The Cambridge Handbook of Communication Disorders

Many children and adults experience impairment of their communication skills. These communication disorders impact adversely on all aspects of these individuals' lives. In thirty dedicated chapters, *The Cambridge Handbook of Communication Disorders* examines the full range of developmental and acquired communication disorders and provides the most up-to-date and comprehensive guide to the epidemiology, aetiology and clinical features of these disorders. The volume also examines how these disorders are assessed and treated by speech and language therapists and addresses recent theoretical developments in the field. The handbook goes beyond well-known communication disorders to include populations such as children with emotional disturbance, adults with non-Alzheimer's dementias and people with personality disorders. Each chapter describes in accessible terms the most recent thinking and research in communication disorders. The volume is an ideal guide for academic researchers, graduate students and professionals in speech and language therapy.

LOUISE CUMMINGS is Professor of Linguistics at Nottingham Trent University. She is a member of the Royal College of Speech and Language Therapists and is registered with the Health and Care Professions Council in the UK.

CAMBRIDGE HANDBOOKS IN LANGUAGE AND LINGUISTICS

Genuinely broad in scope, each handbook in this series provides a complete state-of-the-field overview of a major sub-discipline within language study and research. Grouped into broad thematic areas, the chapters in each volume encompass the most important issues and topics within each subject, offering a coherent picture of the latest theories and findings. Together, the volumes will build into an integrated overview of the discipline in its entirety.

Published titles

The Cambridge Handbook of Phonology, edited by Paul de Lacy
The Cambridge Handbook of Linguistic Code-switching, edited by Barbara E. Bullock and Almeida Jacqueline Toribio
The Cambridge Handbook of Child Language, edited by Edith L. Bavin
The Cambridge Handbook of Endangered Languages, edited by Peter K. Austin and Julia Sallabank
The Cambridge Handbook of Sociolinguistics, edited by Rajend Mesthrie
The Cambridge Handbook of Pragmatics, edited by Keith Allan and Kasia M. Jaszczolt
The Cambridge Handbook of Language Policy, edited by Bernard Spolsky
The Cambridge Handbook of Second Language Acquisition, edited by Julia Herschensohn and Martha Young-Scholten
The Cambridge Handbook of Biolinguistics, edited by Cedric Boeckx and Kleanthes K. Grohmann
The Cambridge Handbook of Generative Syntax, edited by Marcel den Dikken
The Cambridge Handbook of Communication Disorders, edited by Louise Cummings

Further titles planned for the series

The Cambridge Handbook of Stylistics, edited by Stockwell and Whiteley
The Cambridge Handbook of Linguistic Anthropology, edited by Enfield, Kockelman and Sidnell
The Cambridge Handbook of Morphology, edited by Hippisley and Stump
The Cambridge Handbook of Historical Syntax, edited by Ledgeway and Roberts
The Cambridge Handbook of Formal Semantics, edited by Maria Aloni and Paul Dekker
The Cambridge Handbook of English Corpus Linguistics, edited by Douglas Biber and Randi Reppen
The Cambridge Handbook of English Historical Linguistics, edited by Merja Kytö and Päivi Pahta

The Cambridge Handbook of Communication Disorders

Edited by

Louise Cummings

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

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

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107021235

First published 2014

Printing in the United Kingdom by TJ International Ltd, Padstow, Cornwall

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

Library of Congress Cataloguing in Publication data
The Cambridge handbook of communication disorders / [edited by] Louise Cummings.
pages cm. – (Cambridge handbooks in language and linguistics)
Includes bibliographical references and index.
ISBN 978-1-107-02123-5 (hardback)
1. Communicative disorders–Handbooks, manuals, etc. I. Cummings, Louise.
RC423.C24 2013
362.19685′5–dc23
2013018451

ISBN 978-1-107-02123-5 Hardback

In memory of
R. Steven Ackley
A committed author and audiologist

Contents

Figures

Tables

Contributors

R. Steven Ackley was Professor of Audiology and Director of the PhD Program in Hearing, Speech and Language Sciences at Gallaudet University, Washington, DC until his death in 2013. He was former Department Chair at Gallaudet and at the University of Northern Colorado. His research interests included auditory electrophysiology, balance disorders and deafness. His co-edited text *An Essential Guide to Hearing and Balance Disorders* (2007) gives an in-depth treatise of hearing and balance procedures and pathologies.

Kirrie J. Ballard is Associate Professor and Australian Research Council (ARC) Future Fellow at the University of Sydney in Australia. Her research interests are in the area of normal and disordered speech motor control and learning, with a strong emphasis on translational to clinical practice. She has authored over forty scientific articles and 100 conference presentations and is regularly invited to provide professional development workshops for speech-language pathologists. Her research has been funded by the National Institutes of Health (NIH) and the American Speech-Language-Hearing Association (ASHA) in the USA and by the National Health and Medical Research Council (NHMRC) and ARC in Australia.

Roelien Bastiaanse is Professor of Neurolinguistics at the University of Groningen, The Netherlands. She has over 150 publications on aphasia in English and Dutch. She has edited three books: with Evy Visch-Brink *Linguistic Levels in Aphasia* (1998); with Yosef Grodzinsky *Grammatical Disorders in Aphasia: A Neurolinguistic Perspective* (2000); and with Cynthia K. Thompson *Perspectives on Agrammatism* (2012). She has written two Dutch books and developed and published two Dutch treatment programmes, one of which has been adapted to German. She has co-authored with Susan Edwards and Judith Rispens the *Verb and Sentence Test* (2002), which has been adapted to English and Norwegian.

Gregory J. Benner is a professor and Executive Director of the Applied Research Center for Strong Communities and Schools at the University

of Washington, Tacoma. Dr Benner specializes in preventive approaches for meeting the behavioural and academic needs of students, particularly those with emotional and behaviour disorders. He has expertise in building the capacity of educators to meet the social and emotional needs of youth who are least understood and struggling most. He is the co-author of the book *Instructional Practices for Students with Behavioral Disorders: Strategies for Reading, Writing, and Math* (2008). Dr Benner currently serves as Associate Editor for *Behavioral Disorders* and *Remedial and Special Education*.

Glenis Benson is a lecturer at the University of Wisconsin-Oshkosh in the USA. Her research focuses on pragmatic abilities in children with autism spectrum disorders and children with intellectual disabilities. Along with her colleagues at the University of Wisconsin-Madison, she is responsible for one of the early investigations of theory of mind in persons with intellectual disability. Glenis lectures but also supports persons with autism spectrum disorders and behavioural challenges through a private practice in Madison, Wisconsin.

Diane M. Bless is Professor Emeritus of Surgery and Communication Sciences and Disorders at the University of Wisconsin-Madison. She founded, developed and served as the Director of Voice Services at University of Wisconsin Hospital and Clinics for nearly three decades. She has authored chapters, books and scientific articles on voice issues, and given numerous lectures and workshops in the USA, Argentina, Australia, Brazil, Canada, Chile, China, Egypt, England, Ireland, Japan, Korea, France, Scotland, Malaysia and Sweden. The focus of her teaching, research and clinical practice has been on vocal fold functioning in health and disease, particularly as it pertains to assessment and treatment.

Tobias Bormann is a clinical neuropsychologist at the Department of Neurology of the University of Freiburg. He studied psychology at the University of Freiburg and held a position at Erfurt University. His research is concerned with acquired impairments of language, including studies of word-finding difficulties, impaired comprehension, dyslexia and dysgraphia. His research is mainly based on cognitive, single-case studies but also involves group studies with aphasic and unimpaired individuals. He is the co-author of several articles published in international journals including *Cortex*, *Brain and Language*, *Journal of Neurolinguistics* and *Aphasiology*.

Tim Bressmann is Associate Professor in the Department of Speech-Language Pathology at the University of Toronto. He also holds cross-appointments as an Associate Professor at the Faculty of Dentistry at the University of Toronto, an Adjunct Scientist at St John's Rehabilitation Program of the Sunnybrook Health Sciences Centre, and a lecturer in the Department of Special Education at the University of Munich. His research and teaching interests are in the field of structurally-related speech disorders, such as craniofacial syndromes, head and neck cancer, and voice disorders. A special focus of his research is the use of ultrasound

imaging for the analysis of tongue movement. He has authored over 60 peer-reviewed papers, book chapters and contributions to conference proceedings.

Karen Bryan is Pro Vice-Chancellor and Dean of the Faculty of Health and Wellbeing at Sheffield Hallam University. She was, until 2013, a Consultant Speech and Language Therapist at the West London Mental Health Trust. She is the editor of *Communication in Healthcare* (2009) and co-editor with Jane Maxim of *Communication Disability in the Dementias* (2006). Karen Bryan was awarded a Fellowship of the Royal College of Speech and Language Therapists in 2011. She holds a Visiting Professorship in the Department of Neuropsychology, University of Warsaw.

Catherine Christo is Professor Emeritus in the School Psychology Program at California State University, Sacramento. Her interests are primarily in reading, dyslexia and learning disabilities. Dr Christo is a co-author of *Identifying, Assessing and Treating Dyslexia at School* (2009), and a chapter entitled 'Word Recognition' in the *Handbook of Reading Research, Volume IV* (2010). She is also the author of journal articles on reading, dyslexia, assessment, response to intervention and learning disabilities. Dr Christo provides training at a state and national level on these topics.

Nadine P. Connor is Associate Professor of Communication Sciences and Disorders and Research Director in Otolaryngology-Head and Neck Surgery at the University of Wisconsin-Madison. Her research interests are in the areas of voice and swallowing. She is particularly interested in the biological mechanisms of muscular adaptation to ageing and therapeutic interventions, specifically in the larynx and tongue. She also teaches courses at the University of Wisconsin-Madison in the areas of research methods and assessment and management of voice disorders. Among her students are otolaryngology-head and neck surgery residents.

Karen Croot is a lecturer in Applied Cognitive Psychology at the University of Sydney, Australia. Her research on speech production and speech impairments is carried out within the disciplines of cognitive psychology, cognitive neuropsychology and phonetics. She received her PhD from the University of Cambridge, and has held Visiting Fellowships at Royal Holloway, University of London, the Clinical Neuropsychology Research Group (EKN), Clinic Bogenhausen, City Hospital GmbH Munich and the Centre for Advanced Studies, Ludwig-Maximilians-University Munich. She is co-editor of *Progressive Language Impairments: Intervention and Management* (2009).

Louise Cummings is Professor of Linguistics at Nottingham Trent University in the UK. Her research interests are largely in pragmatics and clinical linguistics. She is the author of *Pragmatics: A Multidisciplinary Perspective* (2005); *Clinical Linguistics* (2008); *Clinical Pragmatics* (Cambridge University Press, 2009); *Communication Disorders* (2014); and *Pragmatic Disorders* (2014). Louise Cummings has edited *The Routledge Pragmatics Encyclopedia* (2010). She has held Visiting Fellowships in the Department

of Philosophy at Harvard University and in the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) at Cambridge University.

Susan Ellis Weismer is Professor of Communication Sciences and Disorders and Associate Dean for Research, College of Letters & Science at the University of Wisconsin-Madison. She also holds affiliate faculty positions in the Departments of Psychology and Educational Psychology and is a principal investigator at the Waisman Center. Her research, which is funded by the National Institutes of Health, has focused on understanding the developmental course and mechanisms underlying language disorders in late talkers, children with specific language impairment, and children on the autism spectrum. She has published over 50 articles in peer-reviewed journals, 20 book chapters, and various reviews and abstracts.

Perrine Ferré is a speech-language pathologist and research professional in Montreal, Québec, Canada. Her clinical practice at the Hôpital de Réadaptation Villa Medica includes speech-pathology assessment, intervention and counselling for adults with neurological disorders and their proxies. As the coordinator of the clinical knowledge transfer branch of Yves Joanette's research team, she has contributed to various publications in the area of acquired communication disabilities, especially after right hemisphere damage. She is the co-author of journal articles in *Folia Phoniatrica et Logopaedica*, *NeuroImage* and *Rehabilitation Research and Practice*.

Sabina Flagmeier is conducting research alongside Dr Donald A. Robin in the neuroscience imaging programme at the University of Texas Health Science Center, San Antonio. Her current research focuses on understanding the neural contributions of voice motor control. Her work includes the use of non-invasive imaging modalities such as functional magnetic resonance imaging and electroencephalography as well as modelling techniques such as structural equation modelling and dynamic causal modelling.

Megan Hodge is Professor Emerita in Speech Pathology and Audiology at the University of Alberta in Canada where she heads the Children's Speech Intelligibility, Research and Education Laboratory. She has taught courses in anatomy and physiology of the speech mechanism, speech science and motor speech disorders. Her research publications address developmental aspects of normal and disordered speech production, perceptual-acoustic correlates of speech intelligibility, and linking theory with practice in evaluating and treating children with motor speech disorders. She has ongoing collaborations with community partners to translate and operationalize knowledge to improve services and outcomes for children with complex speech disorders.

Jinyi Hung is a senior researcher in the Cognition and Language Lab in the Department of Speech, Language, and Hearing Sciences at the University of Florida. Jinyi has previously studied speech-language pathology at the University of Tennessee Health Science Center. From 2009 to 2010, she

was in the Neurocognitive Linguistics Lab at the University of Tennessee in Knoxville. Her previous research examined semantic processing difficulties in people with traumatic brain injuries during picture and word categorization tasks. She is affiliated with the Speech-Language-Hearing Association of Taiwan. Her research interests include semantic memory, dementia, cognitive-linguistic processing and cognitive rehabilitation.

Yves Joanette is Professor in Cognitive Neurosciences of Language at the Faculty of Medicine of the Université de Montréal. He is currently the Scientific Director of the Institute of Aging of the Canadian Institutes of Health Research, and Executive Director of its International Collaborative Research Study on Alzheimer's diseases. From 1997 to 2009, he was the Director of the Centre de Recherche de l'Institut Universitaire de Gériatrie de Montréal (CRIUGM), and then President and CEO of the Fonds de la Recherche en Santé du Québec as well as Chair of its Board. His research interests concern the ageing process and cognitive deficits in the elderly.

Laurence B. Leonard is Rachel E. Stark Distinguished Professor in the Department of Speech, Language, and Hearing Sciences at Purdue University. He conducts research on children with language disorders. Much of his work has been devoted to discovering the clinical profiles of children with specific language impairment across different languages, and understanding the source of these children's grammatical deficits. He is the author of the book *Children with Specific Language Impairment* as well as numerous research articles and chapters in edited volumes.

Anja Lowit is a reader in Speech and Language Pathology at Strathclyde University in Scotland. She teaches clinical linguistics and phonetics. Her research focuses primarily on prosodic disorders and motor speech disorders, with particular emphasis on the development and validation of novel assessment approaches. She has published in a number of international journals, and co-edited a book on *Assessment of Motor Speech Disorders* with Ray Kent (2011).

Patricia McCabe is Senior Lecturer and Course Director in the discipline of Speech Pathology at the University of Sydney, Australia. Her research, teaching and clinical practice are focused on developing and improving treatments for children with severe speech sound disorders, particularly childhood apraxia of speech. Tricia is interested in the application of the principles of motor learning to new treatments for childhood apraxia of speech in particular, and articulation and voice disorders more generally. She is also interested in the application of evidence-based practice in speech pathology, speech pathology service delivery innovations and professional voice user training.

Brigid McNeill is a senior lecturer in Literacy Education at the University of Canterbury, New Zealand. Her research primarily focuses on understanding the nature and educational consequences of developmental speech disorders, particularly developmental verbal dyspraxia. Brigid has published several articles evaluating the effectiveness of therapy

designed to enhance speech and early literacy development for children with developmental verbal dyspraxia. She is a recipient of a New Zealand Marsden fast start research grant which is designed to support outstanding researchers early in their careers, and a Canterbury Teaching Fellowship to be undertaken at Trinity College, Dublin.

Julie Morris is a speech and language therapist and senior lecturer in Speech and Language Sciences at Newcastle University in the UK. She is Director of the Tavistock Aphasia Centre (North East). Her research interests focus on acquired aphasia, particularly spoken and written word comprehension and spoken word production. She is also interested in engagement with people with aphasia and is a trustee of the North East Trust for Aphasia. She is the author of several studies contributing to the evidence base about therapy for aphasia and is co-author of a series of theoretically motivated therapy resources (Newcastle Aphasia Therapy Resources, 2009).

Bruce E. Murdoch is the Director of the Centre for Neurogenic Communication Disorders Research at the University of Queensland. He is a recognized international authority on neurologically acquired speech and language disorders in children and adults. He has published 13 books in this field, over 395 peer-reviewed articles in high-quality, international journals, 70 invited book chapters and presented over 350 papers at major international conferences. Bruce Murdoch is a member of the editorial board of 10 international refereed journals and an editorial consultant to 25 other international journals.

J. Ron Nelson is a professor in the Department of Special Education and Communication Disorders at the University of Nebraska-Lincoln. He received the 2000 Distinguished Initial Career Research Award by the Council for Exceptional Children. He has developed a number of behaviour (e.g. Think Time Strategy) and literacy interventions (e.g. Stepping Stones to Literacy; Early Vocabulary Connections) that have been recognized by the US Department of Education. He is the co-author of several books: *Vocabulary Learning: Tools and Strategies for Teaching Students with Learning Difficulties*; *Instructional Practices for Students with Behavioral Disorders: Strategies for Reading, Writing, and Math* (2008); and *Comprehensive Behavior Management: Individualized, Classroom, and Schoolwide Approaches* (2012).

Courtenay Frazier Norbury is a reader in Developmental Neuropsychology at Royal Holloway, University of London. She worked as a speech-language therapist in East London before completing her DPhil in Experimental Psychology at Oxford University. Her research expertise centres on the nature of language impairment in developmental disorders, most notably specific language impairment and autism spectrum disorder. She co-edited *Understanding Developmental Language Disorders* with Dorothy Bishop and Bruce Tomblin, and co-authored the fourth edition of *Language Disorders from Infancy through Adolescence* with Rhea Paul. She was

an editor of the *Journal of Speech, Language, and Hearing Research*, and is currently an editor of the *Journal of Child Psychology and Psychiatry*.

Ronald S. Prins was formerly Associate Professor of Patholinguistics at the University of Amsterdam, The Netherlands. In the 1970s, he developed a system for the analysis of aphasic spontaneous speech that is still widely used in The Netherlands, both for research and for clinical purposes. Furthermore, he is an expert in the early history of aphasiology, on which he has written several Dutch and international articles. He has published articles in a number of international journals including *Aphasiology*, *Applied Psycholinguistics* and *Brain and Language*. In 1999, he received an award from the Dutch Aphasia Association for his work on aphasiology.

Linda Rammage is Director of the British Columbia Provincial Voice Care Resource Program and a faculty member in the Department of Surgery and the School of Audiology and Speech Sciences at the University of British Columbia, Vancouver, Canada. She is a co-founder of the interdisciplinary Pacific Voice Clinic. Linda Rammage has published numerous papers and chapters and lectured internationally on assessment and management of voice disorders, psychopathology of voice disorders, voice care for professional and occupational voice users, muscle misuse voice disorders, the irritable larynx and various voice research topics. She is the author of several textbooks on management of voice disorders.

Jamie Reilly is an assistant professor in the Eleanor M. Saffran Center for Cognitive Neuroscience and the Department of Communication Sciences and Disorders at Temple University in the US. His research is focused on semantic memory and language learning in dementia. He is a co-editor of *Short-Term and Working Memory Impairments in Aphasia* (2012). He also serves on the editorial board of the *Journal of the International Neuropsychological Society*. Dr Reilly is a clinically licensed speech-language pathologist whose doctoral research training was in cognitive psychology and neuroscience.

John E. Riski is the Clinical Director of the Center for Craniofacial Disorders, and Director of the Speech Pathology Laboratory, Center for Craniofacial Disorders, Children's Healthcare of Atlanta at Scottish Rite. He is a former president of the American Cleft Palate-Craniofacial Association (2000–2001) and a Fellow of the American Speech-Language-Hearing Association (1992). His research interests lie in the study of surgical outcomes for speech problems related to cleft palate and craniofacial disorders. He has published over 70 professional articles and book chapters on the subjects of cleft palate and related craniofacial disorders, neurological and structural speech deficits and dysphagia.

Donald A. Robin is Professor of Neurology, Radiology and Biomedical Engineering and Chief of the Human Performance Division at the Research Imaging Institute, University of Texas Health Science Institute,

San Antonio and Professor and Assistant Director for Research at the Honors College of University of Texas, San Antonio. His current research programme focuses on the use of non-invasive brain imaging to understand neural network connectivity in speech and voice motor control, treatment effects and prediction of outcomes. He continues his work in apraxia of speech, examining neural substrates, modelling sensory motor control and developing and testing treatments for adult and child apraxia of speech.

Susan Rvachew is an associate professor at McGill University in Canada. Her research interests include the role of speech input in typical and atypical speech development and the evaluation of interventions for the remediation of speech, language and literacy deficits in children. She has co-authored, with Françoise Brosseau-Lapré, *Developmental Phonological Disorders: Foundations of Clinical Practice* (2012). She is also the author of over 50 scientific articles and book chapters.

Kathleen Scaler Scott is Assistant Professor of Speech-Language Pathology at Misericordia University in the USA. Her research interests are largely in cluttering and atypical disfluencies. She is the co-editor of *Cluttering: A Handbook of Research, Intervention, and Education* (2011) and co-author of *Managing Cluttering: A Comprehensive Guidebook of Activities* (2013), both with Dr David Ward. Dr Scaler Scott is the author of numerous publications and has spoken nationally and internationally on the topics of fluency and social pragmatic disorders. She was the first Coordinator of the International Cluttering Association.

Katherine Short-Meyerson is an educational psychologist and a senior lecturer in the College of Education and Human Services at the University of Wisconsin-Oshkosh in the USA. Her primary research interests include pragmatics and cognitive development. Dr Short-Meyerson completed a postdoctoral research fellowship at the Kennedy Center for Research on Education and Human Development at Vanderbilt University. Her work has been published in the *Journal of Intellectual Disability Research*; *Journal of Speech, Language, and Hearing Research*; *Journal of Child Language*; *First Language*; and *The International Handbook of Applied Research in Intellectual Disabilities* (2004).

Vesna Stojanovik is a senior lecturer (associate professor) in Clinical Linguistics at the University of Reading in the UK. Her research focuses on various aspects of language and communication in atypical populations with a special emphasis on populations with genetic syndromes such as Williams and Down's syndromes. Recently, her research has examined prosody development and impairment in children with Williams and Down's syndromes. She is one of the editors of *Speech Prosody in Atypical Populations: Assessment and Remediation* (2011) and is the author and co-author of several articles in international journals. Vesna Stojanovik is also the Chair of the British Association of Clinical Linguistics.

Leanne Togher is Professor of Communication Disorders following Traumatic Brain Injury at the University of Sydney in Australia. She is internationally recognized as an expert on communication disorders following traumatic brain injury, with the publication of over 80 journal articles, numerous treatment resources including the website and treatment manual *TBI Express*, and a co-edited book *Social and Communication Disorders following Traumatic Brain Injury* (2013). Leanne is a Senior Research Fellow of the Australian National Health and Medical Research Council and a principal research fellow of the University of Sydney.

Janet Webster is a lecturer at Newcastle University in the UK. She is a researcher and clinician who works in the Tavistock Aphasia Centre North East, based at the university. She has a particular interest in sentence processing and reading difficulties in people with aphasia, with a focus on developing assessments for differential diagnosis, evaluating the efficacy of therapy and promoting the availability of theoretically driven therapy materials for clinical use. She is co-author of *A Cognitive Neuropsychological Approach to Assessment and Intervention in Aphasia: A Clinician's Guide* (2013).

Anne Whitworth is an associate professor at Curtin University, Western Australia. She is a researcher, clinician and educator in the field of speech pathology, with particular interests in acquired neurological disorders. Her particular interests are in developing and evaluating theoretically sound assessments and interventions in aphasia, facilitating and measuring the real life impact of therapy for people with communication impairments, and supporting clinicians in carrying out research in the workplace. She is the co-author of the text *A Cognitive Neuropsychological Approach to Assessment and Intervention in Aphasia: A Clinician's Guide* (2013), which is now in its second edition, and is also the author of a series of research articles.

Maximiliano A. Wilson is Professor in the Département de Réadaptation in the Université Laval in Quebec City, Canada. He has held a postdoctoral fellowship in the Centre de Recherche de l'Institut Universitaire de Gériatrie de Montréal, Université de Montréal. Maximiliano is interested in the study of lexical and semantic processing in normal adults and in neuropsychological populations, such as mono- and bilingual aphasic patients and individuals with semantic dementia. He uses behavioural and brain imaging (fMRI) techniques to study normal and impaired language processing. He is the co-author of articles in *Behavioural Neurology*, *NeuroImage* and *Acta Psychologica*.

J. Scott Yaruss is an associate professor and Director of the Master's Degree programmes in Speech-Language Pathology at the University of Pittsburgh. He is an ASHA fellow and a board-recognized specialist in fluency disorders. His research examines methods for assessing and evaluating treatment outcomes in people who stutter. He has published more than 50 papers in peer-reviewed journals and nearly 100 other articles,

papers and chapters on stuttering. He is author, co-author or editor of several booklets, books and brochures on stuttering, including the *Overall Assessment of the Speaker's Experience of Stuttering* (OASES) (Pearson Assessments, 2010) as well as *School-Age Stuttering Therapy: A Practical Guide and Minimizing Bullying for Children Who Stutter* (Stuttering Therapy Resources, 2013).

Preface

Communication disorders rarely achieve the prominence of a large range of other conditions that compromise human health and wellbeing. Yet, these disorders represent a significant burden on society in general, and compromise the quality of life and opportunities of the children and adults who experience them. In the UK, the Royal College of Speech and Language Therapists estimates that approximately 2.5 million people have a communication disorder. Some 800,000 of these people have a disorder that is so severe that it is hard for anyone outside their immediate families to understand them. In the USA, the National Institute on Deafness and Other Communication Disorders estimates that one in every six Americans has some form of communication disorder. If these figures do not make a compelling case for the assessment and treatment of communication disorders, then perhaps the reader will consider these comments made in 2006 by Lord Ramsbotham, the Chief Inspector of Prisons in the UK: 'When I went to the young offender establishment at Polmont I was walking with the governor, who told me that if, by some mischance, he had to get rid of all his staff, the last one out of the gate would be his speech and language therapist'. No statement more forcefully demonstrates how an individual's life chances are adversely affected by communication disorders, or the extent to which speech and language therapy can successfully intervene in these disorders.

Of course, speech and language therapy (speech-language pathology) is only possible to the extent that communication disorders are the focus of intensive academic study and clinical research. The chapters in this handbook are intended to bring to the reader the very latest knowledge of those disorders, from the epidemiology, aetiology and clinical features of communication disorders through to their assessment, treatment and theoretical significance. Each contributor has been chosen for his or her expertise in a particular communication disorder or group of disorders. This expertise is founded upon a substantial record of research in each

case alongside direct clinical experience of the disorders in question. The result is a collection of chapters that represents the state of the art in communication disorders, both in terms of how these disorders are conceived and how they are clinically managed.

The expansion in clinical communication sciences has been such that each aspect of a communication disorder is now the focus of extensive research. The researcher who is concerned with investigating the epidemiology and aetiology of specific language impairment in children will certainly be aware of how this disorder is assessed and treated without directly contributing to the development of techniques in these areas. It is not possible to do justice to these different dimensions of communication disorders within single chapters. It is in an effort to capture the depth of research in each of these areas that the volume has been divided into five parts. Parts I, II and III examine the epidemiology, aetiology and clinical features of the full range of developmental and acquired communication disorders. These disorders include impairments in speech and language (Parts I and II) as well as voice, fluency and hearing (Part III). Part IV examines the clinical management of communication disorders. The chapters in this part reflect current thinking about how communication disorders can best be assessed and treated. In doing so, they address areas where the evidence base for clinical practice is poorly developed as well as areas where there is a much higher level of evidence in support of specific techniques and practices. Finally, a number of theoretical developments have enhanced our understanding of communication disorders. Similarly, communication disorders can make a significant contribution to theoretical debates in speech-language pathology and beyond. Part V in this volume contains chapters which explore theoretical developments at the levels of phonetics and phonology (speech production models), syntax (cognitive modularity), semantics (semantic models) and pragmatics (theory of mind).

Acknowledgements

There are a number of people whose contribution to this volume I would like to acknowledge. I want to thank Dr Andrew Winnard of Cambridge University Press. This handbook was proposed by Andrew. I am grateful to him for considering me as the editor of this work and for his ongoing support during the completion of this project. This handbook has been a huge undertaking and I received the assistance of others during its preparation. Rachel Eden, programme administrator at Nottingham Trent University, collated the final manuscript and bibliography. My sister, Judith Heaney, assisted me in preparing the index. Their combined efforts made my task a more manageable one and I thank them for their excellent contributions.

I owe an enormous debt of gratitude to the authors of the chapters that appear in this volume. The professionalism and commitment they have shown has been truly gratifying. I have gained intellectually from the experience of working with them. This volume simply would not have been possible without their expertise and dedication.