The Cambridge Handbook of Bilingual Phonetics and Phonology

Bilingualism, phonetics, and phonology are some of the largest areas of inquiry in linguistics. This handbook sits at the intersection of these fields, providing a comprehensive overview of the most recent, cutting-edge work on the sound systems of adult and child bilinguals. Bringing together contributions from an international team of world-leading experts, it covers all aspects of the speech perception, production, and processing of bilingual individuals, as well as surveying cross-linguistic influences on the phonetics and phonology of bilingualism. The thirty-five chapters are divided into thematic areas covering the theoretical foundations and methodological approaches employed to investigate bilingual speech, overviews of major findings and developments in child and adult bilingual phonology and phonetics, descriptions of the major areas of research within the speech perception, production, and processing of the bilingual individual, and examinations of various predictors of cross-linguistic influence and variables affecting the outcomes of bilingual speech.

MARK AMENGUAL is Professor and Chair of the Department of Languages and Applied Linguistics and Director of the Bilingualism Research Laboratory at the University of California, Santa Cruz.

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, Second Edition, edited by Edith L. Bavin and Letitia Naigles
The Cambridge Handbook of Endangered Languages, edited by Peter K. Austin and Julia Sallabank
The Cambridge Handbook of Sociolinguistics, edited by Rajend Mesthrie
Th 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
The Cambridge Handbook of Stylistics, edited by Peter Stockwell and Sara Whiteley
The Cambridge Handbook of Linguistic Anthropology, edited by N.J. Enfield, Paul Kockelman and Jack Sidnell
The Cambridge Handbook of English Corpus Linguistics, edited by Douglas Biber and Randi Reppen
The Cambridge Handbook of Bilingual Processing, edited by John W. Schwieter
The Cambridge Handbook of Learner Corpus Research, edited by Sylviane Granger, Gaëtanelle Gilquin and Fanny Meunier
The Cambridge Handbook of Linguistic Multicompetence, edited by Li Wei and Vivian Cook
The Cambridge Handbook of English Historical Linguistics, edited by Merja Kytö and Päivi Pahta
The Cambridge Handbook of Formal Semantics, edited by Maria Aloni and Paul Dekker
The Cambridge Handbook of Morphology, edited by Andrew Hippisley and Greg Stump
The Cambridge Handbook of Historical Syntax, edited by Adam Ledgeway and Ian Roberts
The Cambridge Handbook of Linguistic Typology, edited by Alexandra Y. Aikhenvald and R. M. W. Dixon
The Cambridge Handbook of Areal Linguistics, edited by Raymond Hickey
The Cambridge Handbook of Cognitive Linguistics, edited by Barbara Dancygier
The Cambridge Handbook of Japanese Linguistics, edited by Yoko Hasegawa
The Cambridge Handbook of Spanish Linguistics, edited by Kimberly L. Geeslin
The Cambridge Handbook of Bilingualism, edited by Annick De Houwer and Lourdes Ortega

The Cambridge Handbook of Systemic Functional Linguistics, edited by Geoff Thompson, Wendy L. Bowcher, Lise Fontaine and David Schönthal
The Cambridge Handbook of African Linguistics, edited by H. Ekkehard Wolff
The Cambridge Handbook of Language Learning, edited by John W. Schwieter and Alessandro Benati
The Cambridge Handbook of World Englishes, edited by Daniel Schreier, Marianne Hundt and Edgar W. Schneider
The Cambridge Handbook of Intercultural Communication, edited by Guido Rings and Sebastian Rasinger
The Cambridge Handbook of Germanic Linguistics, edited by Michael T. Putnam and B. Richard Page
The Cambridge Handbook of Discourse Studies, edited by Anna De Fina and Alexandra Georgakopoulou
The Cambridge Handbook of Language Standardization, edited by Wendy Ayres-Bennett and John Bellamy
The Cambridge Handbook of Korean Linguistics, edited by Sungdai Cho and John Whitman
The Cambridge Handbook of Phonetics, edited by Rachael-Anne Knight and Jane Setter
The Cambridge Handbook of Corrective Feedback in Second Language Learning and Teaching, edited by Hossein Nassaji and Eva Kartchava
The Cambridge Handbook of Experimental Syntax, edited by Grant Goodall
The Cambridge Handbook of Heritage Languages and Linguistics, edited by Silvina Montrul and Maria Polinsky
The Cambridge Handbook of Arabic Linguistics, edited by Karin Ryding and David Wilmsen
The Cambridge Handbook of the Philosophy of Language, edited by Piotr Stalmaszczyk
The Cambridge Handbook of Sociopragmatics, edited by Michael Haugh, Dániel Z. Kádár and Marina Terkourafi
The Cambridge Handbook of Task-Based Language Teaching, edited by Mohammed Ahmadian and Michael Long
The Cambridge Handbook of Language Contact: Population Movement and Language Change, Volume 1, edited by Salikoko Mufwene and Anna Maria Escobar
The Cambridge Handbook of Language Contact: Multilingualism in Population Structure, Volume 2, edited by Salikoko Mufwene and Anna Maria Escobar
The Cambridge Handbook of Romance Linguistics, edited by Adam Ledgeway and Martin Maiden
The Cambridge Handbook of Translation, edited by Kirsten Malmkjær
The Cambridge Handbook of Chinese Linguistics, edited by Chu-Ren Huang, Yen-Hwei Lin, I- Hsuan Chen and Yu-Yin Hsu
The Cambridge Handbook of Intercultural Pragmatics, edited by Istvan Kecskes
The Cambridge Handbook of Role and Reference Grammar, edited by Delia Bentley, Ricardo Mairal-Usón, Wataru Nakamura and Robert D. Van Valin Jr.
The Cambridge Handbook of Historical Orthography, edited by Marco Condorelli and Hanna Rutkowska
The Cambridge Handbook of Third Language Acquisition, edited by Jennifer Cabrelli, Adel Chaouch-Orozco, Jorge González Alonso, Eloi Puig-Mayenco, Sergio Miguel Pereira Soares and Jason Rothman
The Cambridge Handbook of Language in Context, edited by Jesús Romero-Trillo
The Cambridge Handbook of Slavic Languages, edited by Danko Šipka and Wayles Browne
The Cambridge Handbook of Gesture Studies, edited by Alan Cienki
The Cambridge Handbook of the Dictionary, edited by Edward Finegan and Michael Adams

The Cambridge Handbook of Methods in Conversation Analysis, edited by Jeffrey Robinson, Rebecca Clift, Kobin H. Kendrick and Chase Wesley Raymond
The Cambridge Handbook of Technology in Language Teaching and Learning, edited by Glenn Stockwell and Yijen Wang

The Cambridge Handbook of Bilingual Phonetics and Phonology

Edited by
Mark Amengual
University of California, Santa Cruz

CAMBRIDGE UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,
New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781009098601

DOI: 10.1017/9781009105767

When citing this work, please include a reference to the DOI 10.1017/9781009105767

First published 2024

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

Library of Congress Cataloging-in-Publication Data
Names: Amengual, Mark, editor.
Title: The Cambridge handbook of bilingual phonetics and phonology / edited by Mark Amengual, University of California.
Other titles: Handbook of bilingual phonetics and phonology
Description: Cambridge, United Kingdom ; New York : Cambridge University Press, 2024. | Series: CHL Cambridge handbooks in language and linguistics | Includes bibliographical references and index.
Identifiers: LCCN 2024011632 | ISBN 9781009098601 (hbk) | ISBN 9781009101349 (pbk) | ISBN 9781009105767 (ebk)
Subjects: LCSH: Bilingualism. | Phonetics. | Grammar, Comparative and general – Phonology.
Classification: LCC P115 .C37 2024 | DDC 404.2–dc23/eng/20240710
LC record available at https://lccn.loc.gov/2024011632

ISBN 978-1-009-09860-1 Hardback

Cambridge University Press & Assessment
978-1-009-09860-1 — The Cambridge Handbook of Bilingual Phonetics and Phonology
Mark Amengual
Frontmatter
More Information

To mum *i papà*, for the gift of multilingualism.

Contents

Figures

Tables

Contributors

Frans Adriaans is Assistant Professor of Linguistics at the Institute for Language Sciences at Utrecht University, in the Netherlands. His research focuses on computational models of early language acquisition. Previously, he was an Assistant Professor at NYU Linguistics and a postdoctoral researcher at the UPenn Infant Language Center.

Mark Amengual is Professor and Chair of the Department of Languages and Applied Linguistics and Director of the Bilingualism Research Lab at the University of California, Santa Cruz. His research interests focus primarily on experimental phonetics, bilingualism, and psycholinguistics.

Mark Antoniou is Associate Professor at the MARCS Institute for Brain, Behaviour and Development, Western Sydney University. His published works on bilingual speech perception were the first attempts to extend the Perceptual Assimilation Model to account for language mode effects on speech perception in fluent bilingual listeners.

Elena Babatsouli is Associate Professor, Blanco/BORSF Endowed Professor in Communicative Disorders, University of Louisiana at Lafayette and the editor of the *Journal of Monolingual and Bilingual Speech* (Equinox). Latest projects include *Multilingual Acquisition and Learning: An Ecosystemic View of Diversity* (John Benjamins, 2024).

Molly Babel is Associate Professor of Linguistics at the University of British Columbia, where she directs the Speech in Context lab. Her research focuses on the perception, processing, and production of phonetic variation, using theories and methods from phonetics, psycholinguistics, and sociolinguistics.

Brandon Baird is Associate Professor of Luso-Hispanic Studies and Linguistics and Director of the Linguistics Program at Middlebury College (Vermont, USA). His research focuses on the phonetics and phonology of

Mayan languages, Mayan-Spanish bilingualism, and language revitalization in Guatemala.

Bene Bassetti is an applied linguist at the University of Modena and Reggio Emilia, Italy, and the University of Birmingham, UK. She is researching bilingualism and second language learning, in particular the learning and use of L2 writing systems (including effects of literacy on L2 phonology), and language and thought in bilinguals and language learners.

Catherine T. Best is Professor and Chair in Psycholinguistics Research at the MARCS Institute for Brain, Behaviour and Development, Western Sydney University, and Editor-in-Chief of the journal *Phonetica*. She is the originator of the Perceptual Assimilation Model (PAM) and her work focuses on the effects of language experience on speech perception and production in adults and infants.

David Birdsong is Professor of French Linguistics in the Department of French and Italian at the University of Texas at Austin. He has held the positions of Visiting Professor of Linguistics at Georgetown University, Visiting Professor at the Paul Valéry University of Montpellier, Visiting Research Fellow at the Max Planck Institute for Psycholinguistics in Nijmegen (NL), and International Chair, LABEX-Empirical Foundations of Linguistics in Paris. His research relates to second language acquisition, bilingualism, psycholinguistics, and French linguistics. His interests include the neurocognitive, biological, and experiential factors that influence variable outcomes in a second language; the relationship between age and second language acquisition; and the conceptualization, measurement, and predictive power of language dominance in bilingualism.

Laura Bosch is Associate Professor in Psychology at the University of Barcelona (UB) and a member of the Institute of Neurosciences (UB-Neuro). She is the coordinator of the Attention, Perception and Acquisition of Language (APAL) research group, affiliated to UB-Neuro. Her research interests are focused on audiovisual speech perception, phonological acquisition, and word learning, in both monolingual and bilingual populations, including groups at risk for language and cognitive deficits.

Ann R. Bradlow is the Abraham Harris Professor of Linguistics at Northwestern University. She received her PhD in linguistics from Cornell University in 1993 and completed postdoctoral fellowships in psychology at Indiana University (1993–1996) and hearing science at Northwestern University (1996–1998). Her work has been supported by grants from the National Institutes of Health (NIH). Recent publications have appeared in the *Journal of the Acoustical Society of America*, the *Journal of the Association for Laboratory Phonology*, the *International Journal of Audiology*, *Applied Psycholinguistics*, the *Journal of Phonetics, Language & Speech*, and *Bilingualism: Language and Cognition*.

Ellen Broselow is Professor of Linguistics at Stony Brook University, State University of New York. She has published widely on both first and second language phonology and in 2013 was named a Fellow of the Linguistic Society of America.

Esther L. Brown is Associate Professor of Hispanic Linguistics in the Department of Spanish and Portuguese at the University of Colorado Boulder. She examines linguistic variation and change from a usage-based perspective.

Joseph V. Casillas is Associate Professor of Spanish Linguistics in the Department of Spanish and Portuguese at Rutgers University, New Brunswick. His research interests are in phonetics, laboratory phonology, and second language acquisition. Additionally, he enjoys coding, statistical analysis, data visualization, and is a proponent of open science practices and reproducible research.

Charles B. Chang is Associate Professor of Linguistics at Boston University (BU), where he directs the Phonetics, Acquisition & Multilingualism Lab (PAMLab). Funded in part by BU's Center for the Humanities and Center for Innovation in Social Science as well as the National Science Foundation, his research examines phonetic and phonological aspects of language learning, bilingualism and multilingualism, and language attrition.

Deborah Chen Pichler is a Hearing Professor of Linguistics at Gallaudet University, specializing in L1, L2, and bilingual acquisition of sign languages by deaf and hearing learners.

Molly Cole completed her PhD in Hispanic linguistics at Indiana University, Bloomington. Her main areas of focus are sociophonetics, language contact, and Indigenous languages. Her work has been published in *The Routledge Handbook of Variationist Approaches to Spanish* (Routledge, 2022) and she has collaborated on forthcoming chapters in the *Concise Encyclopedia of Spanish Dialects* and *The Handbook of Usage-Based Linguistics*.

Isabelle Darcy is Professor of Second Language Psycholinguistics at Indiana University (USA). She obtained a PhD in linguistics and cognitive science from the EHESS (School for Advanced Studies in Social Sciences) in Paris (France) and the Gutenberg University in Mainz (Germany). Her research includes pronunciation instruction, native and nonnative phonological acquisition, speech perception, and word recognition.

Esther de Leeuw is Associate Professor of Language Acquisition and Multilingualism at the University of Lausanne. Her research concerns the production, processing, representation, acquisition, and development of speech sounds in the context of bilingualism, multilingualism, and language contact; the cognitive organization of dual phonetic and phonological systems; and the phonetic and phonological interactions that occur during bilingualism, L1 attrition, and L2 acquisition.

Manuel Díaz-Campos is a Full Professor of Hispanic Sociolinguistics at Indiana University, Bloomington. His current research focuses on sociolinguistic variation and usage-based theoretical approaches. His research appears in journals such as *Language in Society*, *Studies in Second Language Acquisition*, *Spanish in Context*, and *Hispania*. He is the editor of *The Handbook of Hispanic Sociolinguistics* (Wiley, 2011) and *The Routledge Handbook of Variationist Approaches to Spanish* (Routledge, 2022), and he authored *Introducción a la Sociolingüística Hispánica* (Wiley, 2014) and coauthored *Introducción y Aplicaciones Contextualizadas a la Lingüística Hispánica* (Wiley, 2017).

Olga Dmitrieva is an Associate Professor of Russian and linguistics at Purdue University. She received her PhD in linguistics from Stanford University. She specializes in acoustic phonetics and speech perception, especially in their application to the study of bilingual and second language speech.

Paola Escudero is Professor in Linguistics at the MARCS Institute for Brain, Behaviour and Development at Western Sydney University. She is an expert in language learning and created the L2LP model to explain speech perception, production, and comprehension in monolingual and multilingual children and adults.

James E. Flege carried out NIH-supported research at the University of Alabama at Birmingham for twenty-five years before retiring in 2006 and emigrating to Italy. He continues to collaborate on speech production and perception research with colleagues in the USA and Europe.

María Fernanda Gavino completed her PhD in linguistics at Northwestern University. Her research explores bilingual language processing through the lenses of psycholinguistics, phonetics, and sociolinguistics. Her work focuses on how bilinguals' language mechanisms process language when they are perceiving and producing sounds.

Matthew Goldrick is Professor of Linguistics and (by courtesy) Psychology at Northwestern University. His research draws on behavioral experiments, acoustic analysis, and computational modeling to develop theories of the cognitive and neural mechanisms underlying spoken language in mono- and multilingual speakers.

Shengyun Gu is a PhD candidate in the Department of Linguistics at the University of Connecticut. Her research interests include phonology, its interfaces with morphology/syntax, and phonological development in signed and spoken languages.

Ulrike Gut is Chair of English Linguistics at the University of Münster, Germany. She obtained her PhD from the University of Mannheim and her habilitation from the University of Freiburg. Her areas of research include second and third language acquisition and the phonetics and phonology of varieties of English and corpus linguistics.

Michelle Kamigaki-Baron is a PhD candidate in the Department of Linguistics at the University of British Columbia. She is interested in questions dealing with speech production and perception, phonetics, bilingualism, and language continua, often within the context of Indigenous and contact languages.

Margaret Kehoe is a senior lecturer at the University of Geneva. She teaches classes on speech sound disorders and bilingualism. She has conducted research on phonetic and phonological acquisition in English-, German-, Spanish-, and French-speaking children and bilingual children.

Ji Young Kim is an Associate Professor in the Department of Spanish and Portuguese at the University of California, Los Angeles. Her research focuses on the production and perception of heritage and second language speech sounds.

L. Viola Kozak received her PhD in linguistics from Gallaudet University in 2018, focusing on phonology and bimodal bilingual language acquisition. She currently works as a researcher for an educational company.

John M. Levis is Professor of Applied Linguistics and Technology at Iowa State University. He is founding editor of the *Journal of Second Language Pronunciation* and the founder of the Pronunciation in Second Language Learning and Teaching Conference.

Diane Lillo-Martin is Board of Trustees Distinguished Professor and Head of Linguistics at the University of Connecticut and a senior research scientist at Haskins Laboratories. Her research concerns monolingual and bilingual acquisition and use of American Sign Language.

Fernando Llanos is an Assistant Professor in the Department of Linguistics at the University of Texas at Austin. His main research area is neurolinguistics. He investigates the neural processing of speech in monolingual and multilingual populations.

Roy C. Major is Professor Emeritus at Arizona State University. His research focuses on second language phonological acquisition and variation, including relationships between universals, transfer, similarity, and markedness. He has also researched bilingual acquisition and Brazilian Portuguese phonology.

Robert Mayr is a reader in linguistics at Cardiff Metropolitan University, where he leads the Speech, Hearing and Communication Research Group. His research aims to gain a better understanding of the cognitive, social, and interactional factors that affect speech sound development in bilinguals and multilinguals across their lifespan.

Simona Montanari is a Full Professor in the Department of Child and Family Studies at California State University, Los Angeles, where she teaches courses in first and second language acquisition. Her research focuses on the emergence of different language components (speech sounds, vocabulary,

verbal morphology, narrative skills, pragmatics) in Spanish-speaking children growing up multilingually in the United States.

Jonathan Morris is a Senior Lecturer at the School of Welsh, Cardiff University. His research aims to investigate sociolinguistic aspects of bilingualism and second language acquisition and, particularly, the extent to which social and interactional factors influence sound variation and cross-linguistic interactions in the bilingual repertoire.

Stanislav Mulík is a postdoctoral scholar at the Department of Spanish, Italian, and Portuguese at the Pennsylvania State University. His research interests comprise bilingualism and multilingualism in speakers of Indo-European and Mexican Indigenous languages, especially at the level of phonetics, phonology, and lexical learning and processing.

Charlie Nagle is Associate Professor of Spanish and Applied Linguistics at the University of Texas at Austin. He studies second language speech perception and production and the linguistic and learner variables that regulate development. His work has been supported by the National Science Foundation and the Fulbright Commission.

Daniel J. Olson is a Professor at Purdue University in the School of Languages and Cultures and Director of the Purdue Bilingualism Lab. His research focuses on the phonetics and psycholinguistics of bilingual populations, with a particular interest in both the outcomes of code-switching and the underlying mechanisms that govern language separation and selection.

Marta Ortega-Llebaria is a phonetician working in prosody. Her background in Hispanic linguistics, acoustics, laboratory phonology, and sociolinguistics informs her experimental work. She is currently an Associate Professor in the Linguistics Department, University of Pittsburgh, with a secondary appointment at Hispanic Languages & Literatures, and a Center Associate at the Learning Research and Development Center (LRDC) at the University of Pittsburgh.

Matthew Pollock is Assistant Professor of Linguistics and Spanish at Louisiana State University Shreveport. His research deals with sociolinguistics, phonetics, phonology, and the construction of speaker identity, with a recent focus on regional variation in Peninsular Spanish political speech. He has published articles in *Language and Communication*, *Hispania*, *The Handbook of Usage-Based Linguistics*, and *Languages*, and has chapters in volumes including *The Routledge Handbook of Sociolinguistics Around the World* (Routledge, 2023) and *Variation and Evolution: Aspects of Language Contact and Contrast Across the Spanish-Speaking World* (John Benjamins, 2020).

Pilar Prieto is an ICREA Research Professor in the Department of Translation and Language Sciences at Pompeu Fabra University, in Barcelona, Spain. Her research focuses on the communicative role of prosody and gesture in language, as well as their significance in language development and second

language learning. She serves as associate editor of the journals *Language and Speech* and *Frontiers in Communication*.

Mariia Pronina is a Doctor of Language Sciences from Pompeu Fabra University. Her research focuses on understanding the role that prosody and gesture play in pragmatic development and the interplay between pragmatics and other linguistic and sociocognitive abilities. Her research areas include first language acquisition, multimodal gestural and prosodic development, and bilingual phonetics and phonology.

John R. Rothgerber is a lecturer of English in the School of Policy Studies at Kwansei Gakuin University (Japan). He received a PhD in second language studies from Indiana University (USA). His research interests include phonological acquisition, speech perception, and pronunciation instruction.

Valerie L. Shafer is a Professor in the PhD Program in Speech-Language-Hearing Sciences, Linguistics and the MS Program in Cognitive Neuroscience at the Graduate Center, City University of New York. Her research focuses on first and second speech and language processing, and developmental language disorders, with a focus on their neurobiological basis.

Rachel Soo completed her PhD in linguistics at the University of British Columbia. Her research interests are in phonetics, speech perception, and psycholinguistics. Her work examines perception, recognition, and encoding of phonetic variation and its intersections with social meaning in multilingual communities.

Jeffrey Steele is an Associate Professor in the Department of Language Studies at the University of Toronto Mississauga. His research focuses on second/third language acquisition, particularly of phonetics and phonology, second language assessment, evidence-based pronunciation teaching, and bilingual reading development in early French immersion learners.

Megha Sundara has a PhD from McGill University and is a Professor at the UCLA Department of Linguistics. Her research is focused on language acquisition in preverbal, monolingual, and bilingual infants. Currently, she is investigating the acquisition of phonotactics, the morphology–phonology interface, and pronunciation variants in speech directed to infants.

Michael D. Tyler is an independent researcher with interests in speech perception and second language speech learning. He is the co-originator of the Perceptual Assimilation Model of Second-Language Speech Learning (PAM-L2).

Magdalena Wrembel is a Professor at the Faculty of English, Adam Mickiewicz University in Poznań and the head of Bilingualism Matters@Poznań. Her main research areas involve phonetics and phonology, second and third language acquisition, multilingualism, language awareness, as well as cross-linguistic influence in L3 phonological acquisition. She has published extensively in international journals and edited

collections. She is currently Vice-President of Societas Linguistica Europaea and the principal investigator of two international projects (OPUS and GRIEG).

Kakeru Yazawa is an Assistant Professor at the Institutes of Humanities and Social Sciences, University of Tsukuba, Japan. His recent research focuses on computational-phonological modeling of speech perception and the development of second language speech production corpora.

Germán Zárate-Sández is Associate Professor of Linguistics and Director of Basic and Intermediate Spanish in the Department of Spanish at Western Michigan University. His research focuses primarily on the effectiveness of teaching methodologies, issues of social justice in language learning, and instructed second language pronunciation learning.

Benjamin Zinszer is currently a Visiting Assistant Professor in the Department of Psychology at Swarthmore College in Pennsylvania, USA. He studies the lexical and conceptual knowledge of language learners, as well as brain imaging and computational methods.

Acknowledgments

This three-year-long project has required the support of many people. First and foremost, I wish to express my gratitude and appreciation to each and every author who has contributed to this handbook. This is even more meaningful given that this large-scale team effort took place through a global pandemic as well as during multiple political, social, and financial challenges due to war, social unrest, and steep inflation. I realize that we have all felt (and are still feeling) a great deal of anxiety and uncertainty navigating these unprecedented times, which have brought a number of personal challenges. For this, I am even more grateful to this team of world-leading experts and colleagues for their sustained efforts to contribute to this volume.

A project like this one depends heavily on input from experts in the field. I am thankful for the comments and suggestions given by the anonymous reviewers of the original proposal. I am especially indebted to the eighty-seven (!) colleagues who agreed to review individual chapters, providing constructive and detailed feedback for the authors. Their generosity and attention to detail are not only very much valued and appreciated but also crucial in safeguarding the quality and high standard of academic integrity in the research published in this volume. These reviewers are listed in recognition of the important service they have provided: Abby Walker, Ala Symonchyk, Amanda Boomershine, Amanda Dalola, Anabela Rato, Antje Stoehr, Avizia Y. Long, Brandon Baird, Brandon Rogers, Brendan Regan, Cristopher T. Fennell, Carolina González, Celia Gorba, Charles B. Chang, Charlie Nagle, Christine Shea, Christoph Gabriel, Christos Pliatsikas, Ciara Celata, D. Eric Holt, Daniel R. Isbell, Daniel J. Olson, David Ingram, Denise Osborne, Erin O'Rourke, Earl Brown, Elena Babatsouli, Elizabeth Kissling, Esther L. Brown, Gemma Repiso-Puigdelliura, Gerardo Ortega, Gerry Docherty, Gillian Lord, Gisela Tomé Lourido, Henna Tamminen, Haydée Carrasco-Ortíz, Jennifer Mah, Jacqueline Serigos, Jeffrey Steele, Jesse Stewart, John Archibald, Jorge Valdés Kroff, Joseph V. Casillas, Joshua Gordon, Laura Colantoni, Lauren Schmidt, Laurence Bruggeman, Leah C. Geer, Linda Polka, Lisa Davidson,