



西方语言学教材名著系列

# A COURSE IN PHONETICS

## 语音学教程

(Seventh Edition)

(第七版)

[美] Peter Ladefoged 著  
Keith Johnson

(影印本)



北京大学出版社  
PEKING UNIVERSITY PRESS



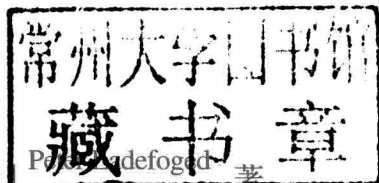
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## 导 读

先师林焘先生给我开的第一本参考书就是 *A Course in Phonetics*, 因此我对这本教材较为熟悉, 而且各版本也都读过, 格外有些感情。记得第一版是向沈炯师借的, 当时他对我说“你要像爱护自己的眼睛一样爱护它”; 虽然他语带玩笑, 我还是能感觉到他的认真以及他对这本书的重视。第二版是跟学长兼老师北京林业大学的史宝辉教授借阅的; 第三版得北京师范大学许小颖博士之助, 购于新加坡南洋理工大学; 第四版借自北京语言大学图书馆; 第五版(外研社版)购于北京; 第六版是在网上浏览的。这最新的第七版为北大出版社王颀编审所赠, 而且巧的是, 在我拿到书的当日正好 Keith Johnson 教授来访!

见面时, Keith 提到好几次, 说这本书是 Peter Ladefoged 的, 不能说是他的。这话一半对, 一半不对。自谦的成分重了点。

我们知道第五版是 Peter Ladefoged 生前做的最后一次修订。正如 Keith Johnson 在第六版序言中所说, 通过前四次修订, *A Course in Phonetics* 几乎已经成为理想的语音学教程, 因而在此基础上再作提升, 殊属不易。可结果我们却看到, 由 Keith Johnson 主笔修订的第六版在 2011 年出版后很快售罄。许多中国的语音学爱好者(包括我在内)几乎还没来得及品读, 第七版又于 2015 年由同一家出版社 Cengage Learning 出版了。这既反映了 Peter Ladefoged 的遗孀和出版社慧眼识人(请 Keith Johnson 担纲), 也说明 Keith 作为 Ladefoged 教授的得意门生青出于蓝, 名不虚传。

第七版影印本由北京大学出版社引进, 几乎与美国发行同步。从框架、目录来看, 与以前诸版, 尤其第五、六版差别不大。比如: 全书主要由三部分组成, 共 11 章——第一、二章是基本概念, 第三、四、五章是英语语音学, 第六至十一章是普通语音学。不过, 稍加对比, 不难发现还有如下一些变化: (1) 有些章节的内容及顺序作了调整; (2) 对一些小节的标题进行了修改; (3) 每章正文后——或者说练习前——都增加了一段“要点重述(Recap)”。

因(1)(2)两点实际都涉及对一些语音现象在认识上的进步或表述上的完善,所以我想在下面的“内容简介”中再提。此处先谈谈(3)“要点重述”。我认为它们是每一章的点睛之语。这部分内容可以说完全是Keith的匠心独运。“要点重述”——或者说Keith Johnson的Recap——不同于我们所习见的提要(summary)。后者通常只是内容的梗概,而前者则近似于对全章内容的综述与理论观照。而且,Keith Johnson每每能在这里用一两个精到的比喻,把从纷繁的语音现象和细节中提炼或归纳出来的关键理论观点说得清清楚楚,既易于理解,又使人印象深刻。例如,他在英语辅音一章(第三章)的“要点重述”中说,“也许从本章谈到的许多细节中,可以得出的最重要的观点就是:人们口中发出辅音并不像在电脑上键入字母……在我们为描写方便而使用的语音学字母之下,隐藏着更为基本的事实。”

某种意义上说,“要点重述”使读者得以用研究者的眼光来对待所阅读的材料,使教材内容的深度得以展现,价值得到提升。作为本版的导读撰写者,我强烈建议大家——即使是对本教材已很熟悉的同仁——认真阅读这个部分。

下面我对本版各章的内容作一简介,目的纯为给学习语音学的年轻学生一点儿引介,希望不至于把他们带到沟里。至于语音学界各种各样的“咖”们,敬请飘过、观望或指教。

## 上篇 基本概念

### 第一章 发音与声学

本章介绍发音与声学的基本知识。如果读者已经系统学过语音学,我认为这一章可以跳读,或者直接做后面的笔头练习和口头练习,遇到难题再寻找、回看有关内容。这样的话,一来效率高,二来印象深。

需要指出的是,自第五版以来,*A Course in Phonetics*开始用过程、加工(process)的视角来解释言语产生机制(参见图1.3)。这相较于常见的对发音器官的静态描写与分类来说,无疑是一种更新和进步。这使得发音过程的描述变得易于理解,而且不那么干巴和枯燥。此外,教程还用“发音姿态(articulation gestures)”或“姿态(gestures)”这样的说法来代替传统的术语“发音部位”。这至少有两个好处:第一,它能体现“发音是一个动态过程”这样的意涵;

第二,简洁、概括——既然叫“姿态”,自然就会涉及“主动发音部位”和“被动发音部位”,学界不时有人争论的话题“辅音要用主动发音部位还是被动发音部位命名”就变得无谓了。

如Keith在自序中所言,本版较以往适当增添了一些语图,一方面这是语音学发展所致,另一方面添加语图可以使有关现象多少变得直观可察,增加说服力。本章在“声波”一节也增加了部分内容,讲解声波、二维频谱和三维语图之间的关系(参见图1.5),讲得比较清楚,有助于读者理解。此外,在“辅音声学”一节,图1.12因在波形之外引入了三维语图,对有关音段的标注较之过去也更为简洁、明白。

## 第二章 音系/音位和语音学的标音

本章主要介绍了一些与音系学有关的最基本的概念,以及初步的国际音标知识,诸如:音系(phonology)、音位(phoneme)、分布(distributions)、变体(variation)、互补(complementary)、区别性/对立(distinctiveness/contrast)、宽式标音(broad transcription)、严式标音(narrow transcription)等等。同样,对于那些已经受过较为系统的语音学训练的读者来说,这一章似乎也可以跳读或挑读。

另外,还有一种学习法是挑选那些具体的例子来看。一般它们都会以斜体字的形式呈现。这样做一定能丰富大家的英语语音知识。

表2.1和2.2中一些国际音标的称说法(或者说“名称”)过去常常被忽视,实际在教学中是很有用的。

图2.3是第七版新加的,用来说明音变的三种基本类型:对立、互补、自由变体。图中对送气塞音的标注有不一致的地方,白璧微瑕,请读者注意辨别。

## 中篇 英语语音学

### 第三章 英语的辅音

本章首先按不同的发音类型/方法,包括塞音、擦音、塞擦音、鼻音、通音等,对英语中每个辅音的发音姿态及标音进行了详细的介绍,随后用近三页的篇幅讲解了英语辅音发音涉及的音姿叠加(大体相当于协同发音)问题,最后讲的是英语辅音音位变体的规则以及几个相关的附加符号。

教程在“塞音”一节还介绍了一点语音调查的方法,并鼓励读者利用一些常见的语音软件,如 WaveSurfer、Praat、Audacity 等,对教材相关网络提供的语音材料进行观察、分析。

关注斜体举例的方法在本章的学习中仍然适用。通过本章的学习,相信读者对英语的辅音,包括英语方言的辅音,会有广泛而深入的了解,储备更细致的变体知识。教材作者提到,希望读者多多思考和比较,从而培养对语音的细致观察能力。比如通音的常态是浊音,但是当我们仔细琢磨 play, twice, cue 等词的发音时,就会发现这些词中的通音都不浊。严格地标音的话,它们应当是 [p<sup>h</sup>leɪ] [t<sup>h</sup>waɪs] [k<sup>h</sup>ju]。其中的规律,相信读者不难看出。

#### 第四章 英语的元音

本章的内容第六、七版相较于第五版有不少改进。其中,最明显的就是将“元音的音质”一节拆分、扩展出多个小节——元音音质、元音听觉空间、美语和英语中的元音、复元音、卷舌元音。此外,本章第七版还增加了“词汇集 (Lexical Sets)”一节。

虽然扩展出的几个小节主要只是在原第五版的基础上增加了相关的标题,但这使得有关的内容变得条理清晰,有利于读者建立知识体系、把握重点。其中,“元音听觉空间”一节尤其如此。

自丹尼尔·琼斯提出“正则元音(Cardinal Vowels)说”以来,人们一直把元音舌位图与发音等同起来。后来,随着声学语音学的发展,人们又根据元音一、二共振峰数据做出声学元音图,而且经常把两种舌位图进行对应和关联。实际上,我们所熟知的元音舌位图真的不好说是发音舌位图。Ladefoged 提出“元音听觉空间”这一概念已经有十年,根据这一观点,所谓的元音舌位图只是听觉分布图。有了这样的认识,将元音舌位图与声学元音图作对比才是正确的。然而我们至今未对元音舌位图的性质作这样的厘清,我个人认为跟我们的教材中没有独立的一节有很大的关系。

至于新增的“词汇集”一节,我以为起到了一种“授人以渔”的作用。Keith 在教材中不只是传授英语方言发音(变体)的知识,也传授了英语方言发音的调查方法。

## 第五章 英语的词语和句子

这一章主要讲的是英语里的语流音变、轻重音和语调。个人认为这是最值得精读的一章。

一个句子或一段自然的话语不是由一系列离散的音姿简单地连起来就能发出的。换言之,一个语言成分或词语单说或单念时跟它在连续的语流和句子里是有所不同的。这里面既有音姿叠加、同化、异化等主要表现在音段层面的问题或现象,也有强弱、轻重、长短等超音段、韵律层面的问题或现象。本章对英语中的这些现象有清楚而翔实的介绍及讨论。例如对一般较难说清的句中音节的轻重、强弱、突显度之间的关系,书里用一张树形图(图 5.2)很轻松地就说清楚了。

需要指出的是,Keith将本章原第五版的“句重音(Sentence Stress)”一节更名为“句子的节奏(Sentence Rhythm)”,我认为这是一个非常恰当的修改。一方面,句重音的有关内容在“重音的等级(Degrees of Stress)”一节已作讲解,另一方面,英语句子的节奏(或曰“节拍”)本就表现为句子里重音及强弱音的规律性分布。孔子说过,“必也正名乎”。此节标题的修改是概念的厘清,善莫大焉。当然,奥巴马胜选演说的47秒节拍图(图 5.3)也使本节的内容更加丰富,标题更加名副其实。

“语调”一节在第七版也有值得称道的改进。其主要表现为给每个例句的音高曲线都“顺便”标上ToBI符号。ToBI全称是Tone and Boundry Indices,可译为“音调及边界标记”。自上世纪80年代诞生以来,ToBI已成为语调研究的一个常用工具暨标注体系。教程过去的几个版本或者未提,或者未能将之与调形结合起来进行展现。作为ToBI的主要发明人之一Mary Beckman的弟子和同事,Keith对ToBI的把握和理解无疑是相当准确的。这一点非常重要,他的顺便一标,大大方便了读者对英语语调及ToBI系统的学习与理解。说实话,我过去常常觉得教程对语调的描写有点“隔靴搔痒”,如今这种感觉基本消除。可以说,新版这一点“小小的”改进,使这一节的价值得到“大大的”提高。至少我个人愿意把这一节的内容作为入门的知识推荐给有志于语调研究的读者。

## 下篇 普通语音学

在这一篇中,教程对语音知识的介绍进入了更广阔的背景:世界语言。一些我们平常没听说过的语言和语音现象会频繁出现在此篇中。

### 第六章 气流机制和发声类型

任何语言的发音都离不开气流。用肺中呼出的气流来发音可以称之为“肺部气流机制(pulmonic airstream mechanism)”。我们时常听到的一些语言,如汉语(普通话)、俄语、英语、法语、德语、西班牙语等等,一般都是用肺部气流机制来发音的。然而,还有一些语言,如豪萨语、拉科塔语、信德语、祖鲁语、那玛语、乍得语等等,它们除使用肺部气流机制来发音以外,还使用其他的气流机制,诸如“喉部气流机制(glottalic airstream mechanism)”“软腭气流机制(velaric airstream mechanism)”来发音。另外,在英语的一些变体及病理性的发音中也能发现一些非肺部气流音。学习本章内容时,多听听教材提供的音例,了解并记住一些语言的名称和语音现象,那将对语音学习大有好处。

如前面的有关章节一样,Keith在本版本章也尽可能地增加了一些三维语图。这些语图对理解和观察相关的发音机制和结果十分有益。

表6.8是本章有关喉部发声类型部分的总结。发声类型、声带状态以及音例都言简意赅地集成在了一张表中,希望读者能够善加利用。

### 第七章 辅音的音姿

“音姿”这一术语主要适用于辅音。前面已经提到,“音姿”比起“发音部位”来更有概括性。事实上,由于“音姿”还涉及发音的过程,传统的“发音方法”这一术语所涉及的“成阻”“持阻”“除阻”等环节与“音姿”也就有了交叉。

实际上本章的内容完全可以视作是用世界语言的例子对国际音标(IPA)辅音表的详细解析。解析的线索为辅音表的行与列,只是“发音部位”(行)更名为“发音目标(articulatory targets)”,“发音方法”(列)更名为“音姿类型(types of articulatory gestures)”而已。

### 第八章 声学语音学

这一章的内容较之第五版有相当大的改动与深化。由于写过一本《声学

及听觉语音学》,Keith对本章的改动可谓驾轻就熟。表面上他舍弃了“共振峰(Formants)”一节而代之以三种理论/模型的介绍——声源/滤波理论、管道模型、扰动理论;实际上,这些理论/模型对共振峰的形成、预测及合成都有一定的解释力。

“辅音声学”一节,Keith更换了原第五版中的两张语图(图8.7和图8.8)。原图的第二共振峰出现近乎断层式的移动,明显与例子单元音的性质不符。

“破译语图(Interpreting Spectrograms)”一节,我个人认为是本章最有意思的部分。声学语音学作为实验语音学的主体,读图及看图识音是学习者必须训练的一项基本功。本章通过几幅语图,详细介绍了识图的方法及推导出句子的过程。

## 第九章 元音和类元音的发音

本章详细介绍和讨论决定元音音质的诸特征,如舌位高低、舌位前后、唇形圆展以及卷舌、鼻化、舌根前伸等等。书中还对这些特征的声学关联物/现象作了归纳总结(参见表9.2)。此外,半元音、(硬)腭化、软腭化、咽音化和唇化现象在这里也得到了讨论。

本章的主要目标是使读者能够运用正则元音及其符号,对所听到的语言或言语中的元音进行准确的描写。

## 第十章 音节和超音段特征

本章主要分为两个部分。一个部分讨论音节的概念、一些已有的音节理论及其不足之处;另一部分介绍超音段特征在世界语言中的应用和表现,主要包括重音、时长、声调、语调等。

需要特别指出的是,书中对音节的分析既有与传统的汉语音韵学相似的地方——如把每个音节分成声(onset)韵(rhyme)两部分,韵又分为韵核(nucleus,相当于韵腹)、韵尾(coda);也有与我们的习惯看法不一致的地方——他们只把音节最后的辅音看作韵尾,而我们把ai、ao中的-i、-o/u也看作韵尾。

此外,Keith把原第五版本章超音段部分的“节奏(Rhythm)”一节更名为“计时性(Timing)”是又一个非常恰当的修改。无论是syllable-timed、stress-timed,还是mora-timed,归根到底都是在说计时的特点;而且,节奏固然跟时间有关,但是轻重的交替与往复起主要作用,即便有的语言常常利用时长

来控制轻重。

## 第十一章 语言学的语音学

本章的重点在于探讨言语的风格如何影响语音学乃至语言学的描写,以及学习语音学需要掌握的相关知识。

与书里其他章节不同的是,本章有许多理论性的讨论内容。这就是为什么“国际音标”在全书的最后一章还以整节的形式出现。事实上,从第六版开始,Keith就对全章的内容进行了较大的修改。除了调整有关小节的顺序和内容以外,新版还增加了两个半小节:社会的语音学和个体的语音学、语言学解释中的一个难题、言语记忆——其中,“难题”一节因为使用了第五版“音系特征”一节中的表(表11.1),故而我称之为“半个”小节。而所谓社会的语音学主要讲某个群体能够分享的公众语音学知识(public phonetic knowledge),而个体语音学更多地是关注认知层面的东西。

本章中有许多观点说得非常到位和新颖,比如:

言语的生成是由许多音姿合作完成的,而这些音姿本质上又存在着对肌肉和声道控制权的竞争关系。(P. 291)

对每个语言的语音学描写都需要一套针对言语风格变体的补充规则。(P. 292)

如果两个对立的音有可能在某个词的相同位置出现,其感知上的距离就会有增加的趋势。(P. 295)

Keith在第七版的前言中说,该版全书经过了“彻底的更新与修订(thoroughly reviewed and updated)”。这一点在本章表现得淋漓尽致。

北京语言大学

曹文

2015.9.15

# Preface

This book aims to help you (the student) become a knowledgeable user of phonetics. You may be (or become) a speech pathologist who diagnoses speech disorders and devises treatment plans for your clients. Or you may be an engineer who develops speech user-interface technology using automatic speech recognition or speech synthesis. Or you may be a language teacher showing your students how words and sentences are pronounced. Or you may be a student of English seeking to improve your pronunciation. Or you may be a cognitive scientist conducting studies on the neural response to spoken language. Or you may be an opera singer preparing to sing words in a language that you don't speak fluently. Or you may be an actor speaking a dialect you didn't grow up speaking. In each of these cases, you could use some knowledge of phonetics. This book, if you study it well, will help you do your job better.

Some of you start with phonetics out of general interest. Your program of study requires that you take some general education courses, and phonetics is one course that meets that requirement. This book will do that, but it will enrich your life, too. You will be a more knowledgeable person, which is the aim of general education. In this course, you will travel the world listening to people speak different languages. You will hear clicks and ejectives, implosives and glides. You will delve into anatomy and acoustics, motor control and aerodynamics, sometimes applying knowledge that you picked up in other courses, sometimes learning completely new things. And so we will develop a picture of a most interesting, complex, and fundamental human characteristic. We humans speak, and through our speech we form and maintain our relationships and communities, and we transmit our accumulated knowledge from one generation to the next.

Another aim of the book is to prepare some of you (those who are bitten by the phonetics bug) to be ready to contribute to phonetics research. This book is an authoritative account of phonetics by one of the greatest phoneticians of all time (I am speaking here not of myself but of Peter Ladefoged). It is a solid foundation for the new phonetician, and at points the book offers suggestions for research topics and indicates where further research is needed. If you study this book well, you should be ready to start making valuable research contributions right away (for example, see Appendix B) and you shouldn't shy away from doing so.

## WHAT'S NEW IN THE SEVENTH EDITION

The seventh edition of *A Course in Phonetics* retains the chapter layout and most of the content of the sixth edition. All of it has been thoroughly reviewed and updated. I revised all of the chapters, sometimes in small ways and sometimes with a serious change in emphasis. For example, I revised the discussion of phonology extensively to bring this book into better alignment with current

perspectives. Although there is no formal phonology in this book, the presentation will bring students into phonology with (one hopes) a pretty sophisticated conception of phonological patterning. I also introduce speech spectrograms in the first chapter and use spectrograms extensively on the course website and in several additional places in the text of the book. I include more MRI and x-ray images (again both in the text of the book and on the website). These additions encourage you to look at speech from several points of view: (1) auditory, as one would transcribe the utterance in the international phonetic alphabet, (2) articulatory, as one would see it in images of the moving vocal tract, and (3) acoustic, as revealed by waveforms and spectrograms.

I identify with what J. C. Wells (2000) said, “I remain a great admirer of the Daniel Jones tradition in phonetics (see Collins and Mees, 1999: 421–424). I continue to regard it as important for budding phoneticians to learn not only to recognize but also to perform all the sound-types of the world’s languages.” This book contains performance exercises in most chapters, and on the website you will find audio recordings of Peter Ladefoged demonstrating the exercises. This remains a distinctive and highly valuable component of *A Course in Phonetics*, which I hope you will employ. My own tendency is to look at spectrograms without listening to the speech that they show, or to look at articulatory movement traces without attempting to pronounce the speech they represent. So it is important for me (and perhaps also for others) to keep in mind that a part of phonetics is based on skill, and much of the practical work of the phonetician and practical utility of training in phonetics involves producing and recognizing sounds.

## THE LINGUISTICS COURSEMATE

Jenny Ladefoged, with help from Peter, produced a CD for the fifth edition of *A Course in Phonetics*. This was based on the extensive work of Peter and generations of students and colleagues at UCLA that went into a HyperCard stack called *Sounds of the World’s Languages*. I didn’t do much with the CD for the sixth edition other than to update the format of the sound files and make sure that the links on the CD worked (an archive of the CD has been hosted by UCLA Linguistics for many years). For the seventh edition, with the generous help of the Department of Linguistics at the University of California, Berkeley (UCB), this material is now available via the Linguistics CourseMate for this book, accessed through [www.cengagebrain.com](http://www.cengagebrain.com).

The Linguistics CourseMate includes interactive learning, study and exam preparation tools that support the printed textbook. CourseMate includes an interactive eBook, as well as all of the audio files that were previously available on the CD, now embedded and linked to tables and buttons. For example, accompanying Chapter 8, on acoustic phonetics, is an update of a great little demo that Peter produced in 1971. The page lets you hear each formant individually and in combination by clicking on a button. You can also see a spectrogram of each audio file by right-clicking on the buttons. In fact, right-click will show you a spectrogram for any audio file anywhere on the site, and Alt-click will open the file in a separate window so you can save it locally for further analysis or use.

## Chapter 8 - Speech synthesis demo

Speech sounds can be minimally specified in terms of a small set of parameters, each of which can be described in terms of how they are made (physiological characteristics), or their physical (acoustic) characteristics.

Some of these parameters are isolated in the synthesized speech tokens in this table. For example, token number 1 (linked in the column labeled "1") is composed of a monotone voice with only a first formant resonance frequency. When you look at the spectrogram of this utterance, there is only one formant. Token 4 combines the first three formants, token 5 is composed of only stop release burst noises and fricatives, and finally in token 7 the voice has normal fundamental frequency variation.

This speech was synthesized in 1971 by Peter Ladefoged on a synthesizer at UCLA. The values of the parameters were a modified version of a set provided by John Holmes.

	PHYSIOLOGICAL	ACOUSTIC	1	2	3	4	5	6	7
1	Rate of vibration of the vocal folds	Fundamental frequency							
2	First resonance of the vocal tract	Formant 1 frequency							
3		Formant 1 amplitude							
4	Second resonance of the vocal tract	Formant 2 frequency							
5		Formant 2 amplitude							
6	Third resonance of the vocal tract	Formant 3 frequency							
7		Formant 3 amplitude							
8	Fricative and stop bursts	Center of noise frequency							
9		Amplitude of noise							

I also expanded the web materials by adding interactive versions of many of the homework exercises in the book. The exercises provide immediate feedback so that you know whether you got the right answer; if not, the correct answer is given. The exercises are not meant to be tests, given to evaluate students, but are rather designed to help you review the materials and evaluate your own level of retention and understanding. Some of my testers even describe these new exercises as "fun."

**EXAMPLE 8.1** The textbook has marginal icons that direct you to material on the website that is related to the topic under discussion, such as auditory examples, so you can immediately hear the sounds you are reading about.

The site will also document that you have completed the exercises with a certificate that says at the bottom "save me, print me, show me to your teacher!"



Collins, B., and I. Mees. (1999). *The Real Professor Higgins. The Life and Career of Daniel Jones*. Berlin: Mouton de Gruyter.

Wells, J. C. (2000). My personal history. Retrieved Aug 5, 2013, from <http://www.phon.ucl.ac.uk/home/wells/philsoc-bio.htm>.

## ACKNOWLEDGMENTS

In the preface to the sixth edition of *A Course in Phonetics* I said, “When you start from such a high point, there is a lot of room to go down and not much room to go up.” I am still trying to avoid doing harm to this marvelous textbook, and I really appreciate all the help that colleagues, students, and publishers have given me.

Natasha Warner (University of Arizona) wrote an incredibly detailed and helpful review of the sixth edition. I especially appreciate that feedback. I also appreciate the very helpful comments and suggestions that came from Susan Russell (Simon Fraser University), Christina Gildersleeve-Neumann (Portland State University), Lisa Davidson (New York University), Angela Carpenter (Wellesley College), Richard Wright (University of Washington), Pat Keating (UCLA), Ian Maddieson (University of New Mexico), and Caroline Smith (University of New Mexico). Special mention to Mary Beckman (Ohio State University) and Sun-Ah Jun (UCLA) for help with the intonation section in Chapter 5. Also, much thanks to John Coleman (Oxford) for providing and guiding my use of the vowel MRIs in Chapter 4, and for the MRI movie on the website, and to Molly Babel (University of British Columbia) for feedback on many of the online exercises. Professor Babel also contributed audio as “American no. 2” in the online version of Figure 4.3 and as the voice of Minnesota for the online lexical set examples. Alice Gaby (Monash University) contributed audio clips for the website as the voice of Australia. John Sylak-Glassman (University of California, Berkeley) saved me from making mistakes in the web pages on languages of the Caucasus. I appreciate Shri Narayanan (University of Southern California,) for his contribution of an MRI movie for the website. Continuing thanks to Bruce Hayes (University of California, Los Angeles) for contributing his voice as the voice of General American on the website. I am also grateful to Jenny Ladefoged for her continued support and good humor as I change what she and Peter produced.

Several students at UC Berkeley offered feedback on the website and I really appreciate their help. Thank you, Sarah Bakst, Emily Cibelli, Greg Finley, Clara Cohen, Will Chang, Melinda Fricke, Grace Neveu, Ruofan Cai, and Taylor Hickok for feedback on the exercises.

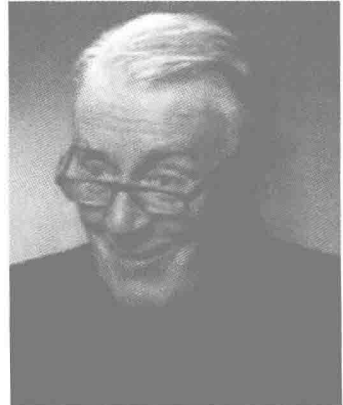
The team at Cengage has been great. In particular, Joan Flaherty read every word of the revised manuscript and guided the process of producing the book. I am so grateful.

*Keith Johnson*  
*Berkeley, California*  
*August 6, 2013*

# About the Authors



Peter Ladefoged (1925–2006) was preeminent in the field of phonetics. He received his Ph.D. from the University of Edinburgh, Scotland, in 1958. He founded the UCLA Phonetics Laboratory and was its director from 1962 to 1991, while he was also a professor in the Department of Linguistics. His contributions to the discipline of linguistics are enormous and have furthered our knowledge of language and languages in many ways. His phonetics fieldwork (pre-computers) took him around the globe, carrying equipment to record and document and describe little-known languages. He catalogued the sounds of thousands languages. Ladefoged also experimented with and encouraged development of better scientific research methods and equipment. He was instrumental in revising the IPA to include more sounds and advocated for preservation of endangered languages. In his spare time, he consulted on forensics cases and even served as a dialect advisor and lent his voice to the film *My Fair Lady*.



Peter will be remembered for his outstanding contributions to phonetics and linguistics, and also for his lively and impassioned teaching and his service as mentor to a great number of doctoral students and to his junior colleagues. Many careers have been built on his influence, enthusiasm, and encouragement.

Keith Johnson taught phonetics in the Department of Linguistics at Ohio State University from 1993 to 2005 and is now a professor in the Department of Linguistics at the University of California, Berkeley. He is the author of *Acoustic and Auditory Phonetics* and *Quantitative Methods in Linguistics*. His Ph.D. is from Ohio State University, and he held postdoctoral training fellowships at Indiana University (in Cognitive Psychology) and at UCLA (with Peter Ladefoged and Pat Keating).



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