Peer Reviewed Article *by Phil Thompson*

Phonetics and Perception: The deep case for Phonetics training

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The International Phonetic Alphabet has become an almost universally accepted tool in teaching speech to actors and is taught in one form or another in most actor training institutions in the United States. Even when there is disagreement about what pronunciation choices should be taught or the best methods for teaching, most speech teachers, and the people who hire them, agree the IPA is something an actor ought to learn. There are some very good, practical arguments to support this point of view. An actor who can read and write in the International Phonetic Alphabet can do a number of useful things. She can:

1) Read articles on the topic of speech and accent
2) Read pronunciations in pronouncing dictionaries given in IPA
3) Make her own notations of sounds she observes in accent source material
4) Read pronunciation notes given by a voice coach
5) Make note of pronunciations in an accurate and commonly understood form
6) Rely on the stability of that written record.

Certainly, a phonetic alphabet is a wonderful tool, and its practical value alone makes it worthy of study. I believe, however, there are two arguments for the value of phonetics *training* that are far more compelling, and my belief in their importance influences the way I teach the material.

I believe that studying phonetics helps us to untangle perceptual confusions that arise when we compare the sounds we hear and make to our internal model of language. I also believe that training in phonetics enriches an actor's linguistic inner life, providing useful contextual knowledge and developing skill in perceiving and performing. I'll even go so far as to say that an enriched perception of the variety of sounds in language builds an actor's imagination and flexibility. Finally, I feel that these benefits can be maximized in speech training and that improving an actor's understanding of language variation in general and their own perceptions specifically, should be a goal of speech training for actors.

At this point it would be useful to make a few distinctions. It is fairly common practice in writing and speaking about speech training to use the terms *phonetics* and *IPA* interchangeably and so far this essay has not distinguished clearly between the two. There are important differences however. Phonetics is the study of the description of speech sounds. The International Phonetic Alphabet (IPA)[1] is one means of describing those sounds but the science of Phonetics encompasses more than the IPA alone. It would be possible to study Phonetics without the IPA but it would not really be possible to study the IPA without studying Phonetics. For example, one could analyze a speech sound spectrographically or offer a physical description of the articulatory action that produced a sound. These are methods of describing the sounds of language without reference to an alphabet. The IPA is a concise symbolic means of referring to and describing those sounds. We could think of a phonetic symbol as a shorthand for the full description of the articulatory action which produces that sound. As a general principle, this alphabet represents each speech sound (called a *phone*) with a single distinct symbol. The addition of diacritics can further specify features of the sound being described. The entire alphabet and the principles upon which it is based provide a stable, widely accepted system of conventions for describing speech sounds very precisely

1. This acronym can also stand for the International Phonetic Association, the body responsible for defining the International Phonetic Alphabet. The Association's website is http://www.arts.gla.ac.uk/IPA/ipa.html.

and concisely. It is the IPA's precision in describing subtle variations in sound that is of particular value in clarifying students' understanding of the sounds they can make. The stability of the arbitrary conventions of the IPA and the lack of ambiguity in the direct correspondence of symbol to sound is extremely valuable in sorting out misunderstandings of listening and speech. Furthermore, the system of knowledge of phonetics as a whole provides a frame of reference that guards against confusion. This confusion is entirely natural and results from the way an untrained listener perceives and thinks about the sounds of language. I find it helpful to classify these confusions as *interference*.

The term *interference* was used by Uriel Weinreich in *Languages in Contact* (1953) to describe "instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language."[2] More recently, the term *transfer* has been used and the distinction made between *positive transfer* of useful knowledge or skill from one's primary language and *negative transfer* in which some part of the primary language is used inappropriately in the secondary language. This is essentially the same as *interference*. I stick to the older word because I am more interested in addressing confusions that occur in the speech work of actors than I am in the larger field of Second Language Acquisition.

2. Weinreich, U. *Languages in Contact*. The Hague: Mouton, 1953, 1.

This essay is not intended to advance or to contradict Weinrich's arguments about the way languages change by coming into contact through the speakers of those languages. There is already a body of work discussing contact-induced language change and the role of interference. The term is introduced here in an attempt to clarify some issues encountered in speech training for actors.

Put simply, the interference I'm interested in is what happens when an actor mistakenly relies on a faulty idea about a pronunciation. For the most part, the challenges that face actors don't involve learning a second language. Actors, however, regularly deal with questions of pronunciation, whether on the large scale of performing an accent or on the small scale of a single word pronunciation. Actors should have access to a range of speech choices for vocal characterization or intelligibility. They need to perceive speech sounds accurately and be able to repeat, remember and notate them. In a way, actors are required to negotiate an *expanded* version of their own primary language.[3]

3. Obviously, there are actors who perform in a second, third or fourth language and genres of drama that take a bilingual approach. Although the particular challenges for these actors are interesting, they lie outside the scope of this essay.

In tackling this difficult task, actors deal with two main forms of interference: orthographic interference and phonemic interference.[4] I'll begin by describing how this interference occurs and I'll make the case that when actors study the IPA they are inoculated against both.

4. Weinreich used the phrase *phonic interference* and the accepted term today is *phonetic interference*. I have again chosen to avoid the most current term of art in part because I can't be certain that my understanding of the concept matches all that is implied by that term in the linguistics literature. I also feel that the word *phonemic* better expresses the problem I'm describing.

Orthography refers to the system of writing with which a language is recorded. Every literate speaker of a language has internalized a set of rules for converting written words into speakable language. Orthographic interference occurs when the application of normal rules for turning written words into speech leads to errors in pronunciation. A common example of this would be an error made in reading unfamiliar word. A reader encountering the word "misled" never having heard it spoken, might very well read it [maɪzɫd] Often speakers of a second language apply the reading rules of their first language to words they read in their second language. A native German speaker,

misapplying German rules to an English word, might read the word "vote" as [fot]. An English speaker might read the Welsh name "Dafydd" as [dæfɪd].[5] These errors are the source of some features of foreign accents.

5. The correct pronunciation is [davɪð].

But there is another way in which orthographic interference can cause problems when orthography stands in for phonetics. Because actors are preparing a learned, crafted performance they need a way to record pronunciations and represent them to others, in order to consider pronunciation choices and finally to memorize and perform them. To do this, an actor without phonetic training will frequently fall back on the phonetic features of spelling and that can be quite confusing.

I had a recent experience that demonstrates the problem. I was coaching *Hamlet* and I made the decision (a fairly arbitrary one) that we would pronounce the word "liege" as [lidʒ] rather than [liʒ]. I informed the actors of this and other pronunciation choices before our first read-through. After a while I began to hear one actor pronouncing the word [lig] At the intermission a few disconcerted actors came up to me to ask if they had misunderstood me. "No!" I said, "Stick with [lidʒ] "Talking to the offending actor I noticed that he had spelled out on his page "L E E G." He had heard me say [dʒ] and this was his way of writing it. It made some sense: the letter "G" is sometimes pronounced [dʒ] in English words and by underlining the letter he emphasized that there was something particular about this "G." Unfortunately, letters can't be trusted to stand for a single sound and in the task of reading his note, he extracted another sound from the letter. What's so striking about an event like this is how quickly the actor got turned around and wandered off the path. He heard the sound, devised a method for representing it and less than 20 minutes later he read his own notation the wrong way. And this was an experienced professional actor, a PhD and a university professor. I think that demonstrates pretty clearly that spelling posing as phonetics can be spectacularly unhelpful. The problem isn't just that spelling isn't phonetics; it's that spelling is imperfectly phonetic.

The IPA, as discussed above, is designed to represent the sounds of language unambiguously. This is not the case with the Roman alphabet that we use, for example, to write English. The Roman alphabet does represent sounds.[6] The letter "b" can generally be relied on to represent a /b/ sound and we can be fairly certain how to pronounce most letters. For that reason, we can spell a completely invented word and expect most English speakers to read it the same way: "flimp" "shoobs" "vungacity." But there are some letters and letter combinations that can be interpreted in different ways. Could you be as confident of your pronunciation of "sprow" or "pough" or "thild"? As the story of "liege" demonstrates, we can't always rely on letters to stay put and only represent one sound.

6. It is worth noting that the Roman alphabet and its predecessors, the Greek and Phoenician alphabets, mark an extraordinary technological breakthrough in ancient societies in that they provide a means for recording the sounds of language. In this sense an alphabet is always phonetic.

One reason is we don't have enough letters to go around. If we count up all the distinct[7] sounds used in English, we'll end up with a number in the low 40s. Any child, though, could tell us that there are only 26 letters. We combine some of them to describe more sounds (TH for example) but that still doesn't cover it. TH could stand for two different sounds in English. The sound [dʒ] can be represented by the letters "j" "g" or even by the combination of "dy" in "did you" or "di" in the Irish pronunciation of "idiot." But

7. By using the word "distinct" I intend to refer to the phonemes of English. An attempt to count of all the allophonic variations of these phonemes as pronounced in all varieties of English would end in frustration.

having chosen one representation of that sound ("g" for our actor) the letter "g" still holds the possibility of being read in a variety of ways.

This makes the Roman alphabet a fuzzy system, unsuited to exact recording of pronunciation. The alphabet is terrifically useful of course and this fuzziness doesn't seem to make it any less useful. In fact there is a marvelous convenience in a writing system that tolerates variety and error. We can pick up a text written by someone who speaks a very different dialect and still understand perfectly what was written. The Roman alphabet's fuzziness is, in fact, a benefit. As John Man writes in his book *Alpha Beta*, "the strength of the alphabet as an idea lies in its practical imperfection. Though it fits no language to perfection, it can, with some pushing and shoving, be adapted to all languages."[8] That very flexibility, though, can lead to confusion when we treat letters as stable records of speech sounds.

8. Man, J. *Alpha Beta: How 26 Letters Shaped the Western World.* New York: Wiley, 2000, 1.

This is a danger whenever we write down a representation of a pronunciation using the alphabet, but interference can also occur when we use our internal concept of a letter to think about sounds. Here's an example: My daughter is named "Maja." We pronounce it [maǐə]. Many people who encounter her name in print pronounce it [mɑʤə] or even [maha]. Those pronunciations reflect orthographic interference based on English or Spanish rules. But another confusion often occurs. When she has told someone her name it is quite common for that person, after some period of reflection to refer to her as [miə]. This indicates a kind of orthographic interference caused by an internal, alphabetic representation. The error occurs because the hearer has recorded the name in memory as a sequence of letters "M-I-A" and reconstructed the pronunciation [miə] as a plausible pronunciation of those letters.

That sort of internal orthographic interference occurs quite a bit because we need a way to think about and talk about the sounds of language, and the system we use to record our language is imperfectly adapted to that task. Throughout our speaking lives, we develop impressions and create narratives and form hypotheses about how our language works. When we learn to read and write, we fold that knowledge in with the rest, creating a big messy story for ourselves that partially explains what we know. Clearly there must be some rules about how to interpret the symbols of spelling or we wouldn't be able to read new words, but we aren't usually conscious of those rules. These cases of orthographic interference point us toward a recognition of the unreliability of our knowledge and perceptions. They remind us that when we think and talk about our own use of language, there is more going on than we may be aware of.

I would venture to assert that most people have a notion of perception that they develop in childhood and keep until challenged to investigate the matter more deeply. They imagine that hearing and seeing are a matter of the outside world entering the interior space of the self through the senses to be directly understood by the mind. That model works pretty well and matches most of our experiences. Every once in a while, though, we are presented with something (an optical illusion, perhaps) that makes us aware that there's something tricky going on in the path between outside and inside. There has been a great deal of research in the last half century investigating the mechanisms we use to turn sensory data into a sense of reality. Two things stand out as interesting when looking at this research:

First, our perceptual systems do a lot with very little data. In fact a big part of perceiving the world has to do with suppressing unnecessary input and finding the key pieces of information to track and interpret. Second, we are not generally aware of the process of cognition, and I think you may agree that that's a good thing. It cuts down on auto accidents and psychiatric hospitalization to be unaware of how we perceive the world. We just do it and get on with the complex job of living, but it's actually difficult to force our minds into contemplating the holes in our perception—to look behind the curtain, if you will.

These principles operate in our perception of the sounds of language. Earlier, I said the IPA describes speech sounds called *phones*. We can make a great variety of sounds that are discernibly different from one another. And with careful and experienced attention we can perceive all of those differences. But when we listen to speech we're listening not so much for phones but for phonemes. Phonemes are units of recognition. One way of describing a phoneme is as a speech sound that a listener recognizes as distinct from another—distinct enough that it would make the difference between one word and another. A phoneme is often described in terms of *minimal pairs*, that is, two words in a given language are recognized by speakers of that language as being different words because one speech sound is recognizably different. In English, "pat" and "bat" are different words because they have different initial sounds. In English then [p] and [b] are different phonemes. Likewise, in English, "hit" and "heat" are heard as different words because the second phoneme differs enough to count. A Russian speaker, hearing these two words might not hear that difference because in the phonemic system of Russian both of those sounds fall within the range of a single phoneme. When we hear a sound we determine the category for that sound and suppress any confusing detail about how close to the center of our expectations for that sound the actual sound came. Considering the blinding speed that speech comes at us, that's a necessity.

Our brains can only work so fast, so we use this method for capturing key data and ignoring the details. This is called *categorical perception*, a term introduced by Alvin Liberman.[9] Put simply, categorical perception is the process whereby we recognize things by the category they belong to. Furthermore, we tend to minimize variation within a category and emphasize those features that mark difference between categories. When we see coins scattered across a table top we see the things that make pennies different from nickels and quarters and we pay very little attention to the variation in color between the pennies.

9. Liberman, A. M., Harris, K. S., Hoffman, H. S. & Griffith, B. C. "The discrimination of speech sounds within and across phoneme boundaries." *Journal of Experimental Psychology* 54: 1957.

Now we may reasonably ask, why we would do such a thing? Are we coin racists? Well, it makes a great deal of sense that we would have this ability to suppress information that isn't vital to decision making. Ignoring the rich array of penny varieties allows us to focus on the task of picking up quarters to pay the toll. If we couldn't do this sort of thing, life would move very slowly indeed. As Arthur Sullivan wrote in *The Gondoliers*, "When every one is somebodee, Then no one's anybody!" There must be distinctions between things and although this may be an unpalatable way of organizing society, it is a useful principle when we need to make quick decisions. Categorical perception helps us to deal with large amounts of information by discarding the unnecessary. When we hear someone say, "Watch out!" we don't want to be

distracted by the details. And this makes for a very robust system of recognizing words. If I hear [xe ɸil vɑts ɑʊ̈t fʊ̃ɚ̃ dɛt bɑ̃s] I'm able to extract information enough to categorize the sounds into patterns I recognize, make a decision, and leap to safety. I don't stop processing just because the sound isn't exactly right. What's more, when I hear a sound that doesn't quite match my expectations for its phonemic category, I disregard the difference and actually perceive the sound as closer to my internal model of that phoneme. This effect is at the root of the problem of phonemic interference.

Just as in orthographic interference, errors in speaking a second language can be caused by the misapplication of phonological features from the speaker's first language. The French speaker, for example, lacking the phoneme /θ/ might use the closest candidate from their own phonology, /s/, and pronounce the word "think" as /sɪŋk/ or the speaker might read the spelling of the word using French rules and pronounce it /tɪŋk/. In each case the speaker's first language knowledge interferes with their success in the second language. In the case of orthographic interference we saw that confusions happen because orthography is an unstable record of speech sounds. The same is true in phonemic interference. Categorical perception leads us to push unfamiliar sounds into the procrustean bed of our existing phonemic categories. The French speaker lacks the phoneme /θ/ and so it falls into the nearest phonemic category /s/. That speaker will tend to hear the sound as similar to /s/, suppressing their awareness of its difference.

The same thing can happen with speakers of the same language when we listen to someone with a different accent than ours. Our tendency is to hear that person's speech through the filter of our own. For example, many Americans believe that Canadians pronounce the phoneme /aʊ̆/ as /u/, rendering "out and about" as [ut n̩ əbut]. But this isn't really the case. Some Canadians pronounce the MOUTH[10] phoneme as /ɐ̈ʊ̆/. To an American ear this pronunciation seems so far out of the expected category that we reassign it to the GOOSE category. Many Americans pronounce their GOOSE phoneme with a tiny onglide from a fairly front and close position [ʉ̟u] and so the Canadian rendition of "out" seems to be a candidate for this phonemic category. When a Canadian says the word "out" the American listener not only assigns the word to the /u/ category but hears it as /ut/.

10. MOUTH is one of J.C. Wells' lexical set words, used as a shorthand for a standard phonemic category in English.
Wells, John C. *Accents of English* (vol. 1). Cambridge: Cambridge University Press, 1982.

This sort of confusion occurs because our cognitive perceptual system works, for the most part, outside of our awareness. This system automatically adjusts sounds to fit our pattern. We are not entirely conscious of the little adjustments we make to stretch these sounds to our purposes and, before long, we've strayed from the true path. I'm reminded of what can happen to a pilot flying through clouds. In the absence of the visual reminder of the horizon, a pilot can misinterpret the information from her own inner ear, make numerous, tiny overcorrections over time, and can reach a state of *spatial disorientation*[11] where she no longer believes her instruments. In this confusion the pilot "corrects" her position until she finally comes flying out of the cloudbank upside down.

11. Spatial disorientation is the technical term for this effect. It can occur in a variety of situations but at the center of these cases of disorientation is some faulty perception at the level of the inner ear followed by a conscious but errant adjustment for perception.

This disorientation doesn't usually occur on a clear day with a visible horizon because there is a running comparison going on between what is felt and what is seen. It is this ability to coordinate these different sources of information that gives the pilot a more reliable sense of where she is. The absolute

position of the horizon allows the pilot to regularly test and realign the sense of balance provided by the inner ear. More experienced pilots also check their instruments more frequently and learn to trust what they see there. They become better at pinpointing their location on a map. They avoid disorientation by improving the quality and number of sources of information and they get better at coordinating that input. This is a useful idea for considering the way an actor is helped by phonetic study. When an actor has some understanding of how the sounds of speech are made, the natural tendency to conform the sounds we hear toward our own phonemic categories is counteracted by reference to the more stable landmarks in their phonetic map.

A map is a particularly apt image for thinking about speech sounds because these sounds are produced by the physical configuration of the articulators in space. When we talk about the distance between one sound and another we can refer to a literal distance between parts of the vocal tract. Our awareness of the position of our articulators can give us a vital, second source of stable information just as the horizon does for the pilot. That physical, proprioceptive awareness of the vocal tract developed in the study of phonetics gives actors better tools for counteracting the distorting influence of categorical perception. It is important for me, in my own teaching, to spend time and attention on feeling the physical actions that produce speech so that students can develop a sensitivity to these small movements and discover their relation to the sounds of speech. When we feel how and where we make speech sounds, then sounds falling in the border between phonemic categories can be located, perceived and reproduced. A detailed phonetic map with a direct correspondence to the physical topography of our own mouths helps us to keep track of the shifting landscape of phonemic categories.

In addition, in the process of filling in the details of our phonetic map we learn contextual information about language that can keep us oriented as we travel from accent to accent. We learn, for example about voiced/unvoiced distinctions and that gives us a way of describing what happens to some final consonants in German. We learn that the sound we think of as "r" may have different phonetic realizations in different languages or even in different places in a word. All of this information about how we speak is more than just entertaining. For an actor trying to reconfigure their automatic and unconscious language skill to create a characterization, this knowledge creates an objective framework from which to negotiate that transformation.

There is another kind of confusion that speech teachers and their students are faced with and it has less to do with the peculiarities of our spelling or our perceptions and more to do with our attitudes. The field of linguistics underwent a profound change when it began to accept the concept, developed in anthropology, known as *cultural relativism*. This notion, that every culture is equally valid and must be studied objectively, overthrew a tradition which sought to classify cultures in terms of a hierarchy of value or arrange societies in terms of their "development." In the same way, languages had been thought of as more or less "primitive" or "advanced." The position of modern linguistics, and in particular the subfield of sociolinguistics, is to observe that language variation is natural and normal, and that patterns and structures are found across all varieties and are not limited to "standard" language varieties. These varieties may carry more or less prestige within a society and they are certainly all undergoing a process of change, but that change cannot be said to be toward or away from any right ideal of propriety. This point of view is widely accepted in the scientific community, but outside of the linguistics classroom, people generally have strong views about what they see as the good or bad in speech. The commonplace folk theory of language is that there is some ideal of correct language and that other varieties are distortions or deviations from that ideal.

I was asked to speak to a group of patrons of a regional theatre on my work as a dialect coach. I began the talk with a question, "who in the audience has an accent?" Not a hand was raised until a woman elbowed her husband and said, in an accent quite different from mine, "Charlie, for God's sake! *You* have an accent!" The truth is we *all* have accents and those accents all mean something in our society. The belief that accents are what other people have makes us deaf to our own. We see our pronunciation as neutral and all other varieties as carrying messages of difference. The difficulty for a student studying speech is that this false notion of neutrality in accents and the unexamined prejudice against some accents interferes with an objective assessment of the sounds of that accent. As with the cases of interference that have been discussed in this article, what we think we know can prevent us from perceiving what's in front of us.

I believe that actors benefit from a conscious and *objective* awareness of the formation of speech gestures so they can learn to make sounds that aren't in their phonetic inventory. In that process, they also benefit from reviewing their attitudes and associations with speech sounds. It is also useful for actors to have a sense of the "lay of the land" in the form of phonological rules. For example, when an actor knows that the words "pin" and "pen" are distinct in some folks' accents, he has a structure into which to place his observations of his own and others' speech. Let me be clear: I don't believe that an

actor's speech should be self conscious. There is much in an actor's art that must remain in the realm of tacit knowledge, at least in the moment of performance, but in order to move beyond the narrow palette of his own voice and embody something else, an actor needs some explicit knowledge of what makes up the range of possible human expression and some experience consciously manipulating those sounds. Phonetics training can give students a perspective on the wide range of accent variety and help them to listen to the sounds of those accents (and their own) objectively. We need to be aware there is a potential for confusion when talking about and thinking about speech sounds and, at the minimum, warn our students about it. Any phonetics training gives students a useful frame of reference for sorting out these problems. It is possible, though, to adapt the way we teach phonetics in order to maximize this benefit. The following suggestions represent some steps I have taken to adapt my teaching to these ideas.[12]

1) *Begin actors' speech training with study of anatomy and exploration of the physical actions of articulation.*

> Little children delight to puzzle one another by assuming unusual positions of the tongue which others cannot imitate. They should be encouraged in this, for all exercises of that kind are of value as a preparation for speech. By such exercises they unconsciously gain control over the vocal organs and become better able to imitate positions of the mouth.
>
> Alexander Graham Bell, *The Mechanism of Speech* 1910[13]

Bell's main point here is absolutely true. Exercises of the tongue, even with no reference to speech help us to develop control of the vocal organs and improve our ability to imitate. But it is also true that such experiments in oral gymnastics can help establish a frame of reference that makes the student less prone to the problems of interference that they'll encounter in their speech training.

Let's look again at the example of the pilot becoming disoriented while flying through a cloud bank. Such spatial disorientation doesn't occur when the pilot has a clear view of the horizon. When the pilot can cross-reference this additional visual reference point with the sensations of the inner ear, confusing signals get sorted out. The presence of a second data stream of reliable information gives the pilot a much better ability to self correct. A student who takes the time at the beginning of a course of study in phonetics to become aware of the physical reality of the vocal tract will be able to call upon that knowledge to recover from confusing instances of interference. Familiarity with speech anatomy also prepares the student to conceptualize some of the information they will eventually learn, since phonetic charts are most often arranged in a layout that matches the position of each speech action in the mouth. Finally, by investigating possible articulatory actions apart from the labels for the sounds produced, a student has the opportunity to practice and experience a wide range of sounds that she might otherwise resist because those sounds fall outside of her linguistic identity. If she practices the action of nasal plosion without foreknowledge of its use in a particular accent, she avoids loading that action with a particular attitude. She may later discover that she or others have attitudes about the use of nasal plosion in the pronunciation of the word "didn't", but she will already have an experience of the action based solely on her objective experience. This is

12. I am unable to avoid repeating some recommendations already made by my colleague, Dudley Knight in his excellent article, "Standard Speech: The Ongoing Debate." That I haven't quoted him verbatim should not be taken to mean that I disagree with his suggestions in that article. If I'm lucky, the imperfect overlap of these lists will amplify rather than obscure what he has written.

Knight, D., "Standard Speech: The Ongoing Debate" in *The Vocal Vision*, Hampton M. (ed.), New York: Applause Theatre Books, 1997.

13. Bell, A.G., *The Mechanism of Speech*, New York & London: Funk & Wagnalls Company, 1910.

particularly important when working on articulatory settings that evoke strong attitudes. Nasality, for example, is a feature for which students and speech teachers seem to share an antipathy. In those instances when students practice increasing nasality, they may well add a variety of other features and extraneous muscular efforts as a commentary on the sound. Many American students attempting to reduce the degree of rhoticity in vowels may find themselves adopting unrelated features from non-rhotic accents such as Received Pronunciation. An experience of these adjustments as physical helps a student to isolate actions and to make much more refined adjustments to their speech.

2) *Be aware of developmental parallels in the acquisition of speech as well as reading and writing*
The observation that children acquire features of language in a predictable order, and that acquisition of a second language can often follow a similar pattern, has led to a great deal of discussion over the proper method of teaching languages. I do not intend to argue that phonetic training for actors should be organized in the order in which those features are first acquired by children but there are some helpful generalizations that can be made by comparing a speech student's experience to that of children.

In acquiring our primary language, exploration precedes explanation and this can be a useful model for the speech student. An adult learner is likely to be resistant to babbling like a baby but playing with sounds can sometimes yield experiences that would not be found by more somber exercise. The experience of performing the gestures of articulation improvisationally can be pleasant and a playful attitude often leads to surprising realizations. If nothing else, it makes phonetics class something to look forward to.

Although most people can't remember their early language acquisition, they may remember part of their experience of learning to read. Some students have unpleasant memories of reading before the class or of struggling to make the associations between spoken and written language. For these students, learning phonetics can feel like revisiting that experience and we will help their learning if we understand that discomfort. Try a little tenderness.

3) *Teach the IPA without any reference to a prescription for "correct speech"*
The International Phonetic Alphabet is a descriptive tool. It was designed to assist linguists in recording the rich variety of sounds found in the world's language. The IPA is neutral on the question of preference. If we use it to describe a narrow set of preferred sounds, we run the risk of presenting the IPA as the mark of authority for those choices. That runs counter to the goals of the organization.

I have no difficulty in making prescriptions about speech. Artists are continually making choices and prescribing outcomes and when an actor is familiar with the IPA those choices can be efficiently communicated. However, to limit the IPA to describing only one set of choices is to make it nearly useless as a tool. There is no need to learn a new and complex system to describe a single set of outcomes. In such a situation it quickly becomes evident to a student that this new system of writing is not a tool for their own use, but the mechanism for delivering a program of speech correction.

No matter what the intentions and skills of the instructor, a student being asked to explore a sound while simultaneously being offered a single model of correctness is being placed in a bind which frustrates any true exploration. Mixed messages built into the teaching method only add to the confusion the student is prone to.

4) *Transcribe from speech*
When students write phonetic transcriptions, they should be describing speech that they hear rather than transcribing how written words might be pronounced. Transcriptions from texts imply a single correct pronunciation and unless that accent has been specified and carefully studied, students should first practice transcribing what they hear. It's certainly useful for actors to learn the patterns of an accent so that they might be able to look at a text and predict the pronunciation of a word, but phonetic transcription is a separate skill. By conflating the descriptive task of transcription with reading a script and applying knowledge of an accent, we invite orthographic interference.

5) *Cover all the sounds of the IPA*
If our goal is the expansion of a student's range of linguistic possibility, then this is a necessity. Not only will work on, say, nonpulmonic consonants be valuable if the actor is someday faced with the challenge of speaking Xhosa, the experience of exploring that consonant action will expand physical awareness. The practice of attempting outlying sounds that are not part of the student's current experience is more likely to give insight into well known sounds as the student compares and contrasts the experience.

It is a mistake to "streamline" a course by teaching a reduced and idealized inventory of "Good" or "American" speech sounds. First, when we call something "good" there is always an attendant context to that judgment, whether or not we're aware of it. Speech sounds can only be *good for* something or

a good example of something. When we call things "good" with no reference to the context for that judgment, then we are making a moral judgment and that has no place in the teaching of speech. Producing a short list of "American" sounds is also problematic because there are so very many varieties of American English. By limiting the sounds we teach and claiming that they are the "American" sounds we imply that any deviation from that chosen sound is somehow "Un-American." The vowel in the word "dog" will most likely be pronounced differently in Brooklyn, Birmingham and Beloit. Which of those is the American vowel?

When we open up our teaching to the wide variety of sounds in human language we open our students to insights about their own speech by way of contrast and we prepare them for their job of transforming their speech to meet the demands of the character.

6) *Avoid the use of keywords for memorizing sounds*
Using keywords as tools for learning sounds is an invitation to phonemic interference. Writing down /ɔ/ = "law" won't help a student who pronounces that word with a different vowel. It will stand between the student and the experience of discovering the physical action represented by that symbol.

When pressed to give exemplary words to demonstrate the sound I may invent nonsense words that fit the bill. "/ɔ/ as in [sklɔʤ] for example." This can be difficult for students to accept since they see keywords as a helpful shortcut. My intention, though, is to set up a roadblock to such shortcuts and to require the student to take a longer journey. Without recourse to spelling, they must remember the sound itself and associate it with an articulatory action rather than the vagaries of spelling.

7) *Delay the introduction of symbols*
Introducing phonetic symbols, which are for the most part identical to letters of the Roman alphabet, is an invitation to orthographic interference. Obviously, the symbols are a vital part of the students' study of phonetics, but work done before the introduction of symbols on anatomy and phonetic description provides a strong foundation of knowledge to counterbalance the pull of orthographic interference. The first phonetics quiz I give to my students is a test of their ability to describe sounds. I produce a sound, a [β] for example, and my students write down "voiced bilabial fricative." Then I hand each student a description of a sound and ask them to produce it. This is a slightly uncomfortable process for the students. They have, as I have described above, an imperfectly phonetic alphabet that they know very well. When I insist on "unvoiced alveolar plosive" when they know perfectly well that I mean "t" they wonder why they have to take the long road.

The answer, of course, is that there is nothing to be taught and nothing to be learned by cutting that corner and leaving that knowledge unexamined. An actor must be more interested in the action of /t/ and its allophones than they need be in the symbol that represents the sound. Fortunately, when the time comes for the symbols to reenter the equation, their familiarity with phonetic description gives them a context into which they can place the symbols. The symbols of the IPA including diacritics fit neatly and legibly on a single page and when the foundations are laid well the symbols can be learned quite quickly.

8) *Invite interrogation*
In the quizzes I describe above, I invite students to ask questions by modeling a distinction between sounds. If, for example, I ask students to transcribe [ʃubz]. I will encourage them to clarify any confusion by asking me, "Did you say [ʃubz] or [ʧubz]?" When students are given the opportunity to interrogate me during the quiz they gain confidence in their ability to hear distinctions and that what they are listening for is repeatable, open to reasoning and finally knowable. Most important, though, they develop a curiosity for sounds that carries them through the rest of their work on speech and dialects.

Every so often, when working with actors on their speech, I'm forced to take a step back and remember something I was once intimately aware of: Acting is hard. The work that actors do in adapting their speech to the needs of their art is only one part of the challenge of acting, and it is certainly a complex task. That task is made more difficult by problems of interference. Interference, as I've described it here is the misperception and resultant confusion that can occur when we rely on what we think we know. This can happen when we rely on spelling to behave in a strictly phonetic way or when our natural tendency to sort speech sounds into categories leads us to hear what we expect rather than what's before us. Interference, in this sense, can also occur when our attitudes and narratives about the value of accents prevents us from objectively perceiving the features of an accent.

Phonetics training of any sort can be extremely valuable in helping the actor avoid problems of interference because it offers a stable, systematic and physically perceivable frame of reference. It stands to reason, though, that we could teach more efficiently if we take interference into account. The eight points offered above are by no means a comprehensive account of my teaching practice. They represent some of the principles that guide me in teaching speech to actors, and I invite you to investigate these principles in your own classrooms.

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