

FUNDAMENTALS OF PHONETICS: A PRACTICAL GUIDE FOR STUDENTS, 2/e

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Phonetics: A “Sound” Science

As college students, you are all familiar with the speaking process. Speaking is something you do every day. In fact, most people find speech to be quite automatic. It is safe to say that most of us are experts at speaking. We probably have been experts since the time we were 3 or 4 years old. Yet, we never really think about the process of speech. We do not, as a rule, sit around thinking about how ideas are formed and how their encoded forms are sent from the brain to the speech organs, such as the teeth, lips, and tongue. Nor do we think about how the speech organs can move in synchrony to form words. Think about the last party you attended. You probably did not debate the intricacies of the speech process while conversing with friends. Speaking is something we learned during infancy, and we take the entire process for granted. We are not aware of the speech process; it is involuntary. So involuntary that we often are not conscious of what we have said until after we have said it. Those of you who have “stuck your foot in your mouth” know exactly how automatic the speech process is. Often we have said things and we have no idea why we said them.

Phonetics is the study of the production and perception of speech sounds. During your study of phonetics, you will begin to think about the process of speech. You will learn how speech is formulated by the speech organs. You also will learn how individual speech sounds are created and how they are combined during the speech process to form syllables and words. You will need to learn to *listen* to the speech patterns of words and sentences to become familiar with the sounds of speech that comprise spoken language. A large part of any course in phonetics also involves how speech sounds are transcribed, or written. Therefore, you also will be learning a new alphabet that will enable you to transcribe speech sounds.

The idea of studying speech sounds may be an odd idea to understand at first. We generally think about words in terms of how they appear in print or how they are spelled. We usually do not take the time to stop and think about how words are spoken and how spoken words sound to a listener. Look at the

word "phone" for a moment. What comes to mind? You might consider the fact that it contains the five letters: p-h-o-n-e. Or you might think of its definition. You probably did not say to yourself that there are only three speech sounds in the word ("f"- "o"- "n"). The reason you do not consider the sound patterns of words when reading is simple—it is not something you do daily. Nor is it something you were taught to do. In fact, talking about the sound patterns of words and being able to transcribe them is an arduous task; it requires considerable practice.

As you soon will find out, the way you believe a word sounds may not be the way it sounds at all. First, it is difficult to forget our notions of how a word is spelled. Second, our conception of how a word sounds is usually wrong. Consider the greeting, "How are you doing?" We rarely ask this question with such formality. Most likely, we would say, "How ya doin'?" What happens to the word "are" in this informal version? It disappears! Now examine the pronunciation of the words "do" and "you" in "Whatcha want?" (The informal version of "What do you want?") Neither of these words is spoken in any recognizable form. Actually, these words become the non-English word "cha" in "whatcha." With these examples, you can begin to understand the importance of thinking about the sounds of speech in order to be able to discuss and transcribe speech patterns.

EXERCISE 1.1

The expressions below are written two separate ways: (1) formally and (2) casually. Examine the differences between the two versions. What happens to the production of the *individual* words in the casual version?

Formal

1. Are you going to eat now?
2. Can't you see her?
3. Did you go?

Casual

- Ya' gonna eat now?
Cantcha see 'er?
Ja go?

Phonetics is a multifaceted field of study, containing several interrelated branches. **Historical phonetics** involves the study of sound changes in words. There is a constant mutation over time in the pronunciation of words in all languages. The way we pronounce words in English today is vastly different from the pronunciation of English from 300 to 1700 A.D. For instance, between the fourteenth and seventeenth centuries, there was a marked evolution in the pronunciation of English long vowels. This change in vowel pronunciation is known as the Great Vowel Shift. Due to this shift in vowel pronunciation, the words we know today as "bite," "beet," "bait," and "boot" were pronounced (prior to 1700 A.D.) as "beet," "bait," "bet," and "boat," respectively (Stevick, 1968).

When saying a word, such as "phonetics," there is an intricate interaction between the lips, the tongue, and the other speech organs. To more fully understand the process of speech production it is important to understand the individual role of each of the various speech organs. **Physiological phonetics** involves the study of the function of the speech organs during the process of speaking. The knowledge of the muscles and innervation of the speech organs is especially important in fully understanding their operation during the production of speech. **Acoustic phonetics**, on the other hand, focuses on the differ-

ences in the frequency, intensity, and duration of the various consonants and vowels. Differences in the acoustic attributes of speech sounds allow listeners to be able to perceive how sounds, syllables, and words differ from one another. For instance, it is the specific acoustic attributes of the initial consonants in the words “mug,” “hug,” “rug,” and “thug” that allow listeners to tell them apart. **Perceptual phonetics** is the study of a listener’s psychoacoustic response (perception) of speech sounds in terms of loudness, pitch, perceived length, and quality. **Experimental phonetics** involves the laboratory study of physiological, acoustic, and perceptual phonetics. Laboratory equipment is used to measure the various attributes of the speech organs during speech production as well as to measure the acoustic characteristics of speech.

The scope of **clinical phonetics** involves the study and transcription of aberrant speech behaviors, that is, those that vary from what is considered to be “normal” speech. Disordered speech may be found in either children or adults who might have experienced a hearing impairment, fluency disorder, head trauma, stroke, or a phonological (speech sound) disorder.

The study of phonetics also involves the study and transcription of individuals displaying differences in their speech patterns due to dialectal variation. For instance, in the United States, individuals from the southern states and from New England pronounce certain sounds differently when compared to individuals from the Midwest. Also, the forms of English spoken by African American and Spanish populations are characterized by dialectal variations when compared to Standard American English. Knowledge of dialects is extremely important when establishing a treatment plan for speech-impaired individuals whose speech patterns reflect regional or ethnic dialectal variation. Because a dialect should not be considered a substandard form of English, a speech therapist will be concerned with remediation of clients’ speech disorders, not their dialects.

Another “sound” science related to phonetics is **phonology**. Phonology is the systematic organization of speech sounds in the production of language. The major distinction between the fields of phonetics and phonology is that *phonetics* focuses on the study of speech sounds, their acoustic and perceptual characteristics, and how they are produced by the speech organs, without reference to how speech sounds are combined and used in language. *Phonology* focuses on the linguistic (phonological) rules that are used to specify the manner in which speech sounds are organized and combined into meaningful units, which are then combined to form syllables, words and sentences. Phonological rules, along with syntactic/morphological rules (for grammar), semantic rules (for utterance meaning), and pragmatic rules (for language use), are the major rule systems used in production of language.

Once you have mastered the concepts in this text, you will be able to transcribe the speech patterns of your clients using the **International Phonetic Alphabet (IPA)**. This alphabet is different from most alphabets because it is designed to represent the sounds of words, not their spelling. Without such a systematic phonetic alphabet, it would be virtually impossible to capture on paper an accurate representation of impaired speech patterns of individuals seeking professional remediation of their speech problems. Using the IPA also permits consistency among professionals in their transcription of typical or atypical speech.

Phonetics is a skill-based course much like courses you may take in keyboarding or sign language. In many ways, it is like learning a new language because you will be learning new symbols and new rules to represent spoken language. Yes, we are still talking about English. However, the new symbols you will be learning will be representative of the sounds of English, not their

spelling. As with the learning of any new language, phonetics requires considerable practice in order for you to become proficient in its use when transcribing oral speech patterns.

This textbook is designed to promote practice of phonetic transcription principles. Many phonetics books provide readers with considerable technical information on the anatomy of the speech production mechanism as well as information related to speech acoustics. This information is essential for a complete understanding of the process of speech production. This material is usually covered in other courses in hearing science, speech science, and anatomy of the speech and hearing mechanism. Therefore, there is no attempt to replicate that information here.

Each of the chapters has exercises embedded in the text that will help emphasize particular points. At the end of each chapter, you will find Review Exercises so that you may gain expertise with the material presented. The answers to most of the exercises are located at the rear of the book. By providing answers to the exercises, you will gain immediate feedback, and you will be able to learn from your mistakes. There is no better way to learn! To aid in the learning process, all new terms will be in bold letters the first time they are used. In addition, all new terms can be found in the Glossary at the back of the book.

Study Questions at the end of each chapter also will help you explore the major concepts presented. Assignments at the end of most chapters were designed to be collected by instructors. The answers for Assignments are not given.

There are several conventions that will be adopted throughout the text. When there is a reference to a particular Roman alphabet letter, it will be enclosed with a set of quotation marks, for example, the letter "m." Likewise, references to a particular word will also be enclosed with quotation marks, for example, "mail." Individual speech sounds will be referenced with the traditional slash marks, for example, the /m/ sound.

A set of optional audio CDs provide listening exercises to accompany the text. Clinical practice generally requires phonetic transcription of tape-recorded speech samples. Reading words on paper and transcribing them is not the same as transcribing spoken words. The audio CDs are designed to increase your listening skills and your ability to transcribe spoken English. Exercises requiring the audio CDs will be indicated with a CD icon in the margin of the text.

Variation in Phonetic Practice

As the IPA is introduced throughout this text, alternate methods of transcribing speech will be introduced. Students should become familiar with alternate transcription symbols. Although the IPA was developed for consistency, not everyone transcribes speech in the same manner. The IPA does allow for some flexibility in actual practice. If you were to pick up another phonetics textbook, you would probably find some minor differences in transcription symbols.

One reason for the difference in the selection of transcription symbols is that the typical computer (or typewriter) keyboard does not lend itself well to the IPA. For ease of typing, some keyboard symbols are substituted. For example, when transcribing the word "dot" it might be easier to type /dat/ than the correct IPA form /dɑt/ since the symbol /ɑ/ does not exist on a typical keyboard. (A specialized font was used to create this textbook.) Most of us, however, will not be using a keyboard when transcribing speech; we will be writing.

Another reason for differences in use of transcription symbols is simply ease of use. For example, the speech sound at the beginning of the word “red” has been traditionally transcribed with the IPA symbol /r/. According to the IPA, the initial sound in “red” should be transcribed with the symbol /ɹ/. The IPA symbol /r/ represents a *trill*, a sound not a part of the English speech sound system. Because /r/ and /ɹ/ do not both exist in English, the symbol /r/ has been routinely substituted; writing /r/ turned 180 degrees is difficult and cumbersome. Most speech-language pathologists and audiologists have customarily used the symbol /r/ instead of /ɹ/ in transcription. Therefore, the tradition will be continued in this textbook.

As future speech and hearing professionals, you will be using the IPA to transcribe the defective speech patterns of your clients. Because the IPA was not originally designed for this purpose, clinicians vary in their choice of symbols in transcription of disordered speech as well.

Transcription practice also differs from individual to individual due to personal habit or the method learned. For instance, the word “or” (or “oar”) could be transcribed reliably in all of the following ways:

/ɔr/, /or/, /ɔɹ/, /ɔʁ/, /oʁ/

All of the above forms have appeared in other phonetics textbooks and have been adopted by professionals through the years.

Several years ago, I was assigned to a jury trial that lasted two weeks. Due to the length of the trial, the judge allowed us to take notes. So that no one could read my notes, I decided to use the IPA! Because I had to write quickly, my transcription habits changed. At the beginning of the trial, I transcribed the word “or” as /ɔʁ/ due to personal preference. By the middle of the trial, I had switched to /ɔr/ simply because it was more time efficient.

Is one method of transcription “better” or more correct than another? Some linguists and phoneticians might argue that one form is superior than another. The form of transcription you adopt is not important as long as you understand the underlying rationale for your choice of symbols. In addition, you need to make sure that you are consistent and accurate in the use of the symbols you adopt. Throughout this book, variant transcriptions will be introduced to increase your familiarity with the different symbols you may encounter in actual clinical practice in the future.

As you read this book, and as you attempt to answer the various exercises, please keep in mind that English pronunciation varies depending upon an individual’s dialect. The pronunciations used in this book often reflect the author’s Midwest pronunciation patterns. This does not mean that alternate pronunciations are wrong. The numerous text and recorded examples, as well as the answer key, may not be indicative of the way *you* pronounce a particular word or sentence. Always check with your instructor for alternate pronunciations of the materials found in this book.

