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ABSTRACT

This paper surveys the principles and findings from the field of linguistics that have been brought to bear on questions dealing with learning to read, the analysis of the reading process, and the sources of reading failure. It is intended to guide the reader through the significant areas in the literature and to note specific works. Section 1 presents the trends in the rapidly changing field of linguistics; Section 2 describes the rationale for the "linguistic method, " which represents only one approach that might be derived from linguistics. Sections 3 and 4 deal with areas that have only distant implications for classroom practice, but which can contribute to greater understanding of how the reading process is learned and carried out; the language competence of beginning readers and the relationship between spoken and written language. Section 5 gives examples of how such linguistic considerations have been applied in analyzing the process of reading and learning to read. Section 6 deals with regional and social variation in the English spoken by American children and touches on all the topics treated in earlier sections: the relation between spoken and written English, the possible effects of mismatch between the two on learning to read, and suggestions for educational practice to deal with these problems. Section 7 discusses problems of non-English speaking children. (Author/AMM)

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LINGUISTICS AND READING

by ROSE-MARIE WEBER

Foreword

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A. Hood Roberts, Director
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LINGUISTICS AND READING

by Rose-Marie Weber

This paper surveys the principles and findings from the field of linguistics that have been brought to bear on questions dealing with learning to read, the analysis of the reading process, and the sources of reading failure. It is intended to guide the reader through the significant areas in the literature and to note the specific works that have explored them.

The first section presents the trends in the rapidly changing field of linguistics that are reflected in the literature. The second goes on to describe the rationale for the "linguistic method," a proposal for teaching reading that has been widely adopted, but which represents only one approach that might be derived from linguistics. The following two sections deal, on the other hand, with areas that have only distant implications for classroom practice, but which can contribute to greater understanding of how the reading process is learned and carried out: the language competence of beginning readers and the relationship between spoken and written language. The next section gives examples of how such linguistic considerations have been applied in analyzing the process of reading and learning to read. The following section deals with regional and social variation in the English spoken by American children and in fact touches on all the topics treated in earlier sections: the relation between spoken and written English, the possible effects of mismatch between the two on learning to read, and suggestions for educational practice to deal with these problems. The final section discusses these same points for children who speak other languages.

These are the topics that have been discussed in a rather diverse literature. It is obvious that they do not exhaust the areas that could be examined with profit from the linguist's point of view.

1. The Linguistic Perspective on Reading

The relevance of linguistics to the teaching of reading is not at all direct. But because reading involves the use of language, linguistics offers an approach to understanding the nature of reading that can ultimately contribute to a rationale for educational practice. Two main lines of relevance are clear. The first deals with the relationship between a speaker's knowledge of his language and his ability to read. When linguists describe the intricacies of English grammar, phonology, and the lexicon, their goal is to characterize the knowledge that a speaker must have in order to speak and understand English. They can therefore contribute to understanding how people read by describing the linguistic knowledge that a speaker must have in order to understand written English. The second line of relevance deals with the special knowledge that a speaker must acquire in order to do this. That is, linguists can help to determine the magnitude of the task by describing the characteristics of the written language and its relation to the spoken language, taking geographical and social variation in the spoken variety into account.

The literature on the application of linguistics to reading reflects the two approaches to the study of language that have dominated American linguistics. The structuralist approach has dealt for the most part with describing the relationship between sound and spelling while the generative approach has dealt with the larger problem of relating a speaker's knowledge of his language to his ability to read. The structuralists, among them Leonard Bloomfield and Charles C. Fries, were the first to address themselves to reading. Their primary aim in describing languages has been to capture the regularities in the sounds and sentences that they observe in speech. In relating linguistics and reading they analyze the relationship between sound and spelling in English and insist that mastering the correspondences is the main task in learning to read. Like many reading specialists, they concentrate on letters, significant sounds, and words as the prime units in reading.

More recent work relating linguistics and reading has been influenced by transformational-generative linguists, especially Noam Chomsky and Morris Halle, in part by way of their impact on the psychology of language.

Their concern to make explicit all the knowledge of a language that a speaker brings to understanding even simple sentences is particularly significant for reading. It has led to an emphasis on reading as an active process of reconstructing the message set out by the writer while matching sounds and letters plays a relatively minor part, even among beginning readers. Generative linguists have also analyzed the relation between sound and spelling in English. But they are more concerned than structuralists with the problem of specifying the relationship between a speaker's internalized rules for forming sentences and his ability to read. These different perspectives on reading do not necessarily conflict; it would seem that the generativist view has emphasized the linguistic competence that the new reader brings to the task while the structuralist view has emphasized what he must learn.

For the most part, the implications of linguistics for reading have been discussed with respect to beginning instruction on the one hand and to the analysis of highly fluent reading on the other.

Bloomfield (1961), Hall (1961), Soffietti (1955), and Smith (1963, 1968) present the structuralist perspective; Fries (1963) places it in the larger context of American reading instruction. Lefevre (1964) sketches English from a structural stance, but takes the sentence as the significant unit in reading.

Goodman and Goodman (1967) and Broz and Hayes (1966) give annotated bibliographies on the structuralist influence. Carroll (1964) discusses its relevance to the psychology of learning to read. Wardhaugh (1969) examines the implications of the generative approach in detail, contrasting it to the structural. Various papers in Goodman and Fleming (1969), Walden (1969), Singer and Ruddell (1970) and Levin and Williams (1970) reflect the influence of generative theory.

2. The Linguistic Method

The so-called linguistic method has grown out of proposals made by several structural linguists to improve reading instruction. They outlined what they saw as the implications of linguistics for initial reading instruction because they were dissatisfied not only with widely used instructional materials, but also with the assumptions about language that

they were based on. They stressed that the English writing system was basically a representation of the phonology of the spoken language rather than the other way around. Since other aspects of language, the grammar and the lexicon, were largely the same in speech as in writing, they insisted that the central task in learning to read was to master the correspondences between the writing and the phonology. They maintained that the beginning reader must go from the printed page to sound before he can understand a word, although they recognized that the highly fluent reader shortcuts this process drastically.

Bloomfield and Fries, who prepared introductory materials, objected to instruction by whole words that were chosen without concern for their spelling because it obscured the systematic correspondences between speech and writing. On the other hand, they objected to traditional phonics instruction because it led to cutting up the speech stream, distorting individual sounds, and having to reintegrate the sounds into recognizable words. They also pointed out that phonics deals largely with individual letters and so fails to show much of the systematic correspondence between patterns of letters and sounds. They therefore proposed to teach the regular correspondences between sounds and letters, and particularly between sounds and letter patterns, in the context of whole words. Clearly this methodological proposal and the programs that have grown from it do not inevitably follow from linguists' observations of the English writing system and its relationship to the spoken language. Since other approaches to teaching the correspondences are possible, many linguists object to the term "linguistic method" to describe this one. Nevertheless, it has turned out to be at least as effective as any other for teaching children to read.

The structuralists' rationale has also influenced the preparation of English materials for children who speak another language. The materials, which the children are to read only after they have mastered the sentences orally, are controlled not only for sound-letter correspondences but also for sound contrasts and grammatical structures that may present particular problems in learning English, especially for children who speak Spanish.

Wardhaugh (1969), Olsen (1968), and Hull (1965) compare and critically review linguistic methods. Dykstra (1968) and other studies compare their

effectiveness to that of other materials. Robinett (1965) outlines the working premises underlying materials for Spanish speakers.

3. The Spoken Language of Six-Year-Olds

Since reading includes the use of language, it is important to consider the linguistic competence that illiterate six-year-olds bring to the task of learning to read. Examining the system that children must control in order to speak and to comprehend speech can further our understanding of what is involved in the comprehension process. It can also clarify what they must learn to control in order to comprehend the special case of language in print. Furthermore, studying spoken language can test the assumptions that underlie instructional materials with regard to children's linguistic abilities.

All in all the spoken language of children when they are taught to read has not been studied in substantial detail. It is obvious that they have passed well beyond the stage of short, "telegraphic" sentences and that, in fact, they seldom produce sentences that would not be acceptable in adult speech. On the other hand, they do not have the full flexibility of adults in their range of vocabulary or grammatical rules. Therefore at times the literature emphasizes their sophistication and other times their immaturities.

3.1. Phonology By the time children reach school, they control word and sentence stress, intonation, timing, and the refinements of vowel and consonant articulation with great skill. This remark is equally applicable to children who speak a nonstandard variety of the language; they just have a slightly different system from children who speak the standard. Immaturities such as a "weak" /r/ at the beginning of words do not seem to create immediate difficulties in understanding or in matching sounds and letter patterns. Some persistent immaturities may be symptomatic of deep-seated difficulties that may affect overall capacity for learning to read, but the source of reading difficulty cannot be simply attributed to poor articulation.

When compared to adult speech, the speech of six-year-olds by and large reflects the same system of contrasting vowels and consonants and the same distribution of sounds within words. It also shows the same

phenomena at word boundaries, e.g., an expected /y/ immediately following a /t/ is pronounced /s/, as in Can't you see? But the child and adult systems are not entirely identical. One important difference is that children have not yet had the opportunity to learn some of the more abstract phonological relationships in the language. They hardly control any groups of multisyllabic words such as geography/geographic or electric/electricity/electrician which by their stress shifts and sound alternations exemplify important aspects of English phonological structure. These relationships emerge only with the acquisition of complex, often bookish, words. Another difference between children's and adults' speech is that children do not control the range of styles that adults do. Children's speech is most like the casual speech of adults, in which sand rhymes with man and led her with better. Instructional materials, on the other hand, are based on more formal pronunciation. In practice children seem to have little trouble adjusting their pronunciation to clear, formal style for those first steps of reading when every word in a sentence is pronounced individually.

3.2. Lexicon Even though six-year-olds come to school with an extensive vocabulary, this is the aspect of their language that will most obviously expand with maturity. Most of the studies on children's vocabularies have concentrated on their size. These are subject to methodological problems, one of the most severe having to do with the word as a basic unit. For instance, walk/walked/walks may be counted as variants of the same word, but what about teach/taught or break/broken? Should call up be considered one word or two words? If two words, should up be counted the same word as in He ran up the hill? For this and other reasons, estimates of the size of first-graders' vocabularies vary from as low as 5,000 to as high as 24,000 words.

The relative frequency of words has also been studied for young readers in light of the relationship between high frequency and ease in comprehension. But the significance of frequency in learning to identify words at the beginning stages of learning to read is not clear and is complicated by the irregularity of sound-letter correspondences in very

frequent words such as some, have, and from. Little work has gone beyond the facts of frequency to explore children's reference systems, or the relationship of items to each other, such as tree, bush, branch, pine, or selectional restrictions exemplified by the use of roast with meat but not with bread.

Although the lexicon is often separated from grammar in many discussions, it is important to note that learning new lexical items involves learning how they can be used in sentences. In other words, the learner's grammar grows as his vocabulary grows. But knowing a word's grammatical characteristics tends to lag behind knowing the reference of the word. For instance, although first graders show that they know what promise means in a sentence like He promised to listen, in a sentence like Jack promised Mary to sing, they may identify Mary as the one who will sing.

3.3. Grammar It is evident that children know many of the rules for forming English sentences by the time they enter first grade. They show nearly complete mastery over inflections, only occasionally producing forms like tooths or grewed. They use a wide range of sentence types that show control not only of basic sentence structures but also of many other derivative structures. For instance, the -ing forms of verbs occur in the speech of first graders as the object of a verb, as in She does the cooking, or the object of a preposition, as in This is for cooking, or as an adjectival complement, as in I see the cowboy cooking. On the other hand, the -ing form in subject position, as in Cooking is hard, does not show up in their speech although they seem to understand it with no trouble. This is the sort of refinement that emerges in children's syntax as they mature. Other developments include learning the grammatical characteristics of both old and new words in their growing vocabulary. For instance, ask takes both to and that complements, as in She asked him to leave and She asked that he leave, while want takes only to, as in She wanted him to leave, but not *She wanted that he leave. The more formal She asked that he leave exemplifies another aspect of children's grammatical development, the emergence of constructions restricted to formal and written usage.

The grammatical development of children during the school years re-

mains to be examined in close detail. It has been shown, however, that sentences in standard textbooks do not display the variety of structures that children use in their spontaneous speech.

McCarthy (1954) surveys language development through the school years. Ruddell (1970), Fleming (1968) and papers in Walden (1969) review recent research on it with respect to reading. Templin (1957) reports on pronunciation and Lobdell (1965) discusses vocabulary lists. Strickland (1962) analyzes grammatical development in the elementary grades from the structural viewpoint, and Loban (1963) and O'Donnell et al (1967) from the Loban transformational viewpoint. Menyuk (1969) reports on experimental research based on transformational-generative theory.

4. The Relationship Between Spoken and Written English

Much of the literature on linguistics and the teaching of reading makes the point that writing is simply a representation of speech. This is an overstatement that perhaps succeeds in dampening the notion that writing is somehow the more genuine form of language. But it obscures the fact that as soon as a language is set to paper, even for the first time, it takes on a life somewhat independent of its spoken counterpart. By examining the relationship between the spoken and written forms of the language, linguists can in the long run contribute to assessing the learning task that is involved in becoming literate. But educators as well as linguists themselves cannot assume that systematic correspondences described on paper necessarily reflect generalities in the mind of a highly literate person or that these correspondences should in any way be explicitly taught. Linguists' descriptions are a long way from being applicable to educational goals.

Studies on the relationship between spoken and written English have been based for the most part on the competence of an idealized formally educated adult. How learning to read and write affects children's spoken language or, on the other hand, how development in the spoken language through the years affects their reading and writing has hardly been studied.

4.1. Spelling English spelling is often viewed as a rather inexact representation of the significant sounds, or phonemes, of the language. A good deal of recent research on English phonology and the writing system,

however, has shown that this notion obscures much of the regular correspondence between them. The refined view requires recognizing systematic relationships between writing and levels of linguistic organization other than surface sounds.

It is first important to note that the writing system shows patterning that is independent of the spoken language. It is obvious that there are many units of more than one letter. Moreover, position in the word conditions the occurrence of some letters, e.g., i and u in digraphs hardly ever occur finally in words and are replaced by y and w, thus maid but may and proud but prow; dge does not correspond to /j/ at the beginning of words, while gh corresponds to /g/ and never to /f/ in the same position. Finally, English spelling is particularly notable for the pervasiveness of markers, letters that do not themselves correspond to sound units, but indicate the particular correspondence of other letters. For instance, final -e marks the "long" a in state and in stage the "soft" g as well. (In at least one analysis of English phonology, these have a place in the phonology and are not just markers in the spelling.)

The necessity for recognizing the relationship between spelling and "deeper" levels of the language than surface sounds rests on the frequent occurrence of morphemes--roots, prefixes, suffixes, and simple words--that are pronounced differently in different environments but in each instance are spelled the same. For example, can usually corresponds to /kIn/ in He can make it, but to /kæn/ I know he can; -ed corresponds to /t/, /d/ or /Id/ in the large majority verbs, e.g., walked, staggered, and bolted; geograph- corresponds to /jiəgræf-/ in geographic but to /jiágrəf-/ in geography, while similar patterning can be seen in geolog-, geometr-, biograph- and photograph. In these and thousands of other words in the language, spelling represents the morphemes or meaning-bearing elements consistently, in spite of differences in pronunciation, either under different grammatical conditions or across dialect boundaries. Linguists do not agree on precisely how this regularity should be described in relation to the spoken language because of different theoretical approaches.

4.2. Other features The writing system reflects various aspects of the grammar of English that are only indirectly related to phonology, if at

all. For instance, the question mark at the end of a sentence corresponds to the structural feature of being a question rather than to a rising intonation pattern. It marks both the feature and the intonation in questions of the form Do you see the horse? but the structural feature only in Where's the horse? which is ordinarily said with a falling intonation.

The grammar of written English itself differs from that of spoken English in various ways that are not always obvious. Certain types of structures, e.g., The horse went galloping, galloping, galloping; Down came the sled; Having arrived safely, he was exhausted; My father, who loved cars, washed his every Sunday, are generally restricted to the written form, while others, such as He sort of tried; Won't drink his milk; Under the bed is safe, are generally restricted to the spoken form. Furthermore, written English tends to be far more precise and less repetitive than spoken English. Rather formal speech, when transcribed into writing, must be edited before it projects the same high degree of formality as the spoken version. Although differences in grammar and vocabulary may be minor within a given sentence, through longer passages they accumulate to make written and spoken English appreciably different.

The coherency of longer passages and the relations among the sentences that contribute to this coherency have hardly been studied from the viewpoint of linguistics. The structure of written discourse, however, may demand more of the child learning to read than is generally supposed.

Gleason (1961) and Joos (1960) discuss the relationship between spoken language and writing systems in general. Francis (1958) presents a useful analysis of the English writing system, including punctuation. Hanna et al. (1966) and Higginbottom (1962) deal with extensive data. Weir and Venezky (1968) and Venezky (1967, 1970) develop a detailed framework for analyzing the system with special emphasis on spelling-to-sound, i.e., reading, rules. Reed (1966, 1968) and Smith (1968) apply their analysis to dialectal data. Halle (1969), Noam Chomsky (1970, and Carol Chomsky (1970) discuss writing in relation to the theory of generative-transformationalist phonology. Wardhaugh (1968, 1969) compares approaches to describing speech-spelling relations. Berdiansky et al. (1969) give spelling-to-sound rules for words

found in children's vocabularies. Gleason (1965) notes differences between spoken and written English in grammar and discourse.

5. The Psycholinguistics of Reading

As a person reads, he uses language in a special way. Linguistics does not offer a way of analyzing what he is doing, however, since it deals primarily with the structure of linguistic systems in and of themselves. The discipline which does take the analysis of the reading process within its domain is psycholinguistics, which combines the viewpoints of both psychology and linguistics. In practice, this field has brought the theory and findings of linguistics to bear on questions dealing with how people learn, remember, understand, and produce language. The contributions to reading research can be seen in papers by linguists, psychologists, and educators that focus on the psychology of the reading process with linguistic considerations in the foreground. Such studies are well represented in Goodman (1968), Goodman and Fleming (1969), Singer and Ruddell (1970) and Levin and Williams (1970). An especially useful technique for examining linguistic aspects of the reading process is the analysis of oral reading errors, both in naturalistic and experimental settings (Goodman 1969; Kolers 1970).

Linguists have brought up many questions and suggestions about how children should be taught to read, how they learn, and how fluent readers handle print with such ease. But their suggestions require empirical validation which linguistics as a field does not provide. The following sections illustrate various considerations about reading and learning to read that derive in part from linguists' views on language.

5.1. Learning the writing system Sound segments in English are closely represented by letters while at the same time morphemes are generally represented by the same string of letters, even though their pronunciation may change in different contexts. The implications of this type of correspondence system for learning to read and for fluent reading skill have been examined time and again. Linguists have tended to take the point of view that learning the correspondences explicitly -- either in patterns or individually -- should facilitate transfer to new words and so should form

the basis of early reading instruction. Research has provided some support for this viewpoint, but no particular method has proved to be most effective.

Even though children may receive rather intensive training in sound-letter correspondences, many details of the correspondence system are not included in the instruction. Furthermore, the consistent representation of morphemes in different contexts is generally ignored. The details seem to gain rule-like status in the competence of maturing reading, nevertheless, as in the pronunciation of final -a as /a/ in America, rubella, harmonica, or the alternations in music/musician or electric/electrician. Children seem able to infer regularity between speech and writing, even though the data on which they base their inferences appear only haphazardly in what they read. The process may well be similar to the way they acquire language as toddlers. In the past, much of the concern about instruction on decoding has dealt with how early and how intense it should be. Given the recent descriptions of the deeper regularity in the sound-spelling system, the concern may shift toward the content of instruction and especially toward facilitating children's own inferential strategies for discovering the less obvious regularities.

Materials for teaching sound-letter correspondences are reviewed with reference to experimental evidence in Desberg and Berdiansky (1968). Carol Chomsky (1970) speculates on learning more abstract spelling regularities.

5.2. Intonational features of beginning reading When a child first learns to read aloud, his performance is slow, disconnected, and sometimes strained. If it is remarkably choppy, he may be regarded as a poor reader who has trouble understanding much of what he mouths. Some observers may suppose that he sounds like a poor reader because he is one; others may suppose that he is a poor reader in part because he distorts the message so badly that he does not grasp the grammatical relations among the words.

Several features distinguish his reading from his ordinary speech. First of all, the words are distinctly separated from one another, while in speech they are smoothly linked. Ordinarily, for instance, the first two words of He's your new teacher rhyme with seizure, but in early reading they are separated. Secondly, each word receives a stress equal to all the other words in the sentence, while in speech different words receive dif-

ferent degrees of stress, depending on their grammatical function. In a flash is ordinarily said with the same stress pattern as unabashed, but in beginning reading it has the same pattern as John needs cash. The heavy stresses in turn affect the quality of the vowels that are usually weakly stressed so that in beginning reading the vowels in an, to, and them are said with the same vowel quality as in ant, two and send.

But another dimension of the speech signal, the relative levels of pitch, indicate that choppy readers do not lose "sentence sense" after all. Even the poorest oral reader almost always pronounces each successive word of a sentence on a pitch contour that signals "more to come" until the last word in the sentence, where the pitch contour signals "end of sentence." In spite of the distortion, even beginning readers show that they recognize the boundaries of sentences.

Other features that can be heard among beginning readers are slowness, overloudness, oversoftness, a narrow pitch range, and a wide pitch range imitating adults' isn't-this-an-exciting-story style. The source of the various features is not clear. Some may be a necessary part of learning to read, perhaps aggravated by teaching words in lists and fostered by the notion that you should sound different when you read from when you talk. Their effect is not clear, either. The rate may be so slow that the reader may forget the earlier part of a sentence or passage. But, after all, ungraceful reading may be only a superficial aspect of reading skill that has little to do with deriving meaning from print.

Lefevre (1964) and Pival and Faust (1965) are among those who have suggested the detrimental effects of distorted intonational features on sentence comprehension.

5.3. Syllabification Instruction in the middle grades often includes exercises in dividing words into syllables, either as a strategy for analyzing long words or as a writing convention for keeping right-hand margins even. The instruction seems to be based on the assumption that counting the number of syllables in a word and drawing the boundaries between them is a simple matter. Any extended practice in syllabifying words, however, turns up several problems.

First of all, syllabification in speech and writing must be distinguished for at least some details. For instance, the rule for dividing a word between double consonants, as in fun-ny and rab-bit does not apply to speech, i.e., /fʌni/ and /rӕbIt/, since the double letters do not correspond to double sounds.

Secondly, although the number of syllables in a long word may be phonetically clear, where one syllable ends and another begins is not. The medial consonant sounds in words like rabbit and robot, for example, cannot be unequivocally assigned to one vowel or the other. Structural characteristics of the language have been selected to guide the division of words into syllables. One basic phonological principle is that syllables should be divided according to the distribution of vowels in monosyllabic words. Therefore, rabbit would be divided /rӕb-It/ because no words end with the vowel /ӕ/ in English; it is always followed by a consonant. The principle is irrelevant for robot, however, since /o/ can appear both finally or preceding a consonant, as in row /ro/ and robe /rob/. A morphological principle, that words should be divided at morpheme boundaries, is often applied to word division, e.g., beast-ly and hot-house. But sometimes it conflicts with a phonological principle. For instance, on morphological grounds fiddler might be divided fiddl-er/fIdl-ɚr/ but no English monosyllabic words end in a vowel plus /dl/.

Some sort of practice in dividing words into syllables might be useful for breaking down complex words. But instruction in analyzing such words should not be based on the premise that there is a "correct" way of dividing each and every long English word into syllables.

Wardhaugh (1966) discusses problems in the description of English syllabic structure. Shuy (1969) suggests a set of rules to guide syllabic division.

5.4. The place of grammar More and more evidence has been accumulating to reject the notion that reading is simply sequential word recognition. Part of the evidence comes from considering the role of grammar in the reading process. Even as they first learn to read children seem to use their knowledge of grammar in a way similar to when they listen to spoken language. Their speech shows that they have flexible control over the

grammatical system. In bringing it to bear on reading, they demonstrate not only that they understand sentences by virtue of it, but also that they actively use it to anticipate what will follow in a sentence.

Most of the evidence for children's use of grammar in their reading strategy comes from the analysis of their oral reading errors. A comparison of their performance on words in lists with the same words in passages shows that the context of the passage provides cues that contribute to their identifying more words successfully. On the other hand, they will sometimes miss or omit familiar words in the context of passages. For instance, they will miss a word like help in the sentence He can help Sam. But what they substitute will be a word that almost invariably conforms to the preceding grammatical context of the sentence, namely, a verb like hear or hop, but not hot or her. Furthermore, even first graders will as a rule correct errors that result in a sentence that is not grammatical, e.g., *He can hop Sam.

Clay (1968), Weber (1970), Beaver (1968) and various studies from Goodman and his associates (e.g., Burke and Goodman 1970) describe children's errors with respect to grammatical structure. MacKinnon (1959) provides many examples. Lefevre (1968) stresses the sentence as the basic meaning unit in reading. Kolers (1970) and Ryan and Semmel (1969) emphasize the role of grammar in their description of reading as a constructive cognitive process.

5.5. Grammar and comprehension Reading specialists have tended to slight the significance of grammatical structure in their descriptions of the reading process. Recently, however, linguists' emphasis on analyzing what a person must know in order to understand sentences has contributed to giving the comprehension of grammatical structures a central place in the process. All in all, the psychological processes by which people understand speech or writing are still far from clear, but the broad relations between grammatical structure and overall comprehension have received some attention.

For instance, the effect on comprehension of making materials grammatically similar to the speech of the children who read them has been examined. Their comprehension scores are higher on passages written in surface grammar patterns that appear frequently in their speech than on pas-

sages written in patterns that appear infrequently.

Recent work on readability, that is, on developing measures that will predict the relative ease of comprehension of a passage, has also given certain grammatical indicators primary emphasis.

Wardhaugh (1969), Ruddell (1969) and Bormuth (1969) bring recent linguistic theory to bear on their discussions of reading comprehension. Ruddell (1965), Nurss (1968) and Tatham (1970) have studied children's comprehension of grammatically controlled materials. Bormuth (1966) has refined readability measures with grammatical variables.

6. Variation in English

An important aspect of linguistic inquiry is the study of variation within a language and its relationship to factors outside linguistic structure. It is convenient to talk about English as though everyone -- including children -- always used the identical phonological system, the same rules for forming sentences, and the same vocabulary for talking about the same things. Most treatments of language with reference to reading avoid dealing with the range of variation within English, or else mention only those differences which have traditionally been stigmatized as nonstandard. Linguists, it should be added, mention variation more often than they actually study it, partially because it brings up enormous complexities and requires special methodological techniques.

The uniform spelling system and traditions of non-fiction writing in English tend to mask the differences in grammar, pronunciation, and vocabulary that turn up every day. Writing usually comes to mind when people discuss English and, as in other speech communities, they think of the written form as the model for the spoken. When they do notice differences they often consider them unfortunate deviations from the norm and tend to deal with them categorically: she never pronounces l's or he always says ain't. But it should be noted any speaker's abilities can be seen as a coherent system without reference to a standard. Furthermore, each speaker's use of his language shows some variability under different conditions, e.g., the person who says /wɔ/ for wall in They built a high wall may well pronounce the /l/ before a vowel, as in a high wall around there.

Three types of variation can be distinguished in spoken English.

First, there is variation by region. Second, there is variation by the social identity of the speaker. Third, there is variation by factors in the speaker's immediate social situation such as the setting, the person he is speaking to, and his topic. Within American English, then, there are regional dialects, social dialects, and styles, but they are not entirely independent. Casual style, for instance, often shows more regional characteristics than formal style. For the most part, materials for the teaching of reading have not taken such variation into account, nor has the teacher-training curriculum. On the other hand, it is not altogether clear what sorts of accomodations to such variation might be made in order to teach reading effectively.

6.1. Regional dialects In the United States, regional dialects differ only somewhat in vocabulary, e.g., tennis shoes vs. sneakers, and even less in grammar, e.g., dived vs. dove. For the most part they differ in the quality, number and distribution of vowels and the closely related status of /r/. Most materials designed to teach systematic sound-letter correspondences present fourteen vowel types as well as /r/ in words like shore and short, as though all American children come to school using that precise set of distinctive sounds. Although this "General American" may not accurately describe the speech of many children, it is not clear that adjustments to regional American dialects in teaching materials would facilitate learning to read. Perhaps an introduction to the main correspondences is all that is useful for working out efficient reading strategies. Detailed rules limited to a particular dialect may not be worth learning as special correspondences, even to the children who speak that dialect, especially because other cues, such as grammar and the meaning of the passage, may sufficiently complement the information provided through a set of general correspondence rules.

If a particular regional dialect turns out to have a slightly different relationship to the spelling system than the "General American" presented in educational materials, the differences may show up precisely when the teacher's point is to show consistency, that is, in words that are supposed to rhyme or to differ by only a final consonant. Examples of dialect characteristics that involve shifts from the normalized correspon-

dence system are given below. It should be noted, however, that a phonetic characteristic of a given dialect does not necessarily require such a shift. For instance, the pronunciation of /au/ as in out and owl beginning more like apple or a..r rather than arm is a noticeable trait in some regions. But it presents no problem because wherever the spellings ou and ow correspond to /au/, speakers consistently use the regional version.

Regional variations from the sound letter system described in educational materials include the following types:

(1) Some contrasts described in materials are not maintained in speech. West of the Mississippi, few speakers contrast /a/ with /ɔ/ in words like stock/stalk, log/dog.

(2) Some contrasts described in materials are not maintained in given positions relative to other sounds in speech. While some speakers do maintain a contrast between /æ/ɛ/e/ before /r/ as in very/vary, fairy/ferry or marry/merry/Mary as described in materials, others do not.

(3) Some contrasts are not mentioned in materials, nor are they reflected in traditional spelling. For instance, in some parts of the East, the following pairs do not rhyme: dad/bad; has/jazz; can(run)/(tin)can.

(4) Some contrasts in given positions relative to other sounds are not mentioned in materials; they may be reflected in spelling. For instance, in parts of the South the distinction between /o/ and /ɔ/ before /r/ -- which may be pronounced as a vowel -- is maintained, so that wore/war, four/for contrast.

(5) The basic sound system may be the same as the one represented in the educational materials, but the distribution of sounds in words may differ. Although speakers may contrast /a/ and /ɔ/ in frog/log/dog/hog or /I/ and /E/ in wet/bit/get, the exact words in which these sounds occur may differ from area to area.

In the case of types (1) and (2), instructional materials may uselessly provide practice on differences. In the case of (3), (4), and (5), materials may insist on rhymes while students themselves can hear differences.

6.2. Social dialects Within a geographical area there is variation

from speaker to speaker that depends on such factors as a speaker's age, sex, level of education, and occupation. The linguistic features that distinguish speakers of low and high social and economic standing are very slight compared to the features that they share. But it is the speech of high status speakers that has been established and maintained as standard English. Standard speech is most closely reflected in writing; features that are marked as nonstandard in speech are automatically excluded from nonfiction writing. For children who come to school speaking a nonstandard dialect, then, there is a greater gap between what they ordinarily say and what they read than there is for their standard-speaking age-mates. This is not to suggest that they suffer from a language deficit, but that the system of rules for forming sentences differs in details.

The variety of nonstandard speech that has been examined most closely in relation to standard English is that spoken by many black children throughout the United States. The phonological system of this variety differs from the General American Standard in ways outlined above for the regional dialects. Specifically, several vowels merge, /r/ and /l/ are not consistently pronounced in post-vocalic position, nor are certain consonants at the ends of words or in particular clusters. In ordinary speech, then, speakers do not distinguish tin/ten, oil/all, fault/fought, fine/find or pass/past. An important qualification is that sometimes speakers do distinguish them. Final consonants are apt to be pronounced, for instance, when they are followed by a word beginning with a vowel. But by and large this dialect is noticeable in its tendency for the spoken word to have fewer segments than the written words has letters. What learning problem this creates is not altogether clear.

On the grammatical level there are parallel sorts of omissions relative to the standard that in some cases coincide with the omission of consonants. Like the /t/ and /d/ in find and past, the past tense endings /t/ and /d/ on verbs such as fined and passed are often omitted. The -s endings for plurality and possession in nouns (dogs, dog's) and for person in verbs (dries) are also dropped, as are forms of the verb to be under certain conditions. Here again, from the point of view of the speaker, printed English is overwritten. Still other grammatical constructions widen the dis-

tance from the standard for instance, It ain't nobody there in contrast to There's nobody there or There isn't anybody there. Some of the features in the dialect, like this one, are peculiar to it; others, including many of the phonological features, are shared with other dialects. All in all, they constitute a significant number of systematic differences from the standard that are disregarded in teaching and testing materials.

In learning to read, a child who speaks a nonstandard variety of English faces several special problems. More than other young readers, he has to calibrate what he reads with what he already knows how to say. After all, this in and of itself may not be a very difficult job; a child's abilities to learn a new language or regional dialect are well known. On the other hand, the task of learning a new variety of the language may be great enough to interfere with learning to read. A further problem is that his teacher may demand active control over the standard at a time when it is important for him to sound more like his friends than like an adult. Without an understanding that speaking the standard and reading are distinct, the teacher may count dialect differences as reading errors. For instance, if a child says "hisself" for himself or "brung" for brought, he will be penalized as though he had said "hammer" for one and "bright" for the other. Still another problem has basically no relevance to the specifics of the reading task. Some teachers place such strong negative value on nonstandard English that it biases their judgments of a child's capacity to learn to read or to use his language effectively.

6.3. Style Another dimension of variation depends on factors in the immediate situation. Adults control a range of styles from casual to formal which show differences in pronunciation, grammatical structure, and vocabulary choice. Compare Won't make it; He won't make it; He will not succeed. Learning the styles and when to use them continues into adulthood; becoming literate is only one aspect of the process. The more formal speech styles are influenced by the written variety and are to some extent maintained by it. People will use their most formal pronunciation, for instance, when they read aloud.

Six-year-olds have little stylistic variation in their speech. Their pronunciation is generally like the casual style of adults, with perhaps a

few alternation like Put them away/Put'em away. Perhaps it is in reading that some children first put the /t/ on don't or make a contrast between the /t/ and /d/ in Petty/ready. Acquiring more formal pronunciation seems to be a necessary process in cutting up the flow of speech to match written words.

Gleason (1965) discusses the several dimensions of variation in English. McDavid (1958) and Shuy (1967) survey regional dialects. Reed (1966, 1969) and Smith (1968) consider dialectal variation and Fasold (1969) considers social variation in their analyses of the relationship between speech and writing. Baratz and Shuy (1969), Aarons et al.(1969), Horn (1970) and Figurel (1970) gather papers on reading with respect to social dialects. McDavid (1967) provides a checklist of features. Goodman (1965), Labov (1967, 1970) and Stewart (1969) deal with potential sources of reading difficulty for blacks, McDavid (1970) for whites. Serwer (1969) argues for using the experience method with children who speak nonstandard English, Goodman (1965) for letting them read standard material in their own dialect, and Stewart (1969) for preparing materials in dialect. Labov (1965) deals with the emergence of standard English in the school years.

7. Reading English as a Second Language

The special problem of the child who speaks a nonstandard dialect of English is that there is less correspondence between what he says and what he reads than there is for other children. The problem for the child who does not speak English at all is that there is no obvious systematic correspondence between his spoken language and written English. In learning to read English, then, the child who is monolingual in another language must learn the language as well as reading skills.

One reasonable approach to teaching such children to read English is to separate the tasks: First of all, teach the children to speak English and then teach them to read the English that they have learned. In practice, this approach has been implemented in two ways. One is by providing the children with a good deal of experience in speaking English for as much as a year or two before reading instruction begins. Another is by teaching the children to speak English in carefully controlled materials and at each step having them learn to read what they have just learned to say and understand.

Another way of separating the reading from the language learning task

is to teach the children to read in their native tongue first, even though the ultimate goal may be to teach them to master English reading and writing. There is some evidence that this approach has long-term benefits. It gives children immediate skills that are transferred to reading the second language with more success than those taught to read the second language directly. Furthermore, it affirms the value of the child's native tongue by giving it a place in the curriculum.

Although it is reasonable to separate learning a language from learning to read, it clearly is not always necessary. Given their capacity for language learning, many children are able to integrate the two tasks so that within a year they are as competent in reading as native speakers. These are among the variables related to language that may play a part in determining a child's success: the similarity between English and his native tongue (Spanish is structurally closer to English than Navajo is); the proportion of other children in the class who are native speakers of English; the opportunity for the child to use English outside class, especially with other children; the value that they or their parents place on learning English.

Rosen and Ortego (1969) provide an annotated bibliography on reading in a second language. Sayville (1970), Young (1970) and papers in Aarons et al. discuss the problems of various groups of American children who do not speak English. Robinett (1965) provides a rationale for materials.

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