overperception. These biases have important consequences for social thinking and interpersonal behavior by helping us understand when people misunderstand each other, when they behave in an overly optimistic or pessimistic fashion in relationships, when they take risks, and so forth. We also discuss the future of EMT with a particular focus on recently emerging themes and challenges.

ERROR MANAGEMENT THEORY

EMT (Haselton & Buss, 2000; Haselton & Nettle, 2006) applies to judgments under uncertainty. For instance, humans need to judge whether sticks are snakes and vice versa. We can make either a *false-positive error* (inferring that it is a snake when it is not) or a *false-negative error* (inferring it is not a snake when in fact it is). In making uncertain judgments like this, the costs of committing the two errors are often unequal. In this particular case, a false-negative error might lead to being bitten by a snake, whereas a false-positive error results only in added caution. This is why we judge sticks to be snakes when walking in the woods but rarely judge snakes to be harmless sticks. Because the costs of errors are asymmetrical, we err on the "safe side" by assuming the worst. Figure 3.1 depicts this decision-making scenario.

EMT predicts that biases will evolve in human judgments and decisions whenever the following criteria are met: (1) The decision had recurrent impacts on fitness (reproductive success); (2) the decision is based on uncertain information; and (3) the costs of false-positive and false-negative errors associated with that decision were recurrently asymmetrical over evolutionary time. Detecting

		Belief	
		Snake Present	Snake Absent
True State of the World	Snake Present	Correct Detection	False Negative (more costly error)
	Snake Absent	False Positive (less costly error)	Correct Rejection

Note: The bias in this scenario errs toward false positives (seeing sticks as snakes) in order to minimize costly false negatives (failing to detect a real snake). In the general model of EMT biases, when the costs of the errors are reversed (e.g., women's inferences of men's commitment, as described in the text), the bias will be toward making false negatives.

Figure 3.1 The four possible combinations of actual presence of snakes and beliefs about snakes.

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dangerous agents, such as snakes, fits all three criteria. This decision problem was present over evolutionary time and associated with fitness consequences, we had to make judgments about snakes when our eyes were not able to detect snakes with perfect accuracy, and the costs of a false-negative error (failing to detect the snake and being bitten) were greater than the costs of false-positive errors (unneeded evasive precautions).

EMT is based on the same logic involved in signal detection theory (Green & Swets, 1966), which examined and formally modeled perceptual judgments under uncertainty. The significant contribution of EMT, beyond insights contained in signal detection theory, is the application of applying a similar logic to recurrent evolutionary costs and benefits that humans have faced throughout evolutionary history. According to EMT, because biases toward making the less costly type of error resulted in reproductive fitness benefits, relative to other psychological designs, such biases became reliably developing features of human and animal minds.

Error management biases can be observed in both nonsocial and social domains. For example, in the nonsocial domain of snake detection, there is evidence that fear of snakes is more easily acquired and more difficult to extinguish than fears of other potentially dangerous objects (Mineka, 1992). Another nonsocial error management bias is the tendency to judge the height of a vertical surface as greater when looking from the top rather than the bottom, which may reflect the costs associated with underestimating the danger of falling from a great height (Jackson & Cormack, 2007). We devote the following sections to a summary of key error management biases in social cognition. Over the past decade, EMT has integrated old findings and generated new ones across diverse social psychological domains including mating, avoiding dangerous persons, cooperation, and the attribution of behaviors to underlying attitudes and personality traits.

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BIASES IN MATING

Sexual Overperception by Men

Like males in other species, human males are obligated to invest less in producing offspring and to have higher reproductive potential than females (i.e., a man could potentially produce many more offspring over his lifetime than a woman could over hers; Clutton-Brock & Vincent, 1991). In the ancestral past, men could substantially increase their reproductive success by mating more often, whereas, by virtue of the necessary time and energetic costs of pregnancy, women generally could not. Throughout evolutionary time, women, more so than men, gained fitness advantages by being selective in choosing partners (Trivers, 1972). Women benefited from choosing men who either displayed cues of high-fitness genes that could be transmitted to offspring or provided resources that were helpful in raising offspring through their long juvenile period to reproductive maturity (Buss & Schmitt, 1993; Pillsworth & Haselton, 2006b). As a result of sex differences in reproductive opportunities and constraints, men are generally more sexually eager

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(Schmitt et al., 2003; Simpson & Gangestad, 1991) and more willing to engage in opportunistic sexual encounters than are women (Clark & Hatfield, 1989; Li & Kenrick, 2006).

Because men benefited more than women from having a variety of sex partners, there has likely been selection on men for a keen ability to recognize cues of female sexual interest. This judgment, however, is made under considerable uncertainty and is prone to error. An error management perspective predicts that inaccurate judgments should be systematically biased toward overperception—perceiving more sexual interest than there really is. This is because missing a sexual opportunity due to underestimating sexual interest would have been more reproductively costly than overestimating sexual interest and wasting time pursuing a disinterested woman.

Although there have been challenges and competing explanations for this phenomenon (Farris et al., 2008a), the vast majority of published studies have produced results consistent with the error management account of sexual overperception. We summarize the key evidence for this bias, spanning a diversity of assessment methods, in Table 3.1 (also see La France, Henningsen, Oates, & Shaw, 2009, for a meta-analysis). These results are specific to men perceiving women and unlikely to be simply due to men overstating the sexual interest of all people. Generally, there is little evidence of a directional bias when men judge other men's sexual interest (for a discussion of this issue, see Abbey, 1982; Haselton & Buss, 2000; LaFrance et al.). The opposite-sex overperception bias is also not shared by women, who appear either to underperceive men's sexual interest (Abbey) or show no clear directional bias (Haselton & Buss), depending on the study.

Commitment Underperception by Women

During the energetically expensive period of pregnancy and lactation, women's reproduction requires substantial obligatory investment in offspring (Pillsworth & Haselton, 2006b; Trivers, 1972). These obligations have likely shaped women's preferences for mates who display convincing cues of long-term commitment and thus appear to be willing to provide resources during pregnancy and beyond (Buss & Schmitt, 1993). As with inferences of sexual interest, people must make inferences of commitment under conditions of incomplete information and sometimes outright attempts at deception from the target (Haselton, Buss, Oubaid, & Angleitner, 2005). EMT predicts a directional bias for these errors, but, in this case, the bias is in women's perceptions of men: EMT predicts that women will underestimate men's commitment intent. This is because the consequences of overestimating commitment—having sex with a man who has little interest in continuing a relationship—would have been greater than the consequences of underestimating commitment. The former could have resulted in a pregnancy without support from a partner, whereas the latter resulted in a temporary delay in a woman's reproduction while she assessed her partner's commitment.

There has been less work to examine this commitment underperception bias, but several studies have found support for it. Haselton and Buss (2000) asked participants to rate the likelihood that a variety of dating behaviors

TABLE 3.1 Key Empirical Evidence for Men's Sexual Overestimation Bias

Method	Result	Representative Citations
Face-to-face dyadic interactions (participant ratings)	Men rate women's interest in them as higher than women self-report.	Abbey (1982) Harnish, Abbey, and DeBono (1990) Henningsen and Henningsen (2010)
Face-to-face dyadic interactions (ratings of third-party observers)	Male observers rate women's interest as higher than do female observers.	Abbey (1982) Saal, Johnson, and Weber (1989)
Videos of dyadic interactions	Male video watchers rate female targets' interest as higher than do female video watchers.	Shotland and Craig (1988)
Photos of dyadic interactions	Male photo viewers rate female participants' interest as higher than do female photo viewers.	Abbey and Melby (1986) Edmondson and Conger (1995)
Written scenarios	Male readers rate higher interest from women's hypothetical dating behaviors than do female readers.	Haselton and Buss (2000)
Naturalistic experiences	Women (especially attractive women) report more incidences of men mistaking their friendliness for sexual interest than of men making the reverse mistake.	Haselton (2003)
	Men overestimate their female friends' sexual interest.	Koenig, Kirkpatrick, and Ketelaar (2007)
Experiments	When primed with romantic thoughts, men perceive sexual interest in photos of neutral female faces (especially attractive faces).	Maner et al. (2005)

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indicated an interest in a long-term romantic relationship. Relative to male raters, female raters inferred less long-term interest (i.e., commitment intent) when men engaged in these behaviors. No such sex difference between raters emerged when rating women's long-term interest from identical behaviors (Haselton & Buss, 2000). This result was recently replicated with participants in face-to-face interactions (Henningsen & Henningsen, 2010). Male–female stranger dyads engaged in a 5-minute conversation and afterward filled out questionnaires about their own and their partner's perceived level of interest in a committed long-term relationship. As predicted by EMT, women underestimated men's commitment, whereas men were not biased in their estimates of the women's commitment.

Other Mating-Related Biases

EMT has also stimulated research on judgment biases in other mating-related domains. For instance, people underestimate their romantic partners' forgiveness

after a transgression (Friesen, Fletcher, & Overall, 2005), possibly prompting a more complete mending of the relationship. People overestimate the desirability of same-sex competitors (Hill, 2007), possibly to facilitate keener competition. Relative to women, men are more suspicious about partner infidelity, suggesting that they might overestimate how likely their partners are to be unfaithful (Andrews, Gangestad, Miller, Haselton, Thornhill, & Neale, 2008). This bias might help to protect against the high costs of cuckoldry. In sum, across the many judgments and decisions people make in the courtship context, a number of empirically supported biases arise from the logic of EMT.

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BIASES FOR AVOIDING DANGEROUS PEOPLE

Prejudice Against Out-Groups

It is plausible that one of the greatest threats to life in ancestral environments was other people. Violent intergroup conflict was probably a constant feature throughout human evolution, and, in modern environments, from traditional societies to industrialized nations, groups regularly wage deadly wars on one another (Keeley, 1996). People assume that out-group members are less generous and kind (Brewer, 1979) and more hostile and violent (Quillian & Pager, 2001) than members of their own racial or ethnic group. Such effects are easily triggered and enhanced by increasing the salience of any kind of distinction between the in-group and the out-group (Brewer).

This bias can be understood from an EMT perspective. Inferences about relatively unknown out-group members are uncertain. For ancestral humans, the costly false negative error was to miss aggressive intentions on the part of others. In contrast, the costs of the false-positive error—overinferring aggressiveness in members of competing coalitions—were low. This cost asymmetry did not characterize assumptions about in-group members, in which unwarranted inferences of hostility or aggressiveness would have resulted in costly within-coalition conflict.

Avoiding Sick People

If other people posed reliable threats of disease throughout evolutionary history (Schaller & Duncan, 2007), humans could also possess adaptive biases that lead them to feel disgusted by and selectively avoid certain classes of others. And indeed, people require little evidence of illness or contamination to avoid someone, whereas they require much stronger evidence to warrant the inference that someone does not pose the threat of contagion (Kurzban & Leary, 2001; Park, Faulkner, & Schaller, 2003). This evidence can take the form of either propositional knowledge that someone has an unmarked disease or of physical cues associated with disease. For instance, although people understand, intellectually, that mere contact is insufficient for the transmission of AIDS, they physically distance themselves from AIDS victims, express discomfort with even 5 minutes of contact, and even express discomfort with the thought that clothes they once wore would

be worn by an AIDS victim in the future (Bishop, Alva, Cantu, & Rittiman, 1991; Rozin, Markwith, & Nemeroff, 1992).

Physical cues of disease that may precipitate avoidance include physical abnormalities, lesions, discoloration, impaired motor function, and atypical appearance of body parts. However, multiple factors can cause such physical disfigurements: A swollen hand, for example, could be the result of a contagious infection or the result of an accident (e.g., falling), which is not contagious. Because it is difficult to know the source of a physical anomaly with certainty, EMT predicts that humans will be biased to avoid morphologically atypical others as if they are carriers of disease even when they are not. Thus, people may also treat other disabilities or morphological anomalies (e.g., obesity) as if they are produced by contagious disease.

Research has confirmed this hypothesis. For instance, a study using the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) showed that, after being exposed to a disease prime, participants associated disease with disabled but noncontagious individuals at an implicit level (Park et al., 2003). This result might explain why stigma associated with physical disabilities is so pervasive (Kurzban & Leary, 2001). Relatedly, Fiedler (this volume) discusses the law of effect (Thorndike, 1898) and how this might explain human biases to avoid negative or unpleasant stimuli after a single trial, a phenomenon that can be interpreted in terms of EMT.

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BIASES FOR NAVIGATING THE SOCIAL ENVIRONMENT

The Social Exchange Heuristic

Standard economic principles predict that players in many single-interaction economic games should defect rather than cooperate, because defecting maximizes the player's monetary payoff. The interaction is not repeated, and the players are usually anonymous strangers, so there is no incentive to signal cooperativeness for future interactions within the game or for the sake of reputation outside of the game. Yet cooperation often occurs in these economic games (Camerer & Thaler, 1995; Caporael, Dawes, Orbell, & van der Kragt, 1989; Sally, 1995), and this cooperation is cross-culturally ubiquitous (Henrich et al., 2001).

From a view of the mind as a rational utility maximizer, this pervasive cooperation is a puzzling phenomenon. Players act as if they expect negative consequences of non-prosocial behavior even when they are aware that, objectively, such consequences are unlikely to follow. Yamagishi and colleagues have proposed that the costs of falsely believing that one can defect without negative consequences are often higher than cooperating when one could safely defect (Yamagishi, Terai, Kiyonari, Mifune, & Kanazawa, 2007). This bias—dubbed the "social exchange heuristic"—can be conceptualized as a combination of error management and an artifact of modern living. Although this is no longer the case in many modern settings, in ancestral environments the probability of repeated encounters would have been high and social reputation effects potent. Therefore, selection may have crafted the social exchange heuristic as an adaptation to this ancestral cost structure.

The social exchange heuristic is well illustrated by the ease with which people can be made to feel they are "being watched." Haley and Fessler (2005) asked anonymous strangers to play a series of dictator games (a type of economic game in which individuals "dictate" what portion of their endowment they will share with another player in the game) on the computer. For some of the participants, the researchers subtly manipulated visual cues by showing stylized eyespots as the computer's desktop background. The effect of this manipulation was striking: When using a computer displaying eyespots, almost twice as many participants gave money to their partners compared with the controls. Whether they were aware of it, in a sense these participants acted as if they were being "watched." (See Kenrick et al., this volume, for a discussion of the evolution of economic biases in human cognition.)

Similar error management logic could explain the ubiquity of religious beliefs (Johnson, 2009). The belief that a higher power is observing and judging one's behavior could be adaptive (and hence lead to the evolution of religious belief), because it promotes cooperation and is associated with the benefits of forgoing immediate self-interest in the service of long-term cooperative benefits.

The Negativity Bias in Attribution

Humans depend greatly on one another, but social partners can inflict costs on each other—for example, through aggression, cheating, or exploitation. Avoiding aggressive or selfish others has been a major selective pressure on human social cognition (Cosmides, 1989). Thus, it is plausible to expect that many of our initial social judgments are designed to help us avoid these poor social partners (Kurzban & Leary, 2001).

Social partners who have once demonstrated some negative social behavior might or might not be disposed to do the same again in the future. The false-negative error is to assume that people's behavior is not representative of their long-term disposition and thus not to take it into account in future interactions. The false-positive error is to assume that people are antisocially disposed because of a behavior that did not in fact represent their underlying dispositions but was instead brought about by a more transient feature of the context. In making the false-negative error, one risks becoming involved with people who could later inflict harm. In turn, the cost of the false-positive error might be the avoidance of people who would in fact be constructive social partners. This cost might be significant, but often not as high as the cost of being hurt or exploited. Thus, from an EMT perspective, it is prudent to initially assume that social partners who have once behaved undesirably are likely to be "repeat offenders."

Research has shown that there is indeed such a *negativity bias* in attribution (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Ybarra, 2002). That is, people view others' negative behaviors as more diagnostic of their enduring dispositions than positive ones. People are initially more uncertain and skeptical about others' positive than their negative qualities (Gilbert, Tafarodi, & Malone, 1993). It takes fewer negative observations about a person to infer a corresponding negative trait than positive observations to infer a corresponding positive trait (Rothbart & Park,

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1986). And once people have formed a negative opinion, they are more confident in it (Carlston, 1980) and process subsequent information about that person less attentively (Ybarra & Stephan, 1996) than if they had formed a positive opinion. This leads to negative impressions being difficult to disconfirm. In contrast, positive impressions can sometimes be disconfirmed with only one instance of negative behavior (Reeder & Coovert, 1986).

The negativity bias is well illustrated in studies that ask people to judge a person's moral character. One such study (Reeder & Spores, 1983) demonstrated that people make attributions about morality in an asymmetric fashion. Perceivers inferred that a person who behaved immorally (by stealing from a charitable fund) had an immoral disposition regardless of situational influences (whether his date encouraged him to steal money or donate money). In contrast, when presented with a moral behavior (in which the target donated money to the fund), perceivers did not always assume that the target was a moral person. Instead, their inferences depended on situational cues: when the target was encouraged to donate money and did so, perceivers judged her as less moral than when the target was encouraged to steal and still donated the money. These results suggest that perceivers were inclined to assume immorality regardless of mitigating circumstances; they made inferences of morality, on the other hand, in a more carefully qualified fashion. Along similar lines, one dishonest behavior is enough to overcome a prior impression that a person is honest but not vice versa (Reeder & Coovert, 1986), and participants expect immoral acts exhibited by an individual in a particular situation to generalize across situations more easily than moral acts and more easily than other negative or positive behaviors in nonmoral domains (Trafimow, 2001).

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DIFFERENTIAL EVOCATION OF BIAS

Psychological adaptations are responsive to different environmental contexts (Gangestad, Haselton, & Buss, 2006). A critical aspect of error management logic is that ancestral asymmetries in costs were not static. Rather, they varied depending on context, such as the perceiver's individual characteristics and his or her social environment. If moderating contexts were recurrent, consistent in their effects, and indicated by the presence of reliable cues, researchers should expect judgment adaptations to respond to them with variable degrees of bias today. What follows are examples of systematic variations of cost asymmetries and how they lead to variable biases in some of the domains we have already discussed. We summarize these moderating effects in Table 3.2.

Men's Sexual Overperception Is Affected by Women's Attractiveness

According to EMT, men's overperception of women's sexual intent evolved because it decreased the chances that men would miss sexual opportunities. If attractiveness is a cue of fertility (Symons, 1979), missing a sexual opportunity with an attractive woman would have been especially costly. In accordance with this prediction, women who are more attractive report more past episodes

TABLE 3.2 Notable Influences of Context on Error Management Biases

Bias	Moderating Variable Is Attribute of...	Moderating Variable	Effect of High Level of Moderating Variable on Bias
Men's overestimation of women's sexual interest	Target	Female target's attractiveness	Bias ↑
Women's underestimation of men's relationship commitment	Observer * Target interaction	Fertility within ovulatory cycle * Male target's physical attractiveness	Bias ↓ (high fertility, high male attractiveness)
	Observer * Target interaction	Female observer's sexual interest in the male target	Bias ↓
	Observer	Fertility (pre- vs. post-menopause)	Bias ↑
Women's overestimation of men's sexual coerciveness	Observer	Fertility within ovulatory cycle	Bias ↑
Prejudice against out-groups	Environment	Ambient darkness	Bias ↑
	Observer	Fertility within ovulatory cycle	Bias ↑
	Observer	Pregnancy	Bias ↑
	Observer	Perceived vulnerability to disease	Bias ↑
Social exchange heuristic	Observer and Environment	Degree to which culture is collectivist	Bias ↑
	Environment	Presence of subtle cues of surveillance	Bias ↑

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of sexual overperception by men (Haselton, 2003). In addition, Maner et al. (2005) showed men and women clips of romantically arousing films and then asked them to interpret "micro-expressions" in photographs of faces that were actually neutral in expression. Men who watched the romantic film clip perceived sexual arousal in these neutral female faces, particularly when the faces were attractive.

In addition to documenting the effect of attractiveness, this study is also notable for its clear demonstration of a male bias. There has been controversy in the literature about what constitutes an appropriate criterion for men's judgments of women's interest (Farris, Treat, Viken, & McFall, 2008b). For instance, two commonly used criteria—women's reports of their own or other women's sexual interest—might also be systematically biased (Haselton & Buss, 2000). However, in the Maner et al. (2005) study, these concerns are not applicable because it used an objective criterion (i.e., the faces were photographed under neutral conditions, presumably showing no "real" sexual interest) and demonstrated that men's judgments exceed this criterion.

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Women's Commitment Underperception Is Affected by Fertility Status

According to EMT, women's commitment underperception bias minimizes the chance of suffering the costly reproductive consequences of having offspring with a man who will provide no paternal investment. Thus, the bias might be linked to the woman's fertility. In a recent study, Cyrus, Schwarz, and Hassebrauck (2011) found no evidence of the bias in an older sample that included postmenopausal women but successfully replicated the results of Haselton and Buss (2000) in a younger sample using parallel methods. This result suggests that the bias is active only in women who face reproductive consequences as a result of commitment perceptions.

Perceptions of Coerciveness and Commitment Vary Across the Ovulatory Cycle

An error management approach predicts psychological shifts within individuals across time on the basis of changes in the relative fitness costs of false positive and false negative errors (Haselton & Nettle, 2006). These psychological shifts should occur in response to varying cues in the modern environment that were consistently associated with varying reproductive consequences throughout evolutionary history.

One type of shift occurs in women across the ovulatory cycle: The costs of having sex with an undesirable partner—a man who has low genetic fitness and will not invest in his children—rise as the chance of pregnancy increases near ovulation (Gangestad & Thornhill, 2008; Pillsworth & Haselton, 2006a). Noting this, Garver-Apgar, Gangestad, and Simpson (2007) hypothesized that women will be particularly wary of sexual coercion when fertility is high, and they might avoid coercion by systematically increasing their perceptions of men's sexual coerciveness in men as ovulation approaches. This is precisely what their study showed: When women rated men appearing in videotaped interactions, women in their high-fertility phase rated the men as more sexually coercive than did women in other cycle phases.

On the flip side, the benefits of having sex with a highly desirable partner—a man who has high genetic fitness—rise near ovulation when fertility is high (Pillsworth & Haselton, 2006a). In men, physical attractiveness is a hypothesized marker of fitness (Pillsworth & Haselton). Even if such a man does not provide commitment, a woman can still receive genetic benefits for her offspring from a sexual encounter with him. In accordance with this logic, women elevate their standards for men's physical attractiveness in short-term sexual encounters relative to long-term relationships (Li & Kenrick, 2006). Thus, physically attractive men are more desired by women for short-term sexual encounters, which decreases these men's need to commit to a particular woman (Gangestad & Simpson, 2000). As a result, high levels of both attractiveness and commitment can be difficult to find in the same man.

Durante, Griskevicius, Simpson, and Li (2010) therefore hypothesized that encountering an attractive man who *might* be committed at high fertility involves an altered error asymmetry for the woman in perceiving his commitment. Unlike

in most other circumstances, the false positive might actually be less costly than the false negative. The false-positive error—assuming he is committed when he is not—could still lead to being abandoned but also gaining genetic benefits from the sexual encounter. The false-negative error—assuming he is not committed when he actually is—could lead to missing out on the genetic benefits as well as on commitment.

In accordance with this logic, Durante and colleagues (2010) found a striking shift in women's commitment perception, when women judged attractive men at high fertility. In two separate sessions, one at low and one at high fertility, women were presented with the same photos of men who varied in attractiveness and commitment (described in a vignette). Women then rated each man's interest in a committed long-term relationship and in investing in children with them. At high fertility relative to low fertility, women thought the attractive men were more interested in commitment and in raising children. This shift possibly functions to increase women's motivation to consent to mating with attractive men when fertility is high.

Another recent study involving face-to-face interactions (Henningsen & Henningsen, 2010) showed that the more sexually interested women were in their interaction partner the more commitment they perceived from him. Although this result is correlational, it accords well with the findings of Durante et al. (2010) and might even suggest the mechanism (sexual interest) that allows women to adaptively shift their perceptions of men's commitment with shifting context.

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Prejudice Against Out-Groups Is Increased by Vulnerability

As noted already, a key hypothesis stemming from EMT is that people overestimate the aggressiveness and hostility of out-group members because, throughout evolutionary history, missing hostile intentions was more costly than overestimating it. This cost asymmetry probably became even more pronounced in circumstances when one was more vulnerable to attack. Based on this logic, Schaller and colleagues (Schaller, Park, & Faulkner, 2003; Schaller, Park, & Mueller, 2003) hypothesized and found that ambient darkness—a cue signaling increased vulnerability—increases racial and ethnic stereotypes connoting violence but has little effect on other negative stereotypes (e.g., laziness or ignorance). Following similar logic, women who were nearing ovulation and perceived they were vulnerable to sexual coercion showed increased hostility toward out-group members (Navarrete, Fessler, Fleischman, & Geyer, 2009). Another striking demonstration is that pregnant women, who have a heightened vulnerability to infection in the first trimester, show increased hostility toward out-group members, who are often conceptualized as sources of disease (Navarette, Fessler, & Eng, 2007). Finally, people who perceive that they are vulnerable to disease are less likely to have disabled friends (Park et al., 2003), possibly because disabled individuals trigger a disease avoidance bias.

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The Social Exchange Heuristic Varies With Culture and Subtle Surveillance Cues

Although the costs of selfish behavior were likely higher in most ancestral settings than the opportunity cost of cooperating, this asymmetry might have been even further enhanced by context. For instance, the costs of ostracism (resulting from selfish or dishonest behavior) may be particularly high in interdependent social contexts in which cooperation is either highly valued or especially necessary. As predicted by this logic, in Japanese collectivist samples, cooperation in one-shot experiments is higher than in the more individualist U.S. samples (Yamagishi, Jin, & Kiyonari, 1999). Moreover, a study described earlier (Haley & Fessler, 2005) showed that the social exchange heuristic, which is already pervasive, becomes even stronger when there are subtle cues of social surveillance, such as eyespots.

RECENT CHALLENGES TO EMT

Recently, McKay and colleagues introduced a novel perspective of EMT, rooted in philosophy and economic modeling (McKay & Dennett, 2009; McKay & Efferson, 2010). They affirmed the logic of EMT but argued that to solve adaptive problems of the sort explained by EMT humans do not need to possess *biased beliefs* if *biased actions* can accomplish the same ends while preserving true beliefs. McKay and Efferson (p. 311) illustrated this point using the example of sexual overperception by pointing out that having a strong belief that a woman is sexually interested is unnecessary to approach her. Instead, because for a man the payoff of a short-term sexual encounter, however improbable, is so large, even *accurately* knowing that there is only a small chance of success (and the corresponding large chance of incurring a small cost, such as a slap in the face) should not deter men from taking a chance.

We agree that this is a plausible. Although EMT was advanced to explain cognitive biases, the core logic of the theory is neutral in predicting whether a bias will be cognitive or purely behavioral. The logic of EMT is satisfied as long as humans behave so that they minimize the more costly of the two errors in question. However, ultimately, the question of whether solutions to error management problems are sometimes rooted in biased *cognition* is an open issue that must be decided on a case-by-case basis with empirical research (Haselton & Buss, 2009). The argument that, in theory, error management adaptations need not involve cognitive bias does not invalidate the possibility that the cognitive bias exists.

In the case of sexual overperception, we suggest that there is compelling empirical evidence that this bias is cognitive (with behavioral effects) rather than purely behavioral. As shown in Table 3.2, there is evidence across a range of studies that men actually do overestimate women's interest in face-to-face interactions when judging videotaped interactions and photos, in vignettes, in real friendships (Koenig, Kirkpatrick, & Ketelaar, 2007), and in experiments in which women's faces objectively express zero interest (Maner et al., 2005). The notion that selection should not

bias beliefs is difficult to reconcile with the fact that men appear to overestimate women's interest in all of these varied ways, but especially in self-report measures. Self-reported estimations reflect biased *beliefs* rather than biased actions.

A number of other biases we have described in this chapter are also cognitive rather than purely behavioral. For instance, there may be behavioral adaptations to avoid falling off cliffs (as demonstrated via the "visual cliff" paradigm; Campos, Langer, & Krowitz, 1970), without an accompanying bias that overestimates the height of the cliff from the top. However, humans do, in fact, appear to have an estimation bias (a biased *belief*) beyond any such behavioral biases. Similarly, one could easily imagine an adaptation to avoid an individual who committed a dishonest action, without necessarily holding the belief that this individual is generally dishonest. However, research has documented such a negativity bias in attribution (i.e., beliefs). Likewise, a cognitive bias is theoretically unnecessary for behaviorally avoiding potentially dangerous out-group members, but, again, research shows that, when vulnerable, people are biased to see anger in neutral out-group faces—a bias in beliefs.

A second major argument advanced by McKay and Efferson (2010) is that EMT's novelty is contained entirely in the idea that *cognitive* bias can be adaptive. In contrast, they claim that the idea that *behavioral* bias can minimize costs can be derived entirely from expected utility theory (von Neumann & Morgenstern, 1944). Hence, EMT is useful only insofar as it predicts genuine cognitive biases (departures from Bayesian beliefs). Our response is twofold. First, we believe we have presented a strong case that many of the biases explained or predicted by EMT are, in fact, cognitive. Second, we agree that the basic idea of biased responses to asymmetric costs existed before EMT, as reflected in expected utility theory and signal detection theory. However, we emphasize that a key contribution of EMT lies in applying this logic to *recurring costs and benefits over human evolutionary history*, and not simply to costs and benefits in the present. In expected utility theory and signal detection theory, the utility maximizers are conscious animal or human agents or devices constructed by humans (e.g., smoke detectors or radars); in EMT, the utility maximizer is natural selection, and the measure of utility is reproductive success. This idea of considering recurring ancestral costs and benefits is an important contribution to understanding biases, regardless of whether they are cognitive or behavioral.

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CONCLUSION

EMT has been useful both for testing new hypotheses and integrating existing findings of bias that might otherwise seem singular or puzzling. In this chapter, we have described psychological biases in a variety of domains that fall under the theoretical umbrella of EMT. Some of these biases were discovered before the advent of EMT but can be at least partly explained by it. These include men's sexual overperception; certain types of prejudice against out-groups, disabled, and ill people; as well as negative attribution. In addition, EMT has motivated the recent discovery or empirical refinement of a number of phenomena: women's commitment underperception, the forgiveness bias, men's underestimation of

their partners' faithfulness, both sexes' overestimation of their partner's attractiveness to competitors, women's overestimation of men's sexual coerciveness at high fertility, and the social exchange heuristic.

EMT incorporates hypotheses about variation in biases in response to contextual inputs. We have described a number of examples of these contingencies, one of the most striking of which was Durante et al.'s (2010) finding that women's commitment underperception bias is sensitive to a specific set of contextual influences that simultaneously encompass both the observer's and the target's characteristics. These results demonstrate the utility of EMT for generating new findings.

In addition to the empirical findings being generated by EMT, there are also exciting new theoretical developments, such as the focus of McKay and colleagues (McKay & Dennett, 2009; McKay & Efferson, 2010) on the distinction between cognitive and behavioral biases. These two categories of bias play substantial roles in social thinking and interpersonal behavior. We believe this is an important theoretical refinement that provides an avenue for fruitful future research.

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REFERENCES

Abbey, A. (1982). Sex differences in attributions for friendly behavior: Do males misperceive females' friendliness? *Journal of Personality and Social Psychology, 42*, 830–838.

Abbey, A., & Melby, C. (1986). The effects of nonverbal cues on gender differences in perceptions of sexual intent. *Sex Roles, 15,* 283–298.

Andrews, P. W., Gangestad, S. W., Miller, G. F., Haselton, M. G., Thornhill, R., & Neale, M. C. (2008). Sex differences in detecting sexual infidelity: Results of a maximum likelihood method for analyzing the sensitivity of sex differences to underreporting. *Human Nature, 19,* 347–373.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology, 5*, 323–370.

Bishop, G. D., Alva, A. L., Cantu, L., & Rittiman, R. K. (1991). Responses to persons with AIDS: Fear of contagion or stigma? *Journal of Applied Social Psychology, 21*, 1877–1888.

Brewer, M. B. (1979). In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin, 86*, 307–324.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204–232.

Camerer, C., & Thaler, R. (1995). Ultimatums, dictators and manners. *Journal of Economic Perspectives, 9*, 337–356.

Campos, J. J., Langer, A., & Krowitz, A. (1970). Cardiac response on the visual cliff in prelocomotor human infants. *Science, 170*, 196–197.

Caporael, L., Dawes, R. M., Orbell, J. M., & van der Kragt, A. J. (1989). Selfishness examined. *Behavioral and Brain Sciences, 12*, 683–739.

Carlston, D. E. (1980). The recall and use of traits and events in social inference processes. *Journal of Experimental Social Psychology, 16*, 303–328.

Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Psychology & Human Sexuality, 2*, 39–55.

Clutton-Brock, T. H., & Vincent, A. C. J. (1991). Sexual selection and the potential reproductive rates of males and females. *Nature, 351,* 58–*60.*

Cosmides, L. (1989). The logic of social exchange: Has natural selection shaped how humans reason? Studies with the Wason selection task. *Cognition, 31*, 187–276.

Cyrus, K., Schwarz, S., & Hassebrauck, M. (2011). Systematic cognitive biases in courtship context: Women's commitment-skepticism as a life-history strategy? *Evolution and Human Behavior, 32,* 13–20.

Durante, K. M., Griskevicius, V., Simpson, J. A., & Li, N. P. (2010). *Ovulation leads women to overperceive commitment from sexy cads but not good dads.* Paper presented at the 22nd annual meeting of the Human Behavior and Evolution Society Conference, Eugene, OR.

Edmondson, C. B., & Conger, J. C. (1995). The impact of mode of presentation on gender differences in social perception. *Sex Roles, 32*, 169–183.

Farris, C., Treat, T. A., Viken, R. J., & McFall, R. M. (2008a). Perceptual mechanisms that characterize gender differences in decoding women's sexual intent. *Psychological Science, 19,* 348–354.

Farris, C., Treat, T. A., Viken, R. J., & McFall, R. M. (2008b). Sexual coercion and the misperception of sexual intent. *Clinical Psychology Review, 28,* 48–66.

Friesen, M. D., Fletcher, G. J. O., & Overall, N. C. (2005) A dyadic assessment of forgiveness in intimate relationships. *Personal Relationships, 12*, 61–77.

Gangestad, S. W., Haselton, M. G., & Buss, D. M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. *Psychological Inquiry, 17,* 75–95.

Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, *23*, 675–687.

Gangestad, S. W., & Thornhill, R. T. (2008). Human oestrus. *Proceedings of the Royal Society (B), 275*, 991–1000.

Garver-Apgar, C. E., Gangestad, S. W., & Simpson, J. A. (2007). Women's perceptions of men's sexual coerciveness change across the menstrual cycle. *Acta Psychologica Sinica. Special Issue: Evolutionary Psychology, 39*, 536–540.

Gilbert, D. T., Tafarodi, R. W., & Malone, P. S. (1993). You can't not believe everything you read. *Journal of Personality and Social Psychology, 65*, 221–233.

Green, D. M., & Swets, J. A. (1966). *Signal detection and psychophysics*. New York: Wiley.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74,* 1464–1480.

Haley, K. J., & Fessler, D. M. T. (2005). Nobody's watching? Subtle cues affect generosity in an anonymous economic game. *Evolution and Human Behavior, 26,* 245–256.

Harnish, R. J., Abbey, A., & DeBono, K. G. (1990). Toward an understanding of "the sex game": The effects of gender and self-monitoring on perceptions of sexuality and likeability in initial interactions. *Journal of Applied Social Psychology, 20*, 1333–1344.

Haselton, M. G. (2003). The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events. *Journal of Research in Personality, 37*, 34–47.

Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology, 78*, 81–91.

Haselton, M. G., & Buss, D. M. (2009). Error management theory and the evolution of misbeliefs. *Behavioral and Brain Sciences, 32,* 522–523.

Haselton, M. G., Buss, D. M., Oubaid, V. & Angleitner, A. (2005). Sex, lies, and strategic interference: The psychology of deception between the sexes. *Personality and Social Psychology Bulletin, 31*, 3–23.

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Haselton, M. G., & Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. *Personality and Social Psychology Review, 10*, 47–66.

Henningsen, D. D., & Henningsen, M. L. M. (2010). Testing error management theory: Exploring the commitment skepticism bias and the sexual overperception bias. *Human Communication Research, 36*, 618–634.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Gintis, H., McElreath, R., et al. (2001). In search of Homo Economicus: Experiments in 15 small-scale societies. *American Economic Review, 91*, 73–79.

Hill, S. E. (2007). Overestimation bias in mate competition. *Evolution and Human Behavior, 28*, 118–123.

Jackson, R. E., & Cormack, L. K. (2007). Evolved navigation theory and the descent illusion. *Perception & Psychophysics, 69*, 353–362.

Johnson, D. D. P. (2009). The error of God: Error management theory, religion, and the evolution of cooperation. In S. A. Levin (Ed.), *Games, groups, and the global good* (pp. 169–180). Berlin: Springer.

Karremans, J. C., Verwijmeren, T., Pronk, T. M., & Reitsma, M. (2009). Interacting with women can impair men's executive functioning. *Journal of Experimental Social Psychology, 45*, 1041–1044.

Keeley, L. H. (1996). *War before civilization: The myth of the peaceful savage.* New York: Oxford University Press.

Koenig, B. L., Kirkpatrick, L. A., & Ketelaar, T. (2007). Misperception of sexual and romantic interests in opposite-sex friendships: Four hypotheses. *Personal Relationships, 14*, 411–429.

Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin, 123*, 187–208.

La France, B. H., Henningsen, D. D., Oates, A., & Shaw, C. M. (2009). Social-sexual interactions? Meta-analyses of sex differences in perceptions of flirtatiousness, seductiveness, and promiscuousness. *Communication Monographs, 76*, 263–285.

Li, N. P., & Kenrick, D. T. (2006). Sex similarities and differences in preferences for short-term mates: What, whether, and why. *Journal of Personality and Social Psychology, 90*, 468–489.

Maner, J. K., Kenrick, D. T., Neuberg, S. L., Becker, D. V., Robertson, T., Hofer, B., et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology, 88*, 63–78.

McKay, R. T., & Dennett, D. C. (2009). The evolution of misbelief. *Behavioral and Brain Sciences, 32*, 493–561.

McKay, R. T., & Efferson, C. (2010). The subtleties of error management. *Evolution and Human Behavior, 31*, 309–319.

Mineka, S. (1992). Evolutionary memories, emotional processing, and the emotional disorders. *Psychology of Learning and Motivation, 28*, 161–206.

Navarette, C. D., Fessler, D. M. T., & Eng, S. J. (2007). Increased ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior, 28*, 60–65.

Navarrete, C. D., Fessler, D. M. T., Fleischman, D., & Geyer, J. (2009). Race bias tracks conception risk across the menstrual cycle. *Psychological Science, 20*, 661–665.

Park, J. H., Faulkner, J., & Schaller, M. (2003). Evolved disease-avoidance processes and contemporary anti-social behavior: Prejudicial attitudes and avoidance of people with disabilities. *Journal of Nonverbal Behavior, 27*, 65–87.

Pillsworth, E. G., & Haselton, M. G. (2006a). Male sexual attractiveness predicts differential ovulatory shifts in female extra-pair attraction and male mate retention. *Evolution and Human Behavior, 27*, 247–258.

Pillsworth, E. G., & Haselton, M. G. (2006b). Women's sexual strategies: The evolution of long-term bonds and extra-pair sex. *Annual Review of Sex Research, 17*, 59–100.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Quillian, L., & Pager, D. (2001). Black neighbors, higher crime? The role of racial stereotypes in evaluations of neighborhood crime. *American Journal of Sociology 107,* 717–767.

Reeder, G. D., & Coovert, M. D. (1986). Revising an impression of morality. *Social Cognition, 4,* 1–17.

Reeder, G. D., & Spores, J. M. (1983). The attribution of morality. *Journal of Personality and Social Psychology, 44*, 736–745.

Rothbart, M., & Park, B. (1986). On the confirmability and disconfirmability of trait concepts. *Journal of Personality and Social Psychology, 50,* 131–142.

Rozin, P., Markwith, M., & Nemeroff, C. (1992). Magical contagion beliefs and fear of AIDS. *Journal of Applied Social Psychology, 22,* 1081–1092.

Saal, F. E., Johnson, C. B., & Weber, N. (1989). Friendly or sexy? It may depend on whom you ask. *Psychology of Women Quarterly, 13*, 263–276.

Sally, D. (1995). Conversation and cooperation in social dilemmas: A meta-analysis of experiments from 1958 to 1992. *Rationality and Society, 7*, 58–92.

Schaller, M., & Duncan, L. A. (2007). The behavioral immune system: Its evolution and social psychological implications. In J. P. Forgas, M. G. Haselton, & W. von Hippel (Eds.), *Evolution and the social mind: Evolutionary psychology and social cognition* (pp. 293–307). New York: Psychology Press.

Schaller, M., Park, J. H., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology, 14*, 105–137.

Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality and Social Psychology Bulletin, 29*, 637–649.

Schmitt, D. P., Alcalay, L., Allik, J., Ault, L., Austers, I., Bennett, K. L., et al. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6 continents, and 13 islands. *Journal of Personality and Social Psychology, 85*, 85–104.

Shotland, R. L., & Craig, J. M. (1988). Can men and women differentiate between friendly and sexually interested behavior? *Social Psychology Quarterly, 51*, 66–73.

Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*, 870–883.

Symons, D. (1979). *The evolution of human sexuality.* New York: Oxford University Press.

Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Monograph, 2*, No. 8.

Trafimow, D. (2001). The effects of trait type and situation type on the generalization of trait expectancies across situations. *Personality and Social Psychology Bulletin*, *11*, 1463–1468.

Treat, T. A., Viken, R. J., Kruschke, J. K., & McFall, R. M. (2010). Men's memory for women's sexual-interest and rejection cues. *Applied Cognitive Psychology.* doi: 10.1002/acp.1751.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871–1971* (pp. 136–179). Chicago, IL: Aldine.

Turke, P. W., & Betzig, L. L. (1985). Those who can do: Wealth, status, and reproductive success on Iflauk. *Ethology and Sociobiology, 6*, 79–87.

von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior.* Princeton, NJ: Princeton University Press.

Yamagishi, T., Jin, N., & Kiyonari, T. (1999). Bounded generalized reciprocity: In-group favoritism and in-group boasting. *Advances in Group Processes, 16,* 161–197.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Yamagishi, T., Terai, S., Kiyonari, T., Mifune, N., & Kanazawa, S. (2007). The social exchange heuristic: Managing errors in social exchange. *Rationality and Society, 19*, 259–291.

Ybarra, O. (2002). Naive causal understanding of valenced behaviors and its implications for social information processing. *Psychological Bulletin, 128,* 421–441.

Ybarra, O., & Stephan, W. G. (1996). Misanthropic person memory. *Journal of Personality and Social Psychology, 70,* 691–700.

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4

Self-Deception to Deceive Others

WILLIAM VON HIPPEL
University of Queensland

ROBERT TRIVERS
Rutgers University

Self-deception has traditionally been viewed by psychologists and philosophers as a strategy that people adopt to protect themselves from a psychologically threatening reality. In this sense, self-deception is classically considered an *intra*personal process that defends the individual. In keeping with the theme of this volume on social thinking and interpersonal behavior, we argue instead that self-deception evolved for the *inter*personal purpose of facilitating the deception of others. Thus, in this sense self-deception might be considered to have evolved for offensive rather than defensive purposes. Additionally, we propose that self-deception also benefits deceivers by enabling them to lie without the costly cognitive load induced by holding truth and lie simultaneously in mind and by minimizing retribution if their lies are discovered. Thus, despite its seeming irrationality, self-deception might indeed reveal a "deep rationality" based on its interpersonal consequences (see Kenrick, Li, White, & Neuberg, this volume).

DECEPTION AND SELF-DECEPTION

In the struggle to accrue resources, a strategy that has emerged over evolutionary time is deception. For example, people frequently lie to those on whom they depend to receive resources that might not otherwise be provided (Steinel & De Dreu, 2004). Indeed, approximately half of people's daily deceptions are intended to gain a resource for the self (DePaulo & Kashy, 1998). Such deceptive practices instigate a coevolutionary struggle, because selection favors the deceived evolving new means of detection and the deceiver evolving new means of deception.

Self-deception may be an important tool in this coevolutionary struggle by allowing deceivers to circumvent detection efforts (Trivers, 1976/2006, 1985, 2000; for a more thorough discussion, see von Hippel & Trivers, 2011).

In the case of deception among humans, there are several categories of cues (beyond fact-finding itself) that people can use to detect deception in others, including signs of nervousness, suppression, and cognitive load. Despite the availability of these cues, research suggests that people perform poorly in detecting deception (Bond & DePaulo, 2006). Nevertheless, the literature on deception may have grossly underestimated people's ability to detect deception through reliance on studies where (1) the deception is of little or no consequence, (2) the deceived has no opportunity to cross-examine the deceiver, (3) deceiver and deceived are strangers to each other, and (4) there are no repeated interactions between deceiver and deceived. Thus, rates of deception detection may be substantially higher outside the laboratory than in it.

Because successful deception can lead to substantial benefits for deceivers while imposing costs on the deceived, and because unsuccessful deception can lead to substantial costs imposed on deceivers by people they had endeavored to deceive (Boles, Croson, & Murnighan, 2000; Schweitzer, Hershey, & Bradlow, 2006), those who would deceive are in a perennial struggle against those who would not be deceived. We propose that self-deception offers an important tool in this coevolutionary struggle by allowing the deceiver the opportunity to deceive without cognitive load, conscious suppression, and increased nervousness. That is, to the degree that people can convince themselves that a deception is true or that their motives are beyond reproach, they are no longer in a position in which they must knowingly deceive others. Thus, by deceiving themselves people can better deceive others, because they no longer emit the cues of consciously mediated deception that could reveal their deceptive intent. In its emphasis on the evolution of self-deceptive cognitive processes, this proposal is consistent with the argument of Galperin and Haselton (this volume) that evolution operates on psychological processes to impact behavioral and interpersonal outcomes.

Beyond this primary role that self-deception plays in facilitating the deception of others, self-deception should lead to two additional interpersonal benefits as well. First, cognitive load not only reveals deception but also has other costs: Demands on working memory reduce performance in challenging domains (Schmader & Johns, 2003) and disrupt social functioning (von Hippel & Gonsalkorale, 2005). When people are forced to maintain both truth and lie in working memory, they are likely to show reduced ability to engage in other tasks and access other opportunities. This cognitive load required to maintain conscious deception is difficult to avoid, because many deceptions require the deceiver to keep fact and fiction in mind simultaneously to ensure that the former is hidden and the latter is supported. Self-deception provides a way to avoid this cognitive load. To the degree that deceivers can convince themselves that their deception is indeed true, they are no longer required to maintain the real facts of the case in mind while they focus on promulgating the fiction. Rather, by believing the fiction that they are expressing to others, they can free their mind to concentrate on other matters.

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Second, the best-laid plans often go awry, and lies are no exception to this rule; even careful and well-rehearsed deceptions can be uncovered. This ever-present possibility of detection poses a problem for would-be deceivers, as retribution and exclusion are common responses to detected deceptions. One solution to the threat of retribution when an apparent deception is uncovered is to co-opt legitimate reasons for having led people astray by pleading ignorance or ineptitude rather than deception. When people feel deceived they typically become angry and seek retribution, but when they feel that they were unintentionally misled they are much more willing to forgive (Schweitzer et al., 2006; Stouten, De Cremer, & van Dijk, 2006). For this reason, people who accompany their deception of others with deception of the self are better placed to avoid retribution if discovered. By arguing that they had not intentionally deceived, self-deceivers are more likely than conscious deceivers to avoid retribution. Of course, conscious deceivers can also deceive about their original knowledge and intent, but the cues that reveal deception can also reveal deception about their earlier lies. Thus, by deceiving themselves, people can reduce retribution if their deception of others is discovered.

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SELF-DECEPTION IN SERVICE OF SOCIAL ADVANCEMENT

Self-deception can facilitate the deception of others in a more general sense, in that it can help us convince others that we are better (e.g., more moral, stronger, smarter) than we really are. Thus, the benefits of self-deception go beyond convincing others of specific lies, as self-deception can also help us accrue the more general social advantages of self-inflation or self-enhancement. To the degree that people can bolster their image of themselves to themselves and enhance their self-confidence, they increase the chances that they will be able to influence others and will be chosen for socially important roles. For this reason, self-enhancement should be ubiquitous and people should believe their own self-enhancing stories. Evidence supports both of these possibilities (Sedikides & Skowronski, this volume).

With regard to ubiquity, self-enhancing biases are evident in a wide variety of domains and strategies among a wide variety of peoples (Alicke & Sedikides 2009). Even East Asians, who value humility and harmony over individualistic self-aggrandizement, show self-enhancement in their claims of the superiority of their collectivist qualities (Sedikides, Gaertner, & Toguchi, 2003; Sedikides, Gaertner, & Vevea, 2005). Furthermore, like Westerners, East Asians who are low in depression and stress show this self-enhancement to a greater degree than those who have these problems (Gaertner, Sedikides, & Chang, 2008).

Not only do people self-enhance the world over, but the average person also appears to be convinced that he or she is better than average (Alicke & Sedikides, 2009). Most of the research on self-enhancement does not allow one to assess whether these aggrandizing tales are self-deceptive or only intended to deceive others, but some of the variables used in this research support the idea that people believe their own self-enhancing stories. For example, Epley and Whitchurch (2008) photographed participants and then morphed these photographs to varying

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degrees with attractive or unattractive photos of same-sex individuals. Epley and Whitchurch then presented participants with these morphed or unaltered photos of themselves under different circumstances. In one experiment participants were asked to identify their true photo in an array of actual and morphed photographs of themselves. Participants were more likely to choose their photo morphed 10–20% with the more attractive image than either their actual photo or their photo morphed with the unattractive image. This effect emerged to a similar degree with a photo of a close friend, but it did not emerge with a photo of someone they had just met. Because people often perceive their close friends in an overly positive light (Kenny & Kashy, 1994), these findings suggest that people do not have a general bias to perceive people as more attractive than they really are but rather a specific bias with regard to themselves and close others.

In a second experiment, participants were presented with an array of photos of other individuals, among which was a single photo of themselves (either their actual photo or a photo morphed 20% with the attractive or unattractive image). Epley and Whitchurch (2008) found that people were able to locate photographs of themselves most rapidly if they were morphed with an attractive photo, at an intermediate speed if they were not morphed, and most slowly if they were morphed with an unattractive photo. These findings suggest that the enhanced photo most closely matches how people see themselves in their mind's eye, suggesting that they are deceiving themselves about their own attractiveness. Were they aware of this inaccuracy, they would be unlikely to claim the attractive photo to an experimenter who has the truth at her disposal, and they would be unlikely to locate their enhanced self more rapidly than their actual self.

Along with their self-enhancing stories, people also derogate others. Indeed, self-enhancement and other-derogation are opposite sides of the same coin, as people arrive at their self-image via social comparison (Festinger, 1954). For this reason all self-evaluations are relative, and the self can be elevated above others either via self-enhancement or other-derogation. Like self-enhancement, derogation of others can also be an offensive tool used in the service of social advancement, as people often derogate their rivals when they are trying to impress a potential romantic partner (Buss & Dedden, 1990; Schmitt & Buss, 2001).

As with self-enhancement, derogation of others appears to be both ubiquitous and believed by the self. Some of the best examples of self-deceptive derogation of others can be found in the research of Fein and Spencer (1997). In one of their studies, participants were told either that they did well or poorly on an IQ test. They were then given a chance to watch a videotape of a female student being interviewed for a job, and this individual was portrayed as either Jewish or Christian via her ostensible surname and a photo showing her wearing a Jewish star or a cross. When participants watched the individual they believed was Christian, their ratings of her were not influenced by whether they had ostensibly failed the IQ test. In contrast, when participants thought they were watching a Jewish woman, their ratings were influenced by how well they had done on the IQ test. Those who thought they had done well showed no sign of prejudice. Those who thought they had done poorly, however, rated the Jewish woman negatively. Furthermore, these individuals also showed a rebound in self-esteem compared with people who

thought they had failed but watched the Christian woman. These findings suggest that people responded to failing an IQ test by denigrating Jews. This denigration appears to have been believed by these individuals, because the more they derogated her, the better they felt about themselves. Furthermore, people appeared to have objective information about this woman at their disposal, given that they did not rate her negatively when she was portrayed as Christian or when they had not ostensibly failed the test.

These data suggest that when people derogate others they are self-deceptively making themselves look better to themselves as well. This interpretation is corroborated by the findings of their second experiment, in which participants who had reflected on their important values (a process that affirms a sense of self-worth) no longer evaluated the Jewish woman more negatively than the Christian woman after failure. This sort of threat-induced derogation of others documented by Fein and Spencer (1997) can also take place outside of awareness (Spencer, Fein, Wolfe, Fong, & Dunn, 1998), a finding that suggests that people truly believe their negative impressions of others when they are led to feel bad about themselves. Because downward social comparison is self-enhancing (Wills, 1981), these findings complement the bias documented by Epley and Whitchurch (2008). Thus, it appears that by deceiving themselves about their own positive qualities and the negative qualities of others, people are able to display greater confidence than they might otherwise feel, thereby enabling them to advance socially and materially.

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VARIETIES OF SELF-DECEPTION

If deceiving others can be facilitated by self-deception, the question then arises—how are people able to deceive themselves? The answer to this question is found in a variety of information processing biases that favor welcome over unwelcome information.

Amount of Searching

There are many situations in which people avoid further information search because they may encounter news that is incompatible with their goals or desires. For example, on the trivial end of the continuum, some people avoid checking alternative products after they have made a purchase that cannot be undone (Olson & Zanna, 1979). On the more important end of the continuum, some people avoid AIDS testing out of concern that they might get a result that they do not want to hear, particularly if they believe the disease is untreatable (Dawson, Savitsky, & Dunning, 2006; Lerman, Croyle, Tercyak, & Harmann, 2002). This sort of self-deceptive information avoidance can be seen in the aphorism, "What I don't know can't hurt me." Although a moment's reflection reveals the fallacy of this statement, it is nonetheless psychologically compelling.

Similar sorts of biased information search can be seen in laboratory studies. Perhaps the clearest examples can be found in research by Ditto and Lopez (1992), in which people are confronted with the possibility that they may have a proclivity for a pancreatic disorder. In their experiments people expose a test strip to their saliva and are led to believe that color change is indicative of either a positive or

negative health prognosis (actually the color never changes). When people are led to believe that color change is a good thing, they wait more than 60% longer for the test strip to change color than when they believe color change is a bad thing. Thus, people sometimes do not tell themselves the whole truth if a partial truth seems preferable.

Selective Searching

The type of information gathered can also be biased. Although one never knows for sure what lies around the next corner, some corners are more likely to yield welcome information than others. Thus, politically liberal people might choose the *New York Times* as their information source, whereas politically conservative individuals might choose Fox News (Frey, 1986). In such a manner, people can be relatively confident that the brunt of the information they gather will be consistent with their worldview, even if they do not know what tomorrow's headlines will bring.

Laboratory studies have examined this sort of biased information search, in part by assessing the conditions under which people are interested in learning negative information about themselves. One conclusion from this research is that the better people feel about themselves, the more willing they are to face criticism. For example, Trope and Neter (1994) told participants that they were going to take a social sensitivity test and asked whether they would like feedback on their assets or liabilities. When participants had just ostensibly failed an unrelated spatial abilities test or had not taken the test, they showed a slight preference for feedback on their assets. In contrast, when bolstered by the experience of ostensibly having performed very well on the spatial abilities test, participants were more interested in learning about their liabilities, presumably in service of self-improvement. In a related vein, Armitage, Harris, Hepton, and Napper (2008) demonstrated that smokers were more likely to take an antismoking leaflet if they had been self-affirmed by reflecting on their prior acts of kindness. These data suggest that people search for welcome information but are capable of searching for unwelcome information when their self-enhancement goals have been met. Thus, people are often able to avoid telling themselves the whole truth by searching out those bits of truth that they want to hear, but they are also willing to face uncomfortable truths when feeling secure.

Selective Attention

When information is perceptually available and need not be actively discovered, people can still bias their encoding by selectively attending to aspects of the information that they would prefer to be true. For example, if a person is at a dinner party where one conversation concerns the dangers of smoking and the other concerns the dangers of alcohol, she can choose to attend to one conversation or the other and may do so selectively if she is a smoker or a drinker. In such a case she would likely be aware of the general tone of the information she is choosing not to gather, but by not attending to one of the conversations she could avoid learning details that she may not want to know.

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This sort of effect has been documented in a variety of different types of experiments. For example, in a study of proactive coping, Wilson, Wheatley, Kurtz, Dunn, and Gilbert (2004) convinced participants that they might be chosen or were highly unlikely to be chosen for a hypothetical date. When participants believed they might be chosen, they spent slightly more time looking at positive than negative information about their potential partner. In contrast, when they believed that they were highly unlikely to be chosen, they spent more time looking at negative information about their potential partner. Thus, when people faced almost certain disappointment, they directed their attention to information that would make their upcoming rejection more palatable.

Eye-tracking studies provide some of the clearest evidence of where people direct their attention and that people are often strategic in their attentional decisions (Isaacowitz, 2006). For example, older adults look toward positive stimuli and away from negative stimuli when in a bad mood (Isaacowitz, Toner, Goren, & Wilson, 2008). This effect did not emerge among younger adults, suggesting that older adults are more likely than younger adults to rely on selective attention for mood repair. In a case such as this, older adults sacrifice informational content in service of emotional goals. This strategy may be sensible for older adults who have greater immune challenges than their younger counterparts and thus reap greater benefits from maintaining happiness. As with the strategy of ending information search early, selective attention can allow people to avoid telling themselves the whole truth.

Biased Interpretation

Despite the strategies just described for avoiding unwelcome information, there remain a variety of circumstances in which such information is nevertheless faithfully encoded. Under such circumstances, unwelcome information can still be dismissed through biased interpretation of attitude-consistent and attitude-inconsistent information. In the classic study of this phenomenon (Lord, Ross, & Lepper, 1979), people who were preselected for their strong attitudes on both sides of the capital punishment debate were exposed to a mixed bag of information about the efficacy of capital punishment. Some of the data with which they were presented suggested that capital punishment was an effective crime deterrent, whereas other data suggested that it was not. Given that the findings were new to participants, logic would suggest that the two groups would coalesce at least to some degree in their attitudes. In contrast, people ended the experiment more polarized than they began it.

Lord et al. (1979) discovered that this attitude polarization was a product of biased interpretation of the data. People who were in favor of capital punishment accepted the data that supported capital punishment as sound but rejected the data that opposed capital punishment as flawed. Those who were against capital punishment showed the opposite pattern of skepticism. This selective skepticism appears self-deceptive, as it is attenuated or eliminated by self-affirmation (Reed & Aspinwall, 1998) and cognitive load (Ditto, Scepansky, Munro, Apanovitch, & Lockhart, 1998). These findings suggest that people rely on their motivational and

mental resources to be differentially skeptical of welcome and unwelcome information. Thus, selective skepticism appears to be a form of self-deception rather than simply an objective devaluation of new information to the degree that it is inconsistent with a large body of prior experience.

As a consequence of this selective skepticism, people are able to encounter a mixed bag of evidence but nevertheless walk away with their original beliefs intact and potentially even strengthened. Because they are unaware that a person with a contrary position would show the opposite pattern of acceptance and rejection, they are able to convince themselves that the data support their viewpoint. Thus, it seems that, by relying on their considerable powers of skepticism only when information is uncongenial, people are able to prevent themselves from learning the whole truth.

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Misremembering

Even if people attend to unwanted information, and even if they accept it at the time of encoding, this does not guarantee that they will be able to retrieve it later. Rather, information that is inconsistent with their preferences may simply be forgotten or misremembered later as preference-consistent or neutral. Thus, a person might have great memory for the details of his victory in the championship tennis match but very poor memory for the time he lost badly. Indeed, this latter memory might also be distorted to implicate his doubles partner or the unusual talents of his opponent. Various lines of research support such a possibility.

First, when people put effort into self-improvement but the improvement does not materialize, they can manufacture the gains they wish they had made by misremembering how they used to be. For example, Conway and Ross (1984) demonstrated that after taking a study skills class, people misremembered their prior study skills as lower than they rated them originally, thereby supporting their belief that their skills have improved. They then later misremembered their subsequent course performance as better than it was to maintain the fiction of improvement. Through processes such as these, people are able to purge their memories of inconvenient truths, thereby preventing themselves from knowing the whole truth, even if they accurately encoded it in the first instance.

Health information can be similarly distorted in memory. In research by Croyle, Loftus, Barger, Sun, Hart, and Gettig (2006), participants were given cholesterol screening and 1, 3, or 6 months later were tested for their memory of their results. Respondents showed highly accurate memory of their risk category (89% correctly recalled this information), and this accuracy did not decay over 6 months. Nevertheless, even in the context of this apparently easy memory task, respondents were more than twice as likely to recall their cholesterol as being lower rather than higher than it really was.

This sort of memory bias can also be seen in recollection of daily experiences, whereby people have better recall of their own good than bad behavior but do not show this bias in their recall of the behaviors of others (D'Argembeau & Van der Linden, 2008). This self-enhancing recall bias is also eliminated by information that bolsters people's self-image (in this case, doing well on a test; Green,

Sedikides, & Gregg, 2008). Thus, people's memories are self-enhancing, sometimes containing information that is biased to be consistent with preferences and sometimes just failing to contain the whole truth.

Rationalization

Even if one's prior misdeeds are accurately recalled by self and others, it is still possible to avoid telling oneself the whole truth by reconstructing or rationalizing the motives behind the original behavior to make it more socially acceptable. For example, after eating a second helping of cake that leaves none for those who have not yet had dessert, a person could explain that he had not noticed that there was no other cake or that he thought more cakes were available elsewhere. Here it is not memory of the misdeed that is critical, but interpretation of the motive that underlies that deed.

Again, laboratory evidence supports this sort of rationalization process. For example, von Hippel, Lakin, and Shakarchi (2005) demonstrated that when cheating could be cast as unintentional people who showed a self-serving bias in another domain were more likely to cheat but that when cheating was clearly intentional self-serving individuals were no more likely to cheat than others. These data suggest that some types of self-serving biases involve rationalization processes that are also common to some types of cheating. Indeed, people also cheat more when they are told that free will is just an illusion (Vohs & Schooler, 2007), suggesting that they rationalize their cheating in these circumstances as caused by life situations rather than their own internal qualities.

More direct evidence for this sort of rationalization can be found in the hypocrisy research of Valdesolo and DeSteno (2008). In their study participants were given the opportunity to (1) choose whether to give themselves or another individual an onerous task or (2) randomly assign the onerous task to self versus other. When given this opportunity, nearly all participants chose to give the onerous task to the other participant rather than rely on random assignment. Observers were not asked to make the choice themselves but rather watched a confederate make this same self-serving choice. When asked how fair the choice was, observers rated the act of choosing rather than relying on random assignment as less fair than it was rated by those who had actually made this choice. This hypocrisy in self-ratings shown by those who chose to assign the onerous task to another was eliminated by cognitive load, suggesting that participants rely on their cognitive resources to reconstrue the fairness underlying their judgments.

Research on misattribution reveals evidence of similar rationalization processes. A classic example can be found in research on avoidance of disabled people by Snyder, Kleck, Strenta, and Mentzer (1979). Participants in their experiment chose a seat from two options—one next to a person who was disabled and one next to a person who was not disabled. In front of each empty seat there was a television, and the two televisions sometimes showed the same program and sometimes a different program. When the televisions were showing the same program, the majority of participants sat next to the disabled person, presumably to demonstrate to self and other that they were not prejudiced against disabled people. In contrast,

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when the televisions were showing different programs, the majority sat away from the disabled person. Thus, people avoided the disabled person only when they could rationalize their behavior as caused by external factors.

Similar effects have been documented in differential helping rates for African Americans versus Whites, with a meta-analysis showing that Whites are less likely to help African Americans than fellow Whites, but only when there are situational impediments to helping, such as distance or risk (Saucier, Miller, & Doucet, 2005). When people cannot attribute their nonhelping to such situational factors, they apparently feel compelled to help African Americans at equal rates to Whites. In cases such as these, people are not denying or misremembering their cheating, self-serving choices, avoidance, or lack of helping. Rather, they are denying the socially undesirable motives that appear to underlie their behaviors by rationalizing their actions as the product of external forces.

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Convincing the Self That an Untruth Is True

The classic form of self-deception is convincing oneself that an untruth is true. An example of this sort of self-deception can be found in research on perceptions of control. When people are deprived of control they often endeavor to regain a sense of control. In a self-deceptive example of this effect, Whitson and Galinsky (2008) found that, when people are led to feel low levels of personal control, they perceive illusory patterns in random configurations and are more likely to endorse conspiracy theories to explain world events. Importantly, these effects did not emerge when people had self-affirmed, suggesting that people have the potential to be aware of the absence of patterns and conspiracies. Similar findings have been documented by Kay, Gaucher, Napier, Callan, and Laurin (2008), who argue that beliefs in a controlling God and a strong government serve people's need for control. Consistent with their reasoning, differences in the percentage of people who believe in God between countries can be predicted by the insecurities of existence within countries (e.g., availability of health care, food, and housing), with increased insecurity associated with increased religiosity (Norris & Inglehart, 2004). Such a finding suggests the possibility of self-deception on a worldwide scale.

Another example of individuals deceiving themselves can be found in the research of Epley and Whitchurch (2008) described earlier, in which people more rapidly located photos of themselves when the photo had been morphed to be more attractive than when the photo was unaltered. This finding suggests that people's self-image is more attractive than their actual one, as the enhanced self provides a quicker match to their internal template than the actual self. Finally, experiments in cognitive dissonance also suggest that people are facile at lying to others and then coming to believe their own lies. For example, when they believe that they have freely chosen to tell another person that a tedious task is interesting, people soon believe that the task really is interesting (Festinger & Carlsmith, 1959), and again this effect is eliminated by self-affirmation (Steele & Liu, 1983).

PRELIMINARY EVIDENCE FOR SELF-DECEPTION TO DECEIVE OTHERS

If these information-processing biases that favor welcome over unwelcome information have evolved to facilitate deception of others, then it should be the case that people show these biases when they endeavor to deceive someone else. In this final section of the chapter we describe some of the preliminary evidence we have gathered in support of this possibility. In these experiments we relied on the encoding bias documented by Ditto and his colleagues as our indicator of self-deception, in which people continue to gather information when early returns are unwelcome but stop gathering information when early returns are welcome.

As an initial test of the possibility that people deceive themselves in their efforts to deceive others (Smith, von Hippel, & Trivers, 2011), participants were presented with a scenario in which they were asked to imagine that they were human resource officers at a local company. In two of the conditions their task was to report on abuse of employee privileges, such as when people take sick leave but are not really sick. Half of the participants in these conditions read about a very likeable colleague who appeared to have potentially abused her sick leave entitlements, and half read about a very dislikeable colleague who appeared to have potentially abused her sick leave entitlements. Participants were asked to imagine that they were in the coffee room when this colleague mentioned to another person how she had the best day yesterday, when she was known to have called in sick. Participants were then asked whether they would leave the room prior to her describing why her day was so good or whether they would stay and listen to the conversation. In another control condition participants also imagined a highly likeable colleague who made the same statement, but this time their human resources responsibilities involved only reporting on abuse of Internet privileges. Participants were significantly more likely to state that they would leave the room prior to their colleague describing her great day when they liked her and would potentially have to report on her abuse of entitlements than when they did not like her and would have to report on her abuse of entitlements and when they liked her but reported only on Internet abuse. Furthermore, when asked to describe why they would leave, most of the participants noted that by avoiding the unwanted information they would be better placed to claim to their boss that their likeable colleague had not abused her sick leave entitlements.

These results suggest a self-conscious variety of self-deception, whereby people knowingly bias the manner in which they expose themselves to wanted and unwanted information to enhance their ability to deceive others. It is not clear from these results, however, whether this form of self-deception actually helps the self-deceiver in any way. To provide a test of this possibility, Smith et al. (2011) conducted a follow-up study in which all participants were told about the same likeable colleague, and all participants were told that their task is to report on abuse of employee entitlements. After this information was provided and participants were told that their likeable colleague had a great day when she was on sick leave, they were again asked if they would stay or leave before she explained why her day was so good. Participants indicated whether they would stay or go and were then were

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told to imagine that before they could do anything the likeable colleague either departed herself to answer her phone or blurted out that she spent an active day at the beach. Participants were then asked to indicate whether they would cover for her when they later met the boss or whether they would indicate that she abused her sick leave privileges. Finally, they were asked to imagine that their boss later learned that she had abused sick leave privileges and were asked to indicate how much trouble they would be in themselves if they had chosen to cover for her.

About two-thirds of the participants indicated that they would choose to stay to hear what the likeable colleague said, and one-third indicated that they would leave and avoid the information. Of those who chose to stay and then learned that the likeable colleague had enjoyed a day at the beach, about half chose to report her and half did not. Of those who chose to leave, virtually none reported her when they learned that she had in fact enjoyed a day at the beach. These data suggest that there are three types of participants in this sample: (1) people who do not want to turn in their colleague and thus avoid the possibility that she broke the rules; (2) people who do not want to turn in their colleague but gather the facts despite their unwillingness to report them; and (3) people who will turn in their likeable colleague if the evidence indicates she broke the rules.

When Smith et al. (2011) then compared how much trouble these different types of participants believed they would be in if they did cover for her and the boss discovered that she had abused sick leave, they found differences among all the groups. Not surprisingly, people who chose to turn in their colleague reported that they thought they would get in the most trouble if they covered for her and her abuse were later discovered. More interestingly, however, people who tried to avoid the information by leaving (i.e., the self-deceivers) thought they would get in more trouble if they heard their likeable colleague blurt out her day's activities and then covered for her compared with people who had chosen to stay but still covered for her after learning of her entitlement abuse. No such difference emerged between the leavers and stayers when a likeable colleague never described her day and left to answer her phone.

These data suggest that self-deceivers believe they will minimize retribution by preventing themselves from learning potentially bad news, whereas non-self-deceivers apparently believe they can avoid retribution even in the face of potentially bad news. Nevertheless, because the results are based on self-report and hypothetical situations, they are limited in what they can tell us about actual human behavior. In an effort to address this shortcoming, Smith et al. (2011) conducted a third experiment to examine behavioral evidence for information avoidance in the pursuit of deception. In this experiment participants were brought to the laboratory and told that their task was to convince someone else that a soft drink either contained or did not contain sugar. Participants were further told that they would have the opportunity to test the soft drink prior to their persuasive efforts by dipping a test strip into it. Participants were told that the test strip is sugar sensitive, although in fact it was inert and never changed colors. Those participants whose task it was to convince the person that the soft drink contained sugar would be telling the truth if the test strip changed colors and, participants whose task it was

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to convince the person that the soft drink contained artificial sweetener would be telling the truth if the test strip did not change colors.

If people gather information in a biased fashion to support the claim they are about to make, then they should wait longer for the test strip to change colors when their task is to convince the person that the soft drink contains sugar than when their task is to convince the person that the soft drink contains artificial sweetener. Consistent with this possibility, participants waited over 60% longer when color change would be consistent with their upcoming claims than when it would be inconsistent with the upcoming claims. These data suggest that people bias their information gathering to deceive others in the exact same manner (and even to the same magnitude) as they do when their task is ostensibly to deceive themselves. It now remains to be seen whether this information avoidance also has beneficial consequences for those who avoid potentially bad news.

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CONCLUSION

There is a long history of treating self-deception in social psychology as if it is an intrapersonal defense mechanism, designed to protect the individual from an imperfect world. In contrast to this tradition, we have argued that self-deception is an offensive and interpersonal strategy, intended to facilitate the deception of others. This deception can be about something specific, such as the behavior of a likeable colleague or whether a soft drink contains sugar, and this deception can be very general, such as whether one is likeable, attractive, trustworthy, or moral. In both cases, self-deception might be better conceived as a strategy intended to influence the information available to others rather than as a strategy intended to protect the self.

REFERENCES

Alicke, M. D., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. *European Review of Social Psychology, 20*, 1–48.

Armitage, C. J., Harris, P. R., Hepton, G., & Napper L. (2008). Self-affirmation increases acceptance of health-risk information among UK adult smokers with low socioeconomic status. *Psychology of Addictive Behaviors, 22*, 88–95.

Boles, T., Croson, R., & Murnighan, J. K. (2000). Deception and retribution in repeated ultimatum bargaining. *Organizational Behavior and Human Decision Processes, 83*, 235–259.

Bond, C. F., Jr., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review, 10*, 214–234.

Buss, D. M., & Dedden, L. A. (1990). Derogation of competitors. *Journal of Social and Personal Relationships, 7*, 395–422.

Conway, M., & Ross, M. (1984). Getting what you want by revising what you had. *Journal of Personality and Social Psychology, 47*, 738–748.

Croyle, R. T., Loftus, E. F., Barger, S. D., Sun, Y.-C., Hart, M., & Gettig, J. (2006). How well do people recall risk factor test results? Accuracy and bias among cholesterol screening participants. *Health Psychology, 25*, 425–432.

D'Argembeau, A., & Van der Linden, M. (2008). Remembering pride and shame: Self-enhancement and the phenomenology of autobiographical memory. *Memory, 16,* 538–547.

Dawson, E., Savitsky, K., & Dunning, D. (2006). "Don't tell me, I don't want to know": Understanding people's reluctance to obtain medical diagnostic information. *Journal of Applied Social Psychology, 36,* 751–768.

DePaulo, B. M., & Kashy, D. A. (1998). Everyday lies in close and casual relationships. *Journal of Personality and Social Psychology, 74,* 63–79.

Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: Use of differential decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology, 63,* 568–584.

Ditto, P. H., Scepansky, J. A., Munro, G. D., Apanovitch, A. M., & Lockhart, L. K. (1998). Motivated sensitivity to preference-inconsistent information. *Journal of Personality and Social Psychology, 75,* 53–69.

Epley, N., & Whitchurch, E. (2008). Mirror, mirror on the wall: Enhancement in self recognition. *Personality and Social Psychology Bulletin, 34,* 1159–1170.

Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73,* 31–44.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7,* 117–140.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58,* 203–211.

Frey, D. (1986). Recent research on selective exposure to information. In L. Berkowitz (Ed.), *Advances in experimental social psychology, vol. 19,* (pp. 41–80). Maryland Heights, Academic Press.

Gaertner, L., Sedikides, C., & Chang, K. (2008). On pancultural self-enhancement: Well-adjusted Taiwanese self-enhance on personally valued traits. *Journal of Cross-Cultural Psychology, 39,* 463–477.

Green, J. D., Sedikides, C., & Gregg, A. P. (2008). Forgotten but not gone: The recall and recognition of self-threatening memories. *Journal of Experimental Social Psychology 44,* 547–561.

Isaacowitz, D. M. (2006). Motivated gaze: The view from the gazer. *Current Directions in Psychological Science, 15,* 68–72.

Isaacowitz, D. M., Toner, K., Goren, D., & Wilson, H. R. (2008). Looking while unhappy: Mood-congruent gaze in young adults, positive gaze in older adults. *Psychological Science, 19,* 848–853.

Kay, A. C., Gaucher, D., Napier, J. L., Callan, M. J., & Laurin, K. (2008). God and government: Testing a compensatory control explanation for the support of external systems. *Journal of Personality and Social Psychology, 95,* 18–35.

Kenny, D. A., & Kashy, D. A. (1994). Enhanced co-orientation in the perception of friends: A social relations analysis. *Journal of Personality and Social Psychology, 67,* 1024–1033.

Lerman, C., Croyle, R. T., Tercyak, K. P., & Hamann, H. (2002). Genetic testing: Psychological aspects and implications. *Journal of Consulting and Clinical Psychology, 70,* 784–797.

Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology, 37,* 2098–2109.

Norris, P., & Inglehart. R. (2004). *Sacred and secular: Religion and politics worldwide.* New York, Cambridge University Press.

Olson, J. M., & Zanna, M. P. (1979). A new look at selective exposure. *Journal of Experimental Social Psychology, 15,* 1–15.

Reed, M. B., & Aspinwall, L. G. (1998). Self-affirmation reduces biased processing of health-risk information. *Motivation and Emotion, 22,* 99–132.

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Saucier, D. A., Miller, C. T., & Doucet, N. (2005). Differences in helping Whites and Blacks: A meta-analysis. *Personality and Social Psychology Review, 9*, 2-16.

Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology, 85,*440–452.

Schmitt, D. P., & Buss, D. M. (2001). Human mate poaching: Tactics and temptations for infiltrating existing relationships. *Journal of Personality and Social Psychology, 80,* 894–917.

Schweitzer, M. E., Hershey, J., & Bradlow, E. (2006). Promises and lies: Restoring violated trust. *Organizational Behavior and Human Decision Processes, 101,* 1–19.

Sedikides, C., Gaertner, L., & Toguchi, Y. (2003). Pancultural self-enhancement. *Journal of Personality and Social Psychology, 84,* 60–70.

Sedikides, C., Gaertner, L., & Vevea, J. L. (2005). Pancultural self-enhancement reloaded: A meta-analytic reply to Heine (2005). *Journal of Personality and Social Psychology, 89,* 539–551.

Smith, M., von Hippel, W., & Trivers, R. (2011). Unpublished data, University of Queensland.

Snyder, M. L., Kleck, R. E., Strenta, A., & Mentzer, S. J. (1979). Avoidance of the handicapped: An attributional ambiguity analysis. *Journal of Personality and Social Psychology, 37,* 2297–2306.

Spencer, S. J., Fein, S., Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. *Personality and Social Psychology Bulletin, 24,* 1139–1152.

Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology, 45,* 5–19.

Steinel, W., & De Dreu, C. K. W. (2004). Social motives and strategic misrepresentation in social decision making. *Journal of Personality & Social Psychology, 86,* 419–34.

Stouten, J., De Cremer, D., & van Dijk, E. (2006). Violating equality in social dilemmas: Emotional and retributive reactions as a function of trust, attribution, and honesty. *Personality and Social Psychology Bulletin, 32,* 894–906.

Trivers, R. (1976/2006). Foreword. In R. Dawkins, *The selfish gene* (pp. 19–20). New York: Oxford University Press.

Trivers, R. (1985). *Social evolution*. San Francisco: Benjamin/Cummings.

Trivers, R. (2000). The elements of a scientific theory of self-deception. *Annals of New York Academy of Sciences, 907*, 114–131.

Trope, Y., & Neter, E. (1994). Reconciling competing motives in self-evaluation: The role of self-control in feedback seeking. *Journal of Personality and Social Psychology, 66*, 646–657.

Valdesolo, P., & DeSteno, D. (2008). The duality of virtue: Deconstructing the moral hypocrite. *Journal of Experimental Social Psychology, 44,* 1334–1338.

Vohs, K. D., & Schooler, J. W. (2007). The value of believing in free will: Encouraging a belief in determinism increases cheating. *Psychological Science, 19,* 49–54.

von Hippel, W., & Gonsalkorale, K. (2005). "That is bloody revolting!" Inhibitory control of thoughts better left unsaid. *Psychological Science, 16,* 497–500.

von Hippel, W., Lakin, J. L., & Shakarchi, R. J. (2005). Individual differences in motivated social cognition: The case of self-serving information processing. *Personality and Social Psychology Bulletin, 31,* 1347–1357.

von Hippel, W., & Trivers, R. (2011). The evolution and psychology of self-deception. *Behavioral and Brain Sciences, 34*, 1–16.

Whitson, J. A., & Galinsky, A. D. (2008). Lacking control increases illusory pattern perception. *Science, 322*, 115.

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Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*, 245–271.

Wilson, T. D., Wheatley, T. P., Kurtz, J. L., Dunn, E. W., & Gilbert, D. T. (2004). When to fire: Anticipatory versus post-event reconstrual of uncontrollable events. *Personality and Social Psychology Bulletin, 30,* 340–351.

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5

A Systemic Approach to Impression Formation *From Verbal to Multimodal Processes*

GÜN R. SEMIN
Utrecht University and Koç University

MARGARIDA V. GARRIDO
CIS/ISCTE, Lisbon University Institute and Utrecht University

Our views of how interpersonal relationships are forged and the factors that influence how we form impressions of others have always been a central chapter in social psychology. It was Salomon Asch who laid the foundations of what was to become social cognition with his classic studies on impression formation in 1946. He demonstrated that warm and cold as "central traits" play a critical role in dramatically shaping impressions. The cognitive revolution was to tame this perspective into a representational paradigm that captured the imagination of researchers for an extended period emerging from person perception, and developing to person cognition, to person memory and social cognition (e.g., Ostrom, 1984; see Waenke, Samochowiec, & Landwehr, this volume, for a different perspective).

Recent developments have questioned the central tenets of social cognition work inspired by cognitive psychology by drawing attention to the adaptive, embodied, and dynamic nature of social cognitive processes in a social and physical environment (e.g., Palma, Garrido, & Semin, 2011; cf. for a review Semin, Garrido, & Palma, 2012). This emerging perspective on human functioning, broadly referred to as *situated cognition* or *socially situated cognition* (Semin & Smith, 2002; Semin et al., 2012; Smith & Semin, 2004) introduces an embodied view of social cognitive processes inviting a consideration of how abstract concepts such as time (see Miles,

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Stuart, & Macrae, this volume), affection, power, and valence that we cannot experience with our sensorimotor devices are grounded by conceptual metaphors that involve action, space, and bodily experiences (Lakoff & Johnson, 1980, 1999).

In this chapter, we return to the central concept that Asch introduced, namely, warm and cold as central traits, except that our concern is driven by highlighting the type of bodily experiences that ground interpersonal affinity and how physical features of the environment that influence our bodily experiences contribute to the types of inferences we make about persons. It is temperature as a physical or environmental stimulus rather than its linguistic neighbors *warm* and *cold* that interest us. How do differences in ambient temperature affect our inferences about persons, and what is the relationship between physical and linguistic representations of temperature? Notably, bodily experiences that ground interpersonal affinity are not limited to temperature alone. As we shall argue in this chapter, temperature is but one modality that is a significant contributor, shaping our perceptions of others. Two other modalities are wedded to temperature and jointly ground interpersonal affinity: physical distance and smell. The investigation of different modalities as they affect our perceptions of others falls squarely in the area of how social situations dynamically modulate the impressions we form. The examination of these modalities that constitute distinctive features of social situations and contribute to how we construe our social reality highlight the interaction between physical and psychological processes in impression formation.

In the following we provide the background to the embodied grounding of intimate relationships and review the research, conducted by others (e.g., Williams & Bargh, 2008a, 2008b; Zhong & Leonardelli, 2008) and our research group (e.g., Garrido & Semin, 2012; Ijzerman & Semin, 2009, 2010), revealing the systematic relationship between different *thermal conditions* and how they influence the shape of the impressions we form. We also present research evidence revealing the roles that *olfactory features* of the environment and *physical distance* play on how we form perceptions of interpersonal affinity (Garrido & Semin, 2012; Williams & Bargh, 2008b). In concluding the research overview we refer to our work that shows how these modalities interface with their linguistic neighbors (e.g., physical proximity—distance vs. close) along with investigations highlighting how differences in temperature influence patterns of language use in communication as well as perceptual processes. In the concluding section, we discuss this research field's contribution to social cognitive inferences in particular and to experimentation in general.

A MULTIMODAL VIEW OF SOCIAL COGNITION AND ITS IMPLICATIONS FOR INTERPERSONAL PROXIMITY AND AFFILIATION

Background

An emerging development in psychology is an increasingly systemic view of human functioning. This view derives from the realization of the interdependence among

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the material conditions of the environment, the human body, and psychological processes (e.g., Garrido & Semin, 2012; Ijzerman & Semin, 2009, 2010; Proffitt, 2006a, 2006b; Schnall, Harber, Stefanucci, & Proffitt, 2008; Schnall, Zadra, & Proffitt, 2010; Williams & Bargh, 2008a, 2008b; Zhong & Leonardelli, 2008) that are embedded in a social context in which such interdependencies have evolved (Semin & Smith, 2002; Smith & Semin, 2004). The question is not only how mind, brain, and body interact but also their relation to the physical and social environment.

A self-evident candidate for investigation from a systemic view is intimate interpersonal relationships in their diverse forms of expression from infancy to childhood and adulthood. Close or intimate interpersonal relationships are manifested not only in verbal utterances or representations about how we feel (e.g., I feel close, like, or love somebody). They also entail acts of bodily connection with hedonically charged physical experiences (e.g., changes in heart-beat rate, body temperature, physical proximity, body odor). Such multimodal experiences, involving bodily connections, accompany us from birth to adulthood in diverse types of intimate relationships.

Indeed, there is an abundant research literature on the significance of bodily connections in infancy. The classic experiments by Harlow (e.g., 1962) on "surrogate mothers" with primate infants revealed that warmth and comfort rather than food were more important in nurturing attachment. In the formation of attachment, *physical proximity*, *touch*, and *warmth* constitute some of the primary environmental factors affecting human comfort, a central tenet to Bowlby's (1969, 1980) work. Other research has highlighted the significance of physical stimuli (e.g., touch, smell) in the context of their potential contributions to close interpersonal or affiliative relationships particularly in early childhood (e.g., Hofer, 1995, 2006; Polan & Hofer, 1999; Suomi, 1999). Similarly, the critical contribution of nutrient-based *olfactory* factors (i.e., maternal breast odors) to attachment has been shown in studies with infants. Minutes after birth, maternal breast odors guide the infant to the nipple (for a review see Porter & Winberg, 1999) and breast-fed infants recognize their mother's unique olfactory signature. Indeed, at a later age, pleasant or unpleasant scents influence how attractive or unattractive people judge neutral faces to be (e.g., Demattè, Österbauer, & Spence, 2007; Li, Moallem, Paller, & Gottfried, 2007). The nature of actions involving bodily connections between adults take different forms, but in all their forms such bodily connections embrace the coactivation of thermal, olfactory, and visual senses and involve hedonically charged stimulation. A further input to this line of research comes from A. P. Fiske's (2004) relational model. Communal sharing (CS), in his framework, refers to relationships that emphasize the *common essence* between people who are engaged in actions that connect their bodies, as is the case in intimate adults as well as caregiver–infant relationships. Such contacts contribute to a condition in which the boundaries between the self and other are suspended (Chicago Social Brain Network, 2011; Semin, 2011), and a sense of "oneness" emerges.

The general contention under examination is that these three modalities (over an extended period of repeated exposure and emotionally significant experiences) acquire a generalized form that has regulatory effects on later social interaction

and perception (see Winkielman & Kavanagh, this volume). In other words, over time and repeated exposure the systemic relationship among psychological states, bodily experiences, and their *verbal expression* acquires *functional autonomy* (e.g., Allport, 1937) and generalizes by becoming independent of their origins. If, as the argument goes, hedonically charged *thermal*, *spatial*, and *olfactory* conditions are systematic concomitants of positive interpersonal representations that have acquired functional autonomy, then each and every one of these should separately have comparable consequences.

The proposed perspective on how person judgments are affected from a systemic *multimodal* perspective constitutes a novel integration. The one or the other modality has been subject to empirical examination, in particular the effects of variations in thermal stimuli has been of recent interest (Ijzerman & Semin, 2009, 2010; Williams & Bargh, 2008a; Zhong & Leonardelli, 2008). However, an investigation of all three modalities together has not been conducted, and the interesting prediction from a systemic point of view would be that all three modalities in their respective "pleasant" and "unpleasant" conditions should induce respectively comparable inferences. There is nevertheless research speaking to each of these modalities that we shall review next before turning to the theoretical perspectives that are relevant to how interpersonal affection and relationships are grounded.

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Thermal, Olfactory, and Spatial Stimuli

The research evidence for each of the three physical stimuli is not balanced in part because some research questions for one modality or another turn out to be more difficult to address systematically. Nevertheless, research that is relevant to the potential formative shape that different modalities have for intimate interpersonal relationships is reviewed here under three headings for the respective three modalities. While the recent interest in *thermal stimuli* has a somewhat richer literature on the subject, there is little research with olfactory stimuli in general given the elusive character of olfaction. The influence of spatial environmental conditions that are specifically related to the current research question posed, namely, how impression formation is shaped by conditions of physical contexts, is also limited.

Thermal Stimuli and Their Impact

What evidence is there on how modality-specific stimuli influence impression formation? The impact of thermal stimuli has been revealed in a set of recent studies opening a cross-modal window on the embodied grounding of complex social cognitive processes. Williams and Bargh (2008a) used the classic Asch (1946) impression formation paradigm in a study where participants were first asked to hold a coffee cup (hot versus iced) before receiving information about a hypothetical person described as skillful, industrious, determined, practical, and cautious. Subsequently, participants registered their personality impression of the target person on 10 bipolar traits, half of which were semantically related to the warm–cold dimension. The other half of items on the list were unrelated to the warm–cold dimension. Their results revealed that holding a hot cup of coffee compared with an iced cup of coffee led participants to judge third parties as warmer and friendlier.

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More recently, Ijzerman and Semin (2009) showed in three experiments that warmer conditions, compared with colder conditions, induced greater social proximity to a target person. Zhong and Leonardelli (2008) took the opposite implication seriously and showed that social exclusion leads people to feel colder, namely, the recall or experience of social exclusion events led participants to perceive lower temperatures. That these associations have a neural basis is highlighted in a functional magnetic resonance (fMRI) study showing that pleasant temperatures activate brain regions related not only to thermal sensory functions but also to affective–emotional awareness and processing (Sung, Yoo, Yoon, Oh, Han, & Park, 2007; see also Craig, Chen, Bandy, & Reiman, 2000). These findings suggest that positive-emotion-related brain regions are activated by thermal stimulation. In particular, these studies demonstrate a strong activation of the insular cortex with warmth stimulation, a brain region that is also active during the processing of information about the internal states of the body, including individual subjective awareness of inner body feelings and emotions (Craig, 2002, 2009).

Significantly, the social implications of temperature are also anchored in language. Asch's (1946) paradigmatic study on impression formation, which shaped the path that person perception took, has demonstrated that warm and cold as central traits have a critical role in dramatically shaping impressions. This dimension (warm–cold) representing sociability (bad and good) is unrelated to other traits (intelligent, scientific, persistent, determined, skillful, and industrious and their antonyms or contraries), namely, traits that have to do with the semantic domain of intelligence (e.g., Rosenberg, Nelson, & Vivekanathan, 1968; Zanna & Hamilton, 1972).

Recent research by Susan Fiske and her colleagues on the *stereotype content model* (SCM; e.g., Fiske, Cuddy, Glick, & Xu, 2002; Fiske, Xu, Cuddy, & Glick, 1999) showed that warmth and competence constitute dimensions that underlie perceptions of others and play an important role in the regulation of behavior and emotional reactions. Moreover, Fiske and her colleagues argued that these dimensions are universal (Cuddy et al., 2009) because they represent inquiries about others that have an adaptive function (Cuddy, Fiske, & Glick, 2008).

Earlier research by Semin (1989) underlines how well the warm–cold dimension is anchored in language by revealing that Asch's (1946) findings are driven by well-established semantic conventions. Semin developed a dictionary based quantitative index of semantic associations between the traits terms that Asch used to describe a target person and the dependent variables to measure the impression of participants. The dictionary-driven association index accounted for 79 to 92% of the variance for the data reported by Asch and a replication of the same experiment. This research underlines how strongly the warm–cold (but also blunt and polite) dimension and its interpersonal associations are consolidated in our "documented" linguistic knowledge, namely, dictionaries.

Spatial Stimuli and Their Impact

Physical distance and proximity have adaptive significance, and, as we argued earlier, physical proximity is one of the primary environmental factors affecting human comfort contributing to the formation of attachment. Proximity to caregivers is a source of safety, as is distance to potential predators. The relationship between attachment and spatial

proximity is indicated by Kaitz, Bar-Haim, Lehrer, and Grossman (2004). These authors provide evidence of an association between adults' comfort with interpersonal emotional closeness or attachment style and their comfort with and regulation of interpersonal physical closeness. Williams and Bargh (2008b) showed that the mere activation of spatial representation of physical distance and closeness (by means of locating two coordinates in Cartesian space that were either close or distant to each other) was sufficient to shape subjective feelings and moderate reported emotional attachment to family members. Participants primed with spatially proximal coordinates reported stronger bonds to their siblings, their parents, and their hometown than those primed with distant coordinates.

While there is no research directly examining the interface between spatial distance and *impression formation*, there is a spate of research on spatial proximity and "attraction." This work has shown consistently that people who like each other are placed closer spatially than those who dislike each other (e.g., Allgeier & Byrne, 1973; King, 1964; Kleck, 1967; Little, 1965; Mehrabian & Friar, 1969).

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Olfactory Stimuli and Their Impact

If, as we argued earlier on, the associations one forms in the early stages of life influence the way we perceive and behave toward others, then scent should also play an important role in the regulation of interpersonal relationships. A variety of studies document the influence of scent on behavior. For instance, scent has been shown to influence the amount of time spent in casinos (Hirsch, 1995); time spent to make decisions (Bone & Ellen, 1999; Mitchell, Kahn, & Knasko, 1995); and the intention to visit a shop (Spangenberg, Crowley, & Henderson, 1996).

Despite the number and complexity of scents, the classification of a scent into pleasant or unpleasant is easy and appears to be largely learned. In fact, a variety of studies suggest that scent is dependent on experience and memory (cf. Case, Stevenson, & Dempsey, 2004; Rouby, Schaal, Dubois, Gervais, & Holley, 2002; Wilson & Stevenson, 2003). For instance, pine tree scent has been shown to be associated with Christmas or the scent of citrus is associated with cleaning (Degel, Piper, & Köster, 2001; Stevenson & Boakes, 2003). Exposure to a cleaning scent makes the cleaning concept more accessible (Holland, Hendriks, & Aarts, 2005) and not only accelerates the reaction time to cleaning related words in lexical decision tasks but also guides expectation relative to future domestic activities and influences the actual cleaning behavior. More recent research suggests that scents affect people even when they are asleep (Stuck, 2008) with exposure to a pleasant scent (roses) inducing more pleasant dreams than an unpleasant scent (rotten eggs).

There is some research showing that human odors affect social interaction including attraction to others (cf. Stockhorst & Pietrowsky, 2004). For instance, Baron (1997) demonstrated that helping was more likely when pleasant fragrances were present relative to their absence. Two recent research reports illustrate the cross-modal influence of pleasant and unpleasant odors on judgments of facial attractiveness. Li et al. (2007) showed that participants were more likely to rate neutral faces as more likable after smelling pleasant odors

relative to smelling unpleasant or neutral odors, but only when these odors were delivered below detection threshold. Independently, Demattè et al. (2007) revealed similar findings with female participants who rated male faces. They rated these faces as being significantly less attractive in the presence of an unpleasant odor than when the faces were presented together with a pleasant odor.

Although, as we discussed earlier, linguistically available metaphors make good use of both temperature and distance to ground interpersonal affection (e.g., "she had a special place in his heart"; "keeping somebody at a distance"; "a close friend"; "he is a cold person"), the sense of smell occupies a somewhat poorer position in this regard, and it is possible that concrete olfactory experiences are not reflected or anchored systematically in metaphorical expressions. The paucity of linguistically anchoring odor may be due to a number of reasons that may arise as a consequence of the distinctive nature of olfaction compared with the other senses. First, olfaction is elusive and shows rapid adaptation, meaning that the intensity of a constant odor decreases, as does sensitivity to the stimulus. Second, the difficulty to capture odors in language is also due to a problem common to the chemical senses (and in particular in the case of olfaction), namely, the lack of a stimulus dimension. This gives rise to problems in defining the stimulus (Travers & Travers, 2009). While predictable variations within spectra of light, sound, or pressure stimulate vision, hearing, and touch, odorant molecules show no obvious connections with each other except that they are odorous. Odor appears to be limited to molecules with a specific weight range and with a virtually *unlimited* number of molecules within that range. The human ability to distinguish between the components of mixtures is limited to three or four components (Laing & Francis, 1989). Finally, the anatomical structure of the olfactory system is also distinctive. Compared with other senses, which have structures in the neo-cortex, the higher brain, odor is processed by a system that is distributed over both the higher cortex and the limbic system, namely, the older structures that are the seat of emotion and motivation (Warrick, Castle, & Pantelis, 2006), and the debate about how olfactory stimuli are coded in the nervous system still continues (Travers & Travers, 2009).

These factors appear to contribute to the elusive nature of olfaction and may have implications for the linguistic representation of scents. As Plato (Jowett, 1892) and Aristotle (Hammond, 1902) have long observed, olfactory stimuli appear to be most elusive and evade unambiguous linguistic representation, although we can immediately classify a scent as pleasant or repulsive. These considerations suggest that although temperature and distance are anchored in language this may not hold in the case of smell. In fact, the absence of such bidirectionality introduces an interesting case where a source (smell) grounds interpersonal affection without the apparent corresponding link to any available metaphor. This presents a rather interesting limiting case for conceptual metaphor theory, which we discuss next.

We now turn to the theoretical perspectives before reporting the research that adopts a systemic approach to how interpersonal affiliation is grounded.

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Theoretical Perspectives

Currently, two complementary theoretical models compete for an informative account of the processes induced by multimodal influences on impression formation via the route of functionally autonomous consequences of multimodal sensory experiences accumulated by means of intimate interpersonal relationships. One is an *ahistorical* account by Lakoff and Johnson (1980, 1999), who argue that the human conceptual system is largely metaphorical. The assumption is that thoughts about abstract concepts rely on metaphors in everyday language, which anchor abstract concepts in *image schemas* for space, action, forces, and other aspects of bodily experience. Thus, proximity and distance as well as warmth and coldness are terms that are often used to represent the quality of an interpersonal relationship. We use phrases such as, "They are very close," "We were tight as a glove," "We were two peas in a pod," or "They are inseparable," employing different spatial metaphors to mark the quality of a relationship. Similarly, temperature—or the warm–cold terminology—is used to represent the very same quality as in "a warm and close person" or "giving the cold shoulder." The important assumption here is that although metaphors map across source domain (e.g., spatial distance, temperature) and entities in a target domain (e.g., affection), such mappings are *asymmetric* and partial. In this view, abstract concepts rest on more concrete concepts and cannot be understood without them. Thus, while the *experience* of affection per se is possible, we cannot *think* about it without recruiting concepts of physical distance, warmth, and other concrete dimensions. The asymmetry argument about source and target arises from these considerations. Lakoff and Johnson's argument suggests that a conception of *affection* (for instance) would not be possible without the concrete sources of, for example, distance and temperature. However, affection does not contribute to our understanding of, for example, physical distance and temperature. This is what is meant with *asymmetry* in conceptual metaphor theory, and there is empirical evidence supportive of this argument in the abstract domain of "time" (e.g., Casasanto & Boroditsky, 2008). However, it is by no means clear if this is a general principle that applies across all abstract domains. The domain of affection presents an interesting test case since the alternative theoretical perspective for grounding abstract concepts, discussed herein, tolerates a symmetry argument for concepts that emerge over repeated multimodal experiences and are captured in "abstracted" concepts—as is the case of affection.

A second avenue to examine this integration is provided by Barsalou's model of Perceptual Symbol Systems (PSS; e.g., Barsalou, 1999, 2008a, 2008b), which permits a synchronic perspective on the emergence of experientially acquired abstract concepts. In line with this perspective, one can argue that multimodal stimuli (e.g., thermal, spatial, and olfactory stimuli) constitute *online* experiences that give rise to modal states in the somatosensory system, the visual system, but also in affective systems. Notably, the multimodal experiences are also associated with language so that the *offline* experience of categories such as "a warm and close person" or "giving the cold shoulder" are represented as activations of the somatosensory system, the visual system, affective systems, and so forth. According to PSS, once established in the brain, knowledge about the categories, which are represented

by multimodal associative structures, can be used across a number of cognitive tasks, such as in the types of inferences involved in impression formation. Thus, one can argue with Barsalou's PSS model that the representations that arise in dedicated input systems during sensation and motor action can be stored and used "offline" by means of mental simulations, namely, by "the reenactment of perceptual, motor, and introspective states acquired during interaction with the world, body, and mind" (Barsalou, 2008a, p. 618). In the context of the current work, this means that early childhood as well as adult experiences give rise to the stimuli (e.g., thermal, olfactory) responsible for multimodal states that can be activated online or offline during adulthood.

The possible association of multimodal experiences with language suggests a bidirectional relationship between the modality-specific experiences and linguistic categories attached to these experiences. Thus, the physical features of an environment that simulate related modalities (e.g., thermal, olfactory stimuli) are likely to influence language-driven processes representing the close social bonds between two persons and most probably influence person perception. The opposite direction—priming positively sociable features of a person—are likely to lead to simulations of the modalities that were associated with the physical features that were present in such bonded relationships (e.g., pleasant temperatures and scents).

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A Systemic Investigation of the Multimodal Grounding of Interpersonal Relationships The systemic interdependence among temperature, distance, and scent was examined in a set of three experiments (Garrido & Semin, 2012). The experimental paradigm was identical across all three conditions and relied on a narrative about a target who was described neutrally on the intelligence–competence dimension. Each experiment controlled for the pleasant versus unpleasant conditions of the three critical variables (temperature: warm versus cold; distance: close versus distant; and scent: pleasant versus unpleasant). The critical dependent variable was how these conditions would shape the impression participants would form of the target's sociability (e.g., friendly–unfriendly, close–distant)—a dimension on which they had no information and that was orthogonal to the information they received on the target, namely, neutral information on the target's intelligence.[1] As can be seen from Table 5.1 the pattern of outcomes is identical across all three experiments on a reliable scale that tapped sociability (i.e., warm, friendly, popular, extraverted, sociable). The pleasant modality condition—across all three modalities—leads participants to infer that the target person on whom they have no information aside from being neutral in terms of intelligence is a sociable one compared with the unpleasant modality condition. Moreover, there are no differences on judgments of the target's intelligence—meaning that the modality manipulation affects only sociability judgments.

The two additional measures were introduced to assess the generality of the effect induced by the physical stimuli. One examined, in an ostensibly unrelated task, whether a set of Chinese symbols were pleasant or unpleasant. The other was designed to assess participants' judgments of the sociability of the experimenter. The pattern underlines the functional autonomous effects of the

TABLE 5.1 Effects of Temperature, Distance, and Odor on Sociability and Intelligence Judgments of the Target Person, on the Pleasantness Judgments of the Chinese Ideographs, and on the Sociability of the Experimenter

Experiment 1: Temperature Manipulation				
	Warm	**Cold**	***F*(1,17)**	η^2
Chinese ideograms	8.22	5.10	8.49	0.33
Sociability T	4.22	3.61	3.64	0.18
Intelligence T	–	–	–	–
Sociability experimenter	4.67	3.55	9.36	0.36
Experiment 2: Distance Manipulation				
	Close	**Distant**	***F*(1,32)**	η^2
Chinese ideograms	7.17	4.81	9.45	0.23
Sociability T	4.10	3.26	4.10	0.11
Intelligence T	–	–	–	–
Sociability experimenter	4.39	3.39	2.79.	0.08
Experiment 3: Odor Manipulation				
	Pleasant	**Unpleasant**	***F*(1,18)**	η^2
Chinese ideograms	8.00	4.60	19.13	0.52
Sociability T	4.07	2.56	16.54	0.48
Intelligence T	–	–	–	–
Sociability experimenter	4.20	3.40	3.60	0.17

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modalities with the hedonic condition inducing inferences of pleasantness of the Chinese symbols and sociability of the experimenter in contrast to the less pleasant condition of the three modalities. Additional measures of mood, participants' motivation, or effort induced by the experimental conditions were generally unrelated to these effects.

In short, the three experiments reveal (1) the functional autonomy of the three modalities; (2) the convergence of the effects across the three modalities; and (3) the generality of the effects across different judgmental stimuli.

Is the Grounding of Affection Symmetrical or Asymmetrical? As we argued earlier on, the possible association of multimodal experiences with language suggests a bidirectional relationship between the modality-specific experiences and linguistic categories attached to these experiences. This was investigated in a further experiment (Garrido & Semin, 2012) in which participants were supplied with a narrative describing a target person with behavioral items that indicated that the target person was either sociable or unsociable. The critical questions (interspersed in the context of an investigation of the experimental facilities in the lab) that constituted the dependent variables required the participants to report on the features of the experimental environment. The critical questions were whether participants infer the temperature of the experimental room they are in (warm vs.

cold), the social distance between themselves and a target (close vs. distant), and the scent in the experimental room (pleasant vs. unpleasant) as a function of the target's sociability.

Indeed, participants' judgments of the thermal conditions in the *sociability* condition induced the perception that the temperature in the experimental room was significantly warmer compared with the condition in which the profile of an unsociable person was given. Similarly, reading the profile of a sociable target induced participants to place the target person closer to himself or herself relative to reading the unsociable profile. However, there were no systematic effects for smell. This may not be entirely surprising since olfaction presents a rather complex and unique sense (along with taste) compared with other senses. Olfactory stimuli lack a stimulus dimension, and the complex anatomical nature of the olfactory system appears to present problems for linguistic representations. A comparison of the pattern of results from this experiment with the previous three experiments confirms the bidirectional nature of the physical temperature and "sociability" relationship as well as distance and sociability but not the smell manipulation. At the same time, this finding suggests that although specific types of sensorimotor modalities that can be represented dimensionally (temperature, distance) are recruited to ground abstract concepts, other modalities that are equally basic while shaping our experiences remain just that—experiential and not accessed symbolically. In particular, olfactory modality, the oldest sense and a very important one, does not lend itself to ground the concept of affection and its absence. This poses an interesting problem for embodiment theories that do not make any differentiation between different modalities and their functions and how they contribute to experience and representation.

Recent research by Ijzerman and Semin (2010) has convergent implications for these findings. Their study reveals that participants feel socially closer to another person when physical proximity is induced, but this also gives rise to a perception of higher temperature. Similarly, they also reveal that verbally induced social proximity induces the perception of higher temperature.

These findings suggest differentiated conclusions on symmetry versus asymmetry. First of all, and contrary to Lakoff and Johnson's (e.g., 1980) argument, the metaphoric representation of affection is symmetrical when it comes to their grounding by proximity and temperature to an extent that the physical and social meanings of these terms seem to be interchangeably associated. This suggests that even though the asymmetry argument may hold for abstract concepts that we cannot touch, see, taste or smell, such as time (e.g., Casasanto & Boroditsky, 2008), it does not apply to abstract concepts that abstract from and subsume a wide range and variety of experiences. Consequently, a better framework to understanding how concepts that are abstracted from multimodal and variegated experiences is probably perceptual symbol systems. We note guardedly "framework" rather than theory because PSS is a perspective rather than a systematic theory and is underspecified to make precise predictions in its current state.

The second point the research suggests is that certain experiential modalities are salient, adaptively important, and fundamental, such as olfactory modality, and defy being conceptually captured by either CMT or PSS.

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CONCLUSIONS

The research we have reviewed highlights the significance of going beyond symbolic representations of social cognitive processes and examining cognitive processes as they are anchored in a dynamically changing social world and grounded by the constraints of the human body and the environment. This invites a different perspective from the mainstream paradigm guiding social cognition research. The eventual shape that social cognition research took from its early origins on impression formation (Asch, 1946; Taguiri & Petrullo, 1958) was strongly influenced by cognitive psychology with a view that social cognition is best conceptualized in terms of abstract symbolic codes that are the result of an amodal transduction of experiences with the social world—namely, symbolic representations that have an arbitrary relationship to the objects, events, or concepts they represent (e.g., de Saussure, 1916/2006; Kintsch, 1988; Newell & Simon, 1972). The consequent modeling relied on a conception of social knowledge as represented in terms of a network of connected nodes in the form of amodal propositions (cf. Smith, 1998). Conceptualizing psychological functioning in terms of a closed loop of symbols or an internal model of the world implies that the meaning of each symbol is defined only by other symbols. As a situated view of social cognition suggests (e.g., Semin & Smith, 2002; Semin et al., 2012; Smith & Semin, 2004), this view contains a number of problems. For instance, conceptualizing psychological functioning as consisting merely of symbolic processes leaves no room for adaptive action. As a consequence, such amodal views are not perceptually grounded and have difficulties in furnishing an informed answer to how adaptively successful interaction with other agents and the world emerges.

The research we reviewed here is an illustration of the significance of not only how mind, brain, and body interact but also their relation to the physical and social environment. These interactions reveal neglected inputs to human functioning in general and social cognitive processes in particular. Indeed, this research draws attention to the importance of taking the environmental context in which we conduct our experiments into account. Activating different modalities like temperature, smell, or physical distance is likely to affect a range of processes that may yield different results. For instance, we know that a warm room induces the use of concrete language in describing and representing events compared with a cold room, which induces the use of more abstract language (Ijzerman & Semin, 2009). What does this mean for research concerned with construal level theory (Trope & Liberman, 2003)? But it is not only temperature or physical distance than can affect experimental outcomes. Recently, Meyers and Zhu (2007) showed that ceiling height can influence language use and inferential processes as well. Rooms with a high ceiling induce more abstract language use relative to low-ceiling rooms; thus, lab cubicles with their confined spaces are potentially likely to induce systematic differences in language use compared with more spacious conditions. Consider for a moment what the implications of an fMRI environment are in terms of both temperature and spatial constraints and how much such environments are likely to influence the types of psychological processes that are examined. Indeed, this is an issue that appears to be evoking some interest in consumer psychology (e.g., Berger & Fitzsimons, 2008, 2009).

The implications of the research we reviewed here go far beyond the immediate influence of environmental factors on affection and how abstract concepts are grounded. Aside from these theoretical implications, this research highlights the relevance that environmental factors, in particular modalities that are rarely taken into consideration in standard research such as the chemosenses or thermal sense, can have for the range of findings we obtain. These findings invite a more careful consideration of the experimental environment, namely, temperature, dimensions of the experimental room, the particular odor in the room, inter alia and their effects on person perception in particular and human functioning in general.

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ACKNOWLEDGMENTS

This research reported here was supported in part by the Fundação para a Ciência e Tecnologia (Grant PTDC/PSI/PSO/099346/2008, awarded to the second author). We would like to thank Ana Raquel Salgueiro, Joana Leal, and Tomás Palma for their help in conducting the experiments.

ENDNOTE

1. Note that across the first three experiments we do not include a control condition because there is no clear baseline for these manipulations. Given that the physical experience of intimate others can vary within a range of acceptable temperatures, distance, and smells, it would be difficult to determine what a "neutral" temperature, physical distance, or smell conditions would be like.

REFERENCES

Allgeier, A. R., & Byrne, D. (1973). Attraction toward the opposite sex as a determinant of physical proximity. *Journal of Social Psychology, 90*, 213–219.

Allport, G. W. (1937). The functional autonomy of motives. *American Journal of Psychology, 50*, 141–156.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology*, *41*, 258–290.

Baron, R. A. (1997). The sweet smell of helping: Effects of pleasant ambient fragrance on prosocial behavior in shopping malls. *Personality and Social Psychology Bulletin, 23,* 498–503.

Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences, 22*, 577–609.

Barsalou, L. W. (2008a). Grounded cognition. *Annual Review of Psychology, 59,* 617–645.

Barsalou, L. W. (2008b). Embodied language and concepts. In G. R. Semin & E. R. Smith (Eds.), *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches* (pp. 9–42). New York: Cambridge University Press.

Berger, J., & Fitzsimons, G. (2008). Dogs on the street, pumas on your feet: How cues in the environment influence product evaluation and choice. *Journal of Marketing Research*, 45, 1–14.

Berger, J., & Fitzsimons, G. (2009). Why coastal dwellers may prefer Tide: The effects of conceptually-related environmental cues on product evaluation. *Advances in Consumer Research, 36*, 168–171.

Bone, P. F., & Ellen, P. S. (1999). Scents in the marketplace: Explaining a fraction of olfaction. *Journal of Retailing, 75*, 243–262.

Bowlby, J. (1969). *Attachment and loss*, vol. 1. New York Basic Books.

Bowlby, J. (1980). *Attachment and loss*, vol. 3. New York Basic Books.

Casasanto, D. J., & Boroditsky, L. (2008). Time in the mind: Using space to think about time. *Cognition, 106*, 579–593.

Case, T. I., Stevenson, R. J., & Dempsey, R. A. (2004). Reduced discriminability following perceptual learning with odours. *Perception, 33,* 113–119.

Chicago Social Brain Network. (2011). The suspension of individual consciousness and the dissolution of 'Self and Other' boundaries. In The Chicago Social Brain Network (Ed.), *Belief in unseen powers: Gravity, gods, and minds* (pp. 73–81). FT Press: Pearson Education, Inc.

Craig, A. D. (2002). How do you feel? Interoception: The sense of the physiological condition of the body. *Nature Neuroscience Reviews, 3,* 655–666.

Craig, A. D. (2009). How do you feel—Now? The anterior insula and human awareness. *Nature Neuroscience Reviews, 3*, 655–666.

Cuddy, A. J. C., Fiske, S. T., Kwan, V. S. Y., Glick, P., Demoulin, S., Leyens, J. Ph., et al. (2009). Stereotype content model across cultures: Universal similarities and some differences. *British Journal of Social Psychology*, 48, 1–33.

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The Stereotype Content Model and the BIAS Map. *Advances in Experimental Social Psychology, 40*, 61–149.

De Saussure, F. (1916/2006). *Course in general linguistics*. Oxford; New York: Oxford University Press.

Degel, J., Piper, D., & Köster, E. P. (2001). Implicit learning and implicit memory for odors: The influence of odor identification and retention time. *Chemical Senses, 26*, 267–280.

Demattè, M. L., Österbauer, R., & Spence, C. (2007). Olfactory cues modulate facial attractiveness. *Chemical Senses*, *32*, 603–610.

Fiske, A. P. (2004). Relational models theory 2.0. In N. Haslam, (Ed.), *Relational models theory: A contemporary overview* (pp. 3–25). Mahwah, NJ: Erlbaum.

Fiske, S. T., Cuddy, A. J. C., Glick, P. S., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82,* 878–902.

Fiske, S. T., Xu, J., Cuddy, A. J. C., & Glick, P. (1999). (Dis)respecting versus (dis)liking: Status and interdependence predict ambivalent stereotypes of competence and warmth. *Journal of Social Issues, 55,* 473–489.

Garrido, M. V., & Semin, G. R. (2012). How to forge a relationship: Recruit the right temperature, physical distance, and fragrance! Under editorial consideration.

Hammond, W. A. (1902). *Aristotle's psychology: A treatise on the principle of life*. New York: MacMillian Co.

Harlow, H. F. (1962). Development of affection in primates. In E. L. Bliss (Ed.), *Roots of behavior*. (pp. 157–166). New York: Harper.

Hirsch, A. R. (1995). Effects of ambient odors on slot-machine usage in a Las Vegas casino. *Psychology and Marketing, 12*, 585–594.

Hofer, M. A. (1995). Hidden regulators: Implications for a newer understanding of attachment, separation, and loss. In S. Goldberg, R. Muir & J. Kerr (Eds.), *Attachment theory: Social, development, and clinical perspectives* (pp. 203–230). Hillsdale, NJ: Analytic Press.

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Hofer, M. A. (2006). Psychobiological roots of early attachment. *Current Directions in Psychological Science, 15*, 84–88.
Holland, R., Hendriks, M., & Aarts, H. (2005). Nonconscious effects of scent on cognition and behavior: Smells like clean spirit. *Psychological Science, 16*, 689–693.
Ijzerman, H., & Semin, G. R. (2009). The thermometer of social relations: Mapping social proximity on temperature. *Psychological Science,* 1214–1220.
Ijzerman, H. & Semin, G. R. (2010). Temperature perceptions as a ground for social proximity. *Journal of Experimental Social Psychology, 46,* 867–873.
Jowett, B. (1892). *The dialogues of Plato vol. III.* New York: MacMillian Co.
Kaitz, M., Bar-Haim. Y., Lehrer, M., & Grossman, E. (2004). Adult attachment style and interpersonal distance. *Attachment & Human Development, 6*, 285–304.
King, M. G. (1964). Structural balance, tension, and segregation in a university group. *Human Relations, 17*, 221–225.
Kintsch, W. (1988). The role of knowledge in discourse comprehension construction-integration model. *Psychological Review, 95,* 163–182.
Kleck, R. (1967). The effects of interpersonal affect on errors made when reconstructing a stimulus display. *Psychonomic Science*, *9*, 449–450.
Laing, D. G., & Francis, G. W. (1989). The capacity of humans to identify odors in mixtures. *Physiology & Behavior, 46*, 809–814.
Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to western thought.* New York: HarperCollins Publishers.
Lakoff, G., &, Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.
Li, W., Moallem, I., Paller, K. A., & Gottfried, J. A. (2007). Subliminal smells can guide social preferences. *Psychological Science, 18*, 1044–1049.
Little, K. B. (1965). Personal space. *Journal of Experimental Social Psychology, 1*, 237–247.
Mehrabian, A., & Friar, J. T. (1969). Encoding of attitude by a seated communicator via posture and position cues. *Journal of Counseling and Clinical Psychology, 33*, 330–336.
Meyers, L. J., & Zhu, R. (2007). The influence of ceiling height: The effect of priming on the type of processing that people use. *Journal of Consumer Research*, *34,* 174–186
Mitchell, D. J., Kahn, B. E., & Knasko, S. C. (1995). There's something in the air: Effects of congruent and incongruent ambient odor on consumer decision-making. *Journal of Consumer Research, 22*, 229–238.
Newell, A., & Simon, H. A. (1972). *Human problem solving.* Englewood Cliffs, NJ: Prentice Hall.
Ostrom, T. M. (1984). The sovereignty of social cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 1, pp. 1–38).Hillsdale, NJ: Lawrence Erlbaum Assoc.
Palma, T. A., Garrido, M. V., & Semin, G. R. (2011). Grounding person memory in space: Does spatial anchoring of behaviors improve recall? *European Journal of Social Psychology*, *41*, 275–280.
Polan, H. J., & Hofer, M. A. (1999). Psychobiological origins of attachment and serration responses. In J. Cassidy & P. H. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical implications* (pp. 162–180). New York: Guilford Press.
Porter, R. H., & Winberg, J. (1999). Unique salience of maternal breast odors for newborn infants. *Neuroscience and Biobehavioral Reviews, 23*, 439–449.
Proffitt, D. R. (2006a). Distance perception. *Current Directions in Psychological Science, 15*, 131–135.
Proffitt, D. R. (2006b). Embodied perception and the economy of action. *Perspectives on Psychological Science, 1*, 110–122.

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Rosenberg, S. V., Nelson, C., & Vivekananthan, P. S. (1968). A multidimensional approach to the structure of personality impressions. *Journal of Personality and Social Psychology, 9*, 283–294.

Rouby, C., Schaal, C. R., Dubois, D. B., Gervais, R., & Holley, A. (Eds.). (2002). *Olfaction, taste, and cognition*. New York: Cambridge University Press.

Schnall, S., Harber, K. D., Stefanucci, J. K., & Proffitt, D. R. (2008). Social support and the perception of geographical slant. *Journal of Experimental Social Psychology, 44*, 1246–125.

Schnall, S., Zadra, J., & Proffitt, D. R. (2010). Direct evidence for the economy of action: Glucose and the perception of geographical slant. *Perception, 39*, 464–482.

Semin, G. R. (1989). Impressions of personality revisited: The contribution of linguistic factors to attribute inferences. *European Journal of Social Psychology, 19*, 85–101.

Semin, G. R. (2011). Sociality in extremis—Removing the boundaries between self and other. In G. R. Semin & G. Echterhoff (Eds.), *Grounding sociality: From neurons to shared cognition and culture* (pp. 83–94). Psychology Press.

Semin, G. R., & Smith, E. R. (2002). Interfaces of social psychology with situated and embodied cognition. *Cognitive Systems Research, 3*, 385–396.

Semin, G. R., Garrido, M. V., & Palma, T. A. (2012). Socially situated cognition: Recasting social cognition as an emergent phenomenon. In S. Fiske & N. Macrae (Eds.), *The Sage handbook of social cognition.* Thousand Oaks, CA: Sage.

Smith, E. R. (1998). Mental representation and memory. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., vol. 1, pp. 391–445). New York: McGraw-Hill.

Smith, E. R., & Semin, G. R. (2004). Socially situated cognition: Cognition in its social context. *Advances in Experimental Social Psychology, 36*, 53–117.

Spangenberg, E., Crowley, A., & Henderson, P. W. (1996). Improving the store environment: The impact of ambient scent on evaluations of and behaviors in a store. *Journal of Marketing, 60*, 67–80.

Stevenson, R. J., & Boakes, R. A. (2003). A mnemonic theory of odor perception. *Psychological Review, 110*, 340–364.

Stockhorst, U., & Pietrowsky, R. (2004). Olfactory perception, communication, and the nose-to-brain pathway. *Physiology and Behavior, 83*, 3–11.

Stuck, B. (2008). Sweet smells foster sweet dreams. BBC News. September 23. Available from: http://news.bbc.co.uk/2/hi/health/7628744.stm

Sung, E. J., Yoo, S. S., Yoon, H. W., Oh, S.-S., Han, Y., & Park, H. W. (2007). Brain activation related to affective dimension during thermal stimulation in humans: a functional magnetic resonance imaging study. *International Journal of Neuroscience, 117*, 1011–1027.

Suomi, S. J. (1999). Attachment in rhesus monkeys. In J. Cassidy, & P. H. Shaver (Eds.). *Handbook of attachment: Theory, research and clinical implications* (pp. 185–201). New York: Guilford Press.

Taguiri, R., & Petrullo, L. (1958). *Person perception and interpersonal behavior*. Stanford, CA: Stanford University Press.

Travers, S. P., & Travers, J. B. (2009). Chemical senses: Taste and olfaction. In G. G. Berntson & J. Cacioppo (Eds.), *Handbook of neuroscience for the behavioral sciences* (Vol. 1, pp. 267–305). New York: John Wiley & Sons.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*, 403–421.

Warrick, J. B., Castle, D., & Pantelis, C. (2006). *Olfaction and the brain*. New York: Cambridge University Press.

Williams, L. E., & Bargh, J. A. (2008a). Experiencing physical warmth promotes interpersonal warmth. *Science, 322*, 606–607.

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Williams, L. E., & Bargh, J. A. (2008b). Keeping one's distance: The influence of spatial distance cues on affect and evaluation. *Psychological Science, 19,* 302–308.

Wilson, R. A., & Stevenson, R. J. (2003). The fundamental role of memory in olfactory perception. *Trends in Neurosciences, 26*, 243–248.

Zanna, M., & Hamilton, D. (1972) Attribute dimensions and patterns of trait inferences. *Psychonomic Science, 27*, 353–354.

Zhong, C. B., & Leonardelli, G. J. (2008). Cold and lonely: Does social exclusion literally feel cold? *Psychological Science, 19,* 838–842.

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Section II

Automatic Mechanisms Linking Social Cognition and Behavior

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6

Exploring the Relation Between Motivation and Intuition*

AP DIJKSTERHUIS
Radboud University Nijmegen

In fall 2010, I was asked to contribute to a popular Dutch TV program called *Pavlov. Why am I like this?* In each episode of this program, a famous Dutch person is scrutinized in a semiscientific way with the help of a few Dutch academic psychologists. The makers of the program select the target people for the show carefully, the criterion being that they are extremely skilled in a certain domain or have achieved something remarkable. In the episode to which I was asked to contribute, the target person was Stacey Rookhuizen, an attractive, well-known 24-year-old Dutch businesswoman. The public knows her because she is a judge on the *X-Factor*, a popular TV program in which amateur musicians compete for the opportunity to record in a studio. However, what is remarkable about Stacey is that she already has a very impressive career in the music industry after having started her own record label (especially aimed at helping young pop and rock bands) at the age of 16. In other words, she started her business career at the age where her peers were in the midst of puberty, and now, at the age of just 24, she is famous and highly successful.

Asked by the makers of the TV program about her success, Stacey answered that she always works fast, using her intuition to make decisions, and that she never really thinks before she acts. Perhaps not surprisingly, this is where I came in as a psychologist. I had to evaluate and measure her proneness to rely on her intuition—using the Preference for Intuition and Deliberation (PID) scale (Betsch, 2004)—and I was asked to explain, in front of the TV cameras of course, what intuition is and why some people seem be able to rely almost exclusively on intuition whereas others are not.

* This chapter was supported by a VICI-grant from NWO (453-05-004).

Stacey and the TV crew came over to my office one afternoon, and, between the various shooting sessions, Stacey, the director of the program, and I chatted. We all conceived of intuition as a feeling, or at least a "feeling-like" sensation, often very subtle, directing a person to make a certain choice. Intuitions can steer you to choose A over B, to go left rather than right, or to mistrust a new acquaintance without knowing why. Importantly, we also agreed that the basis for such feelings is often difficult or even impossible to verbalize, at least the moment they manifest themselves. They can feel as if they come "out of the blue."

I explained my personal view on intuition as the consequence of unconscious information processing (Dijksterhuis, 2007; Dijksterhuis & Nordgren, 2006). Resulting from unconscious processes, intuitions often feel as if they enter consciousness suddenly, but the preceding unconscious process does not have to be rapid. It can be, such as when you mistrust someone mere seconds after meeting him, but according to the definition used here intuition can also be the consequence of a process of days, such as when you continue to have nagging but difficult-to-verbalize doubts about the purchase of a secondhand car.

At some point, our discussion moved toward why we have intuition, and, while we discussed various examples, it became more and more apparent that intuitions serve motivation, for instance, in the form of goals and needs. You mistrust a person because you do not want to get hurt, you have doubts about a car because you do not want to be deceived, and you "fall in love" with a beautiful house because you want to be happy living there. Intuition, in other words, is not just a semi-irrational mental shortcut that we use to navigate a complex environment but rather an important means through which our needs and goals affect our behavior unconsciously. It may be noted that three chapters in this volume (Galperin & Haselton; Kenrick, Li, White, & Neuberg; von Hippel & Trivers) have similar perspectives in that the authors of these chapters assume that subtle biases in decisions are caused, usually unconsciously, by important needs.

We concluded our conversation with something that struck me as important. If it is the case that intuitions are our needs and goals that tell us—after a largely unconscious assessment of a situation—what to do or what not to do, it follows that people with strong and clear goals have better intuitions. And to reverse the process, it could be that people who rely on their intuition (and who do so successfully) do so because they know what they want. That is, they have strong goals or implicit motives.

Intuition can be thought of as the cornerstone of social thinking—the theme of this volume—as the most important choices we make are social. Moreover, our important choices are often made in a social context. Finally, in choices that are social (whether they are professional choices, romantic choices, or other personal choices) intuition plays a profound role. We may largely bypass intuition when we decide on a new computer or on a holiday destination, but this is impossible when it comes to matters such as who we trust and who we love.

In the current chapter, I will further explore the possibility that there is a relation between motivation—and even more specifically, motivational strength—and intuition. Intuition can be thought of as the cornerstone of social thinking as many choices are. Before delving deeper into the relevant literature, it is important to

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qualify the hypothesis by stressing that its relevance as well as its tenability is dependent on the definition of intuition. Epstein (2008; see also Betch & Glöckner, 2010) argued that intuition has been given so many different meanings that it runs the risk of not having any meaning at all. On the other hand, Hogarth (2010) concluded that although there are many definitions of intuition (see, e.g., Dane & Pratt, 2007), the similarities are more striking than the differences. The definition used in this chapter follows Hogarth's (2001, 2010) use of the term as a response that is "reached with little apparent effort, and typically without conscious awareness. [Intuitions] involve little or no conscious deliberation" (Hogarth, 2001, p. 14; see also Hogarth, 2010). For current purposes, the use of the term *apparent* is crucial. Intuition is not necessarily something quick and effortless, it merely seems that way because the preceding processes are largely or completely unconscious. Importantly, it should be noted that this definition diverges from others, such as the definition in the *Oxford Dictionary,* in which intuition is seen as an immediate response to a stimulus.

In the remainder of the chapter, I will further explore the proposed relation between motivation and intuition. The discussion that follows focuses largely on goals and not—with one or two exceptions—on other manifestations of motivation. I review evidence for various subprocesses through which motivation affects behavior via mediating cognitive processes (see also Kenrick et al., this volume). First, for the hypothesized relation between goals and intuition to be tenable, goals ought to be able to set unconscious processes in motion. Second, for goals to affect intuitive responses, they have to be able to change the determinants of these intuitive responses. Specifically, goals have to be able to lead to shifts in attention and to changes in the accessibility of information relevant to goals. Third, goals should affect judgments and decisions in the absence of any apparent mediating conscious processes. I elaborate on each of these necessary subprocesses in the following sections. Finally, I will discuss selective research on the effects on variations in motivational strength on judgment and will interpret it in the context of intuition.

GOAL PURSUIT CAN OPERATE UNCONSCIOUSLY

Volitional behavior has long been associated with consciousness (Custers & Aarts, 2010; Dijksterhuis & Aarts, 2010), in that goal pursuit has been assumed to be the consequence of a conscious intention or a conscious decision to act to attain a goal. However, recent research has challenged this view. A sizeable literature has shown that the mere activation of a goal representation guides behavior and higher cognitive processes involved in goal-directed behavior without conscious awareness. The idea that goals can direct behavior unconsciously is based on the notion that goals are parts of knowledge networks that include representations of the goal itself, actions, procedures, and objects that help goal pursuit (Aarts & Dijksterhuis, 2000, 2003; Bargh & Gollwitzer, 1994; Cooper & Shallice, 2006; Custers & Aarts, 2010; Dijksterhuis & Aarts, 2010; Kruglanski, Shah, Fishbach, Friedman, Chun, & Sleeth-Keppler, 2002). Such networks enable people to act on goals without intentional control or without explicit expectancies. Thus,

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goal-directed behavior can start outside of conscious awareness, because goal representations can be primed by, and interact with, behavioral and contextual information.

Perhaps the most well-known example is the work of Bargh and colleagues (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). They unobtrusively exposed participants to words such as "strive" and "succeed" to prime an achievement goal (a goal held by most students) and then offered them the opportunity to achieve by presenting them with a task in which they had to solve anagram. Participants primed with the achievement goal outperformed those who were not primed. Bargh et al. also demonstrated that such goal priming leads to qualities associated with motivational states or "goal-directedness," such as persistence and increased effort in working towards the goal. These and other recent experimental demonstrations (Aarts, Custers, & Marien, 2008; Lakin & Chartrand, 2003) indicate that the mere activation of a goal representation suffices to motivate people to work on the primed goal without any conscious awareness of the goal.

In another, imaginative demonstration of this idea, Holland, Hendriks, and Aarts (2005) examined whether the mere perception of odor is capable of directly activating goals. They exposed some participants to the scent of all-purpose cleaner without participants' conscious awareness of the presence of the scent. Because the scent of all-purpose cleaner was assumed to enhance the accessibility of the goal of cleaning, Holland et al. hypothesized that participants exposed to the scent would spontaneously start to be cleaner. Participants were requested to eat a very crumbly cookie in the lab, and, indeed, participants exposed to the scent put in more effort to keep their environment clean and crumb-free, even though the task and situation in which they applied their skills of cleaning was novel. These results indicate that goal activation can encourage people to exploit new opportunities in novel settings without awareness of the operation of the goal.

To recapitulate, goals can set various unconscious processes in motion. In fact, goal activation itself can happen unconsciously.

GOALS AND ATTENTION

People—laypeople and researchers alike—are sometimes surprised to hear that goals can influence behavior without conscious awareness. This reaction is in part caused by the fact that many people equate consciousness with attention. However, this equation is unwarranted. Although it is true that a stimulus that is attended to is more likely to enter consciousness than an unattended stimulus, attention and consciousness are to some extent independent (Lamme, 2003). For instance, we know that subliminal priming of stimuli—unconscious by definition—has effects only when attention is paid to the stimuli while they are presented (Koch & Tsuchiya, 2006). Rather than as a cause for conscious awareness, attention is better understood as the extent to which the brain processes an incoming stimulus or perhaps as the effort the brain puts into processing a stimulus.

Attention is commonly referred to as the selective processing of one aspect while ignoring other irrelevant aspects. About 1 million fibers leave each human eye, and we have to deal with about 1 megabyte of raw data each second (Koch &

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Tsuchiya, 2006). It is impossible to process all this information thoroughly. Because information processing capacity involved in the control of higher-level cognition and behavior is limited, attention determines which stimuli and actions get access to these capacity-limited processes. Therefore, attention must be flexibly applied to different processes (Kahneman, 1973; Moors & De Houwer, 2006). As Moors and De Houwer pointed out, early stages of information processing (sensory analysis) generally require no attention, whereas later stages require an increasing amount. Given that attention is a limited resource, some of these later processing do indeed continue because enough attention is devoted to them, whereas other processes are terminated due to lack of attention.

Whether incoming information is attended to or not—that is, whether incoming information is processed by modules involved in higher cognition—is determined both by bottom-up and top-down processes (Corbetta & Shulman, 2002; Dehaene, Changeux, Naccache, Sackur, & Sergent, 2006; Koch & Tsuchiya, 2006). Bottom-up (exogenous) attentive processes are involuntary and elicited by stimulus saliency, such as brightness or speed of movement and stimuli that are of instinctive or learned biological importance (Koch & Ullman, 1985). However, most attentive processes are driven by top-down (endogenous) concerns, and this is where goals and needs come into play. Both the amount and duration of attention devoted to incoming information is determined by active goals: Incoming information that is relevant for goal attainment is attended to much more than information that is irrelevant. Goals, in other words, determine attention.

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GOALS AND ACCESSIBILITY

Judgments, also intuitive judgments, are often determined by differences in accessibility. When the concept of aggression is highly accessible, a person you meet will likely be judged as aggressive (Srull & Wyer, 1980). Given that goals change attention—that is, the amount of processing stimuli received—it is highly likely that goals also affect the relative accessibility of stimuli.

This is indeed true. Goschke and Kuhl (1993) demonstrated that a goal causes persistent activation of the goal representation in memory compared with the mere activation of semantic knowledge, which shows a rapid decay of activation in memory over very short periods of time (Higgins, Bargh, & Lombardi, 1985; McKone, 1995). For instance, Goschke and Kuhl instructed participants to either execute a certain behavior (e.g., arranging a dinner table) or merely observe the behavior at a later moment in the experimental session. Before this event occurred, they measured the accessibility of items related to the goal in a recognition task. They showed that a few minutes after the goal was given, the goal items were more accessible in memory in the execution instruction group compared with the observation instruction group. This effect has been replicated with different paradigms and goals and demonstrated to be moderated by the expectance and value of the task goal (Förster, Liberman, & Higgins, 2005).

Research on thirst and drinking by Aarts, Dijksterhuis, and De Vries (2001) has illustrated how the accessibility of drinking-related information emanating

from the feeling of thirst can guide assessment of drinking goals. In a task allegedly designed to assess mouth-detection skills, some of their participants were made to feel thirsty, whereas others were not. Participants who were made thirsty responded faster to drinking-related items in a lexical decision task and performed better on an incidental recall task of drinking-related items relative to no-thirst control participants. This enhanced accessibility of goal-relevant material, then, may guide the assessment of one's goals and plans. That is, the priming of goal-related information renders the goal representation more likely to adjust explicit expectations and wants given the appropriate goal context ("Can I get you something?"). This nonconscious accessibility effect on explicit goal assessment can occur in several ways.

In a test of their theory of unconscious thought (Dijksterhuis & Nordgren, 2006), Strick, Dijksterhuis, and van Baaren (2011) also found that unconscious goals could eliminate racial bias in a setting whereby participants actually had to choose between people. Undergraduate students were presented with information about four potential roommates with the goal to choose one. Two roommates had Black facial features, whereas the two others did not have such features. Participants who chose immediately after reading the information about the roommates showed racial bias, whereas participants who were given some time to consciously think did not. Interestingly, participants who thought unconsciously did not show bias either, and in their case the degree of bias correlated strongly with people's motivation to control prejudice (Plant & Devine, 1998). In a second study, these results were replicated—that is, unconscious thinkers controlled racial bias—among participants for whom egalitarian goals were primed. It is important to realize that in these studies the racial facial features were manipulated in a subtle way, and skin color was not manipulated at all. Because of this, participants did not even realize the experiment was on racial bias. Hence, goals led to the unconscious control of unconscious racial bias.

However, such automatic control processes are not confined to the domain of prejudice. Fishbach and colleagues (Fishbach, Friedman, & Kruglanski, 2003; Myrseth & Fishbach, 2009; Trope & Fishbach, 2000) demonstrated that people can unconsciously resist the effects of temptations. In one of their experiments, they selected participants for whom goals such as staying slim or getting high grades was important and people for whom these goals were less important. They found, in a sequential lexical decision task, that goals may activate temptations for people for whom the goal is not all that important. For instance, studying may automatically lead to activation of tempting alternative courses of action such as watching TV. More importantly, people with strong goals demonstrated the opposite. For them, temptations activated the goal. That is, people with the goal to stay slim automatically activated this goal when confronted with a piece of chocolate, thereby increasing the chance on regulatory success. People do not need to be aware of the temptations for this powerful regulatory mechanism to be launched.

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GOALS, NEEDS, AND INTUITION

I will next review evidence in support of our hypothesis. In the experiments discussed here, goals or needs are shown to affect judgments or choices. The evidence should be interpreted with care, as it is debatable whether the judgments under consideration are intuitive. However, as we shall see, the judgments are at least (1) subtle and most likely not accessible to consciousness, and (2) the consequence of a preceding unconscious process.

Macrae, Alnwick, Milne, and Schloerscheidt (2002) examined the relation between needs and person perception. Female participants in different phases of their menstrual cycle viewed photographs of men and women with the objective of classifying the photographs on the basis of gender as fast as possible. Most female participants were equally fast to classify male and female pictures, except participants who were in the phase of high conception risk. These women were faster to classify pictures of men. As it turned out, this was especially true for pictures of men that looked stereotypically masculine. In other words, menstrual cycle subtly affected female's (intuitive) evaluations of men.

Swami and Tovée (2006) presented male participants with photographs of women and asked them to rate the attractiveness of each female. The experimenters were interested in men's judgments of attractiveness of women dependent on their body mass index (BMI), and the faces of the women were obscured. The men were tested between 6 p.m. and 7 p.m., and each individual was asked to what extent he was hungry. Interestingly, satiated men had a preference for women with a relatively low BMI (that is, women with less body weight) than men who reported being hungry. Here, too, a need affected, in a subtle way, people's preference.

Bos and colleagues (Bos, Dijksterhuis, & van Baaren, 2008) set out to demonstrate that goals influence judgments. We again gave participants information about a decision problem. All participants were distracted before they made a decision. However, one group was told that we would later ask them some questions about the decision problem before they were distracted, as we have always instructed unconscious-thought participants in previous experiments. The other group was instead told that they were done with the decision problem and would not be asked anything about it later on. In other words, one group had the goal to further process the information, whereas the other group had no such goal. Results showed that the former group made better decisions than the latter.

In an additional experiment, Bos et al. (2008) demonstrated that goals can indeed have very specific effects on judgments. Participants were given information about two decision problems simultaneously. One decision pertained to a choice among three roommates, the other two a choice among three cars. After reading the decision information, some participants were told they later had to choose their favorite roommate, whereas others were asked to choose the best car. After a period of unconscious thought, all participants were asked to choose both among the roommates as well as among the cars. Participants who were told they had to choose between roommates were more sensitive to the differences among the roommates than the participants who heard they were to choose among

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the cars, whereas the participants who had the goal to choose among the cars performed better on the decision problem pertaining to the cars.

Eitam, Hassin, and Schul (2008) extended this work by showing that implicit learning is influenced by goals. They primed half their participants with the goal to achieve, whereas the others were not primed. Participants then engaged in a dynamic, complex learning task, based on research by Berry and Broadbent (1984). The research by Eitam et al. (2008) clearly demonstrated that participants who were primed with achievement performed considerably better than control participants—that is, they implicitly learned more. However, the ability to consciously describe what they had learned was equally poor in both conditions. In other words, goals affected judgments based on implicitly acquired knowledge without any improvement in conscious recognition of what was learned.

In sum, many experiments have demonstrated that basic needs and goals can influence our choices in a subtle, but at the same time profound, way.

GOAL STRENGTH AND INTUITION

The hypothesis under consideration by logic also entails that the strength of a goal—or any motivational force for that matter—should affect intuitive judgments. That is, strong goals should, unconsciously, alter the kind of subtle judgments that we may designate with the term intuition. Research is consistent with this possibility. First, I will describe findings documenting that variations in motivational strengths can be primed unconsciously.

Pessiglione et al. (2007) showed that strength of motivation can be subliminally primed. Participants worked on a task whereby they could win money on successive trials by squeezing a handgrip. The amount of money at stake (a pound versus a penny) was subliminally primed during each trial, and it indeed affected force of handgrip, along with skin conductance and activation in the ventral palladium, an area known to be devoted to emotional and motivational output of the limbic system. Bijleveld, Custers, and Aarts (2009) recently showed that people recruit more resources in response to high (compared with low) subliminal reward cues, but only when the reward required considerable mental effort to obtain. This research demonstrates that people use reward information in a strategic manner to recruit resources, without this information ever reaching conscious awareness.

Research by Gollwitzer and colleagues is also relevant (Gollwitzer and Brandstätter, 1997). According to Gollwitzer, people can strategically employ automatic processes to pursue their goal by forming implementation intentions. Implementation intentions are plans in which behavior appropriate for goal pursuit is linked to critical situations ("When I am hungry and walk to the fridge, I'm going to grab a few carrots rather than cheese"). It may be noted that forming implementation intentions is more than just increasing the strength of a goal; nevertheless, the effects of implementation intentions are reminiscent of the hypothesized effects of strong goals. Control of goal-directed behavior is delegated to the environment that automatically elicits appropriate responses.

The effects of implementation intentions can be large. In one experiment, Gollwitzer and Brandstätter (1997) asked university students prior to their

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Christmas break to name something difficult they wanted to achieve during the break (e.g., writing a paper, solving a conflict). Some participants formed implementation intentions, whereas others did not. After the break, only one-fourth of the control participants reported to have achieved their goal. Participants who formed implementation intentions, however, were successful in two-thirds of the cases.

Arguably the strongest evidence for the hypothesized relation between motivational strength and intuition comes from evolutionary psychology. Researchers have documented subtle biases in judgments that can be explained by needs shaped by evolutionary forces (see also work by Macrae at al., 2002, previously discussed). Both Galperin & Haselton (this volume) and Kenrick and colleagues (this volume) provide a description of such studies. For instance, it is known that people often show avoidance behavior—intuition, one could safely say in this case—toward foreigners from unknown places and that this stems from the motive to avoid potential carriers of disease. Importantly, research has shown that there are differences among individuals as to the extent to which they avoid unknown others, and these differences at least to some extent covary with motivational strength. Navarette, Fessler, and Eng (2007) found that women exhibit stronger xenophobic attitudes during the first weeks of pregnancy, that is, when the motivation to avoid disease is most likely extremely high.

Another insightful demonstration comes from the work by Maner et al. (2005). Past research has established that men overestimate women's sexual interest in them (Galperin & Haselton, this volume). Maner et al. found that men who are primed with romantic thoughts—and who presumably have a stronger goal to sexually interact—show a stronger bias: They perceive sexual interest in photos of neutral female faces.

Finally, in a study in which strangers played various dictator games, some participants were subtly led to believe they were being watched (Haley & Fessler, 2005). This was done by showing stylized eyespots on the desktop background. Intriguingly, participants who were presented with these watchful eyes gave more money to their partners than control participants. It is likely that the eyes led to the activation of a goal or norm to behave socially, thereby unconsciously changing people's choices.

To recapitulate, research from various areas shows that variations in motivational strength affect choices in many different domains. Moreover, these effects can—and often are—exert their influence without conscious guidance.

CONCLUSIONS

Although most (though not all) of the research reviewed in this chapter was on goals, it is plausible that appropriate intuition is the consequence of motivation in general. Variations in strength of goals, needs, and implicit motives should all affect subtle judgments. Future research may indeed uncover this relation.

If one maintains that intuition is the consequence of (largely) unconscious processes that are instigated by goals (or other motivational forces), it follows that variations in unconscious processes—for instance, in the amount of time one

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can devote to these processes—may well have an effect on intuition. This again provides an avenue for further research.

However, the contribution of the idea explored here is not that it helps us to better understand (the consequences of) goals. Rather, it is that it could partly demystify intuition. Intuition does not have to be this murky concept that laypeople like, but researchers find hard to incorporate in their work. Instead, intuition can be conceived of as the interface motivation uses to influence overt behavior.

REFERENCES

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Aarts, H., Custers, R., & Marien, H. (2008). Preparing and motivating behavior outside of awareness. *Science, 319*, 1639.

Aarts, H., & Dijksterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology, 78*, 53–63.

Aarts, H., & Dijksterhuis, A. (2003). The silence of the library: Environment, situational norm, and social behavior. *Journal of Personality and Social Psychology, 84*, 18–28.

Aarts, H., Dijksterhuis, A., & De Vries, P. (2001). On the psychology of drinking: Being thirsty and perceptually ready. *British Journal of Psychology, 92*, 631–642.

Bargh, J. A., & Gollwitzer, P. M. (1994). Environmental control of goal-directed action: Automatic and strategic contingencies between situations and behavior. In W. D. Spaulding (Ed.), *Integrative views of motivation, cognition, and emotion. Nebraska symposium on motivation* (Vol. 41, pp. 71–124). Lincoln, NE: University of Nebraska Press.

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology, 81*, 1014–1027.

Berry, D. C., & Broadbent, D. E. (1984). On the relationship between task performance and associated verbalizable knowledge. *Quarterly Journal of Experimental Psychology. A. Human Experimental Psychology, 36*, 209–231.

Betsch, C. (2004). Präferenz für Intuition und Deliberation. Inventar zur Erfassung von affekt- und kognitionsbasiertem Entscheiden. [Preference for Intuition and Deliberation (PID): An Inventory for Assessing Affect- and Cognition-Based Decision-Making]. *Zeitschrift für Differentielle und Diagnostische Psychologie, 25,* 179–197.

Betch, T., & Glöckner, A. (2010). Intuition in judgment and decision making: Extensive thinking without effort. *Psychological Inquiry*, *21*, 279–294.

Bijleveld, E., Custers, R., & Aarts, H. (2009). The unconscious eye opener: Pupil dilation reveals strategic recruitment of mental resources upon subliminal reward cues. *Psychological Science*, *20*, 1313–1315.

Bos, M. W., Dijksterhuis, A., & van Baaren, R. B. (2008). On the goal-dependency of unconscious thought. *Journal of Experimental Social Psychology, 44*, 1114–1120.

Cooper, R. P., & Shallice, T. (2006). Hierarchical schemas and goals in the control of sequential behavior. *Psychological Review, 113*, 887–916.

Corbetta, M., & Shulman, G. L. (2002). Control of goal-directed and stimulus-driven attention in the brain. *Nature Reviews Neuroscience, 3*, 201–215.

Custers, R., & Aarts, H. (2010). The unconscious will: How the pursuit of goals operates outside of conscious awareness. *Science, 329*, 47–50.

Dane, E., & Pratt, M. G. (2007). Exploring intuition and its role in managerial decision making. *Academy of Management Review*, *32*, 33–45.

Dehaene, S., Changeux, J. P., Naccache, L., Sackur, J., & Sergent, C. (2006). Conscious, preconscious, and subliminal processing: A testable taxonomy. *Trends in Cognitive Sciences, 10*, 204–211.

Dijksterhuis, A. (2007). *Het slimme onbewuste*. Amsterdam: Bert Bakker.

Dijksterhuis, A., & Aarts, H. (2010). Goals, attention, and (un)consciousness. *Annual Review of Psychology*, *61*, 467–490.

Dijksterhuis, A., & Nordgren, L.F. (2006). A Theory of Unconscious Thought. *Perspectives on Psychological Science*, *1*, 95–109.

Eitam, B., Hassin, R. R., & Schul, Y. (2008). Nonconscious goal pursuit in novel environments: The case of implicit learning. *Psychological Science, 19*, 261–267.

Epstein, S. (2008). Intuition from the perspective of cognitive-experiential self-theory. In H. Plessner, C. Betsch, & T. Betsch (Eds.), *Intuition in judgment and decision making* (pp. 23–37). New York: Erlbaum.

Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not unto temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology, 84*, 296–309.

Förster, J., Liberman, N., & Higgins, E. T. (2005). Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology*, *41*, 220–239.

Gollwitzer, P. M. (1999). Implementation intentions. Strong effects of simple plans. *American Psychologist*, *54*, 493–503.

Gollwitzer, P. M., & Brandstätter, V. (1997). Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology, 73*, 186–199.

Goschke, T., & Kuhl, J. (1993). Representation of intentions—Persisting activation in memory. *Journal of Experiment Psychology; Learning, Memory and Cognition, 19*, 1211–1226.

Haley, K. J., & Fessler, D. M. T. (2005). Nobody's watching? Subtle cues affect generosity in an anonymous economic game. *Evolution and Human Behavior, 26,* 245–256.

Higgins, E. T., Bargh, J. A., & Lombardi, W. (1985). Nature of priming effects on categorization. *Journal of Experimental Psychology: Learning, Memory and Cognition, 11*, 59–69.

Hogarth, R. M. (2001). *Educating intuition*. Chicago, IL: University of Chicago Press.

Hogarth, R. M. (2010). Intuition: A challenge for psychological research on decision making. *Psychological Inquiry*, *21*, 338–353.

Holland, R. W., Hendriks, M., & Aarts, H. (2005). Nonconscious effects of scent on cognition and behavior. *Psychological Science, 16*, 689–693.

Kahneman, D. (1973). *Attention and effort*. Englewood Cliffs, NJ: Prentice-Hall.

Koch, C., & Tsuchiya, N. (2006). Attention and consciousness: Two distinct brain processes. *Trends in Cognitive Sciences, 11*, 16–22.

Koch, C., & Ullman, S. (1985). Shifts in selective visual attention: Towards the underlying neural circuitry. *Human Neurobiology, 4*, 219–227.

Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. *Advances in Experimental Social Psychology, 34*, 311–378.

Lakin, J. L., & Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science, 14*, 334–339.

Lamme, V. A. F. (2003). Why visual attention and awareness are different. *Trends in Cognitive Sciences, 7*, 12–18.

Macrae, C. N., Alnwick, K. A., Milne, A. B., & Schloerscheidt, A. M. (2002). Person perception across the menstrual cycle: Hormonal influences on social-cognitive functioning. *Psychological Science*, *13*, 532–536.

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Maner, J. K., Kenrick, D. T., Neuberg, S. L., Becker, D. V., Robertson, T., Hofer, B., et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, *88*, 63–78.

McKone, E. (1995). Short-term implicit memory for words and nonwords. *Journal of experimental psychology. Learning, Memory, and Cognition, 21*, 1108–1126.

Moors, A., & De Houwer, J. (2006). Automaticity: A theoretical and conceptual analysis. *Psychological Bulletin, 132*, 297–326.

Myrseth, K. O. R., & Fishbach, A. (2009). Self-control: A function of knowing when and how to exercise restraint. *Current Directions in Psychological Science*, *18*, 247–252.

Navarette, C. D., Fessler, D. M. T., & Eng, S. J. (2007). Increased ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior, 28*, 60–65.

Pessiglione, M., Schmidt, L., Draganski, B., Kalisch, R., Lau, H., Dolan, R. J., et al. (2007). How the brain translates money into force: A neuroimaging study of subliminal motivation. *Science, 316*, 904–906.

Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology*, *75*, 811–832.

Srull, T. K., & Wyer, R. S. (1980). Category accessibility and social-perception: Some implications for the study of person memory and interpersonal judgments. *Journal of Personality and Social Psychology, 38*, 891–856.

Strick, M., Dijksterhuis, A., & van Baaren, R. B. (2010). Unconscious-thought effects take place off-line, not on-line. *Psychological Science*, *21*, 484–488.

Strick, M., Dijksterhuis, A., & van Baaren, R. B. (2011). *Unconscious thought and racial bias*. Manuscript in preparation.

Swami, V., & Tovée, M. J. (2006). Does hunger influence judgments of female physical attractiveness. *British Journal of Psychology*, *97*, 353–363.

Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology, 79*, 493–506.

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7

Moving Through Time
Mental Time Travel and Social Behavior

C. NEIL MACRAE, LYNDEN K. MILES, and SARAH B. BEST
University of Aberdeen

Take yourself back to your first proper teenage kiss—pounding heart, sweaty palms, and all. Now transport yourself to a future vacation, somewhere on a tropical island with a warm breeze and a cool drink. Chances are that imagining such past and future scenarios is a relatively simple task. Indeed, the apparent ease and flexibility with which we can shift our mind away from the here-and-now showcases the uniquely human capacity for mental time travel (MTT). By reflecting on the past and anticipating the future, we can shape our behavior to satisfy both the challenges of daily life and our longer-term goals and ambitions. Immersed in a social world, MTT affords us the ability to mull over previous interactions as well as the foresight to predict the needs and intentions of others. To date, however, empirical research exploring MTT has primarily been focused on elucidating the neuro-anatomical correlates and conditions that lead to impairments to this social-cognitive ability. Little work has addressed questions regarding the core psychological characteristics of MTT—that is, *how* exactly is the mind transported through time?

In this chapter, we will present recent evidence from our laboratory that demonstrates consistent links between mentally moving through time and physically moving through space. Drawing from the existing literature on embodied cognition, we argue that MTT is grounded in the spatial representation of temporal information (e.g., past = backward, future = forward). To this end, we consider the possibility that the perception–action systems that govern movement through space also provide a scaffold for the mind's journeys through time and how this capacity may afford a foundation for interacting with others.

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MENTAL TIME TRAVEL

An important facet of day-to-day conscious experience is the capacity to shift attention away from the details of the immediate environment and focus on temporally remote events. Whether daydreaming about dinosaurs or planning what to wear to the office Christmas party, a good deal of one's mental life is spent entertaining thoughts about things that either have already or are yet to occur. This faculty for past and future thinking, or as Suddendorf and Corballis (2007) termed it mental time travel, is believed to serve a pivotal function in human cognition and interpersonal behavior. As well as providing a rich and stimulating inner life, MTT endows the individual with important social-cognitive abilities that enable them to modify their behavior to fulfill the challenges of daily life (Schacter, Addis, & Buckner, 2007; Tulving, 2002). For instance, when confronted with complex and challenging judgements (e.g., Should I buy stocks or deposit my savings in the bank?), simulating future outcomes (i.e., prospection) on the basis of prior experience (i.e., retrospection) is a tactic that optimizes decision making and behavioral selection (Boyer, 2008; Gilbert & Wilson, 2007). Indeed, interpersonal behavior can be guided in much the same manner—simply choosing a partner's anniversary present requires careful contemplation of how previous gifts have been received. In this way, the ability to mentally revisit the past and anticipate the future can be seen to provide a unique opportunity to learn from previous experiences to direct subsequent behavior and interaction (Kahneman & Miller, 1986). In fact, it has been suggested that the capacity for MTT is a core component of effective psychological functioning and underpins the ability to relate to others (e.g., Gilbert & Wilson, 2007; Schacter et al., 2007; Suddendorf, Addis, & Corballis, 2009; Suddendorf & Corballis, 2007; Szpunar, 2010). This claim is perhaps best illustrated by considering the difficulties faced when MTT is impaired.

A CASE STUDY

In a now seminal work in the field of memory research, Tulving (1985) presented the case of patient K.C. who, at the age of 30, suffered a traumatic brain injury as a result of a motorcycle accident. Although a good deal of K.C.'s cognitive faculty was left intact following the injury—for example, his general intelligence and language skills were preserved—he displayed an unusual pattern of memory loss. While he could recount knowledge of the world (e.g., semantic memories) and recite very recently encountered information (e.g., short-term memories), K.C. was unable to recall the details of his personal experiences. He knew, for instance, who the members of his family were but was unable to remember any specific event relating to them. When asked to describe occurrences from his past, K.C. simply reported that his mind was blank. This led Tulving to suggest that K.C. displayed a total loss of episodic memory (i.e., memories of personally experienced events). Notably however, K.C. also reported the "same kind of blankness" (p. 4) when asked to contemplate personally relevant future events, such as what he might do the next day. Put simply, K.C. had lost the ability to travel mentally through time. In the same

way he was unable to revisit past experiences, he was also unable to prospectively look into the future, leaving his mind perpetually stranded in the here-and-now.

PAST AND FUTURE THINKING

The case of K.C. has had a notable impact with respect to theories of human cognition (Rosenbaum et al., 2005). Of particular relevance to the present chapter, the apparent symmetry between the impairment to the retrospective and prospective aspects of K.C.'s memory has also been observed in other contexts. For instance, deficits in the ability to imagine past and future episodes have been linked not only to brain damage but also to aging and mental illness. When asked to generate details of imagined events, older adults report fewer episodic but more semantic details than their younger counterparts (Addis, Wong, & Schacter, 2008). Importantly, this effect is equivalent for both past and future scenarios. Aging therefore appears to influence both retrospective and prospective thinking to a comparable degree (Spreng & Levine, 2006). In much the same way, relative to control participants, individuals with schizophrenia typically recall fewer episodes from the past and display consistent difficulties in generating specific future events (D'Argembeau, Raffard, & Van der Linden, 2008). Indeed, patient populations who characteristically experience poor episodic memory also tend to display a simultaneous inability to vividly imagine their future (Szpunar, 2010).

In fact, the link between past and future cognition is also evident in healthy individuals. Suddendorf (2010), for instance, demonstrated that 3- and 4-year-old children who were able to accurately report what they had done yesterday were also more likely to be able to generate ideas about what they would do tomorrow. Similarly, Szpunar and McDermott (2008) reported that the vividness with which college students imagined future scenarios depended on the degree of perceptual detail that aspects of this imagery were represented in memory. Indeed, episodic future thinking characteristically features familiar contextual information—that is, information drawn from past experiences (Spreng & Levine, 2006). These findings point to a commonality between the cognitive mechanisms that support retrospective and prospective thinking. More specifically, the ability to think about future events appears to rely on the sampling of details about past experiences (i.e., the constructive episodic simulation hypothesis; Addis, Wong, & Schacter, 2007; Buckner & Carroll, 2006; Szpunar, 2010). Mental time travel, therefore, can be conceptualized as the flexible reconstruction of the content of episodic memory.

NEURAL CORRELATES OF MTT

Alongside the cognitive and behavioral work that has demonstrated consistencies between past and future thinking, there has been a surge of interest in identifying the neural correlates of MTT. Primarily via functional magnetic resonance imaging (fMRI) techniques, a core network of brain regions has been identified that is used not just for remembering the past but is also active when creating mental simulations of future events. For instance, in a study representative of the area, Szpunar, Watson, and McDermott (2007) scanned the brains of participants while

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they silently imagined past and future socially relevant events (e.g., birthdays). Irrespective of the temporal location of the imagery, a very similar set of same brain regions were engaged. Specifically, in a recent review Buckner and Carroll (2007) reported that, while thinking about hypothetical social situations concerning either the past or the future, regions of the medial prefrontal cortex, posteromedial parietal cortex, and the medial temporal lobes are consistently engaged. These authors argued that this core network, previously established as the basis for memory retrieval, also contributes the contents used to simulate a future scenario. In this way, retrospection and prospection are seen to rely on largely overlapping neural structures (Barr, 2009; Buckner & Carroll, 2007; Szpunar et al., 2007; Schacter et al., 2007;).

In summary, the striking similarities between past and future thinking, with respect to both the overlapping neural structures and the consistent relationship between the characteristics of retrospection and prospection, provide solid grounds to suggest that recollection guides simulation during instances of MTT. Moreover, this capacity has direct and important consequences for the way people plan and manage interpersonal situations. What remains unclear, however, is quite how episodic thoughts are linked to moments in subjective time. That is, how does the mind distinguish between the past and the future?

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THINKING ABOUT TIME

A challenging issue for cognitive science concerns the manner in which the mind apprehends abstract concepts (Lakoff & Johnson, 1980, 1999; see also Eich et al.; Semin & Garrido; Winkielman & Kavanagh, this volume). Of particular relevance to the present work is how we comprehend temporal concepts; a question that is arguably of central importance to basic theories of human cognition (Barsalou, 2008). Although we can never experience time via our sensory systems—time cannot be directly seen, touched, or heard—we nevertheless successfully navigate through time-dependent worlds. We meet deadlines, remember birthdays, and never mistake the past for the future. But how is this so? How can we so effortlessly comprehend abstract information that has no direct referent in the world? One suggestion is that to understand the abstract components of the environment, our mind translates such concepts into more concrete domains (e.g., Lakoff & Johnson, 1980, 1999). Boroditsky and Ramscar (2002), for example, argue that abstract knowledge is represented in terms of information that can be directly experienced. In this sense, abstract notions of time are often characterized in terms of the more concrete and accessible domain of space. In much the same way as we tend to map numbers to space (i.e., mental number lines; Dehaene, Izard, Spelke, & Pica, 2008), time is frequently imbued with spatial properties (Casasanto & Boroditsky, 2008). For instance, cultural conventions dictate that time flows in a particular direction (e.g., graphs, cartoon strips), people situate life events along an imaginary timeline (Arzy, Adi-Japha, & Blanke, 2009), and patterns of language tend to prescribe temporal concepts to spatial locations (e.g., past = backward, future = forward; Boroditsky, 2000). As such, it is argued that we are able to understand time through knowledge and experiences within the more

concrete domain of space (Boroditsky & Ramscar, 2002; Casasanto & Boroditsky, 2008; Ramscar, Matlock, & Boroditsky, 2009). The frequent use of metaphoric language that associates space and time reflects this relationship.

SPACE–TIME METAPHORS

Everyday language typically features an abundance of conceptual metaphors that describe temporal constructs in spatial terms (Boroditsky, 2000). In English, for example, people routinely report that the past is behind them (e.g., back in the summer of '69), that the future is ahead (e.g., looking forward to the weekend), and that life (i.e., the passage of time) is a journey from one place to the next (Boroditsky, 2000; Lakoff & Johnson, 1980, 1999). Such is the utility of the spatial coding of time that most languages employ metaphors that associate temporal constructs (e.g., past, present, future) with specific locations in space (e.g., a long vacation, a short concert; Alverson, 1994). Moreover, the passage of time is often also given spatial qualities such that people are thought of as moving through time (i.e., ego-moving metaphor) or, conversely, that time flows past the individual (i.e., time-moving metaphor). In fact, the metaphorical link between time and space is even reflected in nonverbal behavior whereby gestures that accompany temporal language are systematically aligned with spatial properties (e.g., direction, distance; Núñez & Sweetser, 2006). Of particular interest to the current work, the relationships between space and time that feature in metaphoric language also influence how temporal information is processed and used in managing interpersonal behavior.

SPACE–TIME COGNITION

The metaphorical relationship between space and time is reflected in the way time is cognitively represented (Tolman, 1948). Reflecting the mind's tactic of grounding abstract conceptual knowledge in concrete sensory-motor experiences (Barsalou, 2008; Lakoff & Johnson, 1980, 1999; see also Semin & Garrido; Winkielman & Kavanagh, this volume), space–time mapping provides a framework in which temporal understanding can unfold. Casasanto and Boroditsky (2008) reported that judgments of temporal duration were dependent on spatial information. Importantly, this work employed a nonlinguistic task suggesting that the metaphorical space–time relationship observed in language also exists in the more basic representations of distance and duration.

When mentally integrating time with space, people commonly locate temporal constructs along a horizontal plane (i.e., front–back, left–right). In fact, a growing body of research demonstrates that just such mappings of time (e.g., past = behind, future = in front) are spontaneously employed when processing temporal information. Torralbo, Santiago, and Lupiáñez (2006) presented participants with a silhouette of a human head displayed in profile (i.e., looking either rightward or leftward) and a speech bubble containing a time-relevant word (e.g., yesterday). The location of the speech bubble was either congruent (e.g., yesterday was located behind the silhouette) or incongruent (e.g., yesterday in front of the silhouette) to

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the meaning of the word. Participants were asked to make a vocal judgment about whether the "person" (i.e., silhouette) was thinking about the past or the future. The results indicated that responses were facilitated when the word location was congruent with the past–behind/future–ahead mapping.

As it turns out, locating time along the anteroposterior (i.e., "back–front") axis is not the only spatiotemporal mapping available. Anecdotal and empirical evidence suggests an additional mediolateral (i.e., "left–right") characterization of space–time. For example, Tversky, Kugelmass, and Winter (1991) asked English-speaking American children and Arabic-speaking Israeli children to associate events in time (e.g., breakfast, lunch, dinner) with locations in space. They found that all the children spontaneously mapped time to space in a systematic manner. Consistent with the direction of written language, the English-speaking children followed the early-left/late-right ordering of events, whereas the Arabic-speaking children displayed the opposite effect. Ouellet, Santiago, Israeli, and Gabay (2010) replicated and extended these findings, revealing a bias in the ease with which manual responses can be elicited by verbal stimuli that have temporal implications. Specifically, while past-related words are responded to most quickly with the left hand, future-related words yield a right-hand advantage (an effect that is reversed in Hebrew speakers). While the precise pattern of space–time mappings appears to vary according to sociocultural conventions (Boroditsky, Fuhrman, & McCormick, 2011; see also Kashima, this volume), it nevertheless appears to be a universal tactic to represent social experiences.

MOVEMENT AND MTT

In both everyday language and in nonlinguistic task contexts, people use space as a proxy for time. Evidence for space–time mapping in other domains, however, has received little empirical attention. To this end, we have initiated a program of research that is aimed at evaluating how temporal thinking might be grounded in the perception–action systems that regulate human movement. Contemporary theories of embodied cognition posit a coupling between higher-order cognitive processes and lower-level bodily actions (Barsalou, 2008; see also Semin & Garrido; Winkielman & Kavanagh, this volume). Characterizing the process of mental time travel in this way yields some interesting behavioral predictions. Specifically, if (1) the metaphorical arrow of time is grounded in a perception–action system that integrates temporal with spatial information, and (2) embodied constructs can be revealed motorically (Barsalou, 2008), then one would expect that thoughts about the past or future (e.g., episodes of MTT) may influence people's movements. Put simply, traveling mentally through time may initiate associated bodily movements through space.

In fact, Oliveri et al. (2009) draw a similar conclusion, suggesting that "motor action could represent the link between spatial and temporal dimensions" (p. 1). Thus, people's movements should be sensitive to the spatial location (i.e., left or right) into which temporal constructs (i.e., past or future) are mapped. Moreover, we suspect that the nature of movement (i.e., occurring in space) provides a direct and temporally relevant means to expose the spatial characteristics of mental

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events. Such association suggests that movement may serve as an ideal vehicle for examining the spatial component of mental activity (Oliveri et al., 2009). Noting the gap in this area of research, we conducted a series of experiments that investigated the possibility that movement represents a pathway through which the integration of spatial and temporal information can be revealed. Guided by the viewpoint that higher cognitive activity can have a sensory-motor grounding, here we report three studies that explore the relationship between mentally moving through time and physically moving through space.

MOUSE-TRACKING

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To explore the possibility that actions provide insight into the cognitive processes that support the comprehension of time, we initially examined the continuous dynamics of people's hand movements during a simple time-categorization task. In brief, this approach draws from a dynamical approach to cognition whereby cognitive activity is seen not as a series of discrete logical operations but rather a self-organized, continuously emerging pattern of neural activity (Spivey & Dale, 2006). One important implication of this approach is the claim that people's movements are coupled, in real-time, with their mental operations. Therefore, an understanding of the dynamics of their movements will also provide insight into their cognition. Research adopting this approach typically requires participants to make classifications of target stimuli by enacting movements (e.g., computer mouse movement, eye movement). The trajectory of the movement reveals, in real time, the nature of the cognitive operations that underlie the decision process (Spivey & Dale). In particular, deviation toward an unselected response option is indicative of dynamic competition between the potential alternatives as the selection of the eventual response unfolds over time.

We used this technique for assessing cognitive dynamics by requiring participants to classify past and future times (within the context of the current day) according to a spatial location (i.e., left or right). Specifically, we evaluated the extent to which people spontaneously associated the past with left and the future with right using the MouseTracker software package (Freeman & Ambady, 2010). At the beginning of each trial, the label "START" appeared at the bottom center of the screen, with the labels "PAST" and "FUTURE" in the top left and right corners. On compatible trials, "PAST" appeared on the left side of the screen and "FUTURE" on the right, while this was reversed for the incompatible trials. Upon clicking the "START" label the target time appeared on screen, which the participants were required to classify. It was anticipated that movement trajectories would show greater curvature (i.e., greater attraction to the unselected alternative) when participants were asked to classify future time to the left and past time to the right than for the reverse mapping (i.e., past to the left, future to the right).

Indeed, the results revealed a bias toward locating the past to the left and the future to the right compared with the reverse mapping (see Figure 7.1). Specifically, the trajectory of hand (i.e., mouse) movements showed a greater

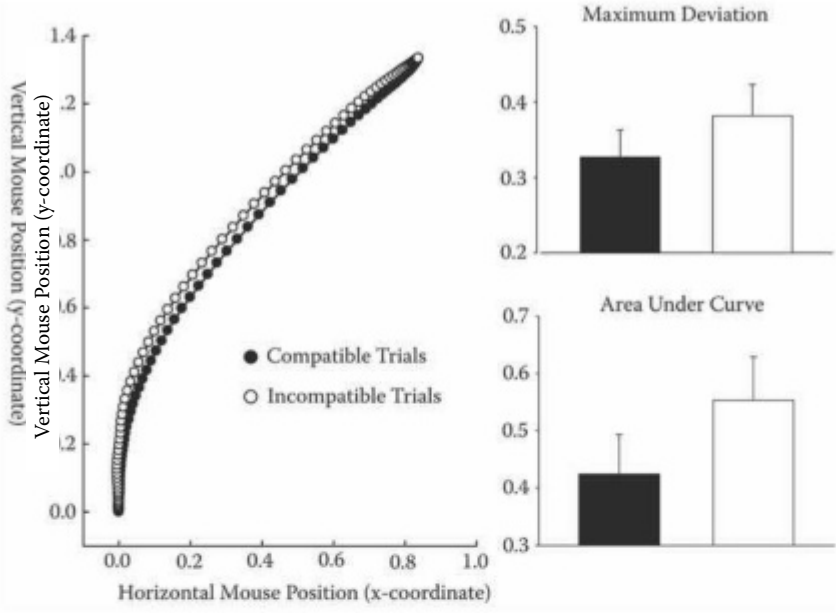


Figure 7.1 Mean mouse trajectories (right-ward remapped) as a function of trial type (compatible vs. incompatible). Insets show the main effect of trial type on measures of spatial attraction. The upper inset displays Maximum Deviation (the largest perpendicular deviation from the idealized straight-line trajectory) and the lower inset displays Area Under Curve (the geometric area between the observed and ideal response trajectories). Error bars represent 1 SEM.

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degree of curvature toward the unselected (i.e., erroneous) response option when the task context dictated that the future be located to the left and the past to the right. In this way, spatial location was seen to act as an *attractor* for temporal constructs such that when participants were instructed to process information pertaining to the past (or future), their movements were literally drawn toward the left (or right). This result is consistent with research demonstrating spatial mappings of time along the mediolateral axis (e.g., Ouellet et al., 2010; Santiago, Lupiáñez, Pérez, & Funes, 2007; Torralbo et al., 2006; Tversky et al., 1991) and extends this work into the domain of movement dynamics. In so doing, this research reveals that the real-time cognitive operations that support the processing of temporal information can indeed be revealed in patterns of action.

SWAYING IN TIME

On the basis that people's movements are able to reveal the way they think about time, our second study examined how temporal information is processed when one revisits the past or anticipates the future. If MTT entails a coupling of thought and action, episodes of retrospection and prospection may be accompanied by

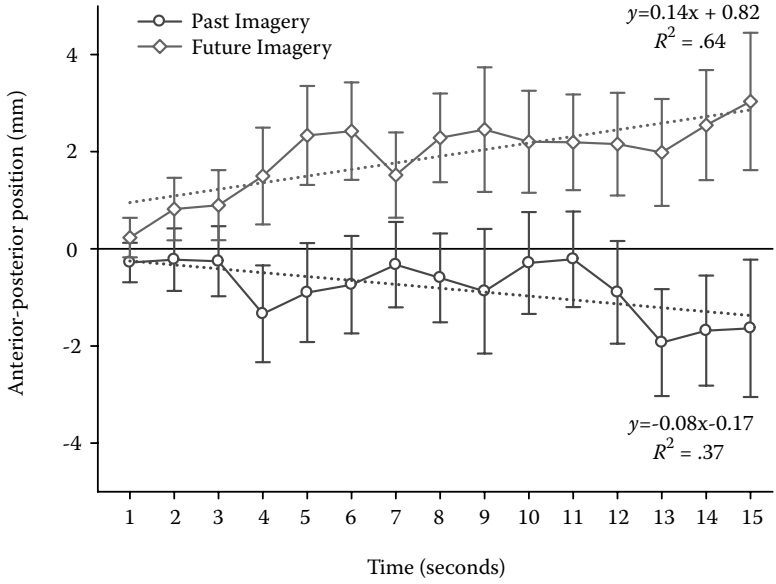


Figure 7.2 Mean change in participant anterioposterior position over time as a function of condition (i.e., past vs. future thought). Error bars represent ±1 SEM.

backward and forward motion, respectively. To explore this possibility, we measured spontaneous fluctuations in the magnitude and direction of postural sway while individuals engaged in MTT over a 15-second period. Specifically, participants were instructed to stand comfortably on a designated spot and to follow specific imagery instructions: either (1) to recall what their everyday life circumstances had been like 4 years previously and to envisage the events of a typical day; or (2) to imagine what their everyday life circumstances might be like 4 years in the future and to envisage the events of a typical day at that time. Participants were asked to wear a blindfold in an effort to encourage more vivid imagery and increase the magnitude and variability of postural sway (Riley, Balasubramaniam, Mitra, & Turvey, 1998). Postural sway was measured using a magnetic motion tracking system, with a sensor attached at the knee. The results indicated that participants who engaged in retrospective thought moved backward but those who thought about the future moved forward (see Figure 7.2).

Thus, these results demonstrate that mental time travel has an observable behavioral correlate: the direction of people's movements through space. As with the MouseTracker study, the embodiment of time and space yielded an overt behavioral marker of an otherwise invisible mental operation. What is more, this behavior (i.e., postural sway) was entirely consistent with the patterns of space–time mappings that feature in metaphoric language (i.e., past = backward, future = forward).

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SPACE TRAVEL AND TIME TRAVEL

On the basis that traveling mentally through time entailed associated movements in space consistent with the direction of time travel, we conducted a third study designed to evaluate the converse relationship. That is, does moving through space influence the temporal locus of mental activity? Extant accounts of embodiment point to a bidirectional relationship between, for instance, thoughts and actions (Barsalou, 2008; Maass, 2009; Mussweiller, 2006). Therefore, if thinking about the future produces forward movement, does forward movement also produce future-oriented thoughts?

In this study, participants were informed that they would be required to monitor a moving display for designated targets and to click a mouse button when they detected a target (O) but to withhold clicking when a distracter (X) appeared. However, the targets were rare over the course of the 6-minute task; only six were presented, thereby creating a somewhat dull context in which daydreaming was expected to occur (Mason, Norton, Van Horn, Wegner, Grafton, & Macrae, 2007). Importantly, the targets were embedded in a dynamic visual display that conveyed *vection*, the illusion of self motion (Dichgans & Brandt, 1978; Owen, 1990). Vection is a common experience in daily life. Consider, for example, sitting on a stationary train and observing a carriage on an adjacent track begin to move. This situation can trigger a compelling impression that it is oneself rather than the nearby train that is moving. Of relevance to the current inquiry, comparable sensations of self-motion can be elicited by visual displays depicting simple patterns of optical flow (Gibson, 1979; Trutoiu, Mohler, Schulte-Pelkum, & Bülthoff, 2009). To this end, we employed a basic star-field animation, common to many computer screensavers, in which the stars appeared to move either toward (i.e., centripetal inflow) or away from (i.e., centrifugal outflow) the center of the display (see Figure 7.3). This manipulation has the effect of inducing backward or forward linear vection, respectively (Trutoiu et al.).

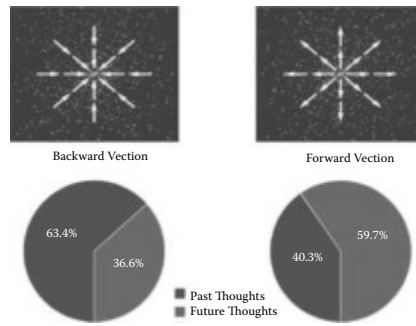


Figure 7.3 Illustrations of the direction of optical flow (i.e., centripetal vs. centrifugal) specified by the star-field displays (top panels) and the proportion of past- compared with future-oriented task-unrelated thoughts reported by participants (bottom panels) as a function of vection condition (i.e., backward vs. forward).

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Following the vigilance task, the contents of the participants' mind wandering experiences were probed. After screening out one individual who reported no off-task thinking, the remaining participants were asked to estimate what proportion of their daydreams were related to past compared with future events. The results revealed that the direction of apparent motion influenced the temporal focus of mental time travel (see Figure 7.3). When viewing the backward vection display, participants reported a greater preponderance of thoughts about the past, whereas those who saw the forward vection reported more thoughts about the future. In other words, the direction of apparent motion modulated the temporal locus of MTT.

CONCLUSIONS

In this chapter, we have highlighted research and ideas from two distinct domains of inquiry concerning MTT. First, neuroscience research has revealed that past and future episodic thinking relies on common neural substrates and cognitive mechanisms (e.g., Gilbert & Wilson, 2007; Schacter et al., 2007; Suddendorf & Corballis, 2007; Szpunar, 2010). Second, work on abstract thinking suggests that to comprehend notions of time people routinely map temporal constructs to the spatial domain (e.g., Boroditsky, 2000; Casasanto & Boroditsky, 2008; Lakoff & Johnson, 1980, 1999). Moreover, we have drawn together these ideas and, in the context of a dynamic, embodied approach to cognition, sought to understand if spatiotemporal mapping provides a framework by which the mind navigates through time. To this end, we have used movement dynamics as a window to the cognitive activity that supports MTT. Across three studies, we have demonstrated that when thinking about temporal constructs people's actions are consistent with the spatial properties ascribed to time. Specifically, when thinking about past and future times of the day participants' arm movements were attracted to the left and right side of space, respectively; when thinking about past or future episodes participants tended to move backward or forward, respectively; and when exposed to apparent backward or forward motion participants tended to think of the past or future, respectively. Collectively, these studies suggest that the core social-cognitive capacity of mental time travel may be grounded in the embodiment of spatiotemporal information.

Beyond demonstrating a link between temporal thinking and behavior, the present work provides a foundation for investigating the social implications of MTT. Although the majority of the research in this area has been limited to a focus on individuals in contexts largely devoid of social information, the potential interpersonal utility of MTT should not be overlooked. For instance, planning a vacation with others demands, at least to some extent, mutual MTT (e.g., to coordinate times and dates, plan activities that will be suitable for all, anticipate potential conflicts). Identifying the factors that support and constrain this form of joint cognition (e.g., perspective taking; see Eich et. al., this volume) as well as evaluating the possibility that temporal thinking may be collectively embodied (cf. Marsh, Richardson, Baron, & Schmidt, 2006) are important tasks for future research. Mental time travel is a critically important cognitive process that is intricately involved in the way people imagine, plan, and manage interpersonal situations, a topic of considerable theoretical and practical interest to psychologists of all persuasions.

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REFERENCES

Addis, D. R., Wong, A. T., & Schacter, D. L. (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsycholoia, 45*, 1363–1377.

Addis, D. R., Wong, A. T., & Schacter, D. L. (2008). Age-related changes in the episodic simulation of future events. *Psychological Science, 19*, 33–41.

Alverson, H. (1994). *Semantics and experience: Universal metaphors of time in English, Mandarin, Hindi, and Sesotho*. Baltimore: John Hopkins University Press.

Arzy, S., Adi-Japha, E., & Blanke, O. (2009). The mental time line: An analogue of the mental number line. *Consciousness and Cognition, 18*, 781–785.

Barr, M. (2009). The proactive brain: memory for predictions. *Philosophical Transactions of the Royal Society of Biological Sciences, 364*, 1235–1243.

Barsalou, L. W. (2008). Grounded-cognition. *Annual Review of Psychology, 59*, 617–645.

Bernieri, F. (1988). Coordinated movement and rapport in teacher–student interactions. *Journal of Nonverbal Behavior, 12*, 120–138.

Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. *Cognition, 75*, 1–28.

Boroditsky, L., Fuhrman, O., & McCormick, K. (2011). Do English and Mandarin speakers think about time differently? *Cognition, 118*, 123–129.

Boroditsky, L., & Ramscar, M. (2002). The roles of body and mind in abstract thought. *Psychological Science, 13*, 185–189.

Boyer, P. (2008). Evolutionary economics of mental time travel? *Trends in Cognitive Science, 12*, 219–224.

Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Sciences, 11*, 49–57.

Casasanto, D., & Boroditsky, L. (2008). Time in the mind: Using space to think about time. *Cognition, 106*, 579–593.

D'Argembeau, A., Raffard, S., & Van der Linden, M. (2008). Remembering the past and imaging the future in schizophrenia. *Journal of Abnormal Psychology, 117*, 247–251.

Dehaene, S., Izard, V., Spelke, E., & Pica, P. (2008). Log or linear? Distinct intuitions of the number scale in Western and Amazonian indigene cultures. *Science, 320*, 1217–1220.

Dichgans, J., & Brandt, T. (1978). Visual-vestibular interaction: Effects on self-motion perception and postural control. In R. Held, H. W. Leibowitz, & H. Tueber (Eds.), *Handbook of sensory physiology* (Vol. 8). Berlin: Springer-Verlag.

Freeman, J. B., & Ambady, N. (2010). MouseTracker: Software for studying real-time mental processing using a computer mouse-tracking method. *Behavior Research Methods, 42*, 226–241.

Gibson, J. J. (1979). *The ecological approach to visual perception.* Boston: Houghton Mifflin.

Gilbert, D. T., & Wilson, T. D. (2007). Prospection: Experiencing the future. *Science, 317*, 1351–1354.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review, 93*, 136–153.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. Chicago: University of Chicago Press.

Maass, A. (2009). Culture's two routes to embodiment. *European Journal of Social Psychology, 39*, 1290–1293.

Marsh, K. L., Richardson, M. J., Baron, R. M., & Schmidt, R. C. (2006). Contrasting approaches to perceiving and acting with others. *Ecological Psychology, 18*, 1–38.

Mason, M. F., Norton, M. I., Van Horn, J. D., Wegner, D. M., Grafton, S. T., & Macrae, C. N. (2007). Wandering minds: The default network and stimulus-independent thought. Science, 315, 393–395.

Mussweiller, T. (2006). Doing is for thinking. *Psychological Science, 17*, 17–21.

Núñez, R. E., and Sweetser, E. (2006). With the future behind them: Convergent evidence from Aymara language and gesture in the crosslinguistic comparison of spatial construals of time. *Cognitive Science, 30*, 1–49.

Oliveri, M., Bonni, S., Turriziani, P., Koch, G., Lo Gerfo, E., Torriero, S., et al. (2009). Motor and linguistic linking of space and time in the cerebellum. *PLos ONE, 4*, e7933. doi:10.1371/journal.pone.0007933.

Ouellet, M., Santiago, J., Israeli, Z., & Gabay, S. (2010). Is the future the right time? *Experimental Psychology, 57*, 308–314.

Owen, D. H. (1990). Lexicon of terms for the perception and control of self-motion and orientation. In R. Warren & A. H. Wertheim (Eds.), *Perception and the control of self-motion* (pp. 33–50). Hillsdale, NJ: Lawrence Erlbaum.

Ramscar, M., Matlock, T., & Boroditsky, L. (2009). Time, motion, and meaning: The experiential basis of abstract thought. *The Spatial Foundations of Language and Cognition, 17*, 66–82.

Riley, M. A., Balasubramaniam, R., Mitra, S., & Turvey, M. T. (1998). Visual influences on centre of pressure dynamics in upright posture. *Ecological Psychology, 10*, 65–91.

Rosenbaum, R. S., Köhler, S., Schacter, D. L., Moscovitch, M., Westmacott, R., Black, S. E. et al. (2005). The case of K.C.: contributions of a memory-impaired person to memory theory. *Neuropsychologia, 43*, 989–1021.

Santiago, J., Lupiáñez, J., Pérez, E., & Funes, M. J. (2007). Time (also) flies from left to right. *Psychonomic Bulletin and Review, 14*, 512–516.

Schacter, D. L., Addis, D. R., & Buckner, R. L. (2007). Remembering the past to imagine the future: The prospective brain. *Nature Reviews Neuroscience, 8*, 657–667.

Spivey, M., & Dale, R. (2006). Continuous temporal dynamics in cognition. *Current Directions in Psychological Science, 15*, 207–211.

Spreng, R. N., & Levine, B. (2006). The temporal distribution of past and future autobiographical events across the lifespan. *Memory and Cognition, 34*, 1644–1651.

Suddendorf, T. (2010). Linking yesterday and tomorrow: Preschoolers ability to report temporally displaced events. *British Journal of Developmental Psychology, 28*, 491–498.

Suddendorf, T., Addis, D. R., & Corballis, M. C. (2009). Mental time travel and the shaping of the human mind. *Philosophical Transactions of the Royal Society of Biological Sciences, 364*, 1317–1324.

Suddendorf, T., & Corballis, M. C. (2007). The evolution of foresight: What is mental time travel, and is it unique to humans? *Behavioral and Brain Sciences, 30*, 299–351.

Szpunar, K. K. (2010). Episodic future thought: An emerging concept. *Perspectives on Psychological Science, 5*, 142–162.

Szpunar, K. K., & McDermott, K. B. (2008). Episodic future thought and its relationship to remembering: Evidence from rating of subjective experience. *Consciousness and Cognition, 17*, 330–334.

Szpunar, K. K., Watson, J. M., & McDermott, K. B. (2007). Neural substrates of envisioning the future. *Proceedings of the National Academy of Sciences, USA, 104*, 642–647.

Tolman, E. C. (1948). Cognitive maps in rats and men. *Psychological Review, 55*, 189–208.

Torralbo, A., Santiago, J., & Lupiáñez, J. (2006). Flexible conceptual projection of time onto spatial frames of reference. *Cognitive Science, 30*, 745–757.

Trutoiu, L. C., Mohler, B. J., Schulte-Pelkum, J., & Bülthoff, H. H. (2009). Circular, linear, and curvilinear vection in a large-screen virtual environment with floor projection. *Computers and Graphics, 33*, 47–58.

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Tulving, E. (1985). Memory and consciousness. *Canadian Psychology, 26*, 1–12.
Tulving, E. (2002). Chronesthesia: Conscious awareness of subjective time. In D. T. Stuss & R. C. Knight (Eds.), *Principles of frontal lobe function* (pp. 311–325). New York: Oxford University Press.
Tversky, B., Kugelmass, S., & Winter, A. (1991). Cross-cultural and developmental trends in graphic productions. *Cognitive Psychology, 23*, 515–557.

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8

How Do Emotions Move Us?: *Embodied and Disembodied Influences of Affect and Emotions on Social Thinking and Interpersonal Behavior*

PIOTR WINKIELMAN and LIAM KAVANAGH
University of California, San Diego

> There are probably very few perceptions and cognitions in everyday life that do not have a significant affective component, that aren't hot, or in the very least tepid. And perhaps all perceptions contain some affect. We do not just see "a house": we see "a handsome house," "an ugly house," or "a pretentious house." Bob Zajonc (1980, p. 153)

We live in an emotional world. From the very beginning of life, babies either smile or they cry—there is rarely a "neutral" moment in their life. And those parents, whose babies are emotionally flat, have good reasons to worry. Most parents, who have been waiting for their child to mature into a stoic, must give up hope or face frustration themselves. In the adult world, lovers flirt, colleagues scorn, students brownnose, and bosses frown. To be able to navigate the world we must be able to tell when somebody is having a bad day, when someone is trying to affiliate with us, or when something you say or do "rubs another the wrong way," even in the absence of explicit verbal feedback. Even domains that could certainly use some dispassionate reasoning, such as politics or the law, are imbued with emotion (see also Forgas; Waenke et al., this volume). Thus, voters are either enthusiastic and hopeful about political candidates or afraid and disgusted by them. In fact, there is probably not a single "awake" U.S.

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citizen who does not have some form of emotional response to the names of Bill Clinton, Barack Obama, Sarah Palin, and George Bush. People are rarely cool even to abstract, impersonal entities—they are trusting or afraid of the government, engaged in or indifferent to society, passionate about social justice or hateful toward entitlements, buoyant or scared about the future, "mad as hell" or confident about the economy. Fueling all this is, of course, a constant river of emotional appeals from interest groups, advertisements, charities, school boards, friends, and colleagues. In interpersonal interactions, people subtly sense the presence of these conflicting political ideas when they meet others often from their word tones and their valenced word choices (e.g., pro-life, pro-voice) and use this information to navigate around potential conflicts. Thus, affect and emotions play a key role linking social thinking, and interpersonal behavior, the topic of this volume.

The importance of emotional stimuli and states in judgment, decisions, and social behavior is now well documented (for an overview, see Eich, Kihlstrom, Bower, Forgas, & Niedenthal, 2000; Forgas, 2005; also Forgas, Fiedler, & Sedikides, this volume). But how does this work? Just what happens when we see a smile, read a political slogan, watch an exciting advertisement, or catch an inviting gesture? The goal of this chapter is to review studies from our and related labs on the mechanisms underlying emotion processing that are inspired by theories of embodied cognition—a framework that emphasizes how thinking and feeling are grounded in the organism's interaction in the world and how processing of even abstract information is intimately tied to perceptual, somatosensory, and motor resources.

Here is a rough plan of the chapter. We begin by placing embodiment theories in the context of debates about the nature of mental representation. We then review evidence for the embodiment account in several domains of emotion processing. We cover research on emotional perception, comprehension, language, imitation, and influence on social behavior. Throughout, we raise some challenges for the embodied theories of emotion and point out the limits of embodiment effects. We also highlight how embodiment theories of emotional processing offer a natural way of connecting social thinking and interpersonal behavior—the theme of this book. In fact, our chapter connects nicely with contributions on sources of concepts and conceptual knowledge (Semin, this volume), on the bodily concomitants of time understanding (Macrae, this volume), and on mood influences on judgments (Forgas, this volume).

PROPOSITIONAL MODELS OF EMOTION PERCEPTION AND REPRESENTATION

A saying goes, "A smile is a curve that sets everything straight." But how do we perceive and understand emotional stimuli, such as faces (see also Waenke, this volume)? Until recently, faces were considered to be processed just like any other complex, highly learned stimuli. We have sophisticated algorithms for feature extractions (e.g., the mouth curve, the eyes), which feed that information into algorithms for feature combination and meaning derivation. In short, recognizing a

smile is, more or less, like recognizing that a wall clock tells 10:10. The fact that we actually have faces plays little or no role in this account.

How do we represent abstract emotional concepts? Until recently, higher-order emotion knowledge was thought to be primarily represented in semantic networks composed of interconnected nodes corresponding to language-like propositions (Bower, 1981). When one of these basic units of knowledge is activated, it then activates connected units according to the strength of semantic association (Collins & Quillian, 1969). Once the degree of activation of a particular unit passes a critical threshold, then knowledge represented by that unit rises to the level of conscious awareness, and from there it may in turn affect behavior. These semantic models account for emotional states as a central unit of information (e.g., "anger"), which are linked to antecedents ("injustice," "lack of freedom"), beliefs ("anger must be managed," "disrespect can cause anger"), correlations ("angry people speak in raised voices"), and physiological patterns associated with anger (frowning, fist clenching, boiling rage). When anger is experienced, the anger unit is activated, and it then diffuses activation to these associated concepts making them more accessible to consciousness and, relatedly, more relevant for interpreting and generating behavior. Conversely, activation can spread from nodes associated with anger to the anger node, generating the emotion itself (see Barsalou, Niedenthal, Barbey, & Ruppert, 2003; Niedenthal, 2007, 2008; see also Forgas, this volume).

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EMBODIED REPRESENTATION OF EMOTION KNOWLEDGE

Feature extraction models and semantic network models assume that direct sensory and bodily experience plays little role in the formation or transformation of knowledge In contrast to these accounts, embodied cognitive accounts assign sensory modalities and motor processes a significant role (Barsalou, 1999; Damasio, 1999; Niedenthal, Barsalou, Winkielman, Krauth- Gruber, & Ric, 2005). Thus, as we discuss herein, recognizing a smile often involves a partial simulation of the smile in ourselves, whereas understanding the concept of "anger" involves a partial simulation of what it feels like to experience anger.

More specifically, the central idea here is that processing an emotional stimulus or a conceptual episode involves the recreation of the neural states that occurred when one originally experienced that emotion (Niedenthal, 2007; see also Cacioppo & Petty, 1981, for earlier related arguments). This recreation—called embodied simulation—does not have to be a conscious, full-blown emotional episode. It only *reinstantiates* enough of the original experience or experiences to be useful in conceptual processing. Importantly, such simulations do not result from associative connections of emotion concept to somatic states. They are also not reducible to a feature list or description. Instead, they are constructive reinstantiations done when it is necessary to represent this conceptual content in information processing.

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EVIDENCE FOR EMBODIED MODELS FROM NONEMOTIONAL DOMAIN

Evidence for embodied models of representation has been obtained with multiple tasks and methodologies. Studies using reaction times in a classic task of property verification (e.g., "Do cars have SAILS?") found that variation in the perceptual features of judged objects was predictive of the speed of property verification (Solomon & Barsalou, 2004). For example, properties that were larger were verified more rapidly, presumably because they were easier to "find" on a representation. Studies using feature generation tasks found that the perceptual characteristics of a particular object (i.e., the visual or auditory characteristics) influenced the features that participants produced (Wu & Barsalou, 2009). For example, when participants had to list the features of the concept, HALF WATERMELON, they were more likely to spontaneously produce the features "seeds" and "red" compared with when they had to list the features of the concept, WATERMELON. Presumably the interior visual features of the watermelon were "revealed" in simulating the former concept and not the latter. These findings extended also to novel concepts such as GLASS CAR (as opposed to CAR). This is important as it shows that the patterns of performance could not be purely due to stored associations between amodal propositions and thus cannot be fully explained via simple associative priming. The aforementioned studies are representative of findings supporting embodied cognition, but there are many others (Gallese & Metzinger, 2003; Glenberg & Kaschak, 2002; Pecher, Zeelenberg, & Barsalou, 2003; Stanfield & Zwann, 2001; for a review of the embodiment of linguistic meaning, see also Gibbs, 2003).

A lot of neuroimaging research has been recently devoted to testing the role of perceptual and motor mechanisms in concept representation. In one of the pioneering studies, Kan, Barsalou, Solomon, Minor, and Thompson-Schill (2003) found that brain areas involved in perception (i.e. visual cortex, gustatory cortex, or auditory cortex) were activated during standard "cognitive" property verification tasks (e.g., verifying "BOMB-loud" activated auditory cortex). Patterns of brain activation during these tasks calling for open-ended feature generation yield similar results (Simmons, Hamann, Harenski, Hu, & Barsalou, 2008). The presence of these perceptual activations during conceptual verification tasks further argues against a pure associative account that assumes that all the action occurs within a semantic net underlying the concept.

It must be noted that in our view of grounded cognition (though not in all views) performing such tasks does not always necessitate embodied processing of a particular concept. In fact, purely semantic processing or just associative processing may be more appropriate in some cases. For example, embodied processing is superfluous if semantic associations between an object and its property are sufficiently strong that the property may spring to mind almost immediately on processing of the object name (e.g., Beaver, Builds Dam; Solomon & Barsalou, 2004). In other words, perceptual simulation is required, or is particularly informative, when there is either no preexisting associations (e.g., to the concept of GLASS CAR) or the associations are not sufficient to answer the task at hand.

This is not unlike mental imagery, which is most useful if there is no easy way of reasoning to the answer (e.g., when you enter your office, is the door handle on the left or right?). The use of a particular embodied simulation also depends on the specific situated conceptualization or the context in which the concept is being processed (Barsalou, 2003). For example, if the task does not require generation of internal properties, then they are not simulated (Wu & Barsalou, 2009).

A final line of research that further confirms the importance of modal processing explored switching costs between modalities. Perception researchers have shown that changing the focus of attention from one sense modality to another (switching from audition to vision, for example) slows reactions times on the second tasks, implying a cost to switching (e.g., Spence, Nicholls, & Driver, 2001). Pecher and colleagues generalized this finding to processing of concepts (Pecher, Zeelenberg, & Barsalou, 2004). This was demonstrated in a series of experiments that showed that participants verified features of a concept in one modality more slowly if they had just verified a feature from another (versus the same) modality—for example, "BOMB–loud" followed by "LEMON–tart" (vs. LEAVES–rustle). This evidence is consistent with the idea that some modality specific part of the brain is also activated when we process a given concept. The reasoning is that, if a just-used modality is appropriate for the processing of the next concept, then it should already be "on-line" or activated when the next concept is processed, so one might expect the next concept to be processed more quickly. Importantly, the results in these studies cannot be interpreted as a simple priming, as there were no prestored associative connections between concepts within a modality (e.g., BOMB and LEAVES).

In similar experiments, Vermeulen and colleagues (Vermeulen, Niedenthal, & Luminet, 2007) extended this same methodology to test the idea that affective processing appears to take place within a specialized modality. They had subjects verify auditory (KEYS–jingling) and visual (TREASURE–bright) features of nouns that were either neutral or had a strong affective value (either positive or negative). These feature verification tasks pairs were themselves put into pairs that were presented with a short delay between (e.g., TRIUMPH–exhilarating followed by COUPLE–happy). The structure of these pairs was experimentally manipulated so that subjects had to consecutively verify properties either of the same or different modalities (visual, taste, auditory, affective) with either similar or different valences (positive or negative). For example a same-modality same valence pair might be (TANK–khaki: WOUND–open), whereas different-modality same-valence pair might be (TANK–khaki: SOB–moaning) and a different valence from different modality could be (TANK–khaki : VICTORY–sung). Their findings showed that verifying features of concepts from different modalities produced costs of longer reaction times and higher error rates than concepts from the same modality, including switching between affective and other modalities. Importantly, the results in these studies cannot be explained as simply priming effects, as there were no pre-stored associative connections between concepts within a modality (e.g., BOMB and LEAVES). It is well known that similarly valenced words prime one another. This is explained in semantic models by bidirectional connections of both words to an affective node. However, this model does not predict that use

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of visual processing or auditory processing should impede or facilitate the flow of activation through these nodes.

Finally, recent experiments from our lab explored the process of embodied simulation in understanding abstract affective and cognitive mental states, such as thinking, remembering, feeling angry, happy, or dizzy (Oosterwijk et al., 2011). The idea here was that understanding of abstract concepts referring to mental states can vary, depending on what perceptual perspective is activated. Specifically, many mental states have a clear internal component—people "feel" a certain way when we are in these states (e.g., anger feels hot, memory retrieval feels effortful). These results suggest that different forms of simulation underlie the understanding of mental states from different points of view. However, mental states can also be described from an "external" perspective. In those cases, simulation of visible outside features may be more relevant for understanding (e.g., anger makes the face red, memory retrieval involves head scratching). In a switching costs paradigm, we presented semantically unrelated sentences describing emotional and nonemotional mental states while manipulating their "internal" or "external" focus. Results showed that switching costs also occur when participants shift between emotional and cognitive sentences with an internal and external focus. These results suggest that different forms of simulation underlie understanding mental states from different points of view. This conclusion is important as it shows that even very abstract concepts are perceptually grounded and subject to "perspective effects," in which different properties are revealed.

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SOMATIC INVOLVEMENT IN EMOTIONAL WORD PROCESSING

There's been a long line of evidence in social psychology establishing that emotional words are tied to physical manifestations. In an early study in this area, Chen and Bargh (1999) had participants indicate the valence of presented words (e.g., love, hate) either by pulling a lever toward them or by pushing it away. Whether a push or a pull indicated positive or negative valence was changed from trial to trial. The gesture of pushing something away from oneself is generally associated with items or people that one dislikes (avoidance behavior), whereas the act of pulling something near to oneself is more consistent with those things that we like (approach behavior). If somatic experiences (in this case pushing and pulling) are intimately involved with cognition (in this case the judgment of valence and decision about the direction in which to push the lever) then identification should be easier when it is achieved by a physical act that has a valence similar to that of the word being identified (congruence). Consistent with this reasoning, participants identified the valence of positive words more quickly when positivity was indicated by pulling the lever toward them and more readily identified the valence of negative words when this was achieved by pushing the lever away, indicating that categorization of the words' valence is facilitated by a congruent bodily state. Similar findings have been reported by others as well (Cacioppo, Priester, & Berntson, 1993; Förster & Strack, 1997, 1998; Neumann & Strack, 2000). In short,

the findings suggest that the meaning of emotional words is at least partially tied to the motor states involved in the approach versus avoidance responses to the words' referents (Niedenthal, 2007).

The previously discussed studies seemed to point to these motor states' influence on cognitive processing as associative, and almost accidental. In contrast, recent theorizing on embodied cognition points to ways body–mind connections could actually be an effective or even constitutive part of processing in the social domain. In more recent studies Niedenthal and colleagues (Niedenthal, Winkielman, Mondillon, & Vermeulen, 2009) have shown that more abstract emotional concepts are processed through embodied means, but only when necessary to grasp their meaning. In their first experiment, participants viewed both emotional and unemotional nouns (e.g., SUN, SLUG, FIGHT, CUBE). Some participants were simply asked whether words were capitalized, whereas others were asked whether the word was associated with a particular emotion. All the while, the activation of participants' facial muscles was measured via electromyography (EMG). Consistent with ideas of modal processing, the results showed that facial muscles were subtly activated in emotion-specific patterns when participants were evaluating the emotional meaning of the words, but not when they made judgments of letter case.

A second experiment was similar to the first, except that abstract adjectives rather than concrete nouns were used (e.g., FURIOUS, FOUL, JOYFUL). Results were similar with participants generating emotion-specific EMG responses when processing the stimuli in emotion-relevant way. This shows that processing emotional adjectives, a more abstract type of word, is also associated with embodiment. A third experiment repeated the methodology of the first two but asked the critical question of whether embodiments are simply by-products of emotional processing or causally contribute to emotion understanding. In this experiment, half of participants received instructions to hold a pen in their mouth—a manipulation that interferes with production of expressions of happiness and disgust (Oberman, Winkielman, & Ramachandran, 2007). Thus, this manipulation should also interfere with processing of emotion words, if motor expressions are indeed an important part of constructing their meaning. Consistent with this hypothesis, participants were less accurate classifying words related to the specific emotions of happiness and disgust when the face movements specific to these emotions were blocked by the pen.

In a final experiment subjects were asked to generate features related to 32 concepts that were evenly divided among the following categories: neutral, anger-related, disgust related, happiness related. Participants were told that the features were being produced for an audience, which was, depending on condition, described either as being interested in "hot" emotional features of the concepts or in "cold" features of the emotion concepts. EMG measurements were taken during the performance of these tasks. Interestingly, participants were able to come up with normatively appropriate emotion features in both the hot and cold conditions. However, the physiological results showed that there was greater activation of the expected sets of facial muscles when participants were asked for features of emotion words in the "hot" condition than in the "cold" condition. This shows that

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embodied simulations are selectively recruited in concept understanding, but only if they are relevant for solving the task (cf. Wu & Barsalou, 2009). Presumably, in this, but not the other, condition participants try to mentally generate features of, say, FRUSTRATION, by first recreating a relevant experience and then "reading-off" its features from associated embodiments. This is important as it argues against the idea that embodiments are simply passive by-products of conceptual processing (sensory-motor reflexes that are just there "for the ride"). On the other hand, the study qualifies the "strong" embodied claims somewhat, as participants in the "cold" condition were able to successful generate emotion features, albeit in a more dictionary-like way (Niedenthal et al., 2009).

But isn't it all old news? Don't we know, for example, that internal emotional stimulation (e.g., imagery) triggers bodily signs of the corresponding emotion—for instance, when individuals engage in positive imagery activity over zygomaticus major increases, whereas negative imagery activates corrugator supercilii (Brown & Schwartz, 1980; Schwartz, Fair, Salt, Mandel, & Klerman, 1976)? It is worth highlighting how the just reviewed findings by Niedenthal and colleagues (2009) differ from those earlier observations. First, note that the imagery studies say little about how individuals represent abstract conceptual content, such as words. Second, earlier studies say nothing about the conditionality of embodiment depending on task needs (processing task, intended audience). Third, earlier studies do not provide evidence that conceptual understanding is facilitated by these simulations (or stimulations). That is, the earlier work could easily be dismissed as showing that embodiments are simple by-products of emotional processing, whereas the more recent work shows that they are actually constitutive and essential for fast, accurate, and rich processing.

On the other hand, it is important to acknowledge that many contemporary embodiment ideas are actually consistent with lots of earlier literature. Besides the sources mentioned earlier, it is worth pointing out that many ideas underlying current experiments in embodied cognition (e.g., the notion of task-dependent simulation) grew out of research on the role of imagery and mental-perspective in comprehension (Bower & Morrow, 1990; Kosslyn, 1976). Similarly, the tight connection between cognition and action is in some way an extension of the ideas included in ideomotor theories (see Wilson, 2002 for a historical perspective; see also Macrae et al., this volume).

EMBODIMENT OF FACIAL EMOTIONS

Perception and recognition of facial expressions provide some of the best examples for the role of embodied processing. After all, we are all aware of processes of imitation, contagion, and mirroring, all of which have long been debated as potential contributors to recognition, memory, and thought. But the solid empirical evidence is more recent. Dimberg (1990) found that people spontaneously mimic facial expression. Halberstadt, Winkielman, Niedenthal, and Dalle (2009) showed that subjects' actual facial reactions to other people's faces interact with conceptual information about those faces. This motor-conceptual interaction serves to support and hold as well as distort memories of other people's facial expressions.

Specifically, subjects misremember a face when it was earlier paired with a relevant associated concept (e.g., remembering it later as more happy when it was associated with a happy label). Critically, this distortion is related to the degree that the conceptual label elicits a corresponding facial response, which presumably gets tied with the actual memory representation of the face and later serves as a retrieval cue. As Zajonc (1980) pointed out, body is often where perception and conceptions meet.

Wicker, Keysers, Plailly, Royet, Gallese, and Rizzolatti (2003) found the inhalation of disgusting odors and watching videos of other people being disgusted produced similar patterns of neural activation in the insula and also, to a lesser extent, the anterior cingulate cortex. This evidence, along with many other experiments, suggests that the understanding of others' actions and experiences and performing an action or having an experience oneself may be processed by highly overlapping neural circuits (for related evidence with other facial expressions, see Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003).

Research on the recognition of facial expressions also provides some evidence for the causal role of embodied simulation in emotion processing. For example, preventing participants from engaging expression-relevant facial muscles can impair their ability to detect facial expressions that involve that muscle (Niedenthal, Brauer, Halberstadt, & Innes-Ker, 2001; Oberman, Winkielman, & Ramachandran, 2007). Both lesion studies that examined the effects of damage to the motor areas and studies that temporarily inactivated the face area with repetitive transcranical magnetic stimulation (TMS) further support that motor representations causally contribute to recognition of facial emotion (see Niedenthal, 2007). In short, there is good evidence that embodied simulation is involved in perception of facial expression of emotion (see Winkielman et al., 2008 for a fuller discussion). Of course, this does not mean that embodiment is always involved in processing of faces or that it is always causally necessary (see also Waenke et al., this volume). For example, patients with facial paralysis can learn to recognize expression using nonembodied routes, as do autistic participants (see the following section). The critical point here is that typical perceivers will activate the somatosensory networks in the course of everyday processing.

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MIMICRY AS EMBODIED SOCIAL COGNITION

As we just discussed, people have a tendency to copy other's facial expressions. Such mimicry extends beyond faces and includes the tendency for people to adopt each other's movements, gestures, and expressions. One advantage of the embodiment framework is that it provides a conceptual link across this varied mimicry literature. Gestural and postural mimicry has been linked in the past to affiliation and rapport between the mimicked party (model) and the person doing the imitating. People who like each other tend to mimic one another and being mimicked by another person tends to increase one's feelings of affiliation towards that person (Chartrand & Bargh, 1999). These tendencies have led to mimicry being labeled a form of "social glue" because it seems to foster cohesion between social groups (Lakin, Jefferis, Cheng, & Chartrand, 2003). Embodiment theories explain why

this is the case—mimicry contributes to creation of the same emotional state, thus facilitating understanding.

Interestingly, mimicry's function is not limited to directly interacting parties. After all, third-party observers can also use the level of mimicry in an interaction to judge the amount of affiliation between two people and make social judgments about people based on whom they mimic. In some situations, third-party observers will infer from the presence of mimicry that the members of the party are socially related and positively affiliated (Bernieri, 1988). But note that such inferences can be more complex. For example, Kavanagh, Suhler, Churchland, & Winkielman (2011) found that if a target person mimics a model who is rude to the person, third-party observers of this interaction will judge the mimic as incompetent, even when observers fail to notice the presence of mimicry. In fact, in that situation the mimic was rated as *less* competent than the nonmimic. This seems initially paradoxical. However, it makes sense if one thinks of mimicry as an embodied cue to social competence. If a person chooses to mimic a rude model, the person is nonselective or injudicious in her embodied responses, or in other words socially incompetent. In short, inferences supported by embodied cues can be quite complex and context dependent. This does not challenge the value of embodiment theories but suggests that subtle influences of observed bodily states on our perception of relationships and inferences about traits are conditional on social context and are only beginning to be understood.

In general, mimicry research raises conceptual challenges to the research on embodied and disembodied representations in social cognition. After all, though there have been a lot of interesting findings with regard to behavioral mimicry there is not yet any widely accepted explanation for the purpose of this pattern of behavior. Is it an epiphenomenon—a simple by-product of frequent perception–action links? After all, we usually see our legs cross when we make that movement, and this establishes a very strong perception–action association. Or is it a purposeful behavioral tendency in service of better understanding? The characteristic of mimicry that is perhaps most difficult to account for in an amodal framework is that it seems to be unconsciously produced by the mimic and unconsciously detected by the model as well as third parties. This has been established by detailed funnel interviews at the end of studies on the effects of mimicry in dyads and those that measure the effect of third-party evaluations of mimics (e.g., Chartrand & Bargh, 1999; Kavanagh et al., 2011). When subjects are asked in these interviews to say what influenced their attitude toward a mimic, a small minority mention body language at all, and of those that do a small number (oftentimes none) explicitly notice mimicry. Even a final question asking explicitly if the subject noticed mimicry routinely fails to produce an affirmative response. If processing does indeed take place in amodal networks and the activation of nodes in these networks tends to raise these to the level of awareness, it is difficult to see how a behavioral phenomenon that leaves no trace on awareness can be influencing our judgments of another's character. It seems more likely that mimicry allows one person to shift into a modal state similar to that of another, without the mediation of language-like code. From an embodied perspective it is not surprising that an explicit language-like representation of mimicry never enters consciousness of either the mimic or

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the model. Information contained in postures about somatic states is not "prelinguistic" (waiting to be transduced before it can affect processing), but rather this information is complementary to language and fundamentally "a-linguistic," perhaps so much so that transduction would be either counterproductive or impossible. It is perhaps worth noting here that much nonverbal communication functions like this, making exploration of this process of even more general interest.

The theory and evidence previously summarized seems to suggest that mimicking another's gestures and postures may help to better understand their emotional states, to think in the same way that they do. Pushing one's arms forward in the same way that one sees another do this, or even merely simulating the act, will induce a similar modal state in the mimic. The previously cited research on the importance of modal thinking also points out how important the attainment of a similar modal state can be. The modal states that seem most likely to be captured by mimicry are emotional and somatic.

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EMBODIMENT AS A TOOL FOR IMPROVED SOCIAL BEHAVIOR

Underlying embodiment may even shed light on certain developmental disorders with a large social component, such as autism. For example, in contrast to typical participants, autistic individuals do not spontaneously reproduce (mimic) facial expressions when they "just watch" them, that is, without any prompts to recognize the expressions or to react to them (McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006). Even when autistic individuals are explicitly asked to focus on recognizing them, their mimicry is delayed (Oberman et al., 2009). Because numerous other studies have shown that spontaneous mimicry aids emotion recognition, there is reason to suppose that such deficits may hinder understanding of nonverbal cues by autists (see Winkielman, McIntosh, & Oberman, 2009 for a fuller review of theory and evidence in this area). People affected by autism have also been shown to have impairments in non-emotional empathy and understanding of "other minds" (mentalizing). As discussed, these skills are partially supported by the ability to construct an embodied simulation of the other.

Interestingly, if it is indeed true that embodiment is part of the autistic deficit, it should be possible to improve these individuals' real-life emotional communication skills by training embodiment. Success in such a program would also provide a powerful example of how theories of social cognition can inform and facilitate actual interpersonal behavior. One domain where this can be easily achieved is facial mimicry, where quick motor reactions to faces can be developed by frequent pairing of a stimulus and motor response (smile to smile, frown to frown). We are currently testing this idea in our lab by using a training paradigm in which typical and autism spectrum disorder (ASD) participants produce facial expressions in response to schematic facial stimuli in a video game, which previously was used to train face recognition (Tanaka et al., 2010). We are also planning an intervention program with a humanoid robot that makes realistic facial expressions (Wu, Butko, Ruvulo, Bartlett, & Movellan, 2009). An interested reader can find several

videos of this robot via a simple Internet search with words "einstein robot ucsd." We hypothesize that these perception–action pairings will enhance the ability of ASD participants to quickly mirror facial expressions, which in turn not only will facilitate their recognition of faces but also will make others judgment them as more socially appropriate.

CONCLUSION

The current chapter focused on advances in understanding of emotion processing and their implications for theories of social thinking and interpersonal behavior. We agree with most psychologists that, when and if science arrives at a satisfactory account of the human mind, it will probably include language-like symbols, such as networks of features and propositions. However, explanations of many types of behavior, particularly emotional matters, will be inadequate if modal, analogical representations that actively use the perceptual, somatosensory, and motor resources are not considered. The ubiquitous importance of emotion in understanding social thinking and the extent to which thinking in general is social are only beginning to be understood, so the importance of embodiment is psychological theory is likely to grow.

In sum, we believe that the account presented here offers the most promising way of understanding the functioning of emotional knowledge and generates several exciting new hypotheses. Social cognition may never become fully embodied, but it will become better if it appreciates that the basis of social knowledge is richer, more comprehensive, more fleshed out than long assumed by our models. Critically, these models also make specific predictions on what to do to better connect social thinking and interpersonal behavior, and possibly help some people function better in these domains.

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REFERENCES

Barsalou, L. W. (1999). Perceptual symbol system. *Behavioral and Brain Sciences, 22*, 577–660.

Barsalou, L.W. (2003). Situated simulation in the human conceptual system. *Language and Cognitive Processes, 18*, 513–562.

Barsalou, L.W., Niedenthal, P.M., Barbey, A., & Ruppert, J. (2003). Social embodiment. In B. Ross (Ed.), *The Psychology of Learning and Motivation* (vol. 43, pp. 43–92). San Diego: Academic Press.

Bernieri, F. (1988). Coordinated movement and rapport in teacher–student interactions. *Journal of Nonverbal Behavior, 12*, 120–138.

Bower, G.H. (1981). Emotional mood and memory. *American Psychologist, 36*, 129–148.

Bower, G. H., & Morrow, D. G. (1990). Mental models in narrative comprehension. *Science, 247*, 44–48.

Brown, S. L., & Schwartz, G. E. (1980). Relationships between facial electromyography and subjective experience during affective imagery. *Biological Psychology, 11*, 49–62.

Cacioppo, J. T., & Petty, R. E. (1981). Electromyograms as measures of extent and affectivity of information processing. *American Psychologist, 36*, 441–456.

Cacioppo, J. T., Priester, J. R., & Bernston, G. G. (1993). Rudimentary determination of attitudes: II. Arm flexion and extension have differential effects on attitudes. *Journal of Personality and Social Psychology, 65*, 5–17.

Carr, L., Iacoboni, M., Dubeau, M. C., Mazziotta, J. C., & Lenzi G. L. (2003). Neural mechanisms of empathy in humans: A relay from neural systems for imitation to limbic areas. *Proceedings of the National. Academy of Science USA, 100*, 5497–5502.

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality and Social Psychology, 76*, 893–910.

Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin 25*, 215–224.

Collins, A. M., & Quillian, M. R. (1969). Retrieval time from semantic memory. *Journal of Verbal Learning and Verbal Behavior, 8*, 240–247

Damasio, A. R. (1999). *The feeling of what happens: Body and emotion in the making of consciousness*. New York: Harcourt.

Dimberg, U. (1990). Facial electromyography and emotional reactions. *Psychophysiology, 27*, 481–494.

Eich, E., Kihlstrom, J., Bower, G., Forgas, J., & Niedenthal, P. (2000). *Cognition and emotion*. New York: Oxford University Press.

Fodor, J. (1975). *The language of thought*. Cambridge, MA: Harvard University Press.

Forgas, P. P. (2005). *Hearts and minds: Affective influences on social cognition and behavior*. New York: Psychology Press.

Förster, J., & Strack, F. (1997). Motor actions in retrieval of valenced information: A motor congruence effect. *Perceptual and Motor Skills, 85*, 1419–1427.

Förster, J., & Strack, F. (1998). Motor actions in retrieval of valenced information: II. Boundary conditions for motor congruence effects. *Perceptual and Motor Skills, 86*, 1423–1426.

Gallese V., & Metzinger, T. (2003). Motor ontology: The representational reality of goals, actions, and selves. *Philosophical Psychology, 13*(3), 365–388.

Gibbs, R. W. (2003). Embodied experience and linguistic meaning. *Brain and Language, 84*, 1–15.

Glenberg, A. M., & Kaschak, M. P. (2002). Grounding language in action. *Psychonomic Bulletin & Review, 9*, 558–565.

Grossberg, J. M., & Wilson, H. K. (1968). Physiological changes accompanying the visualization of fearful and neutral situations. *Journal of Personality and Social Psychology, 10*, 124–133.

Halberstadt, J., Winkielman, P., Niedenthal, P. M., & Dalle, N. (2009). Emotional conception: How embodied emotion concepts guide perception and facial action. *Psychological Science, 20*, 1254–1261.

Kan, I. P., Barsalou, L. W., Solomon, K. O., Minor, J. K., & Thompson-Schill, S. L. (2003). Role of mental imagery in a property verification task: fMRI evidence for perceptual representations of conceptual knowledge. *Cognitive Neuropsychology, 20,* 525–540.

Kavanagh, L., Suhler, C., Churchland, P., & Winkielman, P. (2011). When it's an error to mirror: The surprising reputational costs of mimicry. *Psychological Science, 22*, 1274–1276.

Kosslyn, S. M. (1976). Can imagery be distinguished from other forms of internal representation? Evidence from studies of information retrieval time. *Memory and Cognition, 4*, 291–297.

Lakin, J. L., Jefferis, V. E., Cheng, C. M., & Chartrand, T. L. (2003). The chameleon effect as social glue: Evidence for the evolutionary significance of nonconscious mimicry. *Journal of Nonverbal Behavior, 27*, 145–162.

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Lang, P. J., Kozak, M. J., Miller, G. A., Levin, D. N., & McLean, A. (1980). Emotional imagery: Conceptual structure and pattern of somatovisceral response. *Psychophysiology, 17*, 179–192.

Lang, P. J. (1984). Cognition in emotion: Concept and action. In C. Izard, J. Kagan, & R. Zajonc (Eds.), *Emotion, cognition and behavior* (pp. 196–226). New York: Cambridge University Press.

McIntosh, D. N., Reichmann-Decker, A., Winkielman, P., & Wilbarger, J. L. (2006). When the social mirror breaks: Deficits in automatic, but not voluntary mimicry of emotional facial expressions in autism. *Developmental Science, 9*, 295–302.

Neumann, R., & Strack, F. (2000). "Mood contagion": The automatic transfer of mood between persons. *Journal of Personality and Social Psychology, 79,* 211–223.

Niedenthal, P. M. (2008). Emotion concepts. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *The handbook of emotion* (3rd ed.). New York: Guilford.

Niedenthal, P. M. (May 18, 2007). Embodying emotion. *Science, 316*, 1002–1005.

Niedenthal, P. M., Barsalou, L., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality and Social Psychology Review, 9,* 184–211.

Niedenthal, P. M., Brauer, M., Halberstadt, J. B., & Innes-Ker, Å. (2001). When did her smile drop? Facial mimicry and the influences of emotional state on the detection of change in emotional expression. *Cognition and Emotion, 15*, 853–864.

Niedenthal, P. M., Winkielman, P., Mondillon, L., & Vermeulen, N. (2009). Embodiment of emotional concepts: Evidence from EMG measures. *Journal of Personality and Social Psychology, 96*, 1120–1136.

Oberman, L. M., Winkielman, P., & Ramachandran, V. S. (2007). Face to face: Blocking expression-specific muscles can selectively impair recognition of emotional faces. *Social Neuroscience, 2*, 167–178.

Oberman, L. M., Winkielman, P., & Ramachandran, V. S. (2009). Slow echo: Facial EMG evidence for the delay of spontaneous, but not voluntary emotional mimicry in children with autism spectrum disorders. *Developmental Science, 12*, 510–520.

Oosterwijk, S., Winkielman, P., Pecher, D., Zeelenberg, R., Rotteveel, M., & Fischer, A. H. (2011). Mental states inside out: Processing sentences that differ in internal and external focus produces switching costs. *Memory and Cognition*.

Pecher, D., Zeelenberg, R., & Barsalou, L. W. (2003). Verifying different-modality properties for concepts produces switching costs. *Psychological Science, 14*, 119–124.

Pecher, D., Zeelenberg, R., & Barsalou, L. W. (2004). Sensorimotor simulations underlie conceptual representations: Modality-specific effects of prior activation. *Psychonomic Bulletin & Review, 11*, 164–167.

Pylyshyn, Z. W. (1981). The imagery debate: Analogue media versus tacit knowledge. *Psychological Review, 88*, 16–45.

Schwartz, G. E., Fair, P. L., Salt, P., Mandel, M. R., & Klerman, G. L. (1976). Facial muscle patterning to affective imagery in depressed and nondepressed subjects. *Science, 192*, 489–491.

Simmons, W. K., Hamann, S. B., Harenski, C. N., Hu, X. P., & Barsalou, L. W. (2008). fMRI evidence for word association and situated simulation in conceptual processing. *Journal of Physiology—Paris, 102*, 106–119.

Solomon, K. O., & Barsalou, L. W. (2004). Perceptual simulation in property verification. *Memory and Cognition 32*, 244–259.

Spence, C., Nicholls, M. E. R., & Driver, J. (2001). The cost of expecting events in the wrong sensory modality. *Perception & Psychophysics, 63,* 330–336.

Stanfield, R. A., & Zwann, R. A. (2001). The effect of implied orientation derived from verbal context on picture recognition. *Psychological Science, 12*, 153–156.

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Tanaka, J. W, Wolf, J. M., Klaiman, C., Koenig, K., Cockburn, J., Herlihy, L., et al. (2010). Using computerized games to teach face recognition skills to children with autism spectrum disorder: The Let's Face It! program. *Journal of Child Psychology & Psychiatry, 51*, 944–95.

Vermeulen, N., Niedenthal, P. M., & Luminet, O. (2007). Switching between sensory and affective systems incurs processing costs. *Cognitive Science, 31*, 183–192.

Wicker, B., Keysers, C., Plailly, J., Royet, J. P., Gallese, V., & Rizzolatti, G. (2003). Both of us disgusted in My insula: the common neural basis of seeing and feeling disgust. *Neuron, 40*, 655–664.

Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin and Review, 9*, 625–636.

Winkielman, P., McIntosh, D. N., & Oberman, L. (2009). Embodied and disembodied emotion processing: Learning from and about typical and autistic individuals. *Emotion Review, 2*, 178–190.

Winkielman, P., Niedenthal, P., & Oberman, L. (2008). The embodied emotional mind. In G. R. Semin & E. R. Smith (Eds.), *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches*. (pp. 263–288). New York: Cambridge University Press.

Wu, L. L., & Barsalou, L. W. (2009). Perceptual simulation in conceptual combination: Evidence from property generation. *Acta Psychologica, 132*, 173–189.

Wu, T., Butko, N. J., Ruvulo, P., Bartlett, M. S., & Movellan, J. (2009). Learning to make facial expressions. *Proceedings of the 2009 IEEE International Conference on Developmental Learning* (ICDL).

Zajonc, R. B. (1980). Feeling and thinking: preferences need no inferences. *American Psychologist, 35*, 151–175.

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9

Facial Politics
Political Judgment Based on Looks

MICHAELA WÄNKE
University of Basel

JAKUB SAMOCHOWIEC
University of Basel

JAN LANDWEHR
University of St. Gallen

Undoubtedly, looks are an important element in interpersonal behavior. Looks may immediately elicit a snap judgment of a person's characteristics, and these first impressions may significantly shape further interactions. Even when more information is available it may not completely override the expectations created by appearances. Particularly when impressions are formed via the media, as is almost always the case for politicians, looks may be of crucial importance. Often perceivers have not much more information on political candidates or politicians than photos and short film clips (e.g., Bucy & Grabe, 2007). Although ideally voters should inform themselves about the political opinions of politicians through, for example, debates, newspaper articles, and past political activities, many voters rely on more simple cues, such as looks, as the first part of the present chapter will review. Even if the thought that looks decide elections may be unsettling, relying on looks in social judgment is not entirely irrational. Growing evidence suggests that inferences based on looks only are not necessarily incorrect. We will turn to that aspect in the second part and discuss evidence that even political ideology can be detected from looks. As we will outline, one reason for accurate perception of political attitudes is that political attitudes are quite

pervasive in different aspects of life and therefore interpersonal encounters may shape the ability to distinguish among different ideologies.

THE ROLE OF LOOKS IN PERSON PERCEPTION

> We look at a person and immediately a certain impression of his character forms itself in us. A glance, a few spoken words are sufficient to tell us a story about a highly complex matter. We know that such impressions form with remarkable rapidity and with great ease. Subsequent observations may enrich or upset our view, but we can no more prevent its rapid growth than we can avoid perceiving a given visual object or hearing a melody. (Asch, 1948, p. 258)

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This notion that looks alone can provide insight into a person's mind and personality has persisted for a long time and in many cultures such as ancient Greece, Rome, and China (McNeill, 1998). Building on the notion of personality inferences by looks alone, the pseudoscience of physiognomy was widely accepted in the 19th century (Shookman, 1993). Cesare Lombroso (1876/2006), an advocate of physiognomy who provided "scientific" testimony at multiple criminal trials, promoted the view that criminals possess certain physiognomic characteristics, such as fleshy full lips or ears of unusual size. He went even further and assigned different looks to different types of crimes.

Although frowned upon as diagnostic tool nowadays, in everyday life people do judge others according to their looks. Scientific studies in person perception have shown that people form quick impressions of others based on facial appearance (e.g., Bar, Neta, & Linz, 2006; Berry & McArthur, 1986; Hassin & Trope, 2000; Willis & Todorov, 2006; Zaidel, Aarde, & Baig, 2005; for a review see Todorov, in press). Perhaps more relevant than the fact that people ascribe particular characteristics to specific facial features are the social consequences of such inferences. For example, numerous studies on the beauty bias attest that attractiveness attracts not only friends and partners but apparently also money and success (e.g., Hamermesh & Biddle, 1994) and may even determine jury verdicts and sentences (e.g., Zebrowitz & McDonald, 1991). Beyond mere attractiveness, the perception of specific traits has also been shown to influence careers. For example, facial dominance was related to cadets' rank at the military academy and to promotions in their late career (Mazur, Mazur, & Keating, 1984; Mueller & Mazur, 1996).

The Role of Looks in Political Elections

Beauty also wins votes. Analyses have shown that electoral success is related to candidates' attractiveness in Germany (Rosar, Klein, & Beckers, 2008), Australia (Leigh & Susilo, 2009; Martin, 1978), Finland (Berggren, Johrdahl, & Poutvaara, 2010), Switzerland (Lutz, 2010), and the United Kingdom (Banducci, Karp, Thrasher, & Rallings, 2008). Although perhaps not surprising, the thought that in well-established democracies people's vote is only skin-deep may nevertheless be upsetting. But do voters really consider attractiveness a qualification for political

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office? Alternatively, attractiveness, which is directly observable, may be used as a cue for more relevant but less directly observable qualities (Riggio & Riggio, 2010; Verhulst, Lodge & Lavine, 2010). Meta-analyses have shown, for example, that attractive people are thought to be more competent and better adjusted and to have better social skills (Langlois, Lalakanis, Rubenstein, Larson, Hallam, & Smoot, 2000). The argument that attractiveness is of relevance in elections because it is used as a proxy for other characteristics is supported by the fact that the influence of attractiveness became insignificant when other characteristics such as "trustworthiness," "shares the respondent's concerns," "leadership," "qualification," "competence," and "experience" were also included (Banducci et al., 2008). Unfortunately, these authors do not further break down which qualities mediate electoral success.

However, based on the notion that competence is viewed as a key quality in politicians (Gosling, Renfrow & Swan, 2003; Kinder, Peters, Abelson, & Fiske, 1980), perceived competence is certainly a prime suspect. Todorov and colleagues (Todorov, Mandisodza, Goren, & Hall, 2005) analyzed races for the U.S. House of Representatives and the U.S. Senate. Altogether, their study comprised 600 races between only two candidates. Participants saw photos of pairs of candidates and selected whom they thought to be more competent. All candidates were unfamiliar to the participants. The competence judgments based on photos alone predicted around 70% of the actual election outcomes. Similar results were obtained for other U.S. elections (Armstrong, Green, Jones, & Wright, 2010) and even when exposure time was limited to only 100 ms (Ballew & Todorov, 2007). Perceived trustworthiness did not predict the election outcome, nor did other factors such as age or likeability. The importance of perceived competence was also demonstrated for elections in Finland (Poutvaara, Johrdahl, & Berggren, 2009), France (Antonakis & Dalgas, 2009), or Italy (Castelli, Carraro, Ghitti, & Pastore, 2009).

Note, however, that it is not quite clear what competence means. In some studies the competence rating seemed related to intelligence and leadership (Todorov et al., 2005) or a composite of these (Antonakis & Dalgas, 2009). Given the political context of the studies one might assume that participants when asked to rate competence understood the question as whether the person would be a good politician. Studies in Brazil and Mexico indeed used such a wording and found the respective ratings to predict election outcomes (Lawson, Lenz, Baker, & Myers, 2010). Thus, apparently people in various political cultures vote for those who look like good politicians, whatever that means. Note that the perceived quality may not be specific to politics. When Swiss children were shown pairs of photos of candidates for the French Parliamentary election and asked who of the two persons should be captain of the boat, the children's verdicts also predicted the winner of the race (Antonakis & Dalgas, 2009). Moreover, children's verdicts of who should be captain of the boat were highly related to adults' ratings of candidates' competence. These results suggest that there may be a look of leadership that is driving electoral success. Perhaps the most impressive study in this regard involved artificially computed faces of winners and losers. Little and colleagues (Little, Burris, Jones, & Roberts, 2007) computed a vector expressing the difference between the real faces of the winner and the loser of an election. They then took a composite of

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10 faces and created new faces adding (+30%) or subtracting (–30%) the difference vector to this composite, thus changing the neutral composite into the direction of the winner or the loser. Mock elections between these newly created faces showed high agreement with the actual election outcome. Apparently, winners had the winning look.

But what specific traits or even facial features make up that look? What is it that makes a politician appear more competent and thus more eligible? Work related to face perception (Oosterhof & Todorov, 2008) suggests that the two basic dimensions in facial person perception are trustworthiness and dominance. The correlation of perceived competence with leadership reported by Todorov and colleagues (2005) suggests that perceived dominance was indeed an aspect in perceived competence, whereas perceived honesty and trustworthiness did not seem to be related to competence. However, in other data sets perceived competence was related to both dominance and trustworthiness (Rule, Freeman, Moran, Gabrieli, Adams, & Ambady, 2010). It should be noted that competence in a politician is a much vaguer construct than trustworthiness, intelligence, or dominance. Competence may depend very much on the task. The same is true, of course, for what makes a good politician. Interestingly, whereas for American subjects perceived competence was related with facial maturity (Olivola & Todorov, 2010; Rule et al., 2010) and perceived dominance (Rule et al., 2010), for Japanese subjects competence correlated with perceived trustworthiness and likeability (Rule et al., 2010). Accordingly, Rule and colleagues also found that only perceived power but not perceived warmth predicted U.S. election. In contrast, perceived warmth but not perceived power predicted Japanese elections. Likewise, mock elections also revealed differences when voting for a leader when imaging to be either at peace or at war. Dominant looks were more successful in war times than in peace times (Little et al., 2007).

The studies reported so far share a grave methodological problem. In each case the faces differed on many dimensions simply because different persons (or composites) were depicted. We cannot really tell whether a more powerful or competent looking politician was elected because of the more powerful or competent looks or because any other detail in his appearance. Although, of course, the large data set in some studies speaks against an alternative account, more systematic studies are needed. In two studies we (Landwehr, Wänke, & Herrmann, 2010) looked at the perception of political eligibility at a more molecular level. We investigated which physical features make a politician attract votes. In a first study, we presented faces and asked participants to rate these faces on whether they would vote for the person. In addition participants rated trustworthiness and social dominance. All photos had been standardized and varied along 12 objective and measurable dimensions such as face length, face width, distance from lowest point to lower lip (chin length), distance from lower lip to upper lip (mouth length), mouth width, and distance between the eyes. All measures within the face were standardized on the total length and width, respectively. Of these 12 measures, only 3 related to voting: mouth width; brow height; and eye height. Jointly all three features explained over 40% of the variance in the dependent variable. Importantly, further analyses revealed that this was not dependent on gender of

the depicted face. The interesting question, however, was whether these objective features could also be traced back to inferences of trustworthiness and dominance. Indeed, we found not only that all three facial features significantly correlated with trustworthiness whereas all other facial determinants did not but also that trustworthiness mediated the impact of these features. To cross-validate these findings, we experimentally manipulated faces along these three features and found support for the importance of two of these features. Independent of gender, candidates with larger eyes and wider mouths were more likely to be voted for. Again, this effect was mediated by trustworthiness. As mentioned already, however, these results may not be universal. Switzerland enjoys a political and social climate that may render trustworthiness more relevant than dominance.

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Summary

Taken together, there is abundant evidence inside and outside the lab that looks matter. People do use appearance cues to infer traits and characteristics. This in turn affects their behavior toward those targets. Although one may naively assume that political races are determined by political issues, looks play a crucial role. What makes this observation so upsetting is the strong sentiment not only that looks are not a qualifying criteria but also, and perhaps even more disturbing, that modern technology allows people to alter images and to project desired images at least in media depictions. In the study by Landwehr et al., a simple morphing program did the trick. Other tools are much more sophisticated. For example Walker and Vetter (2009) developed a fascinating computer model that very subtly alters photos of real faces to look more trustworthy, masculine, or extraverted, to name just a few dimensions. In this regard, looks actually do deceive. But is that also true of unaltered pictures? To what extent do the inferences drawn from photos alone reflect reality?

ACCURACY IN PERSON PERCEPTION WITH MINIMAL INFORMATION AND ITS IMPORTANCE FOR SUCCESSFUL INTERPERSONAL INTERACTION

Despite its ubiquity in everyday life, the use of facial features as a diagnostic tool has become scientifically unpopular. Methodological critiques marked the beginning of a rethinking (Cronbach, 1955; Gage & Cronbach, 1955). Later, a focus on shortcomings and biases in human judgment (Gilovich, 1991; Kahneman & Tversky, 1973; Nisbett & Ross, 1980) and the respective influences on person perception (e.g., Asch, 1946; Jones & Harris, 1967) led to the common impression that accuracy in human judgment is generally poor (Funder, 1987; Lopes, 1991). As fruitful as it was, the focus on errors and biases did not give us the whole picture of person perception, however. After all, the avoidance of error is not quite the same thing as the achievement of accuracy, and explanations of how errors arise shed relatively little light on how correct judgments are ever made (Funder, 1995). Or as James (1915) noted, the shunning of error needs to be complemented by a more positively oriented search for truth.

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One might actually wonder whether the same processes that produce bias under some conditions did not evolve in the first place because they by and large are quite useful tools for accurate judgment. Some studies found that accuracy is actually reduced when reducing biases. Eliminating the "halo effect," for example, led to lower accuracy in real-world settings (Bernardin & Pence, 1980; Block & Funder, 1986; Borman, 1975). Often, lab stimuli are deliberately constructed in such a way that people's natural tendencies would lead to errors. For example, people in positive mood tend to rely on their stereotypes, whereas people in bad mood are more likely to use a bottom-up approach (e.g., Bless, Schwarz, & Wieland, 1996). A perspective that accuracy requires systematic data-processing would therefore predict higher accuracy under a bad mood.

In contrast, Ambady and Gray (2002) demonstrated that when using real targets with objective criteria, accuracy actually was reduced when participants were in a bad mood. Moreover, the authors demonstrated that the reduction in accuracy was exactly due to a more deliberative information-processing style, which was obviously not helpful when making judgments about real people based on short videos. This research also suggests that people may be able to infer person attributes even from scarce information (see also Johnson, this volume). Indeed, after a long period of silence, accuracy research experienced a renaissance in the 1990s.

Based on short observations of behavioral episodes, often referred to as "thin slices," perceivers can identify personality traits (Berry, 1991; Borkenau & Liebler, 1992; Carney, Colvin, & Hall, 2007; Funder, 1980), intelligence (Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004; Murphy, Hall, & Colvin, 2003; Reynolds & Gifford, 2001), sexual orientation (Ambady, Hallahan, & Conner, 1999), performance (Babad, Avni-Babad, & Rosenthal, 2003), and social relations (Bernieri, Gillis, Davis, & Grahe, 1996; Costanzo & Archer, 1989; Kenny, Bond, Mohr, & Horn, 1996; for reviews, see Ambady, Bernieri, & Richeson, 2000; Funder, 1994; Zebrowitz & Collins, 1997).

There is also evidence that perceivers can form rather accurate impressions when only stills, mostly faces, rather than behavioral episodes are presented. Apparently, people are able to diagnose power and warmth (Berry, 1990, 1991), which is a comforting finding given the role of perceived power and warmth for electoral success discussed already (Rule et al., 2010). Other personal characteristics that can be inferred from facial photos include honesty (Bond, Berry, & Omar, 1994; Zebrowitz, Voinescu, & Collins, 1996); extraversion, emotional stability, and openness to experience (Penton-Voak, Pound, Little, & Perrett, 2006); sexual orientation (Ambady et al., 1999; Rule & Ambady, 2008); social class (Lasswell & Parshall, 1961); and male testosterone levels (Penton-Voak & Chen, 2004).

These findings are surprising only in the context of a perhaps morally motivated sentiment that external appearances are completely unrelated to internal dispositions. The adages that "one shouldn't judge a book by its cover" or that "looks may deceive" reflect this cultural belief. In contrast, based on Gibson's (1979) theorizing, Zebrowitz and Collins (1997) proposed several ways psychological traits and configurations of physical attributes can systematically relate. First, it is possible that both physical and psychological qualities are influenced by the same factors (the common cause effect). These may be biological, genetic, or environmental

factors. Rosenberg and Kagan (1987), for example, found that the genes that produce blue versus brown eyes may also influence behavior because the hormone responsible for eye color (alpha-melanocyte stimulating hormone) also influences arousal level and emotional reactivity.

Alternatively, physical attributes may be caused by psychological factors (the Dorian Gray effect). People who have a tense and irritable temperament may use different facial muscles in a way that leads to different jaw development than that of people who are more easygoing (Kreiborg, Jensen, Moller, & Bjork, 1978; Moller, 1966). According to the theory of emotional afference (Waynbaum, 1906, 1907a, 1907b), emotional processes produce vascular changes, which are partly regulated by facial musculature. Therefore, a repeated experience of certain emotions leads to the habitual use of certain facial muscles, which, over a longer period of time, can permanently shape the looks of our faces, representing a direct effect of psychological on physical attributes (Zebrowitz & Collins, 1997). Likewise, long-married couples increased in facial similarity presumably because of empathic mimicry of emotions over a long time (Zajonc, Adelmann, Murphy, & Niedenthal, 1987).

As a further option, the environment may mediate the influence of psychological attributes on physical ones. People with certain dispositions may seek particular environments that influence their looks in a specific way. Zebrowitz and Collins (1997) gave the example of hostile or aggressive people who may choose activities such as boxing, which in turn influences their looks in a specific way. Finally, physical aspects can influence psychological attributes (the self-fulfilling prophecy effect). On the one hand, people may actively seek environments that suit their looks (attractive people may seek the presence of large crowds) and therefore develop certain personality attributes due to that environment. On the other hand, people may evoke certain reactions from their social environment that depend on their looks and consequently develop different personalities (Zebrowitz & Collins, 1997). To summarize with regard to interpersonal behavior, although looks certainly influence interpersonal behavior the reverse is also true: Interpersonal interactions may also influence personal appearances.

But if we accept the notion that dispositions may leak into faces, we may also expect social perceivers to have become sensitive to detecting at least socially relevant characteristics. From an evolutionary perspective, the accurate assessment of other human beings' attributes, and the identification of friends and foes, can be conceived as an adaptive prediction skill that is most relevant to the long-term fitness of individuals and the survival of the species. Without a doubt, accurate person perception is highly adaptive for social interaction and for individuals' personal goal attainment (for reviews see Schaller, 2008; Zebrowitz & Montepare, 2006). The judgments people form of others will influence both spontaneous interpersonal behavior as well as strategic interpersonal behavior. Whom to help, whom to approach for help, and how to appeal for help are just a few examples of how inferences based on looks may be crucial in interpersonal behavior. So it is perhaps less surprising that people became sensitive to the most obvious and immediate cue, the human face.

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Learning to Identify Political Attitudes From Interpersonal Encounters

Political positioning is primarily based on attitudes, beliefs, and opinions, which reside inside a person's head. To believe that perceivers can infer political attitudes from people's looks is contingent on two premises. First, one has to assume that political attitudes transfer into people's looks (Ambady, Bernieri, & Richeson, 2000; Brunswik, 1956; Funder, 1995; Zebrowitz & Collins, 1997). In Brunswikian terms this refers to the "ecological validity." We previously outlined several processes by which dispositions may become facially engraved. The link may also be indirect. To the extent that political attitudes are linked to other personality attributes that have already been shown to be detectable, it does not seem so farfetched to expect that in turn political inferences are accurate too. For example, openness to experience, a quality that has been shown to be detectable from pictures (Penton-Voak et al., 2006), is negatively correlated with a more right-wing ideology (Carney, Jost, Gosling, & Potter, 2008), and social dominance orientation (SDO), which may be detectable (Yeagley, Morling, & Nelson, 2007), is positively correlated with a right-wing ideology (Sidanius & Pratto, 1999). There is also reason to assume that dominance and high-status behavior, which is associated with SDO, can be caused by male testosterone (Josephs, Sellers, Newman, & Mehta, 2006; McIntyre, Barrett, McDermott, Johnson, Cowden, & Rosen, 2007), which has been shown to be detectable for men (Penton-Voak & Chen, 2004).

Besides ecological validity, the second prerequisite for accurate person perception is what Brunswik (1956) termed *cue utilization*. One would have to assume that perceivers are sensitive to the respective cues and interpret them accurately. While accurate person perception is undoubtedly highly functional, as we explained already, it may not be so obvious why people should be sensitive to "political" cues? What are the specific functions served by the detection of political positions? We would argue that detecting political attitudes goes beyond the advantages of diagnosing specific attributes. Distinguishing between political opponents and friends may be conceived as a special case of a more general adaptive skill, namely, to discriminate similar others from dissimilar ones. Detecting and discriminating opponents, enemies, out-group members, and carriers of different genes from cooperators, friends, in-group members, and relatives may be at the heart of the evolution of person perception skills. For their personal well-being, people tend to flock to those who are similar, who share their attitudes and core values (Byrne, 1971). They trust those who do and distrust those who do not.

Political attitudes in particular seem to be quite distinguishing and correlate to all kinds of differences between people. As Tomkins (1963) proposed, political attitudes pervade all aspects of life. Political and ideological differences are indicative of personality differences and thinking styles. For example, conservatism (right-wing ideology) is positively related to uncertainty, rigidity (Block & Block, 2006; Jost, Glaser, Kruglanski, & Sulloway, 2003), and being power oriented (Sidanius & Pratto, 1999) and negatively related to attributional complexity (Altemeyer, 1998; Wänke & Wyer, 1996). Conservatives seem more concerned with people's behavior, whereas liberals focus on people's attitudes (Wänke & Wyer, 1996) when forming

a judgment. Compared with conservatives, nonconservative people show a higher preference for abstract paintings (Wilson, Ausman, & Mathews, 1973), complex poems (Gillies & Campbell, 1985), and unfamiliar music (Glasgow, Cartier, & Wilson, 1985). Liberals and conservatives even differ in how they decorate their personal surroundings (Carney et al., 2008). Given these findings, it seems safe to assume that liberals and conservatives represent quite different subcultures of people. As a consequence of such pervasive differences, people may have experienced many opportunities to learn who is likely to share their views, lifestyles, and behaviors and who is not. Over time they have acquired an overlearned sensitivity to these differences.

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Empirical Evidence for Detecting Political Ideology From Looks

Previous research has shown that there is at least some consensus in judging political attitudes (Buckley & Roach, 1974) and party membership (Bull & Hawkes, 1982), which leads us to a definition of accuracy. In the absence of an objective criterion, many person perception studies would refer to interrater consensus as a substitute for accuracy proper (Kenny, Albright, Malloy, & Kashy, 1994; Willis & Todorov, 2006). However, although consensus is a necessary precondition of accuracy, the reverse inference is not necessarily justified. Raters may agree but still be wrong. A more objective external criterion would thus provide stronger evidence for accuracy, such as targets' self reports, reports by peers or close others (proxy reports), or—as the strongest criterion—manifest behaviors corresponding to the attitude.

Recent studies in the United States (Olivola & Todorov, 2010b; Rule & Ambady, 2010) and a much earlier study in the United Kingdom (Jahoda, 1954) showed evidence that the membership in one of two political parties (e.g., Democrats and Republicans in the United States) can be discriminated above chance. Note, however, that judgments of party membership may involve many other superficial cues that may be associated with the party image (e.g., age, clothing, specific symbols) but unrelated to personal political dispositions. Therefore, guessing parties and inferring attitudinal dispositions may be qualitatively different tasks, relying on completely different cues and calling for different validity criteria. We found, however, similar results when participants indicated whether a presented politician was either left or right (Samochowiec, Wänke, & Fiedler, 2010). Going beyond the previous studies with only two parties our targets came from five different parties covering the whole spectrum in the German parliament. Interestingly, these *German* politicians could rather accurately be categorized as politically left or right by *Swiss* students. Apparently, ideology may look alike across borders. Another point to note of this study was that accuracy from stills was not lower than accuracy from video clips. Thus, very thin slices were enough to detect political attitude.

Yet we have to concede that although party membership is an objective external criterion it is at best a proxy for an individual's political ideology, which requires a deeper diagnostic inference. Members within one party may vary substantially, and there may also be an overlap in political attitudes between different parties. In other studies we therefore employed a more solid criterion, namely, the target politicians' real voting behavior. Political scientists of the University of Zurich

had categorized and published the votes of each member of the Swiss parliament within nine topics (http://www.sotomo.geo.unizh.ch/spider/):

1. Societal liberalism
2. Opening toward outside
3. Social redistribution
4. Protection of the environment
5. Restriction of immigration
6. Strong police and military
7. Saving and tax reduction
8. Economic liberalism
9. Education

A factor analysis of the voting yielded a single component, which accounted for 69% of the variance and correlated almost perfectly with the left-to-right measure developed by other methods (Hermann, 2006). In addition to the individual voting score we also obtained portrait photos of the parliament members from the Parliament website. Based on pilot studies, only relatively unknown politicians were included. In addition, in all studies participants also indicated whether they knew a politician, and if so the data were excluded. The photos were uniform in background and in portrait style. All 82 politicians wore normal business attire, and all male politicians, with two exceptions, wore a tie.

Relative Interpersonal Discrimination

The first test of whether perceivers are able to detect politicians' political attitudes from their faces involved relative judgments. Participants were exposed to randomly paired pictures of politicians and asked to decide which of the two politicians was the more conservative one. They could also abstain from a decision if they could not tell who was more right-wing, and they could indicate if a politician seemed in any way familiar. In that case no judgment was required, or if one had been given the data were not entered in the analysis. Altogether each participant was shown two sets of 41 pairs. In one set the exposure time for each pair was 7 seconds; in the other set exposure time was only 1.5 seconds.

Overall, accuracy was defined as the number of correct choices minus the number of incorrect choices. Positive values (maximum +41) therefore represent accuracy, and negative values (maximum –41) reflect systematically incorrect choices. A value of zero would represent chance accuracy. The overall accuracy scores were significantly above zero across both presentation times together as well as for both presentation times separately. Of the 76 participants, 60 were significantly above chance level in their overall accuracy, and only seven were significantly below chance level.

Accuracy did not differ depending on presentation time. Thus, correct identification of political attitudes can occur rather fast, even in 1.5 seconds. However, participants renounced significantly more often from decisions in the 7-second condition (M = 4.2, SD = 6.24) than in the 1.5-second condition. Apparently,

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uncertainty increased with prolonged thinking time. This finding is in contrast to finding of Willis and Todorov (2006), who found more confidence after longer exposure time.

The pairs of politicians differed in the ideological distance between the two politicians. When these intrapair distances were categorized into five levels ranging from small to large distance and included in the analysis, a clear effect of distance emerged: The higher the objective intrapair distance, the higher the accuracy of the judgments.

Absolute Interpersonal Discrimination

Altogether, these results support the prediction that political ideology can be inferred well above chance from looks only and that this can be done within an astonishingly short period of only 1.5 seconds. This conclusion holds for the vast majority of individual judges. One may argue, however, that a direct-comparison format, which leaves only one bit of information to be inferred, may have greatly facilitated the task. Judges may have a much harder time making absolute inferences about the political identity of individual, separately presented politicians. In other studies (Samochowiec et al., 2010) we therefore presented the politicians individually and tested whether absolute attitudes can be inferred at similar accuracy levels as relative attitudes.

Using the same material, participants provided an absolute judgment of the politicians' left-right orientation on a seven-point scale. Again, accuracy was well above chance level. The average ratings for each politician correlated with his actual voting behavior ($r = .45$, $p < .0001$). Again, supporting our previous finding of some cultural universality, even German participants were above chance in rating Swiss politicians. Most notably, our findings go well beyond previous results of accurate party identification. Not only did we find the correlation across the whole spectrum, but also our rather fine-grained criterion allowed analyses within the left and the right group separately, revealing that raters were able to do more than just a dichotomous left–right decision. The correlations held within each group. Likewise, analyses at participant level were also significant for Swiss and non-Swiss participants alike.

Intergroup Discrimination

In addition to overall accuracy, Samochowiec et al. (2010, Study 2) tested a further hypothesis fundamental for the notion of accuracy in person perception. As elaborated already, it has been argued that the ability to quickly identify others correctly provides an evolutionary or individual advantage (Zebrowitz & Montepare, 2006; Schaller, 2008). This may pertain not only to specific attributes but also to judging similarity or closeness. But as several authors (Nesse, 2005; Schaller, 2008) have proposed, some errors are more costly than others. Trusting someone who will potentially harm us is a more severe error than distrusting a harmless person.

Mistaking an out-group member for an in-group member can be more disadvantageous than the reverse. Thus, identity detection may be more sensitive to

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avoiding erroneous inclusion (false-negative errors) than to erroneous exclusion. In other words, it should be functional to widen the boundaries of the out-group and to develop a response bias toward more out-group than in-group identifications when guessing under uncertainty. Indeed, the data support this assumption. Overall, right-wing politicians were identified with greater accuracy than left-wing politicians. However, the difference in accuracy between left- and right-wing politicians depended on the political attitude of the participant. The more left-wing a participant was, the more accurate were judgments of right-wing politicians relative to judgments of left-wing politicians. In other words, accuracy was higher when politicians and raters came from the opposite sides of the political spectrum. A signal detection analysis revealed that this was indeed due to a stricter criterion for in-group categorization compared with out-group categorization. This result of an in-group overexclusion is well in line with findings that prejudiced people are biased to assigning targets to the prejudiced group (Allport & Kramer, 1946; Castano, Yzerbyt, Bourguignon, & Seron, 2002; Elliott & Wittenberg, 1955; Quanty, Keats, & Harkins, 1975).

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What Drives the Perception of Political Attitudes?

Of course, many hypotheses as to which concrete cues drive these effects may come up. However, except for gender, for which we corrected in all studies, none of the obvious such as age or styling proved significant. One study (Samochowiec et al., 2010, Study 3) explicitly tested the impact of styling, but no support was found for this assumption. However, going back to the original assumption that political ideology corresponds to personal traits and in particular that right-wing ideology is related to social dominance (Sidanius & Pratto, 1999), indeed perceived dominance seems to account for part of the phenomenon (see also Rule & Ambady, 2010), but not all.

So What?

Apparently, political attitudes manifest in faces, and people can read these differences. It may come as a surprise that people can identify political attitudes beyond merely left and right but to a rather precise degree. But it is surprising only in a culture that believes that internal mental concepts and external appearance are entirely unrelated and independent of each other. Given that it is adaptive to detect socially relevant dispositions and traits, it seems plausible that humans developed detection skills for such traits and dispositions. What is, however, astonishing is that political attitudes fall into this category of detectable attributes. After all, what makes political attitudes so relevant? We suggest that people are attuned to identifying political attitudes because political ideologies mark important group distinctions. People who differ on the political spectrum are also likely to differ in their tastes, cognitive styles, and personality. Therefore political ideology functions as an in-group/out-group marker. The finding of an in-group overexclusion tendency also corroborates the relevance of political attitudes as a group-defining feature.

The question remains as to whether being correctly identified by one's looks is relevant for a politician. On one hand, one might assume that conservative or liberal looks become completely irrelevant once party membership is known. On the other hand, one may argue that political statements are perceived as more authentic and credible if the politician has the matching look. Although we have not directly tested this, some data support this latter assumption. The "readability" of a politician—that is, the accuracy with this politician was identified—significantly predicted his reelection success (Samochowiec et al., 2010). Candidates whose political voting in the past matched their looks had a higher chance of being reelected into the Swiss parliament. Apparently, on the dimension of interpersonal trust looking like what you are pays off—at least in politics.

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REFERENCES

Allport, G. W., & Kramer, B. M. (1946). Some roots of prejudice. *Journal of Psychology, 22*, 9-39.

Altemeyer, R. A. (1998). The other "authoritarian personality". In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 30, pp. 47-91). New York: Academic Press.

Ambady, N., & Gray, H. M. (2002). On being sad and mistaken: Mood effect on the accuracy of thin-slices judgments. *Journal of Personality and Social Psychology, 83*, 947-961.

Ambady, N., Bernieri, F. J., & Richeson, J. A. (2000). Toward a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 32, pp. 201–271). New York: Academic Press.

Ambady, N., Hallahan, M., & Conner, B. (1999). Accuracy of judgments of sexual orientation from thin slices of behavior. *Journal of Personality and Social Psychology, 77*, 538–547.

Antonakis, J., & Dalgas, O. (2009). Predicting elections: Child's Play! *Science, 323,* 1183–1183.

Armstrong, J. S., Green, K. C., Jones, R. J., & Wright, M. (2010). Predicting elections from politicians' faces. Available at SSRN: http://ssrn.com/abstract=1598338.

Asch, S. E. (1948). The doctrine of suggestion, prestige and imitation in social psychology. *Psychological Review, 55*, 250–276.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41*, 258–290.

Babad, E., Avni-Babad, D., & Rosenthal, R. (2003). Teachers' brief nonverbal behaviors can predict certain aspects of students' evaluations. *Journal of Educational Psychology, 95*, 553–562.

Banducci, S. A., Karp, J. A., Thrasher, M., & Rallings, C. (2008). Ballot photographs as cues in low information elections. *Political Psychology, 29*, 903–917.

Bar, M., Neta, M., & Linz, H. (2006). Very first impressions. *Emotion 6*, 269–278.

Ballew, C. C., & Todorov, A. (2007). Predicting political elections from rapid and unreflective face judgments. *PNAS, 104/46,* 17948–17953.

Berggren, N., Johrdahl, H., & Poutvaara, P. (2010). The right look: Conservative politicians look better and their voters reward it. *IFN Working Paper, 855*. Available at SSRN: http://ssrn.com/abstract=1728675.

Bernardin, H. J., & Pence, E. C. (1980). Effects of rater training: Creating new response sets and decreasing accuracy. *Journal of Applied Psychology, 65*, 60–66.

Bernieri, F. J., Gillis, J. S., Davis, J. M., & Grahe, J. E. (1996). Dyad rapport and the accuracy of its judgment across situations: A lens model analysis. *Journal of Personality and Social Psychology, 71*, 110–129.

Berry, D. S. (1990). Taking people at face value: Evidence for the kernel of truth hypothesis. *Social Cognition, 8*, 343–361.

Berry, D. S. (1991). Accuracy in social perception: contributions of facial and vocal information. *Journal of Personality and Social Psychology, 61*, 298–307.

Berry, D. S., & McArthur, L. Z. (1986). Perceiving character in faces: The impact of age related craniofacial changes on social perception. *Psychological Bulletin, 100*, 3–18.

Bless, H., Schwarz, N., & Wieland, R. (1996). Mood and the impact of category membership and individuating information. *European Journal of Social Psychology, 26*, 935–959.

Block, J., & Block, J. H. (2006). Nursery school personality and political orientation two decades later. *Journal of Research in Personality, 40*, 734–749.

Block, J., & Funder, D. C. (1986). Social roles and social perception: Individual differences in attribution and error. *Journal of Personality and Social Psychology, 51*, 1200–1207.

Bond, C. F., Berry, D. S., & Omar, A. (1994). The kernel of truth in judgments of deceptiveness. *Basic and Applied Social Psychology, 15*, 523–534.

Borkenau, P., & Liebler, A. (1992). Trait inferences: Sources of validity at zero acquaintance. *Journal of Personality and Social Psychology, 62*, 645–657.

Borkenau, P., Mauer, N., Riemann, R., Spinath, F. M., & Angleitner, A. (2004). Thin slices of behavior as cues of personality and intelligence. *Journal of Personality and Social Psychology, 86*, 599–614.

Borman, W. C. (1975). Effects of instructions to avoid halo error on reliability and validity of performance ratings. *Journal of Applied Psychology, 62*, 64–69.

Brunswik, E. (1956). *Perception and the representative design of experiments*. Berkeley: University of California Press.

Buckley, H. M., & Roach, M. E. (1974). Clothing in as a nonverbal communicator of social and political attitudes. *Home Economics Research Journal, 3*, 94–102.

Bucy, E. P., & Grabe, M. E. (2007). Taking television seriously: A sound and image bite analysis of presidential campaign coverage, 1992–2004, *Journal of Communication, 57*, 652–675.

Bull, R., & Hawkes, C. (1982). Judging politicians by their faces. *Political Studies, 30*, 95–101.

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Carney, D., Colvin, R., & Hall, J. (2007). A thin slice perspective on the accuracy of first impressions. *Journal of Research in Personality, 41*, 1054–1072.

Carney, D. R., Jost, J. T., Gosling, S. D., & Potter, J. (2008). The secret lives of liberals and conservatives: Personality profiles, interaction styles, and the things they leave behind. *Political Psychology*, 29, 807.

Castano, E., Yzerbyt, V., Bourguignon, D., & Seron, E. (2002). Who may enter? The impact of in-group identification on in-group/out-group categorization. *Journal of Experimental Social Psychology, 38*, 315–322.

Castelli, L., Carraro, L., Ghitti, C., & Pastore, M. (2009). The effects of perceived competence and sociability on electoral outcomes. *Journal of Experimental Social Psychology, 45*, 1152–1155.

Costanzo, M., & Archer, D. (1989). Interpreting the expressive behavior of others: The interpersonal perception task. *Journal of Nonverbal Behavior, 13*, 223–245.

Cronbach, L. J. (1955). Processes affecting scores on "understanding of others" and "assumed similarity." *Psychological Bulletin, 52*, 281–302.

Elliott, D. N., & Wittenberg, B. H. (1955). Accuracy of identification of Jewish and non-Jewish photographs. *Journal of Abnormal and Social Psychology, 51*, 339–341.

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Funder, D. C. (1980). On seeing ourselves as others see us: Self-other agreement and discrepancy in personality ratings. *Journal of Personality, 48*, 473–493.
Funder, D. C. (1987). Errors and mistakes: Evaluating the accuracy of social judgment. *Psychological Bulletin, 101*, 75–90.
Funder, D. C. (1994). Explaining traits. *Psychological Inquiry, 5*, 125–127.
Funder, D. C. (1995). On the accuracy of personality judgment: A realistic approach. *Psychological Review, 102*, 652–670.
Gage, N. L., & Cronbach, L. J. (1955). Conceptual and methodological problems in interpersonal perception. *Psychological Review, 62*, 411–422.
Gibson, J. J. (1979). *The ecological approach to visual perception*. New York: Harper & Row.
Gillies, J., & Campbell, S. (1985). Conservatism and poetry preferences. *British Journal of Social Psychology, 24*, 223–227.
Gilovich, T. (1991). *How we know what isn't so: The fallibility of human reason in everyday life.* New York: Free Press.
Glasgow, M. R., Cartier, A. M., & Wilson, G. D. (1985). Conservatism, sensation-seeking, and music preferences. *Personality and Individual Differences, 6*, 393–395.
Gosling, S. D., Renfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality, 37*, 504–528.
Hammermesh, D. S., & Biddle, J. E. (1994). Beauty and the labour market. *American Economic Revue, 84*, 1174–1194.
Hassin, R., & Trope, Y. (2000). Facing faces: Studies on the cognitive aspects of physiognomy. *Journal of Personality and Social Psychology, 78*, 837–852.
Hermann, M. (2006). Links-recht-Rating. Analyse für die Neue Zürcher Zeitung, 1. Dezember 2006 [Left-right-rating. Analysis for the "Neue Zürcher Zeitung" drop (a Swiss newspaper), December 1, 2006; Data file]. Received from the author.
Jahoda, G. (1954). Political attitudes and judgements of other people. *Journal of Abnormal and Social Psychology, 49,* 330–334.
James, W. (1915). *The will to believe and other essays in popular philosophy*. London: Longmans, Green. (Original work published 1897.)
Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology, 3*, 1–24.
Josephs, R. A., Sellers, J. G., Newman, M. L., & Mehta, P. H. (2006). The mismatch effect: When testosterone and status are at odds. *Journal of Personality and Social Psychology, 90*, 999–1013.
Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003a). Political conservatism as motivated social cognition. *Psychological Bulletin, 129*, 339–375.
Kahneman, D., & Tversky, A. (1973). Psychology of prediction. *Psychological Review, 80,* 237–251.
Kenny, D. A., Albright, L., Malloy, T. E., & Kashy, D. A. (1994). Consensus in interpersonal perception: Acquaintance and the big five. *Psychological Bulletin, 116*, 245–358.
Kenny, D. A., Bond, C. F., Mohr, C. D., & Horn, E. M. (1996). Do we know how much people like one another? *Journal of Personality and Social Psychology, 71*, 928–936.
Kinder, D. R., Peters, M. D., Abelson, R. P., & Fiske, S. T. (1980). Presidential prototypes. *Political Behaviour, 2,* 315–337.
Kreiborg, S., Jensen, B. L., Moller, E., & Bjork, A. (1978). Craniofacial growth in a case of congenital muscular dystrophy. *American Journal of Orthodontics, 74*, 207–215.
Landwehr, J. R., Wänke, M., & Herrmann, A. (unpublished data).
Langlois, J. H., Lalakanis, L., Rubenstein, A. J., Larson, A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin, 126,* 390–423.
Lasswell, T. E., & Parshall, P. F. (1961). The perception of social class from photographs. *Sociology and Social Research, 46*, 407–414.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Lawson, C., Lenz, G. S., Baker, A., & Myers, M. (2010). Looking like a winner: Candidate appearance and electoral success in new democracies. *World Politics, 62*, 561–593.
Leigh, A., & Susilo, T. (2009). Is voting skin-deep? Estimating the effect of candidate ballot photographs on election outcomes. *Journal of Economic Psychology, 30*, 61–70.
Little, A. C., Burris, R. P., Jones, B. C., & Roberts, S. C. (2007). Facial appearance affects voting decisions. *Evolution and Human Behavior, 28*, 18–27.
Lombroso, C. (2006). *Criminal man*. Durham, NC: Duke University Press.
Lopes, L. L. (1991). The rhetoric of irrationality. *Theory and Psychology, 1*, 65–82.
Lutz, G. (2010). The electoral success of beauties and beast. *Swiss Political Science Review, 16*, 457–480.
Martin, D. S. (1978). Person perception and real-life electoral behaviour. *Australian Journal of Psychology, 30*, 255–62.
Mazur, A., Mazur, J., & Keating, C. (1984). Military rank attainment of a west point class: Effects of cadets' physical features. *American Journal of Sociology, 90*, 125–150.
McIntyre, M. H., Barrett, E. S., McDermott, R., Johnson, D. D. P., Cowden, J., & Rosen, S. P. (2007). Finger length ratio (2D:4D) and sex differences in aggression during a simulated war game. *Personality and Individual Differences, 42*, 755–764.
McNeill, D. (1998). *The face*. Boston: Little, Brown & Company.
Moller, E. (1966). The chewing apparatus: An electromyographic study of the action of the muscles of mastication and its correlation to facial morphology. *Acta Physiologica Scandinavica* (supplement), 280, 1–229.
Mueller, U., & Mazur, A. (1996). Facial dominance of West Point cadets as a predictor of later military rank. *Social Forces, 74*, 823–850.
Murphy, N. A., Hall, J. A., & Colvin, C. R. (2003). Accurate intelligence assessments in social interactions: Mediators and gender-effects. *Journal of Personality, 71*, 465–493.
Nesse, R. M. (2005). Natural selection and the regulation of defenses: A signal detection analysis of the smoke detector principle *Evolution and Human Behavior, 26*, 88–105.
Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice-Hall.
Olivola, C. Y., & Todorov, A. (2010a). Elected in 100 milliseconds: Appearance-based trait inferences and voting. *Journal of Nonverbal Behaviour, 34*, 83–110.
Olivola, C. Y., & Todorov, A. (2010b). Fooled by first impressions? Reexamining the diagnostic value of appearance-based inferences. *Journal of Experimental Social Psychology, 46*, 315–324.
Oosterhof, N. N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences of the USA, 105*, 11087–11092.
Penton-Voak, I. S., & Chen, J. Y. (2004). High salivary testosterone is linked to masculine male facial appearance in humans. *Evolution and Human Behavior, 25*, 229–241.
Penton-Voak, I. S., Pound, N., Little, A. C., & Perrett, D. I. (2006). Personality judgments from natural and composite facial images : More evidence for a "kernel of truth" in social perception. *Social Cognition, 24*, 607–640.
Poutvaara, P., Johrdahl, H., & Berggren, N. (2009). Faces of politicians: Babyfacedness predicts inferred competence but not electoral success. *Journal of Experimental Social Psychology, 45*, 1132–1135.
Quanty, M. B., Keats, J. A., & Harkins, S. G. (1975). Prejudice and criteria for identification of ethic photographs. *Journal of Personality and Social Psychology, 32*, 449–454.
Reynolds, D. J., & Gifford, R. (2001). The sounds and sights of intelligence: A lens model channel analysis. *Personality and Social Psychology Bulletin, 27*, 187–200.
Riggio, H. R., & Riggio, R. E. (2010). Appearance-based trait inferences and voting: Evolutionary roots and implications for leadership. *Journal of Nonverbal Behavior, 34*, 119–125.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Rosar, U., Klein, M., & Beckers, T. (2008). The frog pond beauty contest: Physical attractiveness and electoral success of the constituency candidates at the North Rhine-Westphalia state election of 2005. *European Journal of Political Research, 47*, 64–79.

Rosenberg, A., & Kagan, J. (1987). Iris pigmentation and behavioral inhibition. *Developmental Psychology, 20*, 377–392.

Rule, N. O., & Ambady, N. (2008). Brief exposures: Male sexual orientation is accurately perceived at 50 ms. *Journal of Experimental Social Psychology, 44*, 1100–1105.

Rule, N. O., & Ambady, N. (2010). Democrats and Republicans can be differentiated from their faces. *PLoS ONE, 5/1*, e8733.

Rule, N. O., Freeman, J. B, Moran, J. M., Gabrieli, J. D. E., Adams, R. B., & Ambady, N. (2010). Voting behavior is reflected in amygdala response across cultures. *Social Cognitive and Affective Neuroscience*, 5, 349–355.

Samochowiec, J., Wänke, M., & Fiedler, K. (2010). Political Ideology at Face Value. *Social Psychological and Personality Science*, *1*, 206–213.

Schaller, M. (2008). Evolutionary bases of first impressions. In N. Ambady & J. J. Skowronski (Eds.), *First impressions* (pp. 15–34). New York: Guilford Press.

Shookman, E. (1993). *The faces of physiognomy: Interdisciplinary approaches to Johann Casper Lavater*. Columbia, SC: Camden House.

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression.* New York: Cambridge University Press.

Todorov, A. (in press). Evaluating faces on social dimensions. In A. Todorov, S. T. Fiske, & D. Prentice (Eds.), *Social neuroscience: Toward understanding the underpinnings of the social mind*. Oxford: Oxford University Press.

Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science, 308*, 1623–1626.

Tomkins, S. S. (1963). Left and right: A basic dimension of ideology and personality. In R. W. White (Ed.), *The study of lives* (pp. 388–411). Chicago: Atherton.

Verhulst, B., Lodge, M., & Lavine, H. (2010). The attractiveness halo: Why some candidates are perceived more favorably than others. *Journal of Nonverbal Behavior, 34*, 111–117.

Wänke, M., & Wyer, R. S. (1996). Individual differences in person memory: The role of sociopolitical ideology and in-group versus out-group membership in responses to socially relevant behavior. *Personality and Social Psychology Bulletin, 22*, 742–754.

Walker, M., & Vetter, T. (2009). Portraits made to measure: Manipulating social judgments about individuals with a statistical face model. *Journal of Vision*, *9*, 1–13.

Waynbaum, I. (1906). Communication à la société psychologie. *Journal de la Psychologie Normale et Pathologique, 3*, 467–475.

Waynbaum, I. (1907a). *La physionomie humaine: Son méchanisme et son role social.* Paris: Alcan.

Waynbaum, I. (1907b). Les charactéres affectifs de la perception. *Journal de la Psychologie Normale et Pathologique, 4*, 289–311.

Willis, J., & Todorov, A. (2006). First impressions: Making up your mind after a 100-Ms exposure to a face. *Psychological Science, 17*, 592–598.

Wilson, G. D., Ausman, J., & Mathews, T. R. (1973). Conservatism and art preferences. *Journal of Personality and Social Psychology, 25*, 286–288.

Yeagley, E., Morling, B., & Nelson, M. (2007). Nonverbal zero-acquaintance accuracy of self-esteem, social dominance orientation, and satisfaction with life. *Journal of Research in Personality, 41*, 1099–1106.

Zaidel, D. W., Aarde, S. M., & Baig, K. (2005). Appearance of symmetry, beauty, and health in human faces. *Brain and Cognition, 57*, 261–263.

Zajonc, R. B., Adelmann, P. K., Murphy, S. T., & Niedenthal, P. M. (1987). Convergence in the physical appearance of spouses: An implication of the vascular theory of emotional efference. *Motivation and Emotion, 11*, 335–346.

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Zebrowitz, L. A., & Collins, M. A. (1997). Accurate social perception at zero acquaintance: The affordances of a Gibsonian approach. *Personality and Social Psychology Review, 1*, 204–223.

Zebrowitz, L. A., & McDonald, S. M. (1991). The impact of litigants' babyfaceness and attractiveness on adjudications in small claims courts. *Law and Behaviour, 15*, 603–623.

Zebrowitz, L. A., & Montepare, J. M. (2006). The ecological approach to person perception: Evolutionary roots and contemporary offshoots. In M. Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 81–113). New York: Psychology Press.

Zebrowitz, L. A., Voinescu, L., & Collins, M. A. (1996). "Wide-eyed" and "crooked-faced": Determinants of perceived and real honesty across the life span. *Personality and Social Psychology Bulletin, 22*, 1258–1269.

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Section III

Cognitive and Affective Mechanisms

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10

Field and Observer Perspectives in Autobiographical Memory

ERIC EICH
University of British Columbia

TODD C. HANDY
University of British Columbia

EMILY A. HOLMES
University of Oxford

JUVAL LERNER
University of British Columbia

HEATHER K. MCISAAC
Palo Alto HealthCare System

Events of the personal past may be remembered from two points of view. One is from a first-person or field perspective, such that people relive the events through their own eyes, as if they were looking outward, experiencing the events now much like they did before. Alternatively, rememberers may adopt a third-person or observer perspective, so that they "see" themselves as actors in the memory image.

As is true of psychology itself, the distinction between field (F) and observer (O) perspectives has a long past but a short history. Freud (1959) maintained that it had important psychodynamic implications for understanding memory (also see Henri & Henri, 1896). He believed that early childhood memories of anxiety-provoking pre-oedipal experiences were reconstructions that masked deeper

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emotional conflicts and that one way to accomplish this masking was to take an observer perspective while recollecting.

Nonetheless, experimental analysis of the F/O distinction is a relatively recent enterprise. The first experiments were reported by Nigro and Neisser (1983) and of the 70-odd studies that have appeared since then, more than 70% were published in the last decade (Rice & Rubin, 2009). This increase in the size of the literature is matched by a broadening of its scope, as an increasingly diverse group of researchers—specialists in emotion, neuroimaging, autobiographical memory, individual differences, interpersonal behavior, posttraumatic stress, and other areas—have taken an interest in field and observer modes of remembering. Thus, the concept of multiple memory perspectives can itself be viewed from multiple research perspectives. To illustrate this point, we begin with a review of cognitive and social aspects of the field/observer distinction. Next we discuss a recent study in which functional magnetic resonance imaging (fMRI), recall narratives, and subjective ratings were combined with a view to identifying the neural networks engaged by field versus observer perspectives. Attention will then shift to the clinical significance of the memory perspectives, before settling at the end on promising directions for future research.

COGNITIVE AND SOCIAL ASPECTS OF MEMORY PERSPECTIVE

For students of cognitive or social psychology, interest in the field/observer distinction has revolved mainly around two issues, discussed in the following sections. One issue is why individuals select one memory perspective over the other to guide their recollection, and the other is how the chosen vantage point affects what is remembered.

Consequences of Memory Perspective

Taking the second issue first, Rice and Rubin (2009) remarked that memory perspective "is not simply an aspect of phenomenology that 'comes along for the ride' during retrieval, but rather can affect how we think and feel about memories" (p. 878). More concretely, the literature is largely, though not completely, consistent in showing that the field perspective is associated with higher subjective ratings of emotional intensity, visual imagery, sensory detail, personal importance, and belief that the memories represent real rather than imaginary incidents (e.g., Berntsen & Rubin, 2006; Heaps & Nash, 2001; Rice & Rubin; Sutin & Robins, 2010: Talarico, LaBar, & Rubin, 2004; Terry & Barwick, 1998).

In addition to affecting the phenomenological experience of remembering, memory perspective influences the attributions people make about past events and social interactions. Frank and Gilovich (1989) found that when undergraduates remembered a get-acquainted conversation from an observer's perspective, they made more dispositional attributions, much as an observer would. However, when students recalled the conversation from a field perspective, they made more

situational attributions. These effects emerged regardless of whether memory perspective was assessed or manipulated, and they set the stage for future research, reviewed next, on the causal role of memory perspective in determining future actions as well as perceptions of past and present selves.

Causes of Memory Perspective

Whether one adopts a field or observer perspective when reconstructing autobiographical events depends on several factors, including event age. In general, people tend to see themselves as actors in events of the distant past but reexperience recent events from something akin to the original perspective (e.g., Frank & Gilovich, 1989; Nigro & Neisser, 1983; Piolino, Desgranges, & Eustache, 2009; Pronin & Ross, 2006; Sutin & Robins, 2008). This effect is nicely illustrated in Figure 10.1, which stems from a recent study by Rice and Rubin (2009, Study 1).

Personality factors also play a role: Observer memories predominate when publicly self-conscious individuals recollect their social interactions (Robinson & Swanson, 1993), when undergraduates scoring high in dissociation or general anxiety recall self-defining incidents (Sutin & Robins, 2010), or when people scoring high in harm avoidance, a construct also associated with anxiety, recall their earliest autobiographical experiences (Kihlstrom & Harackiewicz, 1982).

Related to this, Nigro and Neisser (1983, Experiment 3) showed that situations involving a high degree of self-awarenesss, social anxiety, or threat (e.g., speaking in public or running from danger) lead to more observer memories, whereas situations with greater general affective involvement (e.g., feeling elated or angry or watching a horror film) lead to more field memories. And in another seminal study, Nigro and Neisser (Experiment 4) found that, whereas instructions to concentrate on the objective circumstances surrounding an event often elicit observer memories, asking people to focus on the feelings associated with the original event typically engenders field memories.

Taking their lead from Nigro and Neisser (1983), several investigators have examined the relation between event emotionality and memory perspective. For instance, Robinson and Swanson (1993, Experiment 2) asked undergraduates to recollect autobiographical events from various times in their lives involving work, school, romance, family, and other themes. Students classified each event according to its retrieval perspective (the options were field, observer, and neither) and rated its original and current emotional intensity (i.e., how the event made them feel when it took place vs. how they felt about it now). At a second session, held two weeks later, participants were given summaries of their previously recalled events, and they rated each memory again on the same set of scales used in the first session. A random half of the participants were instructed to adopt the field perspective as they reevaluated each event, and half did so from an observer perspective. In this manner, each participant was assured of having a subset of memories for which the same perspective (field or observer) was adopted at each session and a subset for which a different perspective was adopted (switching from field to observer or vice versa).

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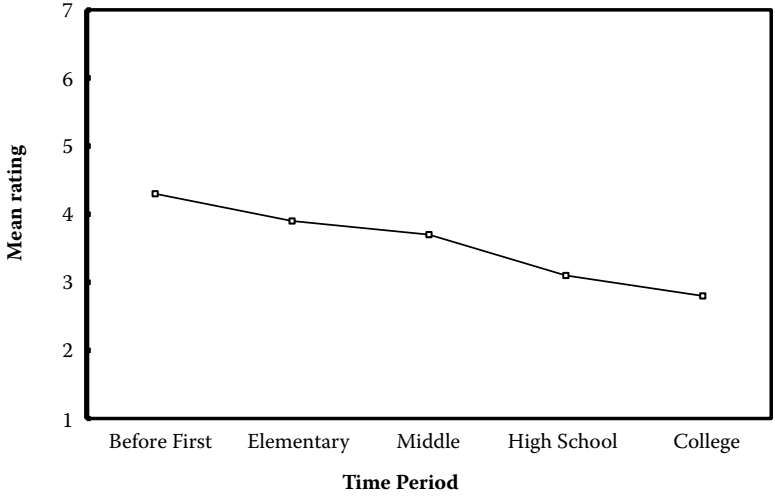


Figure 10.1 Mean memory perspective ratings obtained in an experiment by Rice and Rubin (2009, Study 1), in which undergraduates recalled one personal event from each of several time periods, ranging from recent (during college) through intermediate (during junior high school) to remote (before first grade). Order of recall—chronological (earliest events first, latest events last) or reverse chronological—was varied between subjects and participants indicated the perspective they used when recalling each event on a seven-point scale (1 = own eyes, 7 = observer). Replicating the pattern seen in earlier experiments, remote memories were rated as more third-person than recent memories. (From Rice, H. J., & Rubin, D. C., *Consciousness and Cognition, 18,* Figure 1, 2009. With permission from Elsevier.)

Though there was little change in rated emotionality (either original or current) when perspective remained constant or when it shifted from observer to field, switching from field to observer produced a marked decrease in both measures. As Schacter (1996) remarked, these results suggest not only that the emotional intensity of an event depends in part on how one goes about remembering it but also that the emotions one attributes to the past sometimes arise from the way memories are retrieved in the present.

In addition to regulating or dampening down the subjective experience of emotion, retrieval from a third-person perspective alters the type of information contained in the subject's memory reports. To explain, consider an experiment by McIsaac and Eich (2002) in which undergraduates performed a series of physical tasks (e.g., shooting a toy basketball, shaping clay objects) as they walked around a large, distinctively decorated room. Later, while sitting in a small, sparsely furnished office, the students were instructed to recall aloud their experience of the original environment and of the tasks they had performed within it from either a field or an observer perspective. Transcripts of the students' audio-recorded recollections were prepared and coded for content by two assistants, both blind to recall condition and study hypotheses.

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Analyses of the data revealed several differences between memory reports obtained under field versus observer conditions. Whereas field reports provided more details on the affective reactions, physical sensations, and psychological states that students experienced as they performed the tasks, observer reports included information about how the subjects looked, what they did, and where things were. Such differences may have important consequences for the way people manage their social interactions. More generally, field narratives generated from a first-person point of view contain more information about "internal" aspects of the remembered events but less information about "external" aspects. Thus, field and observer recollections differ in ways that are apparent not only to the rememberers themselves (as in the study by Robinson & Swanson, 1993) but also to other people (such as the blind coders in McIsaac & Eich, 2002) with whom the rememberers share their recollections. These differences apply not only to the recall of innocuous incidents, such as shooting a basketball (McIsaac & Eich, 2002), but also to the recollection of traumatic experiences, such as being struck by a baseball bat (McIsaac & Eich, 2004).

If, as these results suggest, emotional regulation is one function of the observer perspective, then a second, related function is *emotional distancing*: the idea that the psychological and physical pain of reliving an aversive experience can be damped down by recalling the event from a eyes of a dispassionate observer (D'Argembeau & van der Linden, 2004; McNamara, Benson, McGeeney, Brown, & Albert, 2005; Ross & Wilson, 2003; Williams & Moulds, 2007; Wilson & Ross, 2003; for related insights into temporal distancing, see Pronin & Ross, 2006; Sanitioso, 2006).

An important extension of the distancing concept has been proffered by Lisa Libby and her associates (Libby & Eibach, 2002; Libby, Eibach, & Gilovich, 2005; Libby, Schaeffer, & Eibach, 2009; Libby, Schaeffer, Eibach, & Slemmer, 2007). In a series of five studies, Libby et al. (2005) instructed participants to recall a given real-life event from either a first-person (field) or third-person (observer) perspective and later asked them how much they had changed since the event took place. In Study 1, university students who had been in psychotherapy were queried about their first treatment session; in Study 2, undergraduates remembered a time in high school when they felt socially awkward or embarrassed. In both cases, expectations for personal change are high and motivations for improvement are strong, which should bias participants to focus on the differences between their past and present selves. To the extent that the observer perspective affords greater psychological distance between past and present selves, participants instructed to recall the target events from that perspective should perceive greater self-change than their counterparts in the field-perspective condition. The results of Studies 1 and 2 confirmed this prediction.

In subsequent studies, Libby et al. (2005, p. 59) found that:

> …whether a person focuses on differences or similarities between the present and past selves is crucial in determining the effect of memory perspective on assessments of self-change: When people are inclined to focus on differences [e.g., I was socially awkward as a teenager, but not now as an adult], the third-person perspective leads to perceptions of greater

> self-change than the first-person perspective does, but when people are inclined to focus on similarities [e.g., I was a good athlete in high school, and I'm still good today], the effect of memory perspective on assessments of self-change reverses.

Together with the research reviewed earlier, Libby et al. (2005) found that memory perspective influences not only how we think and feel about events of the personal past but also our present assessments of how much we have changed since those events occurred (also see Sanitioso, 2008). Moreover, the influence of memory perspective seems to reach into the future. In an ingenious and opportunistic study, carried out on the eve of the 2004 U.S. presidential election, Libby et al. (2007) instructed a sample of registered Ohio voters to picture themselves going through the motions of voting from either a first-person or third-person perspective. The results showed that:

> …people are more likely to adjust their self-concepts to match a desired behavior if that behavior is imagined from a third-person, observer's perspective rather than a first-person, experiencer's perspective. Subjects who imagined voting from the third-person perspective saw themselves as more likely to vote and more motivated to overcome obstacles to voting compared with those using first-person imagery. Third person imagery also led subjects to anticipate feelings of regret and satisfaction consistent with internalizing voting as a personal norm (Kahneman & Miller, 1986). And subjects who imagined from the third-person perspective reported beliefs about the importance and impact of voting that were consistent with stronger self-identification as voters. Cumulatively, these effects on self-perceptions compelled persons in the third-person visualization condition to turn out in greater numbers on Election Day than did persons in the first-person condition. These findings suggest that self-focused imagery can affect meaningful behaviors by altering self-perceptions. Therefore, the injunction to "picture yourself" performing a desired behavior may, in fact, be an effective strategy for translating good intentions into practical actions. (p. 202)

The fact that memory perspective affects how we remember the past and imagine the future is particularly notable in light of recent neurocognitive evidence that mental time travel, in both directions, involves activation of a *core brain system* (Addis, Wong, & Schacter, 2007; Buckner & Carroll, 2007). This system includes the medial prefrontal cortex, posterior regions in the lateral and medial parietal cortex, the lateral temporal cortex, and the medial temporal lobe including, most prominently the hippocampal formation (Wagner, Shannon, Kahn, & Buckner, 2005; also see Macrae, this volume). Delineation of this core system, along with new insights into the adaptive functions of memory, prompted Schacter and his associates (Addis, Pan, Vu, Laiser, & Schacter, 2009; Schacter & Addis, 2007; Schacter, Addis, & Buckner, 2007) to propose the *constructive episodic simulation hypothesis*, which holds that "(a) episodic memory provides a source of details for future-event simulations and (b) the constructive nature of the episodic memory

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system allows the flexible recombination of such details into a coherent simulation of a novel event" (Addis & Schacter, 2008, p. 227).

As noted earlier, the fact that first-person perceptions can be transformed into third-person recollections attests to the reconstructive nature of episodic memory. We have also seen that the memory perspective adopted at retrieval affects how "bits and pieces" of stored information get pieced together to produce qualitatively different recollective experiences. Drawing on the constructive episodic simulation hypothesis, memory perspective would also be expected to affect peoples' attributions about their past and present selves as well as their attitudes and interpersonal strategies in the future. The work of Libby and other investigators confirm this expectation (e.g., Libby et al., 2005, 2007; Pronin & Ross, 2006; Wilson & Ross, 2003), whereas the ideas about mental simulation advanced by Schacter and his associates (Addis et al., 2007; Schacter & Addis, 2007; Schacter et al., 2007) invite inquiry into the neural processes that mediate field and observer perspectives. Some preliminary research on these processes is reviewed in the next section.

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NEUROSCIENCE ASPECTS OF MEMORY PERSPECTIVE

As we have seen, several studies have shown that events reconstructed from a field in contrast to an observer perspective are accompanied by more intense emotion (e.g., Nigro & Neisser, 1983; Robinson & Swanson, 1993; Talarico, LaBar, & Rubin, 2004). Also, when rememberers are asked to describe their field recollections in detail (e.g., what happened, who was involved), their narratives contain more information about "internal" aspects of the focal events, such as physical sensations and psychological motivations, but less information about "external" aspects, such as how things looked and where things were (McIsaac & Eich, 2002, 2004; cf. Berntsen & Rubin, 2006; Bagri & Jones, 2009; Robinson, 1996).

Though earlier experiments have established a connection between memory perspective and event emotionality, how this relation is mediated in the brain remains unknown. In a recent study (Eich, Nelson, Leghari, & Handy, 2009), we used fMRI to investigate the neurocognitive basis of autobiographical memories while controlling for the visual perspective taken during memory recall—either a field (or first-person) or an observer (or third-person) perspective. Given that memories relived from a field perspective are experienced as more emotion laden, relative to when the same event is recalled from an observer perspective, our goal was to identify the neural systems mediating this effect of retrieval perspective on memory emotionality.

The study focused a priori on two brain regions of interests. On one hand, the amygdala—a pair of small almond-shaped structures buried in the medial temporal lobes—is strongly tied to basic emotional responses, both in real-time and during memory retrieval (e.g., Cabeza & St. Jacques, 2007). However, our sense of emotion is also strongly associated with monitoring our own internal, visceral responses, such as noticing butterflies in our stomach when we are nervous or that our heart is racing (e.g., Damasio, 2000; also see Winkielman & Kavanagy, this volume). These *interoceptive* abilities have been linked to the insula, a region

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of the cortex folded deep in a crevice separating the frontal and temporal lobes, thought to play a role in cognition, emotion, self-evaluation, and autonomic regulation (Augustine, 1996; Berntson, Norman, Bechara, Bruss, Tranel, & Cacioppo, 2011; Craig, 2009; Critchley, 2009). The key issue in the present study was whether one or both of these brain areas is involved in the greater emotionality of recalling memories from a field versus observer perspective.

To address this question, participants were brought into the lab and asked to perform a variety of manual tasks—creating a piece of artwork, for instance, or walking across campus on a mapped-out route. The tasks were designed to be physically engaging, attention demanding, and distinctive activities (especially for a laboratory study on memory); each task took about 15–20 minutes to complete, contributing further to its memorability.

One week later, participants were cued to silently recall the tasks (using pre-memorized visual icons) as they underwent fMRI scanning. In one condition, the tasks were recalled from a field perspective, and in a second condition they were recalled from an observer perspective. Following silent recall, participants gave a numerical rating of how emotional their memory was as well as a verbal narrative report of the memory content itself, which we latter scored in terms of various content categories (e.g., numbers of self-observations, physical sensations, and physical actions). These subjective ratings and narrative scores were used to compare how the contents of participants' memories varied not just with retrieval perspective itself but also with brain activity as well.

In terms of how retrieval perspective affected memory content, our findings paralleled earlier reports (McIsaac & Eich, 2002, 2004). Tasks recalled from the field perspective were associated with greater emotionality, affective reactions, physical sensations, and references to psychological states. In comparison, tasks recalled from the observer perspective had more descriptions of physical actions and third-person self-observations. Given these results from the behavioral measures (viz. subjective ratings and narrative scores), we next sought to determine whether there were any corresponding changes in functional activity in the amygdala or insula.

Memory perspective was found to affect activity in both brain regions, but in very different—and unexpected—ways. In our fMRI paradigm, brain activity during memory retrieval was always measured relative to a baseline or control condition: participants performed a simple visual search task in between recalling each task. This made it possible to identify what brain areas not only increased in activity during retrieval, relative to the control condition, but also decreased in activity. Examining how memories recalled from the field perspective changed neural activity, relative to the control condition, we found that activity in the right amygdala selectively turned *on*. However, when the same comparison was performed for memories recalled from the observer perspective, we found that activity in both the left and right insula selectively turned *off*. These contrasting patterns are illustrated in Figure 10.2.

In other words, the greater emotionality of field versus observer memories appears to be driven jointly by the turning on of emotion-related circuitry during the former and by the turning off of emotion-related circuitry during the

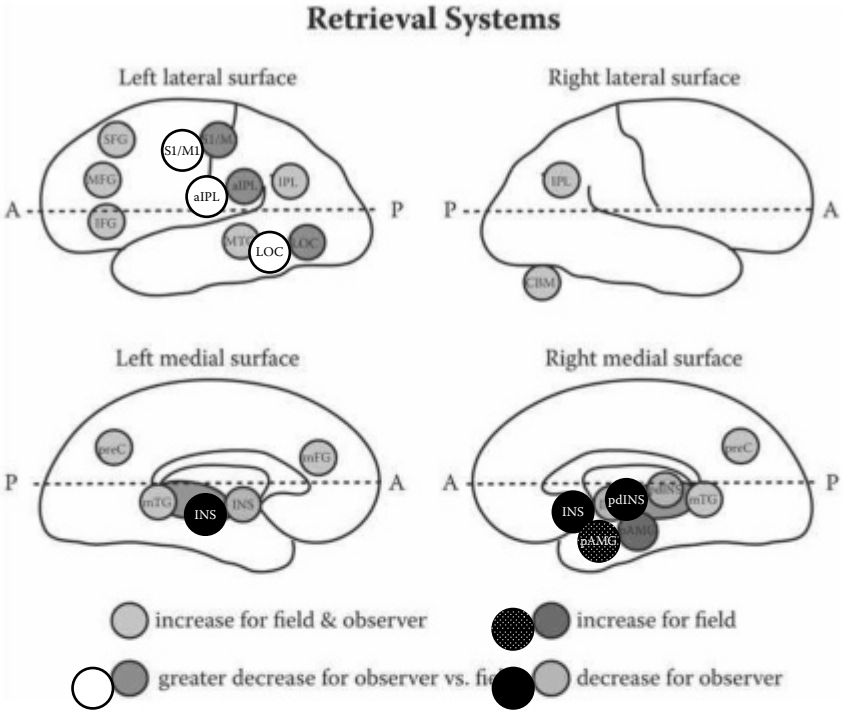


Figure 10.2 A schematic summary of the brain networks associated with the retrieval of field and observer memories, based on an fMRI study by Eich, Nelson, Leghari, and Handy (2009). Grey areas are common to memory retrieval regardless of the perspective taken. Black areas decreased in activity specifically during observer memories, the areas in white showed greater decreases in activity for observer relative to field memories, and the spotted area showed an increase in activity specifically during field memories. SFG = superior frontal gyrus, MFG = middle frontal gyrus, IFG = inferior frontal gyrus, aIPL = anterior inferior parietal lobule, IPL = inferior parietal lobule, MTG = middle temporal gyurs, LOC = lateral occipital cortex, CBM = cerebellum, preC = precuneus, mTG = medial temporal gyrus, INS = insula, mFG = medial frontal gyrus, pdINS = posterior dorsal insula, and pAMG = posterior amygdala. (From Eich, E., Nelson, A. L., Leghari, M. A., & Handy, T. C., *Neuropsychologia*, *47*, Figure 7, 2009. With permission from Elsevier.)

latter—circuitry in the insula that is otherwise on as a default state. Notably, however, these responses in the amygdala and insula did not track with behavioral measures of the memories themselves (i.e., subjective emotionality ratings or narrative content scores; see Figure 10.2). When we performed additional analyses to determine which brain regions showed either positive or negative correlations with the behavioral measures, the responsive regions showed no systematic variation with memory content. Rather, their activity depended solely on the retrieval perspective itself, as if being controlled via an on–off switch.

These findings have a number of interesting implications, both in the memory domain and beyond. For one, the data suggest that adopting an observer perspective

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is tantamount to a literal disembodiment at the neural level (for related research on embodied cognition, see Macrae; Winkielman & Kavanagh, this volume). That is, when we choose to relive past events from a perspective outside our body, we shut down the neural circuitry in the insula that is central for monitoring our bodies' internal states For another, research in social cognitive neuroscience has revealed not only that we have a conceptual representation of "self" in the brain but also that it is critical for how we process events in the external world (e.g., Kelley, Macrae, Wyland, Caglar, Inati, & Heatherton, 2002). Building on this idea, our findings indicate that self-referential processing can also include a physical or somatic sense of self that is distinct from any conceptual or abstract self-representation. Finally, there has been growing interest of late in understanding how people can exert control over their own brain activity, such as through meditation and mindfulness training. Our neuroimaging data imply that manipulating the visual perspective one adopts during memory recall may be an effective means for controlling one's affective reactions to past events, through the effect it has on emotion-related circuitry in the brain.

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CLINICAL ASPECTS OF MEMORY PERSPECTIVE

Intrusive and distressing mental imagery is a key feature of many emotional disorders and dysfunctional social behaviors (Holmes & Mathews, 2010). A fascinating feature of imagery perspective is that people tend not to explicitly be aware of the perspective they are taking until asked. Striking examples of distortions of perspective occur across various psychological disorders, and change of perspective can be a useful part of treatment. Memory perspective provides an insight into cognitive features that can maintain psychological and social disturbance in several ways. We shall begin by considering the relationship between perspective and negative emotion, then other aspects such as interpretation and behavior, and then finally implications for positive affect.

In the previous section on neuroimaging and in earlier discussion of emotion regulation and distancing, we suggested that the visual perspective one adopts during recall may be a simple but effective means of controlling one's affective reactions to past events. Where better to avoid emotion than when thinking about distressing and traumatic events such as in clinical disorders? However, as we will discover in the following sections, while there may be short-term benefits to reducing affect by switching to an observer perspective, there can also be long-term costs associated with doing this.

Observer Perspective, Emotion, and Trauma

When describing what had happened during a violent mugging, a patient reported that she saw herself self from the outside lying on the ground: "I look like a rag doll; I'm useless" (Grey, Holmes, & Brewin, 2001). In clinical practice, patients who have experienced trauma sometimes report leaving their body and hovering above the scene of the trauma at the very time of the traumatic event, feeling distanced and unreal. This type of out-of-body experience/observer perspective during trauma is referred to as *peritraumatic dissociation* (Holmes et al., 2005) and

is thought to be most prevalent after repeated trauma, such as childhood sexual abuse though can also happen during single-event trauma.

As we have discussed, the observer perspective has less impact on emotion than field perspective. An early indication that this was the case for clinical patients came from McIsaac and Eich's (2004) study of patients with posttraumatic stress disorder (PTSD)—individuals who have suffered a traumatic event in which they experienced or witnessed serious harm or threat to self or others (APA, 2000). Such events include war, road traffic accidents, and physical and sexual assault. The hallmark symptom of PTSD is *flashbacks*: intrusive image-based memories of the traumatic event that spring to mind unbidden. McIsaac and Eich found that those patients who recalled their traumatic events from an observer perspective described less anxiety than those adopting a field perspective. It is thought that by using the observer perspective patients can help keep strong emotions at bay, at least in the moment. However, in the terminology of PTSD, this type of cognitive processing, as a way to reduce current affect, is also referred to as *emotional avoidance* (Ehlers & Clark, 2000). Emotional avoidance, as we shall see, is not necessarily a useful long-term strategy for patients.

In another study of people who had experienced a traumatic event, emotional avoidance was found to be correlated with use of the observer perspective (Kenny & Bryant, 2007). Kenny and colleagues went on to conduct a longitudinal study in which they followed a group of people who had suffered a traumatic event for a year (Kenny, Bryant, Silove, Creamer, O'Donnell, & McFarlane, 2009). Soon after the trauma, recall of the event using an observer perspective was related to more severe PTSD symptoms. This was also the case 1 year later. Furthermore, people who switched from using a field to an observer perspective at 12 months had worse PTSD symptoms. Taken together, these results suggest that remembering trauma from an observer perspective is related to both immediate and ongoing PTSD symptoms. This suggests that far from being a useful long-term clinical strategy, using an observer perspective is associated with a worse prognosis.

A simplistic interpretation of the idea that observer perspective is less emotional than field perspective runs the risk of suggesting that using the former during trauma or when recalling traumatic events might be a good thing. However, in line with the previous findings, many clinicians would disagree with this interpretation. Indeed, a common component of cognitive treatment models of PTSD is the importance of emotionally processing rather than avoiding emotion associated with the event (Brewin & Holmes, 2003). The most effective treatment for PTSD—trauma-focused cognitive therapy (National Institute for Health and Clinical Excellence, 2005)—encourages patients to recall the worst moments in their trauma memory in detail, encouraging the use of field rather than observer perspective in so doing. A clinical goal of this treatment is to reduce pathological dissociation by helping patients with PTSD "get back in their bodies" and seeing events through their own eyes.

Observer Perspective, Interpretation, and Behavior: Social Phobia

Patients with social phobia report experiencing observer perspective imagery at those times they suffer from social anxiety (Hackmann, Surawy & Clark, 1998). For

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example, when in a social situation, such as speaking to a colleague, a patient might report seeing themselves from the outside, as red as a tomato, sweating profusely and looking like an idiot. It is clear here that the notion of observer perspective reducing emotion does not capture the full picture. Rather, in social phobic imagery, people see themselves not how they are actually performing but as their worst fears of how they might appear to others. They interpret what they see in their imagery as a sign they are really performing badly, which in turn causes them to be increasingly anxious (Wells, Clark, & Ahmad, 1998). This continues to fuel a vicious cycle in which their behavior is now impacted (Spurr & Stopa, 2003); for example, rather than listening to their colleague, individuals with social phobia might start fidgeting to dab away their sweat, lose the thread of conversation, or reply inappropriately. Indeed, negative observer perspective images have been shown to play a causal role in social phobia (Hirsch, Clark, Mathews, & Williams, 2003).

The highly successful cognitive behavior therapy (CBT) for social phobia developed by David Clark and colleagues (Clark et al., 2006) requires patients to drop their use of observer perspective imagery and instead use field perspective when in social situations. That is, it encourages people not to imagine how they appear to someone else but to look out through their own eyes at the person they are speaking to.

Clinical research suggests that the use of observer perspective may be widespread in other clinical disorders too. Such imagery in agoraphobia include scenes of collapsing or being trapped (Day, Holmes, & Hackmann, 2004), in health anxiety of dying or having a terrible illness (Wells & Hackmann, 1993) and blood injury phobia (Wells & Papageorgiou, 1999), and in body dysmorphic disorder of having ugly and disfigured body part (Osman, Cooper, Hackmann, & Veale, 2004). Again, the distortions of reality that can occur when adopting an observer perspective image link thematically to the content of a given disorder and to the necessary treatment strategy.

Observer Perspective and Positive Affect: Depression

Hitherto, we have discussed the impact of the observer perspective being less emotional than field perspective in terms of negative affect. What about positive affect? Patients with depression report feelings of sadness and anhedonia and claim they no longer enjoy experiences in the way they used to (APA, 2000). Interestingly, increased depressed mood is associated with increased use of observer perspective (Kuyken & Moulds, 2009; Williams & Moulds, 2007, 2008), and curiously, the more detailed and attentive processing of new social information (see Forgas, this volume). While observer perspective may protect against negative emotions such as anxiety, it may also serve to dampen down positive affect. Consistent with this suggestion, compared with nondepressed controls, people with depression indeed recall more positive events from an observer perspective (Bergouignan et al., 2008; Lemogne et al., 2006) which may be linked to an underlying genetic vulnerability (Lemogne et al., 2009). Further, depressed adolescents compared with never-depressed controls were more likely to recall their memories from an observer perspective (Kuyken & Howell, 2006). Kuyken and Howell suggested that seeing

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oneself from the outside is likely to highlight that one is falling short of some ideal standard, as when imaging positive events promote unfavorable self-comparisons and lower mood.

The previously reviewed clinical research is limited by being correlational in nature: It can reveal an association between observer perspective and reduced positive affect but cannot show that the former causes the latter. To test this hypothesis, an experimental study was conducted by Holmes, Coughtrey, and Connor (2008). Nonclinical participants were asked to listen to a series of descriptions about events. All 100 descriptions had positive outcomes, such as, "You have been looking forward to your holiday. When you arrive at your destination you realize it is even better than you expected." Participants were randomly assigned to one of three conditions: (1) to focus on the words and meaning (verbal condition) of each description; (2) to imagine it from a field perspective (field condition); or (3) imagine it from an observer perspective (observer condition).

Compared with both those who were given verbal processing instructions and those who used observer perspective imagery, participants who had imagined the positive events from a field perspective experienced significantly greater positive affect (also see Holmes, Mathews, Dalgleish, & Mackintosh, 2006). In fact, as predicted, both the verbal and observer conditions led to a deterioration of positive affect. These results suggest that imagining positive events from a field perspective is critical to improving positive affect.

It is also interesting that, in the Holmes et al. (2008) study, observer perspective led not only to less positive affect but also to actual mood deterioration. One possibility is that unlike field perspective, which is like real perception/experienced reality, observer perspective lends itself to making unfavorable comparisons with the overtly positive material—for example, "seeing myself like that doesn't look real, that would never happen to me." While the equivalent appraisals for negative material may help reduce negative affect, unfavorable comparisons with positive material are known to reduce positive mood (Markman & McMullen, 2003). Thus, clinical reasoning suggests that adopting an observer perspective when remembering or imagining positive information is one factor that serves to maintain depressed mood. On the other hand, recent work from social psychology suggests that the picture may be more complex. There may be times when viewing oneself form a distance may be adaptive for depressed mood (Ayduk & Kross, 2010). However, negative and positive affect have long been held to be separate (Watson, Clark, & Tellegen, 1988; also see Forgas; Winkielman & Kavanagy, this volume). The implication of reducing observer perspective when considering positive material in clinical depression remains to be tested. Boosting happiness may require different strategies than reducing depression.

CLOSING COMMENTS

Recent years have witnessed a mounting research interest in the causes, correlates, and consequences of memory perspective. This surge is notable not only for the wealth of new findings that have been produced but also for the variety of issues

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that have been pursued. How, for example, does the passage of time affect both the experience of recollection and the choice of memory perspective? Why does the adoption of an observer's vantage point amplify the perceived difference between past and present selves in certain contexts but attenuate the difference under other circumstances? Do field and observer perspectives recruit different neural systems? And are their costs as well as benefits to recalling traumatic material from an observer's point of view?

It is possible, indeed probable, that the diversity of the memory perspective literature seems certain to increase in coming years, as specialists in other areas of psychological science—psychometrics and cultural cognition, for example—join the conversation.

Regarding psychometrics, a recent paper by Rice and Rubin (2009) seems certain to light a lively debate, among measurement and memory theorists alike, on how best to conceptualize and quantify the relation between field and observer perspectives. More to the point, are field and observer perspectives related in a mutually exclusive manner (so that a given recollective experience can be either field or observer, but not both), a complementary manner (more field means less observer and vice versa), or an independent manner (field and observer perspectives can be experienced simultaneously, like feeling happy and sad at the same)? Rice and Rubin make a strong case for independence, but the generality of their argument remains to be tested.

Regarding cultural cognition, Cohen and Gunz (2002) tested two groups of participants—Westerners (White students who, like their parents, had been born in North America) and Easterners (students born in Asia to Asian parents)—in a three-phase study. In the first phase, students were cued to remember specific situations in which they had or had not been not the focus of other people's attention (e.g., a time they felt embarrassed or gave an individual presentation versus a time they watched the news on television or went running for exercise). Participants rated each memory along several dimensions, including the perspective from which they remembered the incident (1 = entirely a first-person memory, 11 = entirely a third-person memory). Next, participants described in detail an occasion on which they experienced one of six randomly assigned emotions: (1) anger; (2) contempt; (3) fear; (4) sympathy (all directed at someone else); (5) shame (directed at oneself); and (6) sadness. Though participants were told that this second memory task was simply a continuation of the first, its actual purpose was to manipulate their mood prior to the third phase of the study, which concerned reading facial expressions of emotion. In this final phase, participants viewed photographs of strangers (equal numbers of White and Asian males and females), each posing a moderate amount of either sadness, contempt, fear, sympathy, shame, or sadness. Participants rated each picture for how much the face expressed each of the six target emotions.

The results of Cohen and Gunz's (2002) study revealed that:

> …Easterners were more likely than Westerners to take a third-person perspective on themselves when their memories involved situations in which they as individuals would be at the center of attention. Further, although the emotions of both Easterners and Westerners transformed their perceptions

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> of others, the two groups seemed to show relative biases toward two different sorts of projection: Westerners showed a greater bias toward seeing in others the emotions that they were experiencing themselves, whereas Easterners showed a greater bias toward seeing in others the emotions appropriate for the generalized other or another person looking at them. These results, involving two different types of data, are consistent with the notion that Easterners tend to take a more outside-in perspective on the self and Westerners tend to take a more inside-out perspective on the world, with phenomenological consequences for memory imagery and the emotional perception of others. (P. 58)

These results are particularly interesting in view of the theme of this book and the Sydney Symposium on which it is based—namely, the links between social thinking and interpersonal behavior. Although human autobiographical memory, the focus of this chapter, is a quintessentially intrapersonal phenomenon, it is grounded in the social world and governed in part by interpersonal processes, including culture (see Kashima, this volume). Cohen and Gunz's (2002) innovative study showed that field and observer perspectives play a key part in determining how Westerners and Easterners perceive and remember themselves and the world around them. More generally, and more importantly, their work suggests that "understanding the way such differences in micro-level phenomenology and perception could reinforce, and be reinforced by, differences in macro-level cultural ideologies may help researchers as they continue to explore questions about the way cultures and individual minds re-create each other" (p. 59).

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ACKNOWLEDGMENTS

Preparation of this chapter was aided by research grants from the Faculty of Arts, University of British Columbia (E.E.), and the Natural Sciences and Engineering Research Council of Canada (T.C.H.) and by a clinical fellowship from the Wellcome Trust (E.A.H.). We thank Joe Forgas and Joanne Elliott for their insightful comments and suggestions.

REFERENCES

Addis, D. R., Pan, L., Vu, M.-A., Laiser, N., & Schacter, D. L. (2009). Constructive episodic simulation of the future and the past: Distinct subsystems of a core brain network mediate imagining and remembering. *Neuropsychologia, 47,* 2222–2238.

Addis, D. R., & Schacter, D. L. (2008). Constructive episodic simulation: Temporal distance and detail of past and future events modulate hippocampal engagement. *Hippocampus, 18,* 227–237.

Addis, D. R., Wong, A. T., & Schacter, D. L. (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia, 45,* 1363–1377.

American Psychiatric Association. (APA). (2000). *Diagnostic and statistical manual of mental disorders,* 4th ed., text revision. Washington, DC: American Psychiatric Association.

Augustine, J. R. (1996). Circuitry and functional aspects of the insular lobe in primates including humans. *Brain Research Reviews, 22,* 229–244.

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Ayduk, O., & Kross, E. (2010). From a distance: Implications of spontaneous self-distancing for adaptive self-reflection. *Journal of Personality and Social Psychology, 98,* 809–829.

Bagri, G., & Jones, G.V. (2009). Category-specific enhancement of retrieval due to field perspective. *Memory, 17,* 337–345.

Bergouignan, L., Lemogne, C., Foucher, A., Longin, E., Vistoli, D., Allilaire, J. F., et al. (2008). Field perspective deficit for positive memories characterizes autobiographical memory in euthymic depressed patients. *Behaviour Research and Therapy, 46,* 322–333.

Berntsen, D., & Rubin, D. C. (2006). Emotion and vantage point in autobiographical memory. *Cognition and Emotion, 20,* 1193–1215.

Berntson, G. C., Norman, G. J., Bechara, A., Bruss, J., Tranel, D., & Cacioppo, J. T. (2011). The insula and evaluative processes. *Psychological Science, 22,* 80–86.

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical Psychology Review, 23,* 339–376.

Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Science, 11,* 49–57.

Cabeza, R., & St. Jacques, P. (2007). Functional neuroimaging of autobiographical memory. *Trends in Cognitive Science, 11,* 219–227.

Clark, D. M., Ehlers, A., Hackmann, A., McManus, F., Fennell, M., Grey, N., et al. (2006). Cognitive therapy versus exposure and applied relaxation in social phobia: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74,* 568–78.

Cohen, D., & Gunz, A. (2002). As seen by the other...: Perspectives on the self in the memories and emotional perceptions of Easterners and Westerners. *Psychological Science, 13,* 55–59.

Craig, A. D. (2009). How do you feel—now? The anterior insula and human awareness. *Nature Reviews Neuroscience, 10,* 59–70.

Critchley, H. D. (2009). Psychophysiology of neural, cognitive and affective integration: fMRI and autonomic indicants. *International Journal of Psychophysiology, 73,* 88–94.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason and the human brain.* New York: Grosset/Putman.

D'Argembeau, A., & van der Linden, M. (2004). Phenomenal characteristics associated with projecting oneself back into the past and forward into the future: Influence of valence and temporal distance. *Consciousness and Cognition, 13,* 844–858.

Day, S. J., Holmes, E. A., & Hackmann, A. (2004). Occurrence of imagery and its link with early memories in agoraphobia. *Memory, 12,* 416–427.

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38,* 319–345.

Eich, E., Nelson, A. L., Leghari, M. A., & Handy, T. C. (2009). Neural systems mediating field and observer memories. *Neuropsychologia, 47,* 2239–2251.

Frank, M. G., & Gilovich, T. (1989). Effect of memory perspective on retrospective causal attributions. *Journal of Personality and Social Psychology, 57,* 399–403.

Freud, S. (1959). Screen memories. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud, Volume 3* (pp. 303–322). London: Hogarth Press. (Original publication 1899.)

Grey, N., Holmes, E. A., & Brewin, C. R. (2001). Peritraumatic emotional "hot spots" in memory. *Behavioural and Cognitive Psychotherapy 29,* 357–362.

Hackmann, A., Surawy, C., & Clark, D. M. (1998). Seeing yourself through others' eyes: A study of spontaneously occurring images in social phobia. *Behavioural and Cognitive Psychotherapy, 26,* 3–12.

Heaps, C. M., & Nash, M. (2001). Comparing recollective experience in true and false autobiographical memories. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 27,* 920–930.

Henri, V., & Henri, C. (1896). Enquete sur les premiers de l'enfance. *L'Annee Psychologique, 3,* 184–198.

Hirsch, C. R., Clark, D. M., Mathews, A., & Williams, R. (2003). Self-images play a causal role in social phobia. *Behaviour Research and Therapy, 41,* 909–921.

Holmes, E. A., Brown, R. J., Mansell, W., Fearon, R. P., Hunter, E. C. M., Frasquilho, F., et al. (2005). Are there two qualitatively distinct forms of dissociation? A review and some clinical implications. *Clinical Psychology Review, 25,* 1–23.

Holmes, E. A., Coughtrey, A. E., & Connor, A. (2008). Looking at or through rose-tinted glasses? Imagery perspective and positive mood. *Emotion, 8,* 875–879.

Holmes, E. A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical Psychology Review, 30,* 349–362.

Holmes, E. A., Mathews, A., Dalgleish, T. & Mackintosh, B. (2006). Positive interpretation training: Effects of mental imagery versus verbal training on positive mood. *Behavior Therapy, 37,* 237–247.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review, 93,* 136–153.

Kelley, W. M., Macrae, C. N., Wyland, C. L., Caglar, S., Inati, S., & Heatherton, T. F. (2002). Finding the self? An event-related fMRI study. *Journal of Cognitive Neuroscience, 14,* 785–794.

Kenny, L. M., & Bryant, R. A. (2007). Keeping memories at arm's length: Vantage point of trauma memories. *Behaviour Research and Therapy, 45,* 1915–1920.

Kenny, L. M., Bryant, R. A., Silove, D., Creamer, M., O'Donnell, M., & McFarlane, A. C. (2009). Distant memories: A prospective study of vantage point of trauma memories. *Psychological Science, 20,* 1049–1052.

Kihlstrom, J. F., & Harackiewicz, J. M. (1982). The earliest recollection: A new survey. *Journal of Personality, 50,*134–148.

Kuyken, W., & Howell, R. (2006). An exploratory study of autobiographical memory in adolescence: The role of depression and trauma. *Cognition and Emotion, 20,* 466–487.

Kuyken, W., & Moulds, M. L. (2009). Remembering as an observer: How is autobiographical memory retrieval vantage perspective linked to depression. *Memory, 17,* 624–634.

Lemogne, C., Bergouignan, L., Boni, C., Gorwood, P., Pélissolo, A., & Fossati, P. (2009). Genetics and personality affect visual perspective in autobiographical memory. *Consciousness and Cognition, 18,* 823–830.

Lemogne, C., Piolino, P., Friszer, S., Astrid, C., Nathalie, G. B., Roland, J., et al. (2006). Episodic autobiographical memory in depression: Specificity, autonoetic consciousness, and self-perspective. *Consciousness and Cognition, 15,* 258–268.

Libby, L., & Eibach, R. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality and Social Psychology, 82,* 167–179.

Libby, L., Eibach, R., & Gilovich, T. (2005). Here's Looking at Me: The effect of memory perspective on assessments of personal change. *Journal of Personality and Social Psychology, 88,* 50–62

Libby, L., Schaeffer, E., & Eibach, R. (2009). Seeing meaning in action: A bidirectional link between visual perspective and action identification level. *Journal of Experimental Psychology: General, 138,* 503–516.

Libby, L., Schaeffer, E., Eibach, R., & Slemmer, J. (2007). Picture yourself at the polls: Visual perspective in mental imagery affects self-perception and behavior. *Psychological Science, 18,* 199–203.

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Markman, K. D., & McMullen, M. N. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Reviews, 7,* 244–267.

McIsaac, H. K., & Eich, E. (2002). Vantage point in episodic memory. *Psychonomic Bulletin and Review, 9,* 146–150.

McIsaac, H. K., & Eich, E. (2004). Vantage point in traumatic memory. *Psychological Science, 15,* 248–253.

McNamara, P., Benson, E., McGeeney, B., Brown, A., & Albert, M. L. (2005). Modes of remembering in patients with chronic pain: Relation to current pain. *Journal of Nervous and Mental Disease, 193,* 53–57.

National Institute for Health and Clinical Excellence. (2005). *Post-traumatic stress disorder (PTSD): The management of PTSD in adults and children in primary and secondary care.* London: Author.

Nigro, G., & Neisser, U. *(1983).* Point of view in personal memories. *Cognitive Psychology, 15,* 467–482.

Osman, S., Cooper, M., Hackmann, A., & Veale, D. (2004). Spontaneously occurring images and early memories in people with body dysmorphic disorder. *Memory, 12,* 428–436.

Piolino, P., Desgranges, B., & Eustache, F. (2009). Episodic autobiographical memory over the course of time: Cognitive, neuropsychological and neuroimaging findings. *Neuropsychologia, 47,* 2314–2329.

Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription: When the self is seen as an other. *Journal of Personality and Social Psychology, 90,* 197–209.

Rice, H. J., & Rubin, D. C. (2009). I can see it both ways: First- and third-person visual perspectives at retrieval. *Consciousness and Cognition, 18,* 877–890.

Robinson, J. A. (1996). Perspective, meaning, and remembering. In D. C. Rubin (Ed.), *Remembering our past* (pp. 199–217). Cambridge, UK: Cambridge University Press.

Robinson, J. A., & Swanson, K. L. (1993). Field and observer modes of remembering. *Memory, 1,* 169–184.

Ross, M., & Wilson, A. E. (2003). Autobiographical memory and conceptions of self: Getting better all the time. *Current Directions in Psychological Science, 12,* 66–69.

Sanitioso, R. B. (2008). Motivated self and recall: Visual perspectives in remembering past behaviors. *European Journal of Social Psychology, 38,* 566–575.

Schacter, D. L. (1996). *Searching for memory.* New York: Basic Books.

Schacter, D. L., & Addis, D. R. (2007). The cognitive neuroscience of constructive memory: Remembering the past and imagining the future. *Philosophical Transactions of the Royal Society (B), 362,* 773–786.

Schacter, D. L., Addis, D. R., & Buckner, R. L. (2007). Remembering the past to imagine the future: The prospective brain. *Nature Reviews Neuroscience, 8,* 657–661.

Spurr, J. M., & Stopa, L. (2003). The observer perspective: Effects on social anxiety and performance. *Behaviour Research and Therapy, 41,* 1009–1028.

Sutin, A. R., & Robins, R. W. (2008). When the "I" looks at the "Me": Autobiographical memory, visual perspective, and the self. *Consciousness and Cognition, 17,* 1386–1397.

Sutin, A. R., & Robins, R. W. (2010). Correlates and phenomenology of first and third person memories. *Memory, 18,* 625–637.

Talarico, J. M., LaBar, K. S., & Rubin, D. C. (2004). Emotional intensity predicts autobiographical memory experience. *Memory & Cognition, 32,* 1118–1132.

Terry, W. S., & Barwick, E. C. (1998). Observing-self in memories of obsessive-compulsives. Imagination. *Cognition and Personality, 18,* 59–67.

Wagner, A. D., Shannon, B. J., Kahn, I., & Buckner, R L. (2005). Parietal lobe contributions to episodic memory retrieval. *Trends in Cognitive Science, 9,* 445–453.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of a brief measure of positive and negative affect. *Journal of Personality and Social Psychology, 54,* 1063–1070.

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Wells, A., & Hackmann, A. (1993). Imagery and core beliefs in health anxiety: Content and origins. *Behavioural & Cognitive Psychotherapy, 21,* 265–273.

Wells, A., & Papageorgiou, C. (1999). The observer perspective: Biased imagery in social phobia, agoraphobia, and blood injury phobia. *Behaviour Research and Therapy, 37,* 653–658.

Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my mind's eye: Perspective taking in social phobic imagery. *Behaviour Research and Therapy, 36,* 631–634.

Williams, A. D., & Moulds, M. L. (2007). Cognitive avoidance of intrusive memories: Recall vantage perspectives associations with depression. *Behaviour Research and Therapy, 45,* 1145–1153.

Williams, A. D., & Moulds, M. L. (2008). Manipulating recall vantage perspective of intrusive memories in dysphoria. *Memory, 16,* 742–750.

Wilson, A. E., & Ross, M. (2003). The identity function of autobiographical memory: Time is on our side. *Memory, 11,* 137–149.

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11

The Formation of Attitudes and Social Judgments in a Virtual School Class Environment*

KLAUS FIEDLER
University of Heidelberg

BEYOND THE INDIVIDUAL: THE SOCIAL PSYCHOLOGICAL APPROACH TO INTERPERSONAL BEHAVIOR

How social is social psychology? Whatever the answer is to this frequently asked question, it is obvious that the mission and scope of social psychology go beyond the individual as unit of analysis. The social-psychological research program is by definition not confined to the study of intrapsychic functions, such as perception, learning, memory, emotion, and judgment. It is rather devoted to the description and explanation of the manner in which individual behavior comes to interact with meaningful situations involving other people and the way it is entrenched in groups, organizations, and cultural and ecological systems.

No doubt, these ambitious goals are reflected in such truly social research topics as love and partnership, aggression and prosocial behavior, prejudice and discrimination, intergroup and intercultural relations. Most pertinent textbooks devote chapters to these prominent themes, testifying to flourishing research in all these areas. The present volume provides illustrious examples of interpersonal approaches to dissonance theory (Cooper, this volume), autobiographic memory (Eich, this volume), and self-deception (von Hippel, this volume).

* The research underlying the present paper was supported by a Koselleck grant from the Deutsche Forschungsgemeinschaft (FI 294/23-01).

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Interpersonal Phenomena Versus Interpersonal Theories

However, closer inspection reveals that this optimistic appraisal has to be qualified. Although large areas of social psychology are deeply social at the level of behavioral phenomena, this can be hardly claimed to be the case at the level of theoretical explanations. Although the literature is replete with *phenomena* that transcend the individual, most *theoretical explanations* that are proposed to understand these phenomena adhere to the same intrapsychic rules that have been established in nonsocial approaches to cognition, motivation, emotion, and personality. Aggression, for instance, is commonly explained in terms of the individual's emotions and exposure to aggression cues (Anderson & Bushman, 2002), the individual's alcohol consumption, learning from the media, and of course in terms of personal dispositions and constitutional factors such as gender and testosterone. Likewise, altruism is assumed to reflect the individual's motive to overcome negative affective states (Cialdini & Kenrick, 1976), and even communication is all too often reduced to individual's mastery of lexical, grammatical, and pragmatic rules (Clark, 1996).

To be sure, some theoretical accounts do refer to social episodes (Forgas, 1982) or to such social operations as learning by imitation (Bandura, 1978), maxims of conversation (Grice, 1975; Wänke, 2007), or cultural norms (Mok & Morris, 2010). However, closer inspection shows that even these trans-individual functions are typically explained at the individual level. After all, social learning theory is based on the imitation capacity of an individual who identifies with a model. The theory does not refer to any emergent interaction, structural interdependence, or dynamic relation between learner and model. Maxims of conversational logic are treated much like rules of propositional logic in cognitive science. There is nothing relational in Grice's theory that could explain the dyadic shaping of conversations or interpersonal negotiations of utterance interpretations. Likewise, the notion of social norms hardly differs from nonsocial values and utilities. Norms are conceived as internalized individual beliefs and commitments to preferred action tendencies.

Indeed, the available repertoire for building theories above and beyond the individual appears to be greatly restricted in contemporary (social) psychology. Current theorizing is so deeply entrenched in individual-level causes that this critique may be hard to understand. It is not quite clear what alternative there might be. So what would be an example of an alternative conception that transcends the individual? Suitable answers are easy to find, as several examples are quite prominent, though somewhat neglected in mainstream social psychology. Interpersonal models of behavior, which are not rooted in individual motives and mental capacities, are found in game theory (Van Lange, Agnew, Harinck, & Steemers, 1997), democratic decision rules (Regenwetter, 2009), dynamic-systems theory (Vallacher & Nowak, 2007), or foraging behavior (Pirolli & Card, 1999). In a coordination game, for instance, each player's payoff is contingent on her ability to synchronize and coordinate her behavior with another player's behavior (e.g., their ability to make congruent predictions or moves). Similarly, effective foraging means to organize and distribute social behavior, avoiding for instance that everybody competes for the same attractive resources rather than exploiting other sources with lower outcomes but less competition.

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Intrusion of New Theories

There is a conspicuous lack of references to such models in contemporary social psychology, maybe because these models are often presented in formal notation or because they do not refer to motives, needs, and capacity constraints as ultimate explanatory devices. However, recently, this situation is changing slowly, as a new interest arises in theories that emphasize the impact of environmental constraints on behavior. Although these new developments are rarely showcased in mainstream social-psychological outlets (e.g., *Journal of Experimental Social Psychology*, *Journal of Personality and Social Psychology*, *Personality and Social Psychology Review*), their intrusion into social psychology and social cognition can be hardly overlooked (Denrell & Le Mens, 2007; Fiedler, 2007; Fiedler & Wänke, 2009; Krueger, in press).

The unifying premise of these new approaches—much in the spirit of Lewin (1951) and Brunswik (1955)—states that to understand the intrapsychic processes within the individual we first of all have to understand the nature and distribution of the environmental input that impinges on the individual (Johnson; Kashima, this volume). This basic insight gave rise to several models that highlight the impact of environmental sampling processes on behavior (Fiedler & Juslin, 2006). Central to these sampling models is the assumption that biases in cognition and behavior need not reflect selective processing within the individual, due to selective memory, wishful thinking, or uncontrolled emotional forces. On the contrary, many pertinent studies testify to the remarkable accuracy and high fidelity with which the given stimulus samples are processed even in capacity-demanding and complex task settings. Very often, instead, the causal origins of biases in cognition and behavior are found in the samples provided by the environment. These samples are rarely ever random or representative of reality. Most of the time, the environmental samples to which individuals are exposed are seriously biased in multiple ways, prior to any intrapsychic processes. These sampling biases favor proximal, visible, communicable, pleasant, and self-relevant stimulus information over distal, invisible, incommunicable, unpleasant and self-irrelevant input. Moreover, social information sampling is by no means a stochastically independent process. Sequential stimuli are normally highly dependent on each other, and strong procedural constraints (e.g., discussion rules, turn-taking, dominance hierarchies, access limitations) are imposed on social sampling processes. Not surprisingly, the proportion of variance accounted for by these extraindividual constraints is typically higher than the variance accounted for by differences in the favorite intraindividual variables.

PREVIEW OF RESEARCH REPORTED IN THE PRESENT CHAPTER

The Virtual School Class

In the remainder of this chapter, I try to illustrate and substantiate the sampling approach with empirical evidence from a new experimental paradigm, the virtual school class (VSC). In this paradigm (Fiedler, Freytag, & Unkelbach, 2007; Fiedler



Figure 11.1 Screenshot of virtual school classroom setting.

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& Walther, 2004; Fiedler, Walther, Freytag, & Plessner, 2002), participants play the role of a teacher whose task is to gather systematic information about the performance of all students in a class, which is represented on the computer screen. In earlier research, the school class was depicted only graphically, with 16 male and female Christian names on rectangular frames representing the students' desks, along with the possibility to consider photographs of the children associated with the names. Even in this earlier version, the VSC was experienced as realistic and highly motivating by the student participants, who reported developing lively relationships to individual students and also high levels of accuracy and fairness motivation when it came to grading decisions (i.e., performance ratings). In a recent version, now, the VSC is based on multimedia software that creates almost naturalistic stimulus input. Photographs of 12 students are arranged in three rows of a seminar room (Figure 11.1). They are either sitting passively or raising their hand. When selected by the teacher, a film clip would be inserted, presenting a correct or incorrect answer in audio-video format, approximating a virtual environment that resembles real teachers' stimulus input.

In most experiments, the same teacher is running several sessions or lessons devoted to different subject matters (English, German, math, physics). Within each lesson, the teacher samples information over multiple trials. On every trial, the teacher first selects a knowledge question from a pull-down menu, which is then inserted on top of the screen. The teacher must then select one of the students who raises his or her hand, signaling his or her willingness to answer the question. The answer provided by the chosen student is either correct or wrong. Across many trials, the participant can assess all students' performance on two dimensions: motivation (probability of raising hand); and ability (probability of correct responses). Their final percentage ratings provided for all students separately for every lesson can be compared to the objective parameters, that is, the probability with which the computer program lets the students raise their hand or provide correct answers when given an opportunity, respectively.

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Sampling Vicissitudes in the VSC

The goal of the VSC environment was to create an experimental task that is less impoverished and restricted to a few isolated experimenter-provided stimuli than traditional judgment tasks. Although the performance parameters, task instructions, and other procedural rules are under experimental control, the information sampling process is dynamic and open to emergent extraindividual processes. On one hand, the resulting sample depends on the teachers' selective attention to specific students, the kind of hypothesis they are pursuing, and the teachers' uncertainty and information need. On the other hand, however, teachers cannot alone determine the sampling result. Their information input is also contingent on external support in that they can solicit a response only from students who actually raise their hand. Additionally, information search is constrained by the salience or sitting position of different students, by the need to collect sufficient information for the grading of all students, or by the specific judgment task emphasized in the instruction (e.g., to compare the performance of boys and girls in specific lessons).

Even though the task is complex and demanding, calling for several quantitative ratings of every student in every lesson, the final judgments are often remarkably accurate and sensitive to existing differences (between students, lessons, or reflecting changes over time). Capacity restrictions or lack of motivation—the favorite constructs in traditional research on attitude and judgment formation—are playing only a minor role. Nevertheless, the general accuracy level leaves sufficient latitude for systematic biases and judgment illusions that are diagnostic of underlying sampling biases. The following review of pertinent research should illustrate this point and at the same time highlight the extraindividual origins of the empirical phenomena, which cannot be explained in terms of intrapsychic constraints like wishes, needs, expectancies, goals, or capacity restrictions.

JUDGMENT BIASES ORIGINATING OUTSIDE THE INDIVIDUAL: EMPIRICAL EVIDENCE

Judges and Targets Codetermine Information Sampling

As mentioned, systematic biases in the VSC can be quite strong, in spite of a generally high level of accuracy. In one study (Fiedler & Walther, 2004, pp. 137–140), teachers assessed the students' performance across three sessions. All student motivation parameters were held constant at $m = .5$, that is, the random rate with which they raised their hands was always 50%. The ability parameters changed differentially for different subsets of students (taking on values of $a = .2, .35, .5, .65$, or .8). On aggregate, most teachers were sensitive not only to differences between students within the same lesson but also to changes between lessons. However, a glance at Table 11.1 reveals that teachers exhibited strong and systematic biases across all three sessions. The correlations in Table 11.1 between deviation scores (i.e., signed deviations of motivation and ability ratings minus m and a, respectively) are persistently strong and positive, indicating that teachers overestimate

TABLE 11.1 Mean Correlations (Computed Within Teachers Across Students) Between Over- and Underestimations (Deviation Scores) of Ability and Motivation Across Three Sessions

Correlations (Deviation Scores)	Ability Session 1	Motivation Session 2	Ability Session 2	Motivation Session 3	Ability Session 3
Motivation Session 1	.30	.65	.30	.69	.36
Ability Session 1	–	.32	.39	.34	.48

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some students (consistently on both ratings) and underestimate others throughout the entire experiment.

Although somewhat surprising in strength, this result is actually in line with traditional notions like halo effects or confirmation biases (Nickerson, 1998). Teachers may like some students and dislike others, ask more difficult questions to some students than others, and may construe unwarranted correlations between motivation and ability, which were in fact orthogonal. In any case, traditional accounts would typically blame the teacher for the strong and persistent illusion. However, analyses of sampling effects in the VSC paradigm suggest that this presupposition is premature, showing that students and teachers codetermine the resulting bias. The correlations in Table 11.1 show that teachers extract the actually existing performance differences for some students more readily than for others. Thus, the unequal, error-prone, and often very small samples they receive for different students let them correctly identify some smart students and some poor students, while impoverished or biased samples do not allow them to identify other students with the same parameters. The next study will provide direct evidence that this kind of selective sampling reflects a genuine interaction between teacher subjects and student objects.

Samples Mediate the Outcomes of Judgments In this experiment (Fiedler et al., 2002, Experiment 3), we manipulated the size of samples via the *m* parameter. While the *a* parameter was constantly high ($a = .7$) or low ($a = .3$) in different class environments, the motivation parameter varied between students of the same class (from $m = .2$ to .5 to .8). Even with the same attention given to all students, high-*m* students should raise their hand more often than low-*m* students. Consequently, teachers should have more opportunities to assess the ability of high-*m* than low-*m* students due to unequal sample size. The results support the notion that student participation rate triggers the teachers' judgment accuracy. Both smart students' high ability and poor students' low ability were more readily recognized when participation rate was high rather than low. In other words, the teachers' selective accuracy in discerning student performance was largely determined by the degree to which the student targets' active behavior supported the teachers' information sampling process.

Note that this pattern of findings is inconsistent with the contention that participants simply confuse motivation and ability ratings, because under high

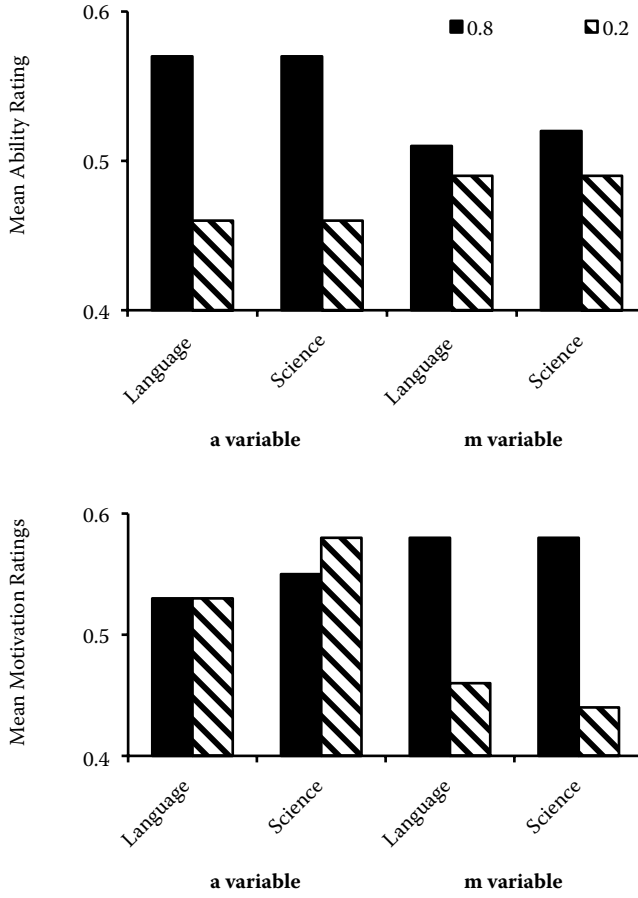


Figure 11.2 Mean ratings of ability and motivation as a function of whether student performance differences (.8 vs. .2) are due to ability (*a* variable) or motivation (*m* variable).

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cognitive load they are unable to discriminate between raising hands (a knowledge cue) and correct answers (the ultimate criterion). The high illusory correlations in Table 11.1 might actually appear to suggest this interpretation. However, other experiments (Fiedler et al., 2002, Experiment 1) demonstrate that teachers can discriminate between both performance aspects. When students vary in *a* but not in *m*, this is manifested only in teachers' ratings of ability but does not carry over to their ratings of motivation (Figure 11.2). Conversely, when students vary in *m* but not in *a*, the resulting judgments effects are also confined to ratings of motivation as opposed to ability.

Note also that there is no evidence for careless intrapsychic judgment biases, such as halo effects or simple expectancy biases. Positive or negative impressions do not carry over from ability to motivation or vice versa. Nor is there any

evidence for generalizing inferences from one lesson to another. When students exhibit distinctly high (a = .8) or low performance (a = .2) in some lessons but nondistinct, intermediate performance (a = .5) in others, the teachers' ratings are hardly biased toward the previously observed performance. The crucial determinant of performance ratings are not the teachers' expectancies or prejudices but the actually observed sample input, which is typically extracted at a high level of accuracy.

One might object that, in the experiments reviewed so far, we examined only the dependence of information sampling on student parameters, but we did not make any attempts to demonstrate a systematic impact of the teachers' search strategies. To address such a concern, let me consider the following experiment on the testing of gender-stereotypical hypotheses in the VSC.

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Search Strategies Are Contingent on Environmental Support

Participants in this experiment (Fiedler et al., 2002, Experiment 2) were instructed to test the stereotypical hypothesis that girls are good in language whereas boys are good in science. The actual distribution of high and low a parameters was the same for boys and girls. A common information search strategy on such a task is positive testing (Fiedler, Walther, & Nickel, 1999; Klayman & Ha, 1987). Hypothesis testers gather mostly information about the focus of hypothesis. Thus, in the present case, they sample mostly observations about girls in language and about boys in science while yielding smaller samples for girls in science and for boys in language lessons.

Note in passing that positive testing is neither irrational (Oaksford & Chater, 1994), nor does it predetermine a confirmation bias (Fiedler et al.). For instance, given a boy and a girl with the same high a = .8 parameter in math, positive testing may yield unbiased samples of 8 correct and 2 incorrect answers by the boy compared with 4 correct and 1 incorrect answers by the girl. In both cases, the correctness rate is .8. To explain why the larger sample leads to higher ability ratings than the smaller sample, one has to resort to the principle of differential regression (cf. Fiedler & Krueger, in press). Smaller samples inform more regressive judgments (that less clearly distinguish between smart and weak students) than large samples, for regression is a linear function of unreliability, which increases with decreasing sample size. Regression is an essential property of probabilistic environments; it is largely ignored as an explanatory construct in intrapsychic theories of social cognition.

As predicted, smart girls received higher ability ratings than equally smart boys in language (English and German), whereas smart boys received higher ratings than equally smart girls in science. However, crucially, this pattern was confined to the majority of those teachers who actually engaged in positive testing, that is, who drew larger samples for girls in language and for boys in science. A minority of teachers who did not engage in positive testing were not influenced by the gender stereotype. Exactly the reverse pattern was obtained in another, counterstereotypical condition, in which teachers were instructed to test the hypothesis that, in this particular class, girls excel in science whereas boys excel in language. Regardless of the opposite expectancy, most teachers again engaged in positive

testing, drawing larger samples for boys in language and for girls in science. As a consequence, smart girls were now rated higher than boys in science, whereas smart boys were rated higher than equally smart girls in language.

All this refined pattern of results, which clearly reflect the teachers' sampling strategies, were, however, perfectly contingent on the students' cooperation. Only when the students' *m* parameters supported the teachers' positive testing strategy, so that they raised their hands often in the conditions corresponding to the positive-testing focus (e.g., boys in science and girls in language), was the systematic stereotype (or counterstereotype) bias obtained. In another condition, in which *m* parameters interfered with the positive-testing effect on sample size, the entire pattern disappeared. Thus, even though teachers' search strategies were the focus of the major manipulation, the ultimate outcome of hypothesis testing depended crucially on the complementary role played by the students in the stimulus environment.

It is important to realize that any cogent explanation of the resulting evaluation biases must be anchored in a genuine interpersonal interaction between teachers' search strategies and students' participation in the sampling process. This interaction is orthogonal to the intrapersonal main effects that dominate traditional accounts of confirmation bias and self-fulfilling prophecies:

1. Teachers' gender stereotypes *per se* play the role only of a default hypothesis; a reversed hypothesis leads to reversed sampling strategies and reversed results.
2. The causal path hypothesis focus → positive testing → unequal sample size → differential regression → systematic judgment does not reflect the participants' intentions, goals, expectancies, or prior knowledge.
3. The crucial match between the teachers' positive testing strategies and the students' selective participation rates, which may either accentuate or eliminate unequal sample sizes, must be understood as a property of social interaction rather than main effects of teachers' or students' attributes.
4. The teachers' mental capacity, which is so central for leading intrapersonal dual-process theories, is quite irrelevant for the present extrapersonal scenario. If anything, the distinction between deep and shallow processing applies to the students, who provide large versus small samples in different disciplines, rather than to the teachers' residual mental capacity.

Who Is to Blame? Along with this theoretical explanation shift, from intrapersonal dispositions and motives to extrapersonal system interactions, we have to rethink such questions as who is to blame or what remedies or interventions can be used for debiasing. Differential regression, resulting from unequal sample sizes' unequal reliability, is not a personal fault or weakness; it is a property of all information-processing systems, human or technical. It does not matter why the samples for two equally smart students differ: Because the teacher likes one more than the other, because of their attraction and appearance, their participation rate, absenteeism, sitting position, or the teacher's selective forgetting due to

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differential familiarity with students. The result is the same; large samples will render actually existing attributes (e.g., high vs. low ability) more easily assessable than small samples.

In a similar vein, extrapersonal accounts call for fundamentally new rationales regarding useful interventions. It is obvious that any treatments that affect the teachers' expectancies, prejudices, or mental resources would hardly eliminate the reported pattern of biases. It would also be naïve to assume that an appropriate intervention would be to equate all sample sizes, that is, to solicit an equal number of answers from every student. Given two students with markedly different participation rates, say, $m = .2$ versus $m = .8$, enforcing the same sample size for both students would not eliminate, and would probably exacerbate, sampling biases. This is because a low-m student can be expected to raise her hand only when she knows the correct answer quite well, whereas a high-m student (of comparable ability) can be expected to be much less conservative, raising her hand often when she is not perfectly certain of the correct answer. Rather than trying to isolate ability (a) from motivation (m), the VCR approach highlights that both performance aspects are intrinsically interdependent in probabilistic environments, calling for a psychological theory of relativity. Just as Albert Einstein's theory of relativity tells us that there is no absolute speed but only relative speed, which depends on the beholder's own standpoint, we may have to accept that absolute student ability cannot be isolated from beholder's sample.

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Adaptive Sampling Is Sensitive to Both Epistemic and Hedonic Constraints

To gain a deeper understanding of the causes and reasons for biased sampling and why the process is unlikely to equate sample size, it is enlightening to consider one particularly thought-provoking class of sampling models that have been recently advanced by Denrell (2005) and Denrell and Le Mens (2007). The starting point for these models is an old and well-established (intrapsychic) principle of learning and behavior, which Thorndike (1898) once called the "law of effect." According to this basic law, behaviors leading to pleasant outcomes are more likely to be repeated than behaviors associated with unpleasant outcomes. Thus, an essential source of asymmetry enters the process of information search: Individuals will continue sampling as long as the outcome is pleasant, but they will truncate sampling as soon as it gets unpleasant. This theorem follows naturally from the axiomatic assumption that organisms tend to approach pleasant and to avoid unpleasant stimuli. It applies particularly to hedonically relevant situations in which organisms are not only interested in epistemic information but also actually consume the stimuli they are sampling (Sedikides & Skowronski, this volume).

How the Law of Effect Impacts Sampling Behavior A universal consequence of the law of effect applied to information sampling is a generalized positivity bias in information search, leading to a negativity bias in resulting evaluations. When a stimulus object provides the individual with pleasant or positive

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experience, the sampling process will continue until samples are large enough to correct for any errors in small and very small samples at the beginning of the process. In contrast, unpleasant stimulus objects that truncate the sampling process at an early stage prevent the individual from correcting initial sampling errors. If a primacy effect yields too unpleasant an initial sample, this negative impression bias cannot be corrected because the sampling process is truncated.

As illustrated and elegantly explained in several computer-simulation studies, the depicted kind of asymmetric sampling process can account for many major phenomena in social psychology, such as the persistence of negative stereotypes, the derogation of outgroups, the debiasing influence of intergroup contact, and the development of correlated judgment and attitude biases in friends or neighbors, who are jointly exposed to the same sampling experience (Denrell & Le Mens, 2007).

Law of Effect in the School Class While Denrell and colleagues (Denrell, 2005; Denrell & LeMens, 2007) based their research mainly on computer simulation, the VSC paradigm suggests itself for a straightforward empirical test. We only have to assume that teachers' information sampling is partly driven by the hedonic goal to deceive themselves and others (von Hippel, this volume) about their teaching ability rather than exclusively by the epistemic motive to accurately assess students' performance. Then we can expect to find the same positive–negative asymmetry as in the work of Denrell and colleagues.

Initial support for this prediction was in fact obtained in several VSC experiments. First of all, there is a pervasive tendency for teachers to solicit more answers from smart (high-*a*) than from poor (low-*a*) students with comparable *m* parameters. This sampling bias is largely independent of teachers' explicit payoffs (i.e., whether teachers are only assessing their students' achievement or also trying to present the performance of the class in a positive light). In any case, they sample more answers from smart than from poor students, although the design warrants that high *a* is not confounded with high *m* (i.e., weak students raise their hands as often as smart students). Second, this asymmetric focus on satisfying students leads to asymmetric evaluations in that high ability is more readily extracted from the sample of observations than low ability. And third, the degree of this evaluation asymmetry is actually mediated by the inequality of samples resulting from asymmetric information search.

This asymmetric pattern not only testifies to the usefulness of the sampling approach to judgment and attitude formation but also helps us to understand some additional VSC findings. For instance, the commonly obtained illusory correlation between ratings of ability and motivation, even when both student parameters are carefully controlled to vary orthogonally, can be understood as a natural consequence of an asymmetric sampling process that confounds high ability and experienced sample size as a proxy for motivation inferences. This illusory correlation can particularly explain the data presented in Table 11.1. Given that the subset of students who mostly attract the teachers' attention is also associated with predominantly high achievement, it seems plausible that these students should receive higher ratings on both dimensions than the average student, thus producing an illusory correlation.

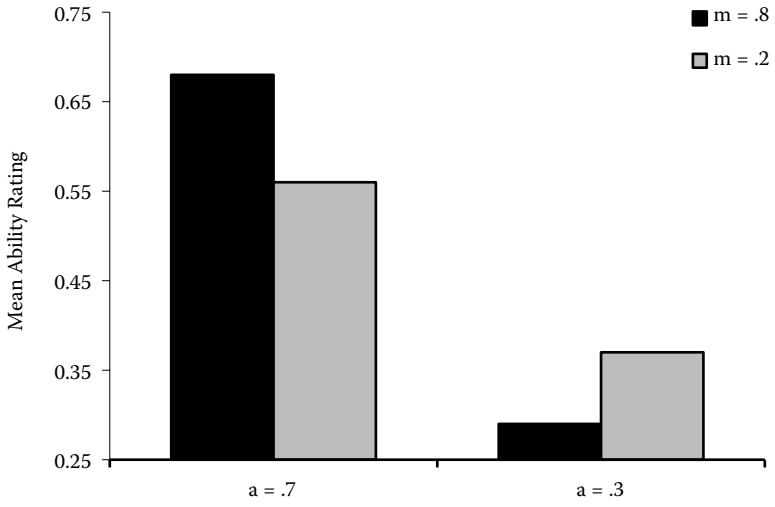


Figure 11.3 Teachers' ability rating as a function of students' ability (a = .7 vs. .3) and motivation (m = .8 vs. .2).

One might point out that the illusory correlation between ability and motivation reflects a prior belief rather than a sampling effect. However, again, the VSC allows us to pit this intrapsychic account against the sampling account. Thus, if all students in a class are homogeneously high or low in their ability parameter, so that teachers cannot selectively focus on the most satisfying ones, then the illusory correlation should disappear—in spite of any existing beliefs. This is because such a homogeneous environment prevents teachers from hedonically motivated selective sampling biases toward the smartest students and, consequently, prevents them from soliciting large samples that accentuate the co-occurrence of high ability and a (self-generated) high participation rate. As already demonstrated in the experiment underlying Figure 11.3, if all students are similarly low in ability, continued sampling in this case will clarify the low ability of students in a low-performing class to the same extent as it clarifies the high ability of students in a constantly smart class, thus eliminating the illusory correlation between motivation and ability.

Refining the Analysis of Information Sampling

The VSC findings reviewed so far testify to the originality and fertility of environmental sampling models, the theoretical implications of which go beyond the implications of intrapsychic accounts of the social-cognition tradition. However, useful theoretical models should not only inform distinct and counterintuitive predictions. They should also be formulated precisely enough to enable real controversies. To illustrate this point, let me finally engage in a more refined analysis of the sampling process and compare the relative viability of two related but psychologically

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different sampling models to account for the VSC data. Up to here, I have portrayed the evidence as largely consistent with the hedonic sampling model advanced by Denrell (2005). In the present section, I will contrast this model with another sampling model proposed in our own research (Fiedler, 1996; Fiedler & Walther, 2004; Fiedler et al., 2002), suggesting that the latter model may be actually more appropriate to the VSC environment than the model suggested by Denrell and colleagues.

To clarify this model comparison, I will discuss a study by Fazio, Eiser, and Shook (2004), which preceded and motivated Denrell's (2005) work. In this study, announced as a paradigm for attitude formation through exploration, participants took the role of an organism that has to maximize the energy gained from food. A large number of beans were distributed in a two-dimensional grid, reflecting the beans' form and surface patterns. Learning to distinguish between beans high and low in expected energy value could thus rely only on the energy feedback for beans characterized by these two attributes. As time and resources for food acquisition were restricted and participants had to consume the very beans they sampled, it is no surprise that they soon stopped sampling beans associated with negative feedback (as well as their similar-looking neighbors). By radically avoiding a large number of potentially worthless beans, they could therefore enhance their energy payoff.

An important side effect of this highly selective hedonic strategy, to be sure, was the already familiar valence asymmetry. Only first impressions of positive beans could be corrected over time. In contrast, negative initial impressions, of which some were exaggerated, could not be corrected later. Negative initial attitudes were thus more enduring and had a stronger impact on subsequent attitudes than positive initial impressions.

Adhering to Extreme Anchors Versus Gradual Polarization Returning to the VSC paradigm, though, the question is whether the sampling behavior observed in the Fazio et al. (2004) study and analyzed in Denrell's (2005) simulation studies can also be expected in the context of student evaluations. Note that the judgment process entailed in this sampling model assumes an asymmetric anchoring and insufficient adjustment process (cf. Tversky & Kahneman, 1986). Negative initial anchors, which often reflect an overestimation of the actual degree of negativity, due to sampling error, cannot be adjusted when sampling is truncated. Positive initial impressions are not subject to similar adjustment failure, because sampling from positive sources will continue. Crucial to this process account is the assumption that initially extreme impressions differ in their probability of correction, or regressive adjustment.

Here is an alternative process account that may be more appropriate to sampling about human beings in social environments like the VSC. In this account, all initial attitudes are assumed to be intermediate or neutral, analogous to Laplace's principle of insufficient reason or the Bayesian habit to start from equal priors. In other words, all students can be supposed to have middling ability values at the beginning. This flat profile will hardly change after one or two observations of students providing correct or incorrect answers. As information accrual increases, the initially moderate attitudes will become more and more extreme and approach the true latent ability parameters from which the observations are generated. The

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larger the sample size, the more closely the learned evaluations will approximate the true value. Because positive targets (i.e., smart students) are more likely sampled and yield larger samples than negative targets, this implies that ratings of positive targets will be less regressive and more veridical than ratings of negative targets, which should suffer from impoverished samples.

Thus, contrary to a process that fails to correct for initial extreme anchors, the latter process starts from moderate impressions, or flat priors, and moves toward more pronounced attitudes over time. Both processes predict valence asymmetries. They both predict that impressions of positive targets should be generally more accurate than negative impressions, and these asymmetries should be mediated by unequal samples sizes. However, the two models also differ in crucial respects. The anchoring account implies that strong attitudes exist from the beginning and that negative attitude targets remain more extreme than positive targets, whereas the alternative account assumes that attitudes are formed only gradually and that differential regression yields more extreme positive than negative attitudes in the VSC.

Indeed, a recent study (Fiedler, Hess, Woellert, & Tauber, 2011) lends unequivocal support to the latter process account. As stated already, teachers do sample more from smart than from weak students, and ratings of the former are therefore more accurate and less regressive than ratings of the latter. However, crucially, comparisons of students with small and large samples reveal that extremity increases with increasing samples size rather than moderating initially too extreme anchor values. Moreover, when student parameters are changed from one session to the other, teachers are more likely to recognize improvements of formerly weak students than declines of formerly strong students, contrary to the notion that hedonic experience will prevent teachers from adjusting negative impressions.

Sampling Hedonic Objects Versus Social Entities How could these findings be explained psychologically? Why does a model that nicely explains the "attitude toward beans" in Fazio et al.'s (2004) study not provide a viable account of teachers' behavior in the VSC? Although we are still lacking an ultimate answer to this intriguing question, a number of plausible assumptions for future research suggest themselves. In the Fazio et al. (2004) paradigm, there are plenty of beans that are unlikely to have any complex "personality structure" that is comparable to teachers' theory of mind or implicit personality theory. The individual bean is worth nothing; each bean can be replaced by another bean with the same energy value. There is no ethical or epistemic norm that forces organisms to treat all beans alike. As the "character" of beans is restricted to one dimension, their energy value, there is little reason to assume that several observations of the same specific beans should result in greatly different payoff. In this context, it makes perfect sense that participants (1) quickly classify beans as positive versus negative, (2) radically stop choosing the negative ones and (3) also exclude their neighbors, and (4) never return to beans with a nontrivial probability of producing negative feedback. Moreover, (5) epistemic interest in the systematic evaluation of all beans is equally irrelevant as ethical concerns about justice and the beans' potential for improvement.

In contrast, the targets that teachers' in the VSC are facing represent complex animate beings with multiple motives and a high plasticity of behavior, creating

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the potential for high variation in performance. As a consequence, teachers (1) may not form strong and extreme initial impressions from a student's initial one or two answers and (2) not stop monitoring a student after a few failures. Ethical and legal norms prohibit teachers from (3) discrimination against neighbors of low-performing students, and the standard pedagogical theory of mind allows for improvement through learning and therefore (4) calls for resampling of formerly disappointing students after some time or in different lessons. Finally, the teachers' responsible role obliges them to the epistemic and ethical criteria of fair and diagnostically valid evaluation of all students.

In such a sampling environment, to be sure, it is no wonder that teachers start with equally neutral priors for all students and only gradually develop pronounced attitudes. They would therefore not adhere to extreme negative anchors resulting from one or two initial observations and fail to correct for those anchors due to radical exclusion of unpleasant target objects. Rather than being misled by uncorrected initial extreme anchors, teachers will continuously update their very flat spectrum of student attitudes in the light of student performance samples. In spite of the norm to be fair and equally interested in every student, there will be distinct variation in sample size (due to students' active impact on the sampling process), and the assessment of existing performance differences will be more pronounced for large than for small samples. To the extent that motivational factors let teachers sample more correct answers from smart students than incorrect answers from poor students, the assessment will be more accurate for positive than negative information, much in line with the model proposed by Fazio et al. (2004) and Denrell (2005). However, crucially, and contrary to this particular sampling model, the valence asymmetry will not reflect the failure to depolarize too extreme evaluations but the selective polarization of initially neutral attitudes toward smart students, which become more extreme with increasing sample size.

CONCLUDING REMARKS

Much in the spirit of Mead's (1934) and Goffman's (1966) symbolic interactionism, truly social explanations of behavior have to take the rules of interpersonal and ecological "sampling games" into account. The highly interactive and institutionalized process through which teachers interact with their students is presumably quite distinct from the process by which insects search for food or consumers select Internet providers. Neither the protagonist intrapsychic states (wishes, goals, capacity constraints) nor any formal sampling rules derived from normative statistics can provide a sufficient explanation of the emergent interpersonal processes that strongly determine judgments and decisions in specific environments. Kahneman and Miller's norm theory (1986) suggests that judgments of other people or outgroups will be typically based on sampling from distributions of many other comparison persons or groups. Judgments of oneself or one's ingroup, in contrast, draw from distributions of one's own behavior across different situations or points in time. The different stimulus inputs resulting from these sampling games can then account for such phenomena as the actor-observer bias (Watson, 1982; Eich, this volume). In a similar vein, construal level theory tells us that more abstract units

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of information are sampled from distant than from proximal vantage points (Trope & Liberman, 2010). Whereas teachers sample information about specific students in specific subject matters with reference to particular knowledge questions, educational politicians are mainly interested in differences between entire classes, disciplines, and school systems. The very samples obtained at different aggregation levels highlight and justify different inferences. Whereas gender stereotypes (e.g., male superiority in science) may be visible at the level of school systems (due to mainly male participation in scientific elite schools), these differences may not exist at the level of individual students within the same class (cf. Fiedler, Freytag, & Meiser, 2009; Fiedler et al., 2007).

The aim of the present chapter was to point out the explanatory potential of games and emergent processes that are detached from the attributes of individual persons. To illustrate these extrapersonal sources of psychological theorizing, I have outlined the basic idea of so-called sampling theories (cf. Fiedler & Juslin, 2006), as illustrated in a growing body of findings obtained in an intriguing research environment, the virtual school class. The intention here was not to argue that sampling biases always override motivational or cognitive-reasoning biases or that the latter are irrelevant or of minor importance. Denying the existence and importance of these intrapsychic sources of irrationality, stereotyping, and prejudiced attitudes would be completely off the place. However, the actual purpose was to highlight the existence of another class of explanatory constructs that have been sorely neglected in previous research, even in those social paradigms that pretend to go beyond individuals as units of theoretical analysis.

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REFERENCES

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, *53*(1), 27–51. doi:10.1146/annurev.psych.53.100901.135231

Bandura, A. (1978). Social learning theory of aggression. *Journal of Communication*, *28*, 12–29. doi:10.1111/j.1460-2466.1978.tb01621.x

Berkowitz, L., & Buck, R.W. (1967). Impulsive aggression: Reactivity to aggressive cues under emotional arousal. *Journal of Personality*, *35*, 415–424. doi:10.1111/j.1467-6494.1967.tb01437.x

Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review, 62*, 193–217.

Clark, H. H. (1996). *Using language*. New York, NY US: Cambridge University Press. doi:10.2277/0521561582

Cialdini, R. B., & Kenrick, D. T. (1976). Altruism as hedonism: A social development perspective on the relationship of negative mood state and helping. *Journal of Personality and Social Psychology*, *34*, 907–914. doi:10.1037/0022-3514.34.5.907

Denrell, J. (2005). Why most people disapprove of me: Experience sampling in impression formation. *Psychological Review*, *112*, 951–978.

Denrell, J., & Le Mens, G. (2007). Interdependent sampling and social influence. *Psychological Review*, *114*, 398–422. doi:10.1037/0033-295X.114.2.398

Fazio, R., Eiser, J., & Shook, N. (2004). Attitude formation through exploration: Valence asymmetries. *Journal of Personality and Social Psychology*, *87*, 293–311.

Fiedler, K. (1996). Explaining and simulating judgment biases as an aggregation phenomenon in probabilistic, multiple-cue environments. *Psychological Review, 103*, 193–214.
Fiedler, K. (2007). Information ecology and the explanation of social cognition and behavior. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 176–200). New York: Guilford Press.
Fiedler, K., Freytag, P., & Meiser, T. (2009). Pseudocontingencies: An integrative account of an intriguing cognitive illusion. *Psychological Review*, *116*, 187–206.
Fiedler, K., Freytag, P., & Unkelbach, C. (2007). Pseudocontingencies in a simulated classroom. *Journal of Personality and Social Psychology*, *92*, 665–677.
Fiedler, K., Hess, P., Woellert, F., & Tauber, B. (2011). *Asymmetry of positive and negative attitudes in the virtual-classroom paradigm*. Unpublished research, University of Heidelberg.
Fiedler, K., & Juslin, P. (Eds.). (2006). *Information sampling and adaptive cognition* (pp. 127–146). New York: Cambridge University Press.
Fiedler, K., & Krueger, J. I. (in press). More than an artifact: Regression as a theoretical construct. In J. I. Krueger (Ed.), *Social judgment and decision making*. New York: Psychology Press.
Fiedler, K., & Walther, E. (2004). *Stereotyping as inductive hypothesis testing*. New York: Psychology Press.
Fiedler, K., Walther, E., Freytag, P., & Plessner, H. (2002). Judgment biases in a simulated classroom: A cognitive-environmental approach. *Organizational Behavior and Human Decision Processes, 88*, 527–561.
Fiedler, K., Walther, E., & Nickel, S. (1999). The auto-verification of social hypotheses: Stereotyping and the power of sample size. *Journal of Personality and Social Psychology*, *77*, 5–18. doi:10.1037/0022-3514.77.1.5
Fiedler, K., & Wänke, M. (2009). The cognitive-ecological approach to rationality in social psychology. *Social Cognition, 27,* 699–732.
Forgas, J. P. (1982). Episode cognition: Internal representations of interaction routines. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. New York: Academic Press.
Goffman, E. (1966). *Behavior in public places: Notes on the social organization of gatherings*. New York: Free Press.
Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics 3: Speech acts* (pp. 41–58). New York: Academic Press.
Hertwig, R., & Hoffrage, U., & the ABC Research Group. (Eds.). (in press). *Social rationality*. Oxford: Oxford University Press.
Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93(2), 136–153. doi:10.1037/0033-295X.93.2.136
Klayman, J., & Ha, Y. (1987). Confirmation, disconfirmation, and information in hypothesis testing. *Psychological Review, 94*(2), 211–228. doi:10.1037/0033-295X.94.2.211
Krüger, J. I. (Ed.). (in press). *Social judgment and decision making*. New York: Psychology Press.
Lewin, K. (1951). *Field theory in social science*. New York: Harper.
Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.
Mok, A., & Morris, M. W. (2010). An upside to bicultural identity conflict: Resisting groupthink in cultural ingroups. *Journal of Experimental Social Psychology*. doi:10.1016/j.jesp.2010.05.020
Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, *2*(2), 175–220. doi:10.1037/1089-2680.2.2.175
Oaksford, M., & Chater, N. (1994). A rational analysis of the selection task as optimal data selection. *Psychological Review, 101*, 608–631.
Pirolli, P., & Card, S. (1999). Information foraging. *Psychological Review*, 106(4), 643–675. doi:10.1037/0033-295X.106.4.643
Regenwetter, M. (2009). Perspectives on preference aggregation. *Perspectives on Psychological Science*, *4*(4), 403–407. doi:10.1111/j.1745-6924.2009.01146.x

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Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Monograph, 2*(8).

Todd, P. M., Gigerenzer, G., and the ABC Research Group. (Eds.). (in press). *Ecological rationality: Intelligence in the world*. New York: Oxford University Press.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*, 440–463. doi:10.1037/a0018963

Tversky, A., & Kahneman, D. (1986). Judgment under uncertainty: Heuristics and biases. In H. R. Arkes, K. R. Hammond, H. R. Arkes, & K. R. Hammond (Eds.), *Judgment and decision making: An interdisciplinary reader* (pp. 38–55). New York: Cambridge University Press.

Vallacher, R. R., & Nowak, A. (2007). Dynamical social psychology: Finding order in the flow of human experience. In A. W. Kruglanski & E. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 734–758). New York: Guilford Press.

Van Lange, P. M., Agnew, C. R., Harinck, F., & Steemers, G. M. (1997). From game theory to real life: How social value orientation affects willingness to sacrifice in ongoing close relationships. *Journal of Personality and Social Psychology*, *73*(6), 1330–1344. doi:10.1037/0022-3514.73.6.1330

Wänke, M. (2007). What is said and what is meant: Conversational implicatures in natural conversations, research settings, media and advertising. In K. Fiedler (Ed.), *Frontiers in social sychology: Social communication* (pp. 223–256). New York: Psychology Press.

Watson, D. (1982). The actor and the observer: How are their perceptions of causality divergent? *Psychological Bulletin*, *92*, 682–700. doi:10.1037/0033-2909.92.3.682

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12

Social Categorization at the Crossroads
Mechanisms by Which Intersecting Social Categories Bias Social Perception[*]

KERRI L. JOHNSON and COLLEEN M. CARPINELLA
University of California, Los Angeles

> The human mind must think with the aid of categories… Once formed, categories are the basis for normal prejudgment. We cannot possibly avoid this process. Orderly living depends upon it. Allport (1954, p. 20)

In 1954, Gordon Allport elucidated the importance of categorical thinking for impression formation, attitudes, and prejudice. In the half-century since Allport opined about such factors, countless empirical studies have confirmed the role of social categorization in shaping interpersonal judgments and preparing interpersonal behaviors. In spite of the abundance of such work, Allport's early insights remain just as important for current research as they were over half a century ago, albeit with more nuance. This chapter reviews recent evidence concerning one factor that has been underappreciated in prior work but is central to social perception—the mechanisms of social categorization when various social identities intersect. It draws from research conducted by my own and others' labs

[*] Preparation of this chapter and the studies described within it were funded by grants from the National Science Foundation (BCS-1052896) and UCLA's Center for the Study of Women, both awarded to Kerri L. Johnson, and a National Science Foundation Fellowship and UCLA Summer Research Grant, awarded to Colleen M. Carpinella.

to clarify multiple routes by which the perception of one social category impacts the perception of independently defined social categories.

BACKGROUND

As illustrated in Allport's (1954) quote at the outset of the chapter, scholars have long believed that the perception of another's social category memberships has pronounced implications for interpersonal impression formation and behaviors (Allport, 1954; Tajfel, 1969, 1974). These insights shaped decades of research that examined the implications of social categorization, much of which focused on the consequences of categorization. The mere perception of social categories is sufficient to elicit stereotypes that are recruited to form impressions, elicit attitudes, and guide behaviors (Allport, 1954; Bargh, 1999; Devine, 1989; Dovidio, Evans, & Tyler, 1986; Fazio & Dunton, 1997; Gilbert & Hixon, 1991; Grant & Holmes, 1981; Sinclair & Kunda, 1999; Tajfel, 1969). Indeed, such a volume of work has been amassed that some features of social categorization appear to be incontrovertible.

First, social categorization occurs readily. In general, categorizing others into groups occurs *unintentionally* and with minimal effort, in response to visual cues associated with social categories. Although empirical demonstrations exist that highlight exceptions to this overarching rule (see, e.g., Gilbert & Hixon, 1991; Kurzban, Tooby, & Cosmides, 2001; Quinn & Macrae, 2005), they remain rare. Moreover, these exceptions tend to highlight the motivated nature of social perception. Since some of the earliest tests of spontaneous social categorization (e.g., Taylor, Fiske, Etcoff, & Ruderman, 1978), it has been demonstrated repeatedly that people unintentionally and inevitably categorize others by group memberships, a process that can unleash stereotyping (Bargh, 1999; Bodenhausen & Peery, 2009; Devine, 1989).

Second, social categorization occurs rapidly. Categorizing others into groups occurs very *quickly* after seeing another individual. Evidence from studies utilizing event related potentials, for instance, has shown strong attention to social categories as early as 50 ms after visual exposure (Ito & Urland, 2003, 2005). Additionally, recent findings demonstrate how the categorization is a temporally dynamic process that begins with the visual apprehension of a target. Thereafter, categorization is heavily influenced by visual cues to both category relevant and irrelevant features, and the representation gradually builds over time to culminate in a judgment (Freeman & Ambady, 2011; Freeman, Ambady, Rule, & Johnson, 2008).

For example, we recently demonstrated the dynamics of sex categorization in a series of studies in which we tracked the dynamic motion of participant's arm movements as they used a computer mouse to categorize the sex of a series of faces (Freeman et al., 2008). Although perceivers rarely miscategorized the sex of faces, the gender typicality of the visual cues was reflected in participants' responses, specifically in their response latencies and in the trajectory of their mouse movements. For gender-typical faces, response latencies were relatively short, and mouse trajectories were direct; for gender-atypical faces, in contrast, response latencies were longer, and mouse trajectories were less direct, showing a significant curve toward the incorrect category. We argued that this occurred because

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the measured gender-atypical features in the face cued the incorrect category alternative and affected the unfolding of the categorical judgment, even though the response culminated in a correct categorization. Similar patterns have been obtained for sexual orientation judgments (Freeman, Johnson, Ambady, & Rule, 2010), race categorizations (Freeman, Pauker, Apfelbaum, & Ambady, 2009), and stereotype activation (Freeman & Ambady, 2009). Such effects have been more fully elaborated in a formal model and theoretical review (Freeman & Ambady, 2011).

Third, social categorization is malleable. Factors that originate in both the perceiver and in the target of perception have been shown to impact the perceptual judgments that people make. For example, social categorization is modulated by factors inherent in the perceiver, such as implicit levels of racial prejudice. In one study demonstrating such effects, Hugenberg and Bodenhausen (2003) found that perceivers who were high in implicit racial prejudice more readily perceived anger in Black but not White faces, suggesting that emotion perception can be modulated by a target's racial category membership. This tendency also has implications for race categorization. In another set of studies, perceivers who were high in implicit racial prejudice tended to categorize hostile faces that were racially ambiguous faces to be Black (Hugenberg & Bodenhausen, 2004). In both cases, perceivers who were low in implicit racial prejudice did not show the effects. Similar findings have also been obtained for the perceived *intensity* of emotion expressions (Hutchings & Haddock, 2008). These findings imply that social perception along one dimension (e.g., hostility) can fundamentally shift a perceiver's threshold for rendering other social categorizations (e.g., race; for a similar argument, see Galperin & Haselton, this volume).

Additionally, a perceiver's motivation and attention state changes the likelihood that certain social categories will be perceived. For example, Quinn and Macrae (2005) found that only perceivers who were instructed to actively attend to a particular category dimension were faster to categorize individuals along that dimension later. Gilbert and Hixon (1991) reported that perceivers who maintained a cognitive load were less likely than controls to have stereotypes activated incidentally by race but that they were more likely to apply race-based stereotypes if they had already become activated. Kurzban et al. (2001) found that when the coalitional alliances of targets of perception were made salient using a visual cue *other* than race, the tendency to encode race category was significantly reduced. Specifically, when groups were demarcated by color-coded jerseys, race-based categorization was minimized. That said, the tendency for perceivers to categorize according to sex remained high, regardless of their manipulation. Finally, impression formation is, at least at times, shaped by contextual thermal and olfactory changes (e.g., Semin & Garrido, this volume). These are just a few of several reports in which a perceiver's attitudes, knowledge structures, or motivations were shown to fundamentally alter the efficiency of social perception, changing both stereotyping and categorization.

Social categorization is also modulated by contextual factors in the target of perception. For instance, the hairstyle paired with a face that is otherwise race ambiguous biases categorization to be consistent with the context provided by the cue (MacLin & Malpass, 2001, 2003). Additionally, race-cuing facial features bias the perception

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of skin tone (Levin & Banaji, 2006). Faces that exhibit Black-typical phenotypes are perceived to be darker than those that exhibit White-typical phenotypes. Finally, race category labels assigned to otherwise race-ambiguous faces determine how a face is processed (Corneille, Huart, Becquart, & Brédart, 2004; Michel, Corneille, & Rossion, 2007, 2010) and the likelihood that the face will be remembered (Pauker & Ambady, 2009; Pauker, Weisbuch, Ambady, Sommers, Adams, & Ivcevic, 2009). In sum, these findings demonstrate that knowledge of social categories provides an important context in which perceived differences are accentuated (Tajfel, 1981).

Finally, social categorization has weighty consequences that, importantly for this volume, have implications for interpersonal behaviors. This is perhaps the most well-understood aspect of social categorization. Once perceived, the perception of social categories activates knowledge structures that alter evaluative judgments of others (for a recent review, see, e.g., Bodenhausen & Peery, 2009; see also Brewer, 1988; Fiske & Neuberg, 1990). These social category judgments have important implications such as bias in the treatment of out-group individuals and even the embodiment of characteristics associated with the group (e.g., Bargh, Chen, & Burrows, 1996; see Macrae; Winkielman, this volume, for other recent work focused on the importance of embodiment for social dynamics). Thus, many studies that examined the mechanisms underlying social categorization aimed to inform our understanding of (and ultimate prevention of) stereotyping and prejudice.

Collectively, these findings suggest that, like other domains of perception, social categorization is (1) highly probable, if not inevitable; (2) rapid and dynamic; (3) malleable and prone to biases; and (4) consequential.

The vast majority of empirical work that has established these principles of social categorization has isolated one social category dimension (e.g., race or sex category) while holding all other social categories constant. Specifically, studies examining the impact of race categorization tended to hold the sex of stimulus targets constant while varying race; studies examining the impact of sex categorization tended to hold race constant while varying sex. While such approaches afforded methodological precision to enhance our understanding of the impacts of social categorization, our knowledge remains incomplete insofar as this approach fails to represent the natural variation of people in the environment (Brunswik, 1955, 1956; see also Dhami, Hertwig, & Hoffrage, 2004). In naturalistic settings, targets of social perception vary not only along one social category dimension but also along many. The perceiver, therefore, is faced with a task that is inherently complex because targets of perception naturally fall into multiple social categories simultaneously (Bodenhausen & Peery, 2009). Put simply, identities intersect, and this poses distinct challenges for the perceiver.

In spite of its acknowledged importance, research investigating the complexities of social perception involving intersectional identities (e.g., being both male and Black) remains relatively rare. Recent attempts to achieve a more nuanced understanding of such complexities are noteworthy. Experiments that examined *which* social category dimension (e.g., race or sex) is more likely to capture perceptual attention have shed light on motivational aspects of social perception and stereotyping (Bodenhausen & Macrae, 1998; Bodenhausen, Macrae, & Sherman,

1999; Quinn & Macrae, 2005), and research probing the perception of social categories that are nested within one another or that are co-dominant is becoming increasingly common (Crisp & Hewstone, 1999; Dovidio, Gaertner, & Saguy, 2009). Finally, research identifying the category alternatives—male versus female or Black versus White—that serve as default judgments (e.g., Merritt & Harrison, 2006; Smith & Zárate, 1992; Zárate & Smith, 1990) has helped reveal why some individuals are particularly likely to go unnoticed entirely (e.g., Black women; Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010).

In our recent research, we have been examining a question that has heretofore remained unanswered by prior research. Specifically, our research has examined how the perception of one social category may systematically bias the perception of other social categories. My colleagues and I have proposed that such biases in social perception may stem from two sources—one through the bottom-up influence of common visual cues and one through the top-down influence of covariant social stereotypes.

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BOTTOM-UP INTERSECTIONAL BIASES

One way that the perception of one social category may bias the perception of another social category is through overlaps in phenotypic cues associated with each category. This possibility entails that the visual cues to social categories may be overlapping to a degree that makes some social categorizations easier than others.

Evidence that is consistent with this possibility has been described for observations that the sex category of a target appears to bias the perception of emotion expressions. Facial expressions of emotion were long *presumed* and *perceived* to vary between men and women (Grossman & Wood, 1993; Plant, Hyde, Keltner, & Devine, 2000). Ambiguous expressions were decoded in sex-typed ways (Hess, Senécal, Herrera, Kirouac, Philippot, & Kleck, 2000; Plant et al.; Plant, Kling, & Smith, 2004). Such findings were generally described in terms of the pervasiveness of gender stereotypes of emotion.

Yet more recent research has revealed that these effects were likely to have been obtained, at least in part, because of a systematic overlap in the facial features that cue sex categories and the facial features that cue emotion categories. For instance, women's faces have morphologies such as large eyes and round cheeks. These cues are related to perceptions of warmth, approachability, and affiliation (Berry & Brownlow, 1989; Berry & McArthur, 1986; Hess, Adams, & Kleck, 2004, 2005; Hess, Blairy, & Kleck, 2000). Men's faces have features such as thick brows and square jaws. These cues overlap significantly with anger expressions and convey dominance (Becker, Kenrick, Neuberg, Blackwell, & Smith, 2007; Hess et al., 2000, 2004, 2005; Senior, Phillips, Barnes, & David, 1999). The covariation of these cues enables observers to more readily categorize angry men and happy women, relative to happy men or angry women (Hess, Adams, Grammer, & Kleck, 2009). Importantly, similar overlaps exist at the intersections of race and emotion categories, leading to the overgeneralization of stereotypes (Zebrowitz, Fellous, Mignault, & Androeletti, 2003; Zebrowitz, Kikuchi, & Fellous, 2010).

Collectively, therefore, these recent findings highlight a bottom-up route by which the perception of one social category—here sex category—biases the perception of another category, emotion expression. Importantly, these patterns represent a semiotic process by which common phenotypes cue multiple social categories, independent of the perceiver's cognitions or motivations. Thus, the bottom-up route to intersectional biases departs from standard social cognitive models that have traditionally emphasized the importance of moderators that originate within the perceiver, not the target of perception. We propose that similar semiotic processes are likely to operate in the perception of other intersecting social categories as well and that they will lead to biases in categorizations as a result.

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TOP-DOWN INTERSECTIONAL BIASES

Another way that the perception of one social category may bias the perception of another social category is through overlaps in stereotype content associated with each category. This possibility entails that groups are stereotyped in a manner that facilitates some categorizations but hinders others.

For instance, it's now clear that visual processes are moderated by higher cognitions (Henderson & Hollingworth, 1999). A perceiver's desire or motivation changes the interpretation of an ambiguous stimulus (Balcetis & Dunning, 2006); the presence of social support metaphorically "lightens one's load," thereby altering the perceived steepness of a slope (Schnall, Harber, Stefanucci, & Proffitt, 2008); and the threat/fear associated with falling leads to overestimations for vertical distance (Jackson & Cormack, 2008; Stefanucci & Proffitt, 2009). Thus, the perception of physical stimuli is prone to systematic biases, and similar processes may apply to social categorization as well. Specifically, knowledge structures that are associated with one category may also have implications for the perception of other social categories via a top-down route.

Importantly, these proposed patterns represent a more traditional approach to social perception, wherein factors within the perceiver have implications for interpersonal judgments and behavior (see also Forgas; Galperin & Haselton; Kenrick, Yexin, White, & Neuberg; this volume).

Two Identity Intersections

In ongoing work, we have been examining the extent to which top-down and bottom-up factors bias social perceptions when identities or emotions intersect with one another. Our empirical work has focused primarily on two intersections—the intersection of race and sex and the intersection of sex and emotion. We have examined these intersections for difference types of visual cues—static cues in the face and dynamic cues in the body.

The Intersection of Race and Sex One domain in which we have conducted a considerable amount of empirical research is at the intersection of race and sex categories in the domain of face perception. We suspected that, like in the facial

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expression of emotion, facial cues to sex and race categories may covary. We also noted a conspicuous covariation in the stereotypes associated with the categories Black and Male (e.g., aggressive) and the categories Asian and Female (e.g., communal). This is evident in the overlap of stereotype content across the past several decades (see, e.g., Bem, 1974; Devine & Elliot, 1995; Karlins, Coffman, & Walters, 1969; Spence, Helmreich, & Strapp, 1974). Such overlaps may promote integrative priming whereby the perception of one social category (e.g., sex) is facilitated due to its relation to another perceived category (e.g., race; Estes & Jones, 2009).

We reasoned that overlaps in stereotypes or phenotypes (or both) may lead sex categorization to be systematically biased by the race of a face. Specifically, we predicted that "male" categorizations would be more efficient for Black relative to White or Asian faces but that "female" categorizations would be more efficient for Asian relative to White or Black faces. That is, although we expected categorizations to be overwhelmingly accurate, we examined differences in the efficiency of sex category judgments. In a series of studies, we have demonstrated that sex categorization is systematically biased by the race category of a target (Johnson, Freeman, & Pauker, in press), and we tested for both bottom-up and top-down sources of influence.

Our first test of the possibility that race categories may bias sex categorization was straightforward. We reasoned that when a person's sex category membership was unclear, perceivers might use race category to disambiguate the person's sex. To test this, we created a set of androgynous faces using commercially available face generating software. Each face was manipulated along a continuum of race that varied from Black to White to Asian. Then, we simply asked participants to categorize each image, as quickly as possible, to be either male or female. The results were telling. Although presumably irrelevant to the sex categorization task at hand, perceivers' judgments were systematically influenced by the race of each target. We observed a consistent bias to categorize faces to be male, consistent with prior research (e.g., Zárate & Smith, 1990). This tendency was moderated, however, by the race of the face. Consistent with our predictions, we found the highest proportion of "male" categorizations for Black faces but the lowest proportion of "male" categorizations for Asian faces (see Figure 12.1a).

These findings were corroborated in a study in which perceivers made sex category judgments of both male and female faces that varied by race. Not surprisingly, the vast majority of categorizations were accurate, but the response latency for judgments varied as a function of sex and race. Categorizations of men were made more quickly for Black relative to White or Asian faces, but categorizations of women were made more quickly for Asian relative to White or Black faces (see Figure 12.1b). Moreover, analyses of computer mouse trajectories revealed a pronounced deviation toward the *incorrect* category alternative when participants categorized Black women and Asian men. Importantly, these are the two groups that we suspected might either have facial cues or elicit stereotypes that were conflated with the opposite sex.

While these findings provided evidence that race category biases one's perception of sex category, the reason for such biases remained unclear. Our results may have been obtained because the stereotypes associated with the category Black are common to the stereotypes for the category Male and because the stereotypes associated with the category Asian are common to the stereotypes for the category

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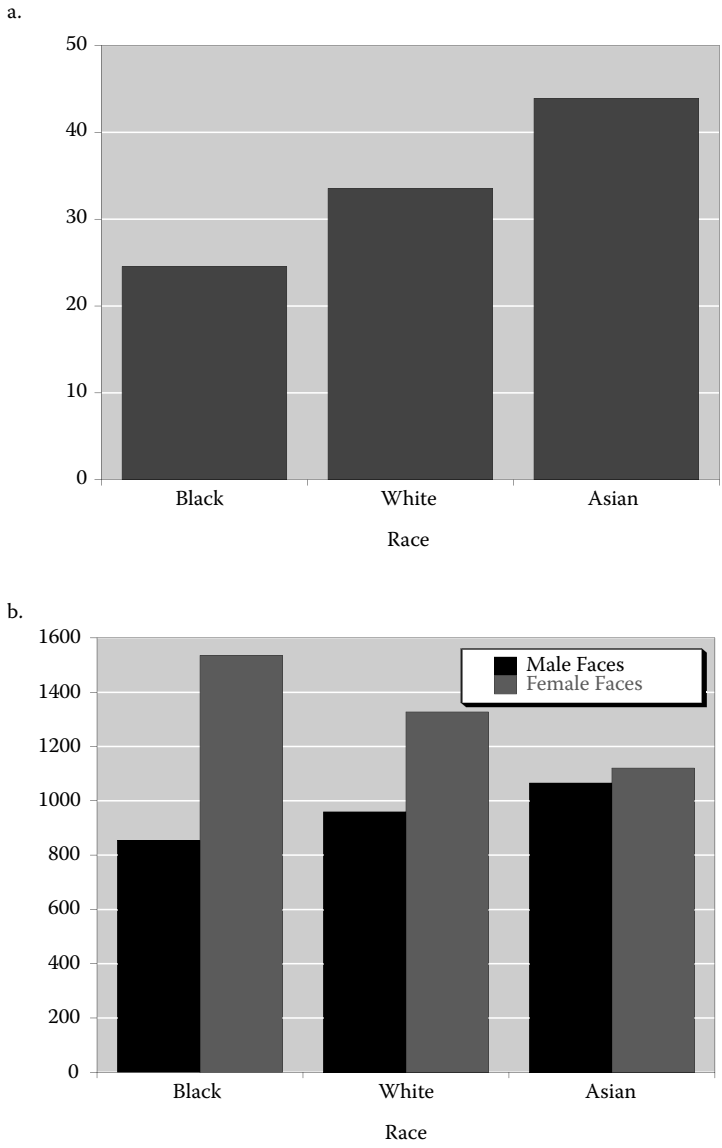


Figure 12.1 Effects of race category for sex categorizations of androgynous faces and men/women. Panel a depicts the proportion of "female" categorizations of androgynous Black, White, and Asian faces. Panel b depicts the response latencies for "male" and "female" categorizations of Black, White, and Asian faces. Adapted from Johnson, K.L., Freeman, J.B., & Pauker, K., *Journal of Personality and Social Psychology*, in press.

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Female. If correct, race categories may have biased sex categorization through a top-down route. Alternately, our results may have been obtained because Black faces are phenotypically similar to Male faces and Asian faces are phenotypically similar to Female faces. If correct, race categories may have biased sex categorization through a bottom-up route. Additional research shed light on each of these possibilities.

First we tested the possibility that shared stereotype content between specific race and sex categories enhanced perceivers' ability to categorize some faces according to sex (e.g., Black men and Asian women) but impaired their ability to categorize others (e.g., Black women and Asian men). We measured our participants' degree of association between the categories Black and Male and the categories Asian and Female using a customized Implicit Association Test (IAT). We also recorded sex categorizations, their latencies, and their mouse trajectories for faces that varied by race and sex. Interestingly, when participants held *low* associations between the categories Black and Male and the categories Asian and Female, their sex category judgments were relatively unaffected by the intersection of sex and race. When participants held *high* associations between the target categories, in contrast, their sex category judgments showed a pronounced effect for the intersection of sex and race. As before, judgments of Black men and Asian women were more efficient—in terms of both response latency and computer mouse trajectories—relative to judgments of same-sex targets of other races. These findings suggest that shared stereotypes exert a top-down influence on social categorization when identities intersect.

These findings could not speak to the alternative possibility that the cues associated with the categories Black and Male and the categories Asian and Female overlap in their phenotypes. To test this possibility, we obtained objective measures of the *gender* typicality of both facial photographs and computer-generated faces that varied by race and sex. To the extent that phenotypes overlap, we predicted that the gendered cues on a face would vary by race. Across both categories of stimuli, Black faces were, on average, phenotypically masculine; White faces tended to be phenotypically feminine; and computer-generated Asian faces were phenotypically masculine, but Asian photographs were phenotypically feminine, albeit not significantly so. These findings highlighted a consistent masculine phenotype in the cues in Black faces.

Based on our analyses of facial phenotypes, we reasoned that this phenotypic overlap may also contribute to biases in social categorization, especially for judgments of Black faces. To test this possibility, we statistically controlled for covarying phenotypes and examined the efficiency of categorizations for faces that varied by race and sex. Interestingly, when we controlled for phenotype, the effect of race dropped to nonsignificance for judgments of men but not women. Moreover, controlling for phenotype shed additional light on the unique role of overlapping stereotypes in categorizations as well. Judgments made by participants who held low associations between the categories Black and Male and the categories Asian and Female were unaffected by intersecting race and sex once phenotype was controlled; however, judgments made by participants who held high associations remained tethered to race for female but not male targets, once phenotype was controlled.

Collectively, these findings clarify the role of overlapping stereotypes and phenotypes for sex categorizations when identities intersect. Judgments of men were affected by overlaps in both phenotypes and stereotypes associated with the categories Black and Male; judgments of women were affected primarily by overlaps in the stereotypes associated with the categories Asian and Female.

The Intersection of Sex and Emotion Another domain in which we have conducted numerous empirical studies is at the intersection of sex and emotion categories in the domain of body perception. In a series of studies, we tested the notion that sex categorization is systematically biased by emotional body motions (Johnson, McKay, & Pollick, 2011).

As mentioned already, similar questions have a long history of research examining the perception of facial expressions of emotion, yet our investigation provides unique insights. First, our question centered on sex categorization rather than the more common question about how sex biases emotion perception. As such, it provides an opportunity to understand bias in an underinvestigated domain. Second, our stimuli were dynamic body motions rather than facial images. This domain of perception is acknowledged to carry profound implications for social judgments (see, e.g., Johnson & Shiffrar, in press; Shiffrar, Kaiser, & Chouchourelou, 2011). Indeed, some have even argued that, under certain circumstances, body perception is even more potent than face perception insofar as body perception occurs at a physical distance that precludes face perception, provides information about appropriate behavioral responses, and allows perceivers to avoid contact with others (de Gelder, 2006). Finally, our stimuli afforded direct manipulation to control for differences in covariant cues, in this case the velocity of the body's motion.

Importantly, dynamic body motions prove to be a potent source of social information. Some of the earliest work in this area asked the simplest of social perception questions: Can perceivers identify bodies in motion to be human? Perceivers viewed points of light attached to the joints of individuals engaged in a variety of activities. These "point-light displays," as they came to be called, provided sufficient information for observers to perceive not only human motion but also social categories (Cutting, Proffitt, & Kozlowski, 1978; Johnson, Gill, Reichman, & Tassinary, 2007; Johnson & Tassinary, 2005; Kozlowski & Cutting, 1977; Pollick, Kay, Heim, & Stringer, 2005), individual identities (Cutting & Kozlowski, 1977; Loula, Prasad, Harber, & Shiffrar, 2005), behavioral intentions and affordances (Johnston, Hudson, Richardson, Gunns, & Garner, 2004; Runeson & Frykholm, 1983), and even affect states (Chouchourelou, Matsuka, Harber, & Shiffrar, 2006; Pollick, Paterson, Bruderlin, & Sanford, 2001). Collectively, these findings demonstrated that dynamic body motions convey meaningful information to observers. Yet this growing body of research provided few insights into the question of whether the perception of one social category may affect the perception of another social category. Instead, it emphasized the mechanisms by which perceivers extract meaningful information from minimal body motion displays (e.g., observers' exploitation of spatio-temporal patterns of movement), thus providing an important foundation for understanding how perceivers achieve accuracy in their social perceptions.

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Figure 12.2 Effect of emotion category (here, anger versus sadness) for sex categorizations of point-light displays of body motion. Data depict the proportion of correct categorizations, separately for male and female targets. Dotted line depicts chance responding Adapted from Johnson, K.L., McKay, L.S., & Pollick, F.E., *Cognition*, 119, 2011.

To test the possibility that sex categorization may be biased by emotional body motions, we first recorded the body motions of men and women in four emotion states (angry, happy, sad, neutral). Specifically, we used three-dimensional motion capture techniques to measure the *x*, *y*, and *z* coordinates for each target's arm motion as they threw a ball toward a target on the wall. Within MATLAB, we used these coordinates to generate point-light displays for each actor that were presented to naïve observers who categorized them according to sex. Overall, the accuracy of sex categorizations was only modestly above chance, a pattern that stood in stark contrast to countless other studies demonstrating perceivers' pronounced ability to discern sex categories from point-light displays. Instead, we found a systematic pattern in which sex categorizations varied with the intersection of sex and emotion. Judgments for two emotion categories, in particular, are most telling. Displays depicting anger were overwhelmingly judged to be men; displays depicting sadness were more likely judged to be women (see Figure 12.2). Consequently, overall accuracy hovered near chance. Even though it was independent of the sex categorization task at hand and received no mention whatsoever in the introduction to the study, the emotion content of the displays biased sex category judgments.

As in our other work, this demonstration of emotion categories biasing sex categorization is mute with respect to the mechanisms of bias. As before, we examined two distinct possibilities. First, we tested the possibility that low-level

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perceptual features of the body's motion may be common for the categories "male" and "angry" and the categories "female" and "sad." Indeed, across our stimuli, we did observe significant differences in the velocity associated with men's and women's movements. Men tended to move their arms at a higher velocity than did women. Similarly, angry motions had a higher velocity than sad motions. To examine if these covariant velocity cues were biasing sex categorizations in a bottom-up fashion, we designed an additional experiment. We velocity normalized each point-light display by setting it to the average of the entire set. This effectively removed velocity as a possible cue to sex category membership. In spite of this, sex categorizations of these displays showed the same intersectional pattern of bias. Angry motions were still more likely to be categorized as men; sad motions were more likely to be categorized as women. Analyses to compare judgments of the natural versus the velocity normalized displays showed no differences. Thus, the most salient low-level perceptual feature, velocity, was not driving our effects.

We next turned our attention to the possibility that stereotyped knowledge biased sex categorization through a top-down route. This possibility entails that individuals accurately perceived the emotion category of each display and used that to help disambiguate the sex of each target. Indeed, we found that perceivers were above chance in categorizing the emotion depicted in each display. Moreover, mediational analyses confirmed that these perceptions were the source of bias. An unmediated contrast revealed marked differences in sex categorizations for sad versus angry displays. Angry displays were judged to be men; sad displays were judged to be women. When mediated by perceptions of the degree of anger and sadness in the displays, however, this contrast dropped to nonsignificance.

Collectively, these findings highlight a role by which sex categorizations can be biased by emotional body motion through top-down influences. The overlap in the stereotype content of emotion and sex categories affected the categorization of sex in body movements. Therefore, social information conveyed through the body's movement can bias social perception when multiple social categories intersect.

Implications for Other Aspects of Social Perception

Although much of our work has examined the accuracy or efficiency of categorizations along independently defined dimensions, we suspect that these biases in social perception have a more pervasive impact on social perceptions, affecting evaluations in addition to categorizations. This prediction is derived from the well-documented effects in which social categories change evaluative judgments. It is well established, for example, that knowing another person's sex category fundamentally changes the standards that are applied when rendering social judgments, specifically as they relate to gender stereotyped domains (Biernat, 2005; Biernat & Manis, 1994). Other work has demonstrated that when one stereotype becomes activated, it alters the potency of other stereotypes during impression formation, at times leading their impact to be exacerbated but at other times leading their impact to be curtailed (Kunda & Thagard, 1996). Finally, the manner in which visual cues affect evaluative social judgments, such as physical attractiveness or even perceptions of sexual orientation, differ according to a target's sex category

(Freeman, Johnson, Ambady, & Rule, 2010; Johnson, Gill, Reichman, & Tassinary, 2007; Johnson & Tassinary, 2007a; 2007b). Thus, a substantial body of work highlights the role of social categorization for evaluative judgments.

We suspected that these outcomes were likely to also vary depending on the intersection of multiple social categories, and we have also begun to explore how intersectional biases implicate other social perceptions as well. One domain, in particular, is pertinent to the current chapter—the implications of race-biased sex categorizations suggest that this intersection may also impact perceptions of sexual orientation.

We based our intersectional predictions on recent findings in which we examined how perceivers use gendered cues in the face and body to make judgments about sexual orientation. In one set of studies, for example, we found that perceivers used gender atypical body shape and motion to categorize others as gay men or lesbians (Johnson et al., 2007). More recently, we demonstrated similar processes for categorization of faces to be either straight or gay (Freeman et al., 2010). Thus, the perception of sexual orientation is closely tied to perceptions of gender typicality, and perceivers tend to adopt a heuristic of gender inversion when they categorize others to be gay.

Given that the gendered cues and stereotypes for men and women vary depending on their race category as previously described, we reasoned that race might also have implications for the perception of sexual orientation. Specifically, we predicted that race would affect sexual orientation categorizations and their accuracy because race is highly gendered and perceivers tend to use gender inversion as a heuristic for making judgments.

We tested this possibility in a study in which we presented to observers the faces of Black, White, and Asian men and women who self-identified to be either gay or straight (Johnson & Ghavami, 2011). Observers categorized each face according to sexual orientation and, in a separate block of trials, rated each face for masculinity and femininity.

Perhaps the simplest prediction concerned the direct impact of race on the perception of sexual orientation. Indeed, sexual orientation judgments varied as a function of sex and race. For men, Asian targets were the most likely but Black targets were the least likely to be categorized as gay. These findings are consistent with gendered stereotypes that are associated with race. Asian men are more likely than their White or Black counterparts to be perceived as feminine. Thus, when perceivers adopted a gender inversion heuristic, Asian men were also the most likely to be categorized as gay. For women, in contrast, race had no significant impact on sexual orientation judgments. This finding is interesting but not surprising. Indeed, it is consistent with prior work that has shown greater latitude of acceptability for gender atypicality among women than among men (Feinman, 1981, 1984; Johnson & Tassinary, 2007a, 2007b; McCreary, 1994; Oswald, 2007). Although categorizing someone to be a gay man or lesbian is not explicitly an evaluative judgment, it does assign the target of perception to a stigmatized group, and this has downstream consequences for interpersonal interactions.

A more interesting pattern of results, however, revealed systematic effects of race on measures of the accuracy of categorizations. For men, we found overall accuracy to be highest for Black faces but lower for White and Asian faces (in that

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order). For women, in contrast, we found overall accuracy to be highest for Asian faces but lower for White and Black faces (in that order). We suspected that this result was obtained, at least in part, because the gendered expectations among our observers were particularly strong for Black men and Asian women. Consequently, any departures from these extreme expectations were likely to be noted. Indeed, signal detection analyses confirmed these predictions.

These findings demonstrate that the intersection of race and sex has implications that extend beyond the perception of either race or sex in isolation. We predict that this will be the first of many such demonstrations as the field seeks to better understand the implications of intersecting identities on the most fundamental aspects of social perception.

REMAINING QUESTIONS

The work that we have discussed in this chapter addresses the question of how intersecting social categories bias one another's perception, fundamentally altering the efficiency of judgments, the categorization that observers make, or both. These findings should be considered an important step toward understanding intersectional social perception. Yet several questions remain unanswered and are the focus of ongoing research.

First, a better understanding of intersectional social perception will necessitate more precise models of social perception. Although researchers increasingly acknowledge the roles of both top-down and bottom-up factors in social perception, our findings suggest that the contributions should be considered more broadly. In particular, it will become increasingly important to consider how overlaps in phenotypes and stereotypes operate to enable perceivers to accurately form impressions of others' attitudes and ideologies (see, e.g., Wänke, Samochowiec, & Landwehr, this volume).

Additionally, an intersectional model of social perception will afford a more comprehensive understanding of the self-reinforcing nature of group-based cognitions. For instance, the fact that the category Black is associated with masculine stereotype content may have emerged, at least in part, due to phenotype overlaps between the categories Black and Male. This raises the important question about the primacy of social category percepts. While some scholars have argued that group memberships that are nonnormative (i.e., non-White, nonmale, nonheterosexual) will attract perceptual attention (e.g., White male norm; see Smith & Zárate, 1992), it remains unclear how such percepts occur spontaneously. A more comprehensive reckoning of the timeline of various social categorizations will help illuminate which category dimension (e.g., race or sex) is likely to exert influence over another category dimension.

As a result of such processes, it will become increasingly important to track the impact of intersectional identities at a behavioral level. Covariant phenotypes among social categories may compel specific interpersonal behaviors more strongly than if covariant cues were not present. For instance, the well-known finding that priming perceivers with the faces of Black men leads participants to embody hostility (Bargh et al., 1996) may manifest via two routes, just as categorizations for intersecting identities appear to be affected by both top-down and

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bottom-up biases. Specifically, overlaps in phenotypes may promote stronger facial mimicry (see also Winkielman, this volume) that would in turn affect behaviors. This possibility differs from extant accounts of priming that implicate top-down influences through the activation of knowledge structures. While such a top-down route enjoys considerable support, we maintain that understanding interpersonal behavior will require a more careful examination of how bottom-up routes to social perception may affect intergroup behaviors.

We began this chapter with a quote from Gordon Allport (1954) concerning the importance of categorization for social perception. Allport noted the necessity and inevitability of categorizing others into social groups. In recognizing that social categorization may be unavoidable, researchers have largely overlooked the impact that intersecting identities may have on fundamental aspects of the categorization process. The work reviewed in this chapter—and other research like it—provides an important next step in our understanding of social categorization at the crossroads of independently defined social groups.

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REFERENCES

Allport, G. W. (1954). *The nature of prejudice.* Reading, MA: Addison-Wesley.

Balcetis, E., & Dunning, D. (2006). Seeing what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology, 91,* 612–625.

Bargh, J. A. (1999). The cognitive monster: The case against controllability of automatic stereotype effects. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 361–382). New York: Guilford Press.

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology, 71,* 230–244.

Bem, S. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42,* 155–162.

Berry, D. S., & Brownlow, S. (1989). Were the physiognomists right? Personality correlates of babyishness. *Personality and Social Psychology Bulletin, 15,* 266–279.

Berry, D. S., & McArthur, L. Z. (1986). Perceiving character in faces: The impact of age-related craniofacial changes on social perception. *Psychological Bulletin, 100,* 3–10.

Becker, D. V., Kenrick, D. T., Neuberg, S. L., Blackwell, K. C., & Smith, D. M. (2007). The confounded nature of angry men and happy women. *Journal of Personality and Social Psychology, 71,* 230–244.

Biernat, M. (2005). *Standards and expectancies: Contrast and assimilation in judgments.* New York: Psychology Press/Taylor and Francis.

Biernat, M., & Manis, M. (1994). Shifting standards and stereotype-based judgments. *Journal of Personality and Social Psychology, 66,* 5–20.

Bodenhausen, G. V., & Macrae, C. N. (1998). Stereotype activation and inhibition. In R. S. Wyer, Jr. (Ed.), *Stereotype actiation and inhibition: Advances in social cognition* (Vol. 11, pp. 1–52). Mahwah, NJ: Erlbaum.

Bodenhausen, G. V., Macrae, C. N., & Sherman, J. W. (1999). On the dialectics of discrimination: Dual processes in social perception. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 271–290). New York: Guilford.

Bodenhausen, G. V., & Peery, D. (2009). Social categorization and stereotyping in vivo: The VUCA challenge. *Social and Personality Psychology Compass, 3,* 133–151.

Brewer, M. B. (1988). A dual process model fo impression formation. In R. S. Wyer, Jr., & T. K. Srull (Eds.), *Advances in social cognition* (Vol. 1, pp. 1–36). Hillsdale, NJ: Erlbaum.

Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review, 62,* 193–217.

Brunswik, E. (1956). *Perception and the representative design of psychological experiments.* Berkeley: University of California Press.

Chouchourelou, A., Matsuka, T., Harber, K., & Shiffrar, M. (2006). The visual analysis of emotional actions. *Social Neuroscience, 1,* 63–74.

Corneille, O., Huart, J., Becquart, E., & Brédart, S. (2004). When memory shifts towards more typical category exemplars: Accentuation effects in the recollection of ethnically ambiguous faces. *Journal of Personality and Social Psychology, 41,* 431–437.

Crisp, R. J., & Hewstone, M. (1999). Differential evaluation of crossed category groups: Patterns, processes, and reducing intergroup bias. *Group Processes and Intergroup Relations, 2,* 303–333.

Cutting, J. E., & Kozlowski, L. T. (1977). Recognizing friends by their walk: Gait perception without familiarity cues. *Bulletin of the Psychonomic Society, 9,* 353–356.

Cutting, J. E., Proffitt, D. R., & Kozlowski, L. T. (1978). A biomechanical invariant for gait perception. *Journal of Experimental Psychology: Human Perception and Performance, 4,* 357–372.

de Gelder, B. (2006). Towards the neurobiology of emotional body language. *Nature Reviews Neuroscience, 7,* 242–249.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components *Journal of Personality and Social Psychology, 56,* 5–18.

Devine, P. G., & Elliott, A. J. (1995). Are racial stereotypes really fading? The Princeton trilogy revisited. *Personality and Social Psychology Bulletin, 11,* 1139–1150.

Dhami, M. K., Hertwig, R., & Hoffrage, U. (2004). The role of representative design in an ecological approach to cognition. *Psychological Bulletin, 130,* 959–988.

Dovidio, P. G., Evans, N., & Tyler, R. P. (1986). Racial stereotypes: The content of their cognitive representations. *Journal of Experimental Social Psychology, 22,* 22–37.

Dovidio, J. F., Gaertner, S., & Saguy, T. (2009). Commonality and the complexity of 'we': Social attitudes and social change. *Personality and Social Psychology Review, 13,* 3–20.

Estes, Z., & Jones, L. L. (2009). Integrative priming occurs rapidly and uncontrollably during lexical processing. *Journal of Experimental Psychology: General, 138,* 112–130.

Fazio, R. H., & Dunton, B. C. (1997). Categorization by race: The impact of automatic and controlled components of racial prejudice. *Journal of Experimental Social Psychology, 33,* 451–470.

Feinman, S. (1981). Why is cross-sex-role behavior more approved for girls than for boys? A status characteristic approach. *Sex Roles, 7,* 289–300.

Feinman, S. (1984). A status theory evaluation of sex-role behavior and age-role behavior. *Sex Roles, 10,* 445–456.

Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology, 23,* 1–73.

Freeman, J. B., & Ambady, N. (2009). Motions of the hand expose the partial and parallel activation of stereotypes. *Psychological Science, 20,* 1183–1188.

Freeman, J. B., & Ambady, N. (2011). A dynamic interactive theory of person construal. *Psychological Review, 118,* 247–279.

Freeman, J. B., Ambady, N., Rule, N. O., & Johnson, K. L. (2008). Will a category cue attract you? Motor output reveals dynamic competition across person construal. *Journal of Experimental Psychology: General, 137,* 673–690.

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Freeman, J. B., Johnson, K. L., Ambady, N., & Rule, N. O. (2010). Sexual orientation perception involves gendered facial cues. *Personality and Social Psychology Bulletin, 36,* 1318–1331.

Freeman, J. B., Pauker, K., Apfelbaum, E. P., & Ambady, N. (2009). Continuous dynamics in real-time perception of race. *Journal of Experimental Social Psychology, 46,* 179–185.

Gilbert, D. T., & Hixon, J. G. (1991). The trouble of thinking: Activation and application of stereotypic beliefs. *Journal of Personality and Social Psychology, 60*, 509–517.

Grant, P. R., & Holmes, J. G. (1981). The integration of implicit personality theory schemas and stereotype images. *Social Psychology Quarterly, 44*, 107–115.

Grossman, M., & Wood, W. (1993). Sex differences in the intensity of emotional experience: A social role interpretation. *Journal of Personality and Social Psychology, 65,* 1010–1022.

Henderson, J. M., & Hollingworth, A. (1999). High-level scene perception. *Annual Review of Psychology, 50,* 243–271.

Hess, U., Adams, R. B., Jr., Grammer, K., & Kleck, R. E. (2009). Face gender and emotion expression: Are angry women more like men? *Journal of Vision, 9,* 1–8.

Hess, U., Adams, R. B., Jr., & Kleck, R. E. (2004). Dominance, gender and emotion expression. *Emotion, 4,* 378–388.

Hess, U., Adams, R. B., Jr., & Kleck, R. E. (2005). Who may frown and who should smile? Dominance, affiliation, and the display of happiness and anger. *Cognition & Emotion, 19,* 515–536.

Hess, U., Blairy, S., & Kleck, R. E. (2000). The influence of expression intensity, gender, and ethnicity on judgments of dominance and affiliation. *Journal of Nonverbal Behavior, 24,* 265–283.

Hess, U., Sénecal, S., Herrera, P., Kirouac, K., Philippot, P., & Kleck, R. E. (2000). Emotional expressivity in men and women: Stereotypes versus self-perceptions. *Cognition and Emotion, 14,* 609–642.

Hugenberg, K., & Bodenhausen, G. V. (2003). Facing prejudice: Implicit prejudice and the perception of facial threat. *Psychological Science, 14,* 640–643.

Hugenberg, K., & Bodenhausen, G. V. (2004). Ambiguity in social categorization: The role of prejudice and facial affect in race categorization. *Psychological Science, 15,* 342–345.

Hutchings, P. B., & Haddock, G. (2008). Look Black in anger: The role of implicit prejudice in the categorization and perceived emotional intensity of racially ambiguous faces. *Journal of Experimental Social Psychology, 44,* 1418–1420.

Ito, T. A., & Urland, G. R. (2003). Race and gender on the brain: Electrocortical measures of attention to the race and gender of multiply categorizable individuals. *Journal of Personality and Social Psychology, 85,* 616–626.

Ito, T. A., & Urland, G. R. (2005). The influence of processing objectives on the perception of faces: An ERP study of race and gender perception. *Cognitive, Affective, & Behavioral Neuroscience, 5,* 21–36.

Jackson, R. E., & Cormack, L. K. (2008). Evolved navigation theory and the environmental vertical illusion. *Evolution and Human Behavior, 29,* 299–304.

Johnson, K. L., Freeman, J. B., & Pauker, K. (in press). Race is gendered: How covarying phenotypes and stereotypes bias sex categorization. *Journal of Personality and Social Psychology.*

Johnson, K. L., & Ghavami, N. (2011). At the crossroads of conspicuous and concealable: What race categories communicate about sexual orientation. *PLoS One, 6,* e18025, doi:10.1371/journalpone.0018025

Johnson, K. L., Gill, S., Reichman, V., & Tassinary, L. G. (2007). Swagger, sway, and sexuality: Judging sexual orientation from body motion and morphology. *Journal of Personality and Social Psychology, 93,* 321–334.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Johnson, K. L., McKay, L. S., & Pollick, F. E. (2011). He throws like a girl (but only when he's sad): Emotion affects sex-decoding of biological motion displays. *Cognition, 119,* 265–280.

Johnson, K. L., & Shiffrar, M. (Eds.). (forthcoming). *Perception of the human body in motion: Findings, theory, and practice.* New York: Oxford University Press.

Johnson, K. L., & Tassinary, L. G. (2005). Perceiving sex directly and indirectly: Meaning in motion and morphology. *Psychological Science, 16,* 890–897.

Johnson, K. L., & Tassinary, L. G. (2007a). Compatibility of basic social perceptions determines perceived attractiveness. *Proceedings of the National Academy of Sciences of the United States of America, 104,* 5246–5251.

Johnson, K. L., & Tassinary, L. G. (2007b). The functional significance of the WHR in judgments of attractiveness. In V. Swami & A. Furnham (Eds.), *Body beautiful: Evolutionary and sociocultural perspectives* (pp. 159–184). New York: Palgrave Macmillan.

Johnston, L., Hudson, S. M., Richardson, M. J., Gunns, R. E., & Garner, M. (2004). Changing kinematics as a means of reducing vulnerability to attack. *Journal of Applied Social Psychology, 34,* 514–537.

Karlins, M., Coffman, T. L., & Walters, G. (1969). On the fading of social stereotypes: Studies in three generations of college students. *Journal of Personality and Social Psychology, 13,* 1–16.

Kozlowski, L. T., & Cutting, J. E. (1977). Recognizing the sex of a walker from a dynamic point-light display. *Perception and Psychophysics, 21,* 575–580.

Kunda, Z., & Thagard, P. (1996). Forming impressions from stereotypes, traits, and behaviors: A parallel-constraint-satisfaction theory. *Psychological Review, 103,* 284–308.

Kurzban, R., Tooby, J., & Cosmides, L. (2001). Can race be erased? Coalitional computation and social categorization. *Proceedings of the National Academy of Sciences, USA, 98,* 15387–15392.

Levin, D. T., & Banaji, M. R. (2006). Distortions in the perceived lightness of faces: The role of race categories. *Journal of Experimental Psychology: General, 135,* 501–512.

Loula, F., Prasad, S., Harber, K., & Shiffrar, M. (2005). Recognizing people from their movement. *Journal of Experimental Psychology: Human Perception and Performance, 31,* 210–220.

MacLin, O. H., & Malpass, R. S. (2001). Racial categorization of faces: The ambiguous race face effect. *Psychology, Public Policy, and Law, 7,* 98–118.

MacLin, O. H., & Malpass, R. S. (2003). The ambiguous race face illusion. *Perception, 32,* 249–252.

McCreary, D. R. (1994). The male role and avoiding femininity. *Sex Roles, 31,* 517–531.

Merritt, R. D., & Harrison, T. W. (2006). Gender and ethnicity attributions to a gender- and ethnically-unspecified individual: Is there a 'people=white male' bias? *Sex Roles, 54,* 787–797.

Michel, C., Corneille, O., & Rossion, B. (2007). Race categorization modulates holistic face encoding. *Cognitive Science, 31,* 911–924.

Michel, C., Corneille, O., & Rossion, B. (2010). Holistic face encoding is modulated by perceived face race: evidence from perceptual adaptation. *Visual Cognition, 18,* 434–455.

Oswald, D. L. (2007). "Don't ask, don't tell": The influence of stigma, concealing, and perceived threat on perceivers' reactions to a gay target. *Journal of Applied Social Psychology, 37,* 928–947.

Pauker, K., & Ambady, N. (2009). Multiracial faces: The boundaries of race. *Journal of Social Issues, 65,* 69–86.

Pauker, K., Weisbuch, M., Ambady, N., Sommers, S. R., Adams, R. B., Jr., & Ivcevic, Z. (2009). Not so black and white: Memory for ambiguous group members. *Journal of Personality and Social Psychology, 96,* 795–810.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Plant, E. A., Hyde, J. S., Keltner, D., & Devine, P. G. (2000). The gender stereotyping of emotion. *Psychology of Women Quarterly, 24,* 81–92.

Plant, E. A., Kling, K. C., & Smith, G. L. (2004). The influence of gender and social role in the interpretation of facial expression. *Sex Roles, 51,* 187–196.

Pollick, F. E., Kay, J., Heim, K., & Stringer, R. (2005). Gender recognition from point-light walkers. *Journal of Experimental Psychology: Human Perception and Performance, 31,* 1247–1265.

Pollick, F. E., Paterson, H. M., Bruderlin, A., & Sanford, A. J. (2001). Perceiving affect from arm movement. *Cognition, 82,* B51–B61.

Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional invisibility: The distinctive advantages and disadvantages of multiple subordinate-group identities. *Sex Roles, 59,* 337–391.

Quinn, K. A., & Macrae, C. N. (2005). Categorizing others: The dynamics of person construal. *Journal of Personality and Social Psychology, 88,* 467–479.

Runeson, S., & Frykholm, G. (1983). Kinematic specification of dynamics as an informational basis for person and action perception: Expectation, gender recognition, and deceptive intention. *Journal of Experimental Psychology: General, 112,* 585–615.

Schnall, S., Harber, K. D., Stefanucci, J. K., & Proffitt, D. R. (2008). Social support and the perception of geographical slant. *Journal of Experimental Social Psychology, 44,* 1246–1255.

Sesko, A. K., & Biernat, M. (2010). Prototypes of race and gender: The invisibility of Black women. *Journal of Experimental Social Psychology, 46,* 356–360.

Shiffrar, M., Kaiser, M. D., & Chouchourelou, A. (2011). Seeing human movement as inherently social. In R. B. Adams, Jr., N. Ambady, K. Nakayama, & S. Shimojo (Eds.), *The science of social vision.* New York: Oxford University Press.

Senior, C., Phillips, M. L., Barnes, J., & David, A. S. (1999). An investigation into the perception of dominance from schematic faces: A study using the World-Wide Web. *Behavior Research Methods, Instruments, and Computers, 31,* 341–346.

Sinclair, L., & Kunda, Z. (1999). Reactions to a Black professional: Motivated inhibition and activation of conflicting stereotypes. *Journal of Personality and Social Psychology, 77,* 885–904.

Smith, E. R., & Zárate, M. A. (1992). Exemplar-based model of social judgment. *Psychological Review, 99,* 3–21.

Spence, J. T., Helmreich, R., & Strapp, J. (1974). The personal attributes questionnaire: A measure of sex-role stereotypes and masculinity and femininity. *JSAS Catalog of Selected Documents in Psychology, 4,* 42 (Ms. No. 617).

Stefanucci, J. K., & Proffitt, D. R. (2009). The role of altitude and fear in the perception of height. *Journal of Experimental Psychology: Human Perception and Performance, 35,* 424–438.

Tajfel, H. (1969). Cognitive aspects of prejudice. *Journal of Social Issues, 25,* 79–97.

Tajfel, H. (1974). Social identity and intergroup behavior. *Social Science Information, 14,* 65–93.

Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology.* Cambridge: Cambridge University Press.

Taylor, S. E., Fiske, S. T., Etcoff, N. L., & Ruderman, A. J. (1978). Categorical and contextual bases of person memory and stereotyping. *Journal of Personality and Social Psychology, 36,* 778–793.

Zárate, M. A., & Smith, E. R. (1990). Person categorization and stereotyping. *Social Cognition, 8,* 161–185.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Zebrowitz, L. A., Fellous, J M., Mignault, A., & Androeletti, C. (2003). Trait impressions as overgeneralized responses to adaptively significant facial qualities: Evidence from connectionist modeling. *Personality and Social Psychology Review, 7,* 194–215.

Zebrowitz, L. A., Kikuchi, M., & Fellous, J. M. (2010). Facial resemblance to emotions: Group differences, impression effects, and race stereotypes. *Journal of Personality and Social Psychology, 98,* 175–189.

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13

The Upside of Feeling Down
The Benefits of Negative Mood for Social Cognition and Social Behavior[*]

JOSEPH P. FORGAS
University of New South Wales

What exactly is the relationship among the rational, cognitive, and emotional or affective faculties of human beings? Affective states have a significant influence on how people think and behave in social situations, yet the relationship between feeling and thinking, affect and cognition remains one of the greatest remaining puzzles about human nature (Eich et al.; Winkielman & Kavanagh, this volume). Affect is a powerful phenomenon in people's lives, yet the functions of affective states and their influence on thinking and strategic social behaviors have received less than adequate attention. Rather than seeing affect, and especially negative affect, as dangerous and subverting rational judgment and behavior, growing recent evidence suggests that affective states are a useful and even essential component of adaptive responding to social situations (Adolphs & Damasio, 2001). Affect also plays a crucial role in how people organize and represent their social experiences (Forgas, 1979) and is an integral aspect of social thinking and behavior (Bower, 1981; Zajonc, 1980, 2000).

This chapter argues that affective reactions have an important adaptive influence on social interactions and that negative affective states in particular are likely to provide important benefits for social cognition and strategic interpersonal

[*] Support from the Australian Research Council is gratefully acknowledged. For further information on this research program see also http://forgas.socialpsychology.org and http://www2.psy.unsw.edu.au/Users/JForgas

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behaviors in everyday life (Frijda, 1986), operating like domain-specific adaptations (Tooby & Cosmides, 1992; see also Galperin & Haselton, this volume). In contrast with the overwhelming emphasis claiming exclusive benefits for positive affect in the recent literature, the results of the experiments presented here highlight the potentially helpful and functional consequences of mild negative mood states (Forgas & George, 2001). The studies to be described here show, for example, that people in a negative mood are less prone to judgmental errors (Forgas, 1998), are more resistant to eyewitness distortions (Forgas, Vargas, & Laham, 2005), and are better at producing high-quality and effective persuasive messages (Forgas, 2007). Given the consistency of the results across a number of different experiments, tasks, and mood inductions, the effects appear reliable and robust. These findings are broadly consistent with the idea that, over evolutionary time, affective states became adaptive, functional triggers that elicit information processing patterns that are appropriate in a given situation (Galperin & Haselton; Kenrick, Li, White, & Neuberg; von Hippel, this volume).

THEORETICAL BACKGROUND

It is intriguing that, despite the apparently never-ending human quest for happiness and satisfaction and the powerful cult of positive affect in contemporary psychology and culture, the emotional repertoire of *Homo sapiens* as a species is nevertheless heavily skewed toward negative feelings. Four of the six basic emotions are negative—fear, anger, disgust, and sadness. These emotions were presumably adaptive in our ancestral environment, preparing the organism for flight, fight, or avoidance, and there is little doubt or debate about their adaptive benefits. But what about sadness, perhaps the most common and ubiquitous of the negative emotions? What is the purpose or benefit of being sad? Although sadness is one of the most common and enduring affective states, its possible adaptive functions remain puzzling and poorly understood (Ciarrochi, Forgas, & Mayer, 2006).

We may start this discussion by noting an interesting puzzle about the way human cultures, and modern industrial societies in particular, think about the costs and benefits of different affective states. Sadness in particular is typically considered in our culture as an unnecessary and undesirable emotion. There is a plethora of self-help books promoting the desirability of positive thinking, positive attitudes and positive behaviors, consigning negative affect in general, and sadness in particular, to the category of "problem emotions" that need to be controlled and eliminated. Much of the psychology profession is employed in dealing with and managing negative emotions.

In contrast, it is interesting to note that the treatment of negative emotions has been far more accepting throughout the history of Western civilizations. From the Greek tragedies to William Shakespeare's works to the great novels of the nineteenth century, dealing with negative events and evoking negative emotions have long been considered desirable, instructive, and indeed ennobling. It is only in the last few decades that a veritable industry promoting positivity has managed to eliminate a balanced view of the full range of human emotions as worthy of nurturing.

In contrast to the contemporary emphasis on the exclusive benefits of positivity, the experiments to be described here suggest that mild sadness, like all emotions, has important adaptive cognitive and behavioral consequences by spontaneously triggering information processing strategies best suited to dealing with the details of demanding social situations. We do not mean to suggest that positive affect has no beneficial consequences, such as promoting creativity, flexibility, cooperation, and life satisfaction (Forgas, 1994, 1998, 2002; Forgas & George, 2001). However, a series of empirical studies now demonstrate that negative moods such as sadness may promote a more attentive, accommodating thinking style that produces superior outcomes whenever detailed, externally oriented, and inductive thinking is required.

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The Conceptual Links Between Affect and Cognition

How can we understand the psychological links between affect and thinking, cognition and emotion? Much research in the past 20 years suggests that affect can influence both the content of thinking (what people think) and the process of thinking (*how* people think). Affective states can selectively prime related thoughts and ideas to be used in constructive cognitive tasks (Bower, 1981; Forgas & Bower, 1987).

Early studies suggested that positive affect simply leads to more lazy, heuristic, and superficial processing, but negative affect triggers a more effortful, systematic, and vigilant processing style (Clark & Isen, 1982). It was first thought that people in a positive mood may refrain from effortful thinking to maintain this pleasant state, whereas negative mood might trigger more vigilant, effortful processing designed to improve an aversive state. Recent theories, however, suggest a more complex pattern (Bless, 2001; Fiedler, 2001; Fiedler & Bless, 2001). Rather than simply influencing processing effort, good and bad moods trigger equally effortful but qualitatively different processing styles. Thus, positive affect recruits a more assimilative, schema-based, top-down processing style. In contrast, negative affect produces a more accommodative, bottom-up, and externally focused processing. Both positive and negative affect can thus produce adaptive, functional advantages depending on the demands of the situation. Our experiments will focus on the adaptive cognitive advantages of mild negative moods.

Attempts at Integration: The Affect Infusion Model

As mentioned already, affect influences both the content and *process* of thinking. Recent integrative theories such as the Affect Infusion Model (AIM; Forgas, 2002) seek to link the informational and processing effects of mood and attempt to specify the circumstances that facilitate or inhibit affect infusion into cognition and behavior. The AIM predicts that affective influences on cognition depend on the processing styles recruited in different situations that can differ in terms of two features: (1) the degree of *effort;* and (2) the degree of *openness* of the information search strategy. By combining processing quantity (effort) and quality (openness, constructiveness), the model identifies four distinct processing styles: (1) *direct*

access processing (low effort, closed, not constructive); (2) *motivated processing* (high effort, closed, not constructive); (3) *heuristic processing* (low effort, open, constructive); and (4) *substantive processing* (high effort, open, constructive).

Affect infusion is most likely when constructive processing is used, such as substantive or heuristic processing. In contrast, affect should not infuse thinking when motivated or direct access processing is used. The AIM also recognizes that affect itself has a significant influence on information processing strategies, consistent with the assimilative/accommodative distinctions proposed by Bless and Fiedler (2006). We shall next turn to reviewing a series of recent empirical studies that demonstrate the processing consequences of positive and negative affective states. Much has been published about the beneficial effects of positive affect (Forgas, 1998; Forgas & George, 2001). Much less is known about the adaptive advantages of dysphoria. The following experiments will explore the subtle advantages of feeling bad in a variety of social and cognitive domains.

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EXPERIMENTAL EVIDENCE FOR THE COGNITIVE AND SOCIAL BENEFITS OF NEGATIVE AFFECT

The principles we investigated may best be illustrated by an everyday example. Imagine that it is a cold, rainy day as you enter the local news agency to buy a paper. As you pay, you briefly notice a few strange objects on the checkout counter—a matchbox car, some plastic toy animals, and a few other trinkets. After you leave the store, a young woman asks you to try to remember what you saw in the shop. Could your mood, triggered by the weather, influence your memory performance? This is just the sort of study we completed recently (Forgas, Goldenberg, & Unkelbach, 2009).

The question in which we were interested was this: Are people better at remembering everyday details when they are in a bad mood, or do they remember more on a bright and sunny day when they are in a good mood? Surprisingly, it turned out that people in a slightly negative mood actually had better eyewitness memory for what they saw in the shop than did happy people questioned on a sunny day. This experiment suggests that mental processes can be significantly and reliably influenced by a person's mood state. Several of the following experiments demonstrate the adaptive consequences of negative affect in such areas as judgmental errors, eyewitness accuracy, stereotyping, interpersonal communication, and detection of deception.

Affective Influences on Gullibility and Skepticism

People mostly rely on secondhand, untested information in forming their views about the world and others. How do people decide if the mostly secondhand information they come across in everyday life is true or false? Accepting invalid information as true (gullibility) can be just as dangerous as rejecting information that is valid (excessive skepticism). Several recent experiments found that moods have a significant influence on accepting or rejecting information. Some claims (such as

"urban myths") can potentially be evaluated against objective evidence (e.g., power lines cause leukemia; the Central Intelligence Agency [CIA] murdered Kennedy), whereas other messages, such as most interpersonal communications, are by their very nature ambiguous and not open to objective validation. Induced mood states can have a significant influence on both kinds of credibility judgments, such as (1) accepting factual claims (*factual skepticism*), and (2) the acceptance of interpersonal representations (*interpersonal skepticism*) (Forgas & East, 2008a, 2008b). We investigated both kinds of effects.

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Negative Affect and Factual Skepticism There are a large number of beliefs—urban legends and myths—that circulate in all societies that propose somewhat plausible but ultimately unknown and untested claims as facts. What determines if people accept such propositions, and does affect play any role in this process? In one experiment (Forgas & East, 2011) we asked happy or sad participants to judge the probable truth of a number of urban legends and rumors. Negative mood increased and positive mood reduced skepticism, but only for new and unfamiliar claims. A follow-up experiment manipulated the familiarity of a variety of factual claims taken from trivia games (Forgas & East, 2008b). Happy mood significantly increased the tendency to accept familiar items as true. Negative mood in turn produced greater skepticism, consistent with the hypothesis that negative affect triggers a more externally focused and accommodative thinking style.

In another experiment, participants judged the truth of 25 true and 25 false general knowledge trivia statements and were also told whether each item was actually true (Forgas & East, 2011). Two weeks later, after a positive or negative mood induction, only sad participants were able to correctly distinguish between true and false claims they had seen previously. Happy participants seemed unable to remember the truth of claims and were more likely to rate all previously seen claims as true, even if they were told previously that the information was false. This pattern confirms that happy mood increased and sad mood reduced the tendency to rely on the "what is familiar is true" heuristic.

In all, negative mood conferred an adaptive advantage by promoting a more accommodative, systematic processing style (Fiedler & Bless, 2001). This effect seems due to negative mood reducing and positive mood increasing the tendency to use perceived familiarity as an indication of truthfulness.

Negative Affect and Interpersonal Skepticism Mood may also influence people's tendency to accept or reject interpersonal communications as genuine or false. In one experiment (Forgas & East, 2008a), happy and sad participants judged the genuineness of positive, neutral and negative facial expressions. Participants in a negative mood were significantly less likely to accept facial expressions as genuine than those in a positive or neutral mood. In another study, instead of positive and negative facial displays, we used the six basic emotions as targets (i.e., anger, fear, disgust, happiness, surprise, sadness). Once again, negative mood reduced, and positive mood increased participants' tendency to accept the facial displays as

genuine, consistent with the more attentive and accommodative processing style associated with negative moods.

Mood Effects on the Detection of Deception

Can these mood effects influence the ability to detect deception? We asked happy or sad participants to accept or reject the videotaped statements of people who were interrogated after a staged theft and were either guilty or not guilty (Forgas & East, 2008b). Those in a positive mood were more likely to accept denials as truthful. Sad participants made significantly more guilty judgments and were significantly better at correctly detecting deceptive (guilty) targets (Figure 13.1). Negative affect produced an advantage in accurately distinguishing truths from lies. A signal detection analysis confirmed that sad judges were more accurate in detecting deception (identifying guilty targets as guilty) consistent with the predicted mood-induced processing differences (Forgas & East, 2008b).

The previously described results confirm that negative affect increases skepticism both about factual and interpersonal messages and also significantly improves the ability to detect deception. These findings support the prediction that negative

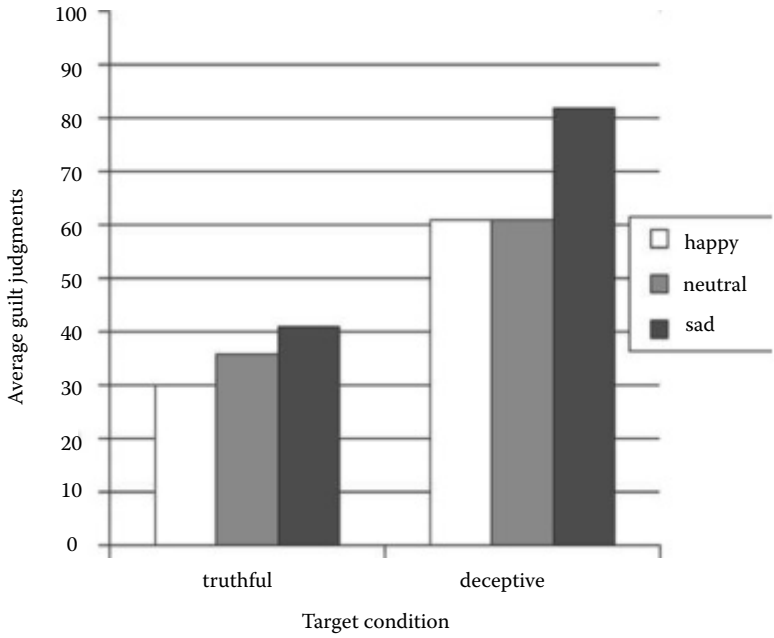


Figure 13.1 The effects of mood and the target's veracity (truthful, deceptive) on judgments of guilt of targets accused of committing a theft (average percentage of targets judged guilty in each condition). (From Forgas, J. P., & East, R., *Journal of Experimental Social Psychology, 44,* 1362–1367, 2008. With permission.)

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affect generally produces a more situationally oriented, accommodative, and inductive cognitive style.

Negative Affect

Negative affect reduces judgmental mistakes such as the fundamental attribution error. People commit many kinds of judgmental errors in everyday life. Does negative mood have any identifiable benefits in terms of reducing judgmental errors? The fundamental attribution error (FAE) or correspondence bias identifies a pervasive tendency to see intentionality and internal causation and underestimate the impact of situational forces in judgments of others (Gilbert & Malone, 1995). This error occurs because people pay disproportionate attention to the actor and fail to fully process information about situational constraints (Gilbert, 1991). If negative mood indeed facilitates accommodative processing and attention to situational information, it should help to reduce the incidence of the FAE (Forgas, 1998). Further, in terms of Jones and Davis's (1965) theory of correspondent inferences, mood effects should be strongest when the behavior of the actor is particularly salient as it deviates from popular expectations.

To test this, in one experiment happy or sad participants were asked to read and make attributions about the writer of an essay advocating a popular or unpopular position (for or against nuclear testing), which was either assigned or freely chosen (Forgas, 1998, Experiment 1). Happy persons were more likely and sad people less likely than controls to commit the FAE and incorrectly infer attitude differences based on coerced essays. Similar effects can also occur in real life. In a field study (Forgas, 1998, Experiment 2), participants who felt good or bad after seeing happy or sad movies read and made attributions about the writers of popular and unpopular essays arguing for or against recycling. Once again, those in a negative mood after seeing sad films were significantly less likely to commit the FAE. In other words, positive affect increased and negative affect decreased the FAE, especially when the essays were highly salient because they advocated unpopular positions.

To examine if these effects were indeed due to the more attentive processing of situational information in negative mood, happy or sad participants again made attributions based on freely chosen or coerced essays advocating popular or unpopular positions (for or against environmentalism; Forgas, 1998, Experiment 3). We also assessed recall of essay details as an index of processing style. Negative mood again reduced the incidence of the FAE, especially for essays advocating unpopular positions. Recall memory data showed that those in a negative mood remembered significantly more than did others, confirming that they processed the stimulus information more thoroughly. A mediational analysis revealed that as predicted, processing style was a significant mediator of mood effects on judgments. Thus, negative moods reduced the incidence of the fundamental attribution error, and these effects were directly due to the more detailed and accommodative processing style associated with dysphoria.

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Affective Influences on Reliance on Stereotypes

What influence do positive and negative mood states have on people's tendency to rely on subliminal stereotypes when responding to members of minority groups? In one recent experiment we addressed this question by asking happy or sad people to generate rapid responses to targets that did or did not appear to be Muslims (Unkelbach, Forgas, & Denson, 2009). Negative stereotypes about outgroups, such as Muslims, are difficult to assess using explicit measures, as people are unable or unwilling to reveal such prejudices. Implicit measures of prejudice, such as the IAT, also turned out to be far less satisfactory than hoped (Fiedler, Messner, & Blümke, 2006). Another way to assess stereotyping is to use disguised behavioral tasks that assess subliminal aggressive tendencies (Forgas, 2003). The recent "shooter bias" paradigm has shown that, when individuals have to shoot only at targets who carry a gun, U.S. participants show a strong implicit bias to shoot more at Black rather than White targets (Corell, Park, Judd, & Wittenbrink, 2002; Correll, Park, Judd, Wittenbrink, Sadler, & Keesee, 2007).

We expected that Muslim targets are likely to elicit a similar bias. In a shooters' task, sad people should be less likely than happy people to rely on preexisting stereotypes and should be less likely to selectively "shoot" at Muslim rather than non-Muslim targets (Unkelbach et al., 2009). Using a modified version of Correll et al.'s (2002) shooter game, happy or angry participants were instructed to shoot at targets appearing on a computer screen only when they were carrying a gun. We used morphing software to create targets who did or did not appear Muslim (wearing or not wearing a turban or the hijab). Participants were shown in rapid succession a number of Muslim or non-Muslim targets who either held a gun or held a similar object (e.g., a coffee mug; Figure 13.2). Results revealed a significantly greater tendency overall to shoot at Muslims rather than non-Muslims (Figure 13.3).

As predicted, the most intriguing finding here is that negative mood (anger) actually reduced the tendency to selectively shoot at Muslim rather than non-Muslim targets. Positive affect triggered a significant *selective* bias against Muslims,

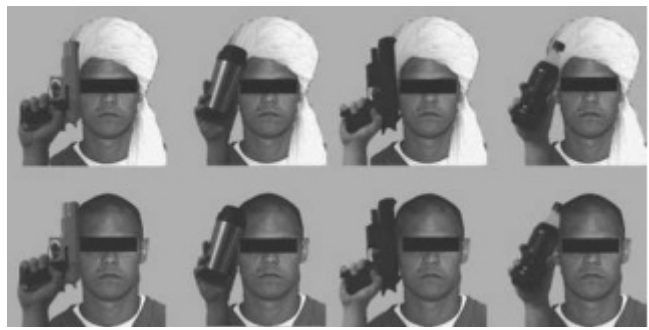


Figure 13.2 The turban effect: Stimulus figures used to assess the effects of mood and wearing or not wearing a turban on subliminal aggressive responses. Participants had to make rapid shoot–don't shoot decisions in response to targets who did or did not hold a gun, and did or did not wear a Muslim headdress (a turban). (From Unkelbach, C., Forgas, J. P., & Denson, T. F., *Journal of Experimental Social Psychology, 44*, 1409–1413, 2008.)

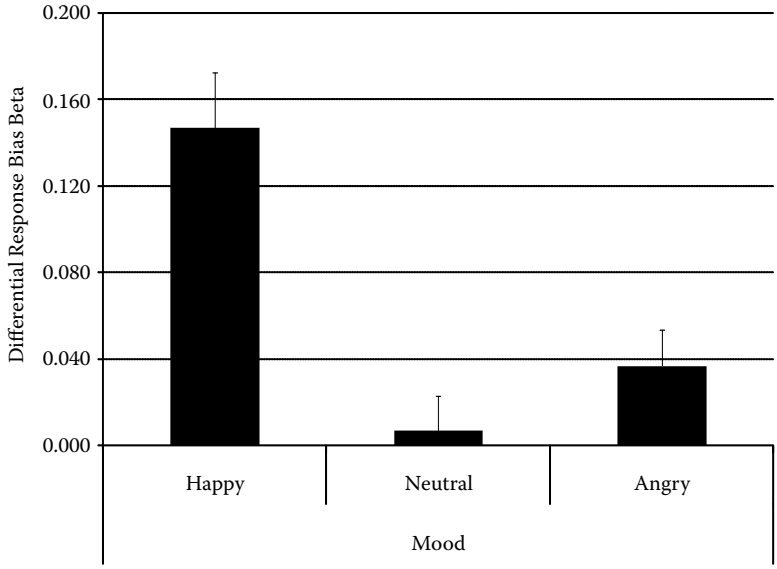


Figure 13.3 The effects of positive and negative mood on people's reliance on stereotypes in the shooters' bias task: Those in a positive mood were more likely and those in a negative mood were less likely to selectively shoot at targets wearing a turban. (From Unkelbach, C., Forgas, J. P., & Denson, T. F., *Journal of Experimental Social Psychology, 44*, 1409–1413, 2008.)

consistent with theories suggesting that positive affect promotes top-down and assimilative processing that facilitates the influence of stereotypes on subliminal responses (Bless & Fiedler, 2006; Forgas, 1998, 2007). Thus, using a behavioral measure of subliminal aggressive responses, we found that negative mood reduced and positive mood increased stereotype-based aggressive responses to Muslims.

Negative Affect Improves Eyewitness Memory

Can mood also influence the accuracy of eyewitness recollections? As the news agency study mentioned earlier suggests (Forgas et al., 2009), the answer is likely to be yes: People in a sad mood had better memories of incidentally encountered objects than did people in a happy mood induced by a sunny day (Figure 13.4).

Affect may influence eyewitness memory (1) when the event is first witnessed (encoding stage), (2) when misleading information is encountered later on (postevent stage), and (3) when the information is retrieved (retrieval stage). The news agency study showed that negative mood helps the more attentive processing and accurate encoding of incidental information. In another series of three experiments, we also found that positive affect promoted, and negative affect inhibited the incorporation of false details into eyewitness memories (Forgas, Vargas, & Laham, 2005). These studies looked at mood effects at Stage 2, on the incorporation of false information into memories. In the first experiment, participants viewed pictures showing a car

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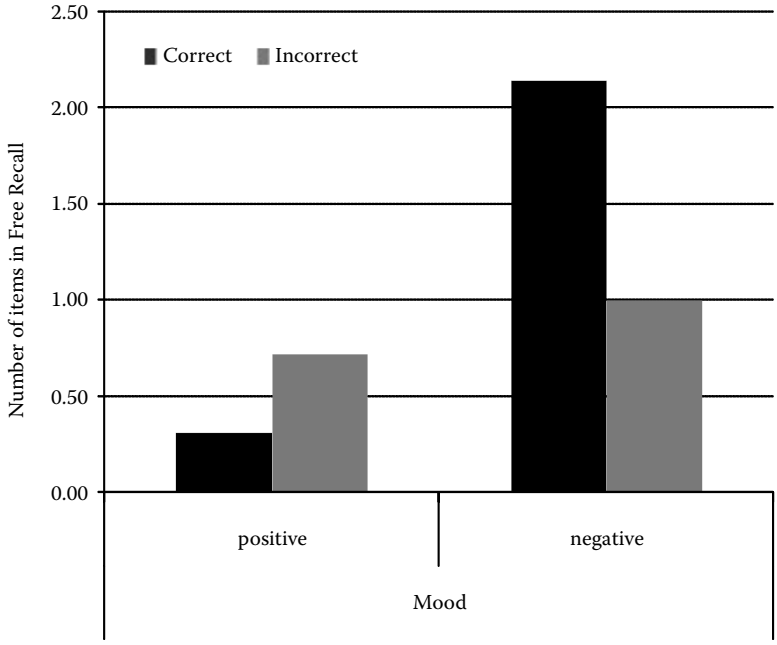


Figure 13.4 The effects of good or bad mood, induced by the weather, on people's ability to recall items casually seen in a shop. (From Forgas, J. P., Goldenberg, L., & Unkelbach, C., *Journal of Experimental Social Psychology, 54,* 254–257, 2009. With permission.)

crash scene (negative event) and a wedding party scene (positive event). One hour later, they received a mood induction (recalled happy or sad events from their past) and received questions about the scenes that either contained or did not contain misleading information. After a further 45-minute interval, we tested the accuracy of their eyewitness memory for the scenes. As expected, positive mood increased and negative mood decreased the tendency to incorporate misleading information into their memories. In fact, negative mood almost completely eliminated the common "misinformation effect," as also confirmed by a signal detection analysis.

In a more realistic follow-up experiment, students witnessed a staged 5-minute aggressive encounter between a lecturer and a female intruder (Forgas et al., 2005, Experiment 2). A week later eyewitnesses in happy or sad moods responded to a brief questionnaire about the episode that did or did not contain planted, misleading information. After a further interval, we tested eyewitness memory for the episode. Those in a positive mood while receiving the misleading information were more likely subsequently to report it as true (Figure 13.5). In contrast, negative affect seems to have all but eliminated this source of error in eyewitness memory. Signal detection analyses confirmed that negative affect improved the ability to discriminate between correct and misleading details.

Is it possible to control such mood effects? Can people *suppress* the impact of their moods when instructed to do so? In a subsequent experiment (Forgas et

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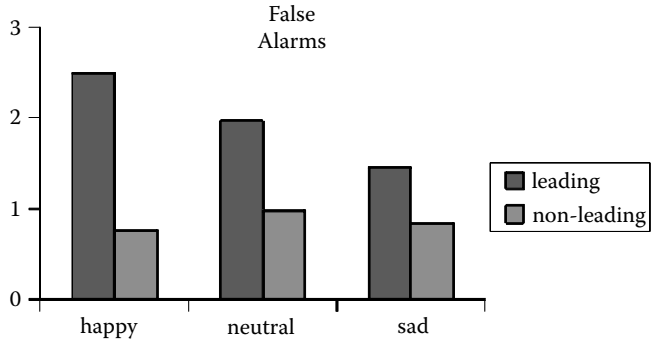


Figure 13.5 The interaction between mood and the presence or absence of misleading information on recognition (Experiment 2.): Positive mood increased and negative mood decreased the influence of misleading information on subsequent eyewitness reports (false alarms). (From Forgas, J. P., Vargas, P., & Laham, S., *Journal of Experimental Social Psychology*, *41*, 574–588, 2005. With permission.

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al., 2005, Experiment 3), participants saw videotapes showing (1) a robbery and (2) a wedding scene. After a 45-minute interval they received an audiovisual mood induction and then completed a short questionnaire that either did or did not contain misleading information about the event. Some were also instructed to "disregard and control their affective states." Finally, we tested the accuracy of their eyewitness memory for the two events. Exposure to misleading information reduced eyewitness accuracy mostly when people were in a happy rather than a sad mood. A signal detection analysis confirmed the beneficial effects of negative affect for memory performance. Instructions to control affect did not reduce this mood effect.

These experiments offer convergent evidence that negative moods can significantly improve cognitive performance by reducing susceptibility to misleading information. Paradoxically, happy mood reduced accuracy yet increased confidence, suggesting that people were not aware of the consequences of their mood states for their thinking and memory. Instructions to suppress affect were generally ineffective. These findings are consistent with affect cognition theories (Bless, 2001; Fiedler & Bless, 2001; Forgas, 1995, 2002), suggesting that both good and bad mood can have processing effects and influence eyewitness accuracy. The findings may have a number of applied implications for forensic, organizational, and clinical psychology, suggesting that mild negative affect may actually improve people's ability to remember incidentally encountered information and may reduce the impact of misleading information on eyewitness accuracy (Forgas et al., 2005).

Affective Influences on Persuasive Communication

Could negative affect also improve the effectiveness of interpersonal communication, such as the production of persuasive messages? There has been little work on how persuasive messages are produced. We expected that accommodative

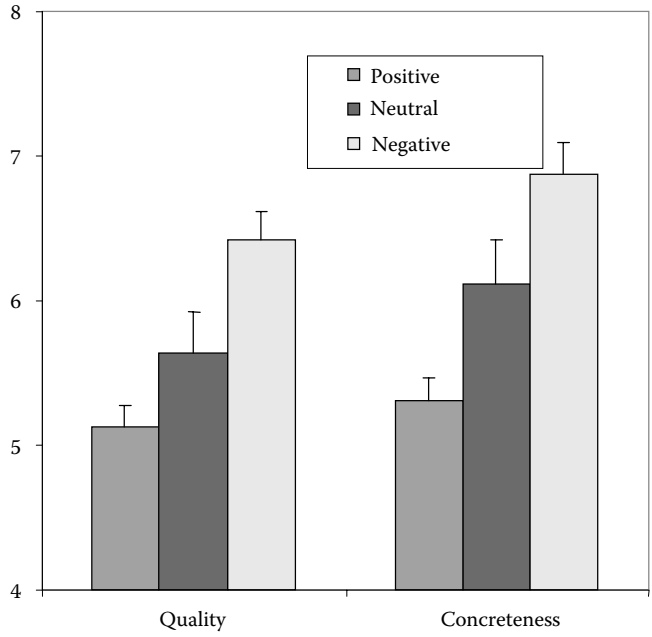


Figure 13.6 Mood effects on the quality and concreteness of the persuasive messages produced: negative affect increases the degree of concreteness of the arguments produced, and arguments produced in negative mood were also rated as more persuasive. (From Forgas, J. P., *Journal of Experimental Social Psychology. 43,* 513–128, Experiment 2, 2007. With permission.)

processing promoted by negative affect should promote more concrete and factual thinking and result in the production of superior persuasive messages. Participants received an audiovisual mood induction and were then asked to produce persuasive arguments for or against an increase in student fees and Aboriginal land rights (Forgas, 2007, Experiment 1). The arguments were rated by two raters for overall quality, persuasiveness, concreteness, and valence (positive–negative). Those in a negative mood produced higher-quality and more persuasive arguments on both issues than did happy participants. A mediational analysis showed that it was mood-induced variations in argument concreteness that influenced argument quality.

In a further experiment (Forgas, 2007, Experiment 2), happy or sad participants were asked to produce persuasive arguments for or against Australia becoming a republic and for or against a right-wing party. Sad mood again resulted in higher-quality and more persuasive arguments (Figure 13.6), consistent with the prediction that negative mood should promote a more concrete, systematic and bottom-up processing style that is more attuned to the requirements of a particular situation (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001; Forgas, 2002).

In a follow-up experiment (Forgas, 2007, Experiment 3), the arguments produced by happy or sad participants were presented to a naive audience of undergraduate students. After reading the persuasive arguments their attitude on the

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issue was assessed. Changes in attitudes in response to the persuasive arguments were assessed against a baseline measurement obtained earlier. Results showed that arguments written by negative mood participants were significantly more successful in producing a change in attitudes than were arguments produced by happy participants. In a final experiment (Forgas, 2007, Experiment 4), happy and sad people directed persuasive arguments at a "partner" to volunteer for a boring experiment using e-mail exchanges. Some persuaders were additionally motivated by the offer of a reward if successful (movie passes). Mood again had a significant effect: People in a negative mood produced higher-quality persuasive arguments than did happy persuaders. However, offering a reward reduced mood effects on argument quality, as predicted by the AIM (Forgas, 1995, 2002). According to the model, mood effects on information processing—and subsequent social influence strategies—are strongest in the absence of motivated processing. A mediational analysis again confirmed that negative mood induced more accommodative thinking and more concrete and specific arguments.

These experiments show that negative affect improved the quality and effectiveness of persuasive arguments. Such arguments were more effective because they contained more concrete details and more factual information. Such messages are seen by people as more interesting and more memorable. However, when motivation is already high, mood effects tended to diminish, as predicted by the AIM (Forgas, 2002). These results suggest that negative affect typically promotes a more concrete, accommodative, externally focused information processing style (Forgas, 1998; Forgas et al., 2005). Such concrete, accommodative processing has marked benefits for the effectiveness of social influence strategies, such as persuasive arguments. Managing personal relationships involves a great deal of persuasive communication, and it is an intriguing possibility that mild negative affect may actually promote a more concrete, accommodative, and ultimately more successful communication style.

Affective Influences on Strategic Behaviors

Imagine the following scenario: If somebody gave you 50 dollars to divide between yourself and another person any way you like, how much would you keep to yourself? Is it possible that good or bad mood might influence such strategic decisions? People face a conflict between being selfish and being fair in many everyday situations, and the dilemma inherent in these choices has been a major topic for philosophers and writers since antiquity. Recent research in evolutionary psychology suggests that humans and other primates evolved a sense of justice and fairness as an adaptive strategy to constrain selfishness and maintain social cohesion and harmony (Forgas, Haselton, & von Hippel, 2007). Does mood influence how assertive and selfish we are in interpersonal situations? We explored the possibility that positive mood may increase assertiveness and selfishness, whereas sad mood produces greater fairness in the dictator game, a question that has not been investigated previously. Unlike prior research on altruism, the dictator game allows the exploration of mood effects on pure selfishness in a simple allocation task.

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Traditional economic theories predict that rational allocators in the dictator game should maximize earnings and keep most of the resource to themselves. Actual research suggests a far more complex pattern. In fact, allocators often give 30% and even 50% to others, suggesting that behavior is governed by a subtle combination of the conflicting demands of self-interest and the norm of fairness. In this situation, moods may influence behavior by subtly shifting the way allocators focus on and interpret internal (selfish) and external (fairness norm) information. As we have seen, positive moods may promote a more internally oriented, selfish processing style (Bless & Fiedler, 2006). In contrast, negative mood seems to promote a more externally focused and accommodative processing style, with greater attention to the external norms of fairness.

In the first experiment (Tan & Forgas, 2010), volunteer students approached on campus received a false-feedback mood induction, and then they played the dictator game and made allocations either to an in-group member (student in their own faculty) or an unknown person. Mood was induced by giving participants a bogus six-item "test of cognitive-spatial abilities," estimating the surface area of randomly sized geometric figures and providing positive or negative manipulated feedback describing their performance as "outstanding" or "poor" to induce good or bad mood (e.g., Forgas, 2007). They were then asked to allocate 10 raffle tickets between themselves and another person, with a $20 voucher as the ultimate prize. Happy students kept more raffle tickets than did sad students. Also, there was a nonsignificant trend for greater selfishness toward a stranger when in positive mood (Figure 13.7). These results confirm that transient mood had a significantly influence on assertiveness and selfishness.

Experiment 2 replicated this effect using a different mood induction (affect-inducing films) and a more realistic allocation task in the laboratory, with the names and photos of partners also displayed for each task to increase realism (Tan & Forgas, 2010). After viewing films designed to induce happy or sad moods, participants performed a series of allocation tasks described as an "interpersonal game" with eight randomly assigned others, each involving the allocation of 10 points. Happy individuals were again more selfish and kept more points to themselves than did sad individuals, and there was also a significant interaction between mood and the eight trials. As the trials progressed, happy individuals became more selfish, and sad individuals became more fair (Figure 13.8).

In a further experiment we explicitly manipulated fairness norms by providing allocators with information about the fair or unfair behaviors of previous players in order to reinforce or undermine the social norm of fairness (Tan & Forgas, 2010). Information about unfair allocations should weaken the social norm and should increase the latitude for individual deliberations, thus increasing the scope for mood effects to occur. After viewing affect-inducing films, participants played the allocation task, having been exposed to information about *fair* or *unfair* offers of "past proposers" to emphasize or deemphasize the fairness norm. Happy allocators were significantly more selfish than the sad group. Also, mood effects on selfishness were greatest when the fairness norm was undermined, allowing greater scope for allocators to engage in open and constructive processing about their choices.

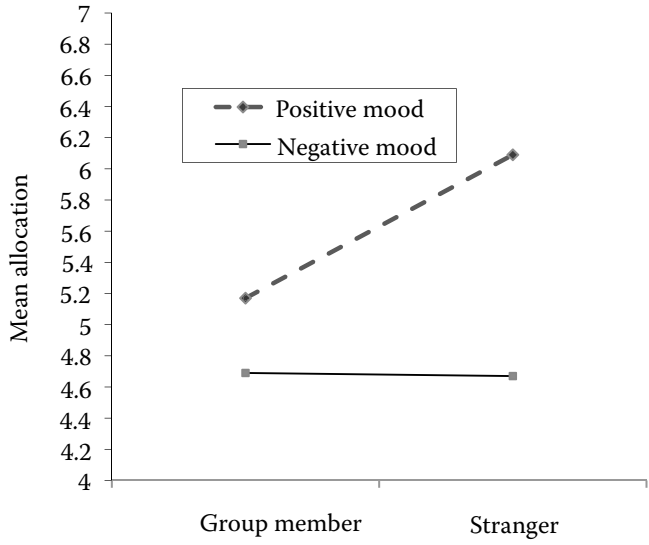


Figure 13.7 The effects of mood (good, bad) and relationship (in-group member vs. stranger) on the fairness of allocations in a dictator game, showing the mean number of tickets out of 10 individuals kept to themselves in each condition. (From Tan, H. B., & Forgas, J. P., *Journal of Experimental Social Psychology*, *46*(3), 571–576, 2010. With permission.)

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These experiments consistently show that happy mood increased assertiveness and selfishness when allocating resources in the dictator game, an almost pure measure of selfishness. Mood effects were greater when the norm of fairness was deemphasized, as allocators were more likely to process the task in an open, constructive manner. The findings are conceptually consistent with prior evidence showing that positive affect produces more assertive, confident, and optimistic interpersonal strategies, whereas negative mood triggers more pessimistic, cautious responses sensitive to external demands (Bless & Fiedler, 2006; Fiedler, 2001; Forgas, 2002).

This account is also broadly consistent with functionalist evolutionary theories suggesting that affect has a signaling function about situational requirements (Clore & Storbeck, 2006; Forgas et al., 2007; Schwarz, 1990), with negative affect recruiting a more externally focused, accommodative orientation (Bless & Fiedler, 2006). Positive affect in turn promotes more assimilative, internally focused strategies, further enhancing the tendency for selfishness (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001). Many conflict situations in people's private as well as working lives involve decisions between acting assertively and selfishly and acting fairly. The kind of mood effects on assertiveness and selfishness demonstrated here may have important implications for real-life conflict behaviors in personal relationships, organizational decisions, and many other everyday situations where decisions by one person have incontestable consequences for others.

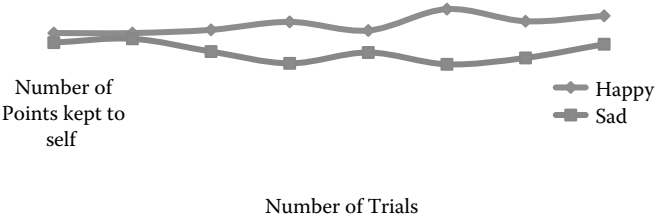


Figure 13.8 The effects of mood on selfishness versus fairness: Happy persons keep more points to themselves than do sad people, and these effects are more pronounced as allocation trials progress. (From Tan, H. B., & Forgas, J. P., *Journal of Experimental Social Psychology*, *46*(3), 571–576, 2010. With permission.)

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SUMMARY AND CONCLUSION

In contrast with the overwhelming emphasis on the benefits of positive affect in recent literature, the research findings discussed in this chapter highlight the potentially adaptive and beneficial consequences of negative mood for social cognition and strategic interpersonal behaviors (Forgas & George, 2001). Positive affect is not universally desirable: People in a negative mood are less prone to judgmental errors (Forgas, 1998), are more resistant to eyewitness distortions (Forgas et al., 2005), and are better at producing high-quality and effective persuasive messages (Forgas, 2007). Given the consistency of the results across different experiments, tasks, and mood inductions, the effects appear reliable. The findings are broadly consistent with the notion that over evolutionary time affective states became adaptive triggers to elicit information processing patterns that are appropriate in a given situation (Galperin & Haselton, this volume).

Dealing with social information and planning interpersonal strategies is necessarily a complex and demanding cognitive task that requires a high degree of elaborate processing (Forgas, 1995, 2002). The research presented here suggests that, in many situations, negative affect such as sadness may increase whereas positive affect may decrease the quality and efficacy of cognitive processes and interpersonal behaviors. Much has been learned about the way affective states influence memory, thinking, and judgments in recent years, yet not enough is known about the evolutionary mechanisms that are responsible for the way we respond to various affective states.

REFERENCES

Adolphs, R., & Damasio, A. (2001). The interaction of affect and cognition: A neurobiological perspective. In J. P. Forgas (Ed.), *The handbook of affect and social cognition* (pp. 27–49). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Bless, H. (2001). Mood and the use of general knowledge structures. In L. L. Martin (Ed.), *Theories of mood and cognition: A user's guidebook* (pp. 9–26). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Bless, H. & Fiedler, K. (2006). Mood and the regulation of information processing and behavior. In J. P. Forgas (Ed.), *Hearts and minds: Affective influences on social cognition and behaviour* (pp. 65–84). New York, NY: Psychology Press.

Bower, G. H. (1981). Mood and memory. *The American Psychologist*, *36*, 129–148.

Ciarrochi, J. V., Forgas, J. P. & Mayer, J. D. (Eds.) (2006). *Emotional intelligence in everyday life* (2nd Ed.). Philadelphia, PA: Psychology Press.

Clark, M. S. & Isen, A. M. (1982). Towards understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73–108). New York, NY: Elsevier-North Holland.

Clore, G. L., & Storbeck, J. (2006). Affect as information about liking, efficacy, and importance. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 123–143). New York: Psychology Press.

Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of personality and social psychology, 83*(6), 1314–1329.

Correll, J., Park, B., Judd, C. M., Wittenbrink, B., Sadler, M. S., & Keesee, T. (2007). Across the thin blue line: Police officers and racial bias in the decision to shoot. *Journal of personality and social psychology, 92*(6), 1006–1023

Fiedler, K. (2001). Affective influences on social information processing. In J. P. Forgas (Ed.), *The handbook of affect and social cognition* (pp. 163–185). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Fiedler, K. & Bless, H. (2001). The formation of beliefs in the interface of affective and cognitive processes. In N. Frijda, A. Manstead & S. Bem (Eds.), *The influence of emotions on beliefs*. New York: Cambridge University Press.

Fiedler, K., Messner, C. & Blümke, M. (2006). Unresolved problems with the "I," the "A," and the "T" - Logical and psychometric critique of the Implicit Association Test. *European Review of Social Psychology*, 17, 74–147.

Forgas, J. P. (1979). *Social episodes: The study of interaction routines*. London/New York: Academic Press.

Forgas, J. P. (1994). Sad and guilty? Affective influences on explanations of conflict episodes. *Journal of Personality and Social Psychology*, *66*, 56–68.

Forgas, J. P. (1995). Mood and judgment: The Affect Infusion Model (AIM). *Psychological Bulletin*, *116*, 39–66.

Forgas, J. P. (1998). Happy and mistaken? Mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology*, *75*, 318–331.

Forgas, J. P. (2002). Feeling and doing: Affective influences on interpersonal behavior. *Psychological Inquiry*, *13*, 1–28.

Forgas, J. P. (2003). Why don't we do it in the road…? Stereotyping and prejudice in mundane situations. *Psychological Inquiry, 14,* 249–255.

Forgas, J. P. (2007). When sad is better than happy: Mood effects on the effectiveness of persuasive messages. *Journal of Experimental Social Psychology. 43*, 513–128.

Forgas, J. P., & Bower, G. H. (1987). Mood effects on person perception judgements. *Journal of Personality and Social Psychology*, *53*, 53–60.

Forgas, J. P., & East, R. (2008a). How real is that smile? Mood effects on accepting or rejecting the veracity of emotional facial expressions. *Journal of Nonverbal Behavior*.

Forgas, J. P., & East, R. (2008b). On being happy and gullible: Mood effects on scepticism and the detection of deception. *Journal of Experimental Social Psychology, 44,* 1362–1367.

Forgas, J. P., & East, R. (2011). *Mood effects on gullibility and belief in urban myths*. Manuscript. University of New South Wales, Sydney, Australia.

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Forgas, J. P., & George, J. M. (2001). Affective influences on judgments and behavior in organizations: An information processing perspective. *Organizational Behavior and Human Decision Processes*, *86*, 3–34.

Forgas, J. P., Goldenberg, L., & Unkelbach, C. (2009). Can bad weather improve your memory? A field study of mood effects on memory in a real-life setting. *Journal of Experimental Social Psychology, 54,* 254–257.

Forgas, J. P., Haselton, M., & von Hippel, W. (Eds.). (2007). *Evolution and the social mind: Evolutionary psychology and social cognition*. New York: Psychology Press.

Forgas, J. P., Vargas, P., & Laham, S. (2005). Mood effects on eyewitness memory: Affective influences on susceptibility to misinformation. *Journal of Experimental Social Psychology*, *41*, 574–588.

Frijda, N. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.

Gilbert, D. T. (1991). How mental systems believe. *American Psychologist*, *46*, 107–119.

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin*, *117*, 21–38.

Jones, E. E., & Davis, K. E. (1965). From acts to dispositions. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. New York: Academic Press.

Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology*, *3*, 1–24.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527–561). New York: Guilford Press.

Tan, H. B., & Forgas, J. P. (2010). When happiness makes us selfish, but sadness makes us fair: Affective influences on interpersonal strategies in the dictator game. *Journal of Experimental Social Psychology, 46*(3), 571–576.

Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow & L. Cosmides (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 19–136). London: Oxford University Press.

Unkelbach, C., Forgas, J. P., & Denson, T. F. (2008). The turban effect: The influence of Muslim headgear and induced affect on aggressive responses in the shooter bias paradigm. *Journal of Experimental Social Psychology, 44*, 1409–1413.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*, 151–175.

Zajonc, R. B. (2000). Feeling and thinking: Closing the debate over the independence of affect. In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 31–58). New York: Cambridge University Press.

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14

Construct Accessibility and Interpretation of Self-Behaviors
Tracing and Reducing the Signatures of Self-Protection and Self-Enhancement

CONSTANTINE SEDIKIDES
University of Southampton

JOHN J. SKOWRONSKI
Northern Illinois University

Other-evaluation can be neutral or driven solely by accuracy concerns (Malle, Guglielmo, & Monroe; Semin & Garrido; Wänke, Samochowiec, & Landwehr, this volume), but self-evaluation rarely is. Instead, self-evaluation is guided by motives, of which the most prominent are self-protection and self-enhancement. Self-protection refers to avoiding, minimizing, misinterpreting, or discarding information that has unfavorable implications for the self. Self-enhancement, on the other hand, refers to pursuing, magnifying, overinterpreting, or fully endorsing information that has favorable implications for the self (Alicke & Sedikides, 2009; Sedikides & Gregg, 2003, 2008; Sedikides & Strube, 1997.)

POTENCY AND PREVALENCE OF SELF-ENHANCEMENT STRIVINGS AND SELF-PROTECTION STRIVINGS

The self-protection motive and the self-enhancement motive manifest themselves through a large repertoire of cognitions, emotions, and behaviors (Alicke

& Sedikides, 2011; see also Cooper; von Hippel, this volume). In a comprehensive literature review, Hepper, Gramzow, and Sedikides (2010) identified 60 major self-enhancement/self-protection strivings. These authors then created a questionnaire that represented the strivings and asked participants to judge how characteristic or typical each striving was of them. For example, to operationalize the better-than-average striving (Alicke & Govorun, 2005), participants were asked to imagine "thinking of yourself as generally possessing positive traits or abilities to a greater extent than most people do" and subsequently to rate how characteristic this striving was of them.

Hepper et al. (2010) used factor analyses to distill the 60 strivings into four "families." The first was termed *positivity embracement*. It consisted of 10 strivings that pertained to the acquisition or retention of positive (i.e., self-enhancing) feedback or the maximization of expected success. Examples are: making self-serving attributions for success (Mezulis, Abramson, Hyde, & Hankin, 2004), engaging in self-promoting social interactions (Leary, 2004), and remembering favorable feedback better than unfavorable feedback (Skowronski, 2011). The second family was termed *favorable construals*. It consisted of six strivings that pertained to forming flattering construals of the self in the social world. Examples are: positive illusions (Taylor & Brown, 1988), comparative optimism (Weinstein, 1980), and self-favoring interpretations of ambiguous or negative feedback (Critcher, Helzer, & Dunning, 2011). The third family was termed *defensiveness*. It consisted of 18 strivings that pertained to the protection of the self from threat. Examples are: self-handicapping (Zuckerman & Tsai, 2005), defensive pessimism (Norem & Cantor, 1986), out-group derogation (Fein & Spencer, 1997), moral hypocrisy (Batson & Collins, 2011), and self-serving attributions for failure (Campbell & Sedikides, 1999). The fourth and final family was termed *self-affirming reflections*. It consisted of six strategies that pertained to securing positive self-views or outcomes when faced with the potential for negative outcomes. Examples are: downward counterfactual thinking (Sanna, Chang, & Meier, 2001), temporal comparison (Wilson & Ross, 2001), and focusing on strengths, values, or relationships (Sherman & Cohen, 2006). Importantly, these four families of striving were validated not only in Western cultures (Hepper et al.) but also in an East Asian culture (i.e., China; Hepper, Sedikides, & Cai, 2011).

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ARE SELF-ENHANCEMENT AND SELF-PROTECTION STRIVINGS BENEFICIAL?

As described already, the evidence suggests that the self-enhancement and self-protection motives are potent and prevalent. More importantly, the motives confer both psychological benefits and pragmatic benefits to the individual. These include better psychological health (Sedikides, Gregg, & Hart, 2007), better social adjustment (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005), improved physical health (Taylor, Lerner, Sherman, Sage, & McDowell, 2003), more effective coping with traumatic life events (Bonanno, Rennicke, & Dekel, 2005), greater

persistence in the face of adversity (Taylor & Brown, 1988), and advancement of one's interests or goals (Alicke & Sedikides, 2009).

Nonetheless, the two motives are not free of personal, interpersonal, or behavioral liabilities. Personal liabilities include ill-considered risk taking (Baumeister, Heatherton, & Tice, 1993), imprudent action planning (Oettingen & Gollwitzer, 2001), and increased likelihood of disengagement from academic studies (Robins & Beer, 2001). Interpersonal liabilities include being perceived and treated unfavorably by others. For example, following a brief infatuation period, peers come to consider habitual self-enhancers as defensive, condescending, and hostile (Paulhus, 1988) and tend to deride or socially isolate them (Schlenker & Leary, 1982). Finally, behavioral liabilities include actions that lead to illness, injury, and death. For example, individuals from temperate climates often sunbathe extensively, accepting the risks of sunstroke, sunburn, and skin cancer for the sake of feeling good and looking good among their peers (Leary, Tchividjian, & Kraxberger, 1994).

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ARE SELF-ENHANCEMENT AND SELF-PROTECTION STRIVINGS CONTROLLABLE?

Given the potential costs associated with self-enhancement and self-protection, researchers have asked whether such strivings are controllable. Fortunately, empirical findings suggest that both interpersonal factors and intrapersonal factors place limits on the scope of self-enhancement and self-protection effects.

Interpersonal Limits

One set of limiting factors reflect interpersonal contexts. Examples of these are the relational context and the social context.

Relational Context Relationship closeness restrains self-enhancement strivings. For example, in a study by Campbell, Sedikides, Reeder, and Elliot (2000; see also McCall, Reno, Jalbert, & West, 2000), some participants worked collaboratively with a stranger on an interdependent-outcomes task billed as a creativity test; others worked with a friend. In this task, participants generated as many unique uses as possible for several objects (e.g., candle, brick). Then, participants received either success feedback or failure feedback at the dyadic level (i.e., based on the combined score). Strangers (or distant participants) displayed the self-serving bias, blaming their partner for dyadic failure and claiming personal credit for dyadic success. However, friends (or close participants) refrained from the self-serving bias: They shared responsibility for both dyadic failure and dyadic success.

Notably, this pattern does not depend on expectations for future and rewarding interactions with the close partner or on expectations for relationship maintenance. Thus, relationship closeness per se suffices for a reduction in self-enhancement. Evidence supporting this claim was provided by Sedikides, Campbell, Reeder, and Elliot (1998). These authors tested only unacquainted participants who did not anticipate interacting with one another and who also

promised not to discuss the experiment in incidental (albeit unlikely) encounters on a large academic campus. Closeness was induced experimentally in half of participants through a reciprocal and escalating self-disclosure procedure (i.e., taking turns in asking questions that required increasingly intimate answers). Again, distant participants displayed the self-serving bias, but close participants did not.

Social Context The social context also places constraints on the scope of self-enhancement and self-protection effects. Verifiability is a case in point: People self-enhance less on attributes that are easy rather than difficult to verify. For example, athletes lionize themselves less on unambiguous (e.g., speed, size, ball heading) than ambiguous (e.g., mental toughness, coordination, soccer ability) attributes (Felson, 1981; Van Yperen, 1992); students glorify their performance less on concrete than global domains (Kurman & Eshel, 1998; Willard & Gramzow, 2009); job applicants exaggerate their resumes less when they know that the organization can confirm the information (Donovan, Dwight, & Hurtz, 2003); and people describe themselves less positively on traits that are easy (e.g., intelligent) than difficult (e.g., fair) to corroborate (Allison, Messick, & Goethals, 1989; Van Lange & Sedikides, 1998).

One reason that verifiability constrains self-enhancement and self-protection is because of its potential for accountability. The relevance of accountability is illustrated in research by Sedikides, Herbst, Hardin, and Dardis (2002, Experiment 1). In this research, participants wrote an opinion essay (e.g., "Should the United States pursue exploration of the planet Saturn?") and prepared to grade it. In the meantime, some participants were led to believe that they were accountable (i.e., had to explain, defend, and justify their grade) to another person, whereas other participants were led to believe that they were unaccountable. Essay grading followed. Accountable participants gave their essays lower grades than unaccountable participants. Furthermore, accountable participants who were identifiable to an evaluative audience were especially likely to assign their essays lower grades (Sedikides et al., Experiments 2–3).

Intrapersonal Limits

Importantly, not only interpersonal factors but also intrapersonal factors set limits on the scope of self-enhancement effects and self-protection effects. Examples of such factors are self-focus and introspection.

Self-Focus An internal focus reduces self-enhancement. For example, the presence of a mirror decreases inflation of reported SAT scores (Pryor, Gibbons, Wicklund, Fazio, & Hood, 1997). Relatedly, accountable (and thus less self-enhancing) participants focus on their weaknesses as essay writers (Sedikides & Herbst, 2002). Moreover, in open-thought protocols, accountable participants express doubts about their competence as essay writers, reflect on the grueling experience of writing essays in the past, wonder how poor many of their past essays must have been, and recollect how critical other people were of their essays (Sedikides et al., 2002, Experiment 4). Attentional

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focus on weaknesses, then, is tantamount to self-criticism. Indeed, the presence of a mirror during a writing task fosters self-criticism (Heine, Takemoto, Moshalenko, Lasaleta, & Henrich, 2008). A reason for self-enhancement curtailment under self-focus is that self-focus draws attention toward one's inner standards and thus highlights the discrepancy between ideal self and the actual self (Silvia & Duval, 2001).

Introspection Introspection is a special case of self-focus and also curbs self-enhancement and self-protection effects. Support for this idea was provided by Sedikides, Horton, and Gregg (2007, Experiments 1–2). Participants thought carefully (i.e., introspected) about the reasons why they possessed or did not possess particular traits (e.g., kind, honest, trustworthy or unkind, dishonest, untrustworthy), listed these reasons, and then rated themselves on these traits. Compared with a nonintrospecting control group, participants who introspected about positive traits rated themselves to have lesser amounts of such traits; thus, these persons experienced a drop in self-enhancement. However, compared with a control group, participants who introspected about negative traits rated themselves as possessing greater amounts of such traits; thus, these persons experienced a drop in self-protection. These decreases in self-enhancement and self-protection were due to accompanying reductions in self-certainty (Sedikides et al., Experiment 3; see also Petty, Brinol, & Tormala, 2002). Moreover, it is possible that the accessibility of trait constructs (Sedikides & Skowronski, 1991) may have played a role in the observed effects. For example, when people thought about negative traits introspection might have diminished the endorsement of positive traits (e.g., kind) by increasing the accessibility of negative traits (e.g., unkind). Regardless of the exact reasons, self-enhancement and self-protection motives seem to be relatively impotent when individuals introspect.

Flexibility in Self-Thought: The Influence of Construct Accessibility

The ideas expressed in the previous paragraphs suggest that peoples' thoughts about themselves can vary across time and context. Indeed, a great deal of research documents the malleability and flexibility of self-conceptions (Fazio, Effrein, & Falender, 1981; Markus & Kunda, 1986; Schwarz, Bless, Strack, Klumpp, Rittenauer-Schatka, & Simmons, 1991; see also von Hippel, this volume), contributing to the fact that self-perceptions manifest both temporal inconsistency and cross-situational flexibility (DeSteno & Salovey, 1997).

Researchers have explored factors that influence self-perception variation. One such factor is construct accessibility. Constructs vary in their accessibility (roughly, their "state of readiness to be used"), and this variability influences later cognitive processing about others (DeCoster & Claypool, 2004; Sedikides & Skowronski, 1991). Applied to self-perceptions, this perspective suggests that variability in the accessibility of self-relevant traits can account for short-term variations in self-judgments (Schubert & Häfner, 2003; Wyer, Calvini, & Nash, 2010). For example, parallel distributed processing conceptions of self-representations suggest that self-concepts are recomputed each time a self-judgment is required, and such

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recomputations are influenced by those portions of the self-evidentiary base made accessible by situationally triggered constructs (Van Overwalle & Labiouse, 2004).

Existing data already document some of the roles that construct accessibility plays in self-thought. For example, Chatard, Guimond, and Selimbegovic (2007, Study 2) primed gender stereotypes by asking students to evaluate stereotype-consistent statements (e.g., "Men are gifted in mathematics"; "Women are gifted in arts") and then asked the students to report their grades in math courses and arts courses. Male participants reported exaggerated math grades when gender stereotypes were accessible, whereas female participants reported exaggerated arts grades when arts stereotypes were accessible. Similarly, non-African Americans primed with the African American stereotype reported both feeling especially close to African Americans and heightened feelings of aggression (DeMarree, Wheeler, & Petty, 2005; Galinsky, Wang, & Ku, 2008).

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Variation in Behavior-Based Inferences About the Self

Such variation across time and circumstance can apply to the interpretations that people give to their behaviors. Indeed, people sometimes do not know why they do what they do before they do it. Instead, they may infer a behavior's meaning and engage in consequent self-inferences after having enacted the behavior (Stone & Cooper, 2001). Clearly, attempts at attitude change via induced compliance use this idea (Burger & Caldwell, 2003). For example, consider that a homeowner might be induced without obvious pressure or incentive to place a sign in their front yard endorsing a politician. Later, the homeowner may try to deduce the motivation underlying the behavior. He may recognize that placing a sign in one's yard can mean that one supports the politician. Hence, he may infer that he is a supporter. However, another homeowner interpretation might be that he simply wanted to assist someone in need of help. Yet another possible homeowner interpretation is that he wanted to avoid unpleasant interpersonal confrontation, acquiescing simply to make the requesters go away.

While such variation can apply to inferences about motives, it can also apply to inferences about traits and dispositions. Consider the hypothetical example of Laura, a golf lover. Laura might perceive that she is hitting the ball well on the practice tee and conclude that she might finally be improving at the game. When she subsequently holes a chip shot on the first hole, she may see this as confirmation that her golf is improving. However, on another occasion, Laura might be hitting the ball poorly on the practice tee and might conclude that she is unskilled at golf. Thus, when she subsequently holes a chip shot, she might conclude that the shot was a very lucky stroke, indeed.

Curiously, although past literature has established that priming can modify self-judgments, until recently research had not shown that priming could directly alter interpretation of self-behavior (for related ideas, see Sedikides & Herbst, 2002; Sedikides et al., 2007; Silvia & Duval, 2001). This was an issue that our team addressed in a recent set of studies (Skowronski, Sedikides, Heider, Wood, & Scherer, 2010).

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Self-Enhancement and Self-Protection Motivation as Moderators of Priming Effects

Those studies also addressed a second question: To what extent are priming effects moderated by self-enhancement or self-protection motivation? To illustrate this issue, let us return to our example of the golfer, Laura. Might it be easier to induce Laura to see her performance as a result of her increasing skill (a self-serving attribution) than luck? The notions of self-enhancement and self-protection suggest that this might be so. That is, if people are motivated to view themselves positively, it might be especially easy to use priming to induce Laura to interpret a positive performance as reflecting her skills than as reflecting good luck (a self-enhancement effect); it might also be easier to induce Laura to interpret a negative performance as reflecting bad luck instead of a deficiency in her skills (a self-protection effect).

The Skowronski et al. (2010) experiments explored such issues by examining the extent to which priming effects were observed for the self (or not) and comparing the extent to which these effects were observed for a hypothetical other. To understand the logic underlying the studies, consider a participant being exposed to a priming manipulation that heightens the accessibility of the trait *hostile*. Then, imagine that the participant reads a story in which a protagonist behaves in an ambiguous manner that could be construed as hostile.

When the story protagonist is not the same person as the participant, participants rate the story's protagonist as especially hostile (Srull & Wyer, 1979). However, what would happen if participants were to imagine that *they* were the story protagonist? Extrapolating from the findings in the other-perception literature, one possibility is that the priming manipulation would affect interpretations of self-behavior *in the same way* as it affects interpretations of the same behavior when performed by another person: Behavior construals should be consistent with the implication of the primed construct and should influence subsequent self-judgments in a trait-congruent manner. Thus, when the construct of meanness is made accessible, participants might interpret an ambiguous self-behavior (e.g., telling a friend that her hairdo is ugly) as reflecting meanness rather than honesty (a viable alternative interpretation). Accordingly, later self-judgments would reflect heightened meanness.

However, the notions of self-enhancement and self-protection suggest that negative self-labeling might be especially difficult (Sedikides, in press). Thus, given the potency and prevalence of self-protection and self-enhancement motivation, the possibility that construct accessibility will influence negative behavior interpretation and negative self-inference may be limited. Empirical justification for this hypothesis comes from literature that compares other-perception to self-perception. This literature indicates that perceptions of these two classes of actors often differ, even when those perceptions are derived from the same objective data (Pronin, Lin, & Ross, 2002; Sedikides & Green, 2009).

In its extreme form, the self-enhancement/self-protection viewpoint posits that the meanness primes should not have an assimilative effect on the interpretation of self behavior, despite having such an effect on the interpretation of the behav-

ior of another. However, this viewpoint would also be supported if the priming manipulation produced weaker assimilative effects for the self than other.

CONSTRUCT ACCESSIBILITY AND INTERPRETATION OF SELF-BEHAVIOR: THE INITIAL MEANNESS PRIMING STUDIES

Our research team tested these ideas in experiments that used a priming manipulation to vary the accessibility level of the meanness construct (Skowronski et al., 2010, Experiment 2; see also Experiment 1). Replicating methods used in past research (for a review, see Sedikides & Skowronski, 1991), a sentence unscrambling task was used as the manipulation. Participants had 8 minutes to rearrange 60 scrambled word sequences (between four and six words each) into a grammatical sentence that comprised at least three words. There were two experimental conditions. In the *meanness priming* condition, 50 of the 60 word sequences, when unscrambled, implied *meanness*. For example, "cry them let make" could be rearranged to "make them cry" or "let them cry"; "cat the kick his" could be rearranged to "kick the cat" or "kick his cat." In the *neutral priming* condition, no word sequences, when unscrambled, reflected meanness.

Following the completion of a filler task, participants received a packet containing a vignette (based on Srull & Wyer, 1979) that described behaviors of an actor. For one half of participants the actor was another person (Terry), whereas for the other half the actor was the self. Participants in the *Terry* condition imagined that they were about to meet a person named Terry and that the vignette described Terry's recent day with a friend. Participants were instructed to consider the vignette's implications for Terry's personality. Participants in the *self* condition imagined that they were about to meet another person who wanted to know in advance what the participant was like. Participants imagined that, in response to this request, they had generated the vignette as a description of a recent day they spent with a friend. (The vignette featured the pronouns *I*, *me*, or *my*). Participants were instructed to think about personality characteristics they might have based on the vignette alone. This manipulation allows comparison of other (Terry) judgments and self-judgments as they are affected by the same behaviors.

The behaviors included in the vignette were ambiguously mean. Each behavior was accompanied by qualifying situational information intended to increase further the ambiguity of its trait implications. Specifically, the behaviors (and the qualifiers) were: (1) did not buy anything from a salesman (who knocked loudly); (2) said that they would not pay the rent until the apartment was painted (which was supposed to be painted 2 years ago); (3) told the mechanic that the car needed to be fixed this week, not next week (needed the car for his job); (4) asked the clerk about getting money back for a gadget (which had faulty electronics); and (5) yelled at the referee who made a bad call at a basketball game (call was overruled by another referee).

After reading the vignette at their own pace, participants judged the personality of the target (Terry or the self, depending on condition). The ratings reflected

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meanness-related traits (e.g., aggressive, hostile, ill-tempered, rude) and meanness-unrelated control traits (e.g., creative, spiritual, disorganized, undependable).

The priming manipulation was effective: Participants in the meanness priming condition rated the target as meaner than those in the neutral condition. Furthermore, participants in the two conditions did not differ in their target ratings on the control traits, so this priming effect was limited to the meanness ratings. Evidence also emerged for the operation of the self-protection/self-enhancement motives: Participants rated themselves more positively (on both meanness-related and control traits) than they rated Terry.

Of particular relevance, though, was the interaction between priming condition and target. If self-protection/self-enhancement motivations intervene in the interpretation of self-behaviors, then meanness priming effects should have been strong in other-perception but weak (or nonexistent) in self-perception. This did not occur: Priming the construct of meanness exacerbated meanness judgments of an ambiguously behaving actor, regardless of whether this actor was Terry or the self. This outcome is not congenial to the self-protection/self-enhancement viewpoint.

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THE PURSUIT OF MODERATION EFFECTS IN THE SELF-PRIMING PARADIGM: INTRODUCING SELF-THREAT

Skowronski et al. (2010) wondered whether the failure to find support for the moderation of priming effects by target may have been due to the fact that the experimental paradigm did not strongly prompt the self-protection motive. This motive is often instantiated by threat (Campbell & Sedikides, 1999; Sedikides, in press; Sedikides & Green, 2009), and participants may not have felt especially threatened by negative interpretations of their behaviors or by giving themselves a negative trait rating based on these behaviors.

In Skowronski et al. (2010, Experiment 3), our research team pursued the idea that self-protection motivation, induced by self-threat, would decrease the likelihood that participants would rate themselves as mean. In the experiment, some participants completed a judgment task intended to threaten the self. Other participants (i.e., the control group) completed a judgment task intended to enhance the self. In addition, we orthogonally manipulated target: Two additional conditions exposed some participants to judgment tasks in which other persons were either threatened or enhanced. Inclusion of these conditions attempted to ensure that, if self-threat effects emerged, they could specifically be attributed to self-threat instead of to general threat.

Let us be more specific about this task. In the *self* condition, participants considered their own chances of experiencing an event. Examples are: (1) "Some experts have claimed that 8 out of every 10 college students will experience mental deficits in old age because of their drug use in college. What do you think your chances are of experiencing mental deficits in old age because of your drug use in college?"; (2) "Some experts have claimed that high levels of sexual activity in college will lead to 4.5 out of every 10 college students contracting a sexually-transmitted disease. What do you think your chances are of contracting a sexually-transmitted

disease?"; and (3) "Some experts have claimed that because of widespread gun availability, 1 out of every 6 people will be the victim of a shooting. What do you think your chances are of being the victim of a shooting?" In the *other* condition, participants considered other peoples' chances of experiencing the same events. In addition, the events varied by valence across groups. In the *threat* condition, participants considered the occurrence of negative life events (for self or others). However, in the *enhancement* condition, participants considered the occurrence of positive life events (for self or others). Participants responded to each event by providing a numerical probability estimate ranging from 0% to 100%.

Subsequently, participants engaged in the priming task, which was identical to that used in the experiment described earlier in this chapter. As before, half of participants were exposed to the *meanness prime* condition (i.e., 60 word sequences relevant to meanness); half were exposed to the *neutral* condition (i.e., no word sequences relevant to meanness). Participants then read a meanness-ambiguous paragraph about either Terry or the self (as in the previous experiment) and rendered judgments on several sets of traits. The first set contained the meanness-related traits used in the prior experiment. The second set pertained to assertiveness (e.g., assertive, firm, resolute). The third set contained positive traits that were unrelated to meanness (e.g., creative, fashionable, logical), and the fourth set contained negative traits that were unrelated to meanness (e.g., dull, lazy, shallow). We included the latter three sets of traits to explore the specificity of the effects obtained in the initial studies.

Replicating Experiment 1, results suggested that participants in the meanness priming (relative to neutral) condition perceived the target to be especially mean. This effect was specific to meanness and did not emerge on the control traits. Moreover, priming as in Experiment 1, this assimilative pattern occurred equally for Terry and the self. Notably, this lack of moderation by target occurred despite evidence elsewhere suggesting the presence of self-enhancement strivings: Participants judged the self as less mean, and as more positive on the control traits, than Terry. Finally, this pattern occurred across levels of the self-threat manipulation. This was not because of the failure of that manipulation: The results suggested that the event probability task manipulation was effective, yielding evidence of a self-protective bias. Participants who received the threatening (compared with the flattering) version of the task assigned a lower probability to event occurrences. Furthermore, compared with the ratings provided when the questions asked about other people, participants assigned lower occurrence probabilities to threatening events when the target was the self and correspondingly assigned higher occurrence probabilities to flattering events when the target was the self.

Deliberative Versus Direct Construal of Self-Behavior: Different Routes to Self-Judgment?

The empirical findings that we discussed so far (Skowronski et al., 2010, Experiment 1–3) showed that variations in construct accessibility can influence interpretation of one's behavior and subsequent self-judgment in an assimilative manner, even

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when the accessible construct is negative (i.e., meanness). These findings suggest that, in the context of priming, self-enhancement effects are minimized when interpretation of self-behavior is involved. The findings are consistent with some past research on the topic. For example, when individuals self-focus while comparing their actual versus ideal performance standards (Silvia, 2001), when they focus on and analyze their weakness (Sedikides & Herbst, 2002), and when they introspect about why they might or might not possess certain traits (Sedikides et al., 2007), they tone down the positivity of self-inferences. Common to these studies is that all involve the considered and deliberative interpretation of self-behaviors. This same deliberative processing likely characterized the first several Skowronski et al. (2010) studies, and it caused us to wonder if this state of affairs was responsible for the absence of evidence favoring self-enhancement/self-protection motivation in the studies that we have described so far.

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Construct Accessibility and Construal of Self-Behavior: An Induced Compliance Experiment

This reasoning led our team to conduct an additional experiment (Skowronski et al., 2010, Experiment 4). The methods used in this experiment differed from the methods used in our earlier experiments. The idea was to induce participants to engage in a behavior (or to watch others engage in the behavior) that could be interpreted as either a reflection of the trait of *helpfulness* or the trait of *dishonesty*. This behavior (or observation) was executed after exposure to a priming manipulation that activated either the helpfulness trait or the dishonesty trait. Importantly, participants were not aware of the true intent of the experiment as they were proceeding through the experiment's tasks. Hence, in contrast to previous experiments, participants were not deliberatively processing behaviors as they encountered them. Instead, in the self condition, they engaged in behaviors incidentally, thinking that they were being performed for another purpose. It was only later that participants in the self condition were asked to make self-ratings into which those behaviors could be incorporated.

The Subliminal Priming Task

To help avoid deliberative processing, a subliminal priming manipulation (based on a manipulation used by Farc, Crouch, Skowronski, & Milner, 2008) was used to activate trait constructs. At the start of the experiment, participants learned that they would take part in a task assessing attentional abilities. Using parafoveal presentations of the priming stimuli, one-third of participants encountered multiple primes intended to activate the construct *dishonest* (e.g., cheater, deceitful, hypocrite, liar). Another third encountered multiple primes intended to activate the construct *helpful* (e.g., aid, assist, generous, giving). The final third of participants encountered multiple *neutral* primes (e.g., something, between, said, there). An ensuing recognition memory test determined that participants were unaware of priming stimuli.

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The Task: Telling Lies Past literature has shown that lying is susceptible to self-protection/self-enhancement. For example, at the conclusion of a diary study on lying in daily life, both university students and community adult volunteers estimated that they lied less frequently than others (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996). Accordingly, Experiment 4 employed a lie-telling paradigm. The beauty of the paradigm is that it could be construed as reflecting the trait of helpful (e.g., because lies were requested as a favor by someone else) or as a reflection of dishonesty (e.g., because the participant lied). We were especially interested in whether the priming manipulation affected participants' postlie self-perceptions and whether those self-perceptions were seemingly moderated by self-perception/self-enhancement motivations.

To test this latter idea, we implemented both a self condition and an observer condition. In the *self condition*, we used a variant of the induced compliance paradigm (Burger & Caldwell, 2003). We told participants that we would appreciate it if they provided us with fictitious stories for the experiment, for these were especially hard to obtain. As in the usual induced compliance procedure, we refrained from overly pressuring participants and tried as hard as we could to allow participants to maintain the illusion of free choice. All participants agreed with the request. Next, they were given 10 minutes to compose five brief fictional autobiographical stories that they would tell while being recorded by a video camera. Having composed the stories, participants were seated in front of the video camera and conveyed each story, one at a time. They were instructed to adopt a conversational style, as if they were chatting to a friend or family member. Finally, under the ruse of providing information so that experimenters could better decipher the stories, participants responded to questions about personality traits that might be characteristic of them. Some responses related to the trait *dishonest* (e.g., dishonest, hypocritical, insincere, treacherous), others to the trait *helpful* (e.g., altruistic, charitable, compassionate, helpful), and still others were neutral.

In the *observer condition*, after exposure to one of the priming manipulations, participants learned that they would view videos of other students telling fictional stories about themselves. They were given the instructions that participants in the self condition had received, so they knew that participants provided the stories at the experimenter's request. Subsequently, observers viewed one of the videos supplied by participants in the self condition. Finally, observers rated the storytellers on the same traits as the ones on which participants had rated themselves.

The Empirical Verdict The subliminal priming manipulation was effective. Participants who were primed with the construct *dishonest* (vs. helpful or neutral) rated themselves higher on dishonesty traits than on either helpful or neutral traits, and so did observers. Likewise, participants primed with the construct *helpful* (vs. dishonest or neutral) rated themselves higher on helpfulness traits than on either dishonesty or neutral traits, and so did observers. Furthermore, as in Experiments 1–3, the self-protection/self-enhancement motives were instantiated. Participants judged themselves as less dishonest than observers did, and they judged themselves as more helpful than observers did.

The key question in Experiment 4, however, hinged on whether ratings of honesty and helpfulness showed evidence of moderation by the motives. Importantly, and in contrast to the experiments previously reported, Experiment 4 revealed these moderation effects. Compared with the ratings provided in the other two priming conditions, participants primed with the trait *dishonest* perceived themselves as less dishonest than did the observers. Likewise, compared with the ratings provided in the other two priming conditions, participants primed with the trait *helpful* perceived themselves as more helpful than did the observers.

Can These Results Be Attributed to the Real Nature of the Behavior?

Although we lack direct empirical confirmation of our view, we believe that the discrepant results of the last experiment reflect the extent to which participants engaged in deliberative behavior processing. However, other differences between the experiment sets may account for the discrepant results. For example, self behaviors were hypothetical in earlier experiments but were real in the last one. Might self-involvement be more potent in the latter than former case?

We do not believe that this difference can explain the findings. Self-protection/self-enhancement effects have been observed in a variety of self–other comparison experiments that have implemented imaginary scenarios (Green, Sedikides, & Gregg, 2008; Sedikides & Green, 2004), and the effects of such comparisons have been equally potent across imaginary and real situations (Green, Sedikides, Pinter, & Van Tongeren, 2009; Sedikides & Green, 2000). Moreover, self-protection/self-enhancement effects were still evident in the supposedly uninvolving scenario procedures used in the experiments reported earlier, but they reflected statistically self–other main effects rather than the interaction between target and prime.

Hence, we consider it unlikely that the reality of the situation used in the last experiment magnified the need to self-protect or to self-enhance. Instead, we maintain that in the latter case the experimental situation worked to bypass deliberative processing of self-behaviors. This allowed the action of the self-enhancing/self-protective motives to become manifest in interpretations of the prime-relevant behaviors, and these effects in turn became manifest in self-perceptions.

CONCLUDING NOTES

The research described in this chapter brings together literatures on other-perception and self-perception, construct accessibility, self-evaluation, and behavioral interpretation. In pursuing this fusion, the research also provides another demonstration of the yin and yang of self-enhancement/self-protection processes. In particular, the research illuminates limitations on effects of self-enhancement and self-protective strivings. Such strivings have many psychological and pragmatic benefits, but they also entail liabilities (Alicke & Sedikides, 2009; Sedikides, in press; Sedikides et al., 2007). As such, past work has looked into ways that such strivings can be curtailed. Some of these ways are interpersonal (e.g., relational context, social context), and some intrapersonal (e.g., self-focus, introspection).

One intrapersonal method that limits the scope of such strivings concerns the extent to which priming affects the interpretation of behaviors enacted by the self. A

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task entailing deliberative behavior processing curtailed the positivity of self-inferences derived from priming-altered perceptions of behavior. Individuals primed with a negative trait and then exposed to behaviors that might reflect the trait perceived themselves as negatively as they perceived another person. However, under conditions in which deliberative consideration of behavior is bypassed, as when subliminal primes are used in an attempt to influence the interpretation of real behavior in an induced compliance paradigm, the action of the self-enhancement/self-protection motives do moderate the impact of the primes on behavior interpretation. Here, individuals primed with a negative trait perceived themselves less negatively than they were perceived by an observer, and those primed with a positive trait perceived themselves more positively than they were perceived by an observer.

Our findings open up interesting possibilities. For example, would priming of the construct *dishonest* alter the outcome of the classic Festinger and Carlsmith (1959) insufficient justification study? In that study, participants were subtly induced to behave in a dishonest manner (i.e., lying to another individual about a task's interest value). Participants who lied for insufficient justification regard the task as more interesting. It is possible that dishonesty priming could cause participants to be less likely to manifest this attitudinal shift. Such participants may be more likely to interpret their behavior in dispositional terms (e.g., "I am dishonest"), an interpretation that would eliminate the need to justify the behavior through attitude change.

What are the ultimate behavioral implications of our findings? In writing that "thinking is for doing," Fiske (1992) attempted to link advances in social cognition with a renewed emphasis on the behavioral implications of thinking. The same can apply to thinking about the self. Thinking is for doing, in the very real sense that how one thinks about the world and one's place in it may contribute to one's behavior.

To those who are well versed in the discipline, this is no surprise. After all, for many years attitude researchers pursued the attitude–behavior relationship conundrum, ultimately finding evidence that an individual's attitudes were a reasonably powerful predictor of behavior, especially when attitudes were highly accessible (Olson & Fazio, 2008; Perugini, Richetin, & Zogmaister, 2010). There is evidence that variations in construct accessibility can affect self-behavior in other ways. For example, in DeMarree et al. (2005, Study 3), some participants exposed to a professor stereotype were especially influenced by a persuasive message; this influence occurred because the stereotype prompted an especially deep consideration of message arguments. Most relevantly, Hansen and Wänke (2009) primed participants with stereotypes of professors or stereotypes of cleaning ladies. Next, participants completed trivial pursuit questions. Those primed with the professor stereotype correctly answered more questions than those primed with the cleaning lady stereotype. Results of additional analyses suggested that these effects were mediated by a sense of self-efficacy, a finding that attests to the important role of self-construals in behavior.

Given these findings, it does not take much to imagine how self-perceptions related to dishonesty and helpfulness might be similarly influenced by the self-construals of ambiguous events. If I told a lie and concluded that I was dishonest, I might be especially likely to tell another lie. However, if I told a lie and concluded

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that I was helpful, I might not increase my lie-telling tendencies (except, perhaps, if doing so could again be construed as a helpful act). From this perspective, then, the self-protection/self-enhancement motives might be particularly important to social interactions. If the effects of such motives is to minimize negative self-perceptions and maximize positive self-perceptions (particularly in nondeliberative circumstances) and if behaviors follow from such self-perceptions, then such processes may work to increase the emission of prosocial behaviors and decrease the emission of antisocial behaviors.

However, such effects are for future research to document. The take-home point from the present chapter is a simple one. In circumstances that do not promote deliberative processing of behavior, the actions of the self-enhancement/self-protection motives work to dampen the effects of a priming manipulation on interpretations of self-behavior and consequent self-judgments. However, when circumstances promote deliberative processing, a priming manipulation can directly affect interpretations of self-behavior and consequent self-judgments, bypassing the usual action of these motives.

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REFERENCES

Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 85–106). New York: Psychology Press.

Alicke, M. D., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. *European Review of Social Psychology 20*, 1–48.

Alicke, M. D., & Sedikides, C. (2011). *Handbook of self-enhancement and self-protection*. New York: Guilford Press.

Allison, S. T., Messick, D. M., & Goethals, G. R. (1989). On being better but not smarter than others: The Muhammad Ali effect. *Social Cognition, 7*, 275–296.

Batson, C. D., & Collins, E. C. (2011). Moral hypocricy: A self-enhancement/self-protection motive in the moral domain. In M. D. Alicke & C. Sedikides (Eds.), *Handbook of self-enhancement and self-protection* (pp. 92–111). New York: Guilford Press.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1993). When ego threats lead to self-regulation failure: Negative consequences of high self-esteem. *Journal of Personality and Social Psychology, 64*, 141–156.

Bonanno, G. A., Rennicke, C., & Dekel, S. (2005). Self-enhancement among high- exposure survivors of the September 11th terrorist attack: Resilience or social maladjustment? *Journal of Personality and Social Psychology, 88*, 984–998.

Burger, J. M., & Caldwell, D. F. (2003). The effects of monetary incentives and labeling on the foot-in-the-door effect: Evidence for a self-perception process. *Basic and Applied Social Psychology, 25*, 235–241.

Campbell, K. W., & Sedikides, C. (1999). Self-threat magnifies the self-serving bias: A meta-analytic integration. *Review of General Psychology, 3*, 23–43.

Campbell, K. W., Sedikides, C., Reeder, G., & Elliot, A. T. (2000). Among friends? An examination of friendship and the self-serving bias. *British Journal of Social Psychology, 39*, 229–239.

Chatard, A., Guimond, S., & Selimbegovic, L. (2007). "How good are you in math?": The effect of gender stereotypes on students' recollection of their school marks. *Journal of Experimental Social Psychology, 43*, 1017–1024.

Critcher, C. R., Helzer, E. G., & Dunning, D. (2011). Self-enhancement via redefinition: Defining social Concepts to ensure positive views of self. In M. D. Alicke & C. Sedikides (Eds.), *Handbook of self-enhancement and self-protection* (pp. 69–91). New York: Guilford Press.

DeCoster, J., & Claypool, H. M. (2004). A meta-analysis of priming effects on impression formation supporting a general model of informational biases. *Personality and Social Psychology Review, 8*, 2–27.

DeMarree, K. G., Wheeler, S. C., & Petty, R. E. (2005). Priming a new identity: Self-monitoring moderates the effects of nonself primes on self-judgments and behavior. *Journal of Personality and Social Psychology*, *89*, 657–671.

DeSteno, D., & Salovey, P. (1997). Structural dynamism in the concept of self: A flexible model for a malleable concept. *Review of General Psychology, 1*, 389–489.

DePaulo, P. M., Kashy, D. A., Kirkendol, S. E., Wyer, M. M., & Epstein, J. A. (1996). Lying in everyday life. *Journal of Personality and Social Psychology, 70*, 979–995.

Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is linked to antisocial behavior and delinquency. *Psychological Science, 16*, 328–335.

Donovan, J. J., Dwight, S. A., & Hurtz, G. M. (2003). An assessment of the prevalence, severity, and verifiability of entry-level applicant faking using the randomized response technique. *Human Performance, 16*, 81–106.

Farc, M. M., Crouch, J. L., Skowronski, J. J., & Milner, J. S. (2008). Hostility ratings by parents at risk for child physical abuse: Impact of chronic and temporary schema activation. *Child Abuse & Neglect*, *32*, 177–193.

Fazio, R. H., Effrein, E. A., & Falender, V. J. (1981). Self-perceptions following social interaction. *Journal of Personality and Social Psychology, 41*, 232–242.

Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73*, 31–44.

Felson, R. B. (1981). Ambiguity and bias in the self-concept. *Social Psychology Quarterly, 44*, 64–69.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal & Social Psychology, 58,* 203–210.

Fiske, S. T. (1992). Thinking is for doing: Portraits of social cognition from Daguerreotype to laserphoto. *Journal of Personality and Social Psychology, 63,* 877–889.

Galinsky, A. D., Wang, C. S., & Ku, G. (2008). Perspective-takers behave more stereotypically. *Journal of Personality and Social Psychology, 95*, 404–419.

Green, J. D., Sedikides, C., & Gregg, A. P. (2008). Forgotten but not gone: The recall and recognition of self-threatening memories. *Journal of Experimental Social Psychology, 44*, 547–561.

Green, J. D., Sedikides, C., Pinter, B., & Van Tongeren, D. R. (2009). Two sides to self-protection: Self-improvement strivings and feedback from close relationships eliminate mnemic neglect. *Self and Identity, 8*, 233–250.

Hansen, J., & Wänke, M. (2009). Liking what's familiar: The importance of unconscious familiarity in the mere-exposure effect. *Social Cognition, 27*, 161–182.

Heine, S. J., Takemoto, T., Moshalenko, S., Lasaleta, J., & Henrich, J. (2008). Mirrors in the head: Cultural variation in objective self-awareness. *Personality and Social Psychology Bulletin, 34*, 879–887.

Hepper, E. G., Gramzow, R. H., & Sedikides, C. (2010). Individual differences in self enhancement and self-protection strategies: An integrative analysis. *Journal of Personality, 78*, 781–814.

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Hepper, E. G., Sedikides, C., & Cai, H. (2011). *Self-enhancement and self-protection strategies in china: Cultural expressions of a fundamental human motive*. Unpublished manuscript, University of Southampton.

Kurman, J., & Eshel, Y. (1998). Self-enhancement, generality level of self-evaluation, and emotional adjustment. *Journal of Social Psychology, 138*, 549–563.

Leary, M. (2004). The self we know and the self we show: Self-esteem, self-presentation, and the maintenance of interpersonal relationships. In G. J. Fletcher & M. S. Clark (Eds.), *Emotion and motivation* (pp. 204–224). Malden, MA: Blackwell.

Leary, M. R., Tchividjian, L. R., & Kraxberger, B. E. (1994). Self-presentation can be hazardous to your health: Impression management and health risk. *Health Psychology, 13*, 461–470.

Markus, H., & Kunda, Z. (1986). Stability and malleability of the self concept. *Journal of Personality and Social Psychology, 51*, 858–866.

McCall, M., Reno, R. R., Jalbert, N., & West, S. G. (2000). Communal orientation and attributions between the self and other. *Basic and Applied Psychology, 22*, 301–308.

Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positive bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin, 130*, 711–747.

Norem, J., & Cantor, N. (1986). Defensive pessimism: Harnessing anxiety as motivation. *Journal of Personality and Social Psychology, 51*, 1208–1217.

Oettingen, G., & Gollwitzer, P. M. (2001). Goal setting and goal striving. In A. Tesser & N. Schwarz (Eds.), *Intraindividual processes: Blackwell handbook of psychology* (pp. 329–347). Malden, MA: Blackwell Publishers, Inc.

Olson, M.A., & Fazio, R. H. (2008). Implicit and explicit measures of attitudes: The perspective of the MODE model. In R. E. Petty, R. H. Fazio, & P. Brinol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 19–63). New York: Psychology Press.

Paulhus, D. L. (1988). Interpersonal and intrapsychic adaptiveness of trait self-enhancement: A mixed blessing? *Journal of Personality and Social Psychology, 74*, 1197–1208.

Paulhus, D. L., & Levitt, K. (1987). Desirable responding triggered by affect: Automatic egotism? *Journal of Personality and Social Psychology, 52*, 245–29.

Perugini, M., Richetin, J., & Zogmaister, C. (2010). Prediction of behavior. In B. Gawronski & B. K. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications* (pp. 255–277). New York: Guilford Press.

Petty, R. E., Brinol, P., & Tormala, Z. L. (2002). Thought confidence as a determinant of persuasion: The self-validation hypothesis. *Journal of Personality and Social Psychology, 82*, 722–741.

Pronin, E., Lin, D. Y., & Ross, L. (2002). The bias blind spot: Perceptions of bias in self versus others. *Personality and Social Psychology Bulletin, 28*, 369–381.

Pryor, J. B., Gibbons, F. X., Wicklund, R. A., Fazio, R. H., & Hood, R. (1997). Self-focused attention and self-report validity. *Journal of Personality, 45*, 513–527.

Robins, R. W., & Beer, J. S. (2001). Positive illusions about the self: Short-term benefits and long-term costs. *Journal of Personality and Social Psychology, 80*, 340–352.

Sanna, L. J., Chang, E. C., & Meier, S. (2001). Counterfactual thinking and self motives. *Personality and Social Psychology Bulletin, 27*, 1023–1034.

Schlenker, B. R., & Leary, M. R. (1982). Audiences' reactions to self-enhancing, self-denigrating, and accurate self-presentations. *Journal of Experimental Social Psychology, 18*, 89–104.

Schubert, T. W., & Häfner, M. (2003). Contrast from social stereotypes in automatic behavior. *Journal of Experimental Social Psychology, 39*, 577–584.

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Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simmons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology, 61*, 195–202.

Sedikides, C. (in press). Self-protection. In M. Leary & J. Tangney (Eds.), *Handbook of self and identity* (2nd ed.). New York: Guilford Press.

Sedikides, C., Campbell, W. K., Reeder, G., & Elliot, A. J. (1998). The self-serving bias in relational context. *Journal of Personality and Social Psychology, 74*, 378–386.

Sedikides, C., & Green, J. D. (2000). On the self-protective nature of inconsistency-negativity management: Using the person memory paradigm to examine self-referent memory. *Journal of Personality and Social Psychology, 79*, 906–922.

Sedikides, C., & Green, J. D. (2004). What I don't recall can't hurt me: Information negativity versus information inconsistency as determinants of memorial self-defense. *Social Cognition*, *22*, 44–29.

Sedikides, C., & Green, J. D. (2009). Memory as a self-protective mechanism. *Social and Personality Psychology Compass*, 3, 1055–1068.

Sedikides, C., & Gregg, A. P. (2003). Portraits of the self. In M. A. Hogg & J. Cooper (Eds.), *Sage handbook of social psychology* (pp. 110–138). London, England: Sage Publications.

Sedikides, C., & Gregg, A. P. (2008). Self-enhancement: Food for thought. *Perspectives on Psychological Science, 3*, 102–116.

Sedikides, C., Gregg, A. P., & Hart, C. M. (2007). The importance of being modest. In C. Sedikides & S. Spencer (Eds.), *The self: Frontiers in social psychology* (pp. 163–184). New York: Psychology Press.

Sedikides, C., & Herbst, K. (2002). How does accountability reduce self-enhancement? The role of self-focus. *Revue Internationale De Psychologie Sociale, 15*, 113–128.

Sedikides, C., Herbst, K. C., Hardin, D. P., & Dardis, G. J. (2002). Accountability as a deterrent to self-enhancement: The search for mechanisms. *Journal of Personality and Social Psychology, 83*, 592–605.

Sedikides, C., Horton, R. S., & Gregg, A. P. (2007). The why's the limit: Curtailing self-enhancement with explanatory introspection. *Journal of Personality, 75*, 783–824.

Sedikides, C., & Skowronski, J. J. (1991). The law of cognitive structure activation. *Psychological Inquiry, 2*, 169–184.

Sedikides, C., & Strube, M. J. (1997). Self-evaluation: To thine own self be good, to thine own self be sure, to thine own self be true, and to thine own self be better. *Advances in Experimental Social Psychology, 29*, 209–269.

Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology, 38*, 183–242.

Silvia, P. J., & Duval, T. S. (2001). Objective self-awareness theory: Recent progress and enduring problems. *Personality and Social Psychology Review, 5*, 230–241.

Skowronski, J. J. (2011). The positivity bias and the fading affect bias in autobiographical memory: A self-motives perspective. In C. Sedikides & M. D. Alicke (Eds.), *Handbook of self-enhancement and self-protection* (pp. 211–231). New York: Guildford Press.

Skowronski, J. J., Sedikides, C., Heider, J. D., Wood, S. E., & Scherer, C. R. (2010). On the road to self-perception: Interpretation of self-behaviors can be altered by priming. *Journal of Personality, 78*, 362–391.

Smeesters, D., Wheeler, C., & Kay, A. C. (2010). Indirect prime-to-behavior effects: The role of perceptions of the self, others, and situations in connecting primed constructs to social behavior. *Advances in Experimental Social Psychology, 42*, 259–317.

Srull, T. K., & Wyer, R. S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology, 37*, 1660–1672.

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Stapel, D. A., & Koomen, W. (2001). I, we, and the effects of others on me: How self-construal level moderates social comparison effects. *Journal of Personality & Social Psychology, 80*, 766–781.

Stone, J., & Cooper, J. (2001). A self-standards model of cognitive dissonance. *Journal of Experimental Social Psychology, 37*, 228–243.

Taylor, S. E., & Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193–210.

Taylor, S. E., Lerner, J. S., Sherman, D. K., Sage, R. M., & McDowell, N. K. (2003). Portrait of the self-enhancer: Well-adjusted and well-liked or maladjusted and friendless? *Journal of Personality and Social Psychology, 84*, 165–176.

Van Lange, P. A. M., & Sedikides, C. (1998). Being more honest but not necessarily more intelligent than others: Generality and explanations for the Muhammad Ali effect. *European Journal of Social Psychology, 28*, 675–680.

Van Overwalle, F., & Labiouse, C. (2004). A recurrent connectionist model of person impression formation. *Personality and Social Psychology Review, 8*, 28–61.

Van Yperen, N. W. (1992). Self-enhancement among major league soccer players: The role of importance and ambiguity on social comparison behavior. *Journal of Applied Social Psychology, 22*, 1186–1196.

Weinstein, N. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology, 39*, 806–820.

Wheeler, S. C., DeMarree, K. G., & Petty, R. E. (2008). A match made in the laboratory: Persuasion and matches to primed traits and stereotypes. *Journal of Experimental Social Psychology, 44*, 1035–1047.

Willard, G., & Gramzow, R. H. (2009). Beyond oversights, lies, and pies in the sky: Exaggeration as goal projection. *Personality and Social Psychology Bulletin, 3*, 477–492.

Wilson, A. E., & Ross, M. (2001). From chump to champ: People's appraisals of their earlier and present selves. *Journal of Personality and Social Psychology, 80*, 572–584.

Wyer, N. A., Calvini, G., & Nash, A. (2010). Priming in interpersonal contexts: Implications for affect and behavior. *Personality and Social Psychology Bulletin, 36*, 1693–1705.

Zuckerman, M., & Tsai, F. (2005). Costs of self-handicapping. *Journal of Personality*, *73*, 411–442.

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Section IV

Social and Cultural Factors in Social Thinking and Interpersonal Behavior

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15

Culture as Interpersonal Process

YOSHIHISA KASHIMA
The University of Melbourne

Culture is often construed as a pattern of ideas, practices, and artifacts shared by people. This working conception of culture serves us well under most circumstances. When we fly from one part of the world to another, as we move from one terrain to another terrain of a continent when we travel, or even when we cross the Harbor Bridge from one side of Sydney to the other, we see subtle and sometimes not so subtle differences in landscape, street design, architecture, dress code, mannerism, and so on. As we notice these differences between social settings and people that populate them, we say this culture is different from the other. Indeed, this is the kind of conception of culture that Edward Burnett Tylor (1871/1996) gave as the first definition of culture in anthropology: "Culture or Civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man [sic] as a member of society" (p. 1). In a profound sense, then, culture is the repository of the sum total of social thinking and knowledge that informs and regulates everyday interpersonal behavior, the topic of this volume.

Social psychological approaches too often take a similar stance in conceptualizing culture. In typical cultural research, two or more groups of individuals are sampled from different parts of the world (or different ethnic groups within a country), experimental procedures or psychological measures are administered to observe behavior, and sample differences are compared. This is a quasi-experimental design in which the grouping variable is "culture" (e.g., United States vs. Japan, China). One of the central domains of cultural comparative research has been individualism and collectivism. Using this as an example, one can illustrate the recent research trend in culture and psychology. Since the publication of two *Psychological Review* articles on both sides of the year 1990 (Markus & Kitayama, 1991; Triandis, 1989), more than 2 decades of *cultural comparative* research has

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generated a voluminous literature. This has mapped out the distribution of values, attitudes, beliefs, and behavior around the world although knowledge about different world regions are somewhat skewed with much heavier emphasis on North America, Western Europe, and East Asia.

Nonetheless, when one begins to wonder how those cultural differences came into being to begin with—that is, the question about the formation, maintenance, and transformation of culture over time, or what I call *cultural dynamics*—much less is known (see Kashima, 2000a, for a discussion about conceptions of culture). Recent research points to several contributors to cultural dynamics of individualism and collectivism. One is *migration*, that is, physical movements of human individuals, and its concomitant movements of genetic stock (Chen, Burton, Greenberger, & Dmitrieva, 1999) and stable individual difference characteristics (Kitayama, Ishii, Imada, Takemura, & Ramaswamy, 2006; Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009). Another is *ecological factors* such as climate (Kashima & Kashima, 2003) and prevalence of infectious diseases (Schaller & Murray, 2008). These are macrolevel processes that are aimed to explain the global distribution of psychological characteristics; however, this account is largely silent on microlevel social psychological mechanisms that are critical to the generation, spread, and retention of cultural characteristics.

SOCIAL PSYCHOLOGY OF CULTURAL DYNAMICS

These microlevel psychological mechanisms have been the primary focus of Kashima and his colleagues' (see, for reviews, Kashima, 2008; Kashima, Klein, & Clark, 2007) research. Inspired by George Herbert Mead's (1934) symbolic interactionism and Vygotsky's sociocultural approach (Cole, 1996; Vygotsky, 1978; Wertsch, 1985) and most directly informed by Clark's (1996) psycholinguistics of language use, they regard social interaction as central to the micro-genesis of culture. Believing that a social psychology of cultural dynamics can gain insights from close examination of the process of transmission of cultural information in situ, Kashima et al. adopts the perspective on culture that takes seriously the *process* by which nongenetically coded information is transmitted and shared in concrete context of social interaction.

This perspective is broadly located in a cluster of theories about cultural evolution including Donald Campbell's (1975) evolutionary epistemology, Richard Dawkins's (1976) meme theory, and Cavalli-Sforza and Feldman's (1981) and Boyd and Richerson's (1986) dual-inheritance models. According to this view, culture consists of information that is generated randomly by mutation, transmitted through social learning, and retained by natural selection, so that nonadaptive information is selected out or lost for the pool of cultural information (see also Haselton; von Hippel, this volume). Whereas some may call these views Darwinian cultural evolutionary theories, emphasizing their assumption that the Darwinian mechanism of random generation and selective retention underlies cultural dynamics, I tend to call them neo-diffusionism (Kashima, 2008), stressing the mechanism of cultural diffusion or the spread of culture. Either way, the meta-theoretical core of this cluster of ideas is a combination of diffusionist thinking in the early 20th century

(e.g., Rivers, 1914; Smith, 1933) and functionalist thinking that followed from it (e.g., Malinowski, 1944; Radcliffe-Brown, 1952). Cultural information is generated in some fashion somewhere, transmitted from one person to another, and kept in circulation among people because it has not been maladaptive or served some adaptive functions of psychological, social, or some other sorts.

Nonetheless, Kashima et al.'s (2008) perspective differs from the existing research on cultural evolution (e.g., Boyd & Richerson, 2005) and adds to and complements it in focusing on the microlevel mechanisms by which cultural information is transmitted and retained. Most of the neo-diffusionist theories take the transmission of culture as largely unproblematic and regard it as something that happens by imitation or unspecified forms of generic social learning. However, social psychological approaches to culture are naturally equipped to examine the social interaction process implicated in cultural transmission, which are highly embodied and multimodal (e.g., see Semin & Garrido; Winkielman & Kavanagh; Wänke, Samochowiec, & Landwehr; Winkielman & Kavanagh, this volume) and take place not only within the consequentialist but also moral concerns of interpersonal relations (e.g., see Malle, Guglielmo, & Monroe; Malle, this volume). Social psychology of cultural dynamics is to macro-anthropological theories of cultural evolution just as microbiology of genetic transmission is to biological theories of evolution.

One exception is Sperber's (1996) epidemiological perspective, which is complemented by the relevance model of communication (Sperber & Wilson, 1995), which further develops Grice's (1975) well-known theory of collaborative approach to meaning and maxims of communication. However, Kashima et al.'s (2008) approach takes social collaboration even further than Sperber's by emphasizing a coordinated and dynamic nature of social communication and interaction. As Fiedler (this volume) noted, the perspective that takes social interaction as coordinated activities is critical in considering the processing of information in social settings (see also Fiedler, this volume). It is in this regard that Herbert Clark's (1996) grounding model of language use critically informs social psychological investigations of cultural dynamics. In the following section, the grounding model of cultural transmission (Kashima, Klein, & Clark, 2008) is outlined.

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GROUNDING MODEL OF CULTURAL TRANSMISSION

According to the grounding model, cultural transmission occurs mainly as part of *joint activities* that people engage in. Joint activities are fuzzy and, by their nature, partly open and indeterminate categories of human activities that involve at least two people. They include such formal occasions as job interviews and academic lectures as well as informal ones as dinner table conversations and small talks at a workplace. A joint activity is usually localized in time and space, so that it has a starting point and an end point in time and takes place at a specific location in space (though this could be cyberspace). It is also socially constrained, in that its participants are usually specified. Participants of a joint activity share a joint goal that they intend to pursue and engage in their parts (or roles) of the joint activity, so

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that the successful performance of each part by the right person at the right time allow them to achieve the joint goal.

As the interactants coordinate their individual actions to move toward their joint goal, they make use of a variety of tools. A number of them are physical objects or prop—natural objects like stones and sticks or cultural artifacts like hammers and even computers (e.g., Goffman, 1959); however, others are less tangible tools such as language or other forms of *semiotic* tools (Holtgraves & Kashima, 2008), which are used to represent information. Culture acts as a semiotic tool for coordinating the interactants' actions and achieving their joint goals. This is because culture is part of their shared social thinking, their *common ground*. Roughly speaking, common ground is a set of information that is actually shared and also perceived (or taken for granted) to be shared among the actors of the joint activity. The actors can refer to common ground to describe and explain what they mean, so that others can understand their intended meaning.

Nonetheless, when the exchange of information in a joint activity is examined more carefully, this has turned out to be an intricate and dynamic coordinated joint activity in its own right. Clark's (1996) model suggests that this occurs in two steps, *presentation* and *acceptance*, in which new information is presented by one actor and accepted by others. Acceptance can take a variety of forms, from a simple nod or "aha" to repeating back the presentation, a more complex rephrasing, or even a further elaboration of presented information. It needs to be given in a coordinated way in relation to a presentation to act as evidence that the receiver of the presentation has understood the presented information. Furthermore, in the process of presentation–acceptance exchanges, there is no guarantee that information that an actor initially intended to present is accepted by the receiver. It can be modified or negotiated before it is eventually accepted by all parties. At times, the absence of explicit query or dissent can act as evidence of acceptance. The process of establishing a mutual understanding of information *to the extent sufficient for the present purpose* is called *grounding*. Thus, grounding is a subsidiary joint activity by the participants of the joint activity.

Several observations are in order here. First, note that joint activities are performed for some purpose defined by joint goals. These goals include task performance (e.g., hiring, firing, teaching, learning) and social regulation (e.g., forming, maintaining, strengthening, or severing social relationships). Task performance and social regulation are two types of goals that are always present, albeit in different proportions, even in formal task performance contexts (e.g., lecturing, job interviews) and informal social occasions (e.g., conversation over a coffee, conversation at a pub). Second, the grounding criterion of "mutual understanding" is a rather weak requirement, which is only for the present purpose defined by the joint activity. So, for a job interview, details about one's qualification may need to be grounded thoroughly; however, for a chat on a commuter train, they are not going to be so important. This makes grounding not so much an activity designed to achieve perfect transmission of information but rather jointly regulated by a satisfying decision criterion in the service of the joint goal that the actors are pursuing in their joint activity. Grounding is an excellent example of the intensely

cognitive activity of social thinking that is necessary for the adequate performance of effective interpersonal behavior.

In sum, cultural information is transmitted in a joint activity through grounding. At the beginning of the joint activity, the interactants have their common ground that they actually share and perceive to share. Culture constitutes part of this common ground and shared social thinking and acts as a semiotic tool for grounding new information in pursuit of their joint goals. As the interactants continue their joint activity, more new information is grounded and added to the common ground, which continues to expand until the joint activity comes to an end. Thus, common ground is an ever expanding set of information that is shared and perceived to be shared by the interactants.

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STEREOTYPES AS CULTURAL INFORMATION

From the grounding perspective, Kashima and his colleagues' research has focused on the transmission of cultural stereotypes (e.g., Clark & Kashima, 2007; Kashima, 2000b; Lyons & Kashima, 2003) as an example of cultural information. In this view, information likely to be communicated through generations of transmission within a large-scale collective—likely to be presented in communication and likely to be accepted and retained for future use in a large number of grounding processes—may eventually become part of the culture of this collective. In line with this reasoning, Schaller, Conway, and Tanchuk (2002) showed that information that is more easily communicated tend to become part of an ethnic group's stereotype in North America especially if people tend to talk about the group.

To experimentally simulate such information transmission, they used Bartlett's (1932) method of serial reproduction, in which a stimulus is transmitted from one person to another, who in turn transmits it to a third, and so on in a chain of communication. Bartlett found what he called *conventionalization* in his work. That is, information consistent with the convention of the people who are involved in a serial reproduction tends to be retained in the communication; unfamiliar information tends to be dropped or modified to be more in line with the familiar conventional knowledge. Kashima (2000b) used a story that contained information consistent and inconsistent with gender stereotypes (stereotype consistent [SC] and stereotype inconsistent [SI] information) in serial reproduction chains and found that, although more SI than SC information was transmitted early in the chain in some case, SC information eventually dominated the transmitted story toward the end of the communication chain. This tendency was a SC bias. If SC information is seen as more conventional than SI, this bias is very much in line with Bartlett's conventionalization. To put it differently, communications tend to favor the *re*production of culture rather than its change.

This finding accords well with the grounding model of cultural transmission, which suggests that information in line with the interactants' common ground is more easily grounded than information unrelated or contrary to common ground. Nevertheless, the grounding model gives further insights into more social psychological mechanisms of cultural reproduction. Information that is expected or unexpected on the basis of common ground presents an informativeness–connectivity

dilemma. Culturally unexpected information is likely to be informative because it gives new information but is also unlikely to be socially connective because it challenges a shared cultural worldview and cultural identity. Culturally expected information is likely uninformative but socially connective. (Clark & Kashima, 2007, provided evidence for gender stereotypes.) Depending on the relative importance of informativeness and social connectivity for the joint activity in which interactants are engaged, culturally unexpected versus expected (i.e., SC vs. SI) information is more likely communicated.

Empirical research largely supports this line of reasoning. Lyons and Kashima (2003) examined the effect of sharedness of stereotypes on the transmission of stereotype relevant information in serial reproduction chains and showed that unless stereotypes are part of the common ground of those who are involved in the serial reproduction chains, a SC bias does not occur in serial reproduction chains. First, they constructed an artificial stereotype of a fictitious group called Jamayans. In one condition, everyone in a communication chain learned this stereotype and also told that others that they communicate with have also learned the stereotype, whereas in the other condition only some learned the stereotype but others had the opposite stereotype. A SC bias emerged in the shared but not in the unshared condition.

Second, they replicated the shared condition, but this time one-half of the communication chains were told the community that they belong to does not endorse the Jamayan stereotype, whereas the other half were told the community endorses it. Again a SC bias emerged when the communicators believed their community endorsed the stereotype, but it disappeared when they thought the community did not endorse it. Subsequently, Clark and Kashima (2007) replicated this finding with real-life stereotypes, suggesting that information that is believed not to be commonly endorsed within a community does not have any advantage in its reproductive processes.

Finally, Clark and Kashima (2007) showed that SC information is seen to be more socially connective than SI information, and perceived social connectivity is the critical variable that can explain greater perceived communicability of SC, relative to SI, information. In fact, more socially connective SC information survived longer in communication chains within serial reproduction.

All in all, this research program suggests that, in line with the grounding model, people communicate SC information and thus unwittingly contribute to the maintenance of their culture (i.e., stereotypes) in the long run, primarily because SC information serves a social integrative function; that is, people are likely to feel socially connected with each other when they are sharing information consistent with what they already jointly believe. More broadly, when grounded information is seen to be shared in a large-scale collective, that information is likely to become part of the culture of the collective. Once this is achieved, it is likely to persist in the large-scale collective. Social psychological mechanisms—social thinking par excellence—are involved in the grounding process are critical in the cultural dynamics of cultural reproduction.

Nonetheless, Kashima's (2000) finding that more SI than SC information was communicated initially is somewhat at odds not only with Bartlett's findings of conventionalization but also with the general idea that stereotype consistent information is more socially connective. It is true that this finding is consistent with the

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person memory research, in which people were found to recall more SI than SC information due to more elaborative processing of SI information motivated by a need to make sense of the unexpected SI characteristics exhibited by a protagonist in the story (e.g., Stangor & MacMillan, 1992; see also Eich et al., this volume). However, this raises some question about the effect of SI information, or culturally unexpected information, on the grounding process.

FLUENCY–PERTURBATION DYNAMICS IN CULTURAL TRANSMISSION

The grounding model of cultural transmission asserts that grounding is a joint activity that requires coordination among interactants. It is when a transmitter of information plays his or her part of presenting information in coordination with a receiver who appropriately gives evidence of acceptance that the interactants can achieve their joint goal of attaining a mutual understanding and engage in effective interpersonal behavior. The grounding model suggests that information more easily inferred from information in common ground can be more easily grounded. This is because if an interactant presents easily inferable information, other interactants are likely to be able to comprehend it on the basis of the common ground and to accept it more readily. However, if interactants present information that is difficult to infer from their common ground, other interactants may have difficulty comprehending it or may even query the information's veracity or worse dismiss it as false.

What are the implications of this line of reasoning for the transmission of cultural information? One implication is that culturally familiar and expected information is likely to elicit easy and smooth coordination among interactants. This is because culture is part of common ground, information that is shared and taken for granted to be shared; it is information that is part of people's shared reality (e.g., Echterhoff, Higgins, & Levine, 2009; Hardin & Higgins, 1996; see also Malle, this volume). This type of information should be processed easily, eliciting the cognitive feeling of *fluency***.** However, when culturally unfamiliar and unexpected information is presented, it may be met with the subjective feeling of disfluency, some sense of cognitive conflict, or *perturbation*, which throws a spanner into the works of the well-oiled, but complex and perhaps delicate, machinery of social coordination.

In other words, as long as transmitted information is generally in line with culture, grounding is likely to be fluent and smooth, resulting in smooth operations of the microlevel cultural transmission mechanisms, maintaining the culture like business as usual; however, culturally unexpected information may disturb the interpersonal coordination and microlevel cultural transmission process, bringing about a local perturbation to cultural reproduction.

Evidence of Fluency–Perturbation Dynamics

There is some evidence for fluency–perturbation dynamics of cultural reproduction in the current literature. Aforementioned classical research on person memory,

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where SI information tends to receive greater cognitive attention than SC information, can be understood as a cognitive perturbation in cultural reproduction. In addition, research on conversation about stereotype relevant information shows that not only cognitive but also more conversational time is devoted to SI than SC information (Ruscher, Cralley, & O'Farrell, 2005; Ruscher & Hammer, 1994; see Ruscher & Hammer, 2005, for a review). Nonetheless, this work did not examine the grounding process directly.

Verbal Perturbation in Cultural Transmission More recently, Kashima, Lyons, McIntyre, and Clark (submitted) examined grounding processes in conversational serial reproduction. In their Experiment 2, they found evidence that grounding is perturbed by SI information. First of all, when people were given a sufficient time conversing about a story and its protagonist who exhibited SC and SI behaviors, they divided their conversation into two clearly identifiable segments: narration and discussion. First, in the narration segment, a person who had received a story before narrated it to the other who had not. Then, the discussion segment followed, in which the conversant discussed the protagonist on the basis of the story that they had now been in their common ground. In this discussion segment, the interactants engaged in more elaborate grounding processes for SI than for SC information. They asked more questions about SI information, dwelled on it more, and commented on it in more occasions. On the other hand, SC information was grounded quite easily, often even without an explicit acknowledgment. One may expect that the greater elaboration on SI information in conversation may result in a greater likelihood of transmitting SI information in the long run. However, this was not the case. In the long run, SC information dominated their conversations. Although in the first conversation, similar amounts of SC and SI information were reproduced, more SC than SI information was reproduced by the third conversation.

This finding provides an interesting insight into the dynamics of cultural reproduction. Imagine that serial reproductions are occurring within a social network that connects a large number of people. Each interaction in conversational serial reproductions can be thought of as one transaction over an edge (or a line) that connects two people. When one focuses on this local transaction within the global social network, there is evidence of culture in flux. The interactants explore the implication of information that challenges their culture (i.e., SI information), conversationally dissecting it to comprehend and presumably assimilate it into their shared cultural world. Nonetheless, this local perturbation does not have a global effect—information that is in line with shared culture (i.e., SC information) is reproduced, and therefore culture is reproduced and maintained in the long run in other parts of the social network. The local instability coexists with the global stability in cultural dynamics.

Nonverbal Perturbation in Cultural Transmission Is there any evidence that the nonverbal aspect of the social coordination is also perturbed in the grounding processes? It is well known that synchronized nonverbal behaviors and mimicry are signs of well-coordinated social interaction (Chartrand &

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van Baaren, 2009, for a review). Interactants who show synchronized nonverbal behaviors with each other tend to have greater rapport (Bernieri, 1988; Grahe & Bernieri, 1999). Not only do people nonconsciously mimic nonverbal behaviors of their interaction partners, but they also regard their interactions with mimicking partners as smoother and tend to like them more (Chartrand & Bargh, 1999). People tend to behave more prosocially to those who mimick them (van Baaren, Holland, Kawakami, & van Knippenberg, 2004; van Baaren, Holland, Steenaert, & van Knippenberg, 2003). If culturally unexpected information perturbs social coordination, it is possible that people stop mimicking each other when SI information is presented.

Indeed, research by Castelli, Pavan, Ferrari, and Kashima (2009) suggests that this is the case. Italian participants viewed a videotape of a female actor expressing stereotype consistent or inconsistent views about English, German, and Spanish people in a fictitious interview. In the stereotypical video, English were described as reserved with a unique sense of humor, Germans as organized and hardworking, and Spanish as outgoing and open-minded, whereas the opposite of these views were expressed in the counterstereotypical video. In both the videos, the actress touched her face and crossed her legs a number of times. The participants were told to view a video, so that they can respond to questions later. In the meantime, their nonverbal behaviors were observed. The participants were found to mimic the actress much less while viewing a video where the actress communicated SC information than while viewing a SI video.

In light of the importance of social coordination in social learning, Castelli et al.'s (2009) finding has an intriguing implication for cultural dynamics. Macrae, Duffy, Miles, and Lawrence (2008) showed that people who interacted with an experimenter who mimicked them (in the form of synchronized hand movement) performed better on incidental memory tasks than those whose experimenter did not mimic them (see also Macrae, this volume). Here, the experiment was introduced as an examination of hand movement in sync with a metronome. A female experimenter presented common words such as stamp, spoon, and shirt ostensibly to disrupt the hand movement. In one condition, she conducted the experiment with a participant while moving her hand synchronously with the participant's, but the experimenter did nothing in another. After this phase of the experiment, a different experimenter took over the procedure, and the participants were asked to recall those incidentally presented words and also to identify from a set of photographs the previous experimenter from the initial phase of the experiment. In the condition where the experimenter synchronously moved her hand with participants, they recalled more words and identified the experimenter more accurately. Disrupted social interactions are likely to disrupt the transmission of cultural information.

To summarize, both verbal and nonverbal behaviors show that cultural transmission, and therefore cultural reproduction is perturbed when culturally unexpected information is presented in social interaction. Even innocuously countercultural information such as the ones used in these experiments can disrupt the dynamics of cultural reproduction.

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Potential Explanations

A theory of small group dynamics (Arrow, McGrath, & Berdahl, 2000) and ideomotor theory of cognition (e.g., Dijksterhuis & Bargh, 2001; Prinz, 1997) can be combined to construct a framework in which to consider possible explanations for the fluency–perturbation dynamics.

So how does social thinking support effective interpersonal behavior in such a situation? First of all, people's behaviors in a joint activity where cultural transmission occurs can be thought of as being controlled by each interactant's intention to engage in the joint activity (Arrow et al., 2000). This intention can be translated to something like, "I intend that we engage in this joint activity," or "We intend that we engage in this joint activity." Intention as conceptualized in theories of reasoned action (Fishbein & Ajzen, 1975) and planned behavior (Ajzen, 1991) would suffice for the current purpose. This intention has a hierarchical structure that involves a high level of action identification (Vallacher & Wegner, 1987) such as *to engage in the joint activity* (e.g., "do my part of this job interview") as well as other lower levels of action identification including *social coordination* (e.g., "I perform appropriate actions in response to the interaction partners' actions"; more specifically, "accept an utterance in response to a presentation).

One caveat is due here. Some theorists view this type of intention as no different from individuals' intention to perform their action (Bratman, 1999; Grosz & Hunsberger, 2006), whereas others view it as a special type of intention that involves a "plural subject" (Gilbert, 2000) or a "we-intention" (Tuomela, 2007). However, the details of this debate are largely immaterial in the current discussion.

Second, some versions of ideomotor theory can handle the micromanagement of social coordination (e.g., Prinz, 1997). According to this view, a common representation that integrates an ideation and a motor behavior is used to comprehend others' action and also control one's own motor behavior. Mimicry—performing an action that mirrors another person's action or *behavior matching*—is typically explained as a kind of priming effect of this representation. An interactant perceives an interaction partner's nonverbal behavior, which activates the ideomotor representation, which then activates the interactant's motor program to produce a similar mimicking behavior.

It is interesting to point out that social coordination often requires complementary or nonmatching behavior rather than mimicry or matching behavior. Take turn-taking in conversation as an example of a necessary aspect of grounding. One interactant needs to wait and perform a nonmatching, complementary behavior while another interactant takes the floor and produces utterances. Thus, a simple and inflexible common ideomotor representation would not be able to handle the social coordination needed for grounding, but presumably common ideomotor representations themselves need to be hierarchically organized under a high-level representation that includes a social coordination goal under which complementary classes of ideomotor representations are included.

At any rate, in combination, the joint intention–ideomotor coordination model can explain the fluency part of the fluency–perturbation dynamics. The intention to engage in a joint activity specifies the goal of the joint activity as well as the

individual part of this activity including what its goal is, how to approach it, how to act in response to other partners' actions, and the like. The current state of affairs in the joint activity needs to be monitored against this intention as in any self-regulatory system. As long as everything—including a high-level goal pursuit and low-level social coordination—goes as intended, the intention is activated at the high level (i.e., "we do this joint activity") just as action identification theory (Vallacher & Wegner, 1987) suggests. This state of affairs generates the subjective experience of fluency and "smooth" interaction. The processing of culturally expected information is just one instance of such smooth social coordination.

However, culturally unexpected information can present an obstacle to the carrying out of the intention to perform a joint activity, which gives rise to a subjective experience of "difficulty" and a signal that the business is not going as usual. This changes the level of action identification to a lower level of the intention hierarchy (e.g., "Now this is something I haven't expected; how can I understand this, and how should I coordinate my action in relation to my partners'?") and engages the cognitive resources and social thinking to activate self-regulatory processes to make social interaction possible.

At this point, it is possible to construct at least two different classes of models to explain the perturbation part of the dynamics. One class of explanations would invoke the activation of a conscious process as a main cause of perturbation. It would suggest that, instead of the nonconscious activation of a social coordination goal, under which habitually performed coordination behaviors such as mimicry are organized and activated, a more conscious explicit strategy represented as an intention "to comprehend unexpected information" is activated to coordinate the grounding process. This intention does not contain the typical social coordination goal as part of the hierarchy, and therefore mimicry stops. The other class of explanations would invoke cognitive resource depletion as a main cause of perturbation. It suggests that an effort to comprehend and ground culturally unexpected information depletes the cognitive resources, which feed and fuel the ideomotor mechanisms that manage microsocial coordination. Because the ideomotor social coordination mechanisms cease to operate (basically because of the lack of resources to operate them), mimicry stops.

One way or the other, a critical question for cultural dynamics, especially for an understanding of the fluency–perturbation dynamics, seems to be how joint intentions and social coordination are organized in humans. In a broader sense, this analysis represents an excellent illustration of the complex way that elaborate social thinking is a necessary prerequisite and corollary for effective interpersonal behavior and the maintenance and transmission of shared cultural knowledge.

CONCLUSION

Despite the great advances made in cross-cultural comparative research, complementary research programs of cultural dynamics need to be contemplated more seriously. If cultural anthropology examines macroprocesses of cultural evolution, which explain how different cultures have come to be distributed around the world, social psychology can make a critical and disciplinarily central contribution

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to the microprocesses of cultural dynamics, which examine processes of cultural transmission in particular contexts. As was noted earlier, anthropology of cultural evolution and social psychology of cultural dynamics are homologous to evolutionary biology and microbiology of genetic transmission.

In fact, social psychological analysis of cultural transmission builds on the core business of social psychology, namely, the examination of social influence processes. However, the traditional research on social influence has been largely built on the mass communication model of communication. This model takes the familiar source–message–audience structure, in which a message sender with certain characteristics (e.g., attractiveness, expertise) who sends a persuasive message to an audience, who may take a cognitive shortcut or engage in greater deliberative cognitive processes, to evaluate the message and may or may not change their beliefs, attitudes, and values. Although this has brought an important insight on social influence processes, this line of work seems to be silent on some of the critical aspects of cultural transmission, that is, what type of information is likely to be produced in social settings to begin with. Furthermore, it fails to address a social process of meaning negotiation between the sender of information and its receiver, in which new information may be generated.

The grounding model of cultural transmission attempts to redress the short comings of the existing model of social influence by bringing out the processes of social thinking involved in information generation and negotiation as a central feature of cultural transmission process. By directing theoretical attention on the interpersonal process of meaning generation and exchange, it has shown that the microgenesis of culture tends to be more reproductive than innovative; however, it also helped identify a microlevel local perturbation in cultural reproduction. Termed the fluency–perturbation dynamics in cultural transmission, culturally unexpected information is presented in the grounding process, it tends to produce both verbal and nonverbal perturbations in the well-oiled operation of complex and dynamical processes of social coordination, thereby further stifling the transmission and retention of culturally unexpected information. This tends toward cultural maintenance at the global level. In this chapter a potential social cognitive mechanism for the fluency–perturbation dynamics was outlined, which combines a theory of small group dynamics that regards people's engagement in group activities as controlled by their joint intention and an ideomotor theory of social coordination.

In taking the microlevel perspective on cultural evolution, a social psychology of cultural dynamics can shed light on the interplay of social cognitive and interpersonal processes by which complex culture, which is a hallmark of human beings, can be formed, maintained, and transformed in their ongoing participation in the dynamic social process.

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REFERENCES

Arrow, H., McGrath, J. E., & Berdahl, J. L. (2000). *Small groups as complex systems.* Thousand Oaks, CA: Sage.

Ajzen, I (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179–211.

Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review, 13*, 219–235. doi: 10.1177/1088868309341564

Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge, UK: Cambridge University Press.

Bernieri, F. J. (1988). Coordinated movement and rapport in teacher–student interactions. *Journal of Nonverbal Behavior, 12*, 120–138.

Boyd, R., & Richerson, P. J. (1985). *Culture and the evolutionary process*. Chicago, IL: University of Chicago Press.

Boyd, R., & Richerson, P. J. (2005). *The origin and evolution of cultures*. New York: Oxford University Press.

Bratman, M. E. (1999). *Faces of intention: selected essays on intention and agency*. Cambridge, UK: Cambridge University Press.

Campbell, D. T. (1975). On the conflicts between biological and social evolution and between psychology and moral tradition. *American Psychologist, 30*, 1103–1120.

Castelli, L., Pavan, G., Ferrari, E., & Kashima, Y. (2009). The stereotyper and the chameleon: The effects of stereotype use on perceiver's mimicry. *Journal of Experimental Social Psychology, 4*, 835–839.

Cavalli-Sforza, L. L., & Feldman, M. W. (1981). *Cultural transmission and evolution: A quantitative approach*. Princeton, NJ: Princeton University Press.

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality and Social Psychology, 76*, 893–910.

Chartrand, T. L., & van Baaren, R. (2009). Human mimicry. *Advances in Experimental Social Psychology, 41*, 219–273.

Chen, C., Burton, M., Greenberger, E., & Dmitrieva, J. (1999). Population migration and the variation of dopamine D4 receptor (DRD4) allele frequencies around the globe. *Evolution and Human Behavior, 20*, 309–324.

Clark, A. E., & Kashima, Y. (2007). Stereotype consistent information helps people connect with others: Situated-functional account of stereotype communication. *Journal of Personality and Social Psychology, 93*, 1028–1039.

Clark, H. H. (1996). *Using language*. New York: Cambridge University Press.

Cole, M. (1996). *Cultural psychology*. Cambridge, MA: Belknap Press.

Dawkins, R. (1976). *The selfish gene*. Oxford, UK: Oxford University Press.

Dijksterhuis, A., & Bargh, J. A. (2001). The perception-behavior expressway: Automatic effects of social perception and social behavior. *Advances in Experimental Social Psychology, 30*, 1–40.

Echterhoff, G., Higgins, E. T., & Levine, J. M. (2009). Shared reality: Experiencing commonality with others' inner states about the world. *Perspectives on Psychological Science, 4*, 496–521.

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, MA: Addison-Wesley.

Gilbert, M. (2000). *Sociality and responsibility*. New York: Rowman & Littlefield.

Goffman, E. (1959). *The presentation of self in everyday life*. Garden City, NY: Anchor Books.

Grahe, J. E., & Bernieri, F. J. (1999). The importance of nonverbal cues in judging rapport. *Journal of Nonverbal Behavior, 23*, 253–269.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. Morgan (Eds.), *Syntax and semantics 3: Speech acts* (pp. 41–58). New York: Academic Press.

Grosz, B. J., & Hunsberger, L. (2006). The dynamics of intention in collaborative activity. *Cognitive Systems Research, 7*, 259–272.

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Hardin, C. D., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition* (Vol. 3, pp. 28–84). New York: Guilford Press.

Holtgraves, T., & Kashima, Y. (2008). Language, meaning and social cognition. *Personality and Social Psychology Review, 12*, 73–94.

Kashima, Y. (2000a). Conceptions of the person and culture for psychology. *Journal of Cross-Cultural Psychology, 31*, 14–32.

Kashima, Y. (2000b). Maintaining cultural stereotypes in the serial reproduction of narratives. *Personality and Social Psychology Bulletin, 26*, 594–604.

Kashima, Y. (2008). A social psychology of cultural dynamics: How cultures are formed, maintained, and transformed. *Social and Personality Psychology Compass, 2*, 107–120.

Kashima, Y., & Kashima, E. S. (2003). Individualism, GNP, climate, and pronoun drop: Is individualism determined by affluence and climate, or does language use play a role? *Journal of Cross-Cultural Psychology, 34*, 125–134.

Kashima, Y., Klein, O., & Clark, A. E. (2008). Grounding: Sharing information in social interaction. In K. Fiedler (Ed.), *Social communication* (pp. 27–77). New York: Psychology Press.

Kashima, Y., Lyons, A., McIntyre, A., & Clark, A. E. (submitted). The maintenance of cultural stereotypes in the conversational retelling of narratives.

Kitayama, S., Ishii, K., Imada, T., Takemura, K., & Ramaswamy, J. (2006). Voluntary settlement and the spirit of independence: Evidence from Japan's "northern frontier." *Journal of Personality and Social Psychology, 91*, 369–384.

Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: Comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology, 97*, 236–255.

Lyons, A., & Kashima, Y. (2003). How are stereotypes maintained through communication?: The Influence of stereotype sharedness. *Journal of Personality and Social Psychology, 85*, 989–1005.

Macrae, C. N., Duffy, O. K., Miles, L. K., & Lawrence, J. (2008). A case of hand waving: Action synchrony and person perception. *Cognition, 109*, 152–156.

Malinowski, B. (1944). *A scientific theory of culture*. Chapel Hill: University of North Carolina Press.

Markus, H. R. & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.

Mead, G. H. (1934). *Mind, self, and society*. Chicago, IL: University of Chicago Press.

Prinz, W. (1997). Perception and action planning. *European Journal of Cognitive Psychology, 9*, 129–154.

Radcliffe-Brown, A. R. (1952). *Structure and function in primitive society*. London: Cohen and West.

Rivers, W. R. H. (1914). *The history of Melanesian society*. Cambridge: Cambridge University Press.

Ruscher, J. B., Cralley, E. L., & O'Farrell, K. J. (2005). How newly acquainted dyads develop shared stereotypic impressions through conversation. *Group Processes and Intergroup Relations, 8*, 259–270.

Ruscher, J. B., & Hammer, E. D. (2005). The development of shared stereotypic impressions in conversation. *Journal of Language and Social Psychology, 25*, 221–243.

Ruscher, J. B., & Hammer, E. D. (1994). Revising disrupted impressions through conversation. *Journal of Personality and Social Psychology, 66*, 530–541.

Schaller, M., Conway, L. G., III, & Tanchuk, T. L. (2002). Selective pressures on the once and future contents of ethnic stereotypes: Effects of the communicability of traits. *Journal of Personality and Social Psychology, 82*, 861–877.

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Schaller, M., & Murray, D. R. (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology, 95*, 212–221. doi: 10.1037/0022-3514.95.1.212

Smith, G. E. (1933). *The diffusion of culture*. London: Watts & Co.

Sperber, D. (1996). *Explaining culture: A naturalistic approach*. Oxford: Blackwell.

Sperber, D., & Wilson, D. (1995). *Relevance: communication and cognition* (2nd ed.). Oxford: Blackwell.

Stangor, C., & McMillan, D. (1992). Memory for expectancy-congruent and expectancy-incongruent information: A review of the social and social-developmental literatures. *Psychological Bulletin, 111*, 42–61.

Triandis, H. C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review, 96*, 506–520.

Tuomela, R. (2007). *The philosophy of sociality*. Oxford: Oxford University Press.

Tylor, E. B. (1871/1996). *Primitive culture*. New York: Gordon Press.

Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? *Psychological Review, 94*, 3–15.

van Baaren, R. B., Holland, R. W., Kawakami, K., & van Knippenberg, A.(2004). Mimicry and prosocial behavior. *Psychological Science, 15*, 71–74.

van Baaren, R. B., Holland, R. W., Steenaert, B., & van Knippenberg, A. (2003). Mimicry for money: Behavioral consequences of imitation. *Journal of Experimental Social Psychology, 39*, 393–398.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wertsch, J. V. (1985). *Vygotsky and the social formation of mind*. Cambridge, MA: Harvard University Press.

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16

System Justification as an Obstacle to the Attainment of Social Justice*

JOHN T. JOST
New York University

AARON C. KAY
Duke University

It was not long ago that questions of social justice and social welfare were at the forefront of theoretical and empirical inquiry in social psychology. The father of modern social psychology, Kurt Lewin, promoted the discipline as, among other things, a scientific means of fostering democratic, egalitarian norms and preventing tyranny and oppression from gaining the upper hand in society. Although he seldom (if ever) couched these goals in the explicit language of social justice, it is clear that his "applied" research programs on overcoming certain forms of prejudice, outgroup hostility, and self-hatred among Jews—to mention some of the most salient examples—reflected a commitment to social justice as well as a scathing critique of authoritarianism and the fascist ideology that had seized the hearts and minds of so many of his fellow citizens in 1930s Germany. Lewin self-consciously strove to integrate theoretical and applied goals, which he believed could be "accomplished in psychology, as it has been accomplished in physics, if the theorist does not look toward applied problems with highbrow aversion or with a fear of social problems" (Lewin, 1944/1951, p. 169).

One of Lewin's doctoral students, Morton Deutsch (1973, 1985, 2006), went on to become one of the field's most illustrious contributors to the field of social justice research, offering a bold, comprehensive framework for addressing oppression as a

* Material for this chapter is taken and adapted from selected portions of Jost, J. T., & Kay, A. C., Social justice: History, theory, and research, in S.T. Fiske, D. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th edition, Vol. 2, pp. 1122–1165), Hoboken, NJ: Wiley, 2010.

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system of social arrangements and practices. Deutsch stressed the importance of *roles* and *mindsets* adopted by members of unjust societies, in addition to the influences of cultural, political, and economic institutions. He made clear that oppression is not simply the result of a few powerful groups consciously conspiring to monopolize power, nor is it primarily the product or activities of individual bigots. Rather, oppression typically operates more broadly and much more subtly. Indeed, it may even be considered "civilized," in that it is experienced as fairly normal in the context of everyday interactions and is woven into the very fabric of social institutions (cf. Deutsch, 2006; Elias, 1994). In his "crude law of social relations," Deutsch (1985) pointed out that social systems act in self-perpetuating ways, so that competitively structured systems elicit selfish, competitive behavior, whereas cooperatively structured systems elicit trusting, cooperative behavior, and so on.

Another prominent social psychologist of the postwar era, Gordon Allport, observed, "Practical and humanitarian motives have always played an important part in the development of social psychology" (1962, p. 4). Specifically, he wrote:

> Social psychology began to flourish soon after the First World War. This event, followed by the spread of communism, by the great depression of the '30's, by the rise of Hitler, the genocide of the Jews, race riots, the Second World War and its consequent anomie, stimulated all branches of social science. A special challenge fell to social psychology. The question was asked: how is it possible to preserve the values of freedom and individual rights under conditions of mounting social strain and regimentation? Can science help provide an answer? (P. 4)

Allport's own work on *The Nature of Prejudice* (1954) as well as a predecessor, *The Authoritarian Personality* by Adorno, Frenkel-Brunswik, Levinson, and Sanford (1950), sought to employ theories and methods in social psychology to diagnose and ultimately defeat prejudice, intolerance, and other apparent obstacles to social justice. It has been suggested darkly on more than one occasion that the individual who exerted the strongest influence over the development of social psychology in the 20th century was Adolf Hitler (e.g., Cartwright, 1979; Jones, 1998).

HISTORICAL CONTEXT FOR THE STUDY OF SOCIAL JUSTICE

World War II illustrated far too vividly both the devastating effects of social injustice and the human capacity to overcome it. In its aftermath, issues of social justice were central to social psychological theory and research. Textbooks routinely covered themes such as morality, conscience, crime and punishment, prejudice, authoritarianism, propaganda, war and peace, and the determinants of revolution (e.g., Brown, 1965; Doob, 1952; Klineberg, 1940; Krech & Crutchfield, 1948). However, as was the case with Lewin's writings, such themes were often approached in the absence of an explicit social justice framework, and terms such as *justice* and *fairness* were not necessarily used to illuminate them. It was not until decades later that social justice research became a subfield or area of specialization within social psychology. Before then, considerations of social justice seemed to permeate the

field as a whole, albeit tacitly. None of the first three editions of *The Handbook of Social Psychology* contained a chapter devoted to studies of social justice per se (see Miller, 2001, p. 528), but several chapters covered pertinent subjects such as prejudice and ethnic relations, leadership, social structure, political behavior, collective action, and social movements.

Social psychological research on theories of justice (especially equity theory) began to flourish in the 1960s, but the demarcation of social justice research as a specific subfield came years later. The publication of John Rawls's *A Theory of Justice* in 1971 represented a monumental breakthrough in scholarship on social justice, and its influence on social psychological investigations has been substantial (e.g., Brickman, 1977; Curtis, 1979; Frohlich & Oppenheimer, 1992; Jost & Azzi, 1996; Mitchell, Tetlock, Mellers, & Ordóez, 1993). Professional developments such as the founding of the International Society for Justice Research (ISJR) and *Social Justice Research* allowed social psychologists to delve more deeply into questions that are unique to justice-related theories and findings, but they also reflected (and may have even contributed to) some degree of separation (and, therefore, marginalization) of social justice research within the larger discipline of social psychology. By the mid-1960s some social psychologists had already begun to have sober second thoughts about Lewin's vision of humanistic, action-oriented research aimed at human betterment and social justice (Ring, 1967). McGuire (1965), for instance, admonished his more "applied" colleagues for being "too preoccupied with the Berlin wall, the urban blight, the population bomb, and the plight of the Negro in the South" and quipped that students who wished to solve social problems should consider joining "the law or the ministry" (pp. 138–139).

In retrospect, social psychologists' commitment to social justice research in the middle of the twentieth century may be attributable, at least in part, to the societal urgency that accompanied the need to defeat fascism in Europe and elsewhere (e.g., see Lewin, 1948). But, one might ask, do we not face urgent problems related to social justice even today? What, if anything, should be done about gaping economic inequality under capitalism; racial disparities in criminal sentencing, including the imposition of the death penalty; gender disparities in hiring, salary, and promotion at work; the persistence of prejudice; religious, ethnic, and other forms of violent conflict, including war, terrorism, and torture; and the problems posed by global climate change and environmental disasters? One need not be a doomsday prophet to suspect that the continued survival of the human race depends ultimately on its capacity to see past purely selfish, parochial sources of motivation and to embrace what social psychologists refer to as "the justice motive."

THE JUSTICE MOTIVE IN HUMAN BEHAVIOR

Solomon Asch (1959) insisted that social psychologists study not only the perpetration of injustice but also "the vectors that make it possible for persons to think and care and work for others" (p. 372). More specifically, he wrote that "it is of considerable consequence for any social psychology to establish the grounds of concern for the welfare of other persons or groups, and how these are related to the concern

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individuals feel for their own welfare" (p. 368). Such comments presage research programs on "altruism" (Krebs & Miller, 1985), prosocial behavior (Batson, 1998), and the so-called justice motive, that is, the extent to which people are motivated to promote fair treatment of others and not merely by considerations of self-interest (Lerner, 1980, 2003; Miller, 1977; Montada, 2002; Tyler, 1994).

The point is not that justice and self-interest are *always* opposed—plainly, they are not. In fact, the sense of justice may originate in humans and other primates in the self-protective desire to ensure that they receive what they "deserve" (Brosnan & de Waal, 2003). When members of disadvantaged groups band together to push for civil rights or other improvements in their quality of life, they are fighting on behalf of social justice *as well as* personal and collective self-interest (e.g., Piven & Cloward, 1978). Nevertheless, the purest evidence of a "justice motive" in human beings comes from cases in which people are willing to risk or sacrifice their own welfare to ensure that *others* are treated fairly (e.g., see Lerner, 2003; Monroe, 2004).

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DESERVINGNESS AND ENTITLEMENT

There may be no single theme more commonly enshrined in Western ideology than that of individual deservingness. It figures prominently in characterizations of the Protestant work ethic (Katz & Hass, 1988; Weber, 1958), culturally prevalent conceptions of personal control and causation (Nisbett & Ross, 1980), the belief in a just world (Lerner, 1980), and various "system-justifying" belief systems, including meritocratic ideology and faith in the American Dream (Jost & Hunyady, 2005; Kluegel & Smith, 1986; Ledgerwood, Mandisodza, Jost, & Pohl, 2011; McCoy & Major, 2007). The take-home message is that people are far more likely to feel that the existing social, economic, or political system is fair and just to the extent that they see recipients of various distributive outcomes (e.g., wealth and poverty) as personally deserving of those outcomes (e.g., Bartels, 2008; Jost, Blount, Pfeffer, & Hunyady, 2003). People seem to feel more justified in discriminating against those who are stigmatized on the basis of characteristics that are seen as personally controllable, such as obesity (e.g., Crandall & Martinez, 1996; Quinn & Crocker, 1999).

Social psychologists have devoted considerable research attention to understanding how notions of deservingness (and entitlement) are related to processes of attribution, stereotyping and prejudice, perceptions of discrimination, political ideology, and appraisals of the legitimacy of social systems (e.g., Feather, 1994; Jost & Banaji, 1994; Jost & Major, 2001; Major, 1994; Reyna, Henry, Korfmacher, & Tucker, 2005). Studies show that perceptions of personal causation and deservingness lead people to hold more favorable attitudes toward high (vs. low) status targets (e.g., Weiner, Perry, & Magnusson, 1988). Endorsement of just world beliefs and system-justifying ideologies that emphasize deservingness are associated with increased prejudice toward African Americans and obese people, among other stigmatized groups (Crandall & Martinez, 1996; Rim, 1988). Attributions of deservingness act not only as causes but also as *releasers* of prejudice (Crandall & Eshleman, 2003), insofar as they seem to justify the expression of preexisting negative attitudes toward certain social groups (see Allport, 1954). Espousing political conservatism, which often leans heavily on the assumption of personal

deservingness (or individual responsibility), also predicts both implicit and explicit devaluation of those who are disadvantaged in society, including African Americans (e.g., Crandall, 1994; Federico & Sidanius, 2002; Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009; Jost, Banaji, & Nosek, 2004; Nosek, Banaji, & Jost, 2009; Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius, Pratto, & Bobo, 1996).

It has been suggested often that measures of implicit stereotyping and prejudice—such as the Implicit Associate Test (Greenwald, McGhee, & Schwartz, 1998)—may tap shared cultural knowledge rather than personal attitudes (e.g., Arkes & Tetlock, 2004; Fiedler, Messner, & Bluemke, 2006; Karpinski & Hilton, 2001; Olson & Fazio, 2004). In response, it is important to point out that most (if not all) implicit bias researchers have long argued that (1) it is possible for people to be biased without feeling personal animus (or wanting to be biased in any way), and (2) awareness of shared cultural stereotypes (and objective inequalities among groups in the social system) are indeed major sources of implicit bias (see Jost et al., 2009). Thus, we think that the question of whether implicit attitudes reflect unadulterated "personal," idiosyncratic preferences *rather than* the cultural milieu (i.e., "extrapersonal associations") is ill-posed. As Solomon Asch (1952/1987) argued with respect to attitudes in general and Gordon Allport (1954) argued with respect to explicit prejudice, an individual's attitudes almost certainly have both a personal and a cultural basis. Because there is considerable variability in implicit bias across individuals within the same culture—and such variability is meaningfully related to variability in discriminatory behavior—it would seem that implicit bias could not be reduced to "purely" cultural factors.

In any case, Nosek and Hansen (2008) conducted a comprehensive test of the "extrapersonal associations" hypothesis, administering 95 different attitude Implicit Association Tests (IATs) to thousands of Project Implicit Website respondents. They found that IAT effects were, overall, not influenced by participants' beliefs about how the culture valued each attitude object (median $r = .01$, average sample size = 1,053); even the largest correlation was relatively weak ($r = .15$). By contrast, individuals' IAT scores were significantly and positively correlated with their explicit attitudes for all 95 attitude objects, with a median $r = .36$ (maximum $r = .70$). The researchers conclude, appropriately enough, that "the associations in our heads belong to us" (p. 553). This certainly does not mean that the cultural milieu has no impact on people's implicit attitudes. On the contrary, we assume that culture is a more powerful transmitter of opinions, values, beliefs, and ideologies than do those who wish to maintain a strict boundary between personal and "extrapersonal" (cultural) associations.

Studies of relative deprivation and social comparison processes have explored additional ways in which beliefs about deservingness and entitlement relate to issues of prejudice and social justice. One focus has been on the conditions that lead members of disadvantaged or low-status groups (such as women) to develop a "depressed sense of entitlement" that leads them to be satisfied with less than others receive (e.g., Blanton, George, & Crocker, 2001; Callahan-Levy & Messé, 1979; Cheung & Hardin, 2010; Jost, 1997; Major, 1994; Pelham & Hetts, 2001). The social transmission of ideological belief systems that reinforce notions of meritocracy and deservingness apparently leads members of low-status groups to view

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their own state of disadvantage as relatively legitimate and acceptable (Crandall, 1994; Hochschild, 1981; Jost & Banaji, 1994; Jost et al., 2004; Lane, 1962; Quinn & Crocker, 1999; Sidanius & Pratto, 1999). For example, women who score higher on the belief in a just world are less likely to report career-related discontentment (Hafer & Olson, 1993), and ethnic minorities who espouse the belief that it is possible to climb the status hierarchy are less likely to view negative outcomes as due to discrimination or unfairness (Major et al., 2002). There is also experimental work showing that "depressed entitlement" (and tolerance of injustice more generally) can be produced or exacerbated under specific situational conditions (see Cheung & Hardin, 2010). For instance, priming members of a low-status group with meritocratic ideals makes them less likely to regard unfair treatment (by a higher-status group member) as caused by sexism or discrimination (McCoy & Major, 2007). Similarly, exposing women to seemingly benevolent and complementary forms of sexism causes them to engage in more self-objectification and self-surveillance and to experience more body shame (Calogero & Jost, 2011).

All of this is consistent with system justification theory, which suggests that people may be motivated—for epistemic, existential, and relational reasons—to view inequalities among individuals and groups as fair, legitimate, and defensible rather than due to discrimination, unfairness, or historical accident (e.g., Blasi & Jost, 2006; Jost & Hunyady, 2005; Jost, Ledgerwood, & Hardin, 2008). As with regard to the belief in a just world and many other areas of social justice research (see Jost & Kay, 2010), system justification tendencies vary as a function of both dispositional and situational variables (Jost et al., 2003, 2004; Kay & Zanna, 2009).

THE PROBLEM OF SYSTEM JUSTIFICATION

It would be difficult to find a more astute justice theorist or a bigger authority on ethical behavior in the entire history of Western civilization than Aristotle. Yet there are aspects of his belief system that strike contemporary audiences as anomalous and obviously wrong-headed, possibly even immoral. Probably the most obvious example is his spirited defense of the institution of slavery as practiced by so many of his fellow Athenian citizens. It is not the case that no one in ancient Greece had ever raised moral objections about slavery; several philosophers of Aristotle's era had criticized the practice, but Aristotle apparently rejected those criticisms (Kraut, 2002, pp. 277–278). How could such a brilliant ethical mind possibly find itself arguing that such a brutal, exploitative institution as slavery was not only necessary but also just? The answer, it seems, has to do with *system justification*, defined as the conscious or unconscious motivation to defend, bolster, and justify existing social, economic, and political institutions and arrangements (Jost et al., 2004). Kraut (2002) writes:

> No doubt, Aristotle believed that slavery was justified in part because that was a convenient tenet for him to hold. Had he come to the opposite conclusion, he would have been forced to announce to the Greek world that its political institutions, which he greatly valued (however much he also criticized them), rested on resources that could not be justly acquired or used. The all

> too human tendency to avoid upheavals of thought and revolutions in social practice certainly played a role here. But . . . in order for Aristotle to have arrived at the sincere conviction that slavery was just, his social world had to present itself to him in a way that supported that thesis. (P. 279)

Thus, a combination of social, cognitive, and motivational factors apparently led Aristotle to the conclusion that some individuals are "natural slaves" (by virtue of their "childlike helplessness") and others are "natural masters" (by virtue of their "rational faculties"). He argued, in other words, that both slaves and masters benefit from the institution of slavery; as Walter Lippmann (1922) put it, "He understood that to justify slavery he must teach the Greeks a way of *seeing* their slaves that comported with the continuance of slavery" (p. 97). Because of these beliefs, Aristotle and his fellow Athenians were able to feel better about their own society and to rationalize away any guilt, dissonance, or negative affect that they might have otherwise felt. To make matters worse, Aristotle's arguments were resurrected in sixteenth-century Spain to justify the enslavement of indigenous people in the New World (Kraut, 2002, p. 277).

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Motivation to Justify the Societal Status Quo

If Aristotle himself was tempted to excuse the injustices inherent in the social system he knew and loved, what hope is there for the rest of us to avoid a similar fate, at least with respect to some subset of social, economic, or political issues? According to system justification theory, all of us are *motivated*—to varying degrees, as a function of both dispositional and situational factors (e.g., Jost & Hunyady, 2002, 2005; Kay & Zanna, 2009)—to rationalize away the moral and other failures of our social, economic, and political institutions and to derogate alternatives to the status quo (Jost, Liviatan, et al., 2010; Kay et al., 2009). Thus, despite the fact that most Americans espouse egalitarian ideals and acknowledge substantial income inequality in society, surveys show that a majority of U.S. respondents judge the economic system to be highly fair and legitimate (Jost, Blount, Pfeffer, & Hunyady, 2003). Such beliefs are especially prevalent among those who identify themselves as politically conservative (e.g., Bartels, 2008, pp. 149–161).

In thinking about social justice, it is important to bear in mind the dramatic levels of economic inequality between the rich and poor in the contemporary United States (e.g., Whoriskey, 2011). The combined net worth of the 400 wealthiest citizens exceeds 1 trillion dollars (Mishel, Bernstein, & Allegretta, 2005) and corporate chief executives now earn over 500 times the salary of their average employee (Stiglitz, 2004). It would be difficult to find *any* justice principle—such as equity, equality, or need (Deutsch, 1985) that would permit this degree of economic inequality, and in fact the inequality has arisen not because it is believed to be fair but because of impersonal "market forces" that most citizens accept (consciously or unconsciously) as legitimate (cf. Frank, 2000; Jost, Blount, et al., 2003).

Stereotyping as System Justification One way people engage in system justification is through the use of stereotypes (such as Aristotle's stereotypes of

slaves and masters) that ascribe to individuals and groups characteristics that render them especially well suited to occupy the status or positions that they do in the current social order (e.g., Allport, 1954; Hoffman & Hurst, 1990; Jost & Banaji, 1994; Jost & Kay, 2005; Kay, Jost, Mandisodza, Sherman, Petrocelli, & Johnson, 2007; Lippmann, 1922; Sidanius & Pratto, 1999). It is important to point out that members of disadvantaged groups frequently internalize system-justifying stereotypes and evaluations of themselves, and this almost surely has the consequence of decreasing their likelihood of rebelling against the status quo or participating in collective action aimed to change it (e.g., Ashburn-Nardo, Knowles, & Monteith, 2003; Jost et al., 2004; Jost, Pelham, & Carvallo, 2002; Rudman, Feinberg, & Fairchild, 2002; Uhlmann, Dasgupta, Elgueta, Greenwald, & Swanson, 2002).

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System-Justifying Aspects of Conservative Ideology Certain ideologies—such as political conservatism, which developed in part out of Edmund Burke's (1790/1987) critical resistance to the French Revolution and his efforts to "vindicate" the social order—satisfy the "goal" of system justification as well (see Jost, 2009). More than two centuries after the French Revolution, political conservatives continue to show stronger implicit as well as explicit preferences for order, stability, conformity, and tradition (over chaos, flexibility, rebelliousness, and progress), in comparison with liberals and others (Jost, Nosek, & Gosling, 2008; see also Smith, Oxley, Hibbing, Alford, & Hibbing, 2011, pp. 386–387). The fact that political conservatives are motivated more strongly than liberals by system justification motivation helps to explain why: (1) They strongly favor advantaged over disadvantaged groups on implicit as well as explicit measures (Jost et al., 2004); (2) their Black–White racial attitudes lagged behind those of liberals by over 30 years in the United States (Nosek et al., 2009); (3) they are more likely to deny problems associated with global climate change and to resist efforts to change current environmental practices (Feygina, Jost, & Goldsmith, 2010); and (4) they are relatively insulated against the negative hedonic effects of increasing inequality (Napier & Jost, 2008). Thus, many of the attitudinal and behavioral differences observed between liberals and conservatives can be understood in terms of variability in system justification tendencies.

Epistemic, Existential, and Relational Underpinnings of System Justification

System justification is theorized to arise out of a constellation of epistemic needs to attain certainty and create a stable, predictable worldview; existential needs to manage threat and perceive a safe, reassuring environment; and relational needs to achieve shared reality with important others, including friends and family members who are also motivated by system justification concerns (e.g., Jost et al., 2008, 2009). Thus, personal needs for order, structure, certainty, control, and closure are positively correlated with political conservatism, as are concerns about crime, death, terrorism, and other threatening stimuli (Jost, Glaser et al.,

2003, 2007; Oxley et al., 2008). Experimental work demonstrates that depriving individuals of a sense of control and priming them with words such as *random*, *uncertain*, and *uncontrollable* causes them to turn to external systems and authorities, such as God and the government (Kay, Gaucher, Napier, Callan, & Laurin, 2008; Kay, Moscovitch, & Laurin, 2010). Studies also show that exposing people to various forms of system threat leads them to endorse system-justifying stereotypes (Jost, Kivetz, Rubini, Guermandi, & Mosso, 2005; Kay, Jost, & Young, 2005).

There is less direct evidence that system justification serves relational needs to affiliate with others (cf. Jost, Ledgerwood, & Hardin, 2008), but a series of studies by Cheung, Noel, and Hardin (2011) showed that even trivial interpersonal ties (e.g., sharing a birthday or food preference) to others who hold system-justifying attitudes led participants to be more supportive of the status quo following social exclusion. It is also clear that people who complain about the fairness of the social system suffer deleterious interpersonal consequences (e.g., Kaiser & Miller, 2001). Individuals who endorse system-justifying ideologies, such as social dominance orientation and the belief in a just world, are especially prone to disparaging African Americans who claim discrimination (Kaiser, Dyrenforth, & Hagiwara, 2006).

In terms of consequences for interpersonal behavior, studies suggest that system justification motivation can affect choices about romantic partners as well as beliefs about relationships. For instance, Lau, Kay, and Spencer (2008) discovered that exposure to high (vs. low) system threat led men to profess greater attraction to women who embodied sexist ideals (i.e., women who were portrayed as dependent, vulnerable, and pure). A series of studies by Day, Kay, Holmes, and Napier (2011) demonstrated that system threat caused young men to be more supportive of "committed relationship ideology" and (conversely) that a threat to this relationship ideology led them to score higher on a measure of system justification. In terms of political orientation, Eastwick, Richeson, Son, and Finkel (2009) found that in the context of a speed-dating session, White conservatives expressed greater romantic desire for White (vs. Black) partners, whereas White liberals expressed greater desire for Black (vs. White) partners. Consistent with system-justification theory, Black conservatives (but not liberals) were more attracted to White (out-group) than Black (in-group) partners.

Possibly because system justification addresses epistemic, existential, and relational needs, it conveys palliative psychological benefits, including increased positive affect, decreased negative affect, and a sense that life is satisfactory and meaningful (Jost & Hunyady, 2002; Jost, Wakslak, & Tyler, 2008; Kluegel & Smith, 1986; Rankin, Jost, & Wakslak, 2009). At the same time, however, system justification is associated with low self-esteem, depression, ambivalence, and out-group favoritism for members of disadvantaged groups, who may be "caught" between competing desires to feel good about themselves and also the social systems to which they belong (e.g., Jost & Burgess, 2000; Jost & Thompson, 2000; O'Brien & Major, 2005).

It has been suggested that system-justifying attitudes reflect a "moral motivation" to protect society and that "the benefits of justifying the system are not just palliative, they are meaning-providing and can often be important for human

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flourishing" (Haidt & Graham, 2009, p. 391). Without disputing that system justification contributes to social stability and carries with it a number of social and psychological advantages for the individual, group, and society, it seems important to point out that it is probably *neither* moral nor immoral in and of itself. System justification can indeed inspire people to celebrate and vindicate truly just institutions and practices. Nevertheless, the very same motivation can lead us—as it may have led Aristotle—to venerate those features of the social system (e.g., customs, traditions, and practices) that should be overthrown.

WHAT CAN SOCIAL PSYCHOLOGY CONTRIBUTE TO SOCIAL JUSTICE?

The topic of social justice brings into stark relief both the promise and challenges of social psychology in a way that perhaps no other subject can. Among other things, social justice is a theme that requires one to consider and integrate insights arising from individual, group, and system levels of analysis (Doise, 1986; Stangor & Jost, 1997). Students of social justice—like those who dare to confront questions of rationality or truth—must grapple with the uneasy relationship between the subjective and the objective or, what is nearly the same in the present context, descriptive facts about how people actually think, feel, and act with respect to justice considerations and normative standards about how they *ought* to behave if their actions are to be considered just (see also Miller, 1999; Payne & Cameron, 2010; Tyler & Jost, 2007).

Of course, reasonable (to say nothing of unreasonable) parties can disagree about what justice entails, and many long-standing, seemingly intractable conflicts, such as the Arab–Israeli conflict, involve interpersonal or intergroup disputes over what is considered fair and legitimate (e.g., Deutsch, 2006; Kelman, 2001; Mikula & Wenzel, 2000). At the same time, it is unsatisfying to conclude simply that justice is in the "eye of the beholder." As Miller (1999) pointed out, "Popular beliefs about social justice may turn out to be defective in various ways; for instance, they may prove to conceal deep contradictions, or involve serious factual errors" (p. x). If we take this point seriously, then we cannot merely assume that justice and morality consist in what people *think* is just and moral, even though it may be a very difficult task to determine what actually *is* just (or unjust) in any given situation.

One major reason one cannot simply interpret the subjective acceptance of a given state of affairs as conclusive evidence of its objective fairness is that people sometimes tolerate circumstances, such as slavery, apartheid, or caste systems, that seem obviously unjust to outsiders or in retrospect or from the point of view of clearly established standards of just treatment (Crosby, 1982; Deutsch, 1985; Johnson, 1966; Zinn, 1968). Some such cases are said to reflect "false consciousness," defined as false beliefs that serve to sustain injustice or oppression (Jost, 1995; Lind & Tyler, 1988). They may also suggest the presence of system justification motivation, that is, the desire to exonerate the existing social system and, in so doing, to minimize or overlook its injustices (see Blasi & Jost, 2006; Jost et al., 2004, 2009).

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For all of these reasons, it is essential for the scholar of social justice to bear in mind the possibility that there are objective standards of justice, even if specific candidates are bound to be controversial (e.g., Feinberg, 1973; Hare, 1981; Miller, 1999; Rawls, 1971). Much as researchers use scientific means to identify the objective causes of subjective well-being (or happiness) of individuals (e.g., Kahneman, Diener, & Schwarz, 1999), it should be possible for social scientists to discover which characteristics of social systems are more and less likely to maximize equity, equality, need, liberty, and other putative principles of social justice and which characteristics lead disproportionately to unjust outcomes such as suffering, exploitation, abuse, prejudice, and oppression. It seems like a daunting task to develop objective (as well as subjective) measures of well-being at the system or societal level, but there may be no way of knowing whether scientific methods can gain traction on age-old problems of social justice unless it is attempted.

For instance, it may be feasible to compare societies in terms of how well they adhere to specific deontological principles; indeed, some human rights organizations collect international data to draw precisely such comparisons. The most compelling normative meta-theory of social justice may well combine elements of utilitarian and deontological approaches, that is, the notion that justice involves (1) the maximization of human welfare, and (2) adherence to objective, universally applicable principles of justice derived from abstract human reasoning (i.e., rationality). The task, of course, is to reconcile multiple, potentially conflicting justice principles—such as equity, equality, need, merit, liberty, consistency, accuracy, and ethicality—in some hierarchical structure that weights such principles differentially as a function of contextual variables, local contingencies, and domains of application (e.g., see Miller, 1999).

Empirical research has a crucial role to play in clearing away common misconceptions—including erroneous assumptions, stereotypes, and misunderstandings about the causes of human behavior—and thereby updating and elevating public discourse about matters of social justice, morality, and blame (Greene, 2003; Payne & Cameron, 2010; see also Malle, Guglielmo, & Monroe, this volume). Over time, scientific findings have the capacity to change culturally prevalent representations of free will, responsibility, and so on, and these changes will manifest themselves in legal transformations eventually (Blasi & Jost, 2006; Greene & Cohen, 2004; Wegner, 2002). Cognitive scientists have contributed mightily to refining normative theories of rationality (e.g., March & Simon, 1958; Thaler, 1991) as well as formerly philosophical (and even metaphysical) treatments of epistemological questions in general (Goldman, 1992; Kornblith, 1999; Stich, 1990). In recent years, philosophers have incorporated evidence from social and personality psychology in evaluating Aristotelian and other normative (as well as descriptive) theories of ethics, virtue, and moral character (Doris, 2002; Flanagan, 1991; Harman, 1999). There is no a priori reason to assume that social psychological research will be less useful in forging the kinds of normative conceptions of justice and injustice that have traditionally been the bread and butter of moral philosophy and legal scholarship.

Another basis for optimism concerning attempts to "naturalize" the study of social justice comes from explicit efforts to integrate legal studies with research in

the social and behavioral sciences (Sunstein, 2000), including calls for "psychological jurisprudence" (Darley, Fulero, Haney, & Tyler, 2002; Tyler & Jost, 2007) and "behavioral realism" (Blasi & Jost, 2006; Kang, 2005). Each of these represents a concerted attempt to bring the law and public policy into better alignment with conclusions drawn from the scientific study of human nature. It has been suggested, for instance, that current legal protections against racial discrimination are inadequate because they focus exclusively on conscious intention as an explanation for human behavior and the basis for assigning legal responsibility, whereas contemporary research in social cognition has demonstrated that automatic, implicit (i.e., unintentional) processes are capable of producing discriminatory outcomes (e.g., Greenwald & Krieger, 2006; Jost et al., 2009; Kang & Banaji, 2006; Krieger & Fiske, 2006).

All of this returns us to the grand Lewinian ambitions with which we began this chapter. The notion of solving social problems through rational, scientific means rather than ideological (or even coercive) means is especially attractive (e.g., Allport, 1954; Deutsch, 1985, 2006; McGuire, 1985). Along these lines, Kurt Lewin (1948) argued that the objectives of science and social justice were in fact highly compatible:

> To believe in reason means to believe in democracy, because it grants to the reasoning partners a status of equality. It is therefore not an accident that not until the rise of democracy at the time of the American and French Revolutions was the goddess of "reason" enthroned in modern society. And again, it is not accident that the first act of modern Fascism in every country has been officially and vigorously to dethrone this goddess and instead to make emotions and obedience the all-ruling principles in education and life from kindergarten to death.
>
> I am persuaded that scientific sociology and social psychology based on an intimate combination of experiments and empirical theory can do as much, or more, for human betterment as the natural sciences have done. However, the development of such a realistic, nonmystical social science and the possibility of its fruitful application presuppose the existence of a society which believes in reason. (P. 83)

Thus, Lewin ardently recommended the use of social science to serve the ends of social justice and, in so doing, to improve society. Considerable progress toward this most ambitious goal has been achieved (see Jost & Kay, 2010; Payne & Cameron, 2010). At the same time, the jury is still out on whether the theories and methods of social psychology can offer unique, indispensable insights that—when combined with those gathered from philosophy, law, history, anthropology, sociology, economics, political science, and other disciplines—will enable the human race to attain the highest degree of social justice in practice and to overcome its most stubborn, pernicious obstacles. We follow Lewin in supposing, however optimistically, that they can.

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REFERENCES

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York: Harper.

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley.

Allport, G. W. (1962). The historical background of modern social psychology. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (2nd ed., Vol. 1, pp. 1–80). Reading, MA: Addison–Wesley.

Arkes, H. R., & Tetlock, P. E. (2004). Attributions of implicit prejudice, or "would Jesse Jackson 'fail' the Implicit Association Test?" *Psychological Inquiry, 15*, 257–278.

Asch, S. E. (1959). A perspective on social psychology. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 363–383). New York: McGraw-Hill.

Asch, S. (1987). *Social psychology*. Oxford: Oxford University Press. (Original work published in 1952.)

Ashburn-Nardo, L., Knowles, M. L., & Monteith, M. J. (2003). Black Americans' implicit racial associations and their implication for intergroup judgment. *Social Cognition*, 21, 61–87.

Bartels, L. (2008). *Unequal democracy: The political economy of the gilded age*. New York: Russell Sage Foundation.

Batson, C. D. (1998). Altruism and prosocial behavior. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (pp. 282–316). New York: McGraw-Hill.

Blanton, H., George, G., & Crocker, J. (2001). Contexts of system justification and system evaluation: Exploring the social comparison strategies of the (not yet) contented female worker. *Group Processes and Intergroup Relations, 4*, 126–137.

Blasi, G., & Jost, J. T. (2006). System justification theory and research: Implications for law, legal advocacy, and social justice. *California Law Review, 94,* 1119–1168.

Brickman, P. (1977). Preference for inequality. *Social Psychology Quarterly, 40*, 303–310.

Brosnan, S. F., & de Waal, F. B. M. (2003). Monkeys reject unequal pay. *Nature, 425,* 297–299.

Brown, R. (1965). *Social psychology*. New York: Free Press.

Burke, E. (1790/1987). Reflections on the revolution in France. In J. G. A. Pocock (Ed.), *Reflections on the revolution in France* (pp. 1–218). Indianapolis, IN: Hackett.

Callahan-Levy, C. M., & Messé, L. A. (1979). Sex differences in the allocation of pay. *Journal of Personality and Social Psychology, 37*, 433–446.

Calogero, R., & Jost, J.T. (2011). Self-subjugation among women: Exposure to sexist ideology, self-objectification, and the protective function of the need to avoid closure. *Journal of Personality and Social Psychology, 100,* 211–228.

Cartwright, D. (1979). Contemporary social psychology in historical perspective. *Social Psychology Quarterly, 42*, 82–93.

Cheung, R. M., & Hardin, C. D. (2010). Costs and benefits of political ideology: The case of economic self-stereotyping and stereotype threat. *Journal of Experimental Social Psychology, 46*, 761–766.

Cheung, R. M., Noel, S., & Hardin, C. D. (2011). Adopting the system – justifying attitudes of others: Effects of trivial interpersonal connections in the context of social inclusion and exclusion. *Social Cognition, 29*, 255–269.

Crandall, C. S. (1994). Prejudice against fat people: Ideology and self-interest. *Journal of Personality and Social Psychology, 66*, 882–894.

Crandall, C. S., & Eshleman, A. (2003). A justification-suppression of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414–446.

Crandall, C. S., & Martinez, R. (1996). Culture, ideology, and antifat attitudes. *Personality and Social Psychology Bulletin, 22*, 1165–1176.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Crosby, F. (1982). *Relative deprivation and the working woman*. New York: Oxford University Press.

Curtis, R. C. (1979). Effects of knowledge of self-interest and social relationship upon the use of equity, utilitarian, and Rawlsian principles of allocation. *European Journal of Social Psychology, 9*, 165–175.

Darley, J. M., Fulero, S., Haney, C., & Tyler, T. (2002). Psychological jurisprudence: Taking psychology and law into the twenty first century. In J. R. P. Ogloff (Ed.), *Taking psychology and law into the twenty-first century* (pp. 35–59). New York: Plenum.

Day, M. V., Kay, A. C., Holmes, J. G., & Napier, J. L. (2011). System justification and the defense of committed relationship ideology. *Journal of Personality and Social Psychology*.

Deutsch, M. (1973). *The resolution of conflict*. New Haven, CT: Yale University Press.

Deutsch, M. (1985). *Distributive justice: A social-psychological perspective*. New Haven, CT: Yale University Press.

Deutsch, M. (2006). Justice and conflict. In M. Deutsch, P. T. Coleman, & E. C. Marcus (Eds.), *The handbook of conflict resolution: Theory and practice* (2nd ed., pp. 43–68). San Francisco: Jossey-Bass.

Doise, W. (1986). *Levels of explanation in social psychology*. Cambridge, UK: Cambridge University Press.

Doob, L. W. (1952). *Social psychology: An analysis of human behavior*. New York: Holt.

Doris, J. M. (2002). *Lack of character: Personality and moral behavior*. New York: Cambridge University Press.

Eagly, A. H., Diekman, A. B., Johannesen-Schmidt, M. C., & Koenig, A. M. (2004). Gender gaps in sociopolitical attitudes: A social psychological analysis. *Journal of Personality and Social Psychology, 87*, 796–816.

Eastwick, P. W., Richeson, J. A., Son, D., & Finkel, E. J. (2009). Is love colorblind? Political orientation and interracial romantic desire. *Personality and Social Psychology Bulletin*, 35, 1258–1268.

Elias, N. (1994). *The civilizing process*. Oxford, UK: Blackwell. (Original work published 1939.)

Feather, N. T. (1994). Attitudes toward high achievers and reactions to their fall: Theory and research concerning tall poppies. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 26, pp. 1–73). San Diego, CA: Academic Press.

Federico, C. M., & Sidanius, J. (2002). Racism, ideology, and affirmative action revisited: The antecedents and consequences of "principled objections" to affirmative action. *Journal of Personality and Social Psychology, 82*, 488–502.

Fiedler, K., Messner, C., & Bluemke, M. (2006). Unresolved problems with the 'I', the 'A', and the 'T': A logical and psychometric critique of the Implicit Association Test (IAT). *European Review of Social Psychology, 17*, 74–147.

Feinberg, J. (1973). *Social philosophy*. Englewood Cliffs, NJ: Prentice-Hall.

Feygina, I., Jost, J. T., & Goldsmith, R. (2010). System justification, the denial of global warming, and the possibility of "system-sanctioned change." *Personality and Social Psychology Bulletin*, *36*, 326–338.

Flanagan, O. (1991). *Varieties of moral personality: Ethics and psychological realism*. Cambridge, MA: Harvard University Press.

Frank, T. (2000). *One market under God*. New York: Anchor.

Frohlich, N., & Oppenheimer, J. A. (1992). *Choosing justice: An experimental approach to ethical theory*. Berkeley: University of California Press.

Goldman, A. (1992). *Liaisons: Philosophy meets the cognitive and social sciences*. Cambridge, MA: MIT Press.

Greene, J. D. (2003). From neural "is" to moral "ought": What are the moral implications of neuroscientific moral psychology? *Nature Reviews Neuroscience, 4*, 846–849.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Greene, J. D., & Cohen, J. (2004). For the law, neuroscience changes nothing and everything. *Philosophical Transactions of the Royal Society of London B*, (Special Issue on Law and the Brain), *359*, 1775–17785.

Greenwald, A. G., & Krieger, L. H. (2006). Implicit bias: Scientific foundations. *California Law Review, 94,* 945–967.

Greenwald, A. G., Smith, C. T., Sriram, N., Bar-Anan, Y., & Nosek, B. A. (2009). Implicit race attitudes predicted vote in the 2008 U.S. presidential election. *Analyses of Social Issues and Public Policy*, *9*, 241–253.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*, 1464–1480.

Hafer, C. L., & Olson, J. M. (1993). Beliefs in a just world, discontent, and assertive actions by working women. *Personality and Social Psychology Bulletin, 19*, 30–38.

Haidt, J., & Graham, J. (2009). Planet of the Durkheimians, where community, authority, and sacredness are foundations of morality. In J. T. Jost, A. C. Kay, & H. Thorisdottir (Eds.), *Social and psychological bases of ideology and system justification* (pp. 371–401). New York: Oxford University Press.

Hare, R. M. (1981). *Moral thinking: Its levels, method, and point*. New York: Clarendon Press.

Harman, G. (1999). Moral philosophy meets social psychology: Virtue ethics and the fundamental attribution error. *Proceedings of the Aristotelian Society, 99*, 315–331.

Hochschild, J. L. (1981). *What's fair? American beliefs about distributive justice*. Cambridge, MA: Harvard University Press.

Hoffman, C., & Hurst, N. (1990). Gender stereotypes: Perception or rationalization? *Journal of Personality and Social Psychology, 58*, 197–208.

Johnson, C. (1966). *Revolutionary change*. Boston, MA: Little, Brown

Jones, E. E. (1998). Major developments in five decades of social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 2, 4th ed., pp. 3–57). Boston: McGraw Hill. (Original work published 1985.)

Jost, J. T. (1995). Negative illusions: Conceptual clarification and psychological evidence concerning false consciousness. *Political Psychology, 16*, 397–424.

Jost, J. T. (1997). An experimental replication of the depressed-entitlement effect among women. *Psychology of Women Quarterly, 21*, 387–393.

Jost, J. T., & Jost, L. J. (2009). Virtue ethics and the social psychology of character: Philosophical lessons from the person-situation debate. *Journal of Research in Personality, 43,* 253–254.

Jost, J. T., & Azzi, A. E. (1996). Microjustice and macrojustice in the allocation of resources between experimental groups. *Journal of Social Psychology, 136*, 349–365.

Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British Journal of Social Psychology, 33*, 1–27.

Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology, 25*, 881–920.

Jost, J. T., Blount, S., Pfeffer, J., & Hunyady, G. (2003). Fair market ideology: Its cognitive-motivational underpinnings. In R. M. Kramer & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 25, pp. 53–91). Oxford, UK: Elsevier.

Jost, J. T., & Burgess, D. (2000). Attitudinal ambivalence and the conflict between group and system justification motives in low status groups. *Personality and Social Psychology Bulletin, 26*, 293–305.

Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin, 129*, 339–375.

Jost, J. T., & Hunyady, O. (2002). The psychology of system justification and the palliative function of ideology. *European Review of Social Psychology, 13,* 111–153.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying ideologies. *Current Directions in Psychological Science, 14*, 260–265.

Jost, J.T., & Kay, A.C. (2010). Social justice: History, theory, and research. In S.T. Fiske, D. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th edition, Vol. 2, pp. 1122–1165). Hoboken, NJ: Wiley.

Jost, J. T., Kivetz, Y., Rubini, M., Guermandi, G., & Mosso, C. (2005). System-justifying functions of complementary regional and ethnic stereotypes: Cross-national evidence. *Social Justice Research, 18*, 305–333.

Jost, J. T., Ledgerwood, A., & Hardin, C. D. (2008). Shared reality, system justification, and the relational basis of ideological beliefs. *Social and Personality Psychology Compass, 2*, 171–186.

Jost, J. T., Liviatan, I., van der Toorn, J., Ledgerwood, A., Mandisodza, A., & Nosek, B. A. (2010). System justification: How do we know it's motivated? In R. C. Bobocel, A. C. Kay, M. Zanna, & J. Olson (Eds.), *The psychology of justice and legitimacy: The Ontario symposium* (Vol. 11, pp. 173–203). Hillsdale, NJ: Erlbaum.

Jost, J. T., & Major, B. (Eds.). (2001). *The psychology of legitimacy: Emerging perspectives on ideology, justice, and intergroup relations*. New York: Cambridge University Press.

Jost, J. T., Nosek, B. A., & Gosling, S. D. (2008). Ideology: Its resurgence in social, personality, and political psychology. *Perspectives on Psychological Science, 3*, 126–136.

Jost, J. T., Pelham, B. W., & Carvallo, M. R. (2002). Non-conscious forms of system justification: Implicit and behavioral preferences for higher status groups. *Journal of Experimental Social Psychology, 38*, 586–602.

Jost, J. T., Rudman, L. A., Blair, I. V., Carney, D., Dasgupta, N., Glaser, J., et al. (2009). The existence of implicit bias is beyond reasonable doubt: A refutation of ideological and methodological objections and executive summary of ten studies that no manager should ignore. *Research in Organizational Behavior, 29*, 39–69.

Jost, J. T., & Thompson, E. P. (2000). Group-based dominance and opposition to equality as independent predictors of self-esteem, ethnocentrism, and social policy attitudes among African Americans and European Americans. *Journal of Experimental Social Psychology, 36*, 209–232.

Jost, J. T., Wakslak, C., & Tyler, T. R. (2008). System justification theory and the alleviation of emotional distress: Palliative effects of ideology in an arbitrary social hierarchy and in society. In K. Hegtvedt & J. Clay-Warner (Eds.), *Justice: Advances in group processes* (Vol. 25, pp. 181–211). Bingley, UK: JAI/Emerald.

Jost, L. J., & Jost, J. T. (2007). Why Marx left philosophy for social science. *Theory & Psychology, 17*, 297–322.

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of a hedonic psychology*. New York: Russell Sage Foundation.

Kaiser, C. R., & Miller, C. T. (2001). Stop complaining! The social costs of making attributions to discrimination. *Personality and Social Psychology Bulletin, 27*, 254–263.

Kaiser, C. R., Dyrenforth, P., & Hagiwara, N. (2006). Why are attributions to discrimination interpersonally costly? A test of status legitimizing and group justifying motivations. *Personality and Social Psychology Bulletin, 32*, 1523–1536.

Kang, J. (2005). Trojan horses of race. *Harvard Law Review, 118,* 1489–1593.

Kang, J., & Banaji, M. R. (2006). Fair measures: A behavioral realist revision of "affirmative action." *California Law Review, 94*, 1063–1118.

Karpinski, A., & Hilton, J. L. (2001). Attitudes and the Implicit Association Test. *Journal of Personality and Social Psychology, 81,* 774–788.

Katz, I., & Hass, R. G. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive structures. *Journal of Personality and Social Psychology, 55*, 893–905.

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Kay, A. C., Czaplinski, S., & Jost, J. T. (2009). Left-right ideological differences in system justification following exposure to complementary versus noncomplementary stereotype exemplars. *European Journal of Social Psychology, 39*, 290–298.

Kay, A. C., Gaucher, D., Napier, J. L., Callan, M. J., & Laurin, K. (2008). God and the Government: Testing a compensatory control mechanism for the support of external systems. *Journal of Personality and Social Psychology, 95,* 18–35.

Kay, A. C., Jost, J. T., Mandisodza, A. N., Sherman, S. J., Petrocelli, J. V., & Johnson, A. L. (2007). Panglossian ideology in the service of system justification: How complementary stereotypes help us to rationalize inequality. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (pp. 305–358). San Diego, CA: Academic Press/Elsevier.

Kay, A. C., Jost, J. T., & Young, S. (2005). Victim derogation and victim enhancement as alternate routes to system justification. *Psychological Science, 16*, 240–246.

Kay, A. C., Moscovitch, D. A., & Laurin, K. (2010). Randomness, attributions of arousal, and belief in God. *Psychological Science, 21,* 216–218.

Kay, A. C., & Zanna, M. P. (2009). A contextual analysis of the social and psychological consequences of system justification. In J. T. Jost, A. C. Kay, & H. Thoristtodor (Eds.), *Social and psychological bases of ideology and system justification*. New York: Oxford University Press.

Kelman, H. C. (2001). Reflections on the social and psychological processes of legitimization and delegitimization. In J. T. Jost, & B. Major (Eds.), *The psychology of legitimacy: Emerging perspectives on ideology, justice, and intergroup relations* (pp. 54–73). Cambridge, UK: Cambridge University Press.

Klineberg, O. (1940). *Social psychology*. New York: Holt.

Kluegel, J. R., & Smith, E. R. (1986). *Beliefs about inequality: Americans' views of what is and what ought to be*. Hawthorne, NY: Aldine de Gruyter.

Kornblith, H. (Ed.). (1999). *Naturalizing epistemology*. Cambridge, MA: MIT Press

Kraut, R. (2002). *Aristotle*: *Political philosophy*. New York: Oxford University Press.

Krebs, D., & Miller, D. T. (1985). Altruism and aggression. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., pp. 1–71). New York: Random House.

Krech, D., & Crutchfield, R. S. (1948). *Theory and problems of social psychology*. New York: McGraw-Hill.

Krieger, L. H., & Fiske, S. T. (2006). Behavioral realism in employment discrimination law: Implicit bias and disparate treatment. *California Law Review, 94,* 997–1062.

Lane, R. E. (1962). *Political ideology: Why the American common man believes what he does.* Glencoe, IL: Free Press.

Lau, G. P., Kay, A. C., & Spencer, S. J. (2008). Loving those who justify inequality: The effects of system threat on attraction to women who embody benevolent sexist ideals. *Psychological Science, 19*, 20–21.

Ledgerwood, A., Mandisodza, A. N., Jost, J. T., & Pohl, M. (2011). Working for the system: Motivated defense of meritocratic beliefs. *Social Cognition, 29*, 322–340.

Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum Press.

Lerner, M. J. (2003). The justice motive: Where social psychologists found it, how they lost it, and why they may not find it again. *Personality and Social Psychology Review, 7*, 388–399.

Lewin, K. (1948). Experiments in social space. In K. Lewin (Ed.), *Resolving social conflicts* (pp. 71–83). New York: Harper. (Original work published 1939.)

Lewin, K. (1951). Problems of research in social psychology. In K. Lewin (Ed.), *Field theory in social science: Selected theoretical papers* (pp. 155–169). New York: Harper & Row. (Original work published 1944.)

Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice*. New York: Plenum.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Lippmann, W. (1922). *Public opinion*. New York: Harcourt, Brace.
Major, B. (1994). From social inequality to personal entitlement: The role of social comparisons, legitimacy appraisals, and group membership. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 26, pp. 293–355). San Diego, CA: Academic Press.
Major, B., Gramzow, R. H., McCoy, S. K., Levin, S., Schmader, T., & Sidanius, J. (2002). Perceiving personal discrimination: The role of group status and legitimizing ideology. *Journal of Personality and Social Psychology, 82*, 269–282.
Major, B., Quinton, W. J., & McCoy, S. K. (2002). Antecedents and consequences of attributions to discrimination: Theoretical and empirical advances. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 251–330). San Diego, CA: Academic Press.
March, J. G., & Simon, H. A. (1958). *Organizations*. Oxford, UK: Wiley.
McCoy, S. K., & Major, B. (2007). Priming meritocracy and the psychological justification of inequality. *Journal of Experimental Social Psychology, 43*, 341–351.
McGuire, W. J. (1965). Discussion of William N. Schoenfeld's paper. In O. Klineberg & R. Christie (Eds.), *Perspectives in social psychology* (pp. 135–140). New York: Holt.
McGuire, W. J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., Vol. 2, pp. 233–346). New York: Random House.
Mikula, G., & Wenzel, M. (2000). Justice and social conflict. *International Journal of Psychology, 35*, 126–135.
Miller, D. (1999). *Principles of social justice*. Cambridge, MA: Harvard University Press.
Miller, D. T. (1977). Personal deserving versus justice for others: An exploration of the justice motive. *Journal of Experimental Social Psychology, 13*, 1–13.
Miller, D. T. (2001). Disrespect and the experience of injustice. *Annual Review of Psychology, 52*, 527–553.
Mishel, L., Bernstein, J., & Allegretta, S. (2005). *The state of working America 2004/2005*. Ithaca, NY: Cornell University Press.
Mitchell, G., Tetlock, P. E., Mellers, B. A., & Ordóñez, L. D. (1993). Judgments of social justice: Compromises between equality and efficiency. *Journal of Personality and Social Psychology, 65*, 629–639.
Monroe, K. R. (2004). *The hand of compassion: Portraits of moral choice during the Holocaust*. Princeton, NJ: Princeton University Press.
Montada, L. (2002). Doing justice to the justice motive. In M. Ross & D. T. Miller (Eds.), *The justice motive in everyday life* (pp. 41–62). New York: Cambridge University Press.
Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science, 19*, 565–572.
Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice Hall.
Nosek, B. A., Banaji, M. R., & Jost, J. T. (2009). The politics of intergroup attitudes. In J. T. Jost, A. C. Kay, & H. Thorisdottir (Eds.), *Social and psychological bases of ideology and system justification* (pp. 480–506). New York: Oxford University Press.
Nosek, B. A., & Hansen, J. J. (2008). The associations in our heads belong to us: Searching for attitudes and knowledge in implicit evaluation. *Cognition and Emotion, 22*, 553–594.
O'Brien, L. T., & Major, B. (2005). System-justifying beliefs and psychological well-being: The roles of group status and identity. *Personality and Social Psychology Bulletin, 31*, 1718–1729.
Olson, M. A., & Fazio, R. H. (2004). Reducing the influence of extra-personal associations on the Implicit Association Test: Personalizing the IAT. *Journal of Personality and Social Psychology, 86*, 653–667.
Oxley, D. R., Smith, K. B., Alford, J. R., Hibbing, M., Miller, J. L., Scalora, M., et al. (2008). Political attitudes vary with physiological traits. *Science, 321*, 114–18.

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Payne, B. K., & Cameron, C. D. (2010). Divided minds, divided morals: How implicit social cognition underpins and undermines our sense of social justice. In B. Gawronski & B. K. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications.* New York: Guilford.

Pelham, B. W., & Hetts, J. J. (2001). Underworked and overpaid: Elevated entitlement in men's self-pay. *Journal of Experimental Social Psychology, 37*, 93–103.

Piven, F. F., & Cloward, R. A. (1978). *Poor people's movements: Why they succeed, how they fail.* New York: Vintage Books.

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology, 67*, 741–763.

Quinn, D. M., & Crocker, J. (1999). When ideology hurts: Effects of belief in the Protestant ethic and feeling overweight on the psychological well-being of women. *Journal of Personality and Social Psychology, 77*, 402–414.

Rankin, L., Jost, J. T., & Wakslak, C. J. (2009). System justification and the meaning of life: Are the existential benefits of ideology distributed unevenly across racial groups? *Social Justice Research, 22*, 312–333.

Rawls, J. (1971). *A theory of justice*. Oxford, UK: Oxford University Press.

Reyna, C., Henry, P. J., Korfmacher, W., & Tucker, A. (2005). Examining the principles of principled conservatism: The role of responsibility stereotypes as cues for deservingness in racial policy decisions. *Journal of Personality and Social Psychology, 90*, 109–128.

Rim, Y. (1988). Attitudes and the confluence model. *Small Group Behavior, 19*, 153–161.

Ring, K. (1967). Experimental social psychology: Some sober questions about some frivolous values. *Journal of Experimental Social Psychology, 3*, 113–123.

Rudman, L. A., Feinberg, J., & Fairchild, K. (2002). Minority members' implicit attitudes: Automatic ingroup bias as a function of group status. *Social Cognition, 20*, 294–320.

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York: Cambridge University Press.

Sidanius, J., Pratto, F., & Bobo, L. (1996). Racism, conservatism, Affirmative Action, and intellectual sophistication: A matter of principled conservatism or group dominance? *Journal of Personality and Social Psychology, 70*, 476–490.

Smith, K. B., Oxley, D. R., Hibbing, M. V., Alford, J. R., & Hibbing, J. R. (2011). Linking genetics and political attitudes: Reconceptualizing political ideology. *Political Psychology, 32*, 369–397.

Stangor, C., & Jost, J. T. (1997). Individual, group and system levels of analysis and their relevance for stereotyping and intergroup relations. In R. Spears, P. J. Oakes, N. Ellemers, & S. A. Haslam (Eds.), *The social psychology of stereotyping and group life* (pp. 336–358). Malden, MA: Blackwell.

Stich, S. (1990). *The fragmentation of reason*. Cambridge, MA: MIT Press.

Stiglitz, J. E. (2004). *The roaring nineties.* New York: Norton.

Sunstein, C. R. (2000). *Behavioral law and economics*. New York: Cambridge University Press.

Thaler, R. H. (1991). *Quasi rational economics*. New York: Russell Sage Foundation.

Tyler, T. R. (1994). Psychological models of the justice motive: Antecedents of distributive and procedural justice. *Journal of Personality and Social Psychology, 67*, 850–863.

Tyler, T. R., & Jost, J. T. (2007). Psychology and the law: Reconciling normative and descriptive accounts of social justice and system legitimacy. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (pp. 807–825). New York: Guilford.

Uhlmann, E., Dasgupta, N., Elgueta, A., Greenwald, A. G., & Swanson, J. (2002). Subgroup prejudice based on skin color among Hispanics in the United States and Latin America. *Social Cognition, 20*, 198–226.

Downloaded by [Karen Hudson] at 03:40 22 March 2015

Weber, M. (1958). *The Protestant ethic and the spirit of capitalism* (Trans. T. Parsons). New York: Scribner.

Wegner, D. M. (2002). *The illusion of conscious will*. Cambridge, MA: MIT Press.

Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology, 55*, 738–748.

Whoriskey, P. (2011, June 18). With executive pay, rich pull away from rest of America. *Washington Post*. Retrieved June 29, 2011 from http://www.washingtonpost.com/business/economy/ with-executive-pay-rich-pull-away-from-rest-of-america/2011/06/13/AGKG9jaH_story.html

Zinn, H. (1968). *Disobedience and democracy: Nine fallacies on law and order*. New York: Vintage.

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17

Thinking as a Social Group or Thinking as a Social Group Member
Different Implications for Attitude Change

SHANE F. BLACKMAN AND JOEL COOPER
Princeton University

It has become axiomatic that group memberships affect our lives as social beings. Our self-concept and interpersonal behaviors are affected by our membership in groups, as are the attitudes that orient us to our social world (see also Kashima; Jost & Kay; Kenrick et al., this volume). Traditionally, research examining attitude formation and change has been conducted from the perspective of the individual who receives information from another individual, but more recent work has emphasized how our identities as group members affect our willingness to receive and be influenced by information.

Social identity theory (e.g., Tajfel, 1972; Tajfel & Turner, 1986) has been the most influential theoretical lens through which group influences on attitudes and attitude change have been examined (for a review, see Hogg & Smith, 2007; see also Johnson & Carpinella, this volume). There is also a substantial body of research on how group memberships affect the attitude–behavior link (e.g., Smith & Louis, 2008; Smith & Terry, 2003; Terry, Hogg, & McKimmie, 2000). Typically, investigations have focused on the attitude change processes when considering the individual alone compared with the individual in the context of a shared group membership. (e.g., Mackie, Gastardo-Conaco, & Skelly, 1992; Maitner, Mackie, Claypool, & Crisp, 2010; Mackie, Worth, & Asuncion, 1990).

Social identity is often situated. That is, the way we think of our group membership is often a function of the social situation in which we find ourselves. Most of us belong to several groups that are not mutually exclusive. One can be a Democrat

and an American. One can be a student and a psychologist. Whether we think of ourselves as a student on a particular occasion or a psychologist is at least partially a function of the situational context in which we are embedded. Seated in a classroom, one may be more inclined to feel like a member of a group of students; in the lab, the same person may feel more like a psychologist. As we shall see, situated identities impact the process of attitude change.

The importance of situated identity salience has been shown in various domains, such as the extensive literature on stereotype threat. An individual Asian American student, for example, can think of herself as a member of a group composed of Asian Americans or as a member of the group of college students within a particular university. The social identity that is most accessible in a particular context may have significant ramifications for how the student performs on specific tasks. In the literature on stereotype threat (cf. Steele & Aronson, 1995), cognitive impairments caused by situationally salient social identities that are attached to negative stereotypes lead to decreased performance in a variety of domains from athletic (Stone, 2002; Stone, Lynch, Sjomeling, & Darley, 1999) to academic (e.g., Steele & Aronson, 1995). Implicit activation of a social identity associated with positive stereotypes about performance, on the other hand, has been shown to *increase* academic performance even when activation of a different social identity for the same participants produces performance decrements (Shih, Pittinsky, & Ambady, 1999).

We suggest that there is another important distinction that people make when considering group identities. In addition to thinking of themselves as individuals or as members of a particular group, there is a critical distinction in the way people think of their relationship to the group: submerged versus individuated identity. Consider a group of sports fans who are enthralled with their sports team. Assuming they are induced to think about their group identity, they can relate to their in-group in different ways. In a submerged identity, people cease to experience their individualism and submerge their individual identities into that of the group. An extreme example of this collective identity may be Le Bon's (1908) description of the "collective mind." Illustrations include people who get "caught up" in riots and perform behaviors they never thought imaginable. Notable examples in the sports domain include soccer games in which fans join each other to storm the field to intimidate or attack officials refereeing the contest. In a more ordinary case, people cheer and jeer their sports team as though they were at one with the fans around them.

Alternatively, people can retain their separate individual identities within an in-group. It is knowing, for example, that I am a member of a group that shares a common interest in my team. In such a case, I know that I share an identity with the others in my group and that the group is important to me. However, I am also aware of my individualism within the group context.

We share the belief of social identity theorists that group membership is crucial to how people think about themselves and that differences in social processes accrue as a function of individual versus group identity. In this chapter, we will argue that within a salient group context, there is a substantial difference between individuated and submerged identities. Moreover, we believe that the difference between individually salient and submerged group identities is situated, leading

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people to engage different change processes depending on the identity that the situation makes accessible. This theoretically novel distinction poses generative questions for future research at the intersection of social identity theory and processes of attitude change.

In this chapter, we will examine the distinction between these two instantiations of group identity in the context of cognitive dissonance processes. During the past decade of research, the notion that dissonance is affected by social identity and other group processes has become an active avenue of research. We will discuss the emerging interest in group-based dissonance processes and then illuminate the ways these two different perspectives—identity as an individual within a larger group and submerged group identity—have differential consequences for attitude change.

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THE GROUP AND COGNITIVE DISSONANCE

Early Work on Dissonance and Groups

Decades of research investigating cognitive dissonance theory (Cooper, 2007; Festinger, 1957) have provided us with a wealth of knowledge of the ways our behavior can change what we believe and how we feel about the world around us. In the past, dissonance research typically has not focused on how the actions of others may change our attitudes, despite Festinger's own assertion that social groups can be a source of dissonance as well as a resource for reducing it. Festinger, Riecken, and Schachter's (1956) seminal study on the cognitive consequences of failed doomsday predictions made by the Seekers, moreover, concerned itself with group-based strategies for reducing dissonance (such as recruiting more members to the group to validate the belief).

More controlled laboratory studies have highlighted how dissonance occurs in group settings. In one example, Zanna and Sande (1987) used an induced compliance paradigm under conditions of high and low choice to get participants to write counterattitudinal essays either in isolation or through group discussion. While they found that individuals who discussed the counterattitudinal arguments to be used in the essays as a group experienced more dissonance than the participants who wrote the essays in isolation, they also found that participants used two different strategies to reduce their dissonance. One strategy was to reduce their dissonance through attitude change. A second group-based strategy, however, was to diffuse the responsibility of writing the counter-attitudinal essay among their fellow group members, claiming less credit for the content of the essay than that assigned to them by their fellow group members. Zanna and Sande's study not only empirically supports Festinger's (1957) recognition of the importance of group memberships in dissonance but also helped illuminate new possibilities for different strategies of dissonance reduction.

Indeed, group memberships can channel the dissonance-reduction strategies that are available to us. In one study, Cooper and Mackie (1983) asked participants from a student group supporting Ronald Reagan's 1980 presidential campaign in the United States to write counterattitudinal essays in support of Reagan's

opponent, President Jimmy Carter. As predicted, participants who experienced dissonance by writing a counterattitudinal essay under conditions of high choice reduced their dissonance not by the conventional strategy of attitude change but rather by denigrating Carter supporters. Group membership made it impossible for the participants to weaken their attitudes toward Reagan, so the participants were forced to find an alternate mode of dissonance reduction. While early studies in dissonance that involved groups paved the way for future research on intra- and intergroup dissonance processes, they did not address how our different group memberships—or different identities within our memberships—might affect the preconditions and consequences of cognitive dissonance arousal.

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Metaconsistency and Group Support

People are influenced not only by their own attitude–behavior inconsistency but also by the inconsistency of those around them. McKimmie, Terry, and Hogg (2009) introduced the concept of metaconsistency, which was conceived as the consistency between one's own attitudes and behavior *relative to* other in-group members' attitude–behavior consistency. Earlier, McKimmie, Terry, Hogg, Manstead, Spears, and Doosje (2003) explored how group support or nonsupport affected dissonance arousal and reduction. Drawing from a theoretical foundation in social identity theory, they predicted that situationally salient identity would serve as a crucial moderating variable that can predict when dissonance is produced in groups and how it would be reduced. Participants engaged in a dissonance-producing behavior and found that other members of their group had engaged in the same dissonance-producing behavior or not. Group members' similar behavior mattered to participants, but only if they had had their group identity made salient during the experiment. If individual identities were salient, participants showed the typical effects of cognitive dissonance—they changed their attitudes to match their inconsistent behavior. However, when one's group identity had been made highly salient (focusing on intragroup similarity and intergroup differences), participants employed a group-based dissonance-reducing strategy through disidentification with the in-group.

Robertson's (2006) research on identity salience and dissonance continued the exploration of identity salience within groups. In a series of experiments, Robertson had participants complete a variety of tasks as a group of psychology students in an intergroup context (ostensibly, there was another group of law students also participating in the experiments). Using induced compliance (e.g., Festinger & Carlsmith, 1959) to instantiate dissonance arousal, Robertson observed that participants under conditions of high identity salience exhibited more attitude change under high choice relative to participants under conditions of low identity salience and that this effect was mediated by the perceived situational salience or relevance of in-group membership. In other words, the more important and relevant they deemed their group membership to be in that moment, the more dissonance participants experienced after counterattitudinal behavior.

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Intragroup Dissonance

Intragroup dissonance arises when one is made aware of an in-group's collective counterattitudinal behavior. Early work on group-oriented instantiations of dissonance addresses dissonance arousal from the tension arising from holding attitudes discrepant from those of one's fellow in-group members and the movement to consensus (i.e., attitude change) that reduces it (Matz & Wood, 2005). In a series of studies, Matz and Wood demonstrated that participants assigned to an attitudinally incongruent peer group exhibited greater dissonance discomfort and attitude change than an attitudinally congruent one—this effect is echoed by research on group attitude homogeneity and persuasion indicating that members of attitudinally heterogeneous groups hold more ambivalent attitudes that are less resistant to change (see Levitan & Visser, 2008; Visser & Mirabile, 2004). Matz and Wood also show that dissonance (and resultant attitude change) created from attitude incongruence could be reduced through traditional methods of dissonance reduction, such as constricting participants' level of choice and giving them an opportunity to self-affirm (cf. Steele & Liu, 1983). More importantly, the authors provided evidence for a variety of other possible interpersonal dissonance-reduction strategies, such as attempts to change other in-group members' attitudes through persuasive appeals and changing one's own group membership in order to be among attitudinally congruent peers.

Research on intragroup dissonance (Glasford, Dovidio, & Pratto, 2009; Glasford, Pratto, & Dovidio, 2008) has gone beyond examining dissonance from the mere existence of incongruent attitudes held by group members to elaborate the ways counterattitudinal behavior by one's in-group in aggregate can arouse dissonance. As we shall also see with vicarious dissonance, intragroup dissonance requires high identification with the group to which one belongs and personal endorsement of the attitude being violated by the group. If one witnesses an out-group performing a counterattitudinal behavior, or if one's in-group behaves consistent with one's attitudes, no attitude change occurs. Since—according to social identity theory—individuals draw on their group memberships in construction of their self-concept (Tajfel & Turner, 1979) and high group identifiers are the most motivated to maintain positive distinctiveness from out groups (Ellemers, Spears, & Doosje, 1999), it follows that group-based dissonance processes require group members that are sensitive and well attuned to the attitudes and norms of the group. Unlike results of typical dissonance studies, participants undergoing intragroup dissonance readily use disidentification with the group as a dissonance-reduction strategy over attitude change. Moreover, consistent with dissonance theory predictions, the magnitude of discomfort produced by the in-group's counterattitudinal behavior is a predictor of the extent of disidentification with the in-group.

Disidentification is not the only dissonance-reduction strategy that can be used to reduce intragroup dissonance, however. There is evidence that self-affirmation and group-based affirmations both significantly reduce intragroup dissonance (Glasford et al., 2009) and that when these strategies are used there is a negative relationship between level of group identification and dissonance discomfort

such that higher identifiers report *less* discomfort from being exposed to the group's counterattitudinal behavior (i.e., the affirmation's effectiveness depends on identification with the group). Inspired by past work on preferences for different dissonance-reduction strategies (Stone, Wiegand, Cooper, & Aronson, 1997), Glasford et al. manipulated participants' group identification and gave them a choice between two dissonance-reduction strategies: an opportunity to derogate a disliked out-group (a group-level strategy) and a behavior-change survey (an individual-level strategy).

The investigators discovered that when participants were made aware of an in-group's counterattitudinal behavior (i.e., when intragroup dissonance was aroused), participants in the high identification conditions were more likely to use a group-level strategy than participants in the low identification conditions and that their explicitly reported strength of preference also reflected this choice such that high identifiers more strongly preferred to derogate a disliked out-group than to attempt to change their behavior. These relationships among identification, choice of strategy, and strength of preference were not present when the in-group did not violate the participants' attitudes. If these strategies vary in effectiveness by group identification, it is possible that participants have some implicit or affective knowledge about what strategy will best resolve their discomfort. This relationship between the group identification manipulation and choice of dissonance-reduction strategy was sufficiently explained by psychological discomfort, indicating that both strategies effectively reduced dissonance in their respective conditions. Importantly, this research establishes the groundwork for studying motivational accounts of dissonance reduction in the context of group-based dissonance processes and provides evidence for domain specificity in dissonance reduction strategies similar to that seen in the literature on cross-cultural dissonance (e.g., Hoshino-Browne, Zanna, Spencer, Zanna, Kitayama, & Lackenbauer, 2005; Kitayama, Snibbe, Markus, & Suzuki, 2004; see also Kashima, this volume) where the effectiveness of different strategies depend on the independence or interdependence of the person's self-concept.

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Vicarious Dissonance

A series of studies by Norton, Monin, Cooper, and Hogg (2003) and Monin, Norton, Cooper, and Hogg (2004) have investigated the effects on one's own attitudes when seeing someone else behave counterattitudinally. By having participants watch an in-group or out-group member agree to give a counterattitudinal speech under high or low choice, Norton et al. found that participants who saw an in-group member agree (high choice) to act against their beliefs actually changed their attitudes to be in line with the in-group member's behavior, whereas participants under conditions of low choice did not. In essence, by witnessing an in-group member in a dissonance-producing circumstance in which that in-group member's attitudes *would* have changed, the participants changed their own attitude to match their target's behavior. In other words, they experienced dissonance vicariously.

In two follow-up studies, it has been made clear that this vicarious dissonance shares much with cognitive dissonance but also departs from it. Perceptions of

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choice and the possibility of foreseeable, aversive consequences are just as important for arousing vicarious dissonance as they are for personal cognitive dissonance (e.g., Cooper & Fazio, 1984; Scher & Cooper, 1989). However, for vicarious dissonance, the level of identification with one's in-group moderates attitude change in interesting ways. A strong identification with an in-group produces more attitude change when the actor is a fellow in-group member but *negatively* predicts attitude change when witnessing an out-group member behave counter to his or her attitudes. Furthermore, just as cognitive dissonance arouses *personal* discomfort, vicarious dissonance arouses *vicarious* discomfort, or the feeling that one would feel uncomfortable if one took the place of the in-group member acting counterattitudinally. Similar to cognitive dissonance, subsequent attitude change appears to alleviate this vicarious discomfort, as participants reporting their vicarious discomfort *after* reporting their attitudes show significantly less discomfort than those who rated it before. Departing also from intragroup dissonance's group-oriented focus, vicarious dissonance is distinguished by its individual-oriented instantiation of dissonance arousal and reduction, in which membership of the group nevertheless plays a substantive role.

Monin et al. (2004) expanded these findings to show that participants pay close attention to the attitudes of the in-group members to whom they are listening in the vicarious dissonance paradigm. Moreover, they showed that participants who witness in-group members express an attitude and then behave counterattitudinally did not actually think that the in-group member changed his or her mind. This evidence rules out the alternative explanation that participants are just conforming to what their in-group members believe, since they acknowledge that the in-group member they are observing does not agree with his or her behavior. Ironically, were the experimental paradigm of vicarious dissonance to play out in the real world (instead of using a confederate or false impression of another participant), the two in-group members would be changing their attitudes in the same direction at the same time—one to alleviate dissonance from induced compliance and the other to alleviate vicarious dissonance—even though the observer would not acknowledge that the other in-group member's attitudes are changing. Once again, the authors showed that vicarious discomfort was positively related to attitude change and also showed that vicarious discomfort was positively related to a measure of empathic concern, indicating that empathy may play an as yet unexplained role in vicarious dissonance.

By its very nature, vicarious dissonance is a combination of individualistic and group-oriented elements: On one hand it concerns vicarious ("put yourself in his or her shoes") experience and discomfort and has been shown to resolve itself through attitude change (an individual-level strategy); on the other hand it also requires a shared group identity and at least moderate levels of group identification to occur. This notable combination makes vicarious dissonance a prime setting for examining the nuanced effects of individual and group identity salience within a larger group context.

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SOCIAL THINKING: SUBMERGED VERSUS INDIVIDUATED GROUP IDENTITY

The distinction between submerged and individuated group identities may unlock one of the mysteries of the Norton et al. (2003) and Monin et al. (2004) studies. Participants had an opportunity to reduce dissonance by changing their attitude (which they did) or by redrawing the group boundaries to exclude the member who spoke against his attitudes (which they did not do). If we consider the example of the group of avid sports fans who wildly root for their team during a match, is it likely that they would change their attitude about their team if one of their group members started cheering for their opponent? Although the cheering would have been an instance of freely chosen counterattitudinal advocacy, it seems likely that dissonance would have been resolved by redrawing group boundaries to eliminate the fan from the group.

We suggest that how people resolve vicarious dissonance depends on one's activated and operational identity within a group context—that is, whether one is using an individuated or submerged self-identity within the group. When individuated identity is activated, people engage in attitude change to resolve their feeling of discomfort. They resolve their dissonance by adopting the position that the group member advocated. On the other hand, when submerged identity is activated, we suggest that people resolve their vicarious dissonance by redrawing group boundaries. This can include thinking of the inconsistent group member as an atypical member of the group, rejecting that person as a group member or even withdrawing from the group oneself. Moreover, each of us is capable of the social thinking that activates individuated and submerged identities. Situational salience of one or the other of those identities increases its accessibility which, in turn, alters the likelihood of the different ways to resolve vicarious dissonance.

Empirical Evidence

We sought to address this question with a new empirical study. Our notion was that, if we established a situation that aroused dissonance vicariously, people would use a dissonance reduction strategy appropriate to their activated identity. Accordingly, we activated either a submerged or individuated identity and gave participants the opportunity to reduce vicarious dissonance via attitude change or by redrawing group boundaries. Our study also sought to answer an additional question left open by the prior work in vicarious dissonance. It was never clear whether vicarious dissonance was aroused by witnessing an in-group member behaving contrary to his or her individual attitude or by behaving contrary to the group's presumed normative attitude. Prior research confounded this issue, and we hoped to show that either counterattitudinal or counternormative behavior could arouse vicarious dissonance.

Our procedure followed the basic outlines of the vicarious dissonance paradigm similar to Monin et al. (2004). Participants were led into a room and instructed that they were about to participate in an experiment assessing campus "linguistic subcultures." They were subsequently informed that they would either be assigned to the "speaker" role and produce a recording for another student to analyze or

be assigned to the "listener" role and be asked to make judgments about another participant's recorded statements—in reality, the participant was always assigned to the "listener" condition. While the experimenter left to ostensibly record the other (fictitious) participant's speech, the participant read instructions containing descriptive normative information about students' opinions toward different budget cut alternatives. This allowed us to vary whether the fictitious group member's speech was consistent or contrary to the group's normative attitude.

Our instructions contained a priming manipulation of identity salience (McKimmie et al., 2003; see Hogg & Hains, 1996). In the condition intended to create a submerged group identity, participants were asked to write down the three most important positive traits that they have in common with other undergraduate students at their university and that differentiate them from students at other universities. Because these traits define their particular group and focus their attention on the traits they share with other in-group members, we expected that participants in this condition would experience a submerged group identity. By contrast, participants in the individuated identity condition were asked to list the three most important positive things that make the participant different from all other people (individual salience). Although they were reminded of their social group (university students) by the experiment's context, they were nonetheless asked to focus on their own individuality and uniqueness. We expected that this difference would be critical for the way participants experienced and resolved dissonance discomfort. The experiment also included a control cell with no manipulation of identity salience.

Upon the experimenter's return, the participant listened to a prerecorded interaction between the other participant and the experimenter. In this interaction, the other participant expressed his or her stance on the budget cut alternatives and agreed to give a speech that was either counterattitudinal (but consistent with the descriptive norm provided) or counternormative (but consistent with the other participant's expressed attitude). Before hearing any actual speech, participants filled out a questionnaire assessing their attitude toward the budget cut alternatives proposed in the study, their personal as well as vicarious discomfort (see Monin et al., 2004), their identification with the in-group (Hogg & Hains, 1996), and various judgments about their "partner" and other students at their university, including liking, similarity, and representativeness/typicality.

Attitude Change Following Vicarious Dissonance

For this study's main attitude measures, it appeared that participants' situationally salient identity produced changes in final attitudes toward the budget cut alternatives such that participants in the individuated identity conditions underwent more attitude change in the predicted direction than did participants in the submerged identity conditions, regardless of whether the participant witnessed counterattitudinal or counternormative behavior (Figure 17.1). Furthermore, participants also generalized these changed attitudes to judgments about their in-group's attitudes, rating their in-group's attitudes to be more positive toward the alternatives under conditions of individuated identity relative to submerged

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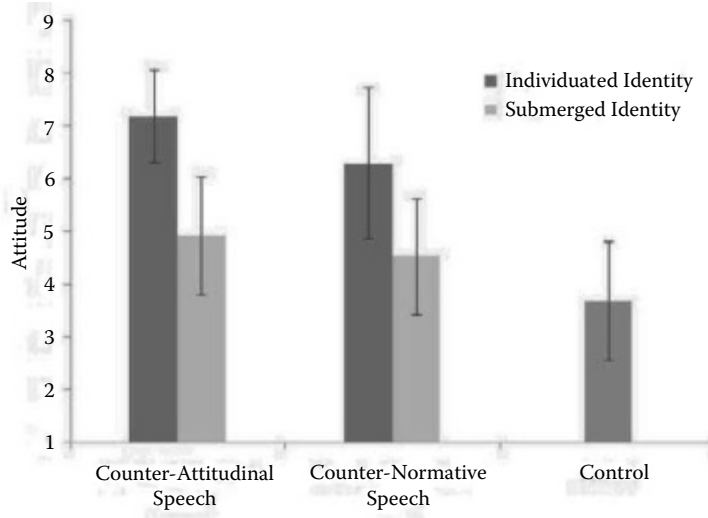


Figure 17.1 Average support for budget cut alternatives for participants witnessing agreement to write a counterattitudinal or counternormative speech with salient individual or group identity. Higher attitude score indicates greater support. Error bars depict standard error of the mean.

identity, as per the literature on social projection (Allport, 1924; Monin & Norton, 2003). If participants showed greater attitude change in the individual versus group identity salience conditions, does that mean that dissonance did not occur for those participants who submerged their identity into the group? We predicted that they might instead use a different method of dissonance reduction instead of the individual-level strategy of attitude change—that is, redrawing the group boundaries.

Group Boundary Change Following Vicarious Dissonance

To examine this possibility, we needed to take a closer look at how other dissonance-related measures were affected by individuated versus submerged identity. Interestingly, we observed that participants with a submerged identity actually experienced *more* personal and vicarious discomfort than those with individuated identity and also rated the speech as potentially having more aversive consequences (see Cooper & Fazio, 1984; Scher & Cooper, 1989). Since vicarious discomfort has been shown to be closely related to attitude change in vicarious dissonance in past research (Monin et al., 2004; Norton et al., 2003), we performed moderation analyses in regression to examine the effect of identity salience on the relationship between vicarious discomfort and attitude change. As shown in Figure 17.2, we found that identity salience significantly moderated the relationship between vicarious discomfort and attitude change, such that vicarious discomfort negatively predicted attitude change for participants with submerged identity but positively predicted attitude change in the individuated

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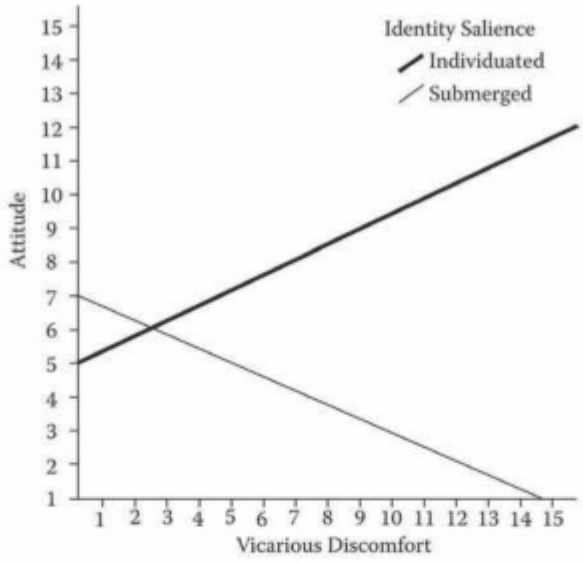


Figure 17.2 Predicting participants' support of budget cut alternatives using vicarious discomfort and identity salience. This figure shows identity salience moderating the effect of vicarious discomfort on final attitudes. Higher attitude scores indicate greater support.

identity conditions. In other words, when participants were thinking about their individual identity within the context of the in-group, they seem to have changed their attitudes based on their level of discomfort; when participants' individual identities were submerged within the larger group identity, however, they were *less* likely to change their attitudes (or changed them to a smaller extent) the more vicarious discomfort they experienced.

As alluded to earlier, the first aspect of our findings—that participants with a situationally salient submerged group identity *do not* experience attitude change in response to vicarious discomfort—suggests that participants reduce their dissonance through some other means or are not experiencing dissonance at all. As we have seen, however, the participants who were focused on their group identity experienced *more* discomfort than those who focused on their individual identity. How, then, are they reducing their increased levels of vicarious discomfort?

Our data support our prediction that instead of resolving vicarious discomfort through attitude change, participants who submerged their identity into that of the group were more likely to make use of a group-level strategy for reducing dissonance. Participants in the submerged identity condition accomplished this by marginalizing their fellow group member, rating him or her as a less typical group member compared with the typicality ratings of participants in the individuated salience condition. In addition, participants who were focused on their submerged group identity when viewing an in-group member's attitudinal or normative violation believed themselves to be *more* representative of their shared in-group

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relative to participants who had a situationally individuated identity. These data indicate that when participants are focused on their group membership and submerge their identity into that of the group they may reduce dissonance discomfort through avenues other than attitude change and that these dissonance-reduction strategies may center around maintenance of that coherent (and consistent) group identity instead of a consistent individual identity. By increasing one's own typicality and decreasing a deviant in-group member's representativeness of the group as a whole (essentially marginalizing them), one can reduce the vicarious dissonance caused by imagining oneself in a similar situation: "No self-respecting student at my university would have said *that*."

The other aspect of our findings—that participants with a situationally individuated identity experience more attitude change in response to the discomfort they feel—replicates previous research on vicarious dissonance. Given that our participants were sampled from a Western culture that values independence (rather than interdependence with one's fellow in-group members; Markus & Kitayama, 1991; see also Kashima, this volume), it is likely that thinking of oneself as an individual was already the "default" situationally salient identity in prior research on vicarious dissonance. Our individuated identity manipulation produced results consistent with those obtained by previous vicarious dissonance research since individual identity may have already been salient to those participants. On the other hand, the finding that participants with a primed individual identity still experience vicarious dissonance is important, because it demonstrates that they are still evaluating the other person's behavior as a member of a shared in-group, even if they perceive themselves and the other as two distinct, independent individual identities within that group. Consistent with past findings, vicarious dissonance arousal (and associated attitude change) requires a shared in-group membership: If our manipulation of individuated identity kept participants from thinking about the group *at all*, attitude change would not have occurred.

In sum, we suggest that vicarious dissonance can be aroused and reduced in a variety of circumstances and using a variety of strategies. Our recent research has indicated that both normative as well as attitudinal inconsistency can prompt vicarious dissonance arousal. Furthermore, our data indicate that vicarious dissonance can be aroused in conditions of either individuated or submerged identity salience but that the situationally salient social identity determines whether individual-level or group-level strategies are used. Instead of changing their attitudes (an individual-level strategy), participants with a salient submerged group identity reduce vicarious dissonance through affirming their own status as a representative in-group member while denying that membership to another (a group-level strategy). When thinking of their own individual identity in the context of a shared in-group membership with another, it may be easier or more effective for people to reduce discomfort through changing their own attitudes to be consistent with other group members' behavior. When people's identity is submerged within that of the group and their group identity is the basis for self-conceptualization, then people appear to be motivated to engage in group-level strategies for reducing dissonance such as redrawing the group's boundaries.

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This strategy of in-group member derogation (or, in extreme circumstances, possibly even exile) may parallel the black sheep effect (e.g., Marques & Paez, 1994; Marques, Yzerbyt, & Leyens, 1988) as well as previously identified group-level strategies for changing the properties of a group to reduce dissonance. In past research, participants have diffused responsibility to group members (Zanna & Sande, 1987), derogated competing out-groups (Cooper & Mackie, 1983), expressed intentions to change the group's discrepant behavior (Glasford et al., 2008, Study 2), persuaded group members to bring their attitudes in line (Matz & Wood, 2005), or disidentified from the group (Aronson, Blanton, & Cooper, 1995; Glasford et al.; McKimmie et al., 2003) to reduce dissonance discomfort in a group-oriented way. The previously described results lend support to the idea that participants whose identity is submerged within the larger group identity will make use of group-oriented dissonance-reduction strategies.

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CONCLUSION

Across a diverse array of processes of attitude change, situationally salient self-conception in intragroup contexts has dramatic consequences for the circumstances that will produce dissonance and the strategies that help reduce it. Our research suggests that vicarious dissonance can be aroused through attitudinal and normative channels and that identity salience—in particular, how we think about our identity in relation to the group—moderates the way we deal with the accompanying psychological discomfort. More research is needed to explore whether redrawing group boundaries is a valid group-oriented dissonance-reduction strategy in situations outside of vicarious dissonance. We hope that future research will continue to fill in the details of how group norms, social identity, and group members' behavior all coalesce to influence the causes and consequences of cognitive dissonance.

The process of vicarious dissonance opens a new window into how social thinking affects interpersonal processes. The experience of cognitive dissonance has typically been seen as a state of discomfort that leads to attitude change. The research we have described in this chapter transcends the traditional approach to dissonance and suggests that vicarious dissonance can lead not only to attitude change but also to effects dedicated to group and interpersonal processes. The determining factor is how people think about their membership in their social group. Thinking of oneself as submerged into one's social group has impact for how one thinks of fellow group members, particularly those who act against group norms or against their own attitudes. Applications of this research could investigate the behavioral consequences of group-based dissonance processes and motivational factors underlying strategy use in its reduction, as these findings could be applied to construct impactful interventions that target and change negative attitudes. Understanding the conditions under which vicarious dissonance influences group memberships and interpersonal perception in lieu of the more traditional attitude change may lead to interventions that target social groups instead of individuals to protect them from the spreading influence of socially contagious negative behaviors.

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REFERENCES

Allport, F. H. (1924). *Social psychology*. New York: Houghton Mifflin.

Aronson, J., Blanton, H., & Cooper, J. (1995). From dissonance to disidentification: Selectivity in the self-affirmation process. *Journal of Personality and Social Psychology*, *68*(6), 986–996.

Cooper, J. (2007). *Cognitive dissonance: Fifty years of a classic theory.* Thousand Oaks, CA: Sage Publications, Ltd.

Cooper, J., & Fazio, R. (1984). A new look at dissonance. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 17, pp. 229– 268). San Diego, CA: Academic Press.

Cooper, J., & Mackie, D. (1983). Cognitive dissonance in an intergroup context. *Journal of Personality and Social Psychology, 44*(3), 536–544.

Ellemers, N., Spears, R., & Doosje, B. (1999). *Social identity: Context, commitment, content*. Oxford, UK: Basil Blackwell.

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58*, 203 – 210.

Festinger, L., Riecken, H., & Schachter, S. (1956). *When prophecy fails*. Minneapolis: University of Minnesota Press.

Glasford, G. E., Dovidio, J. F., & Pratto, F. (2009). I continue to feel so good about us: In-group identification and the use of social identity-enhancing strategies to reduce intragroup dissonance. *Personality and Social Psychology Bulletin, 35*(4), 415–427.

Glasford, G. E., Pratto, F., & Dovidio, J. F. (2008). Intragroup dissonance: Responses to in-group violation of personal values. *Journal of Experimental Social Psychology, 44*, 1057–1064.

Hogg, M. A., & Hains, S. C. (1996). Intergroup relations and group solidarity: Effects of group identification and social beliefs on depersonalised attraction. *Journal of Personality and Social Psychology*, *70*, 295–309.

Hogg, M. A., & Smith, J. R. (2007). Attitudes in social context: A social identity perspective. *European Review of Social Psychology, 18*, 89–131.

Hoshino-Browne, E., Zanna, A. S., Spencer, S. J., Zanna, M. P., Kitayama, S., & Lackenbauer, S. (2005). On the cultural guises of cognitive dissonance: The case of easterners and westerners. *Journal of Personality and Social Psychology, 89*(3), 294–310.

Kitayama, S., Snibbe, A. C., Markus, H. R., & Suzuki, T. (2004). Is there any "free" choice? Self and dissonance in two cultures. *Psychological Science, 15*(8), 527–533.

Le Bon, G. (1908). *The crowd: A study of the popular mind.* London: T. Fisher Unwin.

Levitan, L. C. & Visser, P. S. (2008). The impact of the social context on resistance to persuasion: Effortful versus effortless responses to counter-attitudinal information. *Journal of Experimental Social Psychology, 44,* 640–649.

Mackie, D. M., Gastardo-Conaco, M. C., & Skelly, J. J. (1992). Knowledge of the advocated position and the processing of in-group and out-group persuasive messages. *Personality and Social Psychology Bulletin, 18*, 145–151.

Mackie, D. M., Worth, L. T., & Asuncion, A. G. (1990). Processing of persuasive in-group messages. *Journal of Personality and Social Psychology, 58*, 812–822.

Maitner, A. T., Mackie, D. M., Claypool, H. M., & Crisp, R. J. (2010). Identity salience moderates processing of group-relevant information. *Journal of Experimental Social Psychology, 46,* 441–444.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*(2), 224–253.

Marques, J. M., & Paez, D. (1994). The "Black sheep effect": Social categorization, rejection of in-group deviates, and perception of group variability. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 5, pp. 37–68). Chichester, UK: Wiley.

Marques, J. M., Yzerbyt, V. Y., & Leyens, J. (1988). The 'Black sheep effect:' Extremity of judgments towards in-group members as a function of group identification. *European Journal of Social Psychology, 18*(1), 1–16.

Matz, D. C., & Wood, W. (2005). Cognitive dissonance in groups: The consequences of disagreement. *Journal of Personality and Social Psychology, 88*(1), 22–37.

McKimmie, B. M., Terry, D. J., & Hogg, M. A. (2009). Dissonance reduction in the context of group membership: The role of metaconsistency. *Group Dynamics: Theory, Research, and Practice, 13*(2), 103–119.

McKimmie, B. M., Terry, D. J., Hogg, M. A., Manstead, A. S. R., Spears, R., & Doosje, B. (2003). I'm a hypocrite, but so is everyone else: Group support and the reduction of cognitive dissonance. *Group Dynamics: Theory, Research, and Practice, 7*(3), 212–224.

Monin, B., & Norton, M. I. (2003). Perceptions of a fluid consensus: Uniqueness bias, false consensus, false polarization and pluralistic ignorance in a water conservation crisis. *Personality and Social Psychology Bulletin, 29,* 559–567.

Monin, B., Norton, M. I., Cooper, J., & Hogg, M. A. (2004). Reacting to an assumed situation vs. conforming to an assumed reaction: The role of perceived speaker attitude in vicarious dissonance. *Group Processes & Intergroup Relations, 7*(3), 207–220.

Norton, M. I., Monin, B., Cooper, J., & Hogg, M. A. (2003). Vicarious dissonance: Attitude change from the inconsistency of others. *Journal of Personality and Social Psychology, 85*(1), 47–62.

Robertson, T. (2006). Dissonance effects as conformity to consistency norms: The effect of anonymity and identity salience. *British Journal of Social Psychology, 45,* 683–699.

Scher, S. J., & Cooper, J. (1989). Motivational basis of dissonance: The singular role of behavioral consequences. *Journal of Personality and Social Psychology, 56*(6), 899–906.

Shih, M., Pittinsky, T. L., & Ambady, N. (1999). Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science, 10*(1), 80–83.

Smith, J. R., & Louis, W. R. (2008). Do as we say *and* as we do: The interplay of descriptive and injunctive group norms in the attitude-behavior relationship. *British Journal of Social Psychology, 47,* 647–666.

Smith, J. R., & Terry, D. J. (2003). Attitude-behavior consistency: The role of group norms, attitude accessibility, and mode of behavioral decision-making. *European Journal of Social Psychology, 33,* 591–608.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*(5), 797–811.

Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology, 45*(1), 5–19.

Stone, J. (2002). Battling doubt by avoiding practice: The effects of stereotype threat on self-handicapping in white athletes. *Personality and Social Psychology Bulletin, 28*(12), 1667–1678.

Stone, J., Lynch, C. I., Sjomeling, M., & Darley, J. M. (1999). Stereotype threat effects on black and white performance. *Journal of Personality and Social Psychology, 77*(6), 1213–1227.

Stone, J., Wiegand, A. W., Cooper, J., & Aronson, E. (1997). When exemplification fails: Hypocrisy and the motive for self-integrity. *Journal of Personality and Social Psychology*, *72*, 54–65.

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Tajfel, H. (1972). Social categorisation. English manuscript of 'La catégorisation sociale'. In S. Moscovici (Ed.), *Introduction à la psychologie sociale* (Vol. 1, pp. 272–302). Paris: Larousse.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks-Cole.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago: Nelson-Hall.

Terry, D. J., Hogg, M. A., & McKimmie, B. M. (2000). Attitude-behavior relations: The role of in-group norms and mode of behavioral decision-making. *British Journal of Social Psychology*, *39*, 337–361.

Visser, P. S., & Mirabile, R. R. (2004). Attitudes in the social context: The impact of social network composition on individual-level attitude strength. *Journal of Personality and Social Psychology, 87*(6), 779–795.

Zanna, M. P., & Sande, G. N. (1987). The effects of collective actions on the attitudes of individual group members: A dissonance analysis. In M. P. Zanna, J. M. Olson, & C. P. Herman (Eds.), *Social influence: The Ontario symposium, Vol. 5* (pp. 151–163). Hillsdale, NJ: Erlbaum.

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18

Moral, Cognitive, and Social *The Nature of Blame*

BERTRAM F. MALLE, STEVE GUGLIELMO, and ANDREW E. MONROE

Brown University

Blame is a moral judgment that has a cognitive and a social nature. We first focus on the cognitive side and introduce a theoretical model of blame that integrates insights and evidence from extant research. Within this model, we demonstrate the critical role of such concepts as *agent*, *intentionality*, *and obligation*—all of which are grounded in people's theory of mind. We then contrast two views on the ordering of blame and theory of mind based inferences: blame-late models, which claim that blame follows mental state inferences; and blame-early models, which claim that the opposite order holds. After integrating these two views within our model, we turn to two eminently social topics of moral judgment: blaming as a social act; and blaming of group agents. We suggest that our model of cognitive blame provides a fruitful framework for both of these topics, thus highlighting the intimate connection between blame as a cognitive phenomenon and blame as a social phenomenon.

Humans blame, and perhaps only humans do. But what is blame? Blame is grounded in the capacity to have a "theory of mind"[1]—a system of concepts and processes that aid a human social perceiver in inferring mental states from behavior. To blame an agent people must know a set of behavior-guiding norms, observe an agent's norm-violating behavior, and infer a manifold of mental states that underlie the behavior. Without a theory of mind, an organism may still be able to punish, but it would not be able to blame the way humans do.

A second unique feature of blame is that it has not only a cognitive side (i.e., processes that lead up to a *judgment* of blame), but it also has an interpersonal side (i.e., observable *acts* of social blaming). The latter requires language,

communication, and the ability to consider other people's responses and once more relies on a theory of mind. The social roots of both theory of mind and moral judgment are deep. The major function of theory of mind is to enable individuals to coordinate social interaction (e.g., Goody, 1995). Likewise, the major function of moral judgment is to regulate social behavior, especially in more complex groups where deviations from group norms can be costly. Blaming deals precisely with such norm deviations. And if people did not blame socially, they would do little to regulate each other's behavior or to pass on their culture's values (Kashima, this volume). But how people *arrive* at acts of blame is a question largely about cognition.

A MODEL OF BLAME

Humans do not make moral judgments about earthquakes or hurricanes. Judgments are moral if they are directed at *agents* who are presumed to be capable of following socially shared norms of conduct. Thus, the initial components in the emergence of blame are as follows (Figure 18.1):

1. Detecting that some event or outcome[2] deviated from a norm
2. Assessing that an *agent* was involved and *caused* this event
3. Deciding whether the agent brought about the event *intentionally*

Once this latter decision has been made, two very different tracks lead to blame. Along the left track in Figure 18.1, if the agent is believed to have acted intentionally:

4a. Perceivers consider the agent's *reasons* for acting. Blame then is graded depending on the justification these reasons provide—minimal blame if the agent was justified in acting this way; maximal blame if the agent was not justified.

Along the right track in Figure 18.1, if the agent is believed to have acted unintentionally:

4b. Perceivers consider whether the agent should have prevented the norm-deviating event (*obligation*).
5. Perceivers consider whether the agent could have prevented the event (*capacity*).

We now discuss in detail each of these hypothesized components. We have called this a "step model of blame" (Guglielmo, Monroe, & Malle, 2009) because several information processing components build on each other (e.g., intentionality is irrelevant if no agent caused the event) and will be temporally ordered (e.g., assessment of reasons must follow assessment of intentionality; Malle, 1999, 2004). As with all complex information processes, however, there may be room for default values, omitted steps, and motivated reasoning (cf. Johnson & Carpinella;

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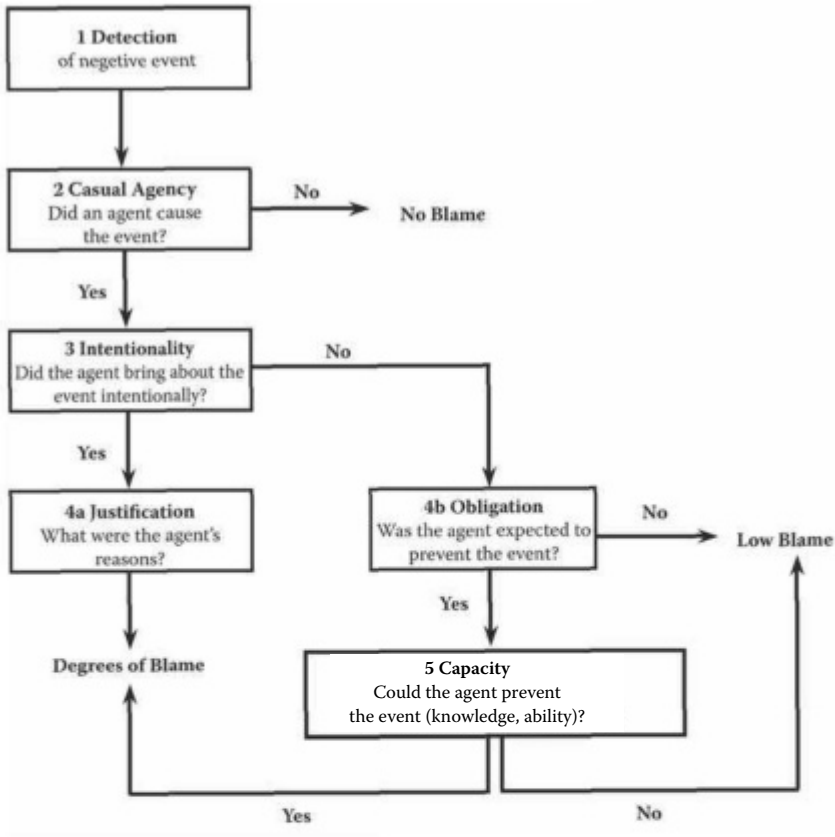


Figure 18.1 Step model of ordinary assessments of blame.

von Hippel, this volume), and research will have to establish both frequency and impact of such complications.

Detection

En route to blame, perceivers must first detect a negative event—an event that deviates from a norm (e.g., norms to prevent harm or uphold fairness; Graham, Haidt, & Nosek, 2009).

People are highly sensitive to norm deviations. Such events trigger rapid evaluative responses (Van Berkum, Holleman, Nieuwland, Otten, & Murre, 2009), and, compared with positive or neutral events, negative events command more attentional resources, are more widely represented in language, and exert a stronger impact on both self-perception and interpersonal behavior (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Taylor, 1991).

Detection of norm-deviating events may rely on "moral intuitions" or rules of "moral grammar" (Haidt, 2001; Mikhail, 2007). These intuitions may activate the moral judgment machinery by flagging events that are potentially worthy of moral

judgment. People may also have immediate negative affect following the detection of such badness; and one function of affect may be to make norm deviations salient. But whatever affect people feel at this early point is directed at the negative *event*. Something bad happened, and there is no information yet about why it happened and who, if anyone, is to blame (Pomerantz, 1978). The mere detection of a norm-deviating event does not yet constitute a blame judgment.

Blame stems in part from assigning meaning to an event. Finding meaning answers a why question, resolves the tension of uncertainty by filling a gap in understanding and restoring coherence and control. People experience nagging why questions for a variety of events, but particularly for negative ones (Malle & Knobe, 1997b; Wong & Weiner, 1981). Explaining the origin of negative events is essential, but in principle such explaining could be done without blaming. Genuine blame requires meaning of a particular kind—one that involves agents who caused the negative event.

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Agent Causality

Social perceivers blame people, not physics. So for mere outcomes (e.g., a dead person, a broken window) to lead to genuine blame, the perceiver must first establish whether an agent caused the outcome (Shaver, 1985; Sloman, Fernbach, & Ewing, 2009). Numerous studies have demonstrated the crucial impact of agent causality in assigning blame (Cushman, 2008; Lagnado & Channon, 2008), for social perceivers from age 5 on (Shultz, Wright, & Schleifer, 1986).

When the norm-deviating event is an observed action rather than simply an outcome, the recognition of agent causality comes for free, because only agents perform actions. Moreover, some negative outcomes (such as a gunshot wound) strongly imply the causal involvement of a human agent, whereas many others require further investigation (such as a broken arm or a bloody lip).

What do people categorize as an "agent"? The agency concept, emerging early in infancy, relies on features such as self-propelledness and contingent action (Johnson, 2000; Premack, 1990). That is not enough, however, to qualify as a *morally eligible* agent. The exact criteria that make an agent morally eligible deserve a more detailed analysis elsewhere. However, it seems clear that moral eligibility requires the ability to understand and remember norms and the ability to modify one's behavior in accordance with these norms—to *choose* to follow the norms (Guglielmo et al., 2009). If such abilities are absent (e.g., in infancy or in certain mental or physical illnesses), blame either will not be assigned or will be decisively mitigated.

Our theory postulates that an agent's causal involvement falls into two fundamentally different categories—intentional and unintentional (Heider, 1958; Malle, 2004; White, 1995). Thus, judgments of intentionality make up the critical third step in our model of blame.

Intentionality

The capacity to recognize a behavior as intentional is a central component of human social cognition. The origins of the intentionality concept lie in infants' ability to

recognize some motion as goal directed (Wellman & Phillips, 2001; Woodward, 1998) and to segment the motion stream into units that correspond to intentional actions (Baldwin, Baird, Saylor, & Clark, 2001). By the age of 2, children acquire the concept of desire, recognize that another person can have desires different from their own (Repacholi & Gopnik, 1997) and infer an agent's desires even from incomplete action attempts (Meltzoff, 1995). Over the next few years, children acquire the concept of belief, grasp the purely mentalistic nature of false belief, and later, not before the age of 6, differentiate intentions from desires (Astington, 2001; Baird & Moses, 2001). This differentiation eventually culminates in an adult concept of intentionality that encompasses five components—desire, belief, intention, skill, and awareness (Malle & Knobe, 1997a).

Even though the adult concept of intentionality consists of five components and people are sensitive to the presence or absence of each of these components (Guglielmo & Malle, 2010a, 2010b; Malle & Knobe, 1997a, 2001), we should not expect people to deliberate about these components each time they judge a behavior intentional. Instead, people quickly perceive intentionality in everyday situations (Barrett, Todd, Miller, & Blythe, 2005) but consider carefully each of the components if uncertainty or the weight of the judgment demands it.

Intentionality judgments regulate attention in social interaction. As actors, people attend more to their own unintentional (both behavioral and mental) events; as observers they attend more to the other person's intentional events (Malle & Pearce, 2001). Intentionality judgments also guide explanations and predictions of behavior (Heider, 1958). Most importantly, to account for intentional and unintentional behavior people use distinct modes of explanation, which differ in conceptual, cognitive, and linguistics properties (Malle, 2004, 2011).

Of primary interest here is the role that intentionality plays in moral judgment. Children begin to incorporate intentionality into their moral judgment by the age of 5 (Shultz et al., 1986). Though they are considerably influenced by outcome severity, they understand that doing something bad intentionally is worse than doing it unintentionally (Darley, Klosson, & Zanna, 1978). For adults, the intentionality distinction in moral judgment requires little cognitive effort (Solan, 2003) because perception of most behaviors already comes with a judgment of intentionality, often perceptually (Scholl & Tremoulet, 2000) or as part of scripts (Schank & Abelson, 1977).

In whatever way the perceiver arrives at a judgment of intentionality, plenty of evidence shows that people blame intentional norm violations more severely than unintentional ones (e.g., Darley & Shultz, 1990; Ohtsubo, 2007). Our model therefore asserts that intentionality amplifies blame, but it also importantly holds that intentionality judgments bifurcate the perceiver's processing of norm-violating events. Thus, even if the negativity of the event has already been evaluated, proper blame cannot be assigned to the *agent* until the question of intentionality has been answered. People then search for and are sensitive to rather different information when encountering intentional as opposed to unintentional negative events. The two paths 4a and 4b in Figure 18.1 delineate this differential information processing, which we now describe.

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Reasons and Justification

When people judge a behavior intentional (left path in Figure 18.1), they consider the agent's particular reasons for acting. This is something people do with ease, and they find it painful *not* to know the reasons of someone's action (Malle, 2004). Often the reasons for undesirable actions will themselves be undesirable (e.g., monetary gain, or a specific goal to injure the victim), and selfish or vengeful reasons make moral evaluations particularly severe (Reeder, Kumar, Hesson-McInnis, & Trafimow, 2002). But sometimes the agent's reasons provide justification for the action and thereby cast it in a less blameworthy light (e.g., Howe, 1991). A schoolboy who hurts another may do it because he defends his sister against a bully (a justified reason) or because he tries to provoke a fight (an unjustified reason), and he will be blamed more in the latter case.

Unintentional Events

People's explanations for unintentional behavior are far simpler than those for intentional behavior. In interpreting intentional behavior, people use three distinct modes of explanation (Malle, 1999, 2004, 2011). One mode requires consideration of the agent's subjective reasoning (reason explanations); another focuses on the causal background of those reasons, such as personality, culture, and context (causal history of reason explanations); and a third specifies objective enabling factors that allowed the agent to successfully complete the intended action (enabling factor explanations). Unintentional behaviors are explained by a single mode: causes, which more or less mechanically bring about the behavior without any involvement of reasoning, intentions, or the like. However, when people consider *blaming* unintentional behaviors, their processing becomes quite complex. They go beyond the backward-looking explanations of the behavior and enter forward-looking considerations of the behavior's potential recurrence and any prospects of its prevention. Though instances of blame have backward-looking (e.g., retributive) elements, the overall function of blame, and especially its social expression, is primarily forward looking (reformative) because it is one of the community's tools to regulate behavior.

Thus, when people regard the agent as having unintentionally brought about a negative outcome, they face two central questions: whether the agent *should have* prevented the outcome (obligation) and *could have* prevented the outcome (capacity). Both of these conditions are grounded in the intentionality concept. A social community imposes obligations on its members to prevent negative outcomes under the assumption that they are able to intentionally act (or at least intend to act) in accordance with these obligations. This ability is a moral eligibility condition, which a 1-year old will fail but a 5-year old will pass. If moral eligibility holds, a failure to follow one's obligation to prevent a negative outcome will trigger substantial blame. However, at times an outcome is not preventable—even if the person tried, she could not intentionally avert it. Such a capacity limitation can be a principled one (e.g., lack of physical strength) or a local one (e.g., in the particular context, the events unfolded too quickly).

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Evidence for the Impact of Obligation

Most studies of moral judgment hold obligation constant—they typically contain stories in which the agents unquestionably have an obligation to prevent negative outcomes. As a result, little direct evidence is available for obligations' impact on blame. When they have been examined, however, obligations have shown considerable influence. Hamilton (1986) reported that people in higher positions of a social hierarchy are subject to stronger obligations for preventing negative outcomes and are blamed more for those outcomes when they occur. Such role position effects were also found when causality was ambiguous (Gibson & Schroeder, 2003) or when it was indirect, as in cases of vicarious responsibility (Shultz, Jaggi, & Schleifer, 1987).

Evidence for the Impact of Capacity

Shultz et al. (1987) showed that people who have control over others (e.g., parents over their children) are held responsible for the wrongdoings of those whom they control—because they have not only the obligation but the capacity to prevent the harmdoing. Prevention capacity comes in two shades: the *cognitive* capacity to foresee the negative outcome; and the *physical* capacity to actually avert the outcome. Both are necessary. The impact of foreseeability has been demonstrated in adults as well as children from age 4 on (e.g., Nelson-Le Gall, 1985; Shaw & Sulzer, 1964), and Weiner (1995) reviewed numerous studies in which the agent's ability to control an outcome is a strong predictor of blame. These capacities are unlikely to be judged all-or-none. An agent may have foreseen some parts of a negative outcome but not its full scope, and an agent may have had the capacity to take some preventive steps, but perhaps not the most effective ones. As a result, variation in assumed capacity will translate into degrees of blame (Figure 18.1).

Vicarious Blame

Pet owners are sometimes blamed for damage caused by their pets; parents for damage caused by their children; and company management for accidents in the workplace. Such vicarious blame applies only when—following the unintentional path—obligation and capacity to prevent are plausible. But vicarious blame seemingly violates the causality requirement (step 2 in our model), because the one who is blamed (e.g., the pet owner) did not actually cause the negative event (e.g., the dog biting a child in the park). However, people accept causation by omission and thus consider the pet owner blameworthy for *allowing* his pit bull to roam around the park, which led to the child being bitten by the dog. Within counterfactual theories of causation, this is not a surprising claim: If only the owner had put the dog on a leash, it wouldn't have bitten the child (Dowe, 2001).

COMPETING MODELS

The literature on moral judgment contains numerous models of the antecedents, psychological processes, and consequences of such judgments (Guglielmo, 2011). These models can be roughly categorized into two groups, which are divided by one key disagreement (Guglielmo & Malle, 2011)—whether blame judgments *follow* mental state judgments (which we label blame-late models) or *precede*

mental state judgments (which we label blame-early models). Our step model is a blame-late model, and we begin with a discussion of other models of this kind.

Blame-Late Models

Blame-late models propose that judgments of blame critically rely on prior assessments of an agent's causal involvement and mental states. For example, "entailment models" posit that certain early judgments serve as necessary conditions for subsequent judgments, the last of which is that of blame (Fincham & Jaspars, 1980; Shaver, 1985; Weiner, 1995). Although these models offer somewhat different accounts of the precise judgments that precede blame, they generally agree that blame critically depends on prior assessments about the extent to which an agent caused the negative event in question, did so intentionally, had certain characteristics mental states, or had the ability to produce a different outcome. In the absence of these assessments, according to blame-late models, it makes no sense to consider the blameworthiness of an agent's behavior.

Our step model of blame has affinities with these entailment models but also has some notable differences. Entailment models have an intervening concept of responsibility—one that follows causality assessments and precedes blame assessments—whereas we believe that such a step is unnecessary. The primary reason is that responsibility is a hopelessly equivocal concept (Fincham & Jaspars, 1980; Hamilton & Sanders, 1981; Hart, 1968). It collapses distinct phenomena under a single label and is often confounded with other phenomena. A recent study shows that at least four distinct constructs are subsumed under, or comeasured with, responsibility: causality, foreknowledge, intentionality, and wrongfulness (Gailey & Falk, 2008). In addition, the term *responsibility* has been used to refer to an agent's obligation (Hamilton, 1986), to a person's eligibility for moral judgment (Oshana, 2001), and simply to blame (e.g., Shaw & Sulzer, 1964; Shultz, Schleifer, & Altman, 1981). Conversely, some studies purport to measure blame by asking participants about responsibility. But because responsibility is such a vague concept, responsibility measures are less sensitive than blame measures to a variety of determinants of moral judgment, including intention, justification, and foreseeability (e.g., Critchlow, 1985; McGraw, 1987). For all these reasons we omit responsibility from our model.

Studies that have explicitly measured blame judgments paint a consistent picture of the influence of mental state assessments on these judgments. Darley and Shultz (1990) show that, whereas agents receive some blame when they foresee but fail to prevent harm (e.g., through negligence or recklessness), they receive much more blame when they intentionally bring about the harm. Recent studies demonstrate that people assign far more blame to an agent for causing a negative outcome intentionally (e.g., cutting off a pedestrian, burning a stranger's hand) than for causing the identical outcome unintentionally (e.g., Cushman, 2008; Lagnado & Channon, 2008; Ohtsubo, 2007). Furthermore, to the extent that people perceive the agent's reasons to be selfish or vengeful, they make more severe moral judgments about the agent (Reeder et al., 2002; Woolfolk, Doris, & Darley, 2006). Mental states are also critical for the mitigation of blame—for example, blame is

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reduced when the agent lacks knowledge (Nelson-Le Gall, 1985) or had desirable goals (Howe, 1991).

Cushman's (2008) model highlights the importance of causal and mental inferences preceding moral judgments, but the model also offers an important distinction between two kinds of moral judgments. On the one hand, people judge the *wrongness* of an agent's behavior, and these wrongness judgments are driven entirely by assessments of the agent's mental states (primarily beliefs and desires). Thus, people deem an agent's behavior especially wrong when the agent believes his behavior will bring about a negative outcome and wants this outcome to occur (regardless of whether the negative outcome actually occurs). On the other hand, people assess an agent's *blameworthiness* by also taking into account the actual consequences of the agent's behavior—whether a negative outcome in fact occurred. In this way, an agent receives more blame for an action that happens to have bad consequences than for one that does not, holding constant the agent's mental states (Mazzocco, Alicke, & Davis, 2004; Robbennolt, 2000). However, mental state judgments still critically guide blame: intentionally bringing about a negative outcome (i.e., when both belief and desire are present) is blamed much more than unintentionally causing that outcome (i.e., when the agent lacks both belief and or desire).

Cushman's (2008) model and our step model share important features, but they do differ in ways that will require reconciliation. First, wrongness is a cousin of blame but takes a different object of judgment. It is the *intentions* behind an action that are judged as more or less wrong; it is *agents* who are blamed for what they cause in the world. The step model of blame may thus recast wrongness judgments as *blame for intentions* (whether turned into action or not). This would predict equivalence between people's judgments of how *wrong* an agent's intention was and how much *blame* the agent deserves for adopting that intention. Currently no evidence is available on whether such an equivalence holds.

Second, Cushman's (2008) model does not specify exactly how people deal with unintentional behaviors. His model predicts different degrees of blame as a function of mental state inferences, but the information processing that operates on those inferences is not spelled out. Our step model maps out two very different paths of information processing—consideration of beliefs and desires as reasons for intentional actions (like Cushman's model describes) and considerations of obligations and capacities in evaluating unintentional behavior (factors that Cushman's model does not identify).

Blame-Early Models

A second class of moral judgment models proposes that blame occurs prior to (and can therefore influence) assessments of causality and mental states. Haidt (2001) suggests that people have immediate moral intuitions upon considering negative behaviors: "One feels a quick flash of revulsion at the thought of incest and one knows intuitively that *something is wrong*" (p. 814, emphasis added). People also make moral *judgments*, which are "evaluations (good vs. bad) of the actions or

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character *of a person*" (p. 817, emphasis added), and, in turn, "moral judgment is caused by quick moral intuitions" (p. 817).

Alicke (2000) offers an even more explicit claim about the impact of blame on mental state judgments. "People use outcome information as a basis for ascribing blame and they then justify their attributions by altering their judgments of the a priori criteria" (Alicke, Davis, & Pezzo, 1994, pp. 283–284). These a priori criteria include the critical components of blame-late models, such as assessments of an agent's causal role, intentions, foresight, and motives. Thus, people engage in a process of "blame validation," whereby their initial blame judgments serve to guide their subsequent assessments about the content of the agent's mental states.

Knobe's (2010) moral pervasiveness model makes a somewhat different claim. On this model, judgments about causality and mental states still guide blame judgments, as they do for the blame-late models previously discussed. However, an "initial moral judgment" (Phillips & Knobe, 2009) precedes and directs this causal and mental analysis. Consequently, "moral judgment is pervasive, playing a role in the application of *every* concept that involves holding or displaying a positive attitude toward an outcome" (Pettit & Knobe, 2009, p. 593). Thus, Knobe's model is more properly conceptualized as a moral–judgment–early model, rather than a blame-early model, but we will group it under the latter heading because it still posits that moral judgments precede mental state judgments.

The evidence for these blame-early models comes in many forms. Haidt has shown that people have early evaluative reactions when considering negative behaviors and that they are often "dumbfounded" when attempting to verbally justify their moral evaluations (Haidt & Hersh, 2001; cf. Dijksterhuis, this volume). Alicke has shown that the negativity of an agent or an outcome can influence people's judgments about the agent's causal role or negligence in producing the outcome. In one study, Alicke (1992) found that a character who was speeding to hide cocaine was judged more blameworthy and more causally responsible for his ensuing car accident than was a character who was speeding to hide a gift for his parents. The early evaluation of the "extra-evidential" motive for speeding influences people's blame judgments, even though it should be irrelevant for assessing the agent's blameworthiness for the accident. Finally, studies by Knobe and others suggest that, compared with positive or neutral actions, people judge negative actions as more intentional (Knobe, 2003), caused (Knobe & Fraser, 2008), and foreseen (Beebe & Buckwalter, 2010).

There are several reasons to doubt, however, that these findings support a blame-early model. Haidt typically measures what we have labeled detections of norm deviation ("this is morally wrong"), not judgments of *blame* (e.g., Haidt & Hersh, 2001; Wheatley & Haidt, 2005). More important, Haidt's studies do not vary information about causality, intentionality, or mental states, thus making it impossible to examine whether or not moral judgments precede and influence those nonmoral judgments.

The results of Alicke's (1992; Alicke et al., 1994) studies may arise from an informational impact of negativity rather than a motivational one, because negative information provides particularly diagnostic evidence of a person's dispositions

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(Reeder & Brewer, 1979; Skowronski & Carlston, 1989). People may rightly infer that agents who produce particularly negative outcomes do so with more causal involvement or more negative mental states. For example, it may be reasonable to infer that the drug-hiding agent from Alicke's (1992) study is in fact more reckless or careless than the gift-hiding agent, and that inference may mediate the further inference of a greater causal role in bringing about the accident. But such inferences of care, recklessness, or other mental states are not measured either in Alicke's studies or numerous other studies that investigated effects of outcome severity on blame judgments (for a review, see Robbenholt, 2000). In one exception (Fincham, 1982), outcome severity in fact predicted mental state inferences (desire to damage), and these inferences in turn predicted blame judgments—consistent with a blame-late model.

Finally, follow-up research on Knobe's intriguing findings of valence effects on intentionality judgments has shown identical patterns for behaviors that lack moral content (Machery, 2008; Uttich & Lombrozo, 2010), suggesting that Knobe's results can be explained by people's sensitivity to norm deviations more generally, not moral violation in particular. Knobe's effects of valence on intentionality judgments also disappear once several confounds (e.g., the agent's desire, the action's difficulty) are properly controlled (Guglielmo & Malle, 2010a, 2010b). And just as studies of Alicke's model have not empirically assessed spontaneous evaluations, studies of Knobe's model also have not empirically assessed the "initial moral judgments" that are claimed to influence mental state inferences. Consequently, the key claim of these models is, at present, not well supported.

Resolving the Debate

Can the distinct claims and findings of the two classes of blame models be integrated? Such an integration is indeed possible, and it relies on the distinction between early event-focused *reactions* and later person-focused *judgments* (Guglielmo & Malle, 2011; Monin, Pizarro, & Beer, 2007). People often experience negative affect upon detecting negative events—death, environmental damage, and so on—but this affect turns into a moral judgment (e.g., blame) only after people analyze the causal and mental-state structure of the event. This causal and mental analysis serves as an emotion appraisal (Lazarus, 1984) and gives meaning to the perceiver's early affective response, thereby transforming evaluations of an event into moral judgments of an agent. This would mean that blame-early models are reinterpreted as event evaluation models, and those event evaluations lead—via causal and mental state inferences—to genuine blame.

Any test of such an integrative model requires the distinct assessment of event reactions and agent blame, which have never been measured separately in the extant literature. We would also need to assess the time course and speed of each of these processes. Information about causality and mental states must then be made available in time-sequenced steps to demonstrate that event evaluations come online before any of this specific information is understood but that agent blame comes online only after the specific information is understood.

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BLAMING AS A SOCIAL ACT

Moving Beyond Purely Cognitive Models

Extant psychological models of blame focus almost exclusively on the intrapersonal processes of arriving at blame judgments. But people do more than blame others in their own heads. Blame is expressed in face, body, and language; it is doled out, countered, and negotiated. Without such social expression, blame would do little to achieve one of its major functions: to regulate social behavior. A comprehensive theory of blame must be able to delineate the antecedents and consequences of such social acts of blaming.

One social aspect of blaming is featured in Haidt's (2001) "social intuitionist" model, according to which people who express a moral judgment exert direct influence on other people's moral intuitions. "If your friend is telling you how Robert mistreated her, there is little need for you to think systematically about the good reasons Robert might have had. The mere fact that your friend has made a judgment affects your own intuitions directly" (p. 820). However, according to Haidt, people rarely have access to the emergence of their moral judgments (they are "dumbfounded" by their intuitions), so it is not apparent what they can say during their social expression of blaming beyond, "This is wrong, he is bad." If people cannot consciously retrieve grounds for their judgments, they would not be able to argue about, negotiate, and justify moral judgments—which, we believe it is apparent, they do.

Steps Toward Social Blame

Our model of blame specifies the kind of information that can be used in negotiation and justification. We assume that people normally have access to the contents of several judgments: the negativity of the outcome, the agent's suspected causal involvement, intentionality, obligations, and various inferred mental states (of, e.g., intention, reasons, knowledge). This information is available for justifying, contesting, and negotiating a public moral claim. We see this process most clearly in the courtroom, where causality, intentionality, obligation, and knowledge have to be explicitly "proven" for a verdict to ensue.

But social acts of blaming are addressed not only to other observers but also to the perpetrator, especially by the victim of a transgression. In Duff's (1986) idealized version of blame, the blamer engages the perpetrator in a moral deliberation, with the ultimate goal to change the perpetrator's behavior on the basis of remorse, insight, and recommitment to the very values that he had violated. Even in a less ideal world, perpetrator and blamer communicate about the basis of the blame (Pearce, 2003), debating the very components that are specified in the step model of blame: Did I cause it? Did you do it intentionally? Should you have prevented it? Could I have prevented it? The step model thus provides a useful initial framework to examine some of the informational and conceptual components in social acts of blaming—directed at either the perpetrator or other observers.

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A theory of social blaming must address under what conditions people express blame. On the one hand, people may be less likely to express blame in the presence of the perpetrator, because blaming may be costly (the perpetrator may lash out) or prohibited (e.g., by norms of role, status or relationship). On the other hand, blaming the perpetrator directly may actually reform the person's behavior. Reform is more likely to occur when there is a preexisting relationship between blamer and perpetrator and when the blamer not only condemns the other person's behavior but also appeals to shared values that have been violated; thus, the blamer attempts to make the person recognize the wrongness of his actions (Duff, 1986). Such "persuasive" blaming presumes that the perpetrator endorses the shared values, and it shows respect for the perpetrator's rationality to change his behavior accordingly. Persuasive blaming may even signal the blamer's willingness to listen to the perpetrator's own perspective and to consider possible justifications for the offending behavior. Persuasive blame thus has the power to repair the strained relationship between blamer and perpetrator (Bennett, 2002), a power that is harnessed in restorative justice procedures (Kuo, Longmire, & Cuvelier, 2010).

These virtues of persuasive blaming are necessarily absent in third-person blaming, which is addressed to other observers. With little chance of reforming the perpetrator, it serves primarily to express the blamer's emotions, to reassert the violated norms, and to seek validation for those norms (Duff, 1986; Pearce, 2003). Third-person blaming can arise from an inability to reform (e.g., because the perpetrator is too high in status to be directly addressed) or from the blamer's refusal to even attempt any reform. In the latter case, the act of blaming may represent the first step toward socially excluding the perpetrator (Kurzban & Leary, 2001). Blaming a suitable target, especially an outsider, can in fact increase the coherence of a group and aid in the collective endeavor of making sense of negative events (Treichler, 1999). One of the cruelest examples is the Nazi propaganda to blame Jews for the economic crisis and cultural "ills" of Germany in the 1930s. This propaganda led both to increased group coherence (nationalism and wide support for the Nazi party) and to the brutal escalation of legalized social exclusion all the way to genocide. Importantly, the propaganda claimed specific causal, even intentional, contributions of Jews to the society's woes. It was not just an irrational lashing out of negative affect; it was a systematic "argument" that adhered to the informational and conceptual components of blame.

No doubt, people sometimes blame irrationally and unfairly. They dispense of all reform and argument and instead express community-sanctioned hatred, as in the shocking practice of lynching (Dray, 2002). Whether such acts of hate should count as "blame" is debatable. But people consider these acts as deeply unjust precisely because they wholly ignore the foundational questions of blame: Was the agent causally involved? Did he act intentionally? Could he have prevented the outcome?

BLAMING GROUPS

People treat not only individuals as moral agents; they also treat groups that way if the group has the abilities of forming reasons and acting intentionally in light of

these reasons. Our model of blame should therefore generalize to the evaluation of group actions, which would mean that each step in the model can be applied to groups (Malle, 2010). Indeed, people easily detect norm-violating group behaviors (Malle, 2004, Chapter 8); they have no trouble making intentionality judgments about group behavior (Dillon & Malle, 2011); and they ascribe reasons to group agents (O'Laughlin & Malle, 2002). Along the path of blame for unintentional behavior (e.g., accidents due to a corporation's negligence), groups are certainly subject to obligations, and questions of capacity (both knowledge and ability to act) figure prominently in legal and public discussions of corporate liability. Thus, without making contentious assumptions, it seems plausible that people blame group agents using the same cognitive apparatus they use when blaming individuals.

Social Blaming of Groups

This correspondence between blaming individuals and groups at the cognitive level extends only partially to the social level. Interesting problems arise with the social blaming of groups. Here is the first: How well can blame for group agents be expressed? Social perceivers do not actually encounter nations, governments, or corporations; even teams or committees are rarely seen face to face. In modern life, people can write letters to a group agent, sue them, or publicly denounce them. But these expressions will be infrequent, limited in scope, and come with little assurance that the addressee actually notices or cares about the blame.

The second problem is this: If blame is rarely expressed and even more rarely heard, regulation of group agents' behavior may run idle. A social perceiver can vote against a government or refuse to buy from a company, but here she alters her own actions more than the group agent's actions. Only when individual social perceivers aggregate or join together can social blame become an effective regulator. It often takes a group agent to fight a group agent.

A third problem is that group agents lack (or at least are perceived to lack) most affective mental states (Knobe & Prinz, 2008), so they will also be unlikely to feel guilt, regret, or remorse. As a result, groups will have fewer moral scruples, which further blocks social regulation as well as deterrence. If groups are rational, solely cognitive agents, potential blame or punishment becomes part of the utility calculation for their actions; anticipated guilt or regret lies outside these calculations.

CONCLUSIONS

The nature of blame is both cognitive and social. On the cognitive side, people progress through considerations of causality, intentionality, and mental states to arrive at judgments of blame, which are thus fundamentally grounded in a theory of mind. Importantly, people blame intentional and unintentional events in distinct ways, taking into account justifying reasons for intentional events but prevention obligation and prevention capacity for unintentional events. Reconciling the conflicting positions of blame-early and blame-late models, we maintained that early evaluations in response to a norm-deviating event should not count as blame

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because they are event directed whereas genuine blame is agent directed. Such blame can then be socially expressed either to the agent or to other social observers, but research has only begun to examine the conditions under which such social blame occurs. Finally, people appear to blame groups with the same cognitive apparatus as they blame individuals, but the social expression of group blame faces distinct obstacles that also await future research.

ENDNOTES

1. For the present audience, the term *theory of mind* is the most commonly used, but near synonyms are *folk psychology* or *common-sense psychology.* For a discussion see Malle (2005, 2008).
2. Events are time-extended processes (e.g., a car skidding on ice), whereas outcomes are the results of events (e.g., the car having crashed into a tree). For our present purposes this distinction is not important.

REFERENCES

Alicke, M. D. (1992). Culpable causation. *Journal of Personality and Social Psychology*, *63*, 368–378.

Alicke, M. D. (2000). Culpable control and the psychology of blame. *Psychological Bulletin*, *126*, 556–574.

Alicke, M. D., Davis, T. L., & Pezzo, M. V. (1994). A posteriori adjustment of a priori decision criteria. *Social Cognition*, *12*, 281–308.

Astington, J. W. (2001). The paradox of intention: Assessing children's metarepresentational understanding. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 85–103). Cambridge, MA: MIT Press.

Baird, J. A., & Moses, L. J. (2001). Do preschoolers appreciate that identical actions may be motivated by different intentions? *Journal of Cognition & Development*, *2*, 413–448.

Baldwin, D. A., Baird, J. A., Saylor, M. M., & Clark, M. A. (2001). Infants parse dynamic action. *Child Development*, *72*, 708–717.

Barrett, H. C., Todd, P. M., Miller, G. F., & Blythe, P. W. (2005). Accurate judgments of intention from motion cues alone: A cross-cultural study. *Evolution and Human Behavior*, *26*, 313–331.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*, 323–370.

Beebe, J. R., & Buckwalter, W. (2010). The epistemic side-effect effect. *Mind and Language*, *25*, 474–498.

Bennett, C. (2002). The varieties of retributive experience. *Philosophical Quarterly*, *52*, 145–163.

Critchlow, B. (1985). The blame in the bottle. *Personality and Social Psychology Bulletin*, *11*, 258–274.

Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, *108*, 353–380.

Darley, J. M., & Shultz, T. R. (1990). Moral rules: Their content and acquisition. *Annual Review of Psychology*, *41*, 525–556.

Darley, J. M., Klosson, E. C., & Zanna, M. P. (1978). Intentions and their contexts in the moral judgments of children and adults. *Child Development*, *49*, 66–74.

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Dillon, K. D., & Malle, B. F. (2011). *A robust hierarchy of social inferences across individual and group agents.* Paper presented at the annual meeting of the Society of Philosophy and Psychology, Montreal, Canada.

Dowe, P. (2001). A counterfactual theory of prevention and "causation" by omission. *Australasian Journal of Philosophy*, *79*, 216–226.

Dray, P. (2002). *At the hands of persons unknown: The lynching of Black America*. New York: Random House.

Duff, A. (1986). *Trials and punishments*. Cambridge, England: Cambridge University Press.

Fincham, F. D., & Jaspars, J. M. (1980). Attribution of responsibility: From man the scientist to man as lawyer. *Advances in Experimental Social Psychology*, *13*, 81–138.

Fincham, F. D. (1982). Moral judgment and the development of causal schemes. *European Journal of Social Psychology, 12*, 47–61.

Gailey, J. A., & Falk, R. F. (2008). Attribution of responsibility as a multidimensional concept. *Sociological Spectrum*, *28*, 659–680.

Gibson, D. E., & Schroeder, S. J. (2003). Who ought to be blamed? The effect of organizational roles on blame and credit attributions. *International Journal of Conflict Management*, *14*, 95–117.

Goody, E. N. (Ed.). (1995). *Social intelligence and interaction: Expressions and implications of the social bias in human intelligence.* Cambridge, UK: Cambridge University Press.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*, 1029–1046.

Guglielmo, S. (2011). *Moral judgment: An integrative review*. Manuscript under review.

Guglielmo, S., & Malle, B. F. (2010a). Enough skill to kill: Intentionality judgments and the moral valence of action. *Cognition*, *117*, 139–150.

Guglielmo, S., & Malle, B. F. (2010b). Can unintended side effects be intentional? Resolving a controversy over intentionality and morality. *Personality and Social Psychology Bulletin*, *36*, 1635–1647.

Guglielmo, S., & Malle, B. F. (2011). *Mind over morality: Mental-state inferences (still) guide moral judgments.* Manuscript under review.

Guglielmo, S., Monroe, A. E., & Malle, B. F. (2009). At the heart of morality lies folk psychology. *Inquiry: An Interdisciplinary Journal of Philosophy*, *52*, 449–466.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, *108*, 814–834.

Haidt, J., & Hersh, M. A. (2001). Sexual morality: The cultures and emotions of conservatives and liberals. *Journal of Applied Social Psychology, 31*, 191–221.

Hamilton, V. L. (1986). Chains of command: Responsibility attribution in hierarchies. *Journal of Applied Social Psychology*, *16*, 118–138.

Hamilton, V. L., & Sanders, J. (1981). The effect of roles and deeds on responsibility judgments: The normative structure of wrongdoing. *Social Psychology Quarterly*, *44*, 237–254.

Hart, H. L. A. (1968). *Punishment and responsibility*. New York: Oxford University Press.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Howe, E. S. (1991). Integration of mitigation, intention, and outcome damage information, by students and circuit court judges. *Journal of Applied Social Psychology*, *21*, 875–895.

Johnson, S. C. (2000). The recognition of mentalistic agents in infancy. *Trends in Cognitive Sciences*, *4*, 22–28.

Knobe, J. (2003). Intentional action and side effects in ordinary language. *Analysis*, *63*, 190 –194.

Knobe, J. (2010). Person as scientist, person as moralist. *Behavioral and Brain Sciences*, *33*, 315–329.

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Knobe, J., & Fraser, B. (2008). Causal judgment and moral judgment: Two experiments. *Moral psychology (Vol. 2): The cognitive science of morality: intuition and diversity* (Vol. 2, pp. 441–447). Cambridge, MA: MIT Press.

Knobe, J., & Prinz, J. J. (2008). Intuitions about consciousness: Experimental studies. *Phenomenology and the Cognitive Sciences*, *7*, 67–83.

Kuo, S.-Y., Longmire, D., & Cuvelier, S. J. (2010). An empirical assessment of the process of restorative justice. *Journal of Criminal Justice*, *38*, 318–328.

Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin*, *127*, 187–208.

Lagnado, D. A., & Channon, S. (2008). Judgments of cause and blame: The effects of intentionality and foreseeability. *Cognition*, *108*, 754–770.

Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist*, *39*, 124–129.

Machery, E. (2008). The folk concept of intentional action: Philosophical and experimental issues. *Mind and Language*, *23*, 165–189.

Malle, B. F. (1999). How people explain behavior: A new theoretical framework. *Personality and Social Psychology Review*, *3*, 23–48.

Malle, B. F. (2004). *How the mind explains behavior: Folk explanations, meaning, and social interaction*. Cambridge, MA: MIT Press.

Malle, B. F. (2005). Folk theory of mind: Conceptual foundations of human social cognition. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *The new unconscious* (pp. 225–255). New York: Oxford University Press.

Malle, B. F. (2008). The fundamental tools, and possibly universals, of social cognition. In R. M. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures* (pp. 267–296). New York: Elsevier/Academic Press.

Malle, B. F. (2010). The social and moral cognition of group agents. *Journal of Law and Policy*, *20*, 95–136.

Malle, B. F. (2011). Time to give up the dogmas of attribution: A new theory of behavior explanation. In M. P. Zanna & J. M. Olson (Eds.), *Advances of Experimental Social Psychology* (Vol. 44, pp. 297–352). San Diego, CA: Academic Press.

Malle, B. F., & Knobe, J. (1997a). The folk concept of intentionality. *Journal of Experimental Social Psychology*, *33*, 101–121.

Malle, B. F., & Knobe, J. (1997b). Which behaviors do people explain? A basic actor-observer asymmetry. *Journal of Personality and Social Psychology*, *72*, 288–304.

Malle, B. F., & Knobe, J. (2001). The distinction between desire and intention: A folk-conceptual analysis. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 45–67). Cambridge, MA: MIT Press.

Malle, B. F., & Pearce, G. E. (2001). Attention to behavioral events during interaction: Two actor-observer gaps and three attempts to close them. *Journal of Personality and Social Psychology*, *81*, 278–294.

Mazzocco, P. J., Alicke, M. D., & Davis, T. L. (2004). On the robustness of outcome bias: No constraint by prior culpability. *Basic and Applied Social Psychology*, *26*, 131–146.

McGraw, K. M. (1987). Guilt following transgression: An attribution of responsibility approach. *Journal of Personality and Social Psychology*, *53*, 247–256.

Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology*, *31*, 838–850.

Mikhail, J. (2007). Universal moral grammar: Theory, evidence and the future. *Trends in Cognitive Sciences*, *11*, 143–152.

Monin, B., Pizarro, D. A., & Beer, J. S. (2007). Deciding versus reacting: Conceptions of moral judgment and the reason-affect debate. *Review of General Psychology*, *11*, 99–111.

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Monroe, A. E., & Malle, B. F. (2010). From uncaused will to conscious choice: The need to study, not speculate about people's folk concept of free will. *Review of Philosophy and Psychology*, *1*, 211–224.

Nelson-Le Gall, S. A. (1985). Motive-outcome matching and outcome foreseeability: Effects on attribution of intentionality and moral judgments. *Developmental Psychology*, *21*, 323–337.

O'Laughlin, M. J., & Malle, B. F. (2002). How people explain actions performed by groups and individuals. *Journal of Personality and Social Psychology*, *82*, 33–48.

Ohtsubo, Y. (2007). Perceived intentionality intensifies blameworthiness of negative behaviors: Blame-praise asymmetry in intensification effect. *Japanese Psychological Research*, *49*, 100–110.

Oshana, M. (2001). Responsibility: Philosophical aspects. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 13,279–13,283). Oxford: Pergamon.

Pearce, G. E. (2003). *The everyday psychology of blame*. Doctoral dissertation, Department of Psychology, University of Oregon.

Pettit, D., & Knobe, J. (2009). The pervasive impact of moral judgment. *Mind & Language*, *24*, 586–604.

Phillips, J., & Knobe, J. (2009). Moral judgments and intuitions about freedom. *Psychological Inquiry, 20*, 30–36.

Pomerantz, A. (1978). Attributions of responsibility: Blamings. *Sociology*, *12*, 115 –121.

Premack, D. (1990). The infant's theory of self-propelled objects. *Cognition*, *36*, 1–16.

Reeder, G. D., & Brewer, M. B. (1979). A schematic model of dispositional attribution in interpersonal perception. *Psychological Review*, *86*, 61–79.

Reeder, G. D., Kumar, S., Hesson-McInnis, M. S., & Trafimow, D. (2002). Inferences about the morality of an aggressor: The role of perceived motive. *Journal of Personality and Social Psychology*, *83*, 789–803.

Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14- and 18-month-olds. *Developmental Psychology*, *33*, 12–21.

Robbennolt, J. K. (2000). Outcome severity and judgments of "responsibility": A meta-analytic review. *Journal of Applied Social Psychology*, *30*, 2575–2609.

Schank, R. C., & Abelson, R. P. (1977). *Scripts, plans, goals, and understanding: An inquiry into human knowledge structures*. Hillsdale, NJ: Erlbaum.

Scholl, B. J., & Tremoulet, P. D. (2000). Perceptual causality and animacy. *Trends in Cognitive Sciences*, *4*, 299–310.

Shaver, K. G. (1985). *The attribution of blame: Causality, responsibility, and blameworthiness*. New York: Springer Verlag.

Shaw, M. E., & Sulzer, J. L. (1964). An empirical test of Heider's levels in attribution of responsibility. *Journal of Abnormal and Social Psychology*, *69*, 39–46.

Shultz, T. R., Jaggi, C., & Schleifer, M. (1987). Assigning vicarious responsibility. *European Journal of Social Psychology*, *17*, 377–380.

Shultz, T. R., Schleifer, M., & Altman, I. (1981). Judgments of causation, responsibility, and punishment in cases of harm-doing. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *13*, 238–253.

Shultz, T. R., Wright, K., & Schleifer, M. (1986). Assignment of moral responsibility and punishment. *Child Development*, *57*, 177–184.

Skowronski, J. J., & Carlston, D. E. (1989). Negativity and extremity biases in impression formation: A review of explanations. *Psychological Bulletin*, *105*, 131–142.

Sloman, S. A., Fernbach, P., & Ewing, S. (2009). Causal models: The representational infrastructure for moral judgment. In D. Bartels, C. Bauman, L. Skitka, & D. L. Medin (Eds.), *Moral judgment and decision making* (pp. 1–26). Boston, MA: Academic Press.

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Solan, L. M. (2003). Cognitive foundations of the impulse to blame. *Brooklyn Law Review*, *68*, 1003–1029.

Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin*, *110*, 67–85.

Treichler, P. A. (1999). *How to have theory in an epidemic: Cultural chronicles of AIDS*. Durham, NC: Duke University Press.

Uttich, K., & Lombrozo, T. (2010). Norms inform mental state ascriptions: A rational explanation for the side-effect effect. *Cognition*, *116*, 87–100.

Van Berkum, J. J. A., Holleman, B., Nieuwland, M., Otten, M., & Murre, J. (2009). Right or wrong? The brain's fast response to morally objectionable statements. *Psychological Science*, *20*, 1092–1099.

Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct.* New York: Guilford Press.

Wellman, H. M., & Phillips, A. T. (2001). Developing intentional understandings. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 125–148). Cambridge, MA: The MIT Press.

Wheatley, T., & Haidt, J. (2005). Hypnotic disgust makes moral judgments more severe. *Psychological Science*, *16*, 780–784.

White, P. A. (1995). *The understanding of causation and the production of action: From infancy to adulthood. Essays in developmental psychology.* Hillsdale, NJ: Erlbaum.

Wong, P. T., & Weiner, B. (1981). When people ask "why" questions, and the heuristics of attributional search. *Journal of Personality and Social Psychology*, *40*, 650–663.

Woodward, A. L. (1998). Infants selectively encode the goal object of an actor's reach. *Cognition*, *69*, 1–34.

Woolfolk, R. L., Doris, J. M., & Darley, J. M. (2006). Identification, situational constraint, and social cognition: Studies in the attribution of moral responsibility. *Cognition, 100*, 283–301.

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