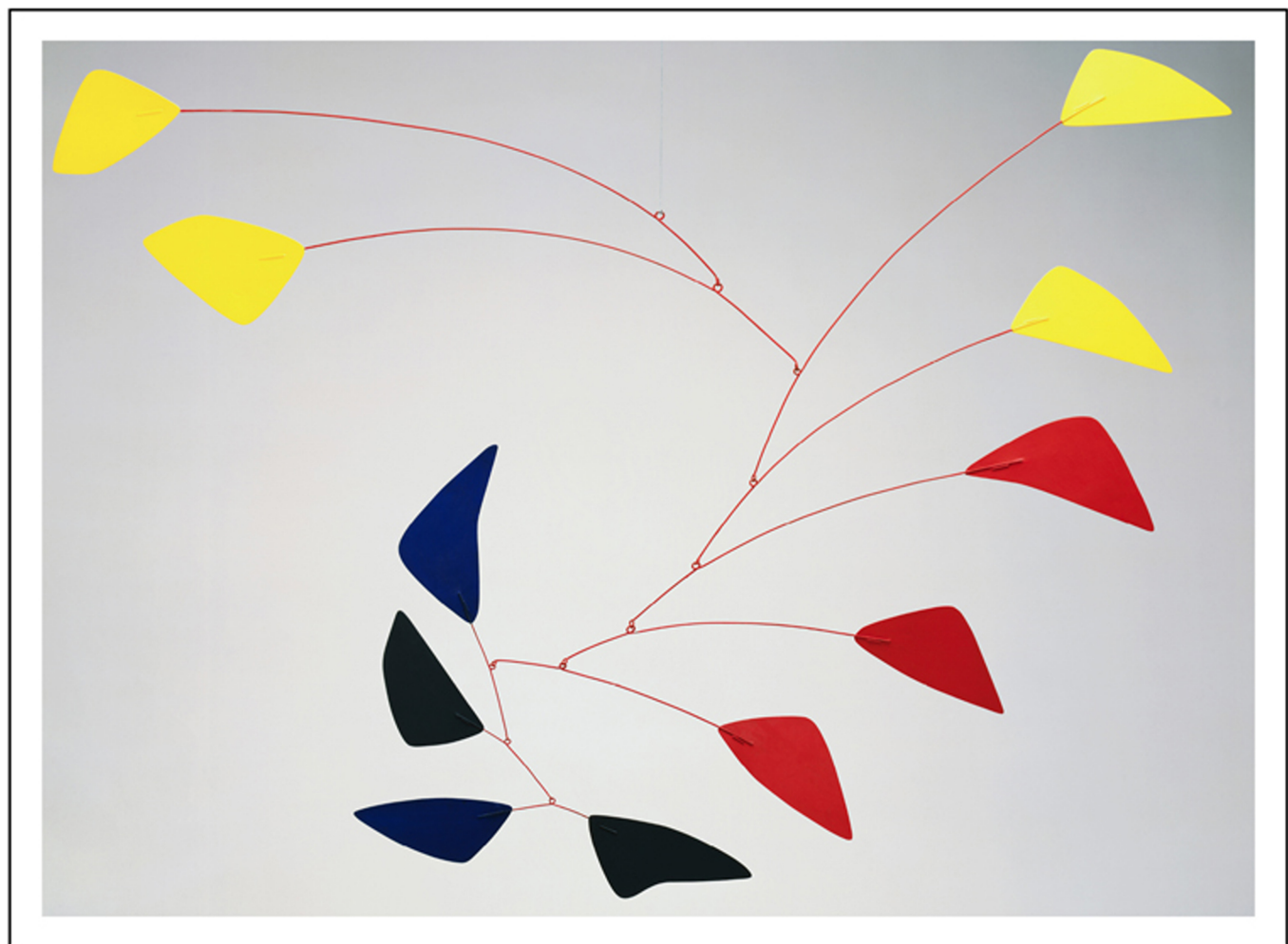VICTORIA FROMKIN | ROBERT RODMAN | NINA HYAMS
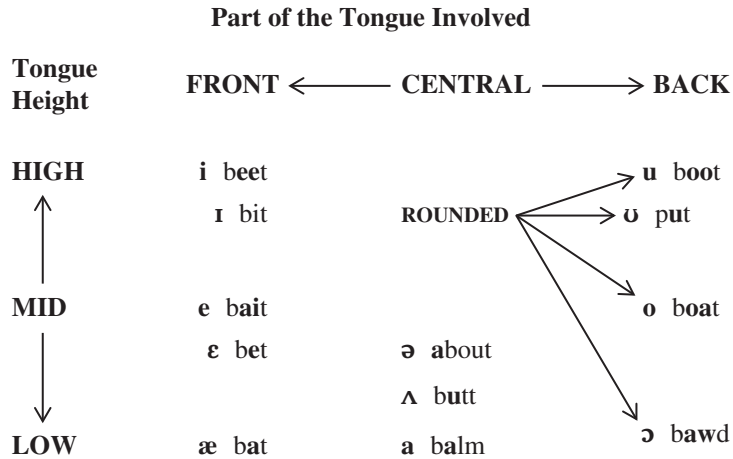
AN INTRODUCTION TO LANGUAGE

TENTH EDITION

Classification of American English Vowels

Part of the Tongue Involved

Tongue Height	FRONT ⟵	CENTRAL ⟶	BACK

HIGH   **i** beet   **u** boot

               ɪ bit   ROUNDED   **ʊ** put

MID   **e** bait   **o** boat

               ɛ bet   **ə** about

                        ʌ butt

LOW   **æ** bat   **a** balm   **ɔ** bawd

A Phonetic Alphabet for English Pronunciation

Consonants						Vowels			
p	**p**ill	t	**t**ill	k	**k**ill	i	b**ee**t	ɪ	b**i**t
b	**b**ill	d	**d**ill	g	**g**ill	e	b**ai**t	ɛ	b**e**t
m	**m**ill	n	**n**il	ŋ	ri**ng**	u	b**oo**t	ʊ	f**oo**t
f	**f**eel	s	**s**eal	h	**h**eal	o	b**oa**t	ɔ	b**o**re
v	**v**eal	z	**z**eal	l	**l**eaf	æ	b**a**t	a	p**o**t/b**a**r
θ	**th**igh	tʃ	**ch**ill	r	**r**eef	ʌ	b**u**tt	ə	sof**a**
ð	**th**y	ʤ	**g**in	j	**y**ou	aɪ	b**i**te	aʊ	b**ou**t
ʃ	**sh**ill	ʍ	**wh**ich	w	**w**itch	ɔɪ	b**oy**		
ʒ	mea**s**ure								

An Introduction to Language

10e

VICTORIA FROMKIN
Late, University of California, Los Angeles

ROBERT RODMAN
North Carolina State University, Raleigh

NINA HYAMS
University of California, Los Angeles

WADSWORTH
CENGAGE Learning

Australia • Brazil • Japan • Korea • Mexico • Singapore • Spain • United Kingdom • United States

Printed in the United States of America
1 2 3 4 5 6 7 16 15 14 13 12

This is an electronic version of the print textbook. Due to electronic rights restrictions, some third party content may be suppressed. Editorial review has deemed that any suppressed content does not materially affect the overall learning experience. The publisher reserves the right to remove content from this title at any time if subsequent rights restrictions require it. For valuable information on pricing, previous editions, changes to current editions, and alternate formats, please visit www.cengage.com/highered to search by ISBN#, author, title, or keyword for materials in your areas of interest.

In memory of Simon Katz and Lauren Erickson

Contents

CHAPTER 10
Language Processing
and the Human Brain   444

CHAPTER 11
Computer Processing
of Human Language   495

Preface

Well, this bit which I am writing, called Introduction, is really the er-h'r'm of the book, and I have put it in, partly so as not to take you by surprise, and partly because I can't do without it now. There are some very clever writers who say that it is quite easy not to have an er-h'r'm, but I don't agree with them. I think it is much easier not to have all the rest of the book.

A. A. MILNE, *Now We Are Six*, 1927

The last thing we find in making a book is to know what we must put first.

BLAISE PASCAL (1623–1662)

The tenth edition of *An Introduction to Language* continues in the spirit of our friend, colleague, mentor, and coauthor, Victoria Fromkin. Vicki loved language, and she loved to tell people about it. She found linguistics fun and fascinating, and she wanted every student and every teacher to think so, too. Though this edition has been completely rewritten for improved clarity and currency, we have nevertheless preserved Vicki's lighthearted, personal approach to a complex topic, including witty quotations from noted authors (A. A. Milne was one of Vicki's favorites). We hope we have kept the spirit of Vicki's love for teaching about language alive in the pages of this book.

The first nine editions of *An Introduction to Language* succeeded, with the help of dedicated teachers, in introducing the nature of human language to tens of thousands of students. This is a book that students enjoy and understand and that professors find effective and thorough. Not only have majors in linguistics benefited from the book's easy-to-read yet comprehensive presentation, but also majors in fields as diverse as teaching English as a second language, foreign language studies, general education, the cognitive and neurosciences, psychology, sociology, and anthropology have enjoyed learning about language from this book.

Highlights of This Edition

This edition includes **new developments in linguistics and related fields** that will strengthen its appeal to a wider audience. Much of this information will enable students to gain insight and understanding about linguistic issues

xi

and debates appearing in the national media and will help professors and students stay current with important linguistic research. We hope that it may also dispel certain common misconceptions that people have about language and language use.

Exercises (250) continue to be abundant in this edition, and more research-oriented exercises have been added for those instructors who wish their students to pursue certain topics more deeply. Many of the exercises are multipart, amounting to more than 300 opportunities for "homework" so that instructors can gauge their students' progress. Some exercises are marked as "challenge" questions: they go beyond the scope of what is ordinarily expected in a first course in language study. An **answer key** is available to instructors to assist them in areas outside of their expertise.

Chapter 1, "**What Is Language?**" continues to be a concise introduction to the general study of language. It contains many "hooks" for engaging students in language study, including "Language and Thought," which takes up the Sapir-Whorf hypotheses; the universal properties of languages including signed languages of the deaf; a consideration of animal "languages"; and the occasional silliness of self-appointed mavens of "good" grammar who beg us not to carelessly split infinitives and who find sentence-ending prepositions an abomination not to be put up with.

Chapter 2, "**Morphology: The Words of Language**," launches the book into the study of grammar with morphology, the study of word formation, as that is the most familiar aspect of grammar to most students. The subject is treated with clarity and an abundance of simple illustrations from non-English languages to emphasize the universality of word structure including the essentials of derivational versus inflectional morphology, free and bound morphemes, and the hierarchical structure of words.

Chapter 3, "**Syntax: The Sentence Patterns of Language**," is the most heavily revised chapter of former editions. Once it has introduced the universal and easily understood notions of constituency, syntactic categories (parts of speech), phrase structure trees, structural ambiguity and the infinite scope of language, the chapter delves into the now nearly universally accepted X-bar grammatical patterns for describing the deeper and more subtle syntactic structures of English and other languages. The topic is approached slowly and developed painstakingly so as to inform and not overwhelm. In particular, the current views on binary branching, heads and complements, selection (both C- and S-), and transformational analysis within the X-bar framework are carefully explained and illustrated. Formalisms are held to the bare minimum required to enhance clarity. Non-English examples abound in this chapter as throughout the entire book, and the weighty elements of theory are lightened by the inclusion of insightful examples and explanations, supplemented as always by quotations, poetry, cartoons, and humor.

Chapter 4, "**The Meaning of Language**," on semantics, has been more finely structured so that the challenging topics of this complex subject can be digested in smaller pieces. Still based on the theme of "What do you know about meaning when you know a language?" the chapter first introduces students to truth-conditional semantics and the principle of compositionality.

Following that are discussions of what happens when compositionality fails, as with idioms, metaphors, and anomalous sentences. Lexical semantics takes up various approaches to word meaning, including the concepts of reference and sense, semantic features, argument structure, and thematic roles. The most dramatic upgrade of this chapter is a newly expanded and modernized section on pragmatics. Here we discuss and illustrate in depth the influence of situational versus linguistic context on the communicative content of utterances, the significance of implicature in comprehension, Grice's Maxims of Conversation, presuppositions, and J. L. Austin's speech acts.

Chapter 5, "**Phonetics: The Sounds of Language**," retains its former organization and continues to embrace IPA (International Phonetics Association) notation for English in keeping with current practices, with the sole exception of using /r/ in place of the technically correct /ɹ/ when illustrating English. We continue to mention alternative notations that students may encounter in other publications.

Chapter 6, "**Phonology: The Sound Patterns of Language**," has been streamlined by relegating several complex examples (e.g., metathesis in Hebrew) to the exercises, where instructors can opt to include them if it is thought that students can handle advanced material. The chapter continues to be presented with a greater emphasis on insights through linguistic data accompanied by small amounts of well-explicated formalisms, so that the student can appreciate the need for formal theories without experiencing the burdensome details.

Chapter 7, "**Language in Society**," has been moved forward in the book from previous editions to emphasize its growing importance as a major subfield of linguistics. Growth in this area of study, even in the few years since the ninth edition, has been astronomical. We have strived heartily to present the established facts and principles of sociolinguistics while bringing up to date subjects such as banned languages (it's still happening); dead and dying languages (also still happening); gender differences; minority dialects such as Hispanic English ("Spanglish"); languages in contact such as pidgins, creoles, and lingua francas that may be found in linguistically heterogeneous areas; the use of computers in sociolinguistic analysis; second language teaching; and bilingual education, among others.

Chapter 8, "**Language Change: The Syllables of Time**," has been updated with the latest research on language families, language relatedness, and language typology. Also, in response to reviewers' requests, a detailed and more complex illustration of the application of the comparative method to two contemporary dialects to reconstruct their ancestor—often called "internal reconstruction"—is now part of this chapter.

Chapter 9, "**Language Acquisition**," has been thoroughly restructured and rewritten to enhance clarity since the ninth edition. In addition, much of what has been learned about second language acquisition (adult learning of a foreign language) has been folded into this chapter along with an entirely new section on "heritage languages," the learning of an intrafamily language after immigration to a country where that language is not spoken (e.g., Yiddish by Jews who emigrated from Russia).

Chapter 10, "**Language Processing and the Human Brain**," could well have been entitled "psycholinguistics and neurolinguistics" but that may have made the subject seem overly daunting. This chapter combines a straightforward discussion of many of the issues that regard the psychology of language—what the mind does—with the neurology of language—what the brain does—during language usage. Dramatic changes in the understanding of the brain's role in language processing are occurring virtually every day owing to the rapid enhancement of the ability of neurolinguists to measure brain activity to tiny degrees of sensitivity at extremely precise locations. This chapter reports on those techniques and some of the results regarding language and the brain that ensue. The psycholinguistic portion of this chapter appeared as the first half of chapter 9 in the ninth edition; the second and greater portion of this chapter is an enlargement and updating of chapter 2 from the ninth and previous editions.

Chapter 11, "**Computer Processing of Human Language**," is an expansion into a full chapter of what was the second half of chapter 9 in the ninth edition. The fundamentals of computational linguistics are still covered and have been clarified and expanded, but the force driving the promotion of the subject into a chapter of its own is the astonishing progress in the application of computers to human languages, which has burgeoned to a degree hardly imaginable even as we wrote previous editions. Anchoring the extensive new material in this chapter is the introduction of the Culturomic Revolution in the computer processing of language, in which computers have analyzed billions (with a *b*) of lines of text with results that will astonish even the most blasé readers. Culturomics, which is concerned with published, written texts, is soon to be augmented by "twitterology," a study of "on-the-fly" language usage by billions of people (i.e., "twitterers") in thousands of languages, only beginning to be linguistically analyzed as the this edition goes to press. But those who wish to keep abreast of the power of computers applied to language will find this chapter indispensable.

Chapter 12, "**Writing: The ABCs of Language**," has undergone a mild rewriting to further improve clarity. Texting and twittering, while largely unstudied by linguists, are included in a new section adding a further dimension to what it means to write a language.

Terms that appear bold in the text are defined in the revised **glossary** at the end of the book. The glossary has been expanded and improved so that the tenth edition provides students with a linguistic lexicon of nearly 700 terms, making the book a worthy reference volume.

The **order of presentation of chapters 2 through 6** was once thought to be nontraditional. Our experience, backed by previous editions of the book and the recommendations of colleagues throughout the world, has convinced us that it is easier for the novice to approach the structural aspects of language by first looking at morphology (the structure of the most familiar linguistic unit, the word). This is followed by syntax (the structure of sentences), which is also familiar to many students, as are numerous semantic concepts. We then proceed to the more novel (to students) phonetics and phonology, which students often find daunting. However, the book is written so that individual instructors can present material in the traditional order of phonetics,

phonology, morphology, syntax, and semantics (chapters 5, 6, 2, 3, and 4) without confusion, if they wish.

As in previous editions, the primary concern has been basic ideas rather than detailed expositions. This book assumes no previous knowledge on the part of the reader. An updated list of references at the end of each chapter is included to accommodate any reader who wishes to pursue a subject in more depth. Each chapter concludes with a summary and exercises to enhance the students' interest in and comprehension of the textual material.

Additional Resources

Linguistics CourseMate. *An Introduction to Language* includes Linguistics CourseMate, which helps students gain a deeper and more comprehensive understanding of the textual material.

Linguistics CourseMate includes:

- an interactive eBook, with highlighting, note taking and search capabilities
- interactive learning tools including:
  - Quizzes
  - Flashcards
  - Audio files
  - Web Links
  - and more!

Go to www.cengagebrain.com to access these resources, and look for this icon 🖿 to find resources related to your text in Linguistics CourseMate.

Answer Key. The Answer Key for *An Introduction to Language* contains answers to all of the exercises in the core text, and is available to instructors through the publisher.

Instructor Companion Web Site. This password-protected companion site contains useful resources for instructors—including chapter-level PowerPoint lecture slides, and a downloadable version of the Answer Key. Go to www. cengagebrain.com to access the site.

Acknowledgments

Our endeavor to maintain the currency of linguistic concepts in times of rapid progress has been invaluably enhanced by the following colleagues, to whom we owe an enormous debt of gratitude:

Natasha Abner	*University of California, Los Angeles*	American Sign Language
Byron Ahn	*University of California, Los Angeles*	Syntax
Susia Curtiss	*University of California, Los Angeles*	Neurolinguistics
Kyle Johnson	*University of Massachusetts, Amherst*	Syntax
Craig Melchert	*University of California, Los Angeles*	Historical linguistics
Robyn Orfitelli	*University of California, Los Angeles*	Language acquisition
Maria "Masha" Polinsky	*Harvard University*	Heritage languages
Jessica Rett	*University of California, Los Angeles*	Semantics
Erik Thomas	*North Carolina State University*	Sociolinguistics
Kie Zuraw	*University of California, Los Angeles*	Phonology

Brook Danielle Lillehaugen undertook the daunting task of writing the Answer Key to the ninth and tenth editions. Her thoroughness, accuracy, and insightfulness in construing solutions to problems and discussions of issues are appreciated by all who avail themselves of this useful document, including us, the authors.

We also express deep appreciation for the incisive comments of six reviewers of the ninth edition, known to us as R2 through R7, whose frank assessment of the work, both critical and laudatory, heavily influenced this new edition:

Anna Szabolcsi, Department of Linguistics, *New York University*

Kathryn Wolfe-Quintero, Department of World Languages, *University of South Florida*

Nicholas Sobin, Department of Languages and Linguistics, *University of Texas, El Paso*

Virginia Lewis, Department of Languages, Literature, and Speech Communication, *Northern State University*

Ulrike Christofori, Department of Humanities, Social Sciences, and Education, *San Joaquin Delta College*

Omer Silva-Villena, Departamento de Lenguas, Literatura, y Comunicación, *Universidad de la Frontera*, Chile

We continue to be deeply grateful to the individuals who have sent us suggestions, corrections, criticisms, cartoons, language data, and exercises over the course of many editions. Their influence is still strongly felt in this tenth edition. The list is long and reflects the global, communal collaboration that a book about language—the most global of topics—merits. To each of you, our heartfelt thanks and appreciation. Know that in this tenth edition lives your contribution:[1]

Adam Albright, Massachusetts Institute of Technology; Otto Santa Ana, University of California, Los Angeles; Rebecca Barghorn, University of Oldenburg; Seyed Reza Basiroo, Islamic Azad University; Karol Boguszewski, Poland; Melanie Borchers, Universität Duisburg-Essen; Donna Brinton, Emeritus, University of California, Los Angeles; Daniel Bruhn, University of California, Berkeley; Lynn A. Burley, University of Central Arkansas; Ivano Caponigro, University of California, San Diego; Ralph S. Carlson, Azusa Pacific University; Robert Channon, Purdue University; Judy Cheatham, Greensboro College; Leonie Cornips, Meertens Institute; Antonio Damásio, University of Southern California; Hanna Damásio, University of Southern California; Julie Damron, Brigham Young University; Rosalia Dutra, University of North Texas; Christina Esposito, Macalester College; Fred Field, California State University, Northridge; Susan Fiksdal, Evergreen State College; Beverly Olson Flanigan and her teaching assistants, Ohio University; Jackson Gandour, Purdue University, West Lafayette; Jule Gomez de Garcia, California State University, San Marcos; Deborah Grant, Independent consultant; Loretta Gray, Central Washington University; Xiangdong Gu, Chongqing University; Helena Halmari, University of London; Karin Hedberg, Sam Houston State University; Sharon Hargus, University of Washington; Benjamin H. Hary, Emory University; Tometro Hopkins, Florida International University; Eric Hyman, University of North Carolina, Fayetteville; Dawn Ellen Jacobs, California Baptist University; Seyed Yasser Jebraily, University of Tehran; Kyle Johnson, University of Massachusetts, Amherst; Paul Justice, San Diego State University; Simin Karimi, University of Arizona; Edward Keenan, University of California, Los Angeles; Robert D. King, University of Texas; Sharon M. Klein, California State University, Northridge; Nathan Klinedinst, Institut Jean Nicod/CNRS, Paris; Otto Krauss, Jr., late, unaffiliated; Elisabeth Kuhn, Virginia Commonwealth University; Peter Ladefoged, late, University of California, Los Angeles; Mary Ann Larsen-Pusey, Fresno Pacific University; Rabbi Robert Layman, Philadelphia; Byungmin Lee, Korea; Virginia "Ginny" Lewis, Northern State University; David Lightfoot, Georgetown University; Ingvar Lofstedt, University of California, Los Angeles; Giuseppe Longobardi, Università di Venezia; Harriet Luria, Hunter College, City University of New York; Jeff MacSwan, Arizona State University; Tracey McHenry, Eastern Washington University; Pamela Munro, University of California, Los Angeles; Tom Nash, Southern Oregon University; Carol Neidle, Boston University; Don Nilsen, Arizona State University; Reiko Okabe, Nihon University, Tokyo; John Olsson, Forensic

---

[1]Some affiliations may have changed or are unknown to us at this time.

Linguistic Institute, Wales, U.K.; Anjali Pandey, Salisbury University; Barbara Hall Partee, University of Massachusetts, Amherst; Fernanda Pratas, Universidade Nova de Lisboa; Vincent D. Puma, Flagler College; Mousa Qasem, Kuwait University; Ian Roberts, Cambridge University; Tugba Rona, Istanbul International Community School; Natalie Schilling-Estes, Georgetown University; Philippe Schlenker, Institut Jean-Nicod, Paris and New York University; Carson Schütze, University of California, Los Angeles; Bruce Sherwood, North Carolina State University; Koh Shimizu, Beijing; Dwan L. Shipley, Washington University; Muffy Siegel, Temple University; Andrew Simpson, University of Southern California; Neil Smith, University College London; Nancy Stenson, University of Minnesota, Twin Cities; Donca Steriade, Massachusetts Institute of Technology; Mel Storm, Emporia State University; Nawaf Sulami, University of Northern Iowa; Megha Sundara, University of California, Los Angeles; Robert (Bob) Trammell, Florida Atlantic University, Boca Raton; Dalys Vargas, College of Notre Dame; Willis Warren, Saint Edwards University; Donald K. Watkins, University of Kansas; Walt Wolfram, North Carolina State University; Maria Luisa Zubizarreta, University of Southern California.

Please forgive us if we have inadvertently omitted any names, and if we have spelled every name correctly, then we shall believe in miracles.

Finally, we wish to thank the editorial and production team at Cengage Learning. They have been superb and supportive in every way: Michael Rosenberg, publisher; Joan M. Flaherty, development editor; Daniel Saabye, content project manager; Erin Bosco, Assistant Editor; Janine Tangney, Media Editor.

Last but certainly not least, we acknowledge our debt to those we love and who love us and who inspire our work when nothing else will: Nina's son, Michael; Robert's children Zack and Emily together with a trio—soon to be a quartet—of grandchildren: Cedar, Luke, Juniper, and ?; our parents and siblings; and our dearly beloved and still deeply missed colleagues, Vicki Fromkin and Peter Ladefoged.

The responsibility for errors in fact or judgment is, of course, ours alone. We continue to be indebted to the instructors who have used the earlier editions and to their students, without whom there would be no tenth edition.

Robert Rodman

Nina Hyams

About the Authors

VICTORIA FROMKIN received her bachelor's degree in economics from the University of California, Berkeley, in 1944 and her M.A. and Ph.D. in linguistics from the University of California, Los Angeles, in 1963 and 1965, respectively. She was a member of the faculty of the UCLA Department of Linguistics from 1966 until her death in 2000, and served as its chair from 1972 to 1976. From 1979 to 1989 she served as the UCLA Graduate Dean and Vice Chancellor of Graduate Programs. She was a visiting professor at the Universities of Stockholm, Cambridge, and Oxford. Professor Fromkin served as president of the Linguistics Society of America in 1985, president of the Association of Graduate Schools in 1988, and chair of the Board of Governors of the Academy of Aphasia. She received the UCLA Distinguished Teaching Award and the Professional Achievement Award, and served as the U.S. Delegate and a member of the Executive Committee of the International Permanent Committee of Linguistics (CIPL). She was an elected Fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the New York Academy of Science, the American Psychological Society, and the Acoustical Society of America, and in 1996 was elected to membership in the National Academy of Sciences. She published more than one hundred books, monographs, and papers on topics concerned with phonetics, phonology, tone languages, African languages, speech errors, processing models, aphasia, and the brain/mind/language interface—all research areas in which she worked. Professor Fromkin passed away on January 19, 2000, at the age of 76.

ROBERT RODMAN received his bachelor's degree in mathematics from the University of California, Los Angeles, in 1961, a master's degree in mathematics in 1965, a master's degree in linguistics in 1971, and his Ph.D. in linguistics in 1973. He has been on the faculties of the University of California at Santa Cruz, the University of North Carolina at Chapel Hill, Kyoto Industrial College in Japan, and North Carolina State University, where he is currently a professor of computer science. His research areas are forensic linguistics and computer speech processing. Robert resides in Raleigh, North Carolina, with his two rescued greyhounds Gracie and Shelby-Sue.

NINA HYAMS received her bachelor's degree in journalism from Boston University in 1973 and her M.A. and Ph.D. degrees in linguistics from the Graduate Center of the City University of New York in 1981 and 1983, respectively. She joined the faculty of the University of California, Los Angeles, in 1983, where she is currently a professor of linguistics. Her main areas of research are childhood language development and syntax. She is author of the book

Language Acquisition and the Theory of Parameters (D. Reidel Publishers, 1986), a milestone in language acquisition research. She has also published numerous articles on the development of syntax, morphology, and semantics in children. She has been a visiting scholar at the University of Utrecht and the University of Leiden in the Netherlands and has given numerous lectures throughout Europe and Japan. Nina lives in Los Angeles with her pal Spot, a rescued border collie mutt and his olde English bulldogge companion, the ever soulful Nellie.

What Is Language?

> When we study human language, we are approaching what some might call the "human essence," the distinctive qualities of mind that are, so far as we know, unique to man.

NOAM CHOMSKY, *Language and Mind*, 1968

Whatever else people do when they come together—whether they play, fight, make love, or make automobiles—they talk. We live in a world of language. We talk to our friends, our associates, our wives and husbands, our lovers, our teachers, our parents, our rivals, and even our enemies. We talk face-to-face and over all manner of electronic media, and everyone responds with more talk. Hardly a moment of our waking lives is free from words, and even in our dreams we talk and are talked to. We also talk when there is no one to answer. Some of us talk aloud in our sleep. We talk to our pets and sometimes to ourselves.

The possession of language, perhaps more than any other attribute, distinguishes humans from other animals. According to the philosophy expressed in the myths and religions of many peoples, language is the source of human life and power. To some people of Africa, a newborn child is a *kintu*, a "thing," not yet a *muntu*, a "person." It is only by the act of learning language that the child becomes a human being. To understand our humanity, we must understand the nature of language that makes us human. That is the goal of this book. We begin with a simple question: what does it mean to "know" a language?

Linguistic Knowledge

Do we know only what we see, or do we see what we somehow already know?

CYNTHIA OZICK, "What Helen Keller Saw," *New Yorker*, June 16 & 23, 2003

When you know a language, you can speak and be understood by others who know that language. This means you are able to produce strings of sounds that signify certain meanings and to understand or interpret the sounds produced by others. But language is much more than speech. Deaf people produce and understand sign languages just as hearing persons produce and understand spoken languages. The languages of the deaf communities throughout the world are equivalent to spoken languages, differing only in their modality of expression.

Most everyone knows at least one language. Five-year-old children are nearly as proficient at speaking and understanding as their parents. Yet the ability to carry out the simplest conversation requires profound knowledge that most speakers are unaware of. This is true for speakers of all languages, from Albanian to Zulu. A speaker of English can produce a sentence having two relative clauses without knowing what a relative clause is. For example:

> My goddaughter who was born in Sweden and who now lives in Iowa is named Disa, after a Viking queen.

In a parallel fashion, a child can walk without understanding or being able to explain the principles of balance and support or the neurophysiological control mechanisms that permit one to do so. The fact that we may know something unconsciously is not unique to language.

Knowledge of the Sound System

When I speak it is in order to be heard.

ROMAN JAKOBSON

Part of knowing a language means knowing what sounds (or signs[1]) are in that language and what sounds are not. One way this unconscious knowledge is revealed is by the way speakers of one language pronounce words from another language. If you speak only English, for example, you may substitute an English sound for a non-English sound when pronouncing "foreign" words like French *ménage à trois*. If you pronounce it as the French do, you are using sounds outside the English sound system.

French people speaking English often pronounce words like *this* and *that* as if they were spelled *zis* and *zat*. The English sound represented by the initial letters *th* in these words is not part of the French sound system, and the mispronunciation reveals the French speaker's unconscious knowledge of this fact.

Knowing the sound system of a language includes more than knowing the inventory of sounds. It means also knowing which sounds may start a word,

---

[1]The sign languages of the deaf will be discussed throughout the book. A reference to "language," then, unless speech sounds or spoken languages are specifically mentioned, includes both spoken and signed languages.

end a word, and follow each other. The name of a former president of Ghana was *Nkrumah,* pronounced with an initial sound like the sound ending the English word *sink.* While this is an English sound, no word in English begins with the *nk* sound. Speakers of English who have occasion to pronounce this name often mispronounce it (by Ghanaian standards) by inserting a short vowel sound, like *Nekrumah* or *Enkrumah,* making the word correspond to the English system. Children develop the sound patterns of their language very rapidly. A one-year-old learning English knows that *nk* cannot begin a word, just as a Ghanaian child of the same age knows that it can in his language.

We will learn more about sounds and sound systems in chapters 5 and 6.

Knowledge of Words

Sounds and sound patterns of our language constitute only one part of our linguistic knowledge. Beyond that we know that certain sequences of sounds signify certain concepts or **meanings**. Speakers of English understand what *boy* means, and that it means something different from *toy* or *girl* or *pterodactyl.* We also know that *toy* and *boy* are words, but *moy* is not. When you know a language, you know words in that language; that is, you know which sequences of sounds relate to specific meanings and which do not.

Arbitrary Relation of Form and Meaning

> The minute I set eyes on an animal I know what it is. I don't have to reflect a moment; the right name comes out instantly. I seem to know just by the shape of the creature and the way it acts what animal it is. When the dodo came along he [Adam] thought it was a wildcat. But I saved him. I just spoke up in a quite natural way and said, "Well, I do declare if there isn't the dodo!"
>
> MARK TWAIN, *Eve's Diary*, 1906

If you do not know a language, the words (and sentences) of that language will be mainly incomprehensible, because the relationship between speech sounds and the meanings they represent is, for the most part, an **arbitrary** one. When you are acquiring a language you have to learn that the sounds represented by the letters *house* signify the concept 🏠; if you know French, this same meaning is represented by *maison*; if you know Russian, by *dom*; if you know Spanish, by *casa*. Similarly, ✋ is represented by *hand* in English, *main* in French, *nsa* in Twi, and *ruka* in Russian. The same sequence of sounds can represent different meanings in different languages. The word *bolna* means 'speak' in Hindu-Urdu and 'aching' in Russian; *bis* means 'devil' in Ukrainian and 'twice' in Latin; a *pet* is a domestic animal in English and a fart in Catalan; and the sequence of sounds *taka* means 'hawk' in Japanese, 'fist' in Quechua, 'a small bird' in Zulu, and 'money' in Bengali.

These examples show that the words of a particular language have the meanings they do only by convention. Despite what Eve would have us believe in Mark Twain's satire *Eve's Diary*, a pterodactyl could have been called *ron*, *blick*, or *kerplunkity*.
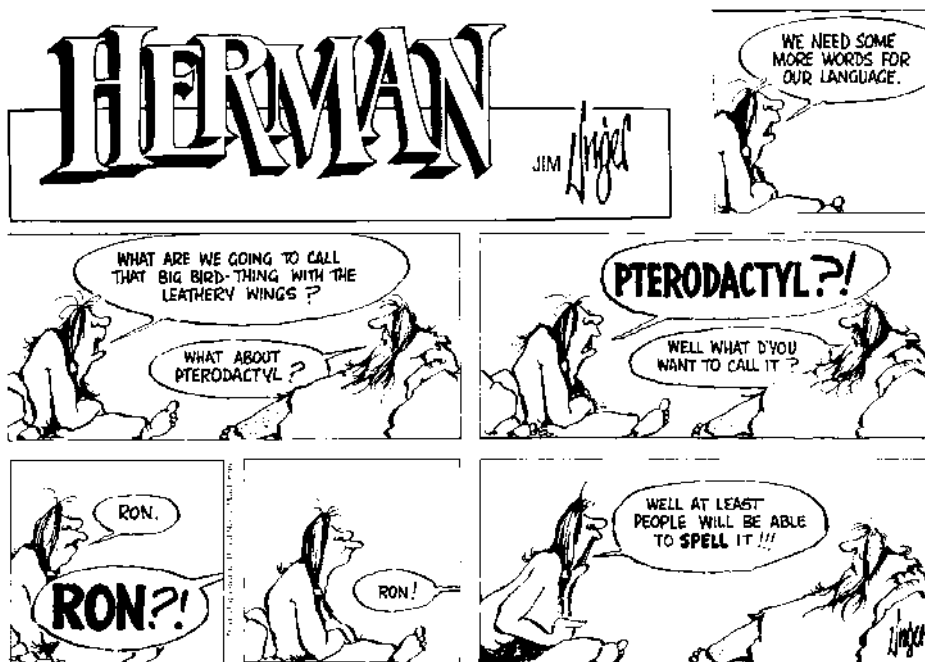
HERMAN®/LaughingStock Licensing Inc., Ottawa, Canada

As Juliet says in Shakespeare's *Romeo and Juliet*:

What's in a name? That which we call a rose
By any other name would smell as sweet;

This **conventional** and arbitrary relationship between the **form** (sounds) and **meaning** (concept) of a word is also true in sign languages. If you see someone using a sign language you do not know, it is doubtful that you will understand the message from the signs alone. A person who knows Chinese Sign Language (CSL) would find it difficult to understand American Sign Language (ASL), and vice versa.

Many signs were originally like miming, where the relationship between form and meaning is not arbitrary. Bringing the hand to the mouth to mean "eating," as in miming, would be nonarbitrary as a sign. Over time these signs may change, just as the pronunciation of words changes, and the miming effect is lost. These signs become conventional, so that the shape or movement of the hands alone does not reveal the meaning of the signs.

There is some **sound symbolism** in language—that is, words whose pronunciation suggests their meanings. Most languages contain **onomatopoeic** words like *buzz* or *murmur* that imitate the sounds associated with the objects or actions they refer to. But even here, the sounds differ from language to language and reflect the particular sound system of the language. In English *cock-a-doodle-doo* is an onomatopoeic word whose meaning is the crow of a rooster, whereas in Finnish the rooster's crow is *kukkokiekuu*. Forget *gobble gobble* when you're in Istanbul; a turkey in Turkey goes *glu-glu*.

Sometimes particular sound combinations seem to relate to a particular concept. Many English words beginning with *gl* relate to sight, such as *glare, glint, gleam, glitter, glossy, glaze, glance, glimmer, glimpse,* and *glisten.* However, *gl* words and their like are a very small part of any language, and *gl* may have nothing to do with "sight" in another language, or even in other words in English, such as *gladiator, glucose, glory, glutton, globe,* and so on.

To know a language we must know words of that language. But no speaker knows all the entries in an unabridged dictionary and even if someone did he would still not know that language. Imagine trying to learn a foreign language by buying a dictionary and memorizing words. No matter how many words you learned, you would not be able to form the simplest phrases or sentences in the language, or understand a native speaker. No one speaks in isolated words. And even if you could manage to get your message across using a few words from a traveler's dictionary, like "car—gas—where?" the best you could hope for is to be pointed in the direction of a gas station. If you were answered with a sentence it is doubtful that you would understand what was said or be able to look it up, because you would not know where one word ended and another began. Chapter 3 will discuss how words are put together to form phrases and sentences, and chapter 4 will explore word and sentence meanings.

The Creativity of Linguistic Knowledge

All humans are artists, all of us . . . Our greatest masterpiece of art is the use of a language to create an entire virtual reality within our mind.

DON MIGUEL RUIZ, 2012

ALBERT: So are you saying that you were the best friend of the woman who was married to the man who represented your husband in divorce?

ANDRÉ: In the history of speech, that sentence has never been uttered before.

NEIL SIMON, *The Dinner Party*, 2000

Knowledge of a language enables you to combine sounds to form words, words to form phrases, and phrases to form sentences. You cannot buy a dictionary or phrase book of any language with all the sentences of the language. No dictionary can list all the possible sentences, because the number of sentences in a language is infinite. Knowing a language means being able to produce and understand new sentences never spoken before. This is the **creative aspect** of language. Not every speaker can create great literature, but everybody who knows a language can create and understand new sentences.

This creative aspect of language is quite easy to illustrate. If for every sentence in the language a longer sentence can be formed, then there is no limit to the number of sentences. In English you can say:

This is the house.

or

This is the house that Jack built.

or

This is the malt that lay in the house that Jack built.

or

This is the dog that worried the cat that killed the rat that ate the malt that lay in the house that Jack built.

And you need not stop there. How long, then, is the longest sentence? A speaker of English can say:

The old man came.

or

The old, old, old, old, old man came.

How many "olds" are too many? Seven? Twenty-three?

It is true that the longer these sentences become, the less likely we would be to hear or to say them. A sentence with 276 occurrences of "old" would be highly unusual in either speech or writing, even to describe Methuselah. But such a sentence is theoretically possible. If you know English, you have the knowledge to add any number of adjectives as modifiers to a noun and to form sentences with indefinite numbers of clauses, as in "the house that Jack built."

All human languages permit their speakers to increase the length and complexity of sentences in these ways; creativity is a universal property of human language.

Our creative ability is reflected not only in what we say but also in our understanding of new or novel sentences. Consider the following sentence: "Daniel Boone decided to become a pioneer because he dreamed of pigeon-toed giraffes and cross-eyed elephants dancing in pink skirts and green berets on the wind-swept plains of the Midwest." You may not believe the sentence; you may question its logic; but you can understand it, although you probably never heard or read it before now.

In pointing out the creative aspect of language, Noam Chomsky, who many regard as the father of modern linguistics, argued persuasively against the view that language is a set of learned responses to stimuli. True, if someone steps on your toes you may automatically respond with a scream or a grunt, but these sounds are not part of language. They are involuntary reactions to stimuli. After we reflexively cry out, we can then go on to say: "Thank you very much for stepping on my toe, because I was afraid I had elephantiasis and now that I can feel the pain I know I don't," or any one of an infinite number of sentences, because the particular sentences we produce are not controlled by any stimulus.

Even some involuntary cries like "ouch" change according to the language we speak. Step on an Italian speaker's toes and he will cry "ahi." French speakers often fill their pauses with the vowel sound that starts their word for 'egg'—*oeuf*—a sound that does not occur in English. Even conversational fillers such as *er, uh*, and *you know* in English are constrained by the language in which they occur.

The fact of human linguistic creativity was well expressed more than 400 years ago by Huarte de San Juan (1530–1592): "Normal human minds are such that . . . without the help of anybody, they will produce 1,000 (sentences) they never heard spoke of . . . inventing and saying such things as they never heard from their masters, nor any mouth."

Knowledge of Sentences and Nonsentences

A person who knows a language has mastered a system of rules that assigns sound and meaning in a definite way for an infinite class of possible sentences.

NOAM CHOMSKY, *Language and Mind*, 1968

Our knowledge of language not only allows us to produce and understand an infinite number of well-formed (even if silly and illogical) sentences. It also permits us to distinguish well-formed (grammatical) from ill-formed (ungrammatical) sentences. This is further evidence of our linguistic creativity because ungrammatical sentences are typically novel, not sentences we have previously heard or produced, precisely because they are ungrammatical!

Consider the following sentences:

a. John kissed the little old lady who owned the shaggy dog.
b. Who owned the shaggy dog John kissed the little old lady.
c. John is difficult to love.
d. It is difficult to love John.
e. John is anxious to go.
f. It is anxious to go John.
g. John, who was a student, flunked his exams.
h. Exams his flunked student a was who John.

If you were asked to put an asterisk or star before the examples that seemed ill formed or ungrammatical or "no good" to you, which ones would you mark? Our intuitive knowledge about what is or is not an allowable sentence in English convinces us to star *b*, *f*, and *h*. Which ones did you star?

Would you agree with the following judgments?

a. What he did was climb a tree.
b. *What he thought was want a sports car.[2]
c. Drink your beer and go home!
d. *What are drinking and go home?
e. I expect them to arrive a week from next Thursday.
f. *I expect a week from next Thursday to arrive them.
g. Linus lost his security blanket.
h. *Lost Linus security blanket his.

If you find the starred sentences unacceptable, as we do, you see your linguistic creativity at work.

These sentences also illustrate that not every string of words constitutes a well-formed sentence in a language. Sentences are not formed simply by placing one word after another in any order, but by organizing the words according to the rules of sentence formation of the language. These rules are finite in length and finite in number so that they can be stored in our finite brains. Yet, they

---

[2]The asterisk is used before examples that speakers find ungrammatical. This notation will be used throughout the book.

permit us to form and understand an infinite set of new sentences. They also enable us to judge whether a sequence of words is a well-formed sentence of our language or not. These rules are not determined by a judge or a legislature, or even taught in a grammar class. They are unconscious rules that we acquire as young children as we develop language and they are responsible for our linguistic creativity. Linguists refer to this set of rules as the **grammar** of the language.

Returning to the question we posed at the beginning of this chapter—what does it mean to know a language? It means knowing the sounds and meanings of many, if not all, of the words of the language, and the rules for their combination—the grammar, which generates infinitely many possible sentences. We will have more to say about these rules of grammar in later chapters.

Linguistic Knowledge and Performance

"What's one and one and one and one and one and one and one and one and one and one?" "I don't know," said Alice. "I lost count." "She can't do Addition," the Red Queen interrupted.

LEWIS CARROLL, *Through the Looking-Glass*, 1871

Speakers of all languages have the knowledge to understand or produce sentences of any length. Here is an example from the ruling of a federal judge:

We invalidate the challenged lifetime ban because we hold as a matter of federal constitutional law that a state initiative measure cannot impose a severe limitation on the people's fundamental rights when the issue of whether to impose such a limitation on these rights is put to the voters in a measure that is ambiguous on its face and that fails to mention in its text, the proponent's ballot argument, or the state's official description, the severe limitation to be imposed.

Theoretically there is no limit to the length of a sentence, but in practice very long sentences are highly improbable, the verbose federal judge notwithstanding. Evidently, there is a difference between having the knowledge required to produce or understand sentences of a language and applying this knowledge. It is a difference between our knowledge of words and grammar, which is our **linguistic competence**, and how we use this knowledge in actual speech production and comprehension, which is our **linguistic performance**.

Our linguistic knowledge permits us to form longer and longer sentences by joining sentences and phrases together or adding modifiers to a noun. However, there are physiological and psychological reasons that limit the number of adjectives, adverbs, clauses, and so on that we actually produce and understand. Speakers may run out of breath, lose track of what they have said, or die of old age before they are finished. Listeners may become tired, bored, disgusted, or confused, like poor Alice when being interrogated by the Red Queen.

When we speak, we usually wish to convey some message. At some stage in the act of producing speech, we must organize our thoughts into strings of words. Sometimes the message is garbled. We may stammer, or pause, or produce **slips of the tongue** like saying *preach seduction* when *speech production* is meant (discussed in chapter 10).

What Is Grammar?

We use the term "grammar" with a systematic ambiguity. On the one hand, the term refers to the explicit theory constructed by the linguist and proposed as a description of the speaker's competence. On the other hand, it refers to this competence itself.

NOAM CHOMSKY AND MORRIS HALLE, *The Sound Pattern of English*, 1968

Descriptive Grammars

There are no primitive languages. The great and abstract ideas of Christianity can be discussed even by the wretched Greenlanders.

JOHANN PETER SUESSMILCH, in a paper delivered before the Prussian Academy, 1756

The way we are using the word *grammar* differs from most common usages. In our sense, the grammar is the knowledge speakers have about the units and rules of their language—rules for combining sounds into words (called *phonology*), rules of word formation (called *morphology*), rules for combining words into phrases and phrases into sentences (called *syntax*), as well as the rules for assigning meaning (called *semantics*). The grammar, together with a mental dictionary (called a *lexicon*) that lists the words of the language, represents our linguistic competence. To understand the nature of language we must understand the nature of grammar.

Every human being who speaks a language knows its grammar. When linguists wish to describe a language, they make explicit the rules of the grammar of the language that exist in the minds of its speakers. There will be some differences among speakers, but there must be shared knowledge too. The shared knowledge—the common parts of the grammar—makes it possible to communicate through language. To the extent that the linguist's description is a true model of the speakers' linguistic capacity, it is a successful description of the grammar and of the language itself. Such a model is called a **descriptive grammar**. It does not tell you how you *should* speak; it describes your basic linguistic knowledge. It explains how it is possible for you to speak and understand and make judgments about well-formedness, and it tells what you know about the sounds, words, phrases, and sentences of your language.

When we say that a sentence is **grammatical** we mean that it conforms to the rules of the mental grammar (as described by the linguist); when we say that it is **ungrammatical**, we mean it deviates from the rules in some way. If, however, we posit a rule for English that does not agree with your intuitions