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## "Priorities in Teaching Pronunciation"

Clifford Holmes Prator

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Clifford Holmes Prator  
"Priorities in Teaching Pronunciation"  
November 13, 1970  
Portland State University

PSU Library Special Collections and University Archives  
Oregon Public Speakers Collection  
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HOST: Ladies and gentlemen, it's a pleasure to present to you one of the top people in the field on teaching English as a second language. You will agree with me that in order to teach one foreign language, you need to know two. And in teaching English, you probably find this inadequate. You need to know more. And I believe the more you know—the more languages you know about—the more competent and more confident you'll feel you are in the field. I cannot think of anyone more qualified to give us this talk about teaching English, and particularly pronunciation, than our speaker.

Professor Prator has had an interesting background; I'm not going to give you a history of this, because that would take a long time. But one interesting aspect is to look at his experience in terms of decades. The first decade was in Latin America, and I think that was appropriate since he had his degree from Michigan in romance languages. Following that he had the Philippine year and then the African year. And in Africa he did some original work; for the first time, he did direct this survey of language use and language teaching in five different African countries where the language of each country was not very well known. Uganda, Kenya, Zambia, Tanzania, and Ethiopia. I believe for the first time you have careful examination of each of these languages. The first of these, dealing with Uganda, will be forthcoming I believe in a few months. The fourth year, the last two years, Professor Prator has been handling programs in teaching English as a second language, training teachers, and these two areas, training teachers

and writing textbooks, have been his main area of specialization. I feel we are very fortunate today in having with us Professor Prator. [applause]

CLIFFORD PRATOR: Thank you very much. It's a real pleasure to be here in Portland; it's the first time. I appreciate the opportunity to become acquainted with so many colleagues from the North. I hope you'll forgive me if I share with you a presentation that I worked up about three weeks ago for the DLI Army Language School at Lackland Air Force Base in San Antonio, where there was a workshop dealing with the same problems you're dealing with here. The last three weeks have been a little bit complicated, and I haven't had time to work up a new presentation.

The title that I used there is "Phonetics vs. Phonemics in the ESL Classroom: When is Allophonic Accuracy Important?" This title was suggested by the sponsors of the Lackland series, and it seems to require explanation and amplification. The technical terms contained in the title and the concepts to which they correspond were developed largely by the predominantly American school of linguists now known as the structuralists. For teachers of English, the structuralist approach to linguistic analysis is associated with such names as Edward Sapir, Leonard Bloomfield, Kenneth Pike, Charles Fries, George Trager, Henry Lee Smith.

It was a structuralist tenet, then, that the analysis of a language must begin at the phonological level. As he listened to an unknown language spoken by an informer, a skilled analyst would be able to detect the recurrence of scores of different speech sounds. He would assign to each of these recurring sounds an appropriate phonetic symbol, and then use the symbols to prepare the most accurate possible transcription of an extensive sample of the language. One of his first concerns was to try to determine which of the many differences between sounds that he heard corresponded to differences in meaning in this particular language. For example, the analyst may have noted the occurrence of both a nasalized "*ah*," and another "*ah*" that was not nasalized. He must then decide if this is a meaningful distinction. He will know that it is meaningful if he can find in the sample two words that have different meanings but that sound alike, except that the one, for example, "can't," has a nasalized "*ah*," and the other one: "cot," has a non-nasalized "*ah*." If he finds such a minimal pair, he has determined that "*anh*" and "*ah*" are phonemes in the language with which he's concerned. A phoneme is then, among other things, a unit of sound that can be the sole element whereby one word is distinguished in meaning from another. In most languages, there's a general—though by no means complete—correspondence between the phonemes and the letters with which the language is normally written.

Now let us suppose the opposite case: that our analyst is unable to find proof that the distinction between "*anh*" and "*ah*" is meaningful, that is to say, phonemic, in which the

language is working. He would then suspect that the distinction is merely a phonetic one; a difference that he can hear but does not affect meaning. He might discover that the nasalized "anh" occurs only before the nasal consonants: "nnn" or "mmm," and that the non-nasalized "ah" never occurs in such a position. If so, he can make several statements about the status of "anh" and "ah" in that particular language: that the two sounds are in complementary distribution, in that they never occur in the same phonetic environment. He could also say that the positions in which each can occur are predictable, and he could say that the two are therefore variant pronunciations of the same phoneme rather than two separate phonemes. The technical term for such a variant pronunciation is of course, an allophone.

We can now provide definitions for several other concepts that are essential for the purposes of this paper. Phonetics can be defined as a science which attempts to describe all the distinguishable sounds that occur in the languages of the world. Phonemics, on the other hand, attempts to discover which of the differences among the sounds of a given language are meaningful, and to determine what allophones each phoneme of the language has. Phonemics thus organizes and in a sense simplifies the extensive raw data provided by phonetics. A phonemic transcription would represent only the phonemes—the meaningful units of sound—that occur in the utterance transcribed. A phonetic transcription would usually show much finer distinctions among sounds representing various allophones of each phoneme.

In the phonemic transcription proposed by Trager and Smith in 1951, and used in many ESL textbooks since that date, the English sentence, "I could use a little food now," seems singularly inappropriate after that lunch that we just had... [chuckles] I must have been hungry when I picked that. This sentence might appear as in the top transcription there. A phonetic transcription of the same sentence would look more like the second line on the blackboard. The extra symbols used in the phonetic transcription would call the attention of a student of English to the following facts: one, that the "k-" of "could" is aspirated—that is, accompanied by the audible friction of exhaled air. Two, that the vowel of "use" is longer than, for example, the vowel in the noun "use." Three, that the final "zzz" of "use" begins with voicing—that is with vibration of the vocal chords—and ends without voicing. Four, that the "t-" of "little" sounds somewhat like a D, a "d-." Five, that the final "l-" of little follows the "t-" directly with no intervening vowel sound. Six, that the vowel of "food" is longer than the vowel in "who." Seven, that the "d-" of "food" begins with voicing and ends without voicing. And eight, that the vowel of "now" is nasalized. The phonemic transcription of this sentence does not in itself provide such information. We can now return to the title of the paper and begin examination of the question that it poses: when is allophonic accuracy important?

For the English teacher, the question implies a number of other questions. When is information about the formation of sounds such as that itemized on the board here relevant to the classroom? If transcription is used in teaching pronunciation, when—if ever—should it be a phonetic rather than a phonemic transcription? What degree of accuracy should a teacher expect his students to achieve in pronouncing English? Such questions seem particularly pertinent in today's rather uncertain climate of thought about the methodology of language instruction. Not many years ago, methodologists—especially American methodologists—tended to insist that language teachers should not be satisfied until their students learned to approximate the pronunciation of a native speaker of the language. Students were urged to forget their inhibitions, strive to produce a completely accurate imitation of the native model, including mimicry of every detectable mannerism. Not only was the aim set very high, but there was much talk of achieving mastery of the phonological system before any serious effort was made to deal with the grammatical system or the vocabulary of the language. The opening sections of many textbooks provided days or even weeks of pronunciation drill that was to be carried out before any attempt was made to acquaint students with the words and the structures that were being pronounced.

More recently, as doubt has been cast on the validity of the basic tenets of a narrowly orthodox audio-lingual method, we have inclined both to lower our sights with regard to the degree of accuracy we expect in our students' pronunciation, and to concentrate less on pronunciation in the early stages of instruction. In other words, there is a feeling that the student of a language has many more important things to do than put fine polish on his pronunciation, and that the polishing process can well be postponed for a while. This tendency has been strengthened in the United States by our growing hesitation to impose a standard English accent on Black and Chicano children in American schools. Some of our British colleagues have even gone so far to argue that the second language varieties of English that seem to be growing up in such countries as India and Nigeria provide perfectly suitable models for imitation in those countries, and that the polishing process can therefore be dispensed with altogether.

In the absence of any consensus regarding the degree of accuracy to be sought in teaching pronunciation, most teachers will probably want to take a position somewhere between that of the champions of absolute allophonic accuracy and that of the methodologists who insist on no more than the ability to produce a rough approximation of phonemes. If a teacher is to apply such an intermediate position in the classroom, he will need to distribute the attention he devotes to pronunciation according to some system of priorities. That is to say, he will have to decide which elements of pronunciation he will emphasize initially and which elements can be dealt with briefly or can be postponed until the later stages in his students' development. It

seems to me, then, that the question so far raised in this paper can be most profitably considered within the framework of this larger question of priorities in teaching pronunciation.

In seeking practical answers... in seeking answers to practical questions such as, "Which elements of pronunciation should be emphasized and taught first?" teachers of English have learned to turn to the descriptive linguists for relevant facts and possible theoretical guidelines. And as Americans, we tend, rightly or wrongly, to look first to the most recent work done by these linguists. Most of the work that's being done in this country today on English phonology is being carried out within the generative transformational framework, first elaborated in 1957 by Noam Chomsky in his *Syntactic Structures*. Even if time permitted, it would hardly serve the purposes of this paper or this audience to try to explain what generative transformational grammar is all about. Perhaps we can assume that by now, all conscientious ESL teachers are familiar with at least the basic principles of the Chomskian approach to grammatical analysis. But teachers are less likely to be acquainted with recent work done by Chomsky and his coworkers in applying generative transformational techniques to the analysis of English phonology. This work is, as we've already heard today, referred to as distinctive feature or generative analysis, because it uses distinctive features rather than phonemes as the basic analytical unit.

A distinctive phonetic feature is a quality like openness or tenseness that combines in various ways with other qualities to constitute the speech sounds of a language. Each characteristic combination of distinctive features could thus be regarded as a phoneme. Actually, the distinctive feature phonologists tend to doubt the value of the structuralist phoneme as a unit, and of traditional phonemics as a separate level of linguistic analysis. They draw no distinction, as did the structuralists, between a phonemic and a phonetic representation of speech. It is, then, not possible to discuss such questions as phonetics versus phonemics in the ESL classroom, or, when is allophonic accuracy important, in terms of current distinctive feature analysis.

For language teachers, this is perhaps a disappointing conclusion. One would have hoped that a type of phonological analysis that breaks speech sounds down into their component qualities might cast some light on the relevant importance of these qualities to comprehension. That it might, for example, tell us whether the feature of voicing or the feature of aspiration is most important in distinguishing "could" from "good." But Chomsky and his coworkers are definitely not interested in distinctive features; they *are* interested in distinctive features for what they call "classificatory purposes." That is, to show how certain words are phonologically related to other words, and they're not interested in them as a guide to a more understandable pronunciation.

We must not conclude, however, that distinctive feature analysis is irrelevant to the larger question of priorities in teaching pronunciation. In fact, this type of analysis has already cast a great deal of new light on a very important facet of the pronunciation of English, one that has been largely ignored in textbooks and pronunciation manuals. That is, the systematic relationship between spelling and pronunciation. Teachers of ESL have long been aware that the grammatical errors their students make can be divided into two large categories: there are those grammatical errors caused by interference from the students' mother tongue, and on the other hand, there are also those that arise when a student makes a false analogy within the grammatical system of English. An example of the first type of error is provided by the student who sees no need to distinguish between masculine and feminine pronouns, and who therefore at first refers to a woman as "he," because his mother tongue has only one third person singular pronoun. We hear an example of the second type when a student says, "Please explain me that question," because he has learned to say, "Please ask me that question," and he does not realize that this sentence pattern he used with "ask" cannot be used with "explain."

What has not been so widely recognized is that errors in pronunciation usually fall into two similarly distinguished categories: those caused by mother tongue interference and those caused by false analogies drawn from the English system of spelling. Textbooks have dealt almost exclusively with errors of the first type; inability to distinguish between "eee" and "ih," as we were hearing earlier today. Or the substitution of "d-" or "th-." They have paid little attention to errors of the second type, such as pronouncing B-O-N-E perhaps as "bun," by analysis with "done" and "one." Or stressing electricity on the second syllable by analogy with "electric," thus producing something like, "e-LEC-tricity." Yet errors of this latter type are widespread among students of ESL who are familiar with English spelling. And such errors can do as much as any others to make learners of English difficult to understand.

Why have spelling-based errors in pronunciation been so largely ignored by textbook writers and teachers? Perhaps because of several beliefs often held by those trained in the audio-lingual methods favored by the structuralists. One, that all context with written English should be postponed as long as possible. Two, that so little of English spelling is systematic that it would do more harm than good to try to relate spelling to pronunciation. Three, that if reading can be postponed until students master the phonological system, the harmful influence of English spelling on pronunciation can somehow be minimized. Today these beliefs seem to be rapidly losing their force. Experimentation in ESL classrooms has shown that long postponement of reading tends to delay rather than to facilitate overall progress in language learning. We are beginning to wonder if there is anything to be gained by postponing exposure

to written English, since such exposure is usually inevitable in the long run, and the teacher will eventually have to cope with its effects on pronunciation anyway.

Finally, in view of the results obtained by the generative analysis, it appears increasingly likely that English spelling can be related to pronunciation in ways that will be helpful rather than harmful. Chomsky and his group have shown, for example, that the placing of stress on English words can usually be predicted from spelling patterns. It therefore seems possible that if students can be made aware of the basic principles which govern stress placement, they might find it easier to stress words correctly. Much new light has also been shed on the systematic relationship between the so-called "long" and "short" vowels of English, in such pairs as "sane" and "sanity," or "meter" and "metric," "line" and "linear," "cone" and "conic." It should be possible to construct pronunciation exercises that would help students internalize these relationships, and thus cope more adequately with the varying vowel qualities and stresses in families of words such as "ratio," with "ay-," "rationalize" with "ah," "rationalize" with "eye," "rationalistic" with "ih-" or with "phone," "phonics," "phonetics."

In a paper presented at the last TESOL convention under the title "Linguistic Spelling and Pronunciation," which has since been published in the quarterly of TESOL, Sanford Shane suggested some of the practical possibilities. I would urge then that in teaching pronunciation, we place a considerably higher priority than we have in the past on activities designed to help our students relate spelling and sound, stress and vowel quality, and roots and derivations. This priority would naturally be highest at advanced levels of instruction when students begin to read extensively and when they have already developed a large vocabulary.

If we now turn back to the type of phonological analysis carried out by the structuralists, we will find even more in the way of facts and concepts that seem even more applicable to the problems raised in this paper. This is surprising since, as I pointed out earlier, the question posed in the title of the paper is framed in structuralist terms. Many methodologists and language teachers agree that the concept of the phoneme is one of the most useful concepts developed by the descriptive linguists. I tend to concur, despite the fact that the distinctive feature phonologists have found little use for the phoneme as yet in their work. I feel that the phoneme is useful and that teachers of ESL should be familiar with the concept, precisely because it does provide a considerable amount of guidance in deciding how to assign priorities in teaching pronunciation. We can, with some confidence, take the position that since phonemic distinctions correlate with meaning, they are more important than allophonic distinctions to a student who is learning a language in order to be able to communicate meaning in it. If the student substitutes one phoneme for another, he has perhaps made a word meaningless or even given it a meaning other than that he intended, unless the context makes



the intended meaning unmistakable. On the other hand, if he produces a natural allophone, the possibility that a hearer will fail to understand him or will misunderstand him is presumably much slighter. The substitution of one allophone for another does not, at least theoretically, change the meaning of a word.

Having assigned a higher priority to phonemic distinctions and a lower priority to allophonic distinctions, we can then go on to subdivide both types. The Trager-Smith analysis of English phonology divides phonemes into two subgroups: the segmentals and the suprasegmentals. The segmentals are the vowel and consonant sounds which of course follow one another in a fixed order in any word. The suprasegmentals are phonetic elements such as pitches, stresses and junctures, which combine in various ways to form meaningful patterns of stress and intonation. Suprasegmentals are so-called because they can extend over a whole series of segmentals. Perhaps an example will be helpful in reminding us of the kinds of meanings that may be attached to combinations of suprasegmentals. We suppose a brief conversational exchange between two speakers. Speaker one says: "I just read a good book." Speaker two replies with a single word: "What." If speaker two begins the word on a high pitch and ends it on a low pitch, "What?" he is merely asking speaker one what he's read. If a normal pitch comes first, followed by a high one, "What?" speaker two means something like, "I didn't understand what you said, please repeat it." And there's still a third possibility: speaker two may begin on a normal pitch and end on one that's extra high, "What?!" [laughter] If he does, he is insinuating something like, "You reading a good book? You're much too stupid to read a good book!"

There are several strong arguments for assigning to the suprasegmentals the highest of all priorities. One, they convey the kinds of meanings—both grammatical and lexical—that the context alone would seldom make clear. There's nothing in the context that would permit us to deduce those meanings from the three ways of saying "What." Number two, they affect the intelligibility of entire series of segmentals. Three: with control of suprasegmentals, it's easier to learn to pronounce segmentals accurately. Vowel quality depends on stress, falling and rising pitches facilitate diphthongization, and so forth.

Structuralists' analysis also provides for dividing allophones into subgroups. There are those that are in complementary distribution, and those that are in free alternation. We say one allophone is in complementary distribution with another when the two never occur in the same phonetic environment, and when the environments in which each does occur are entirely predictable. In the first section of this paper, I gave an example of such a pair of allophones in complementary distribution. A nasalized "anh" occurring only before "nnn," an N, "nnn," and a non-nasalized "ah" occurring elsewhere. Allophones in complementary distribution are a

significant element in the phonological structure of a language, and native speakers of the language seem to depend on them heavily in recognizing sounds.

The other subgroup of allophones is made up of those whose occurrence is not predictable, at least in terms of their phonetic environment; though it may be more or less predictable in other ways. For example, the final sound of the English word, "W-I-T-H" in the environment, "Come with me," is sometimes entirely voiceless; I pronounced it without voicing, but it's sometimes partially voiced. I frequently say "Come with me." Voicing. Such variation may be observable in successive occurrences of a word in a speech of a single individual, or, it may distinguish one individual speech from another within a dialect group, or the speakers of one dialect from the speakers of another. Allophones are the type exemplified by the two ways of pronouncing the final sound in "with" are then said to be in free alternation. Since listeners are usually accustomed to hearing such variations and attaching no meaning to them, they very seldom cause any difficulty in comprehension. It therefore seems safe, in teaching pronunciation, to assign to allophones in free alternation the lowest of priorities. I believe that we can in fact take the position that under most circumstances it's a waste of time for a teacher to insist that students imitate an individual's free allophonic variation, or allophonic variation within two well-known dialects of American or British English.

Using structuralist concepts then, we have thus arrived at a four-level hierarchy of priorities that appears applicable in dealing with the type of pronunciation error that is caused by interference from the students' mother tongue. In the order highest to lowest, priority would be assigned to teaching suprasegmental phonemes, segmental phonemes, allophones in complementary distribution, allophones in free variation... free alternation. The question posed in the title of this paper: "When is allophonic accuracy important?" seems, however, to call still for finer distinctions to be drawn within the category of allophones in complementary distribution. I must confess at once that I shall not be able to provide a fully satisfactory answer based on established linguistic theory or on rigorous experimentation. The best I can do will be to hazard a few suggestions, based primarily on an intuition that has been developed through considerable experience in the classroom. This is an expedient in which we teachers of ESL are often... all too often reduced, I should say, in seeking answers to the practical questions with which we are faced.

Several linguists have attempted theoretical explanations of when allophonic accuracy is important, but their answers did not seem particularly helpful. Robert Lado, in his *Linguistics Across Cultures*, assumes that in a given language, certain distinctive features are phonemic or dominant, and that others are non-phonemic. He considers that in English, voicing is phonemic but aspiration is not. He would thus give voicing a higher priority than aspiration in teaching his

students to distinguish, for example, between "p-" and "b-." But Lado's ways of determining which features are phonemic are not convincing, and some phoneticians would take the opposite position, that aspiration is more important than voicing in enabling speakers to distinguish "p-" from "b-" at the beginning of words.

In an article entitled "Some Allophones Can Be Important," Yao Shen argues that allophones provide acoustical clues to the recognition of phonemes; an argument that few would disagree with. Contrasting English with other languages, she draws up a list of eight situations in which she says that these clues are particularly important. It would appear that by carefully choosing different languages to compare with English, one could use her method to prove that almost any allophone in complementary distribution is important for some students. And this may well in fact prove to be the truth of the matter. Even though it doesn't help us answer the question we are faced with today, which is to try to establish a general hierarchy of priorities among English allophones.

H. A. Gleason's statement regarding the practical importance of allophones in complementary distribution seems to be typical of the structuralist point of view. He says, "The use of the correct allophones is more important socially than it is linguistically." Though obviously to the concern of linguists for many practical reasons, the allophones stand on the margin of his field of study, and are in some respects external to language. The use of correct allophones is obviously important to anyone learning a foreign language with intention to speak it. To make himself understood, he must learn to pronounce all the phonemes and to use allophones which are sufficiently close to the normal in the language, to avoid misidentification. Beyond that, there is no need, if he is merely content to be understood, to worry about the allophones. But, if he desires his speech to be socially acceptable, that is to sound like that of a native, he must achieve the same use of allophones as is normal in the language.

From such premises, it is easy to reach either of two entirely opposed conclusions, depending on one's convictions regarding the objectives of instruction. One: we can decide that we must help our students to develop complete allophonic accuracy, or we might decide that it's not really necessary to concern ourselves with allophones at all. Thus, Anna Tartarou of the University of Cluj, Romania, notes what Gleason has to say about the social importance of allophones, and, believing that there can be no doubt that foreign language teachers have to encourage their students to aim at making their speech socially acceptable, and not merely intelligible, concludes that allophones must be taught right along with phonemes. On the other hand, a number of linguists—particularly in Great Britain, again—who feel that it is usually unrealistic to aim higher than intelligibility and to equate intelligibility with phonemic accuracy as Gleason tends to do, have recently heard that allophones are expendable.

My own classroom experience leads me to a conclusion somewhere between these two extremes. At this point I always say to my class, "the old compromise"; it's always between the two extremes. While I would never assign a high priority to allophones, I would certainly not agree that they could be safely ignored. We simply do not know enough—as yet—about which phonological elements contribute most to intelligibility of speech to permit us to assume this latter position. Until more information is available, the safest solution for the teacher of ESL is perhaps one [...] previously in writing, that is, to regard unintelligibility not as the result of phonemic substitution, but as the cumulative effect of many little departures from the phonetic norms of the language. Many of these departures may be phonemic, others will be allophonic, but under certain circumstances, any abnormality of speech can contribute to unintelligibility.

We should remember, too, that intelligibility is a relative, rather than an absolute, quality. It is never possible to say that our students at a certain point in their development have achieved full intelligibility. There are varying degrees of intelligibility, but it is doubtful that even two good friends who speak English as their mother tongue sitting near one another in a quiet room make themselves completely understood at all times. There's always the possibility, then, of making one's speech *more* intelligible, so as to be understood by a greater variety of hearers, or over a greater distance, or in a noisy or a quieter environment. [laughter] If the course of study in English lasts long enough, it seems advisable to include some attention to all the well-known allophones at advanced levels of instruction.

Even in a short course, if ability to speak English is an important objective, we should probably include attention to a few of the most important allophones in complementary distribution. I would treat first those involving aspiration and vowel length. These two features combine with voicing in different ways to help a listener perceive the difference between the two largest groups into which English consonants can be provided: the so-called "voiced" and "voiceless" consonants. Though voicing is usually thought of as a phonemic feature, and aspiration and vowel length are said to be non-phonemic in American English, many experimental phoneticians, the kind who goes to the laboratory to make spectrographic analyses, as we were hearing about this morning, believe that aspiration and vowel length are actually more important clues to the recognition of words. I would therefore at an early stage encourage my students to pronounce the initial "p-" of "pet" with the sound of escaping air, in order to distinguish it clearly from the initial "b-" of "bet," which is pronounced with vibration of the vocal chord. Similarly, I would encourage them to lengthen the vowel before the "-d" of "bed" so as to distinguish it clearly from "bet," the "-t-" of "bet." If the students were adult, I might use a phonetic as opposed to a phonemic transcription, as a visual aid to call attention to the cases in which aspiration and vowel length should be present or absent.

It might also be well to call attention at an early stage to the existence in English of the rather unusual type of allophones called syllabic consonants. These are heard in words like "satin," "little," "didn't," "funnel"; where "t-," "d-," or "nnn" occurs at the end of a stressed syllable that is followed by a weak syllable containing "nnn" or "l-." Under such circumstances, no vowel sound is pronounced in the weak syllable, and the syllabic "nnn" or "l-" replaces the vowel. Students who cannot pronounce syllabic consonants tend to pronounce the contraction "didn't" for example, as "did-unt" or "dint" instead of "didn't." With a considerable effect on rhythm and hence on intelligibility.

I'd like to reverse the blackboard here... if I don't trip over all these cords. Let's just turn it around. The overall hierarchy of priorities for teaching pronunciation suggested in this paper would begin, then, with the suprasegmental phonemes that make up intonation and rhythm. Next, in descending order of importance, would come the distinctive vowel and consonant sounds. After them, we might insert, at least for students who are well acquainted with written English, the kind of relationships between spelling and sound, stress and vowel quality, and roots and derivations, which the distinctive feature analysts have been studying. In fourth place would come allophones in complementary distribution, beginning with those involving aspiration and vowel length. And last of all would come allophones in free alternation of an idiosyncratic or dialectical nature.

If these priorities are ever to be confirmed, rejected, or refined, it will be presumably as a result of a type of experimentation which has not often been attempted heretofore. What would apparently be required is extensive investigation into the ability of listeners to identify various combinations of distinctive features as speech sounds. It might thus be possible to establish a statistical criterion for labeling some features of English pronunciation as phonemic and others as non-phonemic or phonetic. We could then define a phonemic feature as one for the lack of which a given phoneme may be perceived as a different phoneme. The amount of experimentation needed would be enormous, since the average ability of sizable groups of hearers to identify very large numbers of sounds would have to be found. It would also probably be desirable to test the ways in which speakers of different mother tongues perceive English sounds. But computers and speech synthesizers can do marvelous things, and we must not lose hope.

[applause; program ends]