

Sociophonetics

Sociophonetics focuses on the relationship between phonetic or phonological form on the one hand, and social and regional factors on the other, working across fields as diverse as sociolinguistics, phonetics, speech sciences and psycholinguistics. Covering methodological, theoretical and computational approaches, this engaging introduction to sociophonetics brings new insights to age-old questions about language variation and change, and to the broader nature of language. It includes examples of important work on speech perception, focusing on vowels and sibilants throughout to provide detailed exemplification. The accompanying website provides a range of online resources, including audio files, data processing scripts and links. Written in an accessible style, this book will be welcomed by students and researchers in sociolinguistics, phonetics, speech sciences and psycholinguistics.

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Preface

The term SOCIOPHONETICS has grown in use over the past couple of decades, with researchers from a number of scholarly traditions now “doing sociophonetics.” University courses on the subject are on the rise and major international conferences commonly include work whose titles prominently include “sociophonetics.” And, quite obviously, this book is centrally focused on the subject. So what is “sociophonetics”? As this book will explore, sociophonetics is an empirical approach to the study of language at the intersection of sociolinguistics, phonetics and psycholinguistics. It has its roots in the earliest work on acoustic phonetics (Joos 1948, Peterson and Barney 1952) and the early groundbreaking sociolinguistic work of William Labov and colleagues (e.g. Labov 1963, 1966, Weinreich, Labov and Herzog 1968, Labov, Yaeger and Steiner 1972), often referred to as variationist sociolinguistics. But it simultaneously deeply connects with current interests in laboratory phonetics and phonology and in psycholinguistic theorizing and experimentation on the cognitive processing of language. Sociophonetics began to cohere as a research tradition over the beginning decades of the twenty-first century. It is now, without doubt, a growth sector in linguistic research and poised to offer major contributions to linguistic theorizing, our understanding of age-old questions about the nature of sound change in human language, and the development of technologies at the human–computer interface.

SOCIOPHONETIC FOUNDATIONS

While sociophonetics is a research area that reaches across linguistic disciplines concerned with speech, it is centrally, as we just noted, born from interests in the variationist tradition of sociolinguistics. And this book, as a volume in the Key Topics in Sociolinguistics series from Cambridge University Press, seeks to situate modern sociophonetic work – for a full range of interested audiences – in its foundations in

sociolinguistics. In recognizing the contribution that sociolinguistic theory and practice has made to the evolution of sociophonetics, several chapters in this book begin with sociolinguistically oriented overviews to the topics and then progress to how modern sociophonetic studies have expanded upon and enlarged our perspective in these realms. In doing this, we also draw heavily on areas of phonetics, speech science and psycholinguistics and in places even computational linguistics, but, especially in some chapters, readers will find these foci as somewhat secondary compared to a heavy emphasis on sociolinguistic backgrounding. We approach the construction of the text this way for two reasons: First, we feel a deep understanding of both the methods and theory in sociolinguistics to be fundamental to the development of sociophonetics as an independent field. While sociophonetic methods have become recognized as useful for work in diverse areas, the crux of why research that integrates the study of the social with phonetics and the speech sciences has become increasingly important still echoes the pivotal work by Weinreich, Labov and Herzog (1968). We share their view that

a position of sociological agnosticism in structural linguistics has become obsolete. Sociological factors, solidly formulated, have now been adduced to explain distributions and shifts in linguistic phenomena, which, from a structural point of view, would have been seen as random. It would follow that the enlightened linguist examining language change will find it difficult to avoid enlarging the area of [their] competence, or enlisting colleagues to bring in new sources of reliable data. (p. 177)

Second, and relatedly, while sociophonetics necessarily involves and has often been defined by its focus on its methodologies (something we cover in Chapters 2, 3 and 8), we feel that the import of sociolinguistic knowledge and theory to the development and growth of the field is often given short shrift. As a discipline, sociophonetics has evolved in many ways from questions that sociolinguistics posed but couldn't adequately answer – the stages of sound change, what acoustic distributions of variables tell us about directions of change and the sensitivity of listeners to phonetic variation. Likewise, work in speech sciences, phonetics/phonology and computational linguistics has been enlarged as of late to incorporate the notion that speaker-based information, not just language-based information, is part of what language users acquire, store as part of our representational system and make use of in the processing of incoming speech.

Given sociophonetics' overlap and contribution to so many allied fields such as phonetics, phonology, speech science, psycholinguistics,

cognitive science and natural language processing, we imagine a great diversity of readers coming to this text, including advanced undergraduate and graduate students, with complementary experience that can be brought to bear on timeless questions about the nature of language and language change, questions with which many branches of linguistics, and now sociophonetics, have been centrally concerned.

FORMAT OF THE BOOK

We hope this book provides a strong foundation in the methods and theoretical pursuits of sociophonetics and, in particular, we hope the book suggests growth areas for the field. A single book, however, cannot cover all of the topics of relevance to sociophonetics and we have had to make some decisions about what to include and exclude. In writing this book, we assume that readers have some prior exposure to phonetics and phonology, or at least we do not expect that this book can stand in the place of a full-fledged introduction to phonetics text (such as Ladefoged 2003, 2005, Johnson 2012, Roach 2009, or Ladefoged and Johnson 2014) for offering a complete background in phonetics. We cover the research workflow for some kinds of sociophonetic research, using vowels and sibilant consonants as our main examples, but recognize that this only scratches the surface of the full range of features, segmental and non-segmental, that have received or merit new sociophonetic interest. Following the larger proportion of prior work on sociophonetic patterns in speech production and acoustic phonetics in contrast to other areas of phonetics (auditory and articulatory), we also pay somewhat more attention to the study of these areas. But, following sociolinguist Dennis Preston who suggests that any research project looking only at production is just half a research project, and phonetician Meghan Sumner and psycholinguist Arthur Samuel (2009) who argue that a “dialect” is not just what comes out of speakers’ mouths but also includes how speakers perceive and represent the speech they encounter, we also include work on speech perception as an integral part of the sociophonetic enterprise, with a section on speech perception and processing closing most chapters. Finally, the majority of examples we draw on in this book, both specific studies and sociophonetic phenomena, focus on English. This arises from our own background, as researchers who work primarily on American English, as well as a larger overemphasis in many areas of the language sciences on English. It is certainly the case that non-English languages need to be examined to provide a fuller picture of

the breadth of sociophonetic phenomena, and we have tried to include reference to studies on languages other than English when possible.

In laying out the chapters of this text, we attempted to bring together the major threads of sociophonetic research and to synthesize its contributions to the expansion of our understanding of the nature of language and speech, and the processes and principles of variation and change. Taking the perspective that sociolinguistic research and theory provided the foundation for doing and understanding research in sociophonetics, we consider how the development of sociolinguistic and sociophonetic research informs four broad arenas, each of which connect (or so we believe) to major threads in the larger world of language study: regional dialectology; social identity and group affiliation; personal identity and linguistic style; and sound change. Each of these areas is the focus of a chapter (Chapters 4–7) and these substantive chapters are book-ended by chapters that center on methodological issues. In Chapters 2 and 3, we review typical sociophonetic methods for data collection and analysis focusing on two segmental speech features, vowels and sibilant consonants, which we focus on to make specific points and to illustrate more general principles. Then, in Chapter 8 we consider the place of computation in sociophonetics, reviewing currently popular techniques, such as forced alignment and automatic extraction methods, and outlining a vision for the future of the field.

In general, our treatment of these topics attempts to be comprehensive but nonetheless is somewhat selective. Given the size constraints of this volume and factoring the balance between breadth and depth, we have made some decisions, for instance limiting our focus on hands-on methodological detail in favor of emphasizing broader points about the discipline and its relationship to other disciplines and research pursuits. While we discuss analysis techniques in some depth, we do not tackle the topic of statistical and quantitative analysis. Statistical techniques are indeed central to modern sociophonetic work, but a thorough treatment is beyond the scope of this single volume. Several good treatments of statistical techniques for linguistic analysis are available, however, and we refer interested readers to them: Baayen's (2008) *Analyzing Linguistic Data*, Gries' (2013) *Statistics for Linguistics with R*, Winter's (2019) *Statistics for Linguists* and Sonderegger, Wagner and Torreira's (2018) *Quantitative Methods for Linguistic Data* are all textbook length treatments with different strengths. Of course, online statistical tutorials and articles on quantitative analysis in the research literature also abound. While we cover some topics in data collection, we also forego detailed forays

into the elicitation and recording of speech and into experimental design, and we do not cover topics like digitizing analog recordings. These too are topics covered well by existing volumes, such as Schilling's (2013) *Sociolinguistic Fieldwork*, Podesva and Sharma's (2013) *Research Methods in Linguistics* and Mallinson, Childs, and Van Herk's (2018) *Data Collection in Sociolinguistics: Methods and Applications*. We also point readers interested in experimental design to Drager's (2018) *Experimental Research Methods in Sociolinguistics*.

Each chapter ends with a short list of recommended sources for further reading, which link to and expand upon the topics covered in the chapter. Finally, throughout the book we expand upon each chapter's topics through the inclusion of "breakout boxes" which supplement or support the main text in various ways. For instance, some boxes provide more detailed information about analytic considerations and processes, others go more deeply into specific studies examining the topics discussed in the main text or further define terminology, while others consider alternative views or related approaches to key covered topics.

REPRESENTING SPEECH IN TEXT

Different conventions for representing the sounds of speech are used across different subfields of linguistics and phonetics and even across different research groups, but generally the International Phonetic Alphabet (IPA) is accepted as a standard for phonetic description. Throughout the book, we will reference speech sounds using the conventions of IPA as we feel this transcription choice to be more general to varied fields than those (such as keywords or word classes) sometimes adopted in specific fields. Readers can visit the IPA's website, at www.internationalphoneticassociation.org/content/full-ipa-chart, for downloadable IPA charts. Interactive versions are also available online.

Following common practice, we use slashes to represent phonological categories (e.g. /p/ represents the category "voiceless bilabial plosive consonant") and brackets to represent actual (phonetic) productions (e.g. [p] to represent the actual production of a /p/, [p^h] to represent the production of an aspirated /p/, and so forth). We take one major liberty with the IPA, which also follows common practice, using /ɾ/ to represent the English phoneme, despite the fact that the IPA uses the character /ɻ/ to represent the English alveolar approximant. We do use the approximant symbol when representing productions of [ɻ], however.

SOFTWARE AND ONLINE SUPPORT

Some aspects of sociophonetics, like software tools and web-based resources, change too quickly to be accurately presented in book format. And, of course, examples in text cannot take the place of actual speech recordings for illustrating sociophonetic topics. Thus, we provide a website to accompany this book – <https://www.cambridge.org/core/resources/sociophonetics/>. The website contains links to other online resources, such as popular software discussed in the book and otherwise of relevance to sociophonetics. It also contains speech samples for many of the examples used in the book.

We have primarily selected examples from two datasets – the Vowels in America project (Fridland and Kendall in press) and the Corpus of Regional African American Language (CORAAAL; oraal.uoregon.edu/coraaal; Kendall and Farrington 2018a). The first case, the Vowels in America project, is a long-term project on which the authors have collaborated (e.g. Fridland and Kendall 2012, 2015, 2018, Kendall and Fridland 2012, 2016, 2017). This project involved the collection of speech, primarily word lists and reading passages, along with perception data from participants across several regions of the United States. (We discuss aspects of this project in several places throughout the book and we draw from our collected recordings to provide speech examples for figures in several chapters.) Audio files are provided on the book's website for samples that were used to generate figures, so that readers can examine the same recording shown in the text in similar ways. The second case, CORAAAL, is a publicly available collection of spoken language recordings that readers can access directly on its website. We provide links directly to the online version of the corpus via TinyURLs (shortened links using tinyurl.com) when appropriate.

At the time of writing, Praat (www.praat.org; Boersma and Weenink 2020) is the major software used for acoustic data processing and other phonetic-related tasks (including stimuli preparation, speech synthesis, etc.). Praat is free software and works on most current computer systems. While we do not give detailed instructions for doing everything discussed in this book in Praat, we recommend that readers download a current version of the software and explore some speech recordings (such as from CORAAAL) while reading this book. Our website provides some basic Praat scripts to facilitate some of the tasks we discuss, such as vowel and sibilant data extraction, and provides links to online resources about using Praat for acoustic analysis. Many of the figures in Chapters 2 and 3 are screenshots of Praat or were generated

using Praat. Many of our other figures were made using the open-source programming environment R (R Core Team 2019), available from www.R-project.org, and we also provide links to R and sociophonetic-relevant R resources on the book's website.

LOOKING AHEAD

Altogether, we have tried to write this book in a way that allows readers of different backgrounds and experience to gain insight into the development, ideas and methods of sociophonetics and to examine how work in sociophonetics and other fields can evolve in ways complementary to the goals they share. As well, we hope that our survey of modern sociophonetic approaches and treatment of computational advances in the field can also illustrate to those familiar with, or learning about, traditional sociolinguistics how the measurement and focus on fine phonetic detail can give novel insight into language variation and change. For readers already embedded in sociophonetic research, we hope that our treatment can stimulate new ideas and discussions. In sum, it is our great hope that this book will ignite interest and conversation among researchers in related disciplines and help bring together fields that have long considered similar research questions through disparate methods and approaches.

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Much of the thinking behind and material in this book comes from the authors' long collaboration on the Vowels in America project, and the inspirations and insights that our many colleagues and friends across the field of linguistics and related disciplines have shared with us over the years. We certainly cannot thank everyone who deserves mention here. But, with the caveat that we are surely missing scholars and students who deserve thanks, we wish to thank the following people, who have devoted their valuable time, expertise and support to the many endeavors that led to the formulation and completion of this book. For one, we are grateful to the students with whom we have worked on the Vowels in America project, namely Charlie Farrington, Kaylynn Gunter, Sohei Okamoto, Craig Fickle, Jason McLarty, Taylor Burby, Jaycob Nolte and Jazmin Boulton. More generally, we thank our students at the University of Oregon and University of Nevada, Reno who have engaged with us in sociophonetic learning. Students in Tyler Kendall's Sociophonetics Seminar (Winter 2019), in particular, provided helpful feedback and discussions on parts of this text. As well, Jaidan McLean and Margie Judd provided invaluable help with formatting. We also have benefitted immeasurably from the friendship and sage advice of numerous established scholars from whom we have learned much, starting with, of course, Bill Labov, but also including Kara Becker, Ian Clayton, Penny Eckert, Anne Fabricius, Lauren Hall-Lew, Leslie Milroy, Nicolai Pharaoh, Dennis Preston, Erik Thomas, Charlotte Vaughn, Alicia Beckford Wassink, Dominic Watt and Walt Wolfram. We are grateful to Rajend Mesthrie, the editor of the Key Topics in Sociolinguistics series, for his helpful feedback and encouragement through our process of writing this book. Finally, we could not have accomplished much in any of our work without the patience, love and support of our families. Thank you Charlotte, Craig, Cole and Taylor for putting up with the long nights and seemingly endless revisions.

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