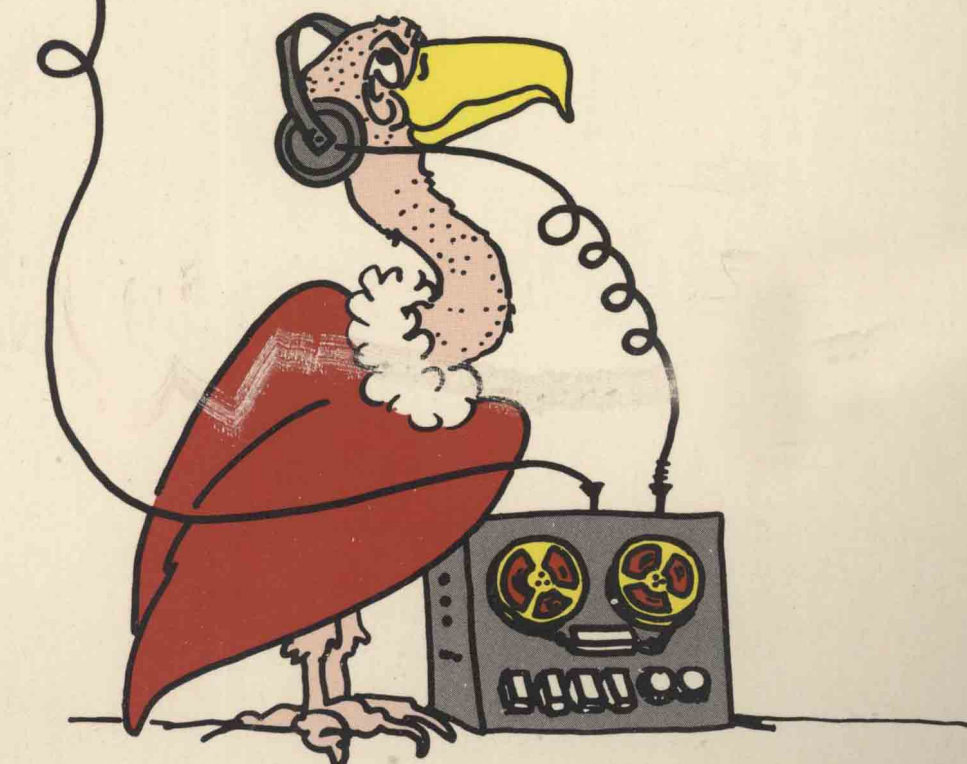


Phonological Analysis

Focus on American English

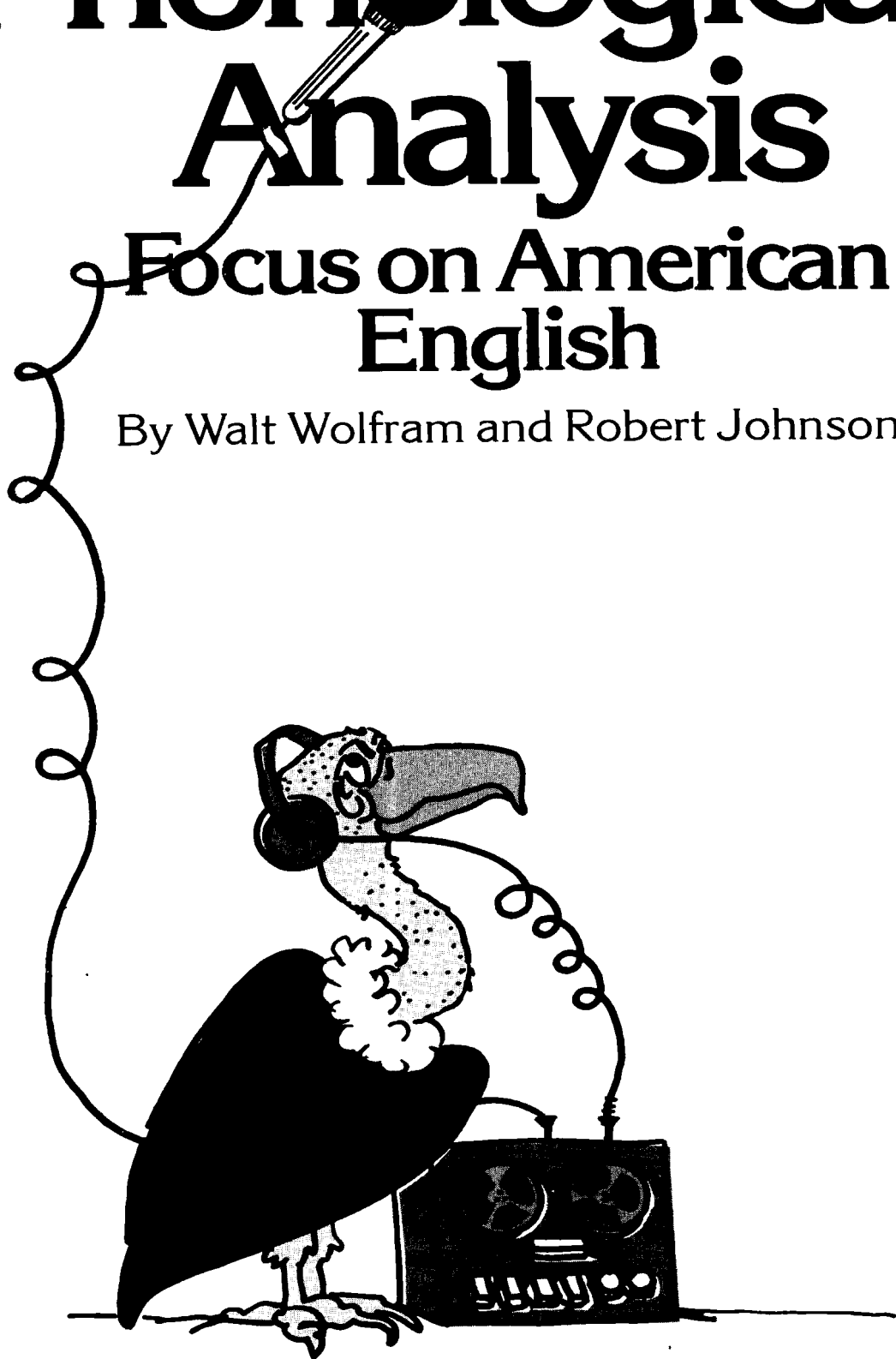
By Walt Wolfram and Robert Johnson



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Focus on American English

By Walt Wolfram and Robert Johnson



CENTER FOR APPLIED LINGUISTICS

To Our Families:

Jane

and

Marge and T⁴

Tyler
Todd
Terry
Tanya

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PREFACE

Teaching introductory courses presents a great challenge for linguists. Students entering such courses often represent a wide range of backgrounds and expectations, and instructors have the constant tension of balancing a clear and straight-forward presentation of linguistic principles with an understanding of the inherent complexities of language organization. Many students are lost along the way, and many instructors approach such courses as a dutiful burden rather than as an intriguing challenge.

This text is a partial response to the challenge of teaching an introductory course in phonology on an advanced undergraduate or graduate level. It is based on years of experience in teaching students from a wide range of fields. Along with those who specialize in linguistics, students in speech pathology, foreign language and bilingual education, and language arts are among those who need a solid foundation in phonological analysis. We have attempted to write a text useful to the wide range of students we have encountered by first discussing the general principles of analysis and then showing how they are applied in particular fields.

In this text, we have incorporated some of the contributions of earlier approaches to phonology with more recent approaches. There is an obvious bias toward the "standard version" of generative phonology, but we hope that we have not been irresponsible to insights from other approaches. We have tried to show that different developments in the study of phonology are related to and derive from each other rather than present notions in terms of independent "schools of phonology." Ultimately, we are more concerned that students understand certain principles in phonological analysis that are shared by various theoretical approaches, rather than develop allegiance to particular models.

In our presentation of examples, we have focused on English, often to the neglect of the "classic" examples from other languages. We purposely made this decision because we thought it most practical in terms of the goals of the text and the backgrounds of our students. While our primary aim is to introduce the principles of phonological analysis, description, and application, we also want the student to come away with a feel for the English phonological system. Exercises are incorporated into the chapters at the point where the relevant discussion takes place, and we suggest working through the exercises before continuing reading: the subsequent discussion is sometimes dependent upon familiarity with the exercises.

Chapters 1-9 give a basic approach to analysis, description, and explanation, and the final four chapters (10-13) discuss some applications of phonological analysis. We think that the final chapters are important both for students interested in basic linguistic description and for those with more applied concerns.

We don't have a long list of people to whom we are grateful, although we probably should because we claim no particular novelty in our approach to phonology. Obviously, we are deeply indebted to those in the "who's who" of phonology, but we've also profited greatly from our students. They have forced us to sharpen our thinking on issues in phonology and to be focused

and deliberate in our presentation of these issues. Sometimes we have marveled that they have been able to learn at all from us and thank them for their patience.

Allan Bell was superb as an editor, uniquely combining technical expertise on the subject matter and concern for style and presentation. Remaining improprieties of style and presentation remain the authors' responsibility, as should be obvious to those who have heard them speak or seen them behave together in public. Marge Wolfram spent many volunteer hours typing various drafts of the manuscript over the last decade, and should be as happy as the authors to see this project finished. Marcia Taylor meticulously prepared the final copy for typing, and Carolyn Piersma was exceptionally adept at deciphering several layers of scribble.

Finally, the authors would like to thank each other. We learned much from this joint endeavor and had lots of fun in the process. In all respects, it was a partnership full of respect and enjoyment. In fact, we had so much fun working on this manuscript that someday we would like to do an underground version--full of all the quips, puns, and irreverent comments which even our limited sense of propriety forced us to eliminate here.

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December, 1981

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CHAPTER 1

The Study of Phonology

All languages are organized in several different ways. We can recognize at least three levels of organization in a simple sentence such as *Tall people often make good basketball players*. One of these levels deals with the ways in which the meaning of a sentence emerges from the meanings of the individual words: semantic organization. A word such as *basketball*, for example, should have roughly the same meaning for most speakers of American English. On another level, there are the ways in which the words of the sentence are combined with each other: the syntax of the sentence. The order of the words in a sentence is not accidental. Changing the order in the sentence above would either change the meaning of the sentence or make it meaningless. A third level deals with the sounds that transmit the sentence to the listener. The phonology is that aspect of language organization involving the use of sounds and the relationships among them.

There are a number of different reasons for studying phonology, or for including a course in phonology in a particular program of study. Students may range from the specialized student of phonology within the discipline of linguistics, to the aspiring opera singer who has been told that a course in phonology will help singing in foreign languages. Information about the structure of sound systems can be useful for a number of different professional subject areas. And besides that, we think it is interesting.

Even before discussing the "practical" reasons for which the study of phonology is important, we should start with the role of phonology in a general study of human knowledge. Language is a unique form of knowledge, in that speakers know a language simply by virtue of the fact that they speak it. Much of this knowledge is not on a conscious level, but it is still open to systematic investigation. The sounds of language provide a potential that few disciplines can match for systematically tapping data. Looking at how we use sounds provides a natural laboratory for making generalizations drawn from carefully described sets of data. We can hypothesize about certain aspects of the system, and then check our hypotheses by looking at the data provided by speakers of a language. And we can do this without many of the technical instruments that are necessary in other disciplines. Although the formalization of particular aspects of phonology may call for some specific training, accurate generalizations and observations are not the unique domain of professional linguists; they are open to any speaker of a language. Phonology—as a part of the study of language—can contribute substantial insight into the nature of scientific inquiry.

At first glance, the notion that we use our knowledge from phonology in hypothesis formation and testing seems somewhat removed from our everyday experience, but there are certain types of ordinary occasions that demonstrate how we actually use such knowledge. Suppose we have two players nearing the conclusion of a Scrabble game. One is left with the letters *f* and *p*, and the other has the letters *s*, *l*, and *p*.¹ The only workable combination involves placing letters before the sequence *at*. The player with two letters quickly realizes that either *p* or *f* can be used, but that only one at a time can occur before *at*. This observation is based on the knowledge that no

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sequences of English words begin with *pf* or *fp*. On the other hand, the player with three letters can use all of them to make *splat*, since there is a combination of *s*, *p*, and *l* found in English phonology. In the course of the game, the players have made a significant observation about the structure of sound sequences in English. They have noticed that combinations of the letters *p* and *f* are not permitted at the beginning of English words, but that combinations involving the sequence *s*, *p*, and *l* are permitted. This observation is based on the knowledge available to them as speakers of English. If the game had been conducted in another language, such as German, initial *pf* sequences would have been permissible, but other types of sequences would not.

Exercise 1

Examine a crossword puzzle and identify some ways in which a person's knowledge of phonological structure would be used in arriving at possible answers. What observations about phonological structure can be drawn from this?

Consider another illustration. A group of advertising agents is attempting to come up with a term for a new laundry soap. They decide that they want a completely new name for their product, one that has a "splashing" sound to it. Eventually they come to the conclusion that a short word beginning with several consonants will do the trick. They start to create new words, and, in doing so, notice that in all of the terms they come up with, the first letter is *s*, the second is *p*, *t*, or *k*, and the third is *l* or *r*. In considering alternative names for the product, such as *sprish*, *splursh*, and *skrell*, they have made a significant observation about consonant sequences at the beginning of words in English. They automatically reject new creations like *fplop* or *ptrap* because these sequences of sounds are not permissible in English. In the course of their reflections, they have tapped their knowledge about English. They have made an observation which—stripped of the veneer of technical linguistic terminology—is as valid as that of the linguist formally describing sequences of sounds in English. Both processes involve a search of available data, an observation concerning the data in terms of a hypothesis, and the rejection or acceptance of the hypothesis based on whether it accounts for the data at hand.

While the study of phonology may provide the linguistics major with basic knowledge about one level of language organization, and the non-major with an interesting laboratory for looking at one kind of scientific inquiry, the function of a course in phonology does not necessarily stop there. Knowledge of the organization of sound systems can lead to practical applications in a number of different fields.

Phonology, Writing, and Reading

One of the most important uses of phonology involves orthography: the use of an alphabet to represent a language in writing. In many of the world's writing systems, the printed symbols in the orthography are chosen to represent the significant sounds of the language. The earliest uses of the study of sound systems centered on this very practical goal of devising efficient writing systems. And, during the 20th century, when interest in language developed into a specific discipline of linguistics, this concern surfaced as an important byproduct of phonological analyses.

One of the earliest textbooks devoted entirely to phonology during the modern era of linguistics was subtitled *A Technique for Reducing Languages to Writing*. A primary concern of this text (Pike, 1947b) was to enable the student to arrive at a phonological analysis, which in turn would permit the development of a writing system reflecting the systematic structure of the phonology. At that time many linguists were engaged in analyzing unwritten languages. In many instances, one goal of such projects was the development of literacy programs. Many of the languages did not have orthographic systems, so that part of the work necessarily entailed developing an orthography. Rather than adopt an orthographic system which was devised to represent the sounds of another language, new orthographies were developed to represent the sound system of the particular language under analysis. During the past half century, many orthographies, based on principles of phonological analysis, have been created for previously unwritten languages.

Applications of phonological studies to such languages may seem somewhat exotic, but studying the phonology of English also offers some important insights concerning its spelling. Many people think that the English spelling system is highly irregular, representing some sounds inconsistently and others that are not pronounced at all. Although there certainly are some inconsistencies, recent work in the phonology of English has demonstrated that English spelling is much more systematic than is often recognized. When this system is examined from the perspective of phonology, certain underlying regularities are revealed. Take the case of words with the so-called silent *g*, like *sign* and *design*. If we accept that these forms are related to items like *signature* and *designation*, in which the *g* is actually pronounced, the presence of the *g* seems justified in the spelling. First impressions about the unsystematic nature of English spelling often turn out to be incorrect upon closer inspection. A spelling teacher who understands such relations in terms of phonology may have an important advantage over one who does not look for underlying regularities.

Exercise 2

If we assume that items such as *bomb* and *bombardier* are related in English, what does this imply about the existence of the "silent" *b* in *bomb*? Think of five similar word pairs in which one item has a "silent" letter (not necessarily *b*), and the related item reveals the pronunciation of the letter.

Similarly, a reading teacher who understands the relationship between sounds and symbols from the perspective of phonological analysis is at an advantage. Early readers need to know how certain spelling patterns reflect their knowledge of the language. An understanding of such processes may ease some of the frustrations beginning readers experience as they attempt to match sounds and symbols.

It appears that an efficient orthographic system will allow for different pronunciations that a native speaker uses automatically. For example, we may write the English plural with an *s* even though it is pronounced sometimes as a *z*-like sound (*beds*, *bags*) and other times as an *s*-sound (*bets*, *backs*). Speakers of English will automatically pronounce an *s* or *z* sound in the right places, despite the fact that both sounds are represented by the symbol *s*.

Phonology and Foreign Language Learning

A common tendency of students attempting to learn a second language is to use the sounds from their native language in the language they are learning. However, where the two languages are not phonologically identical, this can lead to serious "interference" problems in speaking the second language. Certain sounds will be modified to fit the phonological pattern of the native language. The resultant "foreign accent" is a common problem, well recognized by both professional and non-professional observers of language usage.

Many English speakers encountering spoken Spanish for the first time tend to interpret the Spanish *p* as *b* in some contexts. This is because there is a small but significant difference between the English *p* and the Spanish *p*. In English, *p* is often accompanied by a small puff of air following the sound. This "aspiration" is one of the major identifying characteristics of the pronunciation of *p* in English. But in Spanish, there is typically no aspiration of *p*. Without the cue of aspiration, there is a tendency for the English speaker to think that the Spanish *p* is a *b*, which in English is often identified by its lack of aspiration.

Filtering sounds in terms of the native rather than the second language is a natural tendency which must be overcome if a person is to acquire real fluency in a foreign language. Most teachers in introductory phonetics can readily testify to the problems that English speakers have in hearing and producing the unaspirated *p*, whereas a native Spanish speaker would have no difficulty at all with it. On the other hand, the native Spanish speaker learning English has difficulties with certain phonological details not found in Spanish. A Spanish speaker might not perceive the difference between the nasal consonants represented by *n* and *ng* in English, since these sounds are not distinguished in the sound system of Spanish. Or, a Spanish speaker might have difficulty with English words beginning with *st* (e.g. *steep*), because words are not permitted to begin with the *st* cluster in Spanish. In this case, the speaker might insert a vowel before the cluster, thus creating a permissible Spanish sequence (*esteepe*).

Exercise 3

Consider a foreigner who typically pronounces *p* in English words which contain an *f*. Thus, both *fat* and *pat* are pronounced as *pat*. What does this information tell you about the sounds *f* and *p* in the speaker's native language?

By observing differences between phonological systems, a foreign language teacher may be able to anticipate problems and develop strategies for helping foreign language learners overcome the tendency to filter the sound system of a foreign language through the native language. Without an understanding of how sound systems may be organized, and using this as a basis for comparing systems, foreign language training seems to be at a serious disadvantage.

Understanding the basis of phonological systems is essential not only for the foreign language learner; it is also important for our understanding of first language acquisition. It shows that a child does more than simply acquire sounds in a random fashion. Sounds are acquired according to a number of principles which organize phonological systems. However, there is an important difference between first language acquisition and how an adult learns a foreign language. In the case of normal children learning their first language, simple exposure to the language of the community is enough to

develop a phonological system, while adult learners of a foreign language usually need aid in overcoming the filtering tendency of the native language.

Phonology and Speech Disorders

So far we have discussed some of the applications of phonological analysis to normal language situations. Such knowledge also has implications beyond normal language, and is particularly useful in the assessment and treatment of phonological disorders. In evaluating disorders, it may be misleading—and in some cases, wrong—to identify articulation problems simply as "omissions," "substitutions," and "distortions." When an individual reveals a phonological disorder, we want to know to what extent this disorder stems from differences in the organization of their phonological system.

Several dimensions of the study of phonology are crucial to understand what are commonly called "misarticulations." For one, phonological analysis allows us to look at the **patterned nature of disorders**. Evidence indicates that the sounds of a disordered system are not simply affected in a haphazard, random way. Instead, there are patterns in the ways they contrast with the normal, adult system. A particular type of disorder may be manifested by a lack of contrast between sounds such as *p* and *b*, *t* and *d*, *s* and *z*, and so forth. In such a case, the loss of one basic distinction (the difference between voiced and voiceless sounds) is responsible for a number of problematic sounds. A speech pathologist who understands the systematic nature of the so-called articulation problem is in a good position to make a diagnosis and plan subsequent remediation strategies.

Exercise 4

An individual with a speech problem produces the following items instead of the normal adult forms:

<i>tip</i> for <i>chip</i>	<i>pine</i> for <i>vine</i>
<i>ting</i> for <i>sing</i>	<i>pight</i> for <i>fight</i>
<i>tow</i> for <i>show</i>	<i>palentine</i> for <i>Valentine</i>
<i>tipper</i> for <i>zipper</i>	<i>pit</i> for <i>fit</i>

Notice that both *t* and *p* occur for a number of other sounds. Is there a pattern to this misarticulation so that we can predict where *p* will occur and where *t* will occur? Why might *p* occur for some sounds and *t* for others?

As well as understanding the patterned nature of the misarticulation in a disorder, we also need to know how the disordered system is organized as a system in its own right. As we shall see in Chapter 11, some of the ways in which deviant systems organize themselves are rather ingenious. They may, for example, use sounds in ways that are quite different from the adult normal system. Understanding the organization of the system is crucial to determining what a speaker does and does not know about the use of sounds. It is, in fact, difficult to see how a serious speech pathologist could do without knowledge of the systematic nature of normal and non-normal sound systems.

The Phonological Component

While there is currently much discussion among linguists about the overall organization of grammar, it is generally agreed that a complete grammar of a

 Exercise 5

Consider the following words as produced by a young child.

<i>ring</i>	'ring'	<i>bwing</i>	'bring'
<i>wing</i>	'wing'	<i>drown</i>	'drown'
<i>right</i>	'right'	<i>kwack</i>	'crack'
<i>white</i>	'white'	<i>twip</i>	'trip'
<i>ray</i>	'Ray'	<i>pway</i>	'pray'
<i>way</i>	'way'	<i>gway</i>	'gray'

What is the pattern that controls "incorrect" production of *r* (in the right-hand column)? Does this patterning support the claim that this speaker does not know the difference between *r* and *w*? How does this demonstrate the need to know where sounds are used in words as a basis for making observations about misarticulations?

language must include information from at least the phonological, semantic, and syntactic levels of organization.² The exact relationship between phonology and the other levels, however, is still in dispute. In some traditional approaches, phonology was seen to be a separate entity, whose structure could be determined without reference to other levels of the grammar. That is, a phonological description of a language could be made without reference to the syntactic or semantic levels. In other approaches (and the one taken in this book), phonology is considered to be dependent to some extent upon elements from other levels of the grammar. That is, the phonological level is dependent on at least some syntactic information.

From our point of view, the phonological component of a grammar is basically a system of rules that operate on items from the syntactic level and convert them into their actual pronunciation (their phonetic form). There are then several prerequisites for the phonological rules of a grammar to operate effectively. First of all, there must be some sort of basic units in the vocabulary, or lexicon. Then, the phonological component itself contains rules that can operate on these basic lexical units, changing them to their eventual phonetic form. The ultimate output of the rules of the phonological component is the actual pronunciation of items, or the "surface phonetic form." Aspects of phonetic production cannot be ignored, but phonology is properly concerned with how sounds are organized within a system, rather than the physical details of production *per se*. In other words, our interest is in the organized system that leads to the eventual production of forms, not the details of physical sound production that can be described apart from an organized system.

For our purposes here, the important questions about the phonological component are:

- (1) What is the nature of the rules that make up the phonological component?
- (2) What is the form of the lexical units?
- (3) How do the rules operate on the lexical units to arrive at the eventual phonetic form?

In the preceding sections, we have previewed what we mean when we speak of the phonology of a language, and have presented some practical applications of phonological analysis. In subsequent chapters, we will examine in detail the actual ways in which the sounds of a language are organized. We will focus on the various dimensions of organization within the phonological component of a language. While some aspects of this organization are

considerably more complex than appears at first glance, it should at least give a new appreciation of the human capability to speak a language. At the same time, we will see that the study of phonology provides some exciting data for observation and analysis as a type of scientific inquiry.

We have also suggested that there are some utilitarian reasons for studying the organization of a sound system. We will return to this in our final chapters, after we have considered the actual organization and analysis of phonological systems. Hopefully, we will see that the specialized, somewhat technical, study of phonology carries considerable potential for advancing our understanding of the capabilities of the human mind, as well as a basis for applying such knowledge to human problems.

NOTES

1. The use of particular letters of the alphabet is important only in the sense that the spelling system of English, with certain exceptions, reflects the phonological system. We may refer to spelling as a reflection of English phonology, but we must keep in mind that our real concern is the way in which the actual phonological system of English is structured, not the way in which it is represented in writing. We will discuss the relationship of phonology and spelling in a later chapter.
2. A linguist's description of the organization of a language is usually referred to as a grammar of that language. There are, however, several different uses of the term *grammar* current within linguistics. One use is restricted only to the syntactic level of organization. Another (and the sense in which we are using the term here) refers to a complete model of language organization at all the various levels.

CHAPTER 2

The Phonetic Base

Phonetics is the study of the actual sounds of language. It provides the raw material that serves as the base for analyzing a phonological system. The actual pronunciation of items is the ultimate output of the phonological system rather than an integral part of its organization, but this does not diminish the importance of the study of phonetics. In a real sense, a phonological analysis cannot go beyond the accuracy of the phonetic material with which it has to work. There have, in fact, been some rather elaborate phonological analyses which have been refuted simply on the basis of phonetic accuracy. Knowledge of phonetics is essential to the serious student of phonological systems. Students of phonology cannot get very far without some knowledge of phonetics, and this knowledge must have a very practical base. Phonologists should be able to both produce the sounds they transcribe and reproduce the sounds described by others. It is more than just a practical matter to know phonetics. The sounds of a language provide the primary objects of study in phonology. That is to say, we find patterns of organization in phonology through examining the concrete products of language behavior—the speech sounds themselves.

As a field of study, phonetics has developed in three main directions:

- (1) articulatory phonetics, which is primarily concerned with the way in which sounds are produced by the human speech mechanism;
- (2) acoustic phonetics, which deals with the acoustic properties of sound waves in their transmission from speaker to hearer; and
- (3) auditory phonetics, which is concerned with the physical effects of speech on the human ear and its associated mechanisms.

Each area has developed elaborate methods of investigation and experimentation. Our interest here, however, will be restricted to the less experimental aspects of articulatory phonetics. And even in this area, we shall limit ourselves to that focus of articulatory phonetics which is concerned with the impressionistic recording of speech sounds. We use the term impressionistic phonetics to refer to the transcription of sounds based on our perception from hearing. This approach to phonetics is the oldest in the field and still the most commonly employed.

Schane (1973) notes that there are at least three different goals of what a phonetic theory could be asked to account for:

- (1) any kind of noise that the human vocal apparatus is capable of producing (including grunts, groans, and laughter);
- (2) those sounds that are linguistically significant in language in general; and
- (3) only those sounds that are linguistically significant in a particular language.

While goals 1 and 3 may be admissible for particular purposes of investigation, in this chapter we are concerned with a restricted version of goal 2. That is, we are concerned with sounds that are linguistically significant in a variety of languages. Ideally, we might deal with all of the sounds that occur in every known language, but our description here will be selective.

As a beginning point, it is important to counter certain myths that have sometimes found their way into folk phonetics. For one thing, there is no basis for claims that certain races or ethnic groups are physically or genetically predisposed toward the production of sounds in any particular manner. We learn to produce our sounds on the pattern of our language community, and normal individuals from any particular racial or ethnic group will learn precisely the sounds of the community in which they are raised. Evidence of this fact can be found readily by looking at the articulatory abilities of an individual born into one group but raised exclusively in the context of another group. Such a speaker will manifest the phonetic capabilities of the native speakers of the surrounding language community. Listeners who hear such individuals on tape will typically classify them as belonging to the group where they learned their language rather than to their birth group.

There is also a great deal of folk reference to speech in terms of subjective impressions such as "drawl," "flat," "guttural," or "harsh." Linguists generally dismiss terms like these as imprecise and therefore largely meaningless to the serious phonetician. This does not mean that there are no actual phonetic details which correlate with such labels, but the looseness with which they are applied severely limits their usefulness.

Phonetic Transcription

One of the goals of impressionistic articulatory phonetics is to provide a conventional notation system for representing sounds in terms of the movements of the vocal apparatus. This is accomplished by establishing a phonetic alphabet, in which the symbols correspond to particular speech sounds. Letters from existing alphabetic systems are used for particular sounds, and various diacritic marks are added to letters to modify their value in some way. An adequate notational system should be able to represent any sound uttered in any human language. The symbols are used to represent phonetic values—the sounds as they are actually pronounced. In most cases, each alphabetic symbol used in writing a particular language includes more than one actual phonetic value.

For the beginning student, the important aspect of practical phonetics is developing an ability to hear sounds as they are actually pronounced. This can be accomplished only by divorcing oneself from the alphabetic representation of the sounds of one's own language. For example, the native speaker of English does not usually think of the unit represented by *p* in English orthography as having several different phonetic forms. One of these forms is followed by a puff of air (aspiration), as in *pot* and *pin*. But when *p* follows the consonant *s*, as in *spot* or *spin*, the puff of air is absent—the *p* is unaspirated. Many instructors of beginning phonetics have had prolonged arguments with native English speakers whose initial reaction is that these two types of *p* are phonetically identical. In an effort to convince students of the different pronunciations, we can resort to a simple demonstration. The puff of air following the *p* in *pot* and *pin* blows out a burning match held several inches in front of the mouth; the pronunciation of *p* in *spot* and *spin* usually does not.

A number of such gimmicks have found their way into the teaching tradition of articulatory phonetics. The goal is to convince students of the difference between the actual phonetic production and their perceptions as native speakers of their language. It is crucial to understand that the notion of phonetic value refers to the accurate representation of sounds following a convention independent of a particular language. Alphabets are not devised to give phonetic values, so that thinking of phonetic values in terms of one's own language can often turn out to be more of a hindrance than a help in phonetics.

Conventionally, phonetic transcription is indicated by enclosing the sound or sounds in square brackets [], referred to as **phonetic brackets**. The aspirated type of *p* sound found in *pin* is represented as [p^h] and the unaspirated one in *spot* is represented as [p] (a chart of phonetic symbols appears in the front of the book). The unit in English which combines these different phonetic forms into one functional unit would be indicated as /p/. The slanted lines / / have been referred to traditionally as **phonemic brackets**. (We will explain their use further in Chapter 3.) There is, of course, a great range of phonetic detail that could be included in the representation of a sound, depending on the phonetician's expertise and concern for minute differences in production. Representing sounds with extensive phonetic detail is usually referred to as **narrow transcription**, whereas representing them with less phonetic detail is **broad transcription**. Intermediate stages between the two extremes of transcription are referred to as "broader" and "narrower" transcriptions.

In order to transcribe sounds independent of any particular language system, linguists have agreed on conventional phonetic values for various graphic symbols. Ideally, we would like one convention to be adopted by all phoneticians, but this has not worked out. The most widespread attempt to standardize a phonetic alphabet goes back to 1888, when the first version of the International Phonetic Alphabet (IPA) was established. Since that time, revisions and modifications have been made to iron out certain inconsistencies and accommodate more types of sounds. The principles upon which the alphabet was originally established were:

- (1) There should be a separate letter for each distinctive sound; that is, for each sound which, being used instead of another, in the same language, can change the meaning of a word.
- (2) When any sound is found in several languages, the same sign should be used in all. This applies also to very similar shades of sound.
- (3) The alphabet should consist as much as possible of the ordinary letters of the roman alphabet, as few new letters as possible being used.
- (4) In assigning values to the roman letters, international usage should decide.
- (5) The new letters should be suggestive of the sounds they represent, by their resemblance to the old ones.
- (6) Diacritic marks should be avoided, being trying for the eyes and troublesome to write.

International Phonetic Association
(1949; inside back cover)

The conventions of the IPA suffer from certain biases which reflect its earliest concerns with the major European languages. The values of the sounds have been defined largely in terms of these languages, so that other uses are somewhat restricted. The IPA also suffers from the fact that the units are not always defined strictly in phonetic terms. In some cases, it is obvious that the phonetic interpretation of various sounds was strongly influenced by their status in certain European languages. Furthermore, the distinction between the use of diacritics and letters seems to imply that those differences represented by distinct letters are more basic than those indicated by diacritics, but this is not always true. The decision on which sounds to indicate by letters and which by diacritic modification to these letters, also reveals a bias in favor of the European languages which the developers were familiar with.

Despite these drawbacks, the IPA remains a useful system for phoneticians and is presently used in a number of different countries. In the United

States, some differences in the convention have developed which set apart the phonetic notation used by many American linguists. Some of these simply represent the biases of English sound values, such as the use of [y] to indicate the approximate value of the English sound found initially in words like *yet* or *yes*. In the IPA [j] is used to indicate the same phonetic values, reflecting the orthographic conventions of German, Scandinavian languages, and the modern spelling of classical Latin. Some differences in the systems used by American linguists stem from attempts to adapt the phonetic alphabet to a conventional typewriter. The use of *ɔ* for IPA *o* is such an instance, as is the use of *š*, *ž*, *č*, and *ǰ*, instead of the IPA symbols *ʃ*, *ʒ*, *tʃ*, and *dʒ*, respectively. One of the more common notational systems used in the United States is presented in Smalley's *Manual of Articulatory Phonetics* (1961). This treatment is extensive in the sounds represented, yet shows concern for such practical matters as the accommodation of the system to a typewriter.

In most cases, linguists will follow one system of transcription with certain idiosyncratic twists, but most instructors have attempted to be fairly consistent with established conventions. While differences in transcription systems may be somewhat distracting for the student who is concerned with mastering the rudiments of basic phonetics, a simple memorization of equivalent forms can usually solve the problem. The student who plans to become a professional linguist should be familiar with several different conventions. The student from another discipline should concentrate on the convention used most often within that field. Thus, a student in speech pathology should become most familiar with the IPA, since it is used typically by professionals in that field. A reading specialist, on the other hand, should probably become familiar with the types of pronunciation symbols used in dictionaries and their equivalents in the system most often used by American phoneticians. The beginning student, however, should not be thrown off by arbitrary differences in representing a given phonetic value.

Exercise 1

- a. Consider the different pronunciations represented by the initial letter *a* in each of the following words. A number of different actual vowel sounds are represented by this single orthographic symbol. Group together the words that have the same vowel sounds.

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|--------------|---------------|-------------|
| 1. America | 5. Antarctica | 9. approach |
| 2. Asia | 6. Alaska | 10. author |
| 3. Africa | 7. anger | 11. angel |
| 4. Australia | 8. acorn | 12. about |

- b. Do the same thing for each instance of *t* in the following English words.

- | | | |
|-----------|------------------------------|-------------|
| 1. nation | 5. bottle | 9. little |
| 2. party | 6. got you (gotcha) | 10. rotten |
| 3. button | 7. tinker | 11. action |
| 4. butter | 8. caught you
(caughtcha) | 12. partake |
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The use of phonetic symbols in the remainder of this book will depart slightly from the traditional convention, in which one symbol is chosen for exclusive use when there exist alternative representations. We deliberately vary the use of symbols where it is likely that the student will encounter different