About 25 years ago, some of my colleagues posed the question that was, in their view, basic to an understanding of the reading process and the ills that so frequently attend it: what must the would-be reader know that mastery of speech will not have taught him? Drawing on a combination of common sense, old knowledge about language, and new knowledge about speech, they arrived at the hypothesis that a missing and necessary condition was what has come to be called phonological awareness—that is, a conscious understanding that words come apart into consonants and vowels. Research then demonstrated that such awareness is not normally present in preliterate children or illiterate adults; that measures of awareness provide, perhaps, the best single predictor of reading achievement; and that training designed to develop awareness has generally happy consequences for those who receive it.

But the pioneers of phonological awareness rather neglected the flip side of their inquiry: why is phonological awareness not necessary for speech? My aim is to repair that omission. To that end, I will seek reasons, in addition to those my colleagues found, why the phonologic structures that are common to speaker and hearer are nevertheless not noticed by either. Beyond further rationalizing the hypothesis—now a fact—that phonological awareness is not a normal by-product of learning to speak, those reasons should lay bare the critical difference between speech and reading/writing, and so let us see why the one is so much easier than the other. Moreover, when taken together with considerations having to do with the operation of the phonological facility, they may enlarge our understanding of certain deficiencies that poor readers have, apart from the process of reading itself (Liberman, Shankweiler, & Liberman, 1989).

I begin, however, not with notions about why speech does not require awareness, but rather with some speculations about why that aspect of the issue was initially scanted. That is surely a chancy and presumptuous thing for me to do, for I cannot expect researchers to have written about the questions they never raised, so I cannot know whether my colleagues did not think to ask them, or did not think them fit to ask. I will therefore rely on what I know of the awareness issue as it developed in the mind of Isabelle Liberman, one of the pioneers of the awareness enterprise. Because Isabelle habitually used me as a sounding board, I was privy to the intellectual trial and error that led to the insights behind her signal contributions. I remember the hits and the misses, the turns, both right and wrong, and, of particular interest for the purposes of this essay, the turns not made at all because they lay on roads not taken.

It all began for Isabelle when, in order to accommodate her career to the constraints of the University's nepotism rule, she was assigned to teach teachers how children learn to read, and why some don't. She had not, at that point, done research in the field, and was unacquainted with the literature, but she was nonetheless determined that her teaching be grounded in reasonably solid science. She therefore undertook a two-part program. First, she took stock of what she, and presumably every other educated person, knew about speech and language that might be relevant, carefully selecting only those facts and generalizations that were firmly established. Then, given those pieces of secure and presumably pertinent knowledge, she measured their implications against the received wisdom about reading as it appeared in textbooks and the research literature.
What Isabelle (and, as she thought, everybody else) knew that seemed relevant fell into two categories: the difference between language and all other forms of natural communication; and the difference between speech and reading/writing.

As for the relevance of the difference between language and other natural modes of communication, Isabelle knew that by far the most important property of language is that it is generative, in contrast to all nonhuman, but equally natural, modes of communication, which are not. This is to say that language can communicate an indefinitely large and various set of messages, including many that are entirely novel. Human beings communicate in this wonderfully productive way as easily and naturally as they walk, but only because they have ready access to the two generative devices—phonology and syntax—that their language faculty provides. Lacking both a phonology and a syntax, nonhuman animals have only that apparatus which is necessary to connect a few signals to an equal or smaller number of unchangeable messages. Isabelle wondered, therefore, why some reading specialists should nevertheless suppose, as they seemed to, that skilled readers go directly from print to meaning, presumably by-passing their phonological and syntactic processes altogether (Smith, 1971). Surely, that would be to do in reading what is not normally done in speech, where phonologic and syntactic processing are not a matter of choice, but mandatory, and so to trade generativity for the severe constraints that characterize all other natural forms of communication. She reckoned that a writing system, as well as the manner of its use, must preserve generativity at all costs, and that our alphabetic system does it passing well, but only when properly used. To her, proper use required that the reader attach the artifacts of the alphabet to the natural structures of his language, taking care to make the connection at the earliest possible stage. That done, the reader gets all the rest of the complex processing for free, courtesy of the biological specialization for language that he owns simply by virtue of his membership in the human race.

Thus, at the level of the word, the reader who has read it right can deploy his powerful phonologic resources, with the result that generativity is preserved, and he is not reduced to treating words within the narrow limits that the nonhuman, nonphonologic modes allow. In this connection, it seemed to be little appreciated in the reading community that the phonology a reader can exploit is not merely a list of sounds—or letter-sound correspondences—but rather a marvelous combinatorial scheme, unique to speech, that comprehends all the words the reader already knows, as well as those he has forgotten, and those he has yet to learn.

As for the sentence, no intellectual exertions are necessary once the reader has made proper contact with his natural language faculty, for then even the most complex sentences will be handled as easily as they are in speech, which is, more often than not, easy enough. Isabelle could not understand, therefore, why so few among reading specialists were concerned to know where or how the contact might be made, but rather seemed to assume the existence of a ‘visual’ language, where readers not only perceive the print visually, as they must, but also represent the words that way, as Isabelle thought they must not. For surely, the natural way of understanding the sentence would be entirely beyond the reach of such a ‘visual’ reader, if only because the syntactic component of the biological specialization for language cannot have evolved to deal with anything but phonologic representations (together, of course, with their grammatical appendages); there is no reason to think it would know what to do with the outputs of the visual system. So if the representations were exclusively visual, readers would be required to develop a wholly new mechanism, and one for which they had no natural bent, simply to do that which the old system, given a more propitious input, is adapted to do automatically. Since the most sophisticated linguists and psycholinguists had been unable to figure out how the old system works, it seemed most unlikely that a ‘visual’ reader could succeed where they had failed, and so invent a new system just to meet the unnatural demands of the visual way he had unwisely chosen to read. Most generally, in this connection, Isabelle came to think it seriously misleading to suppose that language can be ‘visual’ or ‘auditory’ when, in fact, it can be neither. For reasons I will develop later, she was in process of conceiving that language is a biologically coherent modality in its own right, possessed of its own uniquely linguistic structures and processes. Why, then, might it be hard for someone who is perfectly at home in that modality to enter it by way of
Why is Speech so Much Easier than Reading and Writing?

Turning to the difference between speech and reading-writing, Isabelle, and presumably everybody else, knew that the former is a species-typical product of biological evolution, arguably the most apparent and defining of our genetically determined characteristics, in contrast to the latter, which is an intellectual achievement of an apparently difficult sort. There is, then, a strong presumption that we've been talking ever since we emerged as a species (or, according to some, as a genus), which was from 200,000 to several million years ago (depending on whether you think speech began with the one class of creatures or the other); but it was less than 4000 years ago that some of our fellow humans discovered the alphabetic principle, and put it to practical use. What was truly unique about this discovery was not the idea that drawings can be used to represent speech instead of objects or ideas. That was of critical importance, to be sure, but it had been exemplified in the rebus, the first true (i.e. generative) writing system, and then elaborated several times independently in the syllabic or morphosyllabic scripts of, for example, Sumerian, Mayan, and Chinese. The unique discovery underlying the alphabet was neither more nor less than what I have already identified as segmental phonology, the part of grammar that generates all words by variously combining and permuting a small number of consonants and vowels. Seen that way, the alphabet was a triumph of applied linguistics. But why has it to be reckoned a triumph? Why has the discovery been made only once, all applications having been borrowed, in effect, from that first, seminal event? In short, why was it hard 4000 years ago for all pre-alphabetic humans, and why is it hard now for the pre-alphabetic child?

Surely, reading teachers must have asked those questions, for they could hardly know what it is they have to teach, or how to teach it, without knowing what it is the student must learn, and why the learning might not be easy. But when Isabelle searched the textbooks and the research literature for the answers, she could not even find the questions. Nevertheless, ideas about reading were thick on the ground, and all did at least imply answers to her questions, answers that ranged, in her view, from the improbable to the impossible. Way off at the impossible end of the continuum was a notion, now in full flower as a basic assumption of Whole Language, that foreclosed almost all questions about the reading process by asserting that learning to read is just as easy and natural as learning to speak, or would be, if only we taught reading the way we teach speech (Goodman & Goodman, 1979). To the end of her days, Isabelle found it shocking that this proposition—so obviously false in light of absolutely everything we know about language and its biology—should be taken seriously by so many, and should, indeed, have become the cornerstone of what is currently the most widely accepted theory of reading and method of instruction. Whenever I asked her how a proposition like that could possibly have prospered, she would either offer one of the mordant comments for which she was justly famous, or else say, resignedly, “Go figure.”

A little closer to being merely improbable was the claim—made, incidentally, by a guiding spirit of Whole Language—that reading is a ‘psycholinguistic guessing game’ (Goodman, 1976). But could it be that the great event underlying the development of the alphabet was that some human being had discovered, at long last, that people can guess at language, and, accordingly, that guessing is the critical skill the reader has to acquire? Not likely, it seemed. Anyway, it rather offended Isabelle’s sense of the rightness of things that readers would want to guess what the word might be when the actual word was right there in plain sight.

But by far the most numerous theories located the difficulty somewhere in the eyes. Now surely, a person cannot be expected to read if he cannot see the print. But, just as surely, it could hardly have been pandemic visual deficiencies that had so effectively blocked the development of an alphabet; hence, it can hardly be true, except in special cases, that rectifying such deficiencies is now the critical step in the development of the ability to use one.

Of course, some did make what seemed an appropriate obeisance to phonology by supposing that children had to learn the so-called letter-sound correspondences—the heart of ‘phonics’ instruction. But Isabelle thought that a trivially easy task, hence not likely to be the core of the child’s problem. Indeed, she had already begun to see that emphasis on those correspondences rested uneasily on the false assumption that speech is an acoustic alphabet, for it is only on such
an assumption that a child might have been able to ‘synthesize’ a word out of its letter-sound constituents—that is, ‘sound it out.’ For reasons to be developed later, speech cannot be, and is not, an acoustic alphabet, so attempts to sound out a word from the ‘sounds’ of its letters will typically produce an utterance—as often as not, a nonword—that has as many syllables as the target word has letters. Still, Isabelle was ever willing to grant that learning the sounds of the letters might be of some help in moving the child to the right insight. At the least, it was better than leaving the child to his own devices, or trying to mislead him into believing that the printed word is a picture, a meaning, or an idea, when, in fact, it is a piece of language—actually, a phonologic structure—to which certain meanings may, or may not, be attached. But sounding out was not the only way to get the child to see what the game is all about, nor did it seem, given what Isabelle was beginning to learn about speech, necessarily the best way.

All the foregoing is by way of telling where Isabelle wanted to go, and how it was that she could find in the ideas of the reading specialists only that which would have taken her somewhere else. So she, together with the other early members of the Haskins reading group, including, especially, Donald Shankweiler and Ignatius Mattingly, turned away from those ideas, and put their attention, instead, on speech. That seemed the thing to do, since speech and an alphabetic writing system have the same primary function, which is to convey the internal structure of words. Therefore, one might hope to find in speech the key to understanding why that structure was so hard to get from the printed page.

Happily for the reading group, other Haskins colleagues had for some time been doing research on speech, and had uncovered a few characteristics that might be relevant to the reading problem. The one that seemed most likely was that speech is not the acoustic alphabet so many had assumed it to be, so it cannot be mapped directly onto the optical alphabet a reader must learn to use (Liberman, Cooper, Shankweiler, & Studdert-Kennedy, 1967). The reason is easily understood once one thinks about the requirements of phonologic communication. The most obvious of these is imposed by the generative combinatorial strategy that phonology exploits. For if words are to be formed by combining and permuting a set of meaningless units, then the units must be commutable, which is to say discrete, invariant, and categorical. Just like the letters of the alphabet, indeed. But if those units were sounds, and the sounds had to have those characteristics, then the sounds could only be produced by articulatory maneuvers that had them, too. In that case, as Isabelle was later to emphasize repeatedly, a speaker could not say [bag], but only [be] [æ] [gæ], and to say [be] [æ] [gæ] is not to speak, but to spell. Communication by spelling would, of course, be painfully slow, and the listener would presumably find it nearly impossible to organize the phonologic segments into the larger units of words and sentences, It is also relevant to the rate problem that even if it could somehow be solved in production, the result would defeat the ear. Speech delivers phonologic information at rates of 10 to 20 consonants and vowels per second. But if each consonant and vowel were a unit sound, as it would be in an acoustic alphabet, rates that high would strain the temporal resolving power of the ear and overreach its ability to keep sequential order straight. So, an acoustic alphabet is impossible, if people are to speak and listen as fast as they must.

Some of Isabelle’s speech-research colleagues believed—correctly, as I think—that nature had solved the rate problem by defining the phonologic units, not as sounds, but as abstract motor structures that control the articulatory movements by which those sounds are made (Liberman & Mattingly, 1985). The critical advantage for the speaker is that unit gestures corresponding to the discrete, invariant, and categorical units of the phonology can be coarticulated—that is overlapped and merged—with the further result that speakers can run them off at the high rates that characterize speech and make language possible. For the listener, coarticulation efficiently packs information about several phonological segments into the same piece of sound, thus loosening the constraints that are imposed by the temporal resolving power of the ear. As for the difficulty that auditory perception has with sequential order, coarticulation produces context-conditioned variations in the acoustic signal that mark order by the shape of the signal, not by some temporal sequence of its presumably discrete pieces. Thus, to perceive that [b] comes first in [ba] and second in [ab], the listener relies on the fact that the acoustic cues for the consonants are mirror images, reflecting the coarticulated gestures from consonant
closure to vowel opening, in the one case, and the reverse progression in the other. If such syllables are of relatively short duration, the acoustic signals will carry information about both consonant and vowel throughout their lengths, so acoustic shape can be the only basis for determining the order of the phonetic units. Given a linguistic specialization that recovers the gestures, of which more later, the acoustically different signals will nevertheless evoke the same phonetic percept, accurately marked for its position in the sequence.

The general consequence of coarticulation is that almost any piece of sound, no matter how short, carries information about, not one, but several units in the phonologic string. Accordingly, the sounds of speech are not a substitution cipher on the phonologic structure, but a complex and specifically linguistic code in which there is simply no correspondence in segmentation between any delimitable acoustic segments and the segments of the phonology. This is not to say that the underlying phonology is not alphabetically segmented, only that the segmentation is not apparent at the acoustic surface.

It was, then, the foregoing facts and speculations that initially suggested to the reading group that a child who had mastered speech might nevertheless be unaware of the discrete segments it conveys. In listening to a word, he would not have heard a succession of discrete, segmented sounds. Moreover, as previously noted, it would have been hard to develop awareness in the child simply by showing him how to divide a word into, or synthesize it from, alphabet-size pieces of speech sound, because, apart from vowels, such sounds do not exist.

As I earlier implied, our reading-research colleagues did not have all the reasons why awareness is lacking, but they had at least one, and that was enough to head their enterprise in the right direction. They could take satisfaction in the fact that their reason was well grounded in the background science (Mattingly, 1971; Shankweiler & I. Y. Liberman, 1971). Moreover, the hypothesis it led them to held up under empirical test, and bent agreeably to necessary elaborations, and amendments. But most important was the practical application, which lay in the assumption that, to get the child up and running, someone should teach him how words come apart, for speech had not revealed to him that they do, yet that was exactly what he needed to understand if he was properly to appreciate and apply the alphabetic principle. Once the child had that principle, he would know what to look for, so further refinements in his understanding of the exact relation between the alphabetic script and the language could come with experience in reading, as the phonemic and morphophonemic regularities of the writing system revealed themselves. This would happen the more readily, of course, if the teacher provided the right help by contriving exercises designed to make the regularities most apparent. As for the irregularities, enlightened instruction would introduce them gradually, while also showing that many were not so wholly irregular as they seemed.

So, given what the reading group had yet to do in the further development and testing of their fertile hypothesis, there was no compelling reason for them to wonder why awareness was not essential in learning to speak. Indeed, in the matter of speech, they had gone about as far as they could go, for even their speech-research colleagues did not, at that time, have a firm grip on the rest of the story. We may not have that even now, but, as I dare to say below, we may at least have it in hand.

To understand why speech is different in the matter of awareness, and so to close the circle, I observe again that, in spite of the complexly encoded nature of the speech signal, phonological structures are, in fact, contained within it. Those structures must be produced and received by the speaker and listener, whether they know it or not, for if they were not, language as it has come to be would not exist. Moreover, it is possible to become aware of those structures, for, if it were not, alphabetic reading and writing as they have come to be would not exist. No matter, then, that the speech process itself is fully automatic, hence unavailable to consciousness as process; for the listener, that process must nevertheless produce phonologic representations of which the listener can be conscious. In that connection, Mattingly has noted that the automatic process that derives meaning from speech need not, in principle, ever make available to consciousness the phonologic structures that are intermediate to its goal, and, alone among students of language, he has speculated about the possible function that such representations might serve (Mattingly, 1990). For our purposes, however, it is enough to know that the representations are there and are
available. The previously noted bad fit in segmentation between those representations and the acoustic signal is but one reason, and not necessarily the most compelling one, why there is, nevertheless, no awareness; in any case, it can hardly account for the fact that, for speech, in contrast to reading and writing, awareness is not necessary. What, then, does account for that fact?

The easy answer is that speech is a kind of instinct, and therefore a thought-free process, while reading/writing is, as I said earlier, an intellectual achievement of sorts. But that is just to restate the question. I want, therefore, to try a possibly more satisfying answer. Unfortunately for that purpose, such an answer arises from an unconventional theory of speech that is probably not well known to students of the reading process. Worse yet, a proper account of the theory would require that I describe several experiments, and that would require, in turn, a quick tour through the most technical details of acoustic phonetics. To avoid that thicket, and stay within the limits of space and time our host has set, I will try to describe and support the theory on grounds of plausibility only, and, within those bounds, keep reading ever in view. However, even that over-simplified approach requires an initial detour.

Consider, then, how reading/writing and speech meet a requirement that is imposed on both. Indeed, this requirement is imposed on every kind of communication, easily qualifying as the most fundamental requirement there is. It is odd, then, that it appears not to enter into the calculations of researchers in speech or reading, the more so because it is easy to see and easy to understand. The requirement is simply that what counts for the sender must count for the receiver. For that requirement to be met, two closely related conditions must be fulfilled: out of all possible signals, a certain few must be recognized as relevant to language; and the representations in the minds of sender and receiver must, at some point, be the same. O.K. the assumption that a thing is more likely to be noticed if it has a name, Mattingly and I have called this the requirement for 'parity,' and have challenged theorists of any stripe to say how it was established and maintained for whatever kind of communication they study (Liberman & Mattingly, 1989).

In the case of alphabetic reading and writing, it is easy to see exactly what the parity requirement is, and how it is met. Suppose, for example, that I write 'P' and also 'I.' Every user of the Roman alphabet knows that the first character counts for language, but the second does not. Moreover, the writer of 'P' is in league with the reader of 'P,' because they have a common understanding of what linguistic unit the 'P' counts for: the bilabial voiceless stop consonant [p] that introduces the syllable [pat]. So parity exists, and the system will run. But we see immediately that parity, though real, is arbitrary; a user of the Cyrillic alphabet would agree that the character 'P' counts, but insist that it counts, not for a stop consonant, but for the continuant [r], as in [rat]. Of course, parity has got to be arbitrary in writing systems, because it was established by agreement. Those who developed the Roman alphabet arrived at a compact that bound them to certain arbitrary decisions about which optical shapes would index which phonological units of the language. All who use that alphabet must become parties to that compact; adhering to its terms, they can communicate; otherwise, not.

But what of speech? How is it that [p] bcame relevant to language and a snort did not? Surely, not by agreement, for nobody invented speech, or somehow derived it as a secondary cipher on some more basic mode of communication; hence, nobody got everybody else to speak according to arbitrary decisions about which percepts count, and what they count for. To assume the contrary would be hardly less absurd than to assume divine intervention, as if there had been some extra commandments that Moses dropped on his way down from Sinai, one of which said, "Thou shalt not commit the phoneme [p], except as it is thy intention to communicate." No more is it plausible to suppose that speaker and listener have a common representation just because they both subscribe to an agreement that [p] is the name of some otherwise ordinary sound they both hear. As Studdert-Kennedy remarked some time ago, the thing about phonemes is that they "name themselves." My aim is to tease out the theoretical implications of that piece of wisdom.

But first, I would describe the conventional view of speech, just to show how the system it envisions fails to meet Studdert-Kennedy's requirement—how, in other words, it falls short in
the matter of parity, and therefore cannot enlighten us about the most fundamental difference between speech and reading/writing. To simplify the matter, let us, for the moment, consider only speech perception. The view held explicitly by almost all researchers in speech—and, I should think, at least tacitly by people concerned about reading—goes as follows (for discussion, see Liberman (1992) and Liberman and Mattingly (1985)). The elements of speech are sounds, and their perception is as it would be for sounds of any other kind. All depend on the general processes of auditory perception, so all produce percepts of a generally auditory sort. Thus, the percepts evoked by a stop consonant and a squeaking door can differ only in the mix of auditory primitives—pitch, loudness, and timbre, for example—out of which they are presumably formed. They are made of the same perceptual stuff, as it were, which is to say that the percept evoked by the speech sound can be no more phonetic than the percept evoked by the squeaking door. In its most general form, this comes down to the assumption that language simply appropriated for its uses the most general processes and representations of the auditory modality. On that conventional assumption, however, the nonlinguistic auditory percepts would have somehow to be connected to language if they were to enjoy the very particular communicative privileges that linguistic status confers. According to the conventional theory, the necessary link is made at a cognitive stage, beyond perception, where the auditory percepts are associated with the phonetic units of language, and so, in effect, given phonetic names.

Of course, the percepts evoked in reading are just ordinarily visual in fact, as the percepts of speech are ordinarily auditory in theory, so it is a matter of fact, not theory, that the visual percepts have to be given phonetic names if they are to be used for linguistic purposes. No mystery there, however, since those percepts have only to be named after the perceivable phonetic units that are evoked by the sounds of speech, independently of the alphabetic shapes that were arbitrarily selected to stand in their stead. But what could the presumably auditory percepts of speech be named after? Surely, not themselves. The specifically phonetic names the conventional theorist would attach to them are neither primary acts nor percepts, so they must be in the nature of ideas, presumably innate, that are peculiar to language. For the theorist who has a taste for such innate ideas, assuming their existence does not settle the parity issue, for it still remains to explain how particular auditory percepts came to be connected to them. Presumably, many were called, but few were chosen. How, then, were the choices made, who made them, and what guaranteed that all would choose the same way? The seemingly inescapable conclusion is that, on the conventional view, parity in speech must have been established by agreement. But that's no way to run a natural communication system. Parity by agreement is acceptable, even necessary, for a biologically secondary process like reading, but not for the primary processes of speech. To say otherwise is to claim that speech is an artifact, like the alphabet, and that does violence to the facts.

It has simply got to be, I think, that the percepts evoked by the sounds of speech, in contrast to those evoked by the alphabet, are phonetic, not by virtue of having been given phonetic names, but \textit{ab initio}, by their very nature. That is, they cannot be commonly auditory, as the conventional view would have it, but must rather belong to a phonetic modality that is as different from auditory as auditory is from visual. The primary perceptual response to speech would then be recognized as phonetic in the same way that a percept is recognized as belonging to any distinct modality; there is no need for some cognitive process to endow it with phonetic significance by giving it a phonetic name. On this unconventional view, what evolved was a communicative modality. Unlike the communicative modalities that evolved in other animals, this one was linguistic in nature, and therefore had a phonetic component. Given the functional requirements of phonological communication, the constituents of the phonetic component were, as I've already said, not sounds, but gestures. That these gestures are specifically, distinctly, and exclusively phonetic is not just a matter of plausibility, but of fact: they are a distinct set, different from those we make with the same organs when we swallow, move food around in the mouth, or lick our lips; having evolved to have a phonetic function, they serve no other. As for parity, it is built into the very bones of the phonetic modality, for the speaker produces specifically phonetic gestures, and the listener perceives them. Thus, the acts and percepts of
speaker and listener do not have to be arbitrarily connected to language or to each other. The gestures provide a common phonetic currency, good for all linguistic transactions.

Also specialized for phonetic communication is the manner in which the gestures are coarticulated, since in the elaborate overlapping and merging that I called coarticulation, they are required, as other kinds of action are not, to preserve and transmit information about the discrete string of (phonetic) control structures that are their distal sources. Mattingly and I have proposed that all of this is managed by what we have called a ‘phonetic module,’ a biological specialization that, like all such specializations, has its own domain, its own mode of automatic signal processing, and its own primitives. The consequence for the purposes of this essay is that a speaker does not have to know how to spell a word in order to say it. Indeed, he does not even have to know that it has a spelling. He has only to think of the word, whatever that means; the phonetic module then spells it for him, automatically selecting and coordinating the gestures that form the phonologic structure. Small wonder the speaker doesn’t notice that the structure is spelled, or how.

The listener is in similar case. Presented with the speech signal, he need not puzzle out the complex relation between it and the segmented phonetic structure it conveys. That, too, can be left to the phonetic module, for its complementary perceiving face is specifically adapted to parsing the signal so as to represent phonetic structure by recovering the underlying gestures that are its elements.

It is also relevant here to say again that the phonetic module is but one component of the larger specialization for language, for then we see that syntax, the other major component, must have evolved to work in close harmony with its phonetic partner; theirs would have been a marriage made in heaven. We should expect, then, that the representations produced as the output of the phonetic component would be grist for the syntactic mill, precisely adapted to what syntax wants and needs to do its job. Hence, those representations would pass through to syntax exactly as they came out of the phonetic module. They would not call attention to themselves because they would not require attention, and they would not require attention because they would not have to be made into something that they originally were not.

I must not suppose that all I’ve said here is what Studdert-Kennedy meant when he said that phonemes “name themselves,” but it’s the only story I am able to tell, and until I think of a better one, I am happy to be stuck with it. I like it, even as it is, because, aside from its fit to experimental results I’ve not presented here, it enables me to see why phonological awareness is neither a result nor a condition of learning to speak. More generally, it tells me how speech differs from reading and writing, why it is easier, and, not least, what’s wrong with the conventional story about how it works.

Perhaps this story also redeems the claim I made at the outset about the various deficiencies that poor readers might have. The point is that the phonetic module cannot be expected to work equally well for everybody, and that a faulty module might have a variety of consequences, including some that are not directly reflected in reading performance. But, given that the module works only in the phonetic domain, the consequences, whatever they are, should be found there and nowhere else (Liberman, Shankweiler, & Liberman, 1989).

As a kind of coda, I venture that if Isabelle had been able to read all that I have just written, she would have offered a characteristically incisive comment. “I see,” she probably would have said, “the point is that speech is language, but the alphabet only refers to it.” Then she would have informed me that, reduced to that simple statement, my view would not have passed the grandmother test. By that she would have meant that her succinct characterization would predictably have elicited from Grandma the query, “So, what else is new?” or, perhaps, “You mean, I sent you to college for eight years to learn that?” In my defense, I might then have observed that it is one thing to say the obvious, quite another to explain it. That would likely have wrung from Grandma the concession that “explanation can’t hurt,” but that would have been the extent of her praise for the notions I have advanced here.
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