HERBERT H. CLARK EVE V. CLARK PSYCHOLOGY and LANGUAGE AN INTRODUCTION TO PSYCHOLINGUISTIC

# PSYCHOLOGY and LANGUAGE

AN INTRODUCTION TO PSYCHOLINGUISTICS

HERBERT H. CLARK

Stanford University

**EVE V. CLARK** 

Stanford University



#### HARCOURT BRACE JOVANOVICH, PUBLISHERS

San Diego New York Chicago Atlanta Washington, D.C.
London Sydney Toronto

© 1977 by Harcourt Brace Jovanovich, Inc.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

ISBN: 0-15-572815-6

Library of Congress Catalog Card Number: 76-62594

Printed in the United States of America

Cover: Landscape of a Thought by Benedict Umy.

Copyrights and Acknowledgments appear on page vi, which constitutes a continuation of the copyright page.

# PSYCHOLOGY and LANGUAGE

AN INTRODUCTION TO PSYCHOLINGUISTICS

Under the weneral Performation of Uerome Kagan

Harvard Universal

此为试读,需要完整PDF请访问: www.ertongbook.com

# To our parents Helen, Cushman, Nancy, and Desmond

Copyrights and Acknowledgments

The authors wish to thank the following for permission to reproduce material in this book:

ACADEMIC PRESS, INC. for the excerpt from Cognitive Development and the Acquisition of Language edited by T. E. Moore. Reprinted by permission of Academic Press, Inc. and John Limber.

GEORGE ALLEN & UNWIN, LTD. for the excerpt from *The Philosophy of Language* by Otto Jespersen. Reprinted by permission of George Allen & Unwin, Ltd.

ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF, INC. for the excerpt from "Do Children Imitate?" by Jean Berko Gleason. Excerpted by permission from *Proceedings of the International Conference on Oral Education of the Deaf*, Vol. II, Alexander Graham Bell Association for the Deaf, Inc., 1967.

Melissa Bowerman for the excerpt from "Learning the Structure of Causative Verbs" by Melissa Bowerman in *Papers and Reports on Child Language Development*, Volume 8 (Stanford University, 1974). Reprinted by permission of the author.

CAMBRIDGE UNIVERSITY PRESS for the excerpt from Acquisition of Phonology: A Case Study by Neilson Smith. Copyright 1973, Cambridge University Press. Reprinted by permission of the publisher.

HARPER & ROW, PUBLISHERS, INC. for the excerpt from "Fenimore Cooper's Literary Offenses" by Mark Twain. Reprinted by permission of Harper & Row.

JOHN LIMBER for the excerpt from Cognitive Development and the Acquisition of Language edited by T. E. Moore. Reprinted by permission of Academic Press, Inc. and John Limber.

OXFORD UNIVERSITY PRESS for the excerpt from *Philosophical Papers*, Second Edition, by John L. Austin, edited by J. O. Urmson and G. J. Warnock. © Oxford University Press 1970. Reprinted by permission of the Oxford University Press.

#### Picture Credits

Page 66 Photo by William Dyckes/Courtesy Harmsworth Publishing Ltd., London 80 © Punch, London (Rothco) 184 From A Course in Phonetics by Peter Ladefoged, Harcourt Brace Jovanovich, Inc., 1975 192 From "Psychological Representation of Speech Sounds" R. N. Shepard in Human Communication: A Unified View, McGraw-Hill, 1972 196 Adapted from "Perception of the Speech Code" by Liberman, Cooper, Shankweiler, and Studdert-Kennedy in Psychological Review, 1967, 74. Copyright 1967 by the American Psychological Association. Reprinted by permission 201 Adapted from "Voicing Dimension: Some Experiments in Comparative Phonetics" by Lisker and Abramson in Proceedings of the Sixth International Congress of Phonetic Science, Academia, 1970 275 The Bettman Archives 288 Harvard Theater Collection 303 William Hamilton 323 Erika Stone/Peter Arnold Photo Archives 361 From Acquisition of Syntax in Children from 5 to 10 by Carol Chomsky, M.I.T. Press, 1969 378 Philip Morse, University of Wisconsin 435 Adapted from "Semantic Distance and the Verification of Semantic Relations" by L. J. Rips, E. J. Shoben, and E. E. Smith in Journal of Verbal Learning and Verbal Behavior, 1973, 12 463 Adapted with permission from Semantics by Geoffrey Leech, Penguin Books, 1974 495 Reprinted from Analyzing Children's Art by Rhoda Kellogg by permission of Mayfield Publishing Co. (formerly National Press Books), 1969 503 Harbrace Photo 521 Adapted with permission from "Teaching Language to an Ape" by A. J. Premack and D. Premack in Scientific American, October 1972 Line art by Vladimir Yevtikhiev All part openers by William Dyckes.

# Preface

Over the last two decades psycholinguistics has become an especially lively and influential field of study, one that promises to yield fresh insights into the nature of the human mind. It has grown with help from linguistics and cognitive psychology and with encouragement from areas of study as far apart as anthropology and neurology. But this diversity of influences has led to a problem: The aims and organizing principles that give psycholinguistics integrity—that make it worthy of study in its own right—have never been spelled out clearly enough.

In Psychology and Language we have tried to do just that. We have put together an introduction to psycholinguistics that attempts to be both comprehensive and balanced, reflecting the best theories and evidence available in the field today. We have designed this book primarily for undergraduate and graduate students in psychology, linguistics, and related fields—anthropology, communication, education, rhetoric, speech and hearing sciences, and the like—but it can profitably be read by anyone with an interest in psycholinguistics, for it does not require technical knowledge of either psychology or linguistics.

One of the principles that gives the field coherence is that psycholinguistics is fundamentally the study of three mental processes—the study of listening, speaking, and of the acquisition of these two skills by children. We have therefore organized the text around these processes. Part 1 is introductory. In Part 2 we take up listening, tracing it from the initial perception of speech sounds to the interpretation of and memory for what was said. In Part 3 we discuss speaking, beginning with the gross planning of monologues and dialogues and working through to the pronunciation of individual speech sounds. In Part 4 we deal with acquisition, following the development of language in children from birth to adolescence. In Part 5 we take up meaning—its role in listening, speaking, and acquisition—and the relation of language to thought.

Another principle that gives the field coherence is that the primary use of language is for communication. Curiously, this fact has played practically no role in previous treatments of the field. Listening, speaking, and acquisition have usually been considered for the way they reflect language structure—syntax, morphology, and phonology—with little regard for the way they reflect people's aims in communicating with one another. In *Psychology and Language* we have tried to correct this imbalance. For example, we have discussed not only the language structures children acquire but also their function—how children use them to communicate with other people. And, as the title of the book suggests, we have drawn freely on psychology and linguistics for insights into the role of communication in language use.

Readers may have more interest in some areas of psycholinguistics than in others. Those who wish to focus on speaking and listening but not on acquisition could pass over Part 4 and Chapter 13 in Part 5. Those interested in acquisition and listening but not in speaking could omit Part 3. Those who wish to concentrate

on acquisition alone could read Chapter 1, the first part of Chapter 5, and Chapters 8, 9, 10, and 13. Readers interested in the three basic mental processes but not in speech sounds could leave out Chapters 5 and 10 and perhaps the second half of Chapter 7. And those not interested in word meaning could omit Chapters 11, 12, and 13.

In writing this book we have been helped by many people. We are grateful to our colleagues in the Departments of Psychology and Linguistics at Stanford University, who encouraged us in many ways, and to the undergraduate and graduate students in our courses who commented on early drafts. We are particularly indebted to the many psychologists and linguists whose constructive reviews of parts of the early drafts have led to major improvements in the book: Dwight L. Bolinger, Professor Emeritus, Harvard University; Brian Butterworth, Cambridge University; Jack Catlin, late of Cornell University; Philip S. Dale, University of Washington; Lila R. Gleitman, University of Pennsylvania; David W. Green, University College London; James A. Hampton, University College London; Lise Menn, Research Laboratory of Electronics, Massachusetts Institute of Technology; David B. Pisoni, Indiana University; Jacqueline S. Sachs, University of Connecticut; Neilson V. Smith, University College London; Eric Wanner, Rockefeller University; and Deirdre Wilson, University College London. We would like to single out Charles E. Clifton, Jr., University of Massachusetts; Dan I. Slobin, University of California, Berkeley; and Edward E. Smith, Stanford University, who reviewed and left their mark on virtually every part of the manuscript. We are also grateful to William Dyckes, Judith Greissman, and Abigail Winograd at Harcourt Brace Jovanovich for their skill and care in guiding the book from manuscript to print. And, finally, we thank Ann Edmonds and Joyce Lockwood for typing the manuscript and for handling it and us with such patience.

This book has also benefited from financial support for which we are grateful. Much of the final manuscript was written with the aid of a John Simon Guggenheim Fellowship for Herbert H. Clark, a Mellon Fellowship for Eve V. Clark, and the hospitality of the Departments of Psychology and Linguistics at University College London. Our own research has been supported by grants from the National Institute of Mental Health and the National Science Foundation.

HERBERT H. CLARK EVE V. CLARK

vii

# Contents

Preface

1	
LANGUAGE	
Chapter 1 The Nature of Language	3
The Psychology of Language 3  The Study of Language 4 Structure, Function, and Process 7	
The Structure of Language 10  Sentences and Their Structure 10 Combining Propositions 13  Condensing Sentences 16 Grammatical Relations 19  Words and Their Structure 20 Sounds and Their Structure 23	
The Function of Language 24  Speech Acts 25 Propositional Content 29  Thematic Structure 31	
Processes in the Use of Language 35  Methods in the Study of Language 37	
Summary 39 Further Reading 40	
2	
COMPREHENSION	
Chapter 2 Comprehension of Sentences	43
What Is Comprehension? 43 The Two Processes 45	
The Construction Process 45  Underlying Representations 45 Constructing Interpretations 47	

#### Surface Constituents 50

The Conceptual Unity of Constituents 50 Constituents as Aids in Perception 51 Constituents in Working Memory 52 Constituents in the Construction of Propositions 53 Real-Time Processing 55

Syntactic Approaches to the Construction Process 57

Building Up Constituents 58 Memory Capacity 65 Building Underlying Propositions 70 Clauses 68 Evaluation of the Syntactic Approach 71

Semantic Approaches to the Construction Process 72

The Reality and Cooperative Principles 72 Makina Sense of Sentences 73 Tying Sentences to Context 76 Use of Word Order 78 Evaluation of the Semantic Approach 79

Ambiguity 80

Summary 84

Further Reading 85

#### Chapter 3 Utilization of Sentences

Why People Listen 87

Speech Acts 88 Propositional and Thematic Content 89 The Utilization Process 90

87

Recording Assertions 91

The Function of Assertions 91 Integrating Information into Denials 98 Memory 95

Answering Yes/No Questions 100

Verifying Assertions 102 The Role of Thematic Structure in Verifying Denials 107 An Evaluation Verification 104 of Sentence Verification 111

Answering WH- Questions 113

Simple Questions and Answers 114 Complicated Questions and Answers 116

Following Instructions 117

Indirect Utilization of Utterances 121

The Cooperative Principle 122 Indirect Speech Acts 124 Other Kinds of Indirect Meaning 128

Summary 131

Further Reading 132

#### Chapter 4 Memory for Prose

133

What Affects Memory? 133

Input 134 Storage 135 Output 136

Short-Term Memory 137

Fallibility of Short-Term Memory 137 Short-Term Versus Long-Term Memory 138

Memorization 141

Memory for Unrelated Sentences 143

The Proposition in Memory 143 Biases in Reconstructing Sentences from Memory 148 Instructions 150

Memory for Substance 153

Implications 154 Referents 156 Indirect Meaning 160
Creating Global Representations 161 How Is Substance
Represented? 164

Memory for Stories 166

Structure in Stories 168 Recall of Stories 170

Summary 172

Further Reading 173

#### Chapter 5 Perception of Speech

175

The Problems of Identifying Sounds 175

Phonetics and Phonology 177

Articulatory Phonetics 179 Acoustic Phonetics 184
Distinctive Features 186 Phonology 188

Identification of Isolated	Speec	h Sounds	191
----------------------------	-------	----------	-----

A Preliminary View 191 The Auditory Stage 195 The Phonetic Stage and Categorical Perception 199 Phonetic Memory 202 The Phonological Stage 204 Analysis by Synthesis 205 The Motor Theory of Speech Perception 207

#### Perception of Continuous Speech 210

The Active View of Speech Perception 211 Syllables and Rhythm 215 Selective Listening 216

#### Summary 219

Further Reading 220

## 33

#### **PRODUCTION**

#### Chapter 6

#### Plans for What to Say

223

#### What Is Speaking? 223

Planning and Execution 224 Planning Speech as Problem Solving 225

#### Discourse Plans 227

Conversations 227 Descriptions 232 The Structure of Discourse 236

#### Sentence Plans 237

Propositional Content 237 Illocutionary Content 241 Thematic Structure 245

#### Constituent Plans 248

Articles 249 Nouns and Modifiers 250 Personal Pronouns and Terms of Address 255

#### Summary 257

Further Reading 258

#### Chapter 7

#### Execution of Speech Plans

259

#### Planning and Execution 260

The Ideal Delivery 261 Constituents in Execution 262
Constituents in Planning 265 Interjections and
Corrections 268 Sources of Planning Difficulty 271

#### The Articulatory Program 273

Units in the Articulatory Program 275 Formation of the Articulatory Program 278 Word Formation 283 Word Representations 286 Rhythm and Timing 288 Articulation 291

Summary 292

Further Reading 292

## 4

#### **ACQUISITION**

#### Chapter 8 First Steps in the Child's Language

295

Communicating with Language 296

Issues in Language Acquisition 297 Methods of Studying the Child's Language 299

What Young Children Talk About 300

Precursors to the First Utterances 300
Single-Word Utterances 302 Case Relations 304
Two-Word Utterances 307 Early Analyses of Two-Word
Utterances 310

How Young Children Use Their Utterances 312

Precursors to Speech Acts 312 Early Speech Acts 314
Thematic Information in One- and Two-Word Utterances 316

How Adults Talk to Young Children 320

How Adults Get Children to Attend 321 What Adults Say to Young Children 322 How Adults Talk to Children 326 Incidental Consequences of Adult Speech 327 How Necessary Is Adult Speech? 329

Summary 330

Further Reading 331

#### Chapter 9 Later Growth in the Child's Language

333

Learning, Complexity, and Processing 334

Theories of Learning 334 Complexity in Language 337
Operating Principles 339

Elaborations of Language Structure 342

Grammatical Morphemes 342 Negative and Interrogative Sentences 347 Complex Sentences 355

Elaborations of Language Function 364

Speech Acts 364 Thematic Information 368

Summary 372

Further Reading 373

#### Chapter 10 First Sounds in the Child's Language

375

Perception of Speech Sounds 376

Precursors to Speech Perception 376 Phonetic Segments and Sequences 379 Intonation and Stress 382
Representations of Words 384

Production of Speech Sounds 387

Infant Babbling 389 Segments and Syllables 391 Children's Simplifications 397 Why Simplify? 401 Practice and Sound Play 402

Summary 403
Further Reading 404

5

#### MEANING AND THOUGHT

#### Chapter 11 The Representation of Meaning

407

The Nature of Meaning 408

The Study of Meaning 408 The Dictionary and the Encyclopedia 410 The Lexical Entry 412

Semantic Components 414

Componential Analysis 416 Formal Advantages of Componential Analyses 419

Applications of Componential Analysis 423

Change and Causation 423 Negation 426 Unmarked and Marked Adjectives 426 Complex Nouns and Adjectives 428 Limitations of the Componential Approach 429

Quantificational Representations of Meaning 432 Semantic Factors 432 Semantic Space 433 Limitations of the Ouantificational Clusters 436 Approach 436 The Functional Approach to Meaning 439 Procedural Semantics 439 Limitations of Procedural Semantics 442 Complications in the Representation of Meaning 444 Polysemy 444 Idioms 446 Lexical Creativity 446 Summary 447 Further Reading 448 Chapter 12 Uses of Meaning 449 Meaning and Process 450 Comprehension 450 Inherent Negatives 452 Modifiers 457 Category Names 462 Production 468 Naming 469 Adjective Order 472 Word Associations 477 Summary 482 Further Reading 483 Chapter 13 Meaning in the Child's Language 485 Children and Meaning 485 Issues in the Acquisition of Meaning 486 Early Word Meanings 490 Over-Extensions 492 Semantic Fields 497 Context and Strategy 501

Spatial Relations 502

Temporal Relations 506 Same or

Dimensional

Case Relations 501

Different Routes? 508

Relations 505

Semantic Components 509
Change and Causation 510

Summary 513

	Further Reading 314		
Chapt	er 14 Langua	ige and Thought	515
	Universals and Relativity	515	
	Biological Specialization Physiological Factors in Lan Chimpanzee 520	518 guage 518 Language in the	
	Perceptual Categories 52 Complexity of Expression 5 Basic Category Names 527 Terms 533	23 Basic Color Terms 524	
	Cognitive Categories 536  Number 537 Negation  Time 540	538 Cause and Effect 539	
	Social Categories 541  Kinship Terms 541 Prof	nouns 543	
	Processing Constraints 5 Word Groups 545 Word Invented Languages 550	45 d Order 546 Paradigms 549	
	Language Variation 551 Variation in Vocabulary 55 Thought? 554	2 How Does Language Affect	
	Summary 557 Further Reading 558		
	G	lossary	559
	Bi	bliography	569
	Na	ame Index	594
		bject Index	599

Negation 513