

Fourth Edition

lan- guage

introductory readings

Virginia P. Clark
Paul A. Eschholz
Alfred F. Rosa
editors

FOURTH EDITION

Language

INTRODUCTORY
READINGS

VIRGINIA P. CLARK
PAUL A. ESCHHOLZ
ALFRED F. ROSA
EDITORS

ST. MARTIN'S PRESS
NEW YORK

Library of Congress Catalog Card Number: 84-51144
Copyright © 1985 by St. Martin's Press, Inc.
All rights reserved.
Manufactured in the United States of America.
43210
1kjlhg

For information, write:
St. Martin's Press, Inc.
175 Fifth Avenue
New York, NY 10010

cover design: Darby Downey

ISBN: 0-312-46797-4

Acknowledgments

- "Language: An Introduction" by W. F. Bolton. Condensed by permission of Random House, Inc. from *A Living Language: The History and Structure of English*, by W. F. Bolton. Copyright 1982 by Random House, Inc.
- "Nine Ideas About Language" by Harvey A. Daniels. From *Famous Last Words: The American Language Crisis Reconsidered*, by Harvey A. Daniels. Copyright 1983 by Southern Illinois University Press. Reprinted by permission of the Southern Illinois University Press.
- Excerpt from *Humankind* by Peter Farb. Copyright 1978 by Peter Farb. Reprinted by permission of Houghton Mifflin Company.
- "The Acquisition of Language" by Breyne Arlene Moskowitz. Copyright © 1978 by Scientific American, Inc. All rights reserved.
- "Developmental Milestones in Motor and Language Development" by Eric H. Lenneberg. From *Biological Foundations of Language* by Eric H. Lenneberg. Copyright 1967 by John Wiley & Sons. Reprinted by permission of John Wiley & Sons.
- "Sounds" by Peter A. de Villiers and Jill G. de Villiers. Reprinted by permission of the publishers from *Early Language* by Peter A. de Villiers and Jill G. de Villiers, Cambridge, Mass.: Harvard University Press, Copyright © 1979 by Peter A. de Villiers and Jill G. de Villiers.
- "Predestinate Grooves: Is There a Preordained Language 'Program'?" by Jean Aitchison. From *The Articulate Mammal: An Introduction to Psycholinguistics*, Second Edition, by Jean Aitchison. Copyright 1976, 1983 by Jean Aitchison. Reprinted by permission of Universe Books, New York, and Hutchinson Publishing Group Ltd., London.
- "The Development of Language in Genie: A Case of Language Acquisition Beyond the 'Critical Period'" by Victoria Fromkin, Stephen Krashen, Susan Curtiss, David Rigler, and Marilyn Rigler. From *Brain and Language*. Vol. 1, No. 1: 81-107. New York: Academic Press, Inc. January 1974.
- "Genie: A Postscript" by Maya Pines. From "The Civilizing of Genie," from *Psychology Today*, September 1981.
- "Creole Languages" by Derek Bickerton. Copyright © July 1983 by Scientific American, Inc. All rights reserved.
- "Brain and Language" by Jeannine Heny. Copyright 1985 by Jeannine Heny. Figures 1 and 3 from *Language and Speech* by George Miller. W. H. Freeman and Company. Copyright © 1981. Figure 2 from *Brain and the Conscious Experience*, edited by John C. Eccles. Springer-Verlag, 1966. Figure 4 from "The Great Cerebral Commissure," in *Left Brain, Right Brain*, Springer and Deutsch, W. H. Freeman, 1981. Copyright © 1981.
- "The Loss of Language" by Howard Gardner. From *Human Nature*, March 1978. Copyright 1978 by Human Nature, Inc. Reprinted by permission of the publisher.
- "Phonetics" by Edward Callary. Copyright 1981 by R. E. Callary. Revised 1984 by R. E. Callary.

Acknowledgments and copyrights continue at the back of the book on pages 731-732, which constitute an extension of the copyright page.

Preface

The limits of my language mean the limits of my world.

—Ludwig Wittgenstein

Our language is central to everything we do. Language, more than any other human attribute, distinguishes us from all other forms of life on earth. Because we cannot function without our language, and because the language we use and how we use it set strict boundaries to what we can do, new discoveries and changes in linguistics can profoundly affect what we think of ourselves and our place in society. In appreciating the complexities of the medium through which we all communicate, we can understand more fully our humanity.

This fourth edition of *Language: Introductory Readings* has been reorganized to reflect the changing emphases in the study of language. For example, the third edition's Part Two, on language acquisition and the brain, has been divided into two parts, with one being devoted wholly to language acquisition. And, the third edition's Part Four, on phonology, morphology, and syntax, has also been split into two parts—one dealing with syntax and language processing (the latter a topic new to this edition) and the other a separate, expanded section encompassing phonetics, phonology, and morphology. Also treated more extensively are semantics and pragmatics, and new to this edition is a selection on natural language processing by computers (i.e., artificial intelligence). The two separate sections on animal communication and nonverbal communication that appeared in the third edition have been eliminated; each subject is treated here in one comprehensive survey article.

In addition to providing more focused and in-depth coverage, the selections are up-to-date. Twenty-one of the forty readings are new, and three—those by William Kemp and Roy Smith, by Jeannine Heny, and by Frank Heny—were especially prepared for this edition. Edward Callary has completely revised his article on phonetics, which was originally written for the third edition. Also, several selections that appeared in the third edition have since been published in revised form, and thus they are included here in their newer versions.

The new edition retains the teaching aids familiar from its predecessors: an introduction and discussion-and-review questions for each selection, an annotated bibliography and a variety of projects at the end of each part, and a general introduction for each part that describes the topics it covers and relates the readings to one another. In addition,

a glossary of frequently used terms and a complete topical index are provided for the first time.

The professional literature of linguistics and related fields ranges greatly in its demands on the reader's knowledge. We have therefore tried to choose selections that are consistent in level of difficulty and that are accessible to undergraduates who have no previous formal study of linguistics but have a serious interest in the subject. The sequence of the nine parts represents one possible syllabus for a course in language. However, instructors with other preferences will find that the order can easily be rearranged and that all sections may not be needed for some courses. Even so, we do recommend that Part One, "Language and Its Study," be assigned first, and that students read Edward Callary's "Phonetics" in Part Four before tackling any of the selections that make use of the phonetic alphabet (i.e., those by Peter A. de Villiers and Jill G. de Villiers, Morris Halle, H. A. Gleason, and Roger W. Shuy).

We are grateful to two colleagues for their constant encouragement and indispensable professional advice: Jinny Samuelson of the University of Akron and Frank Heny of the University of Vermont and Carleton College. Without their assistance, this edition would not have been possible. If any shortcomings remain, they are our responsibility. We also received valuable criticism of the third edition and advice toward the fourth from teachers around the country, who, in a real sense, were collaborators in setting the new proportions and coverage of this book: Barbara Abbott, Michigan State University; Wayne C. Anderson, University of North Carolina—Greensboro; Mark Aronoff, SUNY—Stony Brook; Anne Bolin, University of Colorado—Denver; Hagit Borer, University of California—Irvine; Robert Brown, University of Minnesota; Michael E. Connaughton, Saint Cloud State University; Joseph R. Cooke, University of Washington; Soren F. Cox, Brigham Young University; Kitty Chen Dean, Nassau Community College; Martha Dietz, Colgate University; Patricia J. Donegan, Ohio State University; Carol Eastman, University of Washington; Donald Ellis, Michigan State University; Robert J. Ewald, Findlay College; Richard A. Farland, Stetson University; Barbara Farnandis, Chicago State University; Graham S. Frear, Saint Olaf College; Richard Freed, Eastern Kentucky University; Robert Gates, Syracuse University; Francis G. Greco, Clarion State College; Ordelle G. Hill, Eastern Kentucky University; Nicholas Howe, Rutgers University; Charles Huff, Indiana University—Bloomington; Martin Huntley, Brown University; Valdón L. Johnson, University of Northern Iowa; Ellen M. Kaisse, University of Washington; Joseph Keller, Indiana University—Purdue University at Indianapolis; W. J. Vande Kopple, Calvin College; Stephen J. Korinko, Concordia College; E. C. Kyte, Northern Arizona University; Catherine P. Lewicke, Worchester State College; Thomas Liszka, DePaul University;

Vincent Lopresti, University of Wisconsin—Oshkosh; Michael Mates, Shoreline Community College; Virginia McDavid, Chicago State University; Cezary Mendelius, Saginaw Valley State College; Mildred C. Melendez, Sinclair Community College; Elaine Miller, Seton Hall University; Edward J. Milowicki, Mills College; Patricia Moody, Syracuse University; Marshall Myers, Kentucky Wesleyan College; John Nerbonne, Ohio State University; Klaus Obermeier, Ohio State University; Edward Y. Odisho, Loyola University—Lake Shore; Alexandra Olsen, University of Denver; Kenneth A. Robb, Bowling Green State University; Carol Rosen, Cornell University; Helen Scott, Grinnell College; Edward L. Smith, University of Texas—Austin; H. Stephen Straight, SUNY—Binghamton; L. J. Theismeyer, University of Notre Dame; Lynn F. Williams, Emerson College; Rita Yeasted, La Roche College; George Yule, University of Minnesota—Minneapolis; and Paul Zimansky, Boston University.

Finally, special thanks once again go to our students at the University of Vermont, whose continued enthusiasm for language study and whose responses to and evaluations of materials included in this edition, as well as in the first three, have been most helpful.

*Virginia P. Clark
Paul A. Eschholz
Alfred F. Rosa*

Contents

Part One/Language and Its Study 1

- 1 / Language: An Introduction, *W. F. Bolton* 3
- 2 / Nine Ideas About Language, *Harvey A. Daniels* 18

Projects for "Language and Its Study" 37
Selected Bibliography 40

Part Two/Language Acquisition 43

- 1 / The Acquisition of Language,
Breyne Arlene Moskowitz 45
- 2 / Developmental Milestones in Motor and Language
Development, *Eric H. Lenneberg* 74
- 3 / Sounds, *Peter A. de Villiers and Jill G. de Villiers* 78
- 4 / Predestinate Grooves: Is There a Preordained Lan-
guage "Program"? *Jean Aitchison* 90
- 5 / The Development of Language in Genie: A Case of
Language Acquisition Beyond the "Critical Period,"
*Victoria Fromkin, Stephen Krashen, Susan Curtiss, David
Rigler, and Marilyn Rigler* 112
- Genie: A Postscript, *Maya Pines* 131
- 6 / Creole Languages, *Derek Bickerton* 134

Projects for "Language Acquisition" 152
Selected Bibliography 154

Part Three/Language and the Brain 157

- 1 / Brain and Language, *Jeannine Heny* 159
- 2 / The Loss of Language, *Howard Gardner* 184

Projects for "Language and the Brain" 196
Selected Bibliography 198

Part Four/Phonetics, Phonology, and Morphology **201**

- 1 / Phonetics, *Edward Callary* 203
- 2 / The Rules of Language, *Morris Halle* 236
- 3 / The Minimal Units of Meaning: Morphemes, *Ohio State University Language Files* 249
- 4 / The Identification of Morphemes, *H. A. Gleason* 257
- 5 / Morphology: Three Exercises, *H. A. Gleason* 266
- 6 / Word-Making: Some Sources of New Words, *W. Nelson Francis* 269

Projects for "Phonetics, Phonology, and Morphology" 282

Selected Bibliography 282

Part Five/Syntax and Language Processing **285**

- 1 / What Do Native Speakers Know About Their Language? *Roderick A. Jacobs and Peter S. Rosenbaum* 287
- 2 / Sentence Structure, *Frank Heny* 294
- 3 / What Is a Language? *Neil Smith and Deirdre Wilson* 325
- 4 / The Cheshire Cat's Grin: How Do We Plan and Produce Speech? *Jean Aitchison* 341
- 5 / An Interview with Noam Chomsky, *John Gliedman* 366

Projects for "Syntax and Language Processing" 376

Selected Bibliography 377

Part Six/Semantics and Pragmatics **381**

- 1 / The Meaning of a Word, *George L. Dillon* 385
- 2 / Automobile Semantics, *Mark Aronoff* 401
- 3 / Pragmatics, *Madelon E. Heatherington* 422

- 4 / Discourse Routines, *Elaine Chaika* 429
- Projects for "Semantics and Pragmatics" 456
- Selected Bibliography 458

Part Seven/Language Variation: Regional and Social 461

- 1 / Speech Communities, *Paul Roberts* 467
- 2 / Social and Regional Variation, *Albert H. Marckwardt and J. L. Dillard* 477
- 3 / Dialects: How They Differ, *Roger W. Shuy* 493
- 4 / A Researcher's Guide to the Sociolinguistic Variable (ING), *Benji Wald and Timothy Shopen* 515
- 5 / The Study of Nonstandard English, *William Labov* 543
- 6 / "It Bees Dat Way Sometime": Sounds and Structure of Present-Day Black English, *Geneva Smitherman* 552

- Projects for "Language Variation: Regional and Social" 569
- Selected Bibliography 572

Part Eight/Historical Linguistics and Language Change 579

- 1 / Comparative and Historical Linguistics, *Jeanne H. Herndon* 581
- 2 / The Indo-European Language, *Paul Thieme* 587
- 3 / Relationships of Some Indo-European Languages with Detail of English Dialects, *Jeanne H. Herndon* 598
- 4 / A Brief History of English, *Paul Roberts* 600
- 5 / Language Change: Progress or Decay? *Jean Aitchison* 612

- Projects for "Historical Linguistics and Language Change" 624
- Selected Bibliography 627

**Part Nine/Beyond Speech:
Broader Perspectives** **631**

- 1 / Nonverbal Communication, *George A. Miller* 633
- 2 / Natural-Language Processing: The Field in
Perspective, *Gary H. Hendrix and
Earl D. Sacerdoti* 642
- 3 / Animals, Communication, and Language, *William
Kemp and Roy Smith* 669
- 4 / Languages and Writing, *John P. Hughes* 698
- Projects for "Beyond Speech: Broader
Perspectives" 718
- Selected Bibliography 720

Glossary 725

Index 733

Part One

Language and Its Study

Language is not only the principal medium that human beings use to communicate with each other but also the bond that links people together and binds them to their culture. To understand our humanity, we must understand the language that makes us human. The study of language, then, is a very practical, as well as a very challenging, pursuit. In beginning this study, we must consider some fundamental questions: What is language? What are its unique characteristics? Are there some commonly held misconceptions that impede our understanding of language—and if so, what are they? What effect does language have on people and on their culture? The selections in Part One raise these basic questions and suggest some answers.

Most people take their language ability for granted; speaking and understanding speech seem as natural as breathing or sleeping. But human language is extremely complex and has unique characteristics. In the first selection in this section, W. F. Bolton discusses the properties of human language that make it species-specific and explains the intricate physiological adaptations that make speech and hearing possible. He also points out that all languages are systematic and that no language is “simple” or “primitive,” and he alerts us to the harm of ethnocentric attitudes.

Following this definition of human language and introduction to the physiology of speech and hearing, Harvey A. Daniels discusses nine “facts” about human language that most contemporary linguists

believe to be demonstrably true. These ideas are important in their own right; in addition, understanding them will make the selections in other parts of this book more enjoyable and meaningful.

The selections in Part One provide an introduction to the study of language: its physiology and unique properties, and facts that refute nine commonly held misconceptions about language. Reading these articles should help us begin to understand the complexity of both human language and the problems involved in studying it. Moreover, doing so should make it impossible to take for granted the unique and complicated phenomenon that is human language.

1/Language: An Introduction

W. F. BOLTON

The ability to use language is the most distinctive human characteristic, and yet most people take this ability for granted, never considering its richness and complexity. In the following selection, W. F. Bolton, Professor of English at Douglass College, analyzes the intricate physiological mechanisms involved in speech production and in speech reception, or hearing. Especially interesting is his discussion of the differences between "speech breathing" and "quiet breathing." Professor Bolton also explains the "design features" that characterize human language; this explanation is important for understanding many of the later selections in this book. His concluding warning against ethnocentricity is particularly important today.

Language is so built into the way people live that it has become an axiom of being human. It is the attribute that most clearly distinguishes our species from all others; it is what makes possible much of what we do, and perhaps even what we think. Without language we could not specify our wishes, our needs, the practical instructions that make possible cooperative endeavor ("You hold it while I hit it"). Without language we would have to grunt and gesture and touch rather than tell. And through writing systems or word of mouth we are in touch with distant places we will never visit, people we will never meet, a past and a future of which we can have no direct experience. Without language we would live in isolation from our ancestors and our descendants, condemned to learn only from our own experiences and to take our knowledge to the grave.

Of course other species communicate too, sometimes in ways that seem almost human. A pet dog or cat can make its needs and wishes known quite effectively, not only to others of its own species but to its human owner. But is this language? Porpoises make extremely complex sequences of sounds that may suggest equally complex messages, but so far no way has been found to verify the suggestion. Chimpanzees have been taught several humanly understandable languages, notably AMESLAN (American Sign Language) and a computer language, but there has been heated debate whether their uses of these languages are like ours or merely learned performances of rather

greater subtlety than those of trained circus animals. If the accomplishments of dolphins and chimpanzees remain open questions, however, there is no question but that human uses of language, both everyday and in the building of human cultures, are of a scope and power unequalled on our planet.

It seems likely that language arose in humans about a hundred thousand years ago. How this happened is at least as unknowable as how the universe began, and for the same reason: there was nobody there capable of writing us a report of the great event. Language, like the universe, has its creation myths; indeed, in St. John's Gospel both come together in the grand formulation, "In the beginning was the Word, and the Word was with God, and the Word was God." Modern linguists, like modern cosmologists, have adopted an evolutionary hypothesis. Somehow, over the millennia, both the human brain and those parts of the human body now loosely classed as the organs of speech have evolved so that speech is now a part of human nature. Babies start to talk at a certain stage of their development, whether or not their parents consciously try to teach them; only prolonged isolation from the sounds of speech can keep them from learning.

Writing is another matter. When the topic of language comes up, our first thoughts are likely to be of written words. But the majority of the world's languages have never been reduced to writing (though they all could be), and illiteracy is a natural state: we learn to write only laboriously and with much instruction. This is hardly surprising, since compared with speech writing is a very recent invention—within the past 5,000 years. Still more recently there have been invented complex languages of gesture for use by and with people unable to hear or speak; these too must be painstakingly learned. What do the spoken, written, and sign languages have in common that distinguishes them from other ways to communicate?

Properties of Language

Perhaps the most distinctive property of language is that its users can create sentences never before known, and yet perfectly understandable to their hearers and readers. We don't have to be able to say "I've heard that one before!" in order to be able to say, "I see what you mean." And so language can meet our expressive needs virtually without limit, no matter how little we have read or heard before, or what our new experiences call on us to express. Another way of describing this property is to say that language is **productive**. We take this productivity for granted in our uses of language, but in fact it is one of the things that make human communication unique.

Less obvious is the fact that language is **arbitrary**: the word for something seldom has any necessary connection with the thing itself. We say *one, two, three*—but the Chinese say *yi, er, san*. Neither language has the “right” word for the numerals, because there is no such thing. (It might seem that a dog’s barking, or a blackbird’s call, were equally arbitrary, as both might be translated into various languages as “Go away!” or “Allez-vous-en!”—but within the species the sound is universally understandable. A chow and a German shepherd understand each other without translation—unlike speakers of Chinese and German).

Even the sounds of a language are arbitrary. English can be spoken using only 36 significantly different sounds, and these are not all the same as the sounds needed to speak other languages. These 36 sounds are in turn arbitrarily represented by 26 letters, some standing for two or more sounds, others overlapping. (Consider *c, s, and k*.) And the patterns into which these sounds, and indeed words, may be arranged are also arbitrary. We all know too well what *tax* means but, in English at least, there is no such word as *xat*. In English we usually put an adjective before its noun—*fat man*; in French it’s the other way around, *homme gros*. This patterning is the key to the productivity of language. If we use intelligible words in proper patterns, we can be sure of being understood by others who speak our language. Indeed, we seem to understand nonsense, provided it is fitted into proper patterns—the silly nonsense of doubletalk, the impressive nonsense of much bureaucracy.

This ability to attach meaning to arbitrary clusters of sounds or words is like the use and understanding of symbolism in literature and art. The word *one* does not somehow represent the numeral, somehow embody its essence the way a three-sided plane figure represents the essence of triangularity. Rather, *one* merely stands for the prime numeral 1, giving a physical form to the concept, just as the word *rosebuds* gives a physical form to the concept “the pleasures of youth” in the poetic line, “Gather ye rosebuds while ye may.” Thus the sound /wʌn/, spelled *one*, has a dual quality as a sound and as a concept. This can be seen from the fact that /wʌn/, spelled *won*, matches the identical sound to a wholly different concept. This feature of **duality** is both characteristic of and apparently unique in human communication, and so linguists use it as a test to distinguish language from other kinds of communication in which a sound can have only a single meaning. (Such sounds are called signs, to distinguish them from the symbols that are human words.)

Sounds can be made into meaningful combinations, such as language, only if they are first perceived as meaningfully distinct, or **discrete**. We can find an analogy in music. Musical pitch rises continuously without steps from the lowest frequency we can hear to the

highest, sliding upward like the sound of a siren. But most of music is not continuous; it consists of notes that move upwards in discrete steps, as in a scale (from *scalae*, the Latin for "stairs"). This is why we can talk about notes being the same or different, as we could not easily do if all possible tones from low to high were distributed along a continuous line. Similarly, in speech we can slide through all the vowels from "ee" in the front of the mouth to "aw" in the throat—but then how could we tell *key* from *Kay* from *coo* from *caw*? Likewise we distinguish between *v* and *f*, so that *view* is different from *few*. But these distinctions are arbitrary. They are not even common to all languages. For example, in German the letters *v* and *f* both represent the sound /f/, the letter *w* represents the sound /v/—and there is no sound /w/. What all languages do have in common, however, is the property of discreteness.

These four properties, or "design features," of language were first set down by Charles Hockett in 1958 as part of an attempt to see how human language differs from animal communication systems. There are of course other design features—their number has varied from seven to sixteen—but these four (discreteness, arbitrariness, duality, and productivity) appear to be the most important. Among the others:

Human language uses the *channel of sound*, generated by the vocal organs and perceived by the ear, as its primary mode. As a consequence, speech is *nondirectional*: anyone within hearing can pick it up, and we can hear from sources which we cannot see. Our hearing, being stereophonic, can also tell from what direction the sound is coming. Also, our language acts *fade rapidly* (unless recorded on tape or in writing). We do not, as a rule, repeat these acts the way animals often do their signals.

In human language, *any speaker can be a listener and any listener can be a speaker*, at least normally. Some kinds of animal communication, such as courtship behavior, are one-way. And we get *feedback* of our own utterances through our ears and through bone conduction. Non-sound animal communication, like the dances of bees, can often only be invisible to the originator of the message.

Our language acts are *specialized*. That is to say, they have to do only with communication; they do not serve any other function. For example, speech is not necessary for breathing, nor is it the same as other sounds we make, such as a laugh or a cry of pain or fear. Of course, such sounds can communicate, but only by accident to those within earshot. Their main purpose is a reflexive one: they happen more or less involuntarily, like the jerk of a tapped knee.

Italian children grow up speaking Italian; Chinese children learn Chinese. *Human language is transmitted by the cultures we live in*, not by our parentage: if the Chinese infant is adopted by an Italian couple living in Italy, he or she will grow up speaking perfect Italian. But a

kitten growing up among human beings speaks neither Italian nor Chinese; it says *meow*. Its communication is determined by its genetic makeup, not by its cultural context.

Nonlanguages

Other kinds of human communication are sometimes called language: body language, or *kinesics*, is one example. The way we use our bodies in sitting, standing, walking, is said to be expressive of things we do not say. It probably is, but that does not make it language. Body language lacks duality, in that it is not symbolic but rather a direct representation of a feeling; discreteness, in that there is no "alphabet" of distinctive movements or postures; and productivity, in that "original" expressions are likely not to be understood. Moreover, it appears to be only partly arbitrary, for the movement or posture is often selected by its "meaning" as representational, not arbitrary; "barrier signs" such as crossing one's arms or legs need no dictionary. Try testing body language against the other design features.

The Physiology of Speech

Speech is a kind of specialized exhalation, so it follows that we breathe while we speak. But the two sorts of breathing are not at all the same. "Quiet" breathing is more rapid and shallow than breathing during speech. Quiet breathing is also more even and restful than speech breathing, for during speech the air is taken in quickly and then expelled slowly against the resistance of the speech organs. Quiet breathing is mostly through the nose, speech breathing through the mouth. These differences, and others, would normally affect the accumulation of carbon dioxide (CO_2) in the blood, and the level of CO_2 is the main regulator of breathing—the rate or volume of breathing responds to the level of CO_2 so as to keep us from getting too uncomfortable. If we consciously use "speech" breathing but remain silent, we resist this response and our discomfort grows rapidly. That discomfort does not take place during actual speech, however; some other mechanism comes into play.

Thus, it is quite clear that breathing undergoes peculiar changes during speech. What is astonishing is that man can tolerate these modifications for an apparently unlimited period of time without experiencing respiratory distress, as is well demonstrated by the interminable speech with which many a statesman embellishes his political existence. Cloture is