

Linguistics

An Introduction to Linguistic Theory



Written by Victoria A. Fromkin (editor)

Susan Curtiss Bruce P. Hayes Nina Hyams Patricia A. Keating

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2000

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First published 2000
Reprinted 2001

Blackwell Publishers Inc.
350 Main Street
Malden, Massachusetts 02148
USA

Blackwell Publishers Ltd
108 Cowley Road
Oxford OX4 1JF
UK

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Library of Congress Cataloging-in-Publication Data is available for this book.

ISBN 0-631-19709-5 (hardback)
ISBN 0-631-19711-7 (paperback)

British Library Cataloguing in Publication Data

A CIP catalogue record for this book is available from the British Library.

Typeset in 10.5 on 13 pt Palatino
By Graphicraft Limited, Hong Kong
Printed in Great Britain by TJ International, Padstow, Cornwall

This book is printed on acid-free paper

Preface

This textbook is intended for introductory courses in linguistic theory for undergraduate linguistics majors or first-year graduate students. Its aim is to provide the students who have no previous knowledge of linguistics with the background necessary to continue with courses in the core areas of the field – phonetics, phonology, syntax, morphology, semantics. In each part the book is concerned with discussing the underlying principles of Universal Grammar common to all languages, showing how these are revealed in language acquisition and in the specific grammars of the world's languages. Theoretical concepts are introduced through the analysis of a wide set of linguistic data from Arabic to Zulu. By working through real linguistic data, students will learn how to do linguistics. The interplay between theory and data is highlighted in all the chapters. In addition to the basic components of the grammar, the book includes discussion on child language acquisition of the core components of the mental grammar. This reflects the recognition that an understanding of the child's ability to acquire language is central to the theory of Universal Grammar.

The text is divided into four parts. Part I introduces the student to the science of linguistics and presents a bird's-eye view of the history of the field and how we got to where we are today. Part II covers morphology (chapter 2) and syntax (chapters 3–5) and the acquisition of morphology and syntax (chapter 6). Part III covers semantics and the acquisition of meaning (chapters 7–10), Part IV includes phonetics (chapter 11) and phonology (chapters 12–14) and the acquisition of the sounds and sound patterns of language (chapter 15).

Extensive problems are presented as exercises in each core chapter. As students work through these exercises while reading the text, the basic concepts and the empirical basis for the principles proposed are revealed. Additional exercises follow each of the core chapters in each part. References for further reading follow each chapter, and an extensive glossary and a general bibliography are also included.

The textbook can be used for either a quarter or a semester course. In a shorter course, of say, 10 weeks, the instructor may decide not to assign chapters 5, 9, and 14, chapters that contain enriched and ground-breaking material which may be postponed for more advanced study. The chapters on acquisition can be used independently in courses on language acquisition, as can other sections, as readings for graduate-level courses in the specific sub-areas.

This textbook is a collective effort by the authors, all of whom were faculty members in the UCLA Department of Linguistics at the time of writing, a department that has a reputation for both excellent teaching and research. All of us teach both undergraduate and graduate courses including the course for which this textbook was written.

We would like to express our deep appreciation to all the students who have read through our handouts and worked through our problems and who should in many ways be considered co-authors of this textbook. We are grateful to Philip Carpenter and Steve Smith of Blackwell Publishers for the confidence they showed in the UCLA *gang of twelve*.

Finally, we acknowledge the huge debt that we believe linguistics owes to Noam Chomsky. His pioneering research in transformational generative grammar, in both syntax and phonology, and his vision of linguistics as a central player in the new field of cognitive science, ushered in what has come to be called the Cognitive Revolution. The questions that he raised regarding the nature of language, the structure of the mental grammar, and the problem of explaining how this system of knowledge is acquired by children remain the central focus of our field and of this book.

Notes on Authors

Victoria A. Fromkin, editor and contributor to this textbook, is a professor of linguistics at the University of California, Los Angeles (UCLA), where she also served as department chair, and Graduate Dean and Vice Chancellor of Graduate Programs. She is the recipient of the UCLA Distinguished Teaching Award and is a past president of the Linguistic Society of America, a member of the National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the Acoustical Society of America, the American Psychological Society, and the New York Academy of Science. She is the author (with Robert Rodman) of *An Introduction to Language* (6th edition) and over 100 monographs and papers. Her primary research lies in the interface between the mental grammar and linguistic processing, and issues related to brain, mind, and language.

Susan Curtiss received her Ph.D. at UCLA, where she is now a professor. She is best known for her work on the critical period for language acquisition and modularity. Her book *Genie: A Psycholinguistic Study of a Modern-Day "Wild Child"* has become a classic in the field. She has also published widely on dissociations of language and cognition in development and breakdown and on language acquisition in atypical circumstances. She has authored numerous language tests, including the internationally used *CYCLE*, co-authored with Jeni Yamada.

Bruce P. Hayes received his Ph.D. from MIT in 1980 and is now a professor of linguistics at UCLA, with a primary interest in phonology. His publications in this area include *Metrical Stress Theory: Principles and Case Studies* (University of Chicago Press, 1995), and various papers on stress, the phonetics/phonology interface, metrics, and segment structure.

Nina Hyams is a professor of linguistics at UCLA. She is author of the book *Language Acquisition and the Theory of Parameters* (D. Reidel, 1986) and has published numerous papers on grammatical development in children acquiring English and other languages. 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.

Patricia A. Keating is professor of linguistics and director of the Phonetics Laboratory at UCLA. She completed her Ph.D. in 1979 at Brown University, and then held an NIH postdoctoral fellowship in the Speech Communications Group at MIT before coming to UCLA in 1981. In 1986 she won a UCLA Distinguished Teaching Award. Her main areas of research and publication are experimental and theoretical phonetics, and the phonology-phonetics interface. She is the author of "The Phonology-Phonetics Interface" in the 1988 *Linguistics: The Cambridge Survey*, and the contributor of the lead article on "Phonetics" to the MIT *Encyclopedia of the Cognitive Sciences*, as well as numerous articles in linguistics and phonetics journals.

Hilda Koopman was born in Nijmegen, the Netherlands, and studied General Linguistics at the University of Amsterdam. She received her Ph.D. from the University of Tilburg in 1984 and held a research position at the University of Québec for several years before joining the faculty at UCLA in 1985, where she currently is professor of linguistics. She is the author of numerous articles on syntactic theory, many of which are based on original fieldwork on African languages. Her books include *The Syntax of Verbs: From Kru Languages to Universal Grammar* (Foris Publications, 1984), *The Syntax of Specifiers and Heads* (Routledge, 1999), and *Verbal Complexes* (with Anna Szabolcsi; MIT Press, forthcoming).

Pamela Munro, a professor of linguistics at UCLA, received her Ph.D. from the University of California, San Diego. She has conducted fieldwork on over twenty indigenous languages of the Americas and is an author of ninety books and articles, descriptive and theoretical studies of the morphology, phonology, syntax, and historical development of languages of the Uto-Aztecan, Yuman, and Muskogean families of American Indian languages. Among her publications are dictionaries or grammars of Cahuilla, Chickasaw, Kawaiisu, and Mojave, as well as dictionaries of the Wolof language of Senegal and Gambia and of UCLA undergraduate slang.

Dominique Sportiche, after studying mathematics and physics in Paris, France, studied linguistics at the Massachusetts Institute of Technology,

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Edward P. Stabler studied philosophy and linguistics at MIT, receiving a Ph.D. in philosophy in 1981. After holding several industrial and academic positions, he moved to the University of California, Los Angeles, in 1989, where he is currently a professor of linguistics. He is an active member of the European Association for Logic, Language and Information (FoLLI) and the Association for Computational Linguistics (ACL). He is the author of *The Logical Approach to Syntax* (MIT Press, 1992) and other books and papers on formal and computational models of syntax and semantics.

Donca Steriade was born in Bucharest, Romania, and trained as a classicist before becoming a linguist. She obtained her Ph.D. in 1982 from MIT and taught at the University of California, Berkeley, and at MIT before joining the Department of Linguistics at UCLA where she is now a professor of linguistics. Her research focuses particularly on phonology, the phonology/phonetics interface, and optimality theory. She is the author of numerous studies of segmental, syllabic and metrical structure.

Tim Stowell received his Ph.D. in linguistics from MIT in 1981. He is now a professor of linguistics at UCLA, having served as Chair of that department from 1994 to 1998; he has also held visiting positions at the University of Massachusetts (Amherst) and the University of Vienna, and has been a fellow of the Netherlands Institute for Advanced Study. His research has been primarily in syntactic theory; his early work on the theory of phrase structure played an influential role in arguing against the existence of phrase structure rules, and in favor of deriving properties of phrase structures from general principles. His recent research has focused on the interface between syntax and semantics, investigating the phrase structure and interpretation of tense and quantifier scope.

Anna Szabolcsi was born in Budapest and received her Ph.D. from the Hungarian Academy of Sciences. She held a research position in the Institute of Linguistics in Budapest before coming to UCLA as a professor of linguistics, and is currently a professor of linguistics at

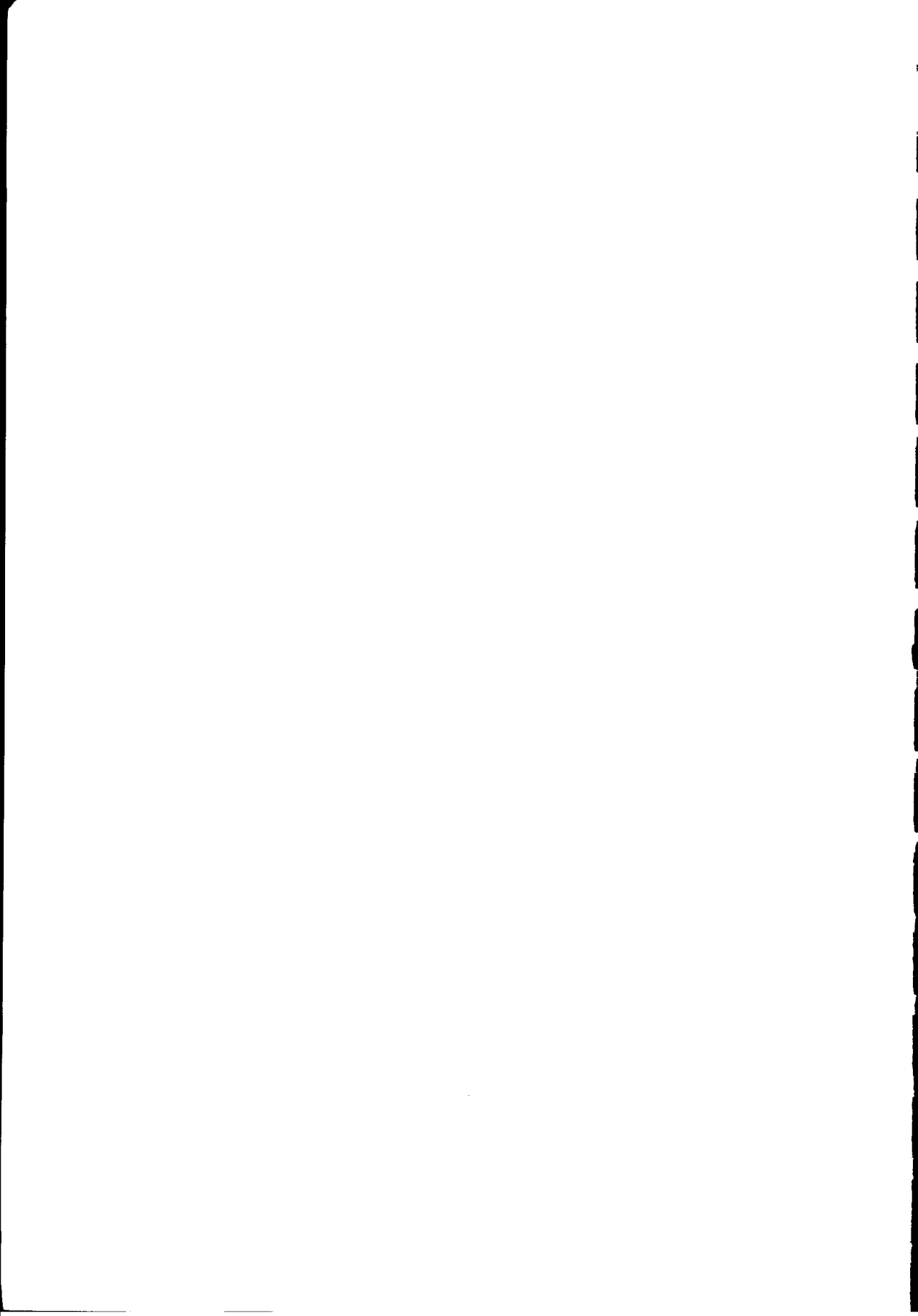
New York University. Her research interests include formal semantics, the syntax/semantics interface, Hungarian syntax, and categorial grammar. Her recent books are *Ways of Scope Taking* (editor and contributor, Kluwer, 1997) and *Verbal Complexes* (with Hilda Koopman; forthcoming, with MIT Press).

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Part I

Introduction



1

Linguistics: The Scientific Study of Human Language

CHAPTER CONTENTS

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 - 1.7 'Doing' Linguistics
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1.0 Introduction

Human language, that unique characteristic of our species, has been of interest throughout history. The scientific study of human language is called **linguistics**. A **linguist**, then, is not someone who speaks many languages (although many linguists do); such individuals are **polyglots**. A linguist is a scientist who investigates human language in all its facets, its structure, its use, its history, its place in society.

The form and structure of the kinds of linguistic knowledge speakers possess is the concern of theoretical linguistics. This theory of **grammar** – the mental representation of linguistic knowledge – is what this text-book is about. But the field of linguistics is not limited to grammatical theory; it includes a large number of subfields, which is true of most sciences concerned with phenomena as complex as human language.

SIDEBAR
 1.1

A bird's-eye view of the field

Theoretical Linguistics (the concern of this textbook), often referred to as **generative linguistics**, has its basis in views first put forth by Chomsky's 1955 *The Logical Structure of Linguistic Theory*. In this and the subsequent books and articles by Chomsky and those that embraced these views, a major aim was to characterize the nature of human linguistic knowledge or **competence** (represented in the mind as a mental **grammar**); that is, to explain or account for what speakers know which permits them to speak and comprehend speech or sign (the languages of the deaf). The production and comprehension of speech is referred to as **performance**, distinct from competence but dependent on it.

Descriptive linguistics provides analyses of the grammars of languages such as Choctaw, Arabic, Zulu. 'Indo-European-linguistics,' 'Romance linguistics,' 'African linguistics,' refer to the studies of particular languages and language families, from both historical and synchronic points of view.

Historical linguistics is concerned with a theory of language change – why and how languages develop. The **comparative method**, developed in the nineteenth century by such philologists as the brothers Grimm and Hermann Paul, is a method used to compare languages in the attempt to determine which languages are related and to establish families of languages and their roots.

Anthropological or ethno-linguistics and **sociolinguistics** focus on languages as part of culture and society, including language and culture, social class, ethnicity, and gender.

Dialectology investigates how these factors fragment one language into many. In addition, **sociolinguistics** and **applied linguistics** are interested in language planning, literacy, bilingualism, and second language acquisition. Applied linguistics also covers such areas as discourse and conversational analysis, language assessment, language pedagogy.

Computational linguistics is concerned with natural language computer applications, e.g. automatic parsing, machine processing and understanding, computer simulation of grammatical models for the generation and parsing of sentences. If viewed as a branch of Artificial Intelligence (AI), computational linguistics has the goal of modeling human language as a cognitive system.

Mathematical linguistics studies the formal and mathematical properties of language.

Pragmatics studies language in context and the influence of situation on meaning.

Neurolinguistics is concerned with the biological basis of language acquisition and development and the brain/mind/language interface. It brings linguistic theory to bear on research on aphasia (language disorders following brain injury) and research involving the latest technologies in the study of brain imaging and processing (CT, PET, fMRI, MEG, ERP).

Psycholinguistics is the branch of linguistics concerned with linguistic performance – the production and comprehension of speech (or sign). An area of

psycholinguistics, which in some ways is a field in its own, is child **language acquisition** – how children acquire the complex grammar which underlies language use. This is a subject of major concern, particularly because of the interest in the biology of language. (This topic will be covered in the text because of its relevance to theories of grammar.)

There are textbooks which deal with each of these subfields, among others. Basic to all of them is the nature of language itself, the subject of this textbook.

1.1 Panini to Chomsky and After

The interest in the nature of human language appears to have arisen when the human species evolved in the history of time. There is no culture that has left records that do not reveal either philosophical or practical concerns for this unique human characteristic. Different historical periods reveal different emphases and different goals although both interests have existed in parallel.

Egyptian surgeons were concerned with clinical questions; an Egyptian papyrus, dated ca. 1700 BCE, includes medical descriptions of language disorders following brain injury. The philosophers of ancient Greece, on the other hand, argued and debated questions dealing with the origin and the nature of language. Plato, writing between 427 and 348 BCE, devoted his *Cratylus Dialogue* to linguistic issues of his day and Aristotle was concerned with language from both rhetorical and philosophical points of view.

The Greeks and the Romans also wrote grammars, and discussed the sounds of language and the structures of words and sentences. This interest continued through the medieval period and the renaissance in an unbroken thread to the present period.

Linguistic scholarship, however, was not confined to Europe; in India the Sanskrit language was the subject of detailed analysis as early as the twelfth century BCE. Panini's Sanskrit grammar dated ca. 500 BCE is still considered to be one of the greatest scholarly linguistic achievements. In addition, Chinese and Arabic scholars have all contributed to our understanding of human language.

The major efforts of the linguists of the nineteenth century were devoted to historical and comparative studies. Ferdinand de Saussure (1857–1913), a Swiss linguist in this tradition, turned his attention instead to the structural principles of language rather than to the ways in which languages change and develop, and in so doing, became a major influence on twentieth-century linguistics.

In Europe and America, linguists turned to descriptive synchronic studies of languages and to the development of empirical methods for their analysis. Scholars from different disciplines and with different interests turned their attention to the many aspects of language and language use. American linguists in the first half of the century included the anthropologist Edward **Sapir** (1884–1939), interested in the languages of the Americas, language and culture, and language in society, and Leonard **Bloomfield** (1887–1949), himself an historical and comparative linguist, as well as a major descriptive linguist who emerged as the most influential linguist in this period. Both Sapir and Bloomfield were also concerned with developing a general theory of language. Sapir was a ‘mentalist’ in that he believed that any viable linguistic theory must account for the mental representation of linguistic knowledge, its ‘psychological reality’; Bloomfield in his later years was a follower of behaviorism, which was the mainstream of psychological thought at the time, a view that precluded any concern for mental representation of language and, in fact, for the mind itself.

In Europe, Roman Jakobson (1896–1982), one of the founders of the Prague School of Linguistics, came to America in 1941 and contributed substantially to new developments in the field. His collaboration with Morris Halle and Gunnar Fant led to a theory of **Distinctive Features** in phonology, and Halle has remained one of the leading phonologists of the last decades. In England, phoneticians like Daniel Jones (1881–1967) and Henry Sweet (1845–1912) (the prototype for G. B. Shaw’s Henry Higgins) have had a lasting influence on the study of the sound systems of language.

In 1957 with the publication of *Syntactic Structures*, Noam Chomsky ushered in the era of generative grammar, a theory which has been referred to as creating a scientific revolution. This theory of grammar has developed in depth and breadth. It is concerned with the biological basis for the acquisition, representation and use of human language and the universal principles which constrain the class of all languages. It seeks to construct a scientific theory that is explicit and explanatory.

The chapters that follow are based to a great extent on the developments in linguistic theory that have occurred since the publication of *Syntactic Structures* in 1957 and *Aspects of the Theory of Syntax* in 1965. In subsequent years, Chomsky has continued to develop his theory in such major works as *Remarks on Nominalization* (1970), *Conditions on Transformations* (1973), *Lectures on Government and Binding* (1981), *Barriers* (1986), *Principles and Parameters in Syntactic Theory* (1981), and *The Minimalist Program* (1995).

In the following chapters, basic notions in these publications as well as many others in areas other than syntax are presented at an introductory and basic level.

1.2 Aims of Linguistic Theory

Three key questions were posed by Chomsky in 1986 which remain pivotal in linguistics today:

What constitutes knowledge of language? (Competence)

How is knowledge of language acquired? (Acquisition)

How is knowledge of language put to use? (Performance/language processing)

As stated above, this text will be primarily concerned with the first question viewed in relation to the second. The development of language from infancy provides insights into the nature and structure of language itself and therefore is discussed in each part. An understanding of language use (performance), the main tenet of psycholinguistic research, depends on our understanding of what is being put to use. We will discuss the distinction between linguistic knowledge (**competence**) and use (**performance**) below.

1.3 What Constitutes Knowledge of Language? Grammar as the Representation of Linguistic Competence

Knowledge of a language permits one to connect sounds (or gestures in sign languages) with meanings, that is, to understand a spoken or signed utterance, and to express our thoughts through speech or signs. Note that the **sign languages** of the deaf are basically the same as spoken languages, using a gestural/visual modality instead of the sound/aural perceptual modality of speech. Except where specifically referring to speech sounds, discussion of the nature and characteristics of language should be interpreted as referring to both spoken and signed languages.

Linguistic knowledge as represented in the speaker's mind is called a **grammar**. Linguistic theory is concerned with revealing the nature of the mental grammar which represents speakers' knowledge of their language.

If one defines grammar as the mental representation of one's linguistic knowledge, then a general theory of language is a theory of grammar. A grammar includes everything one knows about the structure of one's language – its **lexicon** (the words or vocabulary in the mental dictionary), its **morphology** (the structure of words), its **syntax** (the structure of phrases and sentences and the constraints on well-formedness of sentences), its **semantics** (the meaning of words and sentences) and its **phonetics** and **phonology** (the sounds and the sound system or patterns). A theory of