#### Mind, Brain and Narrative

Narratives enable readers to experience vividly fictional and non-fictional contexts. Writers use a variety of language features to control these experiences: they direct readers in how to construct contexts, how to draw inferences and how to identify the key parts of a story. Writers can skilfully convey physical sensations, prompt emotional states, effect moral responses and even alter the readers' attitudes. *Mind, Brain and Narrative* examines the psychological and neuroscientific evidence for the mechanisms which underlie narrative comprehension. The authors explore the scientific developments which demonstrate the importance of attention, counterfactuals, depth of processing, perspective and embodiment in these processes. In so doing, this timely, interdisciplinary work provides an integrated account of the research which links psychological mechanisms of language comprehension to humanities work on narrative and style.

ANTHONY J. SANFORD is Emeritus Professor and Honorary Senior Research Fellow in the Institute of Neuroscience and Psychology at the University of Glasgow.

CATHERINE EMMOTT is Senior Lecturer in English Language at the University of Glasgow.

# Mind, Brain and Narrative

Anthony J. Sanford

Catherine Emmott



> CAMBRIDGE UNIVERSITY PRESS Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi, Dubai, Mexico City

Cambridge University Press The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org Information on this title: www.cambridge.org/9781107017566

© Anthony J. Sanford and Catherine Emmott 2012

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

First published 2012

Printed and Bound in Great Britain by the MPG Books Group

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication Data

Sanford, A. J. (Anthony J.) Mind, brain and narrative / Anthony J. Sanford, Catherine Emmott. pages cm Includes bibliographical references and indexes. ISBN 978-1-107-01756-6
1. Discourse analysis, Narrative–Psychological aspects. 2. Narration (Rhetoric)– Psychological aspects. 3. Comprehension. 4. Cognition. 5. Psycholinguistics.
I. Emmott, Catherine. II. Title. P302.8.S26 2012 401'.41–dc23
2012018827

ISBN 978-1-107-01756-6 Hardback

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

To Alison Sanford and Paul Emmott

# Contents

		e viii	
	f of tables	ix	
	face mouladacements	xi xiii	
ACK	cnowledgements	XIII	
1	Narrative and the Rhetorical Processing Framework	1	
2	Fundamentals of text processing	9	
3	Multiple levels: counterfactual worlds and figurative language	45	
4	Attention in text: foregrounding and rhetorical focussing	72	
5	Rhetorical focussing and depth of processing	103	
6	The experiential aspect: using embodiment theory	132	
7	Narrative perspective and the representation of speech and thought	161	
8	Hot cognition: emotion, empathy and suspense	191	
9	Narrative's social impact: persuasion and attitude change	233	
10	Final comments	266	
App	pendix 1: Electroencephalography (EEG)	271	
App	bendix 2: Functional Magnetic Resonance Imaging (fMRI)	272	
Ref	References		
Aut	Author index		
Sub	Subject index		

vii

# Figures

2.1	A typical N400 ERP for semantically consistent and	
	inconsistent words. Unpublished data courtesy of Hartmut	
	Leuthold, for illustrative purposes.	page 26
4.1	Mean reading times for anaphoric sentences. Reproduced from	
	A. J. S. Sanford et al. (2009, Figure 1, p. 882), copyright	
	2009, Psychonomic Society, Inc., with kind permission of the	
	authors and Springer Science+Business Media B.V.	89
5.1	Effects of discourse focus on change detection. Reproduced	
	from Sturt et al. (2004, Figure 2, p. 886), copyright 2004,	
	Psychonomic Society, Inc., with kind permission of the	
	authors and Springer Science+Business Media B.V.	116
6.1	Possible stages in the constructed experience deriving from	
	language descriptions.	158
7.1	Sample visual stimuli: (a) internal perspective, and (b) external	
	perspective. Photographs courtesy of Andrew Mathews.	162-163
7.2	Correct change detections as a function of speech type and	
	semantic distance. Data from Bohan et al. (2008), with kind	
	permission of the authors.	183

viii

# Tables

Potential realizations of different levels of attention during	
discourse comprehension.	page 86
Summary of devices examined through text-change method,	
with main effects.	129
Possible text type distinctions to be made when carrying out	
empirical work.	250
	discourse comprehension. Summary of devices examined through text-change method, with main effects. Possible text type distinctions to be made when carrying out

### Preface

The aim of this book is to provide an interdisciplinary bridge between humanities research on narrative, and psychological and neuroscience work on language processing and comprehension. Narrative requires readers to produce rich and complex mental representations. It offers one of the major means through which the experiences of other people, different cultures and distant times may be conveyed, and expands our virtual experience of the world. Typically, narratives manipulate not only our knowledge of things, but also our impressions of how people feel, judge and react in a multitude of situations. Writers encourage the production of such complex representations through subtle linguistic devices.

It is clear that to understand these many aspects of narrative comprehension, an interdisciplinary approach is required, and that is precisely what we offer here. Alone, humanities and scientific studies have much to say about language and how it is understood, but together, it is possible to make greater progress in examining its use in narrative texts. Thus humanities research has led to many important observations and conjectures about the nature of narrative, and how narrative results in various impressions in the minds of readers, but only a small amount of this work has a real empirical basis. In psychology, much empirical work and theory has been concerned with understanding particular language constructions, but rather less with the global aspects of real narrative. A combined approach means that both disciplines benefit, and our overall understanding of narrative comprehension is much improved. So, the humanities work can provide psychologists with insights into how to handle more realistic and often more complex phenomena than they usually deal with, while psychologists can provide appropriate scientific experimentation and processing theories that make the claims of humanities researchers about reading narratives more tangible and solid. This is the main philosophy behind the present volume.

Our study incorporates an examination of relevant recent work in neuroscience. Apart from the general question of how the brain supports narrative comprehension, there are two specific issues to which we draw attention. First, while many processes of understanding are purely 'cognitive', having to

#### xii Preface

do with using or manipulating a reader's knowledge, writers on narrative have made much of the 'experience' of reading, such as sensory 'feelings' about what is being described, or having emotional responses – so-called 'narrative immersion'. Obviously a purely cognitive model could not accommodate such phenomena, but neuroscience can, because the brain mediates sensory impressions and emotions. Secondly, narratives often deal with matters of social content, where it is important to have empathy with characters and make social judgements. The burgeoning field of social neuroscience is concerned with just such issues, and serves as a means of bringing social dynamics into the study of how narrative affects the reader.

Of course, how a writer portrays things determines how we respond as readers. A lucid description of a scene may highlight the experience of 'feeling' some sensation, or having some image, while an alternative description may suppress such sensations. The writer's rhetorical control over how we process narrative determines what we attend to during reading, what we consider to be important or not, and what images and sensations we have. This is central to the approach we take in this book and is why we describe our model as the 'Rhetorical Processing Framework', offering it as an account of many major phenomena.

The book contains our own original contributions as well as reviews of relevant research by others. Primarily, we hope that it will be of interest to researchers in all disciplines that concern themselves with narrative comprehension. We present material that is also appropriate for courses on the psychology of language at both the advanced undergraduate and specialized graduate levels, and for humanities courses on narrative at these levels.

While much has been written on the psycholinguistic and humanities approaches to narrative, the present book provides an integrated approach. The authors, Sanford, a psychologist with an interest in language processing from both a psychological and neuroscience perspective, and Emmott, a humanities researcher specializing in linguistic aspects of narrative, have worked together for ten years on the project leading to this book, supported primarily by the Arts and Humanities Research Council, and also by the British Academy. We have found it to be a fascinating interchange of ideas, and hope that the rich interdisciplinary insights that this collaboration has given us will also be experienced by our readers.

> ANTHONY J. SANFORD CATHERINE EMMOTT Glasgow, October 2011

### Acknowledgements

This book grew out of the STACS Project (Stylistics, Text Analysis and Cognitive Science). We are grateful to the Arts and Humanities Research Council for providing the principal funding to both authors for this project and also to the British Academy for additional support. Our research assistants Eugene Dawydiak and Lorna Morrow assisted greatly with specific experiments and offered many useful ideas in the discussions we had about this research, as did visiting scientists Yuki Fukuda and Yuko Hijikata. Much of the fundamental work on reference and depth of processing was funded by various grants to Sanford from the Economic and Social Research Council.

Other colleagues, students, friends and family gave us help and support in the writing of the book, for which we are very grateful. Invaluable feedback on various drafts came from Jason Bohan, Ruth Filik, Agnes Marszalek, the late Derek Mathews, Linda Moxey and Alison Sanford. We have also benefited considerably from input relating to specific sections from Marc Alexander, Sally Cochrane, Heather Ferguson, Hartmut Leuthold, Jo Molle, Jessica Price, Christoph Scheepers, Fiona Smith, Patrick Sturt and Bo Yao. Other previous collaborators, especially Simon Garrod and Asifa Majid, have had a strong influence. Encouragement, inspiration and, in some cases, significant practical assistance came from Wendy Anderson, Jan Auracher, Pascal Belin, Lars Bernaerts, Marisa Bortolussi, Jekaterina Bragina, Joe Bray, Michael Burke, John Corbett, Maja Djikic, Paul Emmott, Monika Fludernik, Joanna Gavins, Richard Gerrig, Art Glenberg, Art Graesser, Frank Hakemulder, Geoff Hall, David Herman, Michael Hoey, Lesley Jeffries, Christian Kay, Bill Louw, Max Louwerse, Michael MacMahon, Dan McIntyre, David Miall, Ruth Page, Alan Palmer, Elizabeth Robertson, the late Mary Ellen Ryder, Ted Sanders, Elena Semino, Yeshayahu Shen, Mick Short, Paul Simpson, Jeremy Smith, Rachel Smith, Gerard Steen, Peter Stockwell, Michael Toolan, Jos van Berkum, Willie van Peer, Peter Verdonk, Katie Wales, Judit Zerkowitz, Rolf Zwaan and Sonia Zyngier. We are very grateful to Andrew Stewart, in particular for suggesting that change detection might be used in the context of reading. Many others from learned societies, particularly AMLaP, IGEL, PALA, and ST&D, gave us much useful feedback. We also thank

xiii

#### xiv Acknowledgements

Alison Bennett, Janet Hampson, Sheena McGill and Pauline Maridor for administrative support, and Marc Alexander and Flora Edmonds for technical support. We are very grateful to Andrew Mathews for reading the full final manuscript, providing fresh and incisive commentary, and also for assisting with the compilation of the bibliography and index. We also wish to thank Anna Oxbury for her diligent and thoughtful copy-editing, the anonymous reviewers who read chapters on behalf of Cambridge University Press, and our editors Andrew Winnard, Sarah Green, Elizabeth Spicer and Christina Sarigiannidou for their guidance.

Finally, we owe a major debt to our partners, Alison Sanford and Andrew Mathews, for providing continued help, support and encouragement while we were writing the book.