– Spelling Progress Bulletin Winter 1973

Dedicated to finding the causes of difficulties in learning reading and spelling.

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1. Untouched by union hands: Post's electronic Linotron, the pickets on parade and the 'edited' strike story
By William A. Elsen Washington Post Staff Writer.
Newsweek, November 19, 1973

Nothing threatens the domestic tranquillity of large newspapers more than the prospect of automation. Publishers maintain that they cannot refer to pay for inefficient, old-fashioned printing methods -much less for make-work jobs such as the setting of duplicate or "bogus" type that are written into many union contracts. Printers, engravers and other craftsmen believe that new electronic production devices pose a clear and present danger to their livelihood. Last week, the complex and volatile issue flared into a bitter confrontation at The Washington Post, and in the end the Post published a milestone edition without the help of its typesetters.

The Post's contract with Columbia Typographical Union No. 101 expired last Sept. 30. Negotiations have been going on since July, and "bogus" is one of the major hangups: in return for abolishing the unnecessary typesetting, the Post has offered lifetime jobs to its 540 full-time typographers, but has balked at the union's demand that the same guarantees be given to 176 other "casual" printers, who work on a part-time basis. In mid-October, there was a work slowdown, and two weeks ago it

happened again. "Besides a drop in production," said one Post executive, "there was an obvious increase in bathroom calls, cigarette breaks and general lolly-gagging on the lobster shift. "Early Friday morning, general foreman Earnest Smith fired printer Michael Padilla for "neglect of duty."

Chips: That led to a wildcat strike that not even a Federal court order could stop. When a U.S. marshal read the order in the composing room, lie was drowned out by workers shooting and banging their metal tools. As tempers rose, a supervisor was beaten badly enough to require hospitalization. Eventually, police cleared the typographers out of the composing room, arresting six of them. The strike stopped both the Saturday and Sunday editions.

Early Sunday the Post's executives set in motion a contingency plan they had mapped months before: to print a limited-size (40 pages compared to roughly 100) newspaper without the typographers' help. "Our goal wasn't to bust the unions," contended executive editor Benjamin C. Bradlee, "but simply to have some bargaining chips. We had decided about six months ago that we had to get ourselves in a position where we would not be defenseless in a work stoppage."

During the summer the Post had been training nonunion employees to operate "cold type" printing equipment that is light-years ahead of traditional "hot type" gear. Under the automated system copy from the newsroom is re-typed on a special typewriter; then it is scanned by an optical character reader (OCR), which transforms it into a punched tape. The tape is fed into a computer, which sets the story into columns, with even margins and disgorges it in the form of the second tape. That goes into a Linotype machine, which reads the tape and writes out each character on photographic film with the beam of light. Eventually the film ends up as a zinc engraving of each page: next, stereotypers turn the engraving into the metal plate for the rotary presses.

Once he got the go-ahead Sunday morning, managing editor Howard Simons deployed his specially trained team to run the new equipment. Executive secretaries typed copy for the OCR's. A standby engraving crew had been drawn from the promotion, advertising and accounting department. One senior advertising executive was drafted for duty as a pressman, feeding paper into the giant machinery. The operation ran smoothly, but there were some problems; One secretary confused her finicky OCR for a while by typing a lower-case "l" instead of the numeral 1.

Kidding: While this unique operation unfolded indoors, the Post's mailers, pressman and stereotypers joined the typographers picketing outside. But engravers, Newspaper Guild employees, engineers and custodial personnel agreed to work, on the condition that they would perform only their usual duties. The engravers, it turned out, were a sort of intelligence unit for the strikers. "The engravers," said James Dugan, president of the pressman's local, 'went in with the approval of the other unions to work, and to report by telephone whether the com-

[this item is incomplete]

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2. Linguistics: A Basis of Orthography, by Emmett Albert Betts

Linguistics – the theoretical study of language – is one of the foundations of reading instruction. In a narrow sense, linguistics is the study of (1) the sounds of speech and (2) grammar.

Why is linguistics a basis of reading instruction? There are two answers: First, linguists have identified the significant sounds of speech on which to base the teaching of (a) phonic skills and (b) pronunciation symbols in the dictionary. Second, linguists have researched the structure of language -especially the grammatical structure – which contributes to reading as a thinking process.

Of course, as implied in the first paragraph above, linguistics is only one of the foundations of reading instruction. The other is psychology, on which is based (a) plans for nurturing individual differences, (b) procedures for motivation, and (c) methods of teaching word perception skills and thinking abilities.

Phonemes

Phonology has two branches. The first one is *phonetics* which deals with all the variations of speech sounds – hundreds of them, as for example, the different sounds represented by the letter *l* in *like, tell, milk,* and *wealth.* The other branch of phonology is *phonemics,* which deals with significant groupings of speech sounds – few in number, as for example, the phoneme *l* which includes all the variations of sounds represented by *l* in *like, tell,* and other words. It is this second branch of phonology – phonemics – which has helped to put the teaching of phonics and the use of pronunciation symbols in the dictionary on a more nearly scientific basis.

One of the major tasks in reading instruction is teaching the pupil the relationships between sounds (phonemes) and the letters (graphemes) which the represent them. This relationship is often called the "alphabetic principle" and the study of these relationships has been called *phonics.*

In developing a new perceptual skill, the teacher usually begins with the sound of an element in a spoken word and ends with the letter or letters representing that sound in the written word. However, when the student is doing the first, or silent, reading of a selection, he is confronted with the written word. Here he needs help in *applying* his phonic skills to the letters or syllables of the word. Therefore, he is given on-the-spot help that directs his attention to the usual sound, for example, of *ou* in *out,* or *ir* in *first,* or whichever part of the word is causing an impasse. Or, he is asked which rule applies to the *ck* of *pick* or the *ake* of *make.* Briefly, then, learning and applying phonic skills often requires two different procedures.

Grammar

In some schools, educators limit their discussion of "linguistics and reading" to phonemics. This limited view of linguistics tends to distort the confusion regarding the possible contributions of linguistics to reading instruction.

Linguistics does embraced the *phonemic* structure of language. But it also embraces the *grammatical* structure of language: morphology plus syntax (word formation and sentence structure). That is, language as codification includes the phonemic, morphemic, and syntactic structure. Phonemics contributes to word perception in reading; grammar to the thinking facet of reading instruction.

Syntax is the study of combinations of morphemes into words and larger structures.
(1) Morphemics, the study of the smallest units of meaning.

Phonemes are meaningless, but combinations of them make up higher-level language units called morphemes – minimum meaningful units. A more fleeting may he a word (e.g., the base word *boy*), an inflectional ending (e.g., the *s* plural of *boys*), a prefix (e.g., *re* of *rebuild*), a suffix (e.g., *ance* of *acceptance*), and each base word of a compound (e.g., *hothouse*). In these instances, the morpheme – *boy*, *s, re-, -ance, hot, house – is* the smallest unit of meaning.

(2) Classes of morphemes, or parts of speech.
Words are base forms (e.g., *tire*), sometimes with one or more affixes (e.g., *retireing, retirement, retirents).* That is, a word is made up of one or more morphemes. In general, words may be classified as (1) content words *(e.g., Tom, arrived, interesting, safety)* and (2) function, or structure words (*the, a, very*).

About 300 indispensable words – *the*, *a, can, most,* for instance – account for about 1/3 of the words commonly used in speech and writing. These words are called function words because they have no meaning outside language. They often are called structure words because they contribute to the meaning of language structure. For example, people have seen *horses, metals,* and other things but they have not seen *ands,* and *mosts,* and *theres,* for they exist in language to express the relationships of grammatical structure.

Content, or full words, are classified by linguists as follows:
     Class I, as worker, apples
     Class II, as loaded, occurs
     Class III, as costly, interesting
     Class IV, as quickly, aloud
It will be noted that the above four form-classes approximate four parts of speech of traditional grammar: nouns, verbs, adjectives, and adverbs.

Grammatical meaning is signaled by means of four devices: word order, word form, function words, and intonation. To illustrate these four signals of grammatical meaning, consider this nonsense sentence: The woggles ugged diggles.

- The word *woggles* is a Class I word preceding a Class II word *ugged.* That is, the position of the Class I word is in contrast to the Class II word.
- Moreover, the word forms *woggl(es) and diggl(es)* tend to characterize Class I words and the form ugg(ed) characterizes Class II words.
- Furthermore, the function word *the* marks a Class I word.
- Finally, the intonation – stress, pitch, and juncture of *The woggles ugged diggles.* differentiates it from, for example, *The woggles ugged diggles?*

Linguistics embraces several levels of language structure: phonemic, morphemic and syntactic. In general, the structure of language is both intricate and complex.

One view of the syntactic structure is the grouping of sentence elements, or constructions:
1. Modifications: e.g., *a week's work*
2. Predication; e.g., *spring came early*
3. Complementation. e.g., *teaching school*
4. Coordination; e.g., *a fine gentleman and an able scholar.*

Reading is thinking that results in comprehension or concept formation. It also is the use of skills for a specific purpose and a relationship with the author. But, equally important, reading is thinking in a language.

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3. JUST FOR THE PUN OF IT BY HELEN BONNEMA

1. HOMONYMS

Will new spelling spoil Shakespeare's puns? Will it wipe out the distinctions of his homonyms? When a reader looks at the word /pees/ of World English Spelling, how will he be able to tell whether *peace* or *piece* is meant?

Some people predict that spelling reform will put an end to punning. A prominent linguist expressed his misgivings, and added, "I would like to go on brainstorming this with you if it makes any sense (cents)" [Both spelled /sens/ in WES].

He hesitates to advocate changes which will blunt the sharp edge of puns in English literature. What would become of Shakespeare's characterizations if pleasantries such as the words of the cobbler in Julius *Caesar* were to disappear?

"Truly sir, *all* that I live by, is with the *awl*: I meddle with no tradesman's matters, nor women's matters; but with*al* I am indeed Sir, a surgeon to old shoes."

It must be 'admitted that a regularized orthographic system will reduce the above homophones to one spelling, as it will each of the following from Shakespeare:

T.O.	WES
hoarse, horse	hors
waist, waste	waest
knave, nave	naev
air, heir	aer
sew, sow	soe
eye, I	ie

 Historically each member of these pairs derived from a different root than its counterpart. Thru the centuries their pronunciations reached a coincidence with each other. They became "homophones." Some linguists say that the identity of these words came about by chance, and therefore should be called "chance", "accidental", or "fortuitous" homonyms. (#1.1 on accompanying chart) Today's reader thinks that he depends upon a difference in spelling to catch the meaning of a "chance" homonym, whereas he really does not rely upon the appearance of the word at all. If he could not see it, he would be in no more difficult position than the people who were in Shakespeare's audiences. Many of those 16th century playgoers could neither read nor spell, nevertheless they caught the double meaning.

Helge Kokeritz, author of *Shakespeare's Pronunciation*, Yale University Press, 1953, p. 87 states: "No Shakespearean pun was ever based upon the spelling of a word. Meaning or pronunciation is involved but never orthography." This point can be proven by considering those chance homonyms which in addition to their identical pronunciation have also acquired the same appearance and are known as "Homographs." (#1.2 on the chart)

One often quoted example from Shakespeare is found in the words of the dying Mercutio: "Ask for me tomorrow, and you shall find me a *grave* man." (Romeo & Juliet)

A few of the many other homographs used by Shakespeare are: *ram* (animal), *ram* (push in) MERRY WIVES OF WINDSOR; *bound* (jump), *bound* (tied) ROMEO & JULIET; *sound* (to plumb), *sound* (to utter) R & JULIET; *form* (bench), *form* (fashion) LOVE'S LABOUR'S LOST; *hail* (greeting),*hail* (icy rain) TWO NOBLE KINSMEN; *pale* (enclosure), *pale* (weak in color) WINTER'S TALE; *pound* (enclosure), *pound* (sterling) TWO GENTLEMEN OF VERONA; *sack* (cloth), *sack* (wine) HENRY VI; *wax* (grow), *wax* (tallow), LOVE'S LABOUR'S LOST; *weed* (garment) *weed* (to rid of) AS YOU LIKE IT.

Other identical homonyms which are understood without the help of distinctive spelling belong to the class called "sibling" because they have descended from the same root. (# 1.3 on accompanying chart) They are also variously known as "logical," "cognate," or "polysēmous." Youngsters today listening to radio or TV easily comprehend the meaning of the aviator's *socked* in, flying *blind* and *bail* out; and the advertiser's slogan, "Eat Cream of Wheat while the *iron* is hot."

The pairs of sibling homonyms from which these expressions were taken are:
     sock – short stocking
     sock – wind indicator, airfield
     bail out – clear water from boat
     bail out – make parachute jump
     blind – unable to see
     blind – instrument flying
     iron – metal. "Blacksmith, strike while the iron is hot.'
     iron – treatment for anemia.

Recent issues of *READER'S DIGEST* "Toward more picturesque Speech" include the following sibling homonyms:
     A vacation is when you sometimes trade good dollars for bad quarters.
     Let's give cash a little credit.
     Funny thing about *corn*. In the mid-west it's measured by the foot, in the south by the fifth,
         and on television by the hour.
     Some people have to moonlight just to see daylight.

New sibling homonyms continually appear in print and find their way into the dictionary. They do not use a different spelling for each distinctive connotation. Consider:

Original meaning	Now, also
Aquarian – water bearer,	Person belonging to the younger generation.
cassette – jewel case,	cartridge of magnetic tape.
hardhat – protective helmet,	construction worker, militant opponent of leftists.
bread – food,	money.
groove – thin cut,	first-rate thing.
head – top of body,	drug addict.
rap – sharp knock,	conversation.
ripoff – to tear,	robbery.
split – to break,	to leave.

The linguist, B. Malinowski, makes an educated guess that of the 70,000 entries in *Webster's Seventh New Collegiate* dictionary, at least 40,000 have three or more reasonably distinct meanings (thus are triple homonyms) giving a total of at least 150,000 word senses. This total does not include words such as *drive* for which the *Random House* Dictionary lists 40 senses.

In his introduction to *Linguistic Science* (New Haven: Yale Univ. Press) p. 127, Edgar H. Sturtevant points out that misunderstanding of homonyms rarely Occurs, for practically never would both homonyms sound natural in the same position in a sentence. Usually context excludes one of them. For example, using two words mentioned at the beginning of this article: "If I had more *sense* I wouldn't buy such a shoddy gadget." Try substituting *cents* and the statement is not normal inasmuch as the usual expression is "If I had more money . . ."

2. RIMES

Puns are based not only on homonyms but also on rimes. These appeared in recent *READER'S DIGESTS:*

> Between polluted air and dirty water, the old earth is having *domain* poisoning.
> At golf driving range. "Hitch your *braggin'* to a *par*.
> Above a mirror at a motel pool: "Mirror, Mirror, on the wall, who is *barest* of them all?"
> Vacationers homeward *browned*.. Children in wet bathing suits *driptoeing* thru the house.
> Cucumber patch: *Dillies* of the field.

A reformed spelling system would in no way diminish the effectiveness of these rimed words.

3. APPROXIMATIONS

The drollery of a pun which depends upon the sound of a word that is nearly like another may even be increased when written with a regularized orthography. How about
> Cars wagging their trailers behind them. WES -- /taelz traelerz/
> In travel agency: "Let us show you our bag of treks." /treks triks/
> A Ms. is as good as a male. /mael miel/

We can be sure that the upcoming generation, by using a phonemic spelling system will not misunderstand old puns, and furthermore will continue to originate a crisp supply of new ones. Spelling does not determine the effectiveness of a pun. Only a similarity of sound is necessary, as is further pointed out on the accompanying chart, entitled, "Words used in Puns."

WORDS USED IN PUNS

PUN: a humorous play on paired words which are sounded exactly like, nearly like each other, but are entirely different in meaning. The words may be homonyms, rimes, or approximations.

	Sound	Spelling	Origin
1. HOMONYMS			
A set of words in which each one is identical to the others in sound, and sometimes also in spelling and origin, but always different from the others in meaning.			
1.1 HOMOPHONES . . .	same	different	different
Also called CHANCE, PHONETIC, ACCIDENTAL, or FORTUITOUS HOMONYMS			
we – nom. plural of I (Gothic)			
wee – small (Old English, to weigh)			
rain – water (Old Icelandic)			
reign – rule (Latin, king)			
rein – strap (Latin, to hold back)			
know – understand (Creek, comprehend			
no – negative (Middle Eng., not ever)			
1.2 HOMOGRAPHS . . .	same	same	different
ray – fish (Latin, raia, flat fish)			
ray – beam of light (Latin, radius)			
rail – track (Latin regula – bar of wood)			
rail – bird (Latin, radere – to scratch)			
rail – to scold (Latin, ragere – to shriek)			
homer – "home run" (Gothic, village)			
homer – unit of measure (Hebrew, heap)			
1.3 SIBLING HOMONYMS . . .	same	same	same
Also called COGNATE, LOGICAL, POLYSEMOUS			
gentleman – noble, upright, (lst meaning)			
gentleman – having hereditary wealth			
gentleman – any human male, valet			
slip – to glide (lat meaning)			
slip – to make a mistake			
slip – undergarment			
2. RIME			
A set of words in which each one agrees with the others in terminal sound.	same ending	different	different
mosquitoes *stinging* for their supper			
Jack Horner *singing* for his supper			
flowers *petaling* rapidly into spring			
cyclists *pedaling* rapidly			
3. APPROXIMATIONS	similar	different	different
A set of words in which the spelling of each one is similar to the others:			
honeymoon: quiet interval between *bells* and *bills*			
cars wagging their *trailers* behind them			
lambs wagging their *tails* behind them			

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4. Reading Failures, Dropouts, Delinquency & Crime, by Newell W. Tune Part II

2. Costs of Education

Very few people realize the vast amounts of money spent each year on the education of our children. George Bernard Shaw **[96]** said that if only one year were saved in their education, the sum saved would pay for the cost of more than one battleship, an aircraft carrier and a dozen of our largest airplanes. A tremendous sum such as this should cause concern in all of us.

Lawrence A. Pervin **[66]** in *The College Dropout* quotes N. Malleson, the chapter on "Great Britain" in Funkenstein, A. (Ed.), *The Student and Mental Health,* N. Y. (World Federation for Mental Health, 1959), "In England, where only the intellectual cream has been admitted to the universities and 75% of the students are grant aided, 20% leave college without a degree. Malleson notes the increasing interest in the college dropout at British Universities as pressure upon university places increases. But the quotation that follows raises the question whether in England also, the dropout is too readily consigned to the category of failure and waste, and whether the assumption is too easily made that whatever time he spends in the university is worthless if he does not go on to qualify for a degree: 'Since they all stay at least one year at $1200 per head, the cost of failure to the British community is about 20 million dollars a year.'" What must it be to the U.S.A. with three times the population and three times as high percentage of dropouts?

Lee R. Steiner **[80]** (p. 164), in *Understanding Juvenile Delinquency,* says, "Since about one-fifth of our nation is in school at any one time, this would seem to be the facility through which we could reach all our children to indoctrinate them with the standards of behavior that conform to our way of life. Nearly 40 million pupils are in the public schools at my one time, at the cost of over 12 billion dollars a year."

Earl C. Kelley **[37]** has this to say, "The cost to society and to individuals of so many leaving our schools is hard to calculate. Some of the dropouts, having nothing to do, become delinquent; others withdraw into mental illness. The economic loss to society for delinquency and mental illness is staggering, and getting worse every year. The loss in self-respect suffered by those who find no place in our culture may cripple them for the rest of their lives. Who can compute the cost of a life wasted in comparison with a life well lived? How to calculate the damage done to family and friends?

"The *Saturday Evening Post* (Mar. 12, 1962) published an article by Kohler and Fontaine entitled, 'We Waste a Million Kids a Year.' Some of these live in your own home town. Human waste is our greatest extravagance."

Byron Chapman **[8]** says, "Undereducation among adults and school dropouts is one of the most serious problems facing the U.S. today. Illiteracy has even more sobering statistics in its "hidden strata." The 1962 Cook County study in Chicago revealed that 51% of the people receiving public assistance had reading ability below 5th grade. About 10% of the laboring force who have not completed 5th grade are chronically unemployed. (Only one of 50 college graduates is chronically unemployed.) Cook County pays 8 million dollars a month to functional illiterates."

James E. Allen [1] puts it quite well with, "Primary responsibility for reading instruction, however, belongs to the schools – and the schools must accept this fact. U.S. taxpayers foot a $36 billion annual bill for public education. What a tragic waste to spread this kind of educational banquet before 45 million children, and then fail to provide 11 million of them with the reading skills – the knife and fork, if you will – essential for sharing in the feast!"

Robert E. Weber [94] in "A Dollar and Cents Look at Reading Failure, gives us some sobering facts about the costs of producing illiterates and semi-illiterates: "According to the National Commission on Civil Disorders, 39.9% of our non-white population and 14.8% of our white population over the age of 25 are functional illiterates. That means that 18 million persons, or a population % of 9.5 cannot read. However, given census error (the failure to count over 5 million persons, most of them non-white, inner-city residents), and the accumulation of over 7 million dropouts between 1960 and 1970, as well as the two to five million high school graduates who perform on a functional level, we arrive at a total figure of *23 to 30 million functional illiterates.*

Staggering Costs
"What do these facts mean in terms of our society? At the very least, they mean that staggering dollar costs accrue to both the individual (in unrealized income), and to society (in lost productivity and expensive social programs). It is difficult to estimate the exact costs to our society and economy of total and functional illiteracy (and the costs, if they can be reckoned in dollars, of human degradation, are far higher). However, assuming that the most conservative estimate of the incidence of total and functional illiteracy is correct, four million persons are illiterate. If the cost of remediating 80% of these persons is $1,000 per individual ($3.2 billion) and the cost for remediating the remaining 20% is $4,000 per individual (another $3.2 billion), the total remediation costs amount to $6.4 billion.

"But the increased productivity over the course of the lifetime of the individuals involved would now amount to at least $10,000 per person. This adds up to $40 billion. Subtracting the remediation costs then yields a profit of $33.6 billion! Using a higher figure of 20 million functional and total illiterates, the remediative investment would be $32 billion and the profit $168 billion ($32 billion subtracted from $200 billion).

"Literacy remediation produces value for the individual in terms of increased self-esteem and earnings. It also provides value in the form of increments to the GNP and in taxes paid. But these are just part of the monetary picture. Another consideration is the reduction of such expenses as welfare ($1,500 to $3,800 per family per year); training costs ($1,500 to $4,700 per person annually); crime costs ($25,000 for each individual involved in a crime); and the costs of institutionalization ($7,000 to $10,000 per individual per year).

"Clearly, total and functional illiteracy is costing us a great deal – both in terms of anguish and dollars. Obviously, we must make a much more intensive effort to eradicate it."

Some of our legislators are aware of these problems and are trying to do something about them. Sen. Edward M. Kennedy [36b] recently wrote in *Parents Magazine,* "Our fedral government was first unwilling to recognize the problem, then unwilling to commit the resources necessary to remedy it. When finally Pres. Nixon promised $200 million annually to provide better reading programs, his message to the Congress establishing the Right to Read was not followed by a request for adequate funding. Now, four years later, the budget requests total less than $30 million instead

of the $200 million a year that is needed.

"I cannot conceive of a program more important to the national interest than one to teach all our children to read. And I cannot conceive of a program that will pay back more to the Treasury in taxes and lower welfare costs. Now is the time to rewrite national priorities and place the Right to Read at the highest rung of the ladder.

"New legislation must be introduced in the 93rd Congress. The need is clear. The resources are available. What has been lacking is the political will. Beyond the expenditure of funds, other things have to be done both at the national and community level."

By this it is meant that if all children were to be able to advance faster in their education – complete a 4th grade education in three years – a year would be saved. In order to do this we must make the task of learning to read much easier. And to do that, we must go to fundamental principles: our English spelling must be made so regular and simple that everyone can easily learn to read. Then there would be only a small percentage of dropouts due to reading failures. This can be done if our spelling is made so that it is spelt as it is sounded: in other words, spelt phonemically.

3. Concern about Dropouts

It will come as no surprise that there is great concern now over the dropout problem. Thomas G. Pullen (Ed.) [69] in "Our Dropouts – what can schools do?" says, "School dropouts have become a national concern. If the present rate continues, a great loss in human production and societal deterioration will seriously affect the security and prosperity of America."

A school principal, T. J. Bond [3b] puts it, "Simply to state that we have a dropout problem of major proportion in our high schools is to presuppose a concern for the problem. Our public high school is purely an American institution. Its counterpart is not found in any other country of the world. Values received from our high-school graduates through their contributions to our society have far outweighed the services rendered them when they were high-school students. No other country in the world attempts to educate its masses on a scale comparable to ours. The dropout problem is a crucial one for our country at a time when a more adequate supply of better educated and trained manpower is required. We can ill afford to lose the potential capacity possessed by many students who withdraw from school before high-school graduation. The failure of the dropout represents a failure of the American people. The Primary function of the high school is no longer that of a college preparatory institution. More provision must be made to take care of those students whose completion of high school terminates their formal education. Perhaps, when that is done, the curriculums will become more attractive to the potential drop-out."

A college professor, Earl C. Kelley [36a] says, "There is much interest presently concerning the young people who are leaving our high schools before graduation. This is known as the "dropout problem." Concern with this problem is not confined to school people, but appears throughout our mass media-newspapers, magazines, television. Especially at the close of summer, newspapers often run articles exhorting our young to go back to school. They quote statistics to show how much better off the holder of a high school diploma is than one who does not have one. The appeal seems to state that if a young person will just hang on grimly until the band plays *Pomp and Circumstance,* doors to the good life will swing wide open." But this approach seems to have little effect on the potential dropout because it fails to tackle the problem at its fundamental aspects.

He continues with, "Some of those who decry the dropout situation are the same people who tell us

that we give out too many diplomas to students who do not deserve them, and complain because, they say, the diploma has no meaning any more.
"Nevertheless, the problem of having so many of our young leave school is a serious one, and I, for one, am grateful for the increasing interest of lay people in it.

The problem is quite humiliating to school people, because these youths leave us with thing else in mind. If there were plenty of jobs for our young, this would constitute a choice, but when they leave us for nothing else, it is hard to take. I question whether any commercial enterprise could continue as a going concern if it lost over a third of its business every year.

"But we are also concerned with the large percentage of our young who have dropped out but are still in school. If we visit a secondary school class and look at the faces of the young people, we will see that in many cases the outstanding characteristic of the members is that they are not involved in what is going on. Most of them are going through motions to please their elders. Some are just sitting. Some are engaging in behavior which can only be interpreted as a protest. The latter are our "discipline problems."

"While we have many studies of dropouts, we do not know much about the matter, because we have no way of including the *dropout who stays in school.* All we seem able to do is to count bodies, but physical presence does not mean presence of the whole person. These young people are doing very little, learning very little; at any rate they are not learning very much from the curriculum.

"It is concerning this group that we get complaints of employers and college teachers about the youths who hold diplomas but do not know anything. These are the ones for whom the curriculum has been "watered down." It seems never to have occurred to adults that if a soup does not taste good in the beginning, no amount of water will improve the flavor. The need is for a fresh and more palatable soup."

Another who has a good understanding of the problem is Bert I. Greene [23] who says, "in the history of public education in America, the dropout has not been viewed as a major educational problem. To be sure, there was always some concern for the students who did not complete their education, but this was a minor concern as compared with other educational issues. Why then has the dropout suddenly become a major educational problem? How can we explain the fact that this was *not* a problem when we were losing 80% of our students? Why was this not a problem in the midst of the depression when 70% of our youth walked out on us without any hope of finding a job? Why is it that as late as 1955, when 40% of our students were quitting school, this was not a problem? Why is it a problem today when we are doing the best job we have ever done in holding students in school?" Is the answer: we have suddenly become concerned? And why?

Greene continues, "The dropout problem can best be understood in respect to a particular period in history. Many of the factors which are associated with the dropout problem today were of little concern even a few years ago. For example, the population explosion of the 1940's means that the number of youth now ready to enter the labor market is unprecedented in our history. This was not a problem several years ago when anyone who wanted to work could find employment. Today however, our ability to absorb these citizens into the labor force is both challenging and frightening. The fact of the matter is that it is not the dropout who frightens us, for we have generally survived and prospered when we had more dropouts than graduates. Rather it is the sheer number of dropouts and the facts of our economic life coupled with great technological advances which cause us to view this problem with alarm.

"The dropout is a problem today because of the following factors:
1. Altho the proportion of dropouts is decreasing, a greater number of young people are leaving school now.
2. Our present and developing economy requires a far greater degree of skill than was previously required of our labor force.
3. The age at which a person enters the labor force is rising.
4. Too great an experience of frustration and failure deprives the student of the incentive to succeed.
5. The dropout may become a candidate for every program of social welfare throughout his life.
6. There are few places in our society for the dropout.
7. The dropout represents a major educational and social failure."

Continuing along this same vein is Arther Trace [86]: "Can anyone really believe that in the late 1970's greater job opportunities will be open to our millions of high school dropouts such as have never been seen before? Does anyone really believe that a new age will soon be dawning in America for the ignorant, the illiterate, and the semi-literate? Or that in the 70's we will need more unskilled and untrained workers than we do now? Yet it is certain that at the present rate we are going to have more ignorant, more unskilled, and untrained people entering the labor market in the next decade than ever before, and with fewer job opportunities for these people than ever before. These are facts which must now be faced up to, and it would appear that the success with which this problem is solved will depend heavily upon the success with which we reduce the number and percentage of the intellectually unfit and raise the educational level of the country generally."

Just how extensive is the dropout problem? What proportion of the entering class in high school fails to graduate? Well, it varies considerably according to social conditions. Bob Novarro [63] in a T-V interview said, "In the East Los Angeles High School, which is predominately Mexican-American, more than 80% of the pupils entering dropout before graduation."

Some of the other communities are more successful. Gordon P. Liddle [46] writes, "Between 30 and 35 percent of Quincy, Illinois' children fail to finish high school, while from 20 to 25 % begin college. The large Catholic population and the city's industrial wealth allow the community to run an average school system with the lowest tax rate of among the 30 downstate cities. The per pupil expenditure for education is about average for Illinois.

"In this type of community there is less social mobility than in a rapidly growing urban area. The area of town a child comes from, the house he lives in, and his parent's occupation are all rather well known and profoundly affect the community's educational expectations for him. When the potential high school graduating class of 1958 was divided into four social class levels based upon these criteria, it was found that 76% of the children in the upper middle class went on to college, along with 2% of those in the lowest social class level, a group comprising the bottom 28% of the population. The corresponding percentages of dropouts from these two groups were 5% and 66% respectively."

Ralph W. Tyler, in *The School Dropout,* by Daniel Schreiber [76], writes, "Approximately 40% of American youth drop out before completing high school. This is a large figure, though considerably smaller than those of earlier periods (in this century). When I was in high school, only 11% of my class succeeded in graduating. In other countries, a very small percentage of youth are in school after age 15. It is not, then, the sheer, magnitude of figures which arouses concern. Nor is it the problem of juvenile delinquency. There are many delinquents among the dropouts; yet the great

majority of dropouts are not, and are not likely to become, delinquents." But he fails to mention the converse data: that very few delinquents come from the graduates or the stayins.

Schreiber [76] writes, "Increasingly, it is a world where the high school diploma assumes the function of both a certificate of employability and *carte d'entrée* to those occupations less susceptible to unemployment. In part, this is a regular feature of the old shibboleth of the correspondents between educational background and occupational qualification. But the unemployment problem is indeed a prime sponsor of the dropout problem"

More statistics come from the Calif. State Bulletin, by Donald E. Kitch & Wm H. McCreary [38a], "In any case, the figures seem to indicate that on a state-wide basis California public schools lose approximately one third of their students as dropouts between eighth grade completion and twelfth grade graduation. The loss is comparatively small between the spring of the 8th grade and the spring of the 10th grade, amounting to only 3 or 4%. The major percentage of the loss comes after the completion of the 10th grade.

"School officials in Los Angeles also speak of this problem: It is apparent that the dropout problem in post high school institutions is one to give guidance workers much concern. No wonder! The percentage of boy high school graduates there who were enrolled in university or college work had shrunk from 21% to 9% at the end of six months; the percentage of girl graduates, from 18% to 8%. 'This would point toward improvement in counseling and guidance services in the post high school institutions as well as in secondary schools,' the report concluded."

Again from T. J. Bond [3b] we here, "How great is the problem? Studies have shown the compulsory school attendance laws have little, if any, effect on the total number of high-school dropouts. They merely postpone the time. It is estimated that by the end of the present school year we could have one million new high-school dropouts, ages 16-17 years. Projecting this figure into the future shows that by 1970 we may have a total of 12 million persons who failed to be graduated from high school. Dr. Conant in *Slums and Suburbs* states: 'In slum areas, teachers do fairly well with children until they get to be 10 or 11 years old, then the 'street' takes over. Progress in school work ceases. In one of our largest cities, 59% of the male youth between the ages of 16 and 21 are out of school and unemployed.' He recognized the inability to read as a major factor."

4. Concern about Reading Failures

The natural consequence of having concern about the dropout situation is trying to find out the causal courses. For many years teachers and sociologists seem to be sifting thru the haystack and looking for the needle that would point to the cause. They both seemed to be unaware of any causal relationship between dropping out and failure to learn how to read. But their concern was real, as shown by these quotations:

Constance McCullough, in a chapter from Nelson B. Henry [27] writes, "We are forced to the conclusion that, despite their sincere concern and efforts, our schools have not succeeded in liquidating functional literacy or in awakening a love for reading among the majority of pupils."

Sibyl Terman and Charles C. Walcutt [84] have this to say, "The reading problem concerns more Americans today than anything else but the H-bomb and major-league baseball. Millions of parents are worried; controversial literature on the subject appears every month; and the last word has certainly not been said. Rudolf Flesch has spoken in *Why Johnny Can't Read*, published in 1955, for which he continues to be attacked upon a wide variety of counts. Scores of articles have

assailed him, and more recently a whole book has appeared whose authors admit that Flesch is their main target and inspiration."

Arther Trace [86] agrees, "Hardly anyone nowadays thinks our schools are doing a good job of teaching reading. Parents don't think so; employers don't think so; the armed services don't think so; high school teachers and college professors don't think so; and even the students themselves eventually don't think so. Most significant of all, an increasing number of elementary school teachers and school administrators don't think so either.

"The reading problem is rapidly emerging as the gravest of all academic problems which our schools face at the present time. It is more serious than the shortage of classrooms, or of money, or of genuinely educated teachers and school administrators. It is even more serious than the pitifully watered-down curriculum of our schools or of the hard-core anti-intellectualism in current American educational theory."

Robert D. Hess wrote a chapter on educational retardation in Daniel Schreiber [75], in which he says, "The problem of semiliteracy in adults in the United States, is not new. Our method of dealing with adult illiteracy has been through education of children in the public schools so that illiteracy would gradually and eventually disappear from our society. However, our attempts to raise the general level of education of populations in economically depressed areas of this country are, at the present time, inadequate. Altho it is difficult to get firm data (primarily through the reluctance of school boards to release achievement test results and other performance indices on schools located in culturally deprived areas), there is reason to believe that *many if not most,* of our high school students in economically disadvantaged areas *are semiliterate* when they dropout or graduate from high school."

However, there are some professors who realize what reading deficiency does. Paul Goodman, in the same book [75], says, "There is widespread anxiety about teaching reading. And indeed, reading deficiency is an accumulating disadvantage that results in painful inferiority, truancy, and dropout. Reading is crucial – by the standards of the school and because of the kinds of success that schooling brings to a student."

Byron Chapman [8] brings us some sobering data: "In spite of our strong educational system in America, millions of Americans cannot read well enough to earn a living in today's world.

"Statistically, the 1960 census shows 21 adults of each 1000 in the adult population 25 and over have had no schooling at all. Another 26 per 1000 have not more than fourth grade education. Add to these figures those who have dropped out of school because of failure and those whose reading skills have deteriorated for lack of use since school days, and we have a grand total of great proportions who may be classed as functionally illiterate. They cannot read well enough to keep up with the ever-rising educational requirements necessary to get a job or to hold the job they have in the face of rising job competition.

"It may be that as much as 25% of our adult population is seriously handicapped by reading problems. Reading skills were once for the upper classes only. The nature of our job world today makes reading skills mandatory for all. For Americans it is 'read' or depend upon a welfare check! Once poor readers could find something to do. Today 'something to do' is disappearing."

In the introduction to the book by Florence G. Roswell and Gladys Natchez [71], we see, "Today

both laymen and professionals are concerned about the large numbers of children who, because of their difficulties in reading, cannot cope with schoolwork. Authorities have variously estimated the number of children with inadequate reading skills to be as high as 30% of the total school population, (1) over 15%, (2) or between 10 and 15%. (3) Whatever the %, most educators agree that the number of children who read less effectively than they should – and could – is far too high.

In a very dynamic book, Arther Trace [86] says, "There are compelling reasons why the reading problem commands the attention of everyone who is interested in the future of our children and of the country. One of these is the simple fact that reading is not merely a basic subject in school; it is *the* basic subject. If a student cannot read, he cannot learn history or science or geography or any of the other basic subjects. Upwards of 75% of what a good student learns in high school he learns through reading. It has been estimated, for example, that a high school senior must read 4.5 million words a year merely to fulfill his assignments. In short, reading is the base upon which virtually all formal learning rests, so that if a student can read well he can learn much, and if he reads badly, he will learn very little.

"This particular concern for the quality of the reading program in our schools has, of course, always been with us even when there was every reason to believe that it was a good program, for there is nothing new about the fact that the ability to read well is the first requisite to obtaining a good education. But the reading program in our elementary schools now has a special significance that it never had before, not only because there is every reason to believe that it is an extremely poor program, but also because the national interest, including the national economy, is now more closely tied to our educational system than it has ever been before in this country's history. And since the reading program in our elementary schools is the very heart of our educational system, the reading problem is rapidly emerging as a problem which effects the interests of the entire country."

Another writer, Harrison Bullock [6] concurs, "Much has been written on the improvement of reading in the secondary school. Books, pamphlets, and articles exist in abundance to guide teachers in ways of improving the reading skills in secondary pupils. Most such materials recognize that a pupil retarded three to five years in reading ability is seriously handicapped in the secondary school; they usually attempt to meet the pupil at the 4th, 5th, or 6th year level of attainment because so many of them belong there."

Charles C. Walcutt [92] goes even farther, "that considerably more than half (probably 75%) of our young people do not read as well as they could, and that at least 35% of them are very seriously retarded."

Going back to Arther Trace [86],"Dr. James B. Conant reports that he visited some schools where as high as 30% of the 9th graders are reading at the 5th or 6th grade level. Other estimates indicate that the number of poor readers in the junior high school grades is far higher than 30%.

"Similarly, senior high school teachers complain that students coming from junior high schools still have not learned to read well, and college instructors know that to bear the typical college freshman read a page of English prose aloud is a melancholy experience. The fact that so many junior high school and even high school students and college freshmen are still having trouble reading underlies the horrible but increasingly realized fact that, in most instances, if students have not learned to read well by the end of the third grade, the chances are overwhelming that they will never learn to read well."

How much more evidence is needed to show our legislators of the importance of learning to read and the fact that all out present reading programs and methodology is ineffective in trying to cope with the anomalies of English spelling in learning to read. It should be obvious that there are many compelling reasons for making it easier to learn to read by simplifying our erratic, unreliable, confusing spelling – the fundamental cause of failure to learn to read.

References

[1] Allen, James E. Jr. "We can end juvenile illiteracy." *Readers Digest* reprint, Apr. 1970.

[3b] Bond, T. J. "The high school dropout problem." *National Assoc. of Secondary School Principals,* v. 46, no. 275, Sept. 1962. p. 180-84.

[6] Bullock, Harrison. *Helping the non-reading pupil in the secondary school,* Teachers College, Columbia U. 1956.

[8] Chapman, Byron. *Teaching adults to read.* Allied Educational Council 1965.

[23] Greene, Bert I. *Preventing student dropouts.* Prentice-Hall, 1966.

[27] Henry, Nelson B. (Ed.) *Development in and thru reading,* 60th Yearbook, Nat. Soc. for Study of Education, 1961.

[36a] Kelley, Earl C. *The dropout – our greatest challenge.* Assoc. for Supervision & Curriculum Development, 1963.

[36b] Kennedy, Sen. Edward M. "What parents can do to guarantee every child's right to read." *Parents,* v. xlviii, N. 9, Sept. 1973, p. 14.

[37] Kerber, August & Barbara Bommarito. *The schools and the urban crisis.* Holt, Rinehart & Winston, 1965.

[38a] Kitch, Donald E. & Wm. H. McCreary. "Now hear youth," *Calif. State Bulletin, No. 9,* Oct. 1953 (69 pp).

[46] Liddle, Gordon P. Educ. improvement for the educ. disadvantaged in Amer. elementary schools, Chas. C. Thomas, 1967.

[63] Novarro, Bob. Radio KTTV, Oct. 1972

[66] Pervin, Lawrence (Ed.) *The college dropout & utilization of talent.* Princeton U. Press, 1966.

[69] Pullen Thomas G. (Ed.) Our *dropouts – what can schools do?* Maryland State Dept. Educ. 1963.

[71] Roswell, Florence G. & Gladys Natchez. *Reading disability, diagnosis and treatment.* Basic Books, 1964.

[75] Schreiber, Daniel. *Profile of the school dropout.* Random House, 1967.

[76] Schreiber, Daniel. *The school dropout.* N.E.A. 1964.

[80] Steiner, Lee R. *Understanding juvenile delinquency.* Chilton Co. 1960

[84] Terman, Sibyl & Charles C. Walcutt. *Reading-chaos and cure.* McGraw, Hill, 1958.

[86] Trace, Arther. *Reading without Dick and Jane.* Regency, 1965.

[92] Walcutt, Charles C. *Tomorrow's illiterates.* Little, Brown & Co. C.B.E. 1961.

[94] Weber, Robert E. "A dollar and cents look at reading failure," *Reading News Report,* v. V, no. 7, May-June, 1971.

[96] Wilson Richard A. *The miraculous birth of language,* Philosophical Library, N.Y. 1948. Preface by Geo. B. Shaw.

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5. Reading – Phonemic Basis of Word Perception, by Emmett Albert Betts*

*Research Prof., Univ. of Miami, Fla. Dr. Betts is also President of the Phonemic Spelling Council, which has established the Post-Doctoral Reading/ Writing Research Institute located at the Univ. of Miami.

Although English spellings have not kept apace of the more than 4000 years of evolution in speech, traditional orthography, one of the major hazards for beginners in reading, receives far less attention than sex, taxes, teachers' salaries, or highly questionable accountability contracts. For example, the spelling *ough* (e.g., *tough* and *through* and *gh* (e.g., *right*) monstrosities have lingered on to become frightful hazards for children and foreigners and prime examples of scapegoats for spelling reformers – because those spellings no longer represent speech sounds in present-day English. Queen Elizabeth I, for example, wrote *wark* for *work*. Pronunciation varies with time and geographical region, but spellings appear to have a high degree of permanence regardless of the "fit" to sounds.

Phonics

A man by the name of Ickelsamer is credited with having originated the phonic method in 1534. Noah Webster, in 1872, revolutionized reading instruction in America by introducing the teaching of the sounds of the letters. Around 1890, Rebecca Pollard brought elaborate method of phonetics to the extreme heights of popularity. Since then, the terms phonics and phonetics – often used synonymously – have been magic to critics seeking a simple one-shot method of improving reading instruction.

In another publication under the title, "Confusion of Terms," *The Reading Teacher,* Feb. 1973, the writer identified three terms often confused by educators, alphabeteers, and others concerned with word perception; phonetics, phonemics, phonics. Briefly, *phonetics* is the science of speech sounds -identification and slight variations in production and perception. On the other hand, *phonemics* is the study of groups of related speech sounds, which serves as a basis for an orthography. And *phonics* is the study of the relation between phonemes and letters used to represent them.

But is phonics THE answer to escalating reading instruction? How many words in a beginning reading vocabulary "fit" so-called *phonic rules,* actually vowel rules? (See studies by Elsie Black and Ruth Oakes.) Did the renaming of vowel rules as *spelling patterns* by Leonard Bloomfield and Charles Fries improve the beginner's chances of accurate word perception? An answer, of course, is that a phonic rule by any other name is still a phonic rule, and the relation between sounds and spelling remains a rather "loose fit."

What chance does the beginner who has learned the final *e* rule for *gave, live,* and *home* have to identify *have, give, one, gone,* and *are*? From our studies, we find that only 6% of the words in beginning reading have a vowel plus final *e*. Worse still, this rule, or spelling pattern, can be applied to only 50% of these words; the other 50% are exceptions to the rule. These and other data already reported leave phonic zealots up the proverbial creek with only one paddle, and that is broken.

One of the major pitfalls of reading programs featuring "syllable phonics" is the use of the vocabulary entry rather than the dictionary respelling. Of course, the vocabulary entry is used as a guide for syllabicating words at the end of the line in WRITING. But, the respelling is used as a guide to the relation between speech sounds and spellings – a basic consideration in word perception
as a facet of READING.

With due regard to the memory of Valentin Ickelsamer, Noah Webster, and others who have made futile attempts co reconcile speech and spellings via phonic rules, we must admit defeat. But there are other alternatives; one of these is a thoroughly researched initial learning alphabet, which undoubtedly will lead to a reform of English spelling. This approach is plagued by unnecessary and excessive pluralism, by the public and by alphabeteers and orthographers.

Purpose

This discussion serves three purposes:

First, to differentiate between the concepts *phonetics* and *phonemics,* and, at the same time to delineate some dimensions of a phoneme. Second, to apply the phonemic principle to dictionary respellings to show pronunciations as a basis for a phonics program. Third, to call attention to the neutral vowel – the schwa phoneme – which introduces syllable stress as a factor in word perception, especially for an initial learning alphabet.

A Caveat

The first caveat: orthography is a complex system embracing (1) graphemes (letters, punctuation, blank spaces, etc.) representing phonemes and (2) morphemes (structure of words, such as the plural noun marker /s/ in *hat*(s) and /z/ in *gag(s)*.) The first facet of orthography requires more research on the identification of phonemes and agreement by linguists. The second facet introduces a cornucopia of problems regarding the relations between phonemes and morphemes – and the use of spellings for "un- stressed" syllables. (The whole problem of reading by structures – syntactic-cognitive – which introduces the suprasegmental phonemes is relevant to this discussion, but is precluded by space limitations. For example, in the phrase *this and that,* the *and* is likely to be pronounced /nd/ or /n/ rather than /and/.)

The Phoneme

The term phoneme is newly defined in the 1970 edition *of Webster's New Elementary Dictionary* (copyright 1970, G. & C. Merriam Company and distributed by American Book Company). It is defined as "one of the smallest units of speech that distinguish one utterance from another." For example, the vowel sound /ă/ in /'kăt/ distinguishes it from /'kŏt/, spelled *cat and* caught respectively.

That there is confusion among some alphabeteers, orthographers, and phonic zealots regarding the concepts of phonetics and phonemics cannot be gainsaid. There are many causes of this confusion, including (1) the inconsistent use of pronunciation symbols in some dictionaries and (2) variations in symbols used by phonemicists.

Ferdinand de Saussure (1875-1913), the Swiss scholar, is generally regarded as the founder of modern linguistics, with emphasis on phonemes and morphemes, both of which form systems. But two Russian linguists, Baudouin de Courtenay and Nikolai Kruszewski, formulated a basic tool of linguistic analysis: a unit called the phoneme.

Franz Boas, an anthropologist of renown at Columbia Univ, made extensive, scholarly studies of the languages of American Indians. Two of his students, Edward Sapir (1884-1939) and Leonard Bloomfield (1887-1949), pioneered in the development of *structural* linguistics, both of which (i.e. phonemes and morphemes) are acknowledged as the building blocks of language systems.

Phonemes – General American Speech

While there remain some ambiguities regrading the concept of the phoneme, the following statements regarding the nature of this Concept appear to merit consideration:

1. A phoneme is a group of related sounds (phones or allophones), as the sounds of phoneme /k/ in *(k)eep, (c)alm*, and *(c)ool* which has three different points of articulation. A phoneme is a collection of speech sounds rather than a sound.

Speech sounds are grouped into a single phoneme, or class, when they can be demonstrated to be phonetically similar; that is, they have some articulatory feature in common. In a semantic sense, a phoneme is a fiction!

In his *Language,* 1933, p. 20, the eminent Leonard Bloomfield emphasized the feature versus sound definition of phonemes: "The phonemes of a language are not sounds, but merely features of sound which speakers have been trained to produce and recognize in the current of actual speech sound -. . . ." Bloomfield's concept of the phoneme is restated by Jakobson and Halle, *Fundamentals of Language,* (Mouton & Co., The Hague, 1956, p. 8): "The phonemes of a language are not sounds but merely sound features lumped together. . . ."

Noam Chomsky, who advances a transformational-generative theory of linguistics differs with Leonard Bloomfield, a structural linguist, regarding both terminology and the "real nature of sound structure" (J. P. B. Allen and Paul Van Buren, *Chomsky – Selected Readings,* Oxford Univ. Press, 1971, p. 82). Chomsky regards phonemic segments (phonemes) as representing what some linguists today call the morphophonemic level – intermediate between phonetic and morphemic. Hence, Chomsky rejects "the hypothesis that an intermediate level of this sort exists." (p. 83)

2. A phoneme is a minimum distinctive sound feature; e.g., the sound /b/ in *bat* is voiced and the sound /p/ in *pat* is voiceless. (Phonetic transcriptions make fine distinctions which have no symbolic value; these distinctions are excess baggage in the consideration of spelling- sound relationships.)

Scared another way, a phoneme is a unit of sound which makes a difference in the meaning of words. For example, the sounds /n/ and /ng/ make a *difference* in the *meaning* of these pairs of words: *pin-ping, sin-sing, thin-thing, ban-bang.* These sounds /n/ and /ng/ are two phonemes because they are contrastive, or in binary opposition,

The sounds represented by /p/ in /'pit/ and /'tip/ represent slightly different consonant sounds (allophones), but the difference is not significant. (In the absence of an accent symbol, the ' is used.) Hence, the sounds represented by /p/ in /'pit/ and the /p/ in /'tip/ belong to the same phoneme, or group of related sounds.

Vowel quality distinguishes the meaning of some words; e.g., the difference between b(oo)t /bŭt/ and *b(u)t* /'bət/.

One test of distinctiveness of a sound is the use of minimal pairs, or two words which differ only in one sound, *as tap-tip* or *chat-cat.* For example, here are some differences in initial and final consonant sounds that are phonemic, or make a difference in meaning; Initial, *p*at, *h*at, *r*at, *s*at; final, pa*t*, pa*d*, pa*l*, pa*n*. Here are minimal pairs to test distinctiveness of "vowel" sounds: p*a*t-p*e*t, p*a*t- p*i*t, b*ea*t-b*ai*t, sh*ou*t-sh*oo*t.

3. Phonemes are contrastive groups of sounds. For example, these consonant sounds are contrastive in that they are pairs of voiced (buzzing) and voiceless (hissing) phonemes:

voiced:	voiceless:
/b/ as in *bat*	/p/ in *pat*
/r/ as in *rat*	/f/ in *fat*

/d/ as in *dip*	/t/ in *tip*
/z/ as in *zip*	/s/ in *sip*
/zh/ as in *pleasure*	/sh/ in *ship*
/j/ as in *joy*	/ch/ as in *chop*

A phoneme is a designation of a contrast in sounds that signal a difference in meaning.

4. A phoneme is a class, or category of sounds, or phones; hence a phoneme "does not occur." That is, a speaker articulates allophones, members of phonemes not phonemes. For example, the sounds of /p/ in *pin, sin, tip* are varieties of the phoneme /p/.

5. Phonemes differ in terms of manner and position of articulation; e.g., phoneme /p/ is a *voiceless* bilabial stop (stopped by the two lips); phoneme /b/ is a *voiced* bilabial stop.

6. The allophones of a phoneme never occur in the same environment, or position in a word; e.g., one allophone /k/ occurs initially in *cat* /'kat/ and another allophone of /k/ occurs in the final position in *pack* /'pak/. The first allophone has an additional puff of air called aspiration.

In the word *pin* /'pin/, the allophone of /p/ is aspirated because it is the initial part of the word. However, in the word *spin,* the allophone of /p/ is not aspirated because it follows s̲ in the same word. In English, aspiration is not phonemic.

The sound /ng/, as in *sing,* never occurs in the initial position of an English word, only after and between vowels. Sound /l/ does not occur after *d* or *t* at the beginning of a word.

In short, phonemes are limited as to the position in a word in which they can occur.

7. The allophones of a phoneme vary from one phonetic context to another. That is, a given phoneme may have slightly different pronunciations depending on the phonetic context, or adjacent sounds. Variation, therefore, is one of the characteristics of the allophones of a phoneme.

8. As a corollary to 4 above, a phoneme is an abstraction; allophones are the realities of speech. That is, a phoneme is a hypothetical construct.

9. A phoneme does not have meaning, but a difference between phonemes signals a difference in meaning; e.g., *cat-hat, cut-cat, cap-cat.* That is, a phoneme is not intrinsically meaningful, or meaningful in itself. It is a part of a system that signals a message.

10. The number of phonemes in English is limited: the number of sound features of speech identified via *phonetic* analysis runs into the hundreds.

There are three varieties of sounds (allophones) of /p/ phoneme in *(p)it* (strongly aspirated), li(p) (medium aspiration), *s(p)in* (no appreciable aspiration after *s* and before stress). On the other hand, Dr. John Pierce, of Bell Telephone Lab, reports no fewer than 90 possible allophones of the phoneme /t/ in English speech.

11. Phonemes vary considerable in the number of recognizable sounds (phones or allophones) embraced.

12. Since a phoneme is a classification, or a category of sounds, it is an abstraction. That is, allophones of a phoneme are spoken rather than a phoneme.

13. Phonemes are minimum units of speech at the syllable-stress level (segmental phonemes) and at the phrase-level (suprasegmental phonemes to signal intonation). That is, phonemes are signals, embedded in language structure that carry the meaning of a message.

14. Phonemes are processed automatically in syllables and language structure (e.g., a phrase or a sentence). Hence, phonemes, syllables, phrases, or sentences may function as perceptual units for the listener. The concept of divided attention – e.g, divided attention between the signals of speech and the message transmitted by these symbols – is a mythnomer. That is, phonemes are perceptual units in the sense that a native speaker can recognize as different words those which are different in one sound component; e.g., *sat-pat.*

15. Phonetics deals with an analysis of the "raw material" of speech; phonemics with an analysis of "functional" units. In Kenneth L. Pike's *Phonemics: A Technique for Reducing Languages to Writing,* 1947, p. 57, he states the situation succintly: "The purpose of practical phonemics, therefore, is to reduce language to writing."

16. Finally, the phoneme is merely the unit for describing and classifying the functional sound system (phonology) of language.

Pronunciation Symbols

The following charts give (1) G. & C. Merriam *Webster's New Elementary Dictionary,* 1970, symbols; (2) phonemic symbols, and (3) selected words embracing the phoneme.

Consonants

Dictionary	Phonemics	Examples
b	b	(b)eets, ru(b), ru(bb)er
ch	č	(ch)im, ca(tch), na(t)ure
d	d	(d)i(d), le(d), la(dd)er
f	f	(f)an, sti(ff), (Ph)one
g	g	(g)ive, ro(g), bi(gg)er
h	h	(h)at, (wh)o, a(h)ead
j	j	(g)em, (i)a(dg)e, ma(g)ic
k	k	(k)ing, (c)ot, ro(ck)
l	l	(l)ip, poo(l), pi(ll)ow
m	m	(m)y, ra(m), ha(mm)er
n	n	(n)ut, te(n), (kn)ow, fu(nn)y
ng	ŋ	si(ng), i(n)k. fi(n)ger
p	p	(p)in, li(p), ha(pp)y
r	r	(r)un (initial position in a syllable)
s	s	(s)un, mi(ss), ra(c)e
sh	š	(sh)un, (s)ure, fi(sh)
t	t	(t)en, ne(t), s(t)em, mi(tt)en
th	θ	(th)in, ei(th)er brea(th)
th	ð	(th)en, ei(th)er, brea(th)e
v	v	(v)ine, gi(v)e, ne(v)er, o(f)
w	w	(w)e, a(w)ay, (w)ant
y	y	(y)et, (y)ou, can(y)on
z	z	(z)eal, rai(s)e, dog(s)
zh	ž	mea(s)ure, vi(si)on, bei(ge)

Note 1. The letters *c, q*, and *x* are not used as pronunciation symbols in either dictionaries or books on phonemics, as in *cat* /ˈkat/, *quick* /ˈkwik/, *exact* /igˈzakt/, *except* /ikˈsept/.

Note 2. The sound of *ch* in *chip* is phonetically represented by [ʧ].
Note 3.The sound /y/ functions as a consonant in (y)et and a semi-vowel in *few* /'fyii/. The /yü/ is an on-glide.

Vowels

Dictionary	Phonemics	Examples
a	æ	*(a)t, m(a)t. c(a)ttle*
ā	e	*(a)te, m(a)te, d(ay)*
ä	a	*h(o)t, f(a)ther, c(o)t*
e	ε	*l(e)ss, k(e)ttle, cont(e)st*
ē	i	*n(ea)t, w(ee)p, p(eo)ple*
i	ɪ	*t(i)p, b(ee)n w(o)men*
ō	o	*n(o)te, l(ow), c(oa)t*
ȯ	ɔ	*l(aw), (a)ll, b(ou)ght*
ü	u	*b(oo)t, r(u)le, m(oo)n*
u	ʋ	*f(oo)t, p(u)ll, w(oo)l*
ə	ə	*c(u)t, (a)bove, chin(a)*

Note 1: In addition to the 24 symbols for consonants, there are 11 symbols for vowels – a total of 35 phonemes. (Zealots who point to THE 40 phonemes or any other number need to identify them.)
Note 2: See below the symbols for 4 phonemic diphthongs.
Note 3: See below for the complex and complicated vowel plus r situations.

Diphthongs (Glides or Complex Vowels)

Dictionary	Phonemics	Examples
au	au	(ou)t, n(ow), h(ou)se
ī	aɪ	l(i)fe, (eye), b(uy)
ȯi	ɔɪ	t(oy), c(oi)n. s(oi)l
yü	yü	f(ew), y(ou)th

 (Note: the first three are off-glides; the 4th an on-glide.)
There is some agreement on three *phonemic* diphthongs – continuous gliding movement within a single syllable.
   /au/ as in *(ou)t, n(ow)*
   /ī / as in *(i)ce, l(i)fe*
   /ȯi/ as in *t(oi)l, b(oy)*
   /yü/ as in *f(ew), m(u)sic* (glide consonant)

Furthermore, gliding *allophones* may include:
   /ē/ as in *(ea)t*
   /ā/ as in *g(a)te*
   /ō/ as in *b(oa)t*
   /ü/ as in *b(oo)t*

Unfortunately, phoneticians agree on neither (1) which diphthongs are distinctive or phonemic nor (2) which symbols to use. Furthermore, nearly all of these vowels are diphthongized in some phonetic environments.

Note 1: These are also classified as on-glides by Carroll and Tiffany *(Phonetics,* 1960, p. 120):
   w as in *we* /'wē /
   r as in *red* /'red/
   wh as in *whe*y /'hwā/

Note 2: As stated above, only /ī/, /oi /, /aú/, /yü/ are distinctive, i.e. phonemic.

The above phonemic symbols are those used by Charles *Fries (Teaching and Learning English as a Foreign Language,* 1945, pp. 11-13). John B. Carroll *(Language and Thought,* 1964, pp. 14-15) uses the same symbols for consonants and simple vowels, adding bar i /ɨ/ as in ros(e)s. Other linguists use variations of phonetic symbols for phonemes.

Slash marks or parentheses are used to indicate re- spellings in a dictionary: /kat/ or (kat).
Phonetic symbols are indicated by placing them inside brackets: [ŋ] as in *si(ng).*
Phonemic symbols are placed inside slanted lines, or slash marks: /ng/.

In the discussion, pronunciation symbols of the *Webster's New Elementary Dictionary,* 1970 edition, published by G & C Merriam and distributed by American Book Co. are used.

The Schwa
The use of the schwa/,)/ in both stressed and unstressed syllables has caused some confusion among educators and alphabeteers. Perhaps Edward Arten, Pronunciation Editor, *Webster's Third International Dictionary, 1965,* G & C Merriam Co., p. 34a, has the most concise and explicit explanation:

". . . when a stress mark (' or ,) stands at the beginning of the syllable in which it occurs, this symbol, called *schwa,* is pronounced as in *bud* or *nut* or the last syllable of *aqueduct;* when the syllable in which it stands is without stress mark, it is pronounced as in the first syllable of *alone* or *occur* or as in the second syllable of *colony* or as in the last syllable of *abbot* or *famous* or *Sabbath* or *circus.*

Formerly all phonetic alphabets used for the vowel of *bud* a symbol different from that for the vowel of the second syllable of *abbot* and some alphabets still do. Some who are familiar only with these alphabets find the use of /ə/ in stressed syllables objectionable when they encounter it for the first time. But the use of /ə/ as a symbol for both unstressed and stressed vowel is rapidly increasing, and abandonment of a separate symbol for the vowel of *bud* parallels abandonment of former symbols for half-long a, e, and a in whose stead ā, ē, and ō without stress mark are entirely adequate."

In his *Structure of American English,* pg. 141, V. Nelson Francis provides this additional explanation of the schwa and its allophones:

"The *mid central vowel* /ə/, has as its allophones various versions of [ʌ] [ə] and [ɐ] . The [ʌ] allophone with its raised, fronted, and lengthened variants is the usual syllabic vowel of *cut, bud, rug,* and is often of hurry; these words can be phonemically written /kət, bəd, rəg, həriy/. The various versions of [ə] appear in unstressed positions very frequently, varying from one dialect to another and from one set of words to another with allophones of /i/, /ɨ/, and even /iy/. The distribution of these unstressed vowels is very complex, and no general rule can be laid down for them. Some linguists have even suggested a separate phonemic system for the unstressed vowels. But as far as basic phonemic analysis goes, this is unnecessary; they fit perfectly well into the nine-vowel system. The question of how they are distributed in various words by various speakers is a matter of morpho-phonemics or dialectology and hence not our present concern."

In the 1956-65 and the 1970 editions of *Webster's New Elementary Dictionary,* the schwa symbol /ə/ is used to represent both the stressed vowel, as in *cup* /kəp/ and *butter* /'bətər/ and the unstressed vowel, as in *about* /ə-'baut/ *taken* /'tā-kən/ *pencil* /'pen-səl/, lemon /'lem-ən/, circus /'ser-kəs/.

It will be noted that the schwa / ə/is used phonemically in both the 1956 and 1970 editions of *Webster's New Elementary Dictionary.* This phonemic approach simplifies the use of pronunciation symbols and, therefore, makes the pronunciations more accessible to both child and adult. In grandfather's time, the 1914-1953 edition, antecedent edition of the above mentioned dictionary, titled A *Dictionary for Boys and Girls,* used at least 12 pronunciation symbols to represent the schwa phoneme:

Symbol	Word	Respelling
breve e (ĕ)	*ticket*	(tĭk'ĕt)
breve u (ŭ)	*shun*	(shŭn)
italicized o with breve (*ŏ*)	*connect*	(kŏ.nĕkt)
circumflex u (û)	*hurt*	(hûrt)
modified macron e (ē)	*allegory*	(ăl'ē-gō-ry)
modified macron o (ō)	*monogram*	(mŏn'ō.grăm)
apostrophe (')	*article*	(är'tĭ-k'l)
italicized one.dot a (*å*)	*above*	(*å*.bŭv')
italicized e with breve (*ĕ*)	*agent*	(ā-*j*.ĕnt)
italicized i with breve (*ĭ*)	*agitate*	(ăj'ĭtāt)
italicized a with breve (*ă*)	*alias*	(ā'lĭ.*ă*s)
italicized u with breve (*ŭ*)	*arbutus*	(är.bū't*ŭ*s)

 The schwa /ə/ for designating the unstressed and stressed sounds, as in (a) bout and c(u)t, is used by John B. Carroll, *(Language and Thought,* 1964, p. 14), W. Nelson Francis *(English Language,* 1965, p. 181), H. A. Gleason *(An Introduction to Descriptive Linguistics,* 1961 p. 30), Archibald A. Hill *(Introduction to Linguistic Structures,* 1958, p. 62), Charles F. Hackett (*A Course in Modern Linguistics,* 1958, p. 31), Herbert Landar *(Language & Culture,* 1966, p. 68), Donald J. Lloyd & Harry R. Warfel *(American English in its Cultural Setting,* 1963, p. 350), Clifford R. Prator, Jr. (*Manual of American English Pronunciation,* 1957, p. 12), Paul Roberts (*Patterns of English,* 1956, pp. 224-5), Peter H. Salus *(Linguistics,* 1969, p. 8), Norman C. Stageberg (*An Introductory English Grammar,* 1965, p. 8), and Harry R. Warfel (*Language – A Science of Behavior,* 1962, p. 56.)

Phoneticians and some linguists, of course, use the schwa /ə/ to represent the unstressed vowel, as in (a)bout and the /ʌ/, the stressed vowel as in c(u)t. These phoneticians include Jon Eisenson and Paul H. Boase *(Basic Speech,* 1965, p. 5 9), Louis H. Gray (*Foundations of Language,* 1939, p. 56), Robert A. Hall, Jr., (*Introductory Linguistics,* 1964, p. 50), Kantner & West *(Phonetics,* 1960, pp. xviii and xix), John Samuel Kenyon (*American Pronunciation,* 1950, p. 24), Ralph R. Leutenegger (*The Sounds of American English – An Introduction to Phonetics,* 1963, p. 5), Albert H. Marckwardt (*Introduction to the English Language,* 1942, p. 52), Dorothy Mulgrave (*Speech,* 1954, p. 176), Thomas Pyles (*The Origins and Development of the English Language,* 1964, p. 60) Charles K. Thomas (*Phonetics a/ American English,* 1958, Chapters 9 and 13), Trager and Smith (*An Outline of English Structure,* 1957, p. 20).

In his *General Linguistics – An Introductory Survey,* R. H. Robbins, (p. 132), offers these comments regarding qualities of schwa / ə/:
> "Three slightly different qualities of the vowel /ə/ are heard in many speakers, a lower central vowel in utterance final position, as in *china* /'tʃainə/, and color, /'kʌlə/, a higher and a rather back vowel when the /ə/ in non-final position adjoins a /k/ or a /g/, in *again* /ə'ɡein/ and a vowel somewhat between the two in other environments, as in *along* /ə'lɔŋ/, *salad* /'sæləd/."

Neutral Vowel: Spellings

The vowel schwa /ə/ occurs frequently in English. The stressed version occurs in the beginning (e.g., *up* /ˈəp/) and in the middle of syllables (e.g., *cup* /kəp/). Spellings for this stressed neutral vowel, represented by phoneticians by the inverted v /ʌ/, include;

    u as in *under* /ˈən-dər/
    o as in *some* /ˈsəm/
    o as in *one* /ˈwən/
    oo as in *flood* /ˈfləd/
    oe as in *does* /ˈdəz/
    ou as in *tough* /ˈtəf/

The unstressed version of /ə/ has many spellings, including:

Letter	Example	Dictionary Respelling
a	*about*	/əˈbaut/
e	*quiet*	/ˈkwī-ət/
i	*visit*	/ˈviz-ət/
o	*gallop*	/ˈgal-əp/
u	*upon*	/ˈə-pon/
y	*analysis*	/ˈə-nal-ə-səs/
ea	*sergeant*	/ˈsär-jənt/
ei	*forfeit*	/ˈfor-fət/
eo	*pigeon*	/ˈpij-ən/
ia	*parliament*	/ˈpär-lə-mənt/
oi	*porpoise*	/ˈpor-pəs/
ou	*nervous*	/ˈnər-vəs/

Vowel Plus r

When *r* is used at the end of a word (e.g., *door, her* and *sailor)* or is followed by a consonant (e.g., *bird*) it usually has vowel qualities. (This quality depends, in part, on where in the United States the words of this type are pronounced.) The sound of the vowelized *r* differs somewhat between stressed and unstressed syllables. Vowelized *r*, along with *l* and *w,* is sometimes called a "consonant controller." It "controls," or modifies, the sounding of the preceding vowel.

In General American pronunciation, the sound of *ir* in *b(ir)d, g(ir)l*, and *f(ir)st* is equivalent to the sound of *ur* in *b(ur)n*, or in *w(or)k*, et in *w(er)e*, and *ear* in *h(ear)d.* In these examples, the letters *ir*, *ur, or, er*, and *ear* represent a simple, or elementary, vowel sound. This sound is the main vowel sound in the syllable. It is heard in accented syllables.

In General American pronunciation, the sounds of *er* in *bak(er),* or in *col(or)*, and *ar* in *doll(ar)* are equivalent. In these examples, the letters *er*, *or*, and *ar* represent a simple, or elementary, vowel sound. This sound is the vowel sound in the unstressed syllable.

The agential *er* (e.g., *baker, farmer)* and the comparative *er (better, bigger)* occur frequently as unstressed syllables in a primary reading vocabulary. Other common syllables include *or* (e.g., *color, sailor) ar* (e.g., *collar, dollar*), and *er* (e.g*., brother, clover*).

In general, *r* is pronounced /r/ when a vowel follows (e.g., *red*). Significant differences occur, however, when (1) *r* comes at the end of a word (e.g., *far, fear*) and (2) *r* comes before a consonant (e.g., *form, force*). Consider, for example, regional differences in the pronunciation of *harry-courage, for-horse, carry-carrots.* These differences create problems in agreeing on pronunciation

symbols in dictionary respellings and, consequently, in developing a consistent spelling system (an initial learning medium) for beginners in reading.

The following chart of vowel plus *r* situations uses the pronunciation symbols of G & C Merriam *Webster's New Elementary Dictionary* (1970):

Phonemes	Examples	Sounds
/ər/	h(er), s(ir), sail(or)	Elementary sound
/är/	st(ar), he(ar)t	Elementary vowel plus *r*
/ir/	sp(ir)it, m(irr)or	Elementary vowel plus *r*
/iər/	f(ear), h(ere)	Elementary vowel plus *r*
*/ar/	c(arr)y, c(arr)ot	Elementary vowel plus *r*
*/er/	m(err)y, th(er)apy	Elementary vowel plus *r*
*/eər/	c(are), r(are)	Elementary vowel plus *r*
*/aər/	b(ear), p(air)	Elementary vowel plus *r*

(*Note: These are acceptable dialectal pronunciations.)

/ur/	s(ure), p(oor)	Elementary vowel plus *r*
**/or/	f(or), sh(or)t	Elementary vowel plus *r*
***/ōr/	sh(ore), d(oor)	"Complex nucleus" plus *r*

(**Note: These pronunciations are acceptable variations.)

/īr/	h(ire), f(ire)	Diphthong off-glide plus *r*
/aur/	(out), p(ower)	Diphthong off-glide plus *r*
/yur/	p(ure), (your)	Diphthong on-glide plus *r*

In Conclusion

The need for an updated spelling system for use in beginning reading cannot be gainsaid. However, the development of an initial learning medium, in a pragmatic sense, requires attention to (1) ultimate general spelling reform and (2) the needs of non-native speakers who wish to learn English. The relating of an initial learning medium to much needed spelling reform will eliminate confusion and possible chaos leading to defeat of proposals. Furthermore, the phonemes of one language may not be the distinctive sounds of another, necessitating some latitude in assigning spellings to sounds.

Although expert phoneticians can distinguish hundreds of different sounds in English speech, a phonetic based alphabet was considered impossible to achieve. Simplification, so essential to linguistic science, was and is being provided by phonemic analysis. The history of language indicates that some of the earliest known alphabets (e.g., in India) and several modern alphabetic systems (e.g., Turkish, Finnish) approach phonemic standards. Hence, it appears that the invention of an alphabet involves *phonemic* rather than phonetic analysis.

Like the separation between church and state, the Roman alphabet has been a long time in divorcing itself from speech. Worse still, neither the Roman alphabet nor Latin grammar was a close "fit" to English speech. The five letters, *a, e, i, o, u,* plus *y* (e.g, *myth, scythe, penny*) and *w* (e.g., *cow*) have been used to represent more than a dozen simple (e.g., *a* in *cat*) and complex (e.g., *oi* in *oil*) vowel sounds. The consonant letters fare somewhat better, but they too, have serious limitations. A modern English writing system, with its complex relationships between spelling and grammar, requires an interdisciplinary approach to its development, including linguistics, orthography, psychology, and sociology.

At first blush, a spelling reform to insure closer correspondence between sounds and their spelling representations is not only urgent but also a relatively complex matter. But the scientific minded orthographer knows that devising a satisfactory spelling reform is a very difficult matter – one that requires a great deal of experience and good judgement.

Bibliography

Abercrombie, David, *Elements of General Phonetics.* Chicago: Aldine Pub. Co, 1967.

Allen, J.P.B. and Van Buren, Paul (Editors). *Chomsky: Selected Readings.* London: Oxford Univ. Press, 1971.

Allen, Robert L., Allen, Virginia F., and Shute, Margaret. *English Sounds and their Spellings.* New York: Thomas Y. Crowell Co. 1966.

Artin, Edward. *History and Application of Schwa.* Springfield, Mass.: G & C Merriam Co. (circa 1956)(mimeo.)

Barnett, Lincoln. *The Treasure of Our Tongue.* New York: Alfred A. Knopf, 1964.

Beechhold, Henry F. and Behling, Jr, John L. *The Science of Language and the Art of Teaching.* New York: Chas. Scribner's Sons, 1972.

Betts, Emmett A. "A New Area: Reading and Linguistics,' *Education,* XXXIV, No. 9, (May, 1964), pp. 515-20.

- "Basic Reading: Perceptual Learning," *The Florida Reading Quarterly,* XI, No. 2, (Mar. 1973), p. 5-8.

- "Confusion of Terms" *The Reading Teacher,* XXVI, No. 5, (Feb. 1973), p. 454-5.

- "Escalation of Learning: Reading," *Education,* XCI, No. 3, (Feb.-Mar. 1971), p. 187-97.

- "Is Phonics a Cure-All?" (Basis of a symposium in *The Saturday Review,* July 30, 1955).

- "Linguistics and Reading," Education, LXXXVI, No. 8, (Apr. 1966), P. 454-'8.

- "Linguistics and Reading: A Critique," p. 130-40 in Arthur E. Traxter (Editor), *Innovation and Experiment in Modern Education.* Report of 29th Educational Records Bureau. Washington, D. C.: American Council on Education, 1964.

- "Issues in Relation to Linguistics and Reading," (Delivered at the *National Council of Teachers of English,* 57th Annual Convention, Honolulu, H. 1. Nov. 1967). Coral Gables, Fla.: Reacting Research Lab. Univ. of Miami, Fla.

- "Phonics: Practical Considerations Based on Research," *Elementary English,* XXYIII, No. 6, (Oct. 1956), p. 357-71.

- *Phonics: Vowel Principles.* New York: American Book Co, 1950.

- Reading: Graphic Signals," *The Reading Teacher,* XXV, No. 3, (Dec. 1971), p. 230-1.

Betts, Emmett A. "Reading: Language Codes," *Education,* LXXXVIII, No. 1, (Oct. 1967), p. 64-7.

- "Reading: Linguistics," *Education,* LXXXIII, No. O, (May 1963), P. 515-26.

- "Reading: Linguistic and Psychological Bases," p. 20-3 in J. Allen Figurel (Editor), *Improvement of Reading Through Classroom Practice.* Conference Proceedings, I. R. A. IX, Newark, Dela.: International Reading Assoc., 1964.

"Reading: Perceptual Learning," *Education,* LXXXIX, No. 4, (Apr.-May 1969), p. 291-7.

- "Research on Orthographies: Priorities," (Delivered at the 1. R. A. 18th Annual Convention, Denver, Colo, May, 1973). Coral Gables, Fla.: Reading Research Lab, Univ. of Miami.

- "Visual Perception in Reading," *Education,* LXXIII, No. 9, (May, 1953), p. 575-82.

- "Word Perception is More than Phonics," My Weekly *Reader Teacher's Edition,* XXXVII, No. 23, (Mar. 13, 1968), p. 1-2. American Education Press.

- "Word Perception Skills for Tomorrow," *Education.* LXXXV, No. 9, (May, 1965), p. 523-9.

Black, Elsie B. "A Study of the Consonant Situations in a Primary Reading Vocabulary," Education, LXXII, No. 9, (May, 1952), p. 618-23.

Bloomfield, Leonard. *Language.* New York: Henry Holt & Co., 1933.

Buchanan, Cynthia D. A Programed Introduction to Linguistics: Phonetics and Phonemics. Boston; D. C. Heath and Co., 1963.

Carrell, James, and Tiffany, Wm. R. *Phonetics. Theory Application to Speech Improvement.* New York: McGraw Hill Book Co, 1960.

Carroll, John B. *Language and Thought.* Englewood Cliffs: Prentice-Hall, 1964.

Dewey, Godfrey. *English Spelling: Roadblock to Reading.* New York: Teachers College Press, Columbia U. 1971.

- Relativ Frequency of English Speech Sounds. Cambridge: Harvard Univ. Press, 1923.

- *Relative Frequency of English Spellings. New* York: Teachers College Press, Columbia Univ. 1970.

Eisenson, Jon and Boase, Paul H. *Basic Speech.* New York: The Macmillan Co. 1964.

Francis, W. Nelson. *English Language.* New York: N. W. Norton & Co. 1965.

The Structure of American English. New York: The Ronald Press Co. 1958.

Fries, Chas. C. *Teaching and Learning English as a Foreign Language.* Ann Arbor: U. of Michigan Press, 1945.

Gleason, Jr, H. A. *An Introduction to Descriptive Linguistics.* New York: Holt, Rinehart & Winston, 1961.

Goodman, Kenneth S. (Editor) *The Psycholinguistic Nature of the Reading Process.* Detroit: Wayne State U. Press, 1968.

Gray, Louis H. *Foundations of Language.* New York: The Macmillan Co. 1939.

Hall, Jr, Robert A. *Introductory Linguistics.* New York: Chilton Books, 1964.

Halliday, M. A. K.; McIntosh, Angus; and Strevens, Peter. *The Linguistic Sciences and Language Teaching.* Bloomington: Indiana Univ. Press, 1964.

Hill, Archibald A. *Introduction to Linguistic Structures.* New York, Harcourt, Brace Sz Co, 1958.

Hackett, Chas. F. A *Course in Modern Linguistics. New* York: The Macmillan Co, 1958.

Huey, Edmund B. *The Psychology and Pedagogy of Reading.* New York; The Macmillan Co. 1908.

Jakobson, Roman (Editor). Structure *of Language and its Mathematical Aspects.* (Proceedings of the 12th Symposium in Applied Mathematics, XII). Providence, R.I.: American Mathematical Soc., 1961.

Jacobson, Roman; Fant, C. Gunnar M.; and Halle, Morris. *Preliminaries to Speech Analysis.* Cambridge: M.I.T. Press, 1969.

Jakobson, Roman; and Halle, Morris. *Fundamentals of Language.* The Hague, Netherlands: Mouton & Co. 1956.

Judson, Lyman S.V., and Weaver, Andrew T. *Voice Sci*ence. New York: Appleton-Century-Crofts, 1965.

Kantner, Claude, and West, Robert. *Phonetics.* New York: Harper and Bros., 1960.

Kavanagh, James F., and Mattingly, Ignatius G. (Editors) *Language by Ear and by Eye.* Cambridge: M.I.T. Press, 1972.

Kenyon, John S. *American Pronunciation.* Ann Arbor: Geo. Wahr Pub. Co., 1950.

Kenyon, John S., and Knott, Thomas A. A *Pronouncing Dictionary of American English.* Springfield, Mass: G & C Merriam Co, 1949.

Klima. Edward S. "How Alphabets Might Reflect Language," p. 56-80 in James F. Kavanagh and Ignatius G. Mattingly (Editors) *Language by Ear and by Eye.* Cambridge: M.I.T. Press, 1972.

Lado, Robert, and Fries, Chas. C. *English Pronunciation.* Ann Arbor: Univ. of Michigan Press, 1954.

Lander, Herbert. *Language and Cullare.* New York: Oxford Univ. Press, 1965.

Lefevre, Carl A. *Linguistic English and the Language* Arts. Boston: Allyn and Bacon, 1970.

Leutenegger, Ralph R. The Sounds of American English – An Introduction to Phonetics. Chicago: Scott, Foresman Co, 1963.

Lloyd, Donald J, and Warfel, Harry R. *American English in its Cultural Setting.* New York: Alfred A. Knopf, 1956.

Lyons, John. *Introduction to Theoretical Linguistics.* Cambridge, London: Cambridge Univ. Press, 1968.

Marckwardt, Albert H. *Introduction to the   English Language.* New York: Oxford Univ. Press, 1942.

McIntosh, Angus, and Halliday, M.A.K. Patterns *of Language*. Bloomington: Indiana Univ. Press, 1966.

Merriam, G. & *C. Webster's New Elementary Dictionary*. New York: American Book Co, 1970.

Merriam, G. & *C. Webster's Third International Dictionary*. New York: American Book Co, 1965.

Miller, George A. *Language and Communication*. New York: McGraw-Hill Book Co, 1951.

Mulgrave, Dorothy. Speech. New York: Barnes & Noble, 1954.

Oaks, Ruttr E. "A Study of the Vowel Situations in a Primary Vocabulary," *Education*, LXXII, No. 9, (May, 195 2), p. 604-17.

O'Neil, Wayne. "Our Collective Phonological Illusions: Young and Old." p. 110-16 in James F. Kavanagh and Ignatius G. Mattingly, (Editors), *Language by Ear and by Eye.* Cambridge: M.I.T. Press, 1972.

Ornstein, Jacob, and Gage, Wm. W. *The ABC's of Languages and Linguistics.* New York: Chilton Books, 1964.

Pierce, J. R. Symbols, Signals, and Noise: The Nature and Process of Communication. New York: Harper & Row Pub. 1961.

Pike, Kenneth L. *Phonemics.* Ann Arbor: Univ. of Michigan Press, 1947.

Potter, Simeon. *Modern Linguistics.* London: Andre Deutsch, 1957.

Price, Owen. *English Orthography, 1558.* Menston, Engl.: The Scolar Press Ltd, 1972.

Pyles, Thomas. *The Origins and Development of the English Language.* New York: Harcourt, Brace & World, 1964.

Roberts, Paul. *Patterns of English.* New York: Harcourt, Brace & Co, 1956.

Robins, R. H. *General Linguistics – An Introductory Survey*. Bloomington: Indiana Univ. Press, 1964.

Salus Peter H. *Linguistics.* New York: The Bobbs-Merrill Co, 1969.

Sapir, Edward. *Language.* New York: Harcourt, Brace & Co, 1921.

Stageberg, Norman C. *An Introductory English Grammar.* New York: Holt, Rinehart & Winston, 1965.

Sturtevant, Edgar H. *An Introduction to Linguistic Science.* New Haven Yale Univ. Press, 1947.

Thomas, Charles K. *Handbook of Speech Improvement.* New York: The Ronald Press Co, 1956.

- *Phonetics of American English,* New York: The Ronald Press Co, 1947 and 1958.

Trager, George, and Smith, Jr., Henry L. *An Outline of English Structure.* Washington: American Council of Learned Societies, 1957.

Venezky, Richard L. *Linguistics and Spelling.* Madison: Wisconsin Research and Development Center for Cognitive Learning, Univ. of Wisconsin ,Working Paper 15, April 1969.

Ward, Kendall K, and Kaltenborn, Jr., Arthur L. *Guides for American-English pronunciation.* Springfield, Ill.: Charles C. Thomas, 1971.

Warfel, Harry L. *Language – A Science of Human Behavior.* Cleveland: Howard Allen, 1962.

Weir, Ruth H, and Veneky, Richard L. "Spelling-to-Sound Patterns," p. 186-199 in Kenneth S. Goodman (Editor) *The Psycholinguistic Nature of the Reading Process.* Detroit: Wayne State Univ. Press, 1968.

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6. The Notion of Regularity in Reading and Spelling, by Richard L. Venezky*

*University of Wisconsin, Madison, Wisc.

Introduction

From the 16th century *Abc for chyldren* **[1]** to the most modern psycholinguistic, self-programmed, multi-track, combined language series, the teaching of English reading and spelling has made a wide circle. The earliest spellers and primers, beginning with the *Abc*, Edmund Coote's *The English Schoole-Master* **[2]** and the *New England Primer* **[3]**, were steeped in letter-sound pedagogy borrowed thru Latin from classical Greek. Each letter had a name (nomen), a shape (figura) and a power (potestas) or powers (potestatis) **[4]** and the first step towards the acquisition of literacy was the memorization of this triad for each letter of the alphabet. Just as English grammars were trampled and truncated to fit the procrustean bed of Latin grammar, so was reading and spelling pedagogy shaped on the classical models. Letter names were learned, isolated sounds were attached to symbols' and eventually, whole words and sentences were attacked. Regardless of the variations upon this scheme, it supported American reading and spelling until the end of the 19th century, when letter-sound systems were driven underground by the whole-word movement.

The campaign against letter-sound training in the United States began in the first quarter of the 19th century and was led by men of the stature of Horace Mann and Samuel Worcester **[5]**. But it was not until the early 1900's, that the whole word approach to reading and spelling was firmly established – a victory which resulted primarily from the association of whole-word training with the child-centered psychology of G. Stanley Hall and the progressive education of John Dewey **[6]**. With the advent of progressivism in America, with its emphasis on equality and education, and the entrance of learning theory into education, the whole-word method, which had floundered for 3/4 of a century with no visible support, suddenly discovered a foundation beneath it.

But with the new education came improved educational testing procedures and a renewed vigor for continual evaluation and change. While the failings of the whole-word pedagogy were by themselves no more and no less than those of the earlier letter-sound techniques, they could now be more easily and more convincingly ascertained – and they were. At first compromises were made with the letter-sound school allowing word-attack strategies to re-enter the classroom. But once admitted, the letter-sound advocates became most ungracious guests, driving the whole-worders into the pedagogical attic, where with the hornbook and the Oswego Movement they have become an- other educational antique--fit only for historical surveys, Master's theses, and an occasional fiery denunciation.

The new letter-sound school, while returning to the segmentation of words into phonological and orthographic components, has introduced a new concept, regularity, into its teaching arsenal. Pre-twentieth century letter-sound teaching was quite egalitarian in its approach to the alphabet – all letter-sound correspondences were equal, and each deserved its due share of attention. Thus, the alphabet was traversed from *a* to *z*, first with letter names, then with sounds. Then the consonants from *b* to *x* were paired with the vowel letters *a, e, i, o,* u, (composing what Horace Mann called "cadaverous particles") **[7]** and regardless of the regularity or functional load of the resulting combinations, each was afforded an equal slice of attention.

The whole-word advocates noticed that all was not regular in the orthography, but in their haste to discredit the letter-sound system, concluded that the situation was too hopeless to salvage any patterning. The new letter-sound school admitted the existence of substantial irregularity, but based its hopes for efficacy upon the so-called regular spelling-to-sound and sound-to-spelling patterns.

Most modern instructional techniques assume, furthermore, that a linear sequence of these patterns from the most simple to the most difficult will produce the most efficient learning. **[8]** Altho this latter hypothesis needs serious consideration, the primary purpose of this paper is to examine the notion of regularity as it applies to orthographic patterns in reading and spelling.

Regular Orthographic Patterns

Most spelling and reading series assume that the labels *regular* and *irregular* are sufficient for classing all letter-sound and sound-letter patterns. However, a cursory examination of even the most regular patterns will reveal differences which are significant for teaching. In the discussion which follows, several classes of both regular and irregular patterns are introduced and compared.

Invariant correspondences
An invariant correspondence is one which holds regardless of its position in a word, the position of word stress, or any other modifying feature. A few such correspondences exist for both reading and spelling. For reading, *v* always corresponds to /v/, and for spelling, with the exception of the one word of, /v/ is always spelled *v*. **[9]** For reading, the correspondences j→ /j/, q→ /k/, *ck*→ /k/, and *tch*→ /č/ are invariant; in the reverse direction, however, no such regularity holds. /j/ can be spelled *g, j, dg,* or *d* as in *gem, jam, ridge,* and *cordial;* /k/ can be spelled *q, k, ck,* or *c*, as in *queen, kin, luck,* and *can,* and /č/ can be spelled *tch*, *ch, t,* (or *ti*) and *c*, as in *match, chin, bastion,* and *cello.* On the other hand, /ð/ and /θ/ are always spelled *th*, yet the pronunciation of *th* from a reading standpoint is not invariant (but still not entirely irregular).

Few other sound-spelling or spelling-sound correspondences are invariant (/h/ is always spelled *h,* yet the existence of silent h's as in *vehement* and *philharmonic,* could be interpreted as irregularities for the /h/ → h pattern.)

Regular, variant patterns
Many variant letter-sound and sound-letter correspondences are not invariant, yet are still regular in that their occurrences can be predicted by graphic, morphemics or phonemic features. The simplest variant patterns are those that depend upon position within a word. Initial *t*, for example, always corresponds to /t/, and initial /t/ corresponds to *t*, except in *thyme.* [9] Final *c* always corresponds to /k/, but the reverse pattern, that of /k/ and its various spellings, cannot be predicted on the basis of position alone. Some other regular, variant correspondences for reading and spelling are tabulated below. (These are not exhaustive listings.)

Reading
1. Initial *c* before *a, o, u*, or a consonant corresponds to /k/; otherwise, to /s/. **[10]**
2. Initial *th* before a vowel corresponds to /ð/ in functors, that is in adverbs, conjunctions, prepositions, and articles; otherwise, initial *th* corresponds to /θ/.
3. Initial *k* before *n* is silent; in all other environments it corresponds to /k/.
4. *h* immediately following a stressed syllable or a consonant, is silent (e.g., vehicle).
5. Initial *x* corresponds to *z*; final *x* corresponds to /ks/.
6. Initial or medial *e* in graphemic monosyllables (that is) in words in which the *e* is the only vowel spelling) corresponds to /ε/.

Spelling
1. Final /ks/, in a single morpheme, corresponds to *x*.
2. Initial /k/ before mid or high front vowels corresponds to *k*.
3. /s, z, or iz/ as plural morphemes, corresponds to *es* after /č, j, š, ž, s, z/, and to *s* otherwise.
4. Initial /w/ in dialects which retain /hw/ for *wh* – (as in *when*) corresponds to *w*.
5. /ŋ/ is always spelled *n* in medial position. In final position a silent *g* always follows this n. **[11]**
6. In monosyllables, /ɪ/ is spelled *i* (with a few exceptions, e.g., *creek* (dialectal), *been*.)

All of these patterns are regular in the sense that they can be predicted, yet they are not invariant, that is, the spellings (for reading) always have other pronunciations and the sounds (for spelling) always have other spellings. What is important here is that various types of regularity exist, and each requires different skills for the child who is attempting to master them. The invariant correspondences require simply a consistent connection of a spelling with a sound, or a sound with a spelling. But the variant correspondences require considerably more complex concepts. Positions within words must be recognized, stress patterns and morpheme boundaries must be observed, and concepts like *plural, front vowel,* and *monosyllable* must be mastered. Exactly how these patterns should be sequenced is not clear since the relative difficulties of the concepts upon which they are based are not known. One objective of reading and spelling research should be to examine the acquisition and utilization of these concepts. [12]

Types of Irregularities

Even the irregular patterns show important differences. For reading, the correspondence of *o* to /ɪ/ in *women*, is irregular and occurs in this word only. The correspondences of *ea* to /i/ and /ɛ/, however, are much more frequent and pose, therefore, a different reading problem. Because o→ /ɪ/ occurs only in *women,* this word should he presented as a sight word for reading to minimize the chances of transferring the o→ /ɪ/ correspondence to other o words. For *ea*, large groups of words exist for both /i/ and /ɛ/. Therefore, presenting each *ea* word as a separate, exceptional reading word will be less efficient than presenting groups of *ea* → /ɛ/ and *ea* → /i/ words so that the child can attempt to use intragroup associations to aid in retaining the correct *ea* correspondence.

Another type of irregularity is contained in *damn.* Altho for spelling there is no clue within this word for indicating the final, silent *n*, there is a clue for it in *damnation.* Similarly, *autumnal* and *hymnal* provide clues for the final, silent *n*'s in *autumn and hymn.* Whether or not these patterns are considered predictable is not important. What is important is that both the association of the final -mn words with each other and the association of each with a suffixed form in which the *n* is pronounced can be used to teach their spellings.

Reclassification of Patterns

On the basis of the foregoing discussion, the following classifications are offered for sound-spelling and spelling-sound patterns:

I. Predictable: patterns that can be predicted on the basis of regular graphemic, morphemics or phonemic features of the words or sentences in which they occur.

    A. Invariant: patterns that admit no (or very few) variations or exceptions.

    B. Variant: patterns that have predictable variations or exceptions. (Variant patterns could be divided further on the basis of the features needed to predict each pattern.)

II. Unpredictable: all patterns that do not fit into category I above.

    A. Affix aided: patterns that could be derived by relating the word to one of its prefixed or suffixed forms, for example, *sign, signal.*

    B. High frequency occurs frequently (frequently enough to allow an association group to be profitably employed in teaching).

    C. Low frequency: occurs too infrequently to merit the formation of an association group.

The importance of this classification is that it separates patterns according to the pedagogy that can be employed to teach them. All predictable patterns could be taught by rules, that is, through reasoning, altho this may not be the best techniques for some of them.

Furthermore, the difference between the invariant and variant predictable patterns can be related to the teaching of a set for invariance as against teaching a set for variance. Presenting all the invariant

patterns before the variant ones may interfere with the teaching of the latter through the reinforcement of a set for invariance.

In the unpredictable class, the low-frequency patterns should not be presented as letter-sound or sound-letter patterns, because this may encourage transfer to inappropriate situations. The high-frequency patterns cannot, in a strict sense, be transferred either, because there is no way to predict where they apply. However, by associating the words in which a particular pattern occurs, an extra measure of learning efficiency might be gained. With the affix-aided patterns, further associations are possible.

From this classification for letter-sound and sound letter patterns, the following threefold classification for reading and spelling words has been derived. (The word groups for reading will rarely be the same as those for spelling.)
1. Transfer words: words that contain predictable patterns. The patterns in these words can be transferred to the pronunciation (or spelling) of other words in which the same spellings (or pronunciations) occur.
2. Association words: words grouped according to frequently occurring, but unpredictable patterns.
3. Isolated words: words that should be handled as whole words to inhibit transfer of irregular or low-frequency patterns.

The problems in defining "regular" and "irregular" are solved by simply throwing out these terms and adopting the more precise labels "predictable" and "unpredictable", along with their various subclasses. For the educator, the task then becomes one of deciding at any level of reading or spelling instruction which words contain patterns that can be transferred to other words, which contain frequently occurring but nontransferable patterns, and which words should be taught as isolated whole units. The further question of the best sequence (or sequences) of patterns for optimum learning efficiency is left for future consideration.

Footnotes
1. The *Abc for chyldren,* a brief tract on spelling by an anonymous author (1551-58), is the earliest extant spelling instruction printed in English. It has been reprinted by E. Flügel in *Anglia,* xiii (1891, pp. 461-67.
2. Coote's *English schoole-master* (1597) served for least two centuries as a model for English and American spelling books. Nonsense syllables occupy the entire first part of this work, the second part being given to such topics as vowels, consonants, and grammar. See further E. J. Dobson, *English Pronunciation,* 1500-1700, 2 Vols. (Oxford, 1957), Vol 1, pp. 33ff.
3. The *New England Primer,* which appeared in America in the late 17th century, combined as did the English primers upon which it was based, the teaching of religion and reading. According to Clifton Johnson, *Old-time schools and schoolbooks* (N.Y., 1963), p. 71, the earliest mention in print of the *New England Primer* occurred in an advertisement in a Boston "almanack" in 1690.
4. This triology is discussed by Einar Haugen, "First grammatical treatise: the earliest Germanic philology." *Language monograph* No. 25, (Baltimore, 1950), p. 41-2.
5. For Horace Mann's role in the whole word movement, see M. M. Mathews, *Teaching to read, historically considered* (Chicago, 1966), pp. 75ff. Samuel Worcester, best known for his lexicographic work, published a primer in 1828 in which he suggested that children be taught to pronounce whole words before learning to break them into letters (M. M. Mathews, *op. cit,* p. 66). It is doubtful, however, that Worcester made a significant assistance to the whole-word movement.
6. On theories of learning in American education, see Frederick J. McDonald, "The influence of learning theories an education (1900-50)," *The 63rd Yearbook of the Nat. Soc. for the Study* of Education (Chicago, 1964)p.1-26.

7. See M.M. Mathews, *op. cit.,* p. 78.

8. For this view, see in particular Leonard Bloomfield, "Linguistics and Reading," *The Elementary English Review* XIX (Apt. 1942), 125-30, and XIX (May 1942), 183-6.

9. In this discussion, proper names and rare borrowings re disregarded. The basis for this information comes from a series of studies carried out by the present author. For summaries of this work, see R. Venezky, *The Structure of English Orthography.* The Hague, 1970.

10. Italian borrowings like cello are exceptions to this pattern.

11. Whether to teach the spelling of /ŋ/ in words like *strong* as *n* plus silent *g,* or as *ng* is a matter of practice and not of theory. While I doubt if any spelling series at present even points out that the *g* in *strong,* like the *b* in *bomb* is silent, I see many reasons to do so. Consider for example, the relationship of *strong to stronger* and *bomb* to *bombard,* where the *g* and the *b* are silent in the root word and pronounced in the compound. Altho *ng* and *mb* are parallel spellings, both having a final silent letter, most spellers and dictionaries claim that *ng* spells /ŋ/, but that *m* spells /m/, the *b* being silent. The one exception of which I am aware is the *Century Dictionary and Cyclopedia*: ". . . and the combination *ng* representing it /ŋ/ is simply one in which the *g*, formerly pronounced, has become silent, like the *b* of *mb* in *lamb, climb, tomb,* etc." Vol IV, p. 2423.

12. Two sets of regular patterns are not discussed here. The first includes those letter-sound or sound-letter patterns which are based not upon particular letters or sounds, but upon classes of these entities. For example, the correspondences for a geminate consonant cluster can be predicted by a general rule based upon the presence or absence of a morpheme boundry between the two elements of the cluster. Many of these patterns are discussed in R. Venezky, "English orthography: its graphical structure and its relation to sound," *Reading Research Quarterly* (Spring, 1967).

The second set includes those patterns based solely upon letters, or solely upon sounds (generally termed *graphotactical* or *phonotactical* patterns). The alternations of *i* and *y* (candy: candied), and the dropping of final *e* (change; changing: changeable) fit into this class as do the rules for stress shift with suffixation (áthlete: athlétic).

References

Anonymous. *The Abc for chyldren.* 1551-58. Reprinted by E. Flügel, *Anglia,* xiii, 1891, P. 461-7.

Anonymous. The New England Primer (1683 ?).

Bloomfield, Leonard. "Linguistics and reading," *The El. English Rev.,* xix, 1942, p. 125-30 and 183-6.

Century Dictionary & Cyclopedia, vol.4, New York, 1911.

Coote, Edmund. The English Schoole-Master, 1597.

Dobson, E. J. *English Pronunciation,* 1300-1700, 2 vols. Oxford, 1957.

Haugen, Einar. "First grammatical treatise: the earliest Germanic philology." *Language Monograph No. 25,* 1950.

Johnson, Clifton. Old-time Schools & Schoolbooks, N.Y. 1965

McDonald, F. J. "The influence of learning theories on education (1900-50)," *The 63rd NSSLI Yearbook,* Chicago, 1964, p. 1-26.

Mathews, M. M, Teaching to Read Historically Considered. Chicago, 1966.

Venezky, R.L."English orthography: its graphical structure and its relation to sound." *R.R.Q, 2.* 1967, p. 75-106.

Venezky, R. L. The Structure of English Orthography, The Hague, 1970.

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The go-gebtor

(from *Rimes without reason*)
> A merchant adressing a debtor
> Remarked in the course of his lebtor
> > That he chose to suppose
> > A man knose what he ose;
> And the sooner he pays it the bebtor.

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7. Letters to the Editor

On Spanish spelling reform

Dear Newell: (SR-1 used) by Emilia Loyola

Enclosed is my translation of the Tribuna Nacional letter. The proposals, if adopted, would make Spanish orthography almost completely phonetic, the only irregularities being *qu* (*que, quien*, etc.) and *gue, gui* as in *gala* and *guerra.* The *u* in all such words is silent. *These* two defects could be corrected at some time in the future. l agree with all the proposals except that the syllables *ci* and *ce* might better be changed to *zi* and *ze* insted of *si* and *se*, and the *z* retained in words where it's now used. This is because educated Spaniards pronounce the *z* (and the *c* in *ce* and *ci*) like an unvoiced *th*. Tho these letters are pronounced like an *s* in Spanish America, it's problematic whether it would be desirable to use the *s* in the New World and the *z* in Spain in such words. But that, of course, is a decision that Latin Americans themselves will make in due course.

Cordially yours, Bob Mayhew, Calexico, Ca.

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Tribuna Nacional: our readers frank opinions: a letter to the members of the Language Academy.

Dear Editor:

Please publish the following letter, which I am sending to the gentlemen of the Language Academy. I believe that language, both oral and written, is the basic means of communication among human beings. Simplicity and clarity are the principal qualities that language must have if its main function is indeed to enable men to understand one another.

The spoken language is the easiest to understand, even if it is spoken poorly, because one may immediately ask for a clarification of what is not understood. But the written language is so mangled by bad spelling that at times the incorrectly spelled word is actually unintelligible, especially to persons with little education.

I think language should be functional and accessible in order to be within reach of the common people, who have very little schooling, and in some cases none at all. I also think language should always be kept up to date in order to fulfill its purpose.

We elementary-school teachers have a great deal of difficulty in teaching spelling, which is a problem in our language. In order for a child to learn to read and write correctly, he must overcome these difficulties in the first and second grades. If he doesn't he may reach the higher grades with spelling deficiencies. The child may perhaps in some cases have enough time to correct these deficiencies. The adult does not.

In our new system of Basic Education for Adults – the equivalent of the primary grades – the problem is more serious because this type of education has been speeded up. Each man is required to get his primary-grade certificate because it is a prerequisite for meny jobs. In this system there is nothing superflous in the curriculum. It deals exclusively with the bare fundamentals of each subject. Moreover, the curriculum is planned with due consideration of the studies the pupils engaged in as children, as well as their experiences in life. It is up to the teacher to clarify, organize, and bring this knowledge up to date m a scientific way, rounding it out with whatever explanations are necessary to enable the student to obtain his certificate. Here is where we encounter the roadblock of spelling, which often keeps the student from getting his certificate. Without this certificate he' *is* hard put to find work.

Since language is the principal medium of communication and understanding, it behooves *us* to remove all unnecessary difficulties so that it will be easier to learn.

With this objective in mind, I am going to make a bold proposal. In its essence, my proposal is similar to the one that the Spanish teacher Longinos Cadena made meny years ago. I propose that we do away with all the spelling rules that make it hard to spell correctly, and which therefore make the comprehension of the written language more difficult.

Specifically, I propose:

1. That we use the B for both B and V (burro, baca);
2. that the C be used to show the hard sound only (ca, co, cu), and that the S be used for the soft sound of C;
3. that the G be used only for the hard sound (ga, go, gu), with the J to be used for the guttural sound of ge,gi;
4. that the useless silent H be dropped altogether;
5. that the J be used wherever it is now used, and also to supplant the G wherever the pronunciation warrants it;
6. that the K be dropped altogether, since we have no need for it;
7. that the S continue to be used as it is now, and that it also replace the C in the syllables se and si (cosina, seleste);
8. that the letters V, X, Y and Z be dropped from the alphabet, since their functions will have been taken over by other letters.

Of course these proposed changes would work a hardship on those of us who are accustomed to the present orthography, but future generations that would begin their study of the language with the spelling that I advocate would be greatly benefited because they would learn to spell correctly the easiest way.

Now that the gentlemen of the Spanish Language Academy are in my country, thanks to Televista, I am taking the liberty of expounding this idea that I've been thinking about for meny years – ever since the children in my classroom began to yell at me, "Teacher, how do you spell *boleto*, with the V of *vaca* or the B of *burro*?"

I felt like answering, "With either one, sonny. You pronounce them the same way."

Will I manage to get my message across? I certainly hope so.

Emilia Loyola, Jose Buenavista, Tlalpan, Mexico.

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<h1 align="center">On SR- 1</h1>

Dear Mr Lindgren: **by Harvie Barnard**

Thank you kindly for your good letter of Sept. 4 re SR-1 as well as for your most enjoyable book. I have red most of it and agree with all I have red. Your arguments for and agenst are kojent.

I am alredy using a personal variety of simplified spelling – especially with those hoo "dig" the idea ov simplifikashan. However, I offen slip bak into the "vernakular," for which I trust I'll be forgiven.

I'm not getting a konsistent response from our offise ov edukashun, but intend to kontinue my follow-up aktivly.

It frequently apears that, upon kritikal inspekshun, a major part of the status quo is riddled with selfish politiks. On some klaudy daz I feel that the future is very dark for the koming generashuns. The only anser which konsistently makes sense is that too meny administrators are afraid ov change bekawz ov lak ov konfidense in themselves as wel as their assoshiates.

I am trying to bild a korrespoodense with persons ov sum politikal substanse, but ov korse that wud be in Ye Olde English, exsept for "minor" switches, such as *tho, thot, fone,* and *sulfer*.

Insidentally, duz my donashun make me a member ov yor sosiety?

Sinserely, (Tacoma, Wash.)

<p align="center">-o0o-</p>

<h2 align="center">Fonetic Language Revolution Urged</h2>

Dear Editor   **by H. C. Patmore**

I am calling for a language revolution. I propose that we bring our language into the present age by making it entirely fonetic by the year 1980.

The useless letters retained in our spelling constitutes a word polution and are the greatest single hinderance to education and communication today.

Language consists of three factors: thought, speech, and script. Speech is the mean between the thought and the written word. Speech changed in America from standard or Old English because the thought was freed from the old customs and traditions that bound it. It was completely cut off from history and the past. The changing thought expressed itself in changing speech. But this change in thought and speech was not reflected in a corresponding change in the spelling or the script. In order for language to be meaningful, in order for thought to express itself freely and fully, the third element of language must be held in continuing relationship with the other two factors.

This harmonious relationship is the basis for communication. When this relationship is violated, rapid communication is impossible.

In England some such relationship still exists. They still pronounce *night* with a long "igh" sound whereas we say *nite*. Intelligence should insist that we spell it that way.

When we changed the word *neighbour* to *neighbor*, it was nothing but a lack of foresight for us not to have changed it to *naybor* at the time.

The root cause of this disparity between the elements of language in this country is the phenomenal and rapid expansion of the human consciousness in America. No one could have foreseen it. Very few understand it.

If our lexicographers of the past had had any foreknowledge of this phenomenon, they could have made the changes in spelling as they occurred in speech and thus provided for the smooth evolution of the language, and no revolution would now be necessary. But now a drastic change will have to be made in order to prevent a complete breakdown in communication, due to the increasing demand for speed.

H. C. Patmore, Los Angeles, Calif.

(Ed. note: Part of this breakdown is evidenced by dropouts, delinquency and gang revolution agenst the establishment).

-o0o-

Spelling, pronunciation bewilder students
Dear Editor, Winnipeg Tribune: **by Mike Krycun**

The school report of Dr. Lorimer published in your paper has really damaged the logic of those who tried to convince public opinion that our school system is at fault, and is, therefore, the only reason why little Johnny can't read. As far as I can see, that isn't so. Our educators do their best with the materials they have to work with. Our school system is a model of liberal education.

As one of those who started to learn the English language when they already knew a few other languages, I have good practical experience. So, I may say that two things make the learning of English very difficult. They are the spelling and pronunciation – too much difference.

I quote from some well-known masters of English:
Prof. L.A.G. Strong, author of *English for Pleasure* and *Informal English Grammar,* said "What bothers them (those who try to learn English) is the wide range of roots from which English is derived, the go-as-you-please way in which we put our language together and, above all, the chaos of spelling. No wonder the foreigner is bewildered.

But this is spelling and sound (pronunciation), not grammar. English grammar is of course direct and simple.

Thorstein Veblen went even further. He said, "English spelling is archaic, cumbrous and ineffective."

The most important voice in this matter is, of course, that of Norman Lewis, a brilliant American linguist of our time. In his fine book, *Better English,* he says, "It is so archaic, in fact, that most present day Americans, even those of considerable education, find themselves baffled, confused and irritated by the spellings of a great number of fairly common English words."

Isn't that enough to prove that spelling is just the thing that really bothers our little Johnny? Can't we do something positive in that area? I hope so, but it can only be done by bringing the spelling of all words nearer to its sound-and that sound ought to be natural, not the product of a class in diction. How to do this? Surely a way can be found if we use the best brains to develop this as we have to improve the printing press, the airplane, the moon ship.

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