

The Development of Language

Ninth Edition



Jean Berko Gleason | Nan Bernstein Ratner

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PEARSON

To the memory of our dear friends and co-authors,
Richard Ely and Barbara Alexander Pan.

About the Authors

Jean Berko Gleason is professor emerita in the Department of Psychological and Brain Sciences at Boston University, where she has served as chair and as director of the Graduate Program in Developmental Science. She is also a faculty member and former director of Boston University's Graduate Program in Applied Linguistics. She has been a visiting scholar at Harvard University, Stanford University, and at the Linguistics Institute of the Hungarian Academy of Sciences in Budapest. A fellow of the American Association for the Advancement of Science and of the American Psychological Association, she was elected president of the International Association for the Study of Child Language. She is also past president of the Gypsy Lore Society. Her background includes an undergraduate degree in history and literature and a Ph.D. in linguistics and psychology from Harvard. She is the author of leading works on psycholinguistics and creator of the Wug Test, the best-known experimental study of children's language acquisition. She has continued to conduct research and publish in the areas of language development in children, aphasia, gender differences, and parent-child interaction. Her work is frequently cited in the professional literature, in the popular press, on television, and on the Internet, where she is featured in the award-winning NOVA series, *The Secret Life of Scientists* (www.pbs.org/wgbh/nova/secretlife/scientists/jean-berko-gleason).

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Contents

Preface xv

1 THE DEVELOPMENT OF LANGUAGE: AN OVERVIEW AND A PREVIEW 1

Jean Berko Gleason, *Boston University*

An Overview of the Course of Language Development 2

- Communication Development in Infancy* 2
- Phonological Development: Learning Sounds and Sound Patterns* 2
- Semantic Development: Learning the Meanings of Words* 2
- Putting Words Together: Morphology and Syntax in the Preschool Years* 3
- Language in Social Contexts: Development of Communicative Competence* 3
- Theoretical Approaches to Language Acquisition* 4
- Variation in Language Development: Implications for Research and Theory* 4
- Atypical Language Development* 5
- Language and Literacy in the School Years* 5
- Bilingual Language Development* 6

The Structure of Language: Learning the System 6

- Competence and Performance* 6
- Phonology* 7
- Morphology* 7
- Syntax* 8
- Semantics* 8
- The Social Rules for Language Use* 9

The Biological Bases of Language 9

- Animal Communication Systems* 9
- The Biological Base: Humans, Ancient and Modern* 14

The Study of Language Development 18

- Interest in Language Acquisition in Ancient Times* 18
- Studies in the Nineteenth and Twentieth Centuries* 18
- Research in the Modern Era* 19
- Research Methods* 20
- CHILDES* 23

Summary 23

Suggested Projects 25

2 COMMUNICATION DEVELOPMENT IN INFANCY 26

Rochelle S. Newman, *University of Maryland, College Park*

Perceptual “Tuning” to Speech	27
<i>Segmentation</i>	28
<i>Statistical Learning</i>	29
Early Communicative Attempts	30
The Expression of Communicative Intent before Speech	31
<i>Characteristics of Intentional Communication</i>	31
<i>The Forms and Functions of Early Communicative Behaviors</i>	32
<i>The Assessment of Communicative Intent</i>	33
The Social Context of the Preverbal Infant	34
<i>The Sound of the Caregiver’s Speech: “Listen to Me!”</i>	35
<i>The Conversational Nature of the Caregiver’s Speech: “Talk to Me!”</i>	36
<i>Contexts for the Emergence of Object Reference: “Look at That!”</i>	38
<i>Talk in Structured Situations: “Here’s What We Say”</i>	39
<i>First Words</i>	40
<i>Enhancing Early Development: A Summary</i>	40
<i>When Learning to Communicate Is Difficult</i>	41
Summary	43
Suggested Projects	44

3 PHONOLOGICAL DEVELOPMENT: LEARNING SOUNDS AND SOUND PATTERNS 45

Carol Stoel-Gammon, *University of Washington*,
Lise Menn, *University of Colorado*

English Speech Sounds and Sound Patterns	45
<i>IPA Symbols for Consonants</i>	45
<i>Classifying Consonants</i>	46
<i>Place of Articulation</i>	47
<i>Manner of Articulation</i>	47
<i>Voicing</i>	48
<i>Classifying Vowels</i>	48
<i>Contrast: The Phoneme</i>	49
<i>Phonotactics: Constraints on Possible Words</i>	49
<i>Prosodic Aspects of Speech: Stress and Intonation Contour</i>	49
Production: The Prelinguistic Period	49
<i>Sounds of Babbling</i>	50
<i>The Relationship between Babbling and Speech</i>	51
Learning to Make Words	51
<i>The Beginning of Phonological Development: Protowords</i>	51
<i>Words and Sounds: Vocabulary and Phonology Interact</i>	52
<i>A Cognitive Approach to the Acquisition of Phonology</i>	53
Learning to Pronounce	54
<i>How Real Children Pronounce Words</i>	54

<i>How to Describe Regularity in Children's Renditions of Adult Words</i>	55
<i>Rules, Templates, and Strategies</i>	58
Phonological Development: Norms and Measures	60
<i>Phonetic Inventories of Young Children</i>	60
<i>Accuracy of Production</i>	61
<i>Ages and Stages of Acquisition</i>	62
When Phonological Development Is Difficult	63
<i>Phonological Disorders of Unknown Etiology</i>	63
<i>Articulation and Phonological Disorders Associated with Identifiable Causes</i>	64
<i>Effects of a Phonological/Articulation Disorder</i>	66
The Acquisition of English Morphophonology	66
Parents' Role in Phonological Development	67
Phonological Awareness and Reading Readiness	67
Language Variation in the United States: Languages, Dialects, and Speech Styles	67
<i>Spanish in the United States</i>	68
<i>Consonants of (Mexican) Spanish, by Manner Class</i>	69
<i>Regional and Ethnic Dialectal Differences in English</i>	70
<i>Pronunciation in Conversational Speech</i>	71
Summary	72
Child Phonology Problems	73
Suggested Projects	75
Suggested Websites	76
4 SEMANTIC DEVELOPMENT: LEARNING THE MEANINGS OF WORDS	77
<i>Paola Uccelli, Harvard Graduate School of Education</i>	
<i>Meredith L. Rowe, Harvard Graduate School of Education</i>	
<i>*Barbara Alexander Pan, Harvard Graduate School of Education</i>	
The Relations between Words and Their Referents	78
<i>Mental Images</i>	79
Theoretical Perspectives on Semantic Development	80
<i>Learning Theory</i>	80
<i>Developmental Theories</i>	81
<i>Fast Mapping</i>	82
The Study of Early Semantic Development	83
<i>What Are Early Words Like?</i>	84
<i>Unconventional Word/Meaning Mappings</i>	87
<i>Invented Words</i>	88
<i>Differences between Comprehension and Production</i>	89
How Adult Speech Influences Children's Semantic Development	89
<i>Individual Differences in Vocabulary Development: Home and School Factors</i>	92
<i>Vocabulary Development and Assessment in Bilingual Children</i>	93

Later Semantic Development	95
Connections between Research and Practice	96
Metalinguistic Development	97
<i>Word-Concept Awareness</i>	98
<i>Word-Meaning Awareness: Humor, Metaphor, and Irony</i>	98
<i>Word Definitions</i>	100
<i>When Learning New Words Is Difficult</i>	100
<i>A Life-Long Enterprise</i>	102
Summary	102
Suggested Projects	103

5 PUTTING WORDS TOGETHER: COMPREHENSION AND PRODUCTION OF MORPHOLOGY AND SYNTAX IN THE PRESCHOOL YEARS 104

Andrea Zukowski, University of Maryland, College Park

<i>Children's Early Comprehension of Syntax</i>	105
<i>Studying Syntactic Development</i>	106
Entering the Complex Linguistic System	107
Two-Word Utterances	108
<i>Telegraphic Speech</i>	109
<i>Semantic Relations</i>	110
<i>Early Grammar</i>	110
The Nature of Syntactic Rules	111
Measuring Syntactic Growth	116
Developing Grammatical Morphemes	119
<i>Brown's 14 Morphemes</i>	119
<i>Order of Acquisition</i>	120
<i>Optional Infinitives</i>	121
<i>Productivity of Children's Morphology</i>	122
<i>Crosslinguistic Data</i>	123
Different Sentence Modalities	124
<i>Negatives</i>	124
<i>Questions</i>	125
Later Developments in Preschoolers	127
<i>Passives</i>	127
<i>Coordinations</i>	129
<i>Relative Clauses</i>	129
Beyond the Preschool Years	131
<i>Anaphora</i>	131
<i>Interpreting "Empty" Subjects in Infinitive Clauses</i>	132
Knowledge versus Processing	132
Summary	134
Suggested Projects	134

6 LANGUAGE IN SOCIAL CONTEXTS: DEVELOPMENT OF COMMUNICATIVE COMPETENCE 137

Judith Becker Bryant, *University of South Florida*

Language in Social Contexts	138
<i>Non-egocentric Language</i>	139
<i>Requests</i>	140
<i>Conversational Skills</i>	141
<i>Choices among Language Varieties</i>	143
The Challenge of Acquiring Communicative Competence	146
How Do Children Acquire Communicative Competence?	147
<i>Family Influences</i>	147
<i>Schools' and Peers' Influence</i>	151
<i>Children's Cognitions and Efforts to Achieve Communicative Competence</i>	152
Why Does Communicative Competence Matter?	155
Summary	157
Suggested Projects	157

7 THEORETICAL APPROACHES TO LANGUAGE ACQUISITION 158

John N. Bohannon III, *Butler University*

John D. Bonvillian, *University of Virginia*

Distinguishing Features of Theoretical Approaches	158
<i>Structuralism versus Functionalism</i>	159
<i>Competence versus Performance</i>	159
<i>Nativism versus Empiricism</i>	159
<i>Evaluating Research Methods</i>	160
Classic Behavioral Approaches	160
<i>General Assumptions</i>	160
<i>Behavioral Language Learning</i>	161
<i>Evaluation of the Behavioral Approaches</i>	163
Linguistic Approaches	164
<i>General Assumptions</i>	164
<i>LAD and Development</i>	166
<i>Evaluation of the Linguistic Approaches</i>	167
Interactionist Approaches	172
<i>General Assumptions</i>	172
<i>Cognitive Approaches: Piaget's Theory and Information-Processing Models</i>	172
<i>Information-Processing Approach</i>	176
<i>Social Interaction Approach</i>	180
Gestural and Usage-Based Approach	187
<i>Gestural and Sign Origins</i>	187
<i>Usage-Based Theory</i>	190
<i>Evaluation of Gestural and Usage-Based Theory</i>	191
Summary	192
Suggested Projects	194

8	VARIATION IN LANGUAGE DEVELOPMENT: IMPLICATIONS FOR RESEARCH AND THEORY	196
	<i>Beverly A. Goldfield, Rhode Island College</i>	
	<i>Catherine E. Snow, Harvard Graduate School of Education</i>	
	<i>Ingrid A. Willenberg, Australian Catholic University</i>	
	The History of Variation in Child Language Research	197
	Variation in Early Words	198
	Segmenting the Speech Stream	199
	Variation in Early Sentences	201
	Stability of Style across Words and Sentences	202
	Sources of Variation	204
	<i>Child Factors</i>	<i>204</i>
	<i>Input Factors</i>	<i>205</i>
	<i>Socioeconomic Status</i>	<i>206</i>
	<i>Linguistic Factors</i>	<i>208</i>
	<i>Bilingual Language Learners</i>	<i>209</i>
	Context: The Interaction of Child, Caregiver, and Language	211
	Implications of Variation for Theories of Language Acquisition	212
	Summary	<i>213</i>
	Suggested Projects	<i>214</i>
9	ATYPICAL LANGUAGE DEVELOPMENT	215
	<i>Nan Bernstein Ratner, University of Maryland, College Park</i>	
	What Causes Atypical Language Development?	216
	Communicative Development and Severe Hearing Impairment	217
	<i>Language Development</i>	<i>219</i>
	<i>Lexical Development</i>	<i>220</i>
	<i>Grammatical Development</i>	<i>220</i>
	<i>Reading and Writing Skills</i>	<i>220</i>
	<i>Pragmatic Skills</i>	<i>221</i>
	<i>Educational Approaches to the Development of Language in Children Who Are Deaf</i>	<i>221</i>
	<i>Acquisition of ASL as a First Language</i>	<i>223</i>
	<i>Teaching Sign Language to Typically Developing and Developmentally Delayed Babies with Typical Hearing Skills</i>	<i>223</i>
	<i>Sign Language and the Brain</i>	<i>224</i>
	<i>Are You at Risk for Hearing Impairment?</i>	<i>224</i>
	Intellectual Disability and Communicative Development	224
	<i>Cognitive Disability and the Language-Acquisition Process</i>	<i>224</i>
	<i>Language Development</i>	<i>227</i>
	<i>Teaching Language to Children with Intellectual Disability</i>	<i>229</i>

Autism Spectrum Disorder	230
<i>General Characteristics</i>	230
<i>Causation</i>	232
<i>Specific Social and Communicative Weaknesses in Autism Spectrum Disorder</i>	233
<i>Language</i>	234
<i>Echolalia</i>	234
<i>Treatment</i>	235
Specific Language Impairment	239
<i>General Identity and Prevalence</i>	239
<i>Language Profiles of Children with Specific Language Impairment</i>	239
<i>Lexicon</i>	240
<i>Morphosyntax</i>	241
<i>Pragmatics</i>	243
<i>Concomitant Problems</i>	244
<i>Causative Explanations</i>	244
<i>Models of SLI</i>	245
<i>Is SLI Universal?</i>	247
<i>Language Intervention with Children Who Are Specifically Language Impaired</i>	247
Atypical Speech Development	250
<i>Childhood Stuttering</i>	251
Evaluation of Suspected Speech and Language Disorders in Children	252
Summary	253
Suggested Projects	255

10 LANGUAGE AND LITERACY IN THE SCHOOL YEARS 257

Gigliana Melzi, *New York University*

Adina R. Schick, *New York University*

Learning to Share Oral Stories	259
<i>Sharing Oral Stories at Home</i>	259
<i>Oral Stories across Cultures and in Different Languages</i>	263
<i>Sharing Oral Stories in the Classroom</i>	264
<i>Playing with Language and Using Verbal Humor</i>	266
<i>Beyond Language Play: Types of Metalinguistic Knowledge</i>	267
<i>Developing Metalinguistic Awareness in Two Languages</i>	269
Learning to Read	270
<i>Engaging with Print at Home and in the Community</i>	270
<i>Reading Components</i>	273
<i>Reading Development</i>	274
<i>Approaches to Reading Instruction</i>	275
<i>Learning to Read in a Second Language</i>	277
<i>When Learning to Read Is Difficult</i>	277

Learning to Write	279
<i>Development of Spelling</i>	279
<i>Developing Writing Skills across Genres</i>	280
<i>Learning to Write in a Second Language</i>	282
Summary	283
Suggested Projects	283

11 **BILINGUAL LANGUAGE DEVELOPMENT** **285**

L. Quentin Dixon, *Texas A&M University*

Jing Zhao, *Sun Yat-sen University/Harvard Graduate School of Education*

Perspectives on Bilingual Language Development	287
<i>The Child Language Perspective: Input and Interaction as Factors in Bilingual Acquisition</i>	287
<i>The Linguistic Perspective</i>	287
<i>The Sociocultural Perspective</i>	289
<i>The Psycholinguistic Perspective</i>	290
Key Questions in Bilingual Language Development	290
<i>Q1: What Are the Best Conditions for Acquiring Two Languages?</i>	290
<i>Q2: Are You Ever Too Old to Learn a Second Language?</i>	293
<i>Q3: Why Are Some People Better at Learning a New Language than Others?</i>	294
<i>Q4: How Much Does Bilingual Development Resemble Monolingual Development?</i>	296
<i>Q5: Is It Possible to Become a Perfect Bilingual?</i>	299
<i>Q6: Is Bilingualism an Advantage or Disadvantage?</i>	301
When Learning a Second Language Is Difficult	304
Summary	305
Suggested Projects	306
References	308
Glossary	369
Name Index	383
Subject Index	398

Preface

This is the ninth edition of *The Development of Language*, which we have written for anyone with an interest in how children acquire language from infancy through the later school years. The field has changed substantially since our last edition, and we are very pleased to present new perspectives and new findings that have emerged over the past several years. This edition also includes some new topics that we think are interesting and important for a broader understanding of the basic features of language development from both historical and cross-cultural perspectives.

Our goal in writing this book is to provide an authoritative, interesting text that includes concepts and research findings that are both important and useful. The ninth edition places a substantial emphasis on language development in children who are learning languages other than, or in addition to, English, as well as on children with risk factors for language delay or disorder. Additionally, the chapters address cultural influences that lead to group and individual variation in children's language. The book focuses on language acquisition from the early months, even before children begin to speak, through mastery of adult language skills.

»» New to This Edition

Readers who are familiar with previous editions of this text will notice immediately that we have replaced the chapter on aging with a totally new and comprehensive chapter called Bilingual Language Development. This is in response to many requests from instructors, and it is a reflection of the growing importance of this topic. We are happy to welcome our new co-authors of Chapter 11, L. Quentin Dixon of Texas A&M University and Jing Zhao of Sun Yat-sen University and the Harvard Graduate School of Education. Huān yíng!

This edition also has many digital features that will make the concepts and material more accessible, more complete, and more invitingly interactive. The chapters have media clips that illustrate information and introduce students to some of the leaders in our field. Links are also provided to a really vast number of online resources. A brief list of some of the new features of this edition includes:

- A completely new chapter on bilingual language development and second-language acquisition. Benefit: The typical language learner in most cultures is no longer monolingual, and this new chapter reflects an important reality for teachers and therapists in training: Chapter 11.
- Each chapter now contains integration of typical development in a topic area (e.g., speech, vocabulary, reading) with the most commonly observed difficulties and disorders seen in acquiring this skill. Benefit: With new response to intervention (RTI) approaches to treatment, all teachers and therapists must be prepared to recognize the most common delays or problems in children; these are no longer isolated to a single chapter (as in earlier editions), where students may not appreciate them fully. Location in text: All chapters, especially Chapters 2, 3, 4, 5, 6, 8, and 10.
- The chapter on atypical development has been reframed to concentrate on cross-cutting concepts in child communication delay and disorder. Readers are now able to understand common themes across the many causes and manifestations of delay in learning critical communication skills, such as genetics, environmental deprivation, and the common features of developmental disabilities that impair language learning: Chapter 9.

- Each chapter now contains a variety of media links to examples of concepts, firsthand expert interviews, and illustrations that deepen student appreciation of concepts. Benefit: Examples improve student understanding of concepts and deepen student mastery of material: All chapters.
- Coverage of socioeconomic disparities and their impact on children's communication development, provided by an expert in this area, Meredith Rowe of the Harvard Graduate School of Education, who has joined us as a co-author of Chapter 4. Benefit: Students will gain additional understanding of how socioeconomic disparities can influence children's language development: Primarily Chapter 4, but integrated throughout all chapters.
- Updated coverage of neurological, genetic, and anthropological research that places children's language development in a larger context. Benefit: Major advances in mapping the brain, understanding the genetic contributions to language and language disorders, and describing the unique capacity for human language clarify what enables children to succeed at the process of learning language: Primarily Chapter 1, but interwoven through almost all chapters.

As in the past, each chapter is written by outstanding scholars who are known for their expertise in the areas that they discuss. For students, each chapter provides a helpful summary and a list of suggested course papers and projects. The key words used in the chapter are printed in boldface, and the book includes a comprehensive glossary that clearly explains each of these key terms. References are now in one place at the end of the book, rather than with each chapter.

The book is intended as a text for upper-level undergraduate or graduate courses in language development or as readings for courses in psycholinguistics, cognition, developmental psychology, speech pathology, education, and related subjects. The book also serves as a resource for professionals in all of the fields just noted.

In order to benefit from the book, readers do not need previous knowledge of linguistics; each chapter presents its material along with whatever linguistic background information is relevant. This means that there will be some repetition of major concepts, which will help to reinforce them and make them clearer. On the other hand, we assume that readers are familiar with basic concepts in psychology (e.g., *object permanence*) and with the work of major figures such as Jean Piaget and B. F. Skinner. Many books on language development are concerned only with language acquisition by young children and have tended to assume that development is complete when complex syntactic structures have been attained. But linguistic development, like psychological development, does not stop when the individual reaches physical maturity, and so we have included development through the school years, with the understanding that language development continues over the life span.

This book is written by a number of authors, and we believe that is one of its strengths: The study of language development has grown rapidly in recent years, and there are now many topics that are highly specialized. Not many researchers are experts in all areas of this expanding field. For instance, there are few investigators who are authorities on both speech perception in infants and learning to write in a second language, yet both topics are covered here. Fortunately, a number of leading researchers in their fields have agreed to contribute to the book. The chapters, therefore, are written by authors who are known for their research in the topic area and their ability to clearly explain complex topics to a broad audience. Each presents a survey of the salient ideas and the most recent and relevant studies in their own specialty area.

Since development is always the result of an interaction between innate capacities and environmental forces, we take an interactive perspective, one that takes into account both the biological endowment that makes language possible and the environmental factors that foster development. In particular, in this edition, we also highlight factors that may impede development but be responsive to intervention.

Instructors who adopt the text will be happy to learn that a new instructor's manual accompanies the text. The manual provides Internet resources, sample exam questions, and helpful outlines of the chapters that can be used in structuring lectures. It emphasizes key points and provides suggestions for classroom activities.

» Acknowledgments

We are indebted to many people who helped make this book possible. We are grateful, first of all, to our co-authors, who devoted so much time and thought to their chapters. Thanks also to Ann Davis, our editor at Pearson Education. And thanks to Sridhar Annadurai at Lumina Datamatics for his excellent work in making our book project a successful one. We thank the following reviewers for their comments and suggestions: Joseph Galasso, California State University, Northridge; Steven Long, Marquette University; Angela E. Rickford, San Jose State University; and Horabail “Giri” Venkatagiri, Iowa State University.

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The Development of Language

An Overview and a Preview

By the time they are 3 or 4 years old, children everywhere in the world have acquired the major elements of the languages spoken around them, regardless of how complex they may be. The development of language is an amazing, yet basically universal, human achievement. It poses some of the most challenging theoretical and practical questions of our times: Do infants, or even developing fetuses, process language? If so, what aspects of speech and language can they perceive? How do young children acquire complex grammar? Are humans unique, or do other animals have language as we define it? What if we raised a chimp as if it were our own child—would it learn to use language in the same way that a human child does? Do parrots who talk know what they are saying? Are there theories that can adequately account for language development? Is language a separate capacity, or is it simply one facet of our general cognitive ability? What is it that individuals actually must know in order to have complete adult language, and to what extent is the development of language representative of universal processes, like learning to walk? What about individual differences? What happens when language develops atypically, and is there anything we can do about it? Can children acquire two or more languages with native-like proficiency? Can adults? Or is there a point when it is too late to learn a second language? These are some of the questions that intrigue researchers in language development, and they have led to the plan of this book.

Once children begin to acquire language, they make rapid progress. By the time they are of school age and even before they can read, they can vary their speech to suit the social and communicative nature of a situation; they know the meaning and pronunciation of literally thousands of words, and they use the major sentence types and grammatical forms—subjects, objects, verbs, plurals, and tenses—of their language quite correctly. Language development does not cease when people reach school age, nor, for that matter, adolescence or maturity; language development continues throughout our lives. This book is written from a developmental perspective that concentrates on language development through the school years in detail, and discusses later development in many appropriate places. We have also included information on what can happen when development does not proceed smoothly or typically.

This chapter is divided into four major sections. The first section provides a brief overview of *the course of language development* from early infancy through the school years. It serves as a preview of the chapters that follow.

The second section describes the major *linguistic systems* that individuals must acquire. Rather than endorsing any particular linguistic theory, we present descriptive information that has provided the framework for much basic research in language acquisition. More technical linguistic material is presented in the chapters devoted to particular topics such as the acquisition of the sound system (Chapter 3) or of syntax (Chapter 5). If there is a unifying perspective that the authors of this book share, it is the view that

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Learning Outcomes

After reading this chapter, the student will be able to:

- Summarize the broad areas of language knowledge that children must master in order to become competent listeners, speakers, readers, and writers of a language;
- Describe the rule systems that apply to all human languages by defining what is meant by *phonology*, *morphology*, *syntax*, *semantics*, and *pragmatics*;
- Compare and contrast communication systems used by nonhuman animals with the rule systems and knowledge that characterize human languages and their use;
- Describe the features of language acquisition and use that provide evidence of its biological basis;
- Briefly summarize how the study of child language acquisition has changed since its earliest accounts, concluding with a discussion of modern research approaches and concerns.

individuals acquire during their lives an **internalized representation** of language that is systematic in nature and amenable to study.

The third section notes some of the unique *biological foundations* for language that make its development possible in humans. Our biological endowment is necessary but not sufficient to ensure language development, which does not occur without social interaction.

The fourth and final section of this chapter focuses on the background and methods of the *study of language development*.

» An Overview of the Course of Language Development

Communication Development in Infancy

Even before babies are born, they are listening to the language spoken around them: Research shows that newborns prefer to hear the language or languages they heard while *in utero*. During their first months, infants have communicative abilities that underlie language, long before they say their first words. Babies are intensely social beings: They gaze into the eyes of their caregivers and are sensitive to the emotional tone of the voices around them. They pay attention to the language spoken to them; they take their turn in conversation, even if that turn is only a burble. If they want something, they learn to make their intentions known. In addition to possessing the social motivations that are evidenced so early in life, infants are also physiologically equipped to process incoming speech signals; they are even capable of making fine distinctions among speech sounds. In fact, they are better at it than we are! By the age of 6 months, babies have already begun to categorize the sounds of their own language, much as adult speakers do. By the age of about 11 months, many babies understand 50 or more common words, and point happily at Tabitha Twitchit when someone asks, “Where’s the kitty?”

At approximately the same age that they take their first steps, many infants produce their first words. Like walking, early language appears at around the same age and in much the same way all over the world, regardless of the society or culture or the characteristics of the language that is being acquired. The precursors of language development that emerge before infants begin to speak are discussed in Chapter 2.

Phonological Development: Learning Sounds and Sound Patterns

Midway through their first year, infants begin to babble, playing with sound much as they play with their fingers and toes. Early in their second year, for most children, the babbling of the prelinguistic infant gives way to words as babbling blends into early speech. The infant who babbled “ba ba ba” may now use *baba* as an early word for *bottle*. Once infants have begun to speak, the course of language development appears to have some universal characteristics. Toddlers’ early utterances often contain only one word, which is usually simple to pronounce and concrete in meaning. It is important to recognize that different constraints act upon the child’s **comprehension** and **production** of a particular form; children may comprehend things more complex than what they are able to produce. Some sounds are more difficult to pronounce than others, and combinations of consonants may prove particularly problematic. Within a given language, or when acquiring more than one language, children solve the phonological problems they encounter in varying ways. A framework for the study of children’s acquisition of the phonology, or sound system, of their language is provided in Chapter 3.

Semantic Development: Learning the Meanings of Words

The ways in which speakers connect words to their referents and their meanings are the subject matter of **semantic development**. Just as there are constraints on the phonological shapes of children’s early words, there appear to be limits on the kinds of meanings

of those early words; for instance, very young children’s vocabularies are more likely to contain words that refer to objects that move (*bus*) than objects that are immobile (*bench*). Their vocabularies reflect their daily lives and are unlikely to refer to events that are distant in time or space or to anything of an abstract nature. Early words like *hi*, *doggie*, *Mommy*, and *juice* refer to the objects, events, and people in the child’s immediate surroundings. As they enter the school years, children’s words become increasingly complex and interconnected, and they also gain a new kind of knowledge: **metalinguistic awareness**, the ability to think about language itself, understand what words are, and even answer a question like *Is “pumpnickel” a word?* Investigations of children’s early words and their meanings, as well as the ways that meaning systems develop into complex semantic networks, are discussed in Chapter 4.

Putting Words Together: Morphology and Syntax in the Preschool Years

Sometime before their second birthday, after they know about 50 words, most children progress to a stage of two-word combinations. Words that they said in the one-word stage are now combined into these simple utterances, without the grammatical modifications that adult language requires. The child can now say such things as “That doggie,” meaning “That is a doggie,” and “Mommy juice,” meaning “Mommy’s juice,” or “Mommy, give me my juice,” or “Mommy is drinking her juice.”

An examination of children’s two-word utterances in many different language communities has shown that everywhere in the world children at this age are expressing the same kinds of thoughts and intentions in the same kinds of utterances. They ask for more of something; they say no to something; they notice something, or they notice that it has disappeared. This leads them to produce utterances like “More milk!” “No bed!” “Hi, kitty!” and “All-gone cookie!”

A little later in the two-word stage, another dozen or so kinds of meanings appear. For instance, children may name an actor and a verb: “Daddy eat.” They may modify a noun: “Bad doggie.” They may specify a location: “Kitty table.” They may name a verb and an object, leaving out the subject: “Eat lunch.” At this stage children are expressing these basic meanings, but they cannot use the language forms that indicate number, gender, and tense. Toddler language is about what is happening now; there is no tomorrow and no yesterday in language at the two-word stage. What children can say is closely related to their level of cognitive and social development, and a child who cannot conceive of the past is unlikely to speak of it. As the child’s utterances grow longer, grammatical forms begin to appear. In English, articles, prepositions, and inflections begin to be heard. Although the two-word stage has some universal characteristics across all languages, what is acquired next depends on the features of the language being learned. English-speaking children learn the articles *a* and *the*, but in a language such as Russian, there are no articles; Russian has other features that English grammar does not. One remarkable finding has been that children acquiring a given language do so in essentially the same order (but not at the same rate). In English, for instance, children learn *in* and *on* before other prepositions such as *under*. After they learn regular plurals and pasts, like *juices* and *heated*, they create some **overregularized** forms of their own, like *gooses* and *eated*.

Researchers account for children’s early utterances in varying ways. However, children’s unique ability to acquire complex grammar, regardless of how and why they do it, remains at the heart of linguistic inquiry. Early grammar is examined in Chapter 5.

Language in Social Contexts: Development of Communicative Competence

Language development includes acquiring the ability to use language *appropriately* in many different situations. This complex ability is often referred to as **communicative competence**. The system of rules that dictates the way language is used to

accomplish social ends is often called pragmatics. An individual who acquires the phonology, morphology, syntax, and semantics of a language has acquired **linguistic competence**. A sentence such as “Pardon me, sir, but might I borrow your writing instrument for a moment?” certainly shows that the speaker has linguistic competence, since it is perfectly grammatical. If, however, this sentence is addressed to a kindergartner, it is just as certainly inappropriate. Linguistic competence is not sufficient; speakers must also acquire communicative competence, which goes beyond linguistic competence to include the ability to use language appropriately in many different situations. In other words, it requires knowledge of the social rules for language use, or pragmatics. During the preschool years, young children learn to respond to social situations by making polite requests or clarifying their own utterances. Their parents are typically eager that they learn to be polite. Parents’ intuitions about the importance of using language in socially appropriate ways are borne out by research that shows that inappropriate children are often unpopular or disliked. Speakers ultimately learn important variations in language that serve to mark their gender, regional origin, social class, and occupation. Other necessary variations are associated with such things as the social setting, topic of discourse, and characteristics of the person being addressed. The development of communicative competence is discussed in Chapter 6.

Theoretical Approaches to Language Acquisition

In general, explaining what it is that children acquire during the course of language development is easier than explaining how they do it. Do parents shape their children’s early babbling into speech through reinforcement and teaching strategies? Or is language perhaps an independent and **innate** faculty, built into the human genome? Learning theorists and formal linguistic theorists do not agree on these basic principles. Between the theoretical poles represented by learning theorists, on the one hand, and formal linguistic theorists, on the other, lie three different interactionist perspectives.

1. *Cognitive interactionists*, who rely primarily on the theories of Piaget, believe that language is just one facet of human cognition and that children in acquiring language are basically learning to pair words with concepts they have already acquired. Other recent work by cognitive interactionists has studied language from the perspective of the neural architecture that supports it. They see children as processors of information, and they use computers to model the ways neural connections supporting language are strengthened through exposure to adult speech.
2. *Social interactionists* emphasize the child’s motivation to communicate with others. They emphasize the role that the special features of **child-directed speech (CDS)** may play in facilitating children’s language acquisition.
3. *Gestural and usage-based theorists* are more concerned with the roots of language that are demonstrated when even very young children begin to communicate through gestures, pointing, shared attention, and other nonverbal but goal-directed and social behaviors. A discussion and an evaluation of language development theories are included in Chapter 7.

Variation in Language Development: Implications for Research and Theory

It is important to know that individual differences have been found in almost every aspect of language acquisition, even during the earliest period of development. In the acquisition of phonology, for instance, some children are quite conservative and avoid words they have difficulty pronouncing; others are willing to take a chance. Early words and early word combinations reveal different strategies in acquiring language. Although much research has been devoted to finding commonalities in language acquisition across children, there is also variation in the onset of speech, the rate at which language develops, and the style of language used by the child. This should not surprise us; we know that babies differ in temperament, cognitive style, and in many other ways. In addition, children’s early language may reflect their social class, their gender, whether they are growing

up mono- or bilingual, and preferences of adults in their society; for instance, American parents stress the names of things, but nouns are not so important in all societies. Any comprehensive theory of language development must account for individual differences; those who work with children must be aware of them. Individual differences are the topic of Chapter 8.

Atypical Language Development

Each of our topical chapters has a section outlining some of the problems that language learners may have when acquiring the aspects of language under discussion—for instance, when learning to read is difficult. Chapter 9 puts these diverse findings into perspective. Language has been a human endowment for so many millennia that it is exceptionally robust. There are conditions, however, that may lead to atypical language development—for instance, sensory problems such as deafness. In this case the capacity for language is intact, but lack of accessible auditory input makes the acquisition of oral language difficult. In some cases, technology can provide access to the auditory signal using hearing aids or cochlear implants; in other cases, children with hearing impairment who learn a manual language such as **American Sign Language (ASL)** are able to communicate in a complete and sophisticated language.

Children who are diagnosed with intellectual disability, such as most children with **Down syndrome**, may show rather standard patterns of language development, but at a slower rate than typically developing children. On the other hand, children with **autism spectrum disorder** often exhibit patterns of language development that are atypical in multiple ways; they may have particular problems, for instance, in understanding what other people know and in adjusting their language accordingly. Occasionally, children suffer from **specific language impairment**, problems in language development accompanied by no other obvious physical, sensory, or emotional difficulties. Still other children have particular problems producing speech, even though their internal representation of language is intact: They may stutter or have motor or physical impairments. Atypical language development is presented in Chapter 9.

Language and Literacy in the School Years

By the time they get to kindergarten, children have amassed a vocabulary of about 8,000 words, and they can handle questions, negative statements, dependent clauses, compound sentences, and a great variety of other constructions. They have also learned much more than vocabulary and grammar—they have learned to use language in many different social situations. They can, for instance, talk baby talk to babies, tell jokes to their friends, and speak politely to strangers. Jokes, riddles, and play with language constitute a substantial portion of schoolchildren's spontaneous speech.

As they approach the task of learning to read, children call upon two evolving language skills: One is their growing ability to produce language that contains many connected utterances, for example, in stories they tell. The second is that, as Chapter 4 emphasizes, a new cognitive attainment in the school years, metalinguistic awareness, makes it possible for children to think about language itself. For instance, what is a word? And what sound does a particular word begin with? To succeed in school, children must also learn to use **decontextualized language**: language that is not tied to the here and now. They develop the ability to provide explanations and descriptions using decontextualized language. Study of the cognitive processes involved in reading and the development of adequate models that represent the acquisition of this skill are topics that actively involve researchers in developmental psycholinguistics.

Children who come from literate households know a great deal about reading and writing before formal instruction begins and thus are at an advantage in school. Children who are bilingual may have some advantages in the acquisition of the metalinguistic knowledge that develops in the school years. Once children have acquired the ability to read and write, these new skills, in turn, have profound effects upon their spoken language. Learning to read is not an easy task for all children; this extremely complex activity requires intricate

coordination of a number of separate abilities. Humans have been speaking since the earliest days of our prehistory, but reading has been a common requirement only in very modern times; we should not be surprised, therefore, that reading skills vary greatly in the population. Reading problems, such as **dyslexia**, pose serious theoretical and practical problems for researchers and educators. The acquisition of literacy skills and increasingly complex language during the school years and through adolescence are the main topics of Chapter 10.

Bilingual Language Development

In the early decades of language acquisition research in the United States, researchers tended to concentrate on acquisition by monolingual English-speaking children. It has become increasingly clear, however, that understanding the development of language among bilingual children and adults, and how it is both similar to and different from single language acquisition, is important from both theoretical and practical perspectives. Researchers often make a distinction between bilingual acquisition (the acquisition of two languages at the same time) and second language (L2) acquisition, which implies that a second language is learned after a first one, but when we say an individual is bilingual we generally mean that the person can speak two languages.

Bilingualism is a common phenomenon all over the world, and a growing trend in the United States: About 20 percent of schoolchildren in the United States speak a language other than English at home. Although Spanish is the most common language spoken at home by children whose families do not speak English (about 80 percent), nearly 400 different languages are spoken in the homes of school-age children in the United States. Our schools have children who arrive knowing languages as diverse as Hmong, Cantonese, Russian, Vietnamese, and Haitian Creole.

The study of bilingualism and L2 acquisition has been undertaken by researchers from a number of different fields. These include child language researchers, linguists, sociocultural researchers, and psycholinguists. What are the best conditions for acquiring two languages? Does age matter? Is bilingual development just like monolingual development? Is it possible to be a “perfect” bilingual? What are the advantages and disadvantages of learning two languages? These are some of the questions that will be answered in Chapter 11.

»» The Structure of Language: Learning the System

Competence and Performance

A speaker who knows the syntactic rules of a language is said to have *linguistic competence*. Competence in this case refers to the inner, largely unconscious, knowledge of the rules, not to the way the person speaks on any particular occasion. The expression of the rules in everyday speech is *performance*. In the normal course of events, speakers produce utterances that include false starts, slips of the tongue, and various other errors. These are performance errors and are not thought to reflect the speakers’ underlying competence. There is also a general assumption among linguists that, within a given linguistic community, all adults who are native speakers of the language and not neurologically impaired in some way share linguistic competence; this claim, however, has never been substantiated, and there is increasing evidence that, though all typically developing children acquire language, they do not all do so in the same way, nor do they all arrive at the same level of competence (Arnon & Clark, 2011). It is possible to find out a great deal about adults’ syntax by asking them to judge the grammatical acceptability of a sentence. However, in studying children, researchers must either rely on performance for clues to competence or design clever experiments to probe inner knowledge, since young children do not have the metalinguistic ability required to discuss questions of “grammaticality.”

When children learn language, what is it that they must learn? Language has many subsystems having to do with sound, grammar, meaning, vocabulary, and knowing the right way to say something on a particular occasion in order to accomplish a specific

purpose. Knowing the language entails knowing its phonology, morphology, syntax, and semantics, as well as its social rules, or pragmatics. The speaker who knows all this has acquired *communicative competence*.

Phonology

What are the sounds of English? Although we all speak the language, without specific training it is difficult to describe the sounds we make when we speak, and even harder to explain the rules for their combination. For instance, can you think of any sounds in English that never appear at the beginning of a word or at the end of a word? (Answer is at the end of this paragraph.) *Phonetics* is the science of speech sounds. The *phonology* of a language includes all of the important speech sounds it uses, the rules for combining them to make words, and such things as the stress and intonation patterns that accompany them. Each language has its own set of important sounds, which are actually categories of sounds that include a number of variations. For instance, in English we pronounce the sound /t/ in many different ways: At the beginning of a word like *top* it is pronounced with a strong aspiration, or puff of air. We pronounce a word like *stop* without the puff of air, unaspirated. Some speakers produce a different, unreleased /t/ when they say a word like *hat* at the end of a sentence: They leave their tongues in place at the point of articulation. Many speakers pronounce yet another kind of /t/ in a word like *Manhattan* by releasing the air through their noses at the end. A phonetician would hear these /t/ sounds as four different sounds: aspirated, unaspirated, unreleased, and nasally released. For ordinary English speakers, however, these are all just one sound. Groups of similar sounds that are regarded as all the same by the speakers of a language are called **phonemes**. The different /t/ sounds just described are all part of one /t/ phoneme in English. Children have to learn to recognize and produce the phonemes of their own language and to combine those phonemes into words and sentences with the right sorts of intonational patterns. Some parts of the system, such as consonant–vowel combinations, are acquired early on. Others are not acquired until well into the elementary school years: for instance, the ability to distinguish between the stress patterns of *HOT dog* (frankfurter, at the picnic) and *hot DOG* (Ruby, at the beach) when the words are presented without a context. (Answer to question at the beginning of this section: English words cannot begin with the “ng” sound that we pronounce at the end of words like *sing*; they never end with the actual sound represented by the letter “h,” even though it may be written. For instance, what is written *hurrah* does not end with the same breathy sound that begins it.)

Morphology

When a new word like *vape* comes into the English language (what does it mean?) adult speakers can immediately tell that its past tense is *vaped*; they do not have to look it up in a dictionary or consult with an expert. They are able to make a past or plural of a word that they have never heard before because they know the English inflectional morphological system. A **morpheme** is the smallest unit of meaning in a language; it cannot be broken into any smaller parts that have meaning. Words are made up of one or more morphemes. The words *cat* and *danger* each consist of one morpheme, which is called a **free morpheme** because it can stand alone. **Bound morphemes**, on the other hand, cannot stand alone and are always found attached to free morphemes; *happiness*, *unclear*, and *singing* contain the bound morphemes *-ness*, *un-*, and *-ing*. Bound morphemes can be used to change one word into another word that may be a different part of speech; for instance, *-ness* turns the adjective *happy* into the noun *happiness*. In this case, they are called **derivational morphemes** because they can be used to derive new words.

Other bound morphemes do not change the basic word’s meaning so much as they modify it to indicate such things as tense, person, number, case, and gender. These variations on a basic word are *inflections*, and the morphemes that signal these changes are *inflectional morphemes*. Languages like Latin, Russian, and Hungarian are highly inflected. The verb *to love* (*amare*) in Latin has six separate forms in the present tense: the singular forms *amo*, *amas*, and *amat* (I love, you love, he/she loves) and the plural forms *amamus*, *amatis*, and *amant* (we love, you love, they love).

Compared with Latin, English has few verb inflections in the present tense: an added *-s* for the third person (he *loves*) and no inflection for other persons (I, we, you, they *love*). Latin indicates the subject and object of its sentences using case inflections—*agricola amat puellam* and *puellam amat agricola* both mean “The farmer [he’s the *agricola*] loves the girl [she’s the *puella*].” The endings of the words mark the subject and the object. English does not have case endings on its nouns: word order alone indicates whether the girl loves the farmer or the farmer loves the girl. Our old grammar teachers, perhaps influenced by their knowledge of Latin, tended to confuse the issue, and us, by referring to English nouns as being in the subjective or objective case when, in fact, there are no separate noun case forms in English. Pronouns, on the other hand, have subjective, objective, and possessive forms: *I*, *me*, and *my*.

English inflectional morphology includes the progressive of the verb (e.g., *singing*); the past, pronounced with /d/, /t/, or /əd/ (*played*, *hopped*, *landed*); and the third-person singular verb and the noun plural and possessive, all of which use /z/, /s/, or /əz/ in spoken language (*dogs*, *cats*, *watches*). The forms of the inflections vary depending on the last sound of the word being inflected, and there is a complex set of rules that adult speakers know (at some level) that enables them to make a plural or past tense of a word that they have never heard before.

One task for the student of language development is to determine whether children have knowledge of morphology and, if so, how it is acquired and to what extent it resembles the rule system that adults follow.

Syntax

The syntactic system includes the rules for how to combine words into acceptable phrases and sentences and how to transform sentences into other sentences. A competent speaker can take a basic sentence like “The cat bites the dog” and make a number of permutations of it: “The cat bit the dog,” “The cat didn’t bite the dog,” “Did the cat bite the dog?,” and “Wasn’t the dog bitten by the cat?” Knowledge of syntax allows the speaker to generate an almost endless number of new sentences and to recognize those that are not grammatically acceptable. If you heard a sentence like “The daksy Wug was miggled by the mimsy zibber,” you wouldn’t know what happened to the poor Wug, because the vocabulary is unfamiliar. On the other hand, the morphology and syntax of the sentence convey a great deal, and with this information you could make a number of new, perfectly grammatical sentences, even if you don’t know what you are talking about: “The Wug is daksy,” “The zibber miggled the Wug,” and “The zibber is mimsy.”

There is controversy among researchers as to whether young children just learning language are acquiring syntactic structures, that is, grammatical rules, or whether it is more reasonable to characterize their early utterances in terms of the semantic relations they are trying to express. The child who says, “Mommy eat lunch,” can be said to have learned to produce subject–verb–object constructions and to be following English syntactic rules specifying that the subject comes first in active sentences. To describe the language of young children, however, it may be more useful to note the kinds of semantic relations the children are using. In this case the child is expressing knowledge that an action (eat) is taking place and that there is an agent (Mom) and an object (lunch).

Once children begin to produce longer sentences, however, they add the grammatical words of the language and begin to build sentences according to syntactic rules. They learn how to make negatives, questions, compound sentences, passives, and imperatives. Later, they add very complex structures, including embedded forms. The child who early on was limited to sentences like “Mommy eat lunch” can eventually comprehend and produce “The lunch that Grandpa cooked the baby sitter was eaten by Mommy” in full confidence that the cherished baby sitter was neither cooked by Grandpa nor eaten by Mom.

Semantics

The semantic system includes our mental dictionary, or lexicon. Word meanings are complicated to learn; words are related to one another in complex networks, and awareness of words—for example, the ability to think about words—comes later than does word use.

A very young child may use a word that occurs in adult language, but that word does not mean exactly the same thing, nor does it have the same internal status for the child as it does for the adult. Two-year-olds who say “doggie,” for instance, may call sheep, cows, cats, and horses “doggie,” or they may use the word only in reference to a particular dog, without knowing that it refers to a whole class of animals. Vocabulary is structured hierarchically, and words are attached to one another in semantic networks. Dogs are a class of animals, and the adult who knows the meaning of *dog* also knows, for instance, that it belongs to a group known as domestic animals, it is a pet, it is related to wolves, it is animate, and so on. Studying semantic development in children involves examining how they acquire the semantic system, beginning with simple vocabulary. Ultimately, it includes studying their metalinguistic knowledge, which enables them to notice the words in their language and comment on them.

The Social Rules for Language Use

Linguistic competence involves knowing how to construct grammatically acceptable sentences. Language, however, must be used in a social setting to accomplish various ends. Speakers who know how to use language *appropriately* have more than linguistic competence; they have communicative competence, a term first used by the anthropologist Dell Hymes in 1972. *Pragmatics*, another term for the social uses of language, refers to the use of language to express one’s intentions and get things done in the world. Adult pragmatics may include many interpersonal or social functions such as denying, refusing, blaming, offering condolences, and flattering, and even very young children use pragmatic functions such as labeling and demanding.

Communicative competence includes being able to express one’s intent appropriately in varying social situations. The importance of knowing the right forms becomes obvious when social rules are violated. Consider the use of directives. If you are seated in an aisle seat of a bus, next to a stranger, and you are cold because the window is open, you can express your intent in a syntactically correct sentence: “Shut that window.” This could lead to an angry reaction or, at the very least, to the impression that you are a rude person. If, instead, you say, “I wonder if you would mind shutting the window?,” compliance and the beginning of a pleasant conversation will probably ensue.

Knowing the politeness rules of language is part of communicative competence. Every type of interaction between individuals requires observance of social conventions, and adults do not leave children’s development of these rules to chance: Whereas they may not correct syntactic violations except in the most superficial cases (see Chapter 5), they are active participants in their children’s use of the appropriate (often polite) forms (Ely & Gleason, 2006). Just as there are phonological and grammatical rules, there are also rules for the use of language in social context. Mature language users know how to speak like men or women, to conduct discourse, and to speak in appropriate ways to different people. They can talk baby talk to babies and be formal and deferential when appearing in court. All of these are part of communicative competence, which is the goal of language development.

›› The Biological Bases of Language

Animal Communication Systems

Human language has characteristics that have led many researchers to conclude that it is both **species specific** and **species uniform**; that is, it is unique (specific) in the human species and essentially similar, or uniform, in all members of our human species (Lenneberg, 1967; Friederici, 2012). The characteristics that distinguish human language are illuminated when they are compared with those of nonhuman animal communication systems. Other animals are clearly able to communicate at some level with one another as well as with humans. Cats and dogs, for instance, meow and bark and are able to convey a variety