THE STRUCTURAL APPROACH
TO LATIN:
A TEACHER'S GUIDE

A delysious Syrue
newly Claryfied for yonge Scholers
yt Thurste for the Swete-Licore of Latyn Speche

Waldo E. Sweet
INTRODUCTION

The following pages are intended to introduce teachers of Latin to an approach to language which we may call the structural approach. The practical application of the principles whose theory is here explained may be seen in the textbooks *Latin: A Structural Approach* and *Vergil's Aeneid*, both published by The University of Michigan Press. The manuscript in its present form is intended for students in courses at the University of Michigan and for teachers of methods courses at such institutions as Boston College, Columbia, Columbière, Connecticut, Georgetown, Indiana, Iowa, Los Angeles, Marquette, Minnesota, Mississippi, Mundelein, New Jersey, Notre Dame, San Francisco, Tennessee, Tufts, Wayne, Western Maryland, Westminster, William and Mary, Wisconsin, Xavier, and other places where this particular approach is presented to teachers and prospective teachers.

In a review of Gleason's textbook on structural linguistics, Catherine Clardy says, "The book represents a common core of agreement among American linguists." This volume attempts to do much the same thing in presenting structural linguistics to teachers. We have quoted copiously from numerous linguists to try to show this agreement and to stimulate the student to further reading in these authors.

It should be understood that this book has a practical purpose and that nothing has been included which does not appear to have some bearing on language learning. It is intended to be an easy book, and it is therefore both superficial and misleading in many respects. The professional linguist may well believe that we have belabored the obvious and some of the examples may seem tired and worn. We plead that the purpose of these pages is to educate language teachers, not to train scholars in structural linguistics. The difficulties involved in getting a traditionally trained teacher to think structurally are immense and seem to warrant this attempt.

The language teacher, on the other hand, may find the following pages rather difficult. Much of what is said will directly contradict what he has been taught
about language. But once the underlying philosophy is grasped, the treatment of language in a scientific fashion, it appears, in its general outline at least, to be plain and simple. One may be reminded of George Bernard Shaw's remark, "The moment we want to stop believing in anything we have hitherto believed in we not only find that there are many objections to it, but also that these objections have been staring us in the face all the time."

There can be no compromise between the old and the new. One cannot "adapt" a structural viewpoint to fit a traditional textbook. We believe that the traditional view of language was erroneous and that for this reason many of the techniques were faulty as well. We do not claim, however, that the techniques which an understanding of structural linguistics has suggested are necessarily the best that can be devised, but because of the widespread interest in the structural approach I have felt obligated to take as definite a stand on every point as could be done.

The present version is a revision of an earlier attempt that was used at Michigan for several years. A comparison will show that it has been greatly expanded. In making this expansion, however, I have been working from a tiny library and a few notes. Consequently the references have in most cases not been verified and not unfrequently are incomplete.

When this version has had the benefit of criticism from students and colleagues, it will appear in a printed edition.

Jackson, New Hampshire
1 March 1960

Permission to use the numerous quotations is now being obtained and suitable acknowledgements will be made in the printed edition.
CHAPTER ONE

THE PRESENT STATUS
OF LATIN STUDIES

It is apparent that there is a widespread dissatisfaction with present methods of teaching and learning Latin, both within the profession and outside of it. Conscientious teachers are constantly seeking ways of injecting vitality into their classes. Too often, however, this takes the form of activities which regardless of their merit have little to do with the primary task of learning Latin. Critics of this "substitutism"\(^1\) believe that such activities, even if valuable, have little place in a Latin class and could be better taught in social studies. If the chief aims of two years of Latin are the social values, the Roman banquet, and the well-constructed catapult, why waste time on declensions, conjugations, and syntax?

Again, some Latin teachers stress the value of Latin to learn "correct English"\(^2\), to learn to say "It is I" and the like. The shallowness of this philosophy is apparent to the student if not to the teacher. In the first place, the student does not want to speak a type of language which sets him apart from his contemporaries and from the speech community at large. Even if one were to grant that such stilted Latinisms as "It is I" and "Whom did you wish to see?" were desirable, is it not patently inefficient to take two years studying another language to learn them?\(^3\)

Almost as feeble is the argument that two years of Latin is the best possible preparation for the study of French, Russian, and the like. It is quite true that

\(^1\)This apt phrase was coined by William R. Ridington, "The Problems of Second Year Latin", CJ 52, 1956.
\(^2\)Words and phrases placed in quotes are used in their traditional sense.
\(^3\)As for example, Dorrance White, CJ 47, 1952, p. 156
the second language is easier than the first to learn, but we cannot in all fairness claim any special virtue for Latin. In all events, it should be obvious that the best way to learn French is to study French, not Latin. If learning Latin has any real value it is in studying the language and literature. There are ancillary values, to be sure, such as increased English vocabulary, but we must never lose sight of our primary objective. Substitutism has been a desperate attempt to "save Latin" by those who had themselves lost faith in their subject.

Among our opponents there seem to be very few who object to a student's learning Latin. They do object, and one must admit the justice of it, to the spending of two, three, four, or even more years in studying Latin when at the end of the course the average student cannot read a page of Latin with speed and accuracy.

Within the profession we have begun to doubt whether it is possible for students to learn Latin any more, whether it is practical for any student to indulge in such a luxury. We have heard one classicist maintain that Latin literature could be studied better in English translation than in the original. It is notorious that almost none of our secondary school teachers ever read any Latin outside of the courses they teach or the course they take for credit. The unpleasant truth, which must be faced, is that for several centuries every generation has learned less Latin than the one before.

If Latin studies are to survive, it is imperative that we make our methods of learning more efficient. Let us look forward to the time when a high school student of good intelligence and application can read one Latin author (say Ovid or Vergil) at the end of two years with speed and understanding, with only occasional recourse to a dictionary and who will spend a third and fourth year, with constantly increasing ability, in reading large quantities of the treasures of the past. Such a student, if he were to continue Latin in college, would have upon graduation a facility equal or superior to that of our present PhD graduates.

Is this an idle dream? The structural linguists think not. They believe that present traditional techniques actually obstruct the student in his attempt to master the language. They believe that the technical knowledge is already at hand if we would only make use of it. Our difficulties—lack of interest by the students, hostility by the administrative officials, and all the rest—will vanish once we do what some of us claim to do: teach our students to read Latin.
Illustration. The late Benjamin Lee Whorf, one of the most brilliant and original of the structuralists, saw this clearly:

"If, however, he is so fortunate as to have his elementary French taught by a theoretic linguist, he first has the patterns of the English formula explained in such a way that they become semi-conscious, with the result that they lose the binding power over him which custom has given them, though they remain automatic as far as English is concerned. Then he acquires the French patterns without inner opposition, and the time for attaining command of the language is cut to a fraction... To be sure, probably no elementary French is ever taught in this way—at least not in public institutions. Years of time and millions of dollars' worth of wasted educational effort could be saved by the adoption of such methods, but men with grounding in theoretic linguistics are yet too few and are chiefly in the higher institutions." (From the Technology Review, 43, 1940, "Linguistics as an Exact Science", reprinted with three other articles by the Department of State in a pamphlet entitled "Four Articles on Metaphysics", hereafter referred to as "Four Articles").

THE LATIN-AS-LATIN CONTROVERSY

It was necessary to say above that "some of us" claim to teach our students to read Latin, for incredible as it may seem there are classicists who deny that the value of Latin lies in reading Latin. These are not those who believe in substitutism (who can scarcely be called classicists at all) but they maintain that the value of the study lies in turning one language into another.

Illustration. Among those who have advocated this approach are the following:

Bennett and Bristol, The Teaching of Latin and Greek in Secondary School
Dorrance S. White, The Teaching of Latin and CJ, 27, 1931-32, p 575

Among those who advocate teaching Latin as Latin (sometimes connecting this with the so-called "Latin Word Order Method") are the following:

Mark Hutchinson, CJ, 31, 1935-36, pp 289-302
Clarence P. Bill, CJ, 22, 1926-27, pp 88-96
Mignotte Spillman, CJ, 24, 1928-29, pp 323-337
Katherine Carver, CJ, 37, 1941-42, pp 129-137
Mason D. Gray, The Teaching of Latin

In addition, all national reports since 1894 have supported the Latin Word Order Method.
Problem. What are the objectives in learning any foreign language? Are there different objectives for different languages? Could there be different objectives for different people in learning the same language? Are there universal values that are true for all languages and all persons? Why would one study ancient Hebrew? Sanskrit? Would one be justified in studying Eskimo if he were not intending to visit the Arctic? Would different objectives suggest different kinds of knowledge of the language? Would there be any value in studying a foreign language if one did not achieve a degree of mastery that would enable one to comprehend it directly? In what sense does a structural linguist "know" a language when he analyzes it and publishes his findings?

Let us assume that two linguists have been studying the same language and are about to publish. One of them by now speaks the language fluently, the other does not. Whose published work will be superior?

In our opinion the answer as far as Latin goes is quite clear. If one is studying a language either to communicate with living people (as may be the case in learning a modern foreign language) or to read the literature (as is true with Latin and Greek and may also be true with a modern foreign language) then there can be no question that one must learn to handle the language without recourse (except on special occasions) to one's native tongue. No one who habitually turns a language into his native tongue as he reads can be called competent in the language, however well qualified he may be in other respects. It is quite true that all of our students may not acquire this proficiency to an extent where they can read Vergil without first translating, but this is no reason not to make the attempt. The structural approach forces the student to operate directly from Latin to Latin from the very beginning; with improved techniques it seems reasonable to believe that there need never be any backsliding even when the students are studying Vergil.

One strong objection to the use of translation as a technique is its snail-like pace. A good professional translator can type out at best only about 2,000 words per hour; a student can do perhaps ten per cent as much\(^1\). Our students in literature classes are bored to spend most of the class in hearing one another translate. The constant complaint is, "Couldn't they let us spend just ten minutes a day reciting in Latin?"

Structural linguists are shocked to discover that many a classicist is unable to read Latin and Greek directly. To them this is proof that the traditional system of instruction has failed.

\(^1\) Information from Prof. Marchand of St. Louis University
On the other hand, the advocates of translation feel that without recourse to English one cannot tell whether the students understand what they have read. The Latin-to-Latin adherents have not explained how to check on the comprehension nor have they developed a consistent philosophy to explain how to achieve the desired skill. Their advice generally is couched in general terms to the effect that one must learn to feel the language and that this takes time and effort. The structural approach claims to supply this lack.

One of the interesting aspects of the whole question is that language study appears to be such a valuable activity no matter how poorly taught. Studies of the last 25 years have clearly shown the superiority of the student who studies a foreign language. The only argument which the opponents of language study proposed was that the students were superior to begin with. Robert B. Skelton ("High-School Foreign Language Study and Freshman Performance", School and Society, 85, 1957, pp 203-205) has provided statistics which show that this objection is not valid. His conclusions should be comforting: "Statistical analysis, reason, and the experience of generations force us to the conclusion that the study of foreign languages does improve one's command of his own language, thereby enhancing one's control of subject matter in fields in which language is the vehicle of instruction."

THE TWO TRADITIONAL METHODS

There are in general use today two methods of teaching Latin, sometimes called the Reading Method and the Analytical Method. These methods are not mutually exclusive, and teachers who use one usually incorporate certain features of the other as well.

The analytical method is the one which goes back to the days of Quintilian: "Nōmina dēclināre et verba in pīrīs puerī scient" (Inst. 1. 4. 22). This passage is often quoted by the proponents of the analytical method to support their case, but they overlook the fact that the Roman boy already understood Latin. His task was to learn the dialect, to some extent artificial, that one used in writing and in delivering speeches. This is the fundamental error in an otherwise excellent article by Eugene S. McCartney ("Was Latin Difficult for a Roman?" CJ, 23, 1927, pp 163-182). The myth that native speakers do not speak their own language is still prevalent today.
The student in the analytical approach, then, learns to inflect nouns and verbs, and he is given rules which attempt to explain grammatical facts. He is then asked to apply the forms and grammar by turning Latin sentences into English and English sentences into Latin. The amount of Latin-to-English is gradually increased and the English-to-Latin decreased; connected passages of Latin for translation usually do not occur until well past the middle of the year.

This method is the one still favored by many of our best private schools. It will teach a child to translate Latin (not read it) if he stays with it long enough, but it is dreary work that requires the most gifted teacher to make tolerable, and it is inefficient. None of the activities remotely resemble the ones in which a native speaker of a language indulges when he speaks, reads, or listens. It is generally considered old fashioned and is often praised or condemned largely on the basis of one's attitude towards tempora Æctæ.

The reading method, on the other hand, is used in the textbooks with the largest sales and is employed in most of the public schools. It stresses large amounts of connected "easy" Latin. English-to-Latin exercises are included chiefly for teachers who favor this part of the analytical approach, but in practice most teachers do not find much time for them. It is assumed that by constant repetition the vocabulary, grammar, and forms will become fixed in the students' minds.

These texts are marvels of publishing ingenuity and contain such desirable features as attractive pictures, word study, and essays on Roman life. The class generally enjoys the first year of Latin, but only the exceptional student seems to obtain much knowledge of Latin. However well the class can read the stories in the first year book, they have trouble when they come to a Latin author. To solve this difficulty, many of the textbooks "simplify" the Latin authors to make them conform to the Latin the students learned in the first year. Where this is impossible, as with the poets, there are copious notes that solve every conceivable difficulty, one would think, but the widespread use of trots in college classes shows that even this help is not enough.
THE FUNDAMENTAL MISTAKE IN TRADITIONAL TEXTBOOKS

The textbooks of both methods share certain defects in common, and the chief of these is the fact that they are built on a foundation of Universal Grammar, the assumption that all languages are essentially alike, that they all have, in spite of certain superficial differences, the same framework. There are, in this view, eight parts of speech, nouns, pronouns, verbs, adjectives, adverbs, conjunctions, prepositions, and interjections. They have indicative, imperative, and subjunctive modes and six tenses, present, imperfect, future, perfect, pluperfect, and future perfect. Some languages, English for example, does not show some of these things very clearly, and some languages are so ingenious that they even have finer distinctions that other languages, as for example Greek, with its optative mood. Like other languages, English has five vowels, but because of our dissolve ways we frequently slur them.

Illustration. The following quotation (from "Latin in Brief") represents this point of view: "It (Latin) has a small working vocabulary, no irregular verbs to speak of, and a grammar exactly like our own... In a given language group such as Indo-European there is only one language that is hard to learn: your own... The 'grammars' are all the same." (W. M. Spackman, CJ, 44, 1948)

Problem. Here is a quotation taken from a book intended for General Language courses in high school, that is, courses which should teach elementary linguistics. The substitution of just a few words will make it a sensible statement. What are these substitutions? "It is well to observe that these (the parts of speech) and all grammatical terms are perfectly clear and definite, being based simply on commonsense distinctions... Observe also that the parts of speech and other grammatical concepts are the same in other languages as in English. By learning these now you have a solid basis for beginning the study of another language. You have mastered the apparatus of language." (W. W. Blanche, General Principles of Language, 1935, pp 249-250)

Assuming that these assumptions are correct, what is the one thing that a student would have to learn in attacking a new language?

The structural linguists unanimously reject the concept of universal grammar, at least in the traditional sense. They have discovered that languages have tremendous diversity, and they differ not so much in what they
may say as in what they must. In other words, every language has obligatory
classifications, certain observations about the real world which the speakers
must make, whether this observation is germane to the conversation or not.
The believers in universal grammar have been misled by the ability of languages
to make additional observations where they wished; they ignored most of the
classifications which were not compulsory in Latin and maintained that those
compulsory in Latin were present in all languages, although often merely
"understood".

Illustration. Russian has no copulative verb in a sentence such
as "Ivan is a boy." Traditionalists have sometimes maintained
that in such a situation there is a verb to be understood. The
question naturally arises how we might conjugate such a
verb.

Problem. Latin has a simple system of negation. What is
the system? Is the English system as simple? What are
the negative equivalents of the following? (Be sure that
your production is one that we would actually use; i.e.,
it must sound "natural".

I've got some paint. He has a new house.
The bell's ringing. John dance's well.
He has it all done. Be bold!
He'll come tomorrow. You ought to go home.

In Japanese there is a negative form in the paradigm of
the verb that is used in making a negative statement, that is,
one cannot make a statement without commenting overtly
whether the verb is positive or negative. Is this true in
English or not?

We repeat: a given language can probably make any distinction which another
language can make; the point at issue is whether the language system requires
the speakers to habitually make the distinction.

Problem. Many languages have a distinction between an
inclusive and an exclusive first person plural. From the
names, what would these categories be? What do we mean
when we say "we" in English? Do we include the person to
whom we are talking or not. Do we habitually distinguish?
Must we distinguish?

Problem. The Chinese verb is sometimes said to have no
tense, person, or number because it has no inflection. If
a speaker of Chinese wishes to make clear that the action
he is describing happened in past time, he adds the word
liǎo. Does Chinese have a past tense or not?
Illustration. If one were to undertake to translate into some other language the English statement "The angry man is striking the big bear", there are two things which would have to be made clear in the translation, no matter what the language was. We would have to show which of the beings involved was the giver and which the recipient of the blow, and we would have to show which was big and which was angry. All other distinctions are arbitrarily forced upon us by the language; we would ignore some of the information which English gives us and would interpolate other information (perhaps even making a mistake).

For example, in English we must overtly state whether the man (and the bear) is one or more than one, a distinction that one would not have to make in many languages, among them Chinese, Tarahumara, Kwakiutl, Athabaskan, and Haida. One must also state in English that the action is going on at the present time; in Tunica one would not need to comment on the time but it would be obligatory to decide whether the action was simultaneous, habituative, or repetitive. In English one must state whether the man and bear are specific or indefinite ("A man is striking a bear," "Men strike bears.") but no such requirement is seen in Latin. In the latter language, on the other hand, one must choose between ursa and ursus for the bear, even if it is unimportant or even unknown. Here are typical decisions which would have to be made in translating into other languages.

Is the action visible to the speaker? (Kwakiutl)
Does the speaker vouch for the truth of the statement? (Yana)
What is the social rank of the man? (Thai)
Does the man strike the bear in his own interest? (Greek)
Is the bear one that exists now or did he exist in the past or will he exist in the future? (Hupa)
Is the bear alive or dead? (Chippewa)

Problem. How does English signal the two essential facts, the direction of the action and the modification? How does Latin do it?

Traditional textbooks explain gender substantially as follows. In Latin, as in English, there are three genders, masculine, feminine, and neuter. In Latin, however, things that are inanimate may be masculine and feminine as well as neuter. Such an explanation is sure to be misleading because English does not have the phenomenon of gender at all. An explanation like the following would seem to be superior.²

---

¹ For this whole problem, see Sapir’s Language, chp V (pp 86–126).
² This is the explanation given in Latin: A Structural Approach (hereafter referred to as LASA) with some additions.
Illustration. "In several Basic Sentences we have had adjectives. It was explained that adjectives modify nouns and that the direction of modification is indicated by the fact that the adjective is in the same case as the noun it modifies. Thus, in A cane nón magnó saepe tenêtur aper, we know that the dog; not the boar, is large because magnó is ablative, patterning with cane. You may have noticed, in Basic Sentence 31, that the adjective for pure had not only the forms purús, púrum, puró but also purá, púram, purâ. You will now find out why.

Every Latin noun falls into one of three classes, which are represented by òns, aqua, and vinum. If we wish to make these three entities the subjects of sentences and to modify them by the adjective púrus, we find that we can use the form púrus in only one instance: òns PÚRUS quaeritur. For aqua we have to say Aqua PÚRA quaeritur, and for vinum, Vinum PÚRUM quaeritur. This obligatory choice of adjective according to the class of noun is called gender. All nouns modified by púrus/púrum/púro are masculine; those modified by pura/puram/púra are feminine; and those modified by purum/púrum/púro are neuter.

The traditional termology may be misleading. Inanimate objects without biological sex are masculine, feminine, or neuter gender; that is, they may be modified by púrus, pura, or púrum. Thus we have òns púrus, aqua pura, and vinum púrum. It is true generally speaking that most persons or animals with male sex characteristics are in the púrus class, but even here there are numerous exceptions. Vulpés "fox" is always feminine gender regardless of the biological sex of the beast, and píscis "fish" is always masculine gender.

English does not really have this kind of classification. A recent book on linguistics (Gleason) explains it this way: "The gender of an English noun is defined solely in terms of the pronoun substitute, he, she, or it, which may be used in its place. Typically, gender involves not only substitution but also concord. Indeed, probably the best definition of gender is as a set of syntactic subclasses of nouns primarily controlling concord." This concord in Latin is the shift from púrus to pura or púrum when one substitutes other subjects in òns púrus quaeritur.

Most languages which you are likely to study have either two genders (masculine and feminine) such as French, Italian, and Hebrew, or three (masculine, feminine, and neuter) such as German, Greek, and Russian. In these languages there is a correlation of sorts with biological sex, although there are many "exceptions". In German, for example, three common words for females, Fräulein, Mädchen, and Weib, meaning "young lady", "girl", and "wife", are all neuter gender; that is, they pattern with adjectives that are traditionally called neuter.

In Cree we find that there are four classes of verbs.\(^1\)

\(^1\) Information from H. A. Gleason, An Introduction to Descriptive Linguistics, New York 1955, p. 148
On inspection we find that these verbs are selected according to the class of nouns that are the subjects and objects. We might call these Type A and Type B, since there are only two kinds, and we group them by discovering which kind of verb they go with:

- **Class One Verb**: subject Type A, object Type A
- **Class Two Verb**: subject Type B, object Type B
- **Class Three Verb**: subject Type A, object Type B
- **Class Four Verb**: subject Type B, object Type A

We would notice, before proceeding very far, that Type A nouns generally speaking describe persons, animals, spirits, large trees, while Type B nouns describe inanimate objects. It therefore seems reasonable to call these two types Animate and Inanimate. But right here lies a danger. We also discover that the words for tobacco, corn, apple, raspberry, feather, kettle, snowshoe, smoking pipe, and others belong in Type A. This should cause no trouble at all, but if we have called Type A the Animate Type, then we are in serious danger of believing that it is the Animate Type and assuming that to a Cree Indian a kettle is a living thing. For this same reason, you might have found the phenomenon of gender easier to explain if we had simply called the three classes A, B, and C.

Here is another illustration of gender. In some of the Bantu languages are found as many as twenty categories of nouns. Here is an example taken from Ilamba:

- ānto ākoe akōlu abele "his two big men"
  - men his big two

- īnto yākoe ikōlu ibele "his two big things"
  - things his big two

- mīno mākoe makōlu mabele "his two big teeth"
  - teeth his big two

- pizōmba piakoe pikōlu pibele "his two big huts"
  - huts his big two

Can you discover the morphemes that mean "his", "big", and "two"? Now can you find those that indicate the gender? In which word do you find an allomorph (morphemic variant) of one of the gender morphemes?

There are two ways to discover the gender of Latin words. One is to look in a Latin dictionary. Turn to the back of this book to discover the gender of ratiō, hortus, insāния, ēnūsus, and beneficium. The second and easier way is to notice what kind of adjective patterns with the word you are interested in. Identify the gender of the following nominative nouns: bona ōmēa, malus poētā, flūmen pūrum, exemplum bonum, occāsiō nūlla, amōr meus.

There are however, certain types of nouns whose gender may be predicted. Nouns in -tās (vēritās, necessitās), in -tūdō (fortitūdō), in -īa (concōrdiā, constantiā), and in -iō (immitiō, occāsiō) are all feminine. You will note that they are all abstractions.

---

1 From E. A. Nida, Learning a Foreign Language, New York 1950, pp 180-189; hereafter referred to as LAFL
A student whose native language is English finds the concept of gender a little puzzling at first because it corresponds to nothing in his experience. He is also under the handicap of having been told that there was gender in the English language. But once the concept is made clear he has little trouble with it because there is no interference from his own language. A speaker of German, on the other hand, will have no difficulty with the concept, since it is already known to him, but he will have a great deal of trouble in practice because of interference from his native language.

Problem. The word for tree in German is Baum, which is masculine gender. What mistake do you predict German students will make on the gender of arbor? The word for laurel is der Lorbeer (masculine). Will the Germans be more or less liable to miss the gender of laurus-f, than an American student? Why do American students have trouble with laurus?

Problem. The explanation of gender seems somewhat long. Is it worthwhile? Will the students learn the right gender of Latin nouns from studying the explanation? If not, how would they learn it? Read again Whorf's comment, on page 3. What in the student's previous training makes the concept of gender harder than it ordinarily would be?

Unaware of the nature of the contrasts between Latin and English, such as that of gender, the traditional texts have presented "easy" Latin that was easy for the reason that it signalled grammatical constructions by English signals. Of course, the Latin signals were also there, but the students naturally relied upon the signals that were unconsciously operating. Examination of any of the traditional texts (reading method or analytical) will show that almost without exception the word order is essential. English. It is true that the verb is placed at the end of the clause, and this one variation is about all that the student has to learn. In other words, the English unemphatic word order for a declarative sentence is Subject Verb Object; this is changed in "easy Latin" to Subject Object Verb. So regular is this that some teachers teach their students to say the equivalent of the Latin words in the order they appear.

Illustration. The following article (taken from CJ, 45, 1949-50, pp 45-47) seems worth quoting in some detail:

"Each year my second-year Latin class disappoints me. I teach in a consolidated school, where only two years of

\[1\] This is a monstrous perversion of the "Latin Word Order Method".
Latin are offered, and the home encouragement to Latin study is not too great; but the first-year class is usually quite capable and enthusiastic.

Yet, no matter how promising the first-year class has seemed, it bogs down in the translation work of the second year.

If we include in a lesson the needed grammar and vocabulary drill the class is often unable to cover adequately twenty-five lines of an assignment. If a very few minutes are salvaged at the end of a period for sight reading, scarcely anything is accomplished, unless I practically do the translating.

This year I found myself constantly urging on the effort in this fashion. When, after reading together a new sentence in concert, the sound of the Latin phrases brought no result from the class, I offered to them the Latin words aloud, as they were most naturally to follow one another in the desired English sentence.

It was heartening to discover that all the vocabulary drill had not been in vain, for as I spoke the words, translation was swiftly volunteered, sometimes as if from every member of the class in joyous and victorious concert.

Even words they had never met before, when set in the English word order, were often comprehended from English derivatives or arrived at because of position. To give an example much simpler than the majority of sentences we dealt with: "Puer habet librum" was comprehensible to every student, but restore it to "Librum puer habet", and often the very best students would start fumbling with the word "Book" as a beginning, even though they had been facing Latin for a full school year.

The question arose in my mind: "Is Latin word-order that important? Important enough to make competent translation impossible to the class as a whole?...

I tried mimeographed sheets, to be used in conjunction with the unchanged text, with the word-order altered to the closest possible resemblance to English word order...

The results were so startling as to lead me to consider the possibility of completing a full text in the English word-order, to be used in conjunction with the present text-book."

Problem. Consider carefully all the implications that the above article has. What does it show us about the health of our discipline?

Such suggestions for doing something about "That Baffling Word Order" (the apt title of the above selection) are far from new. A hundred years ago appeared numerous "Ordoes" (if that be the correct plural), which arranged the Latin text in "the natural order". Most of the ponies have the text order "corrected", and introductions to texts have frequently urged the students to "say the words" and not worry to much about the order.
Illustration. "This difficulty (i.e., comprehension of a complex sentence) can often be lessened by jotting down, in a loose kind of English, the words as they come in Latin. In this way it is often easy to see what a string of words must mean, though we should never say anything like it in English."

(Allen and Greenough, reedited by Greenough, D'Ooge, and Daniell, p lvii)

One would like to think that linguistics has had at least enough impact on the profession to make further articles like "That Baffling Word-Order" impossible. The last to appear to my knowledge was in CJ, 47, 1951-52, under the title of "Streamlined Latin".

Illustration. "It is a pedagogical mistake to use the Latin word order in secondary education...

It is my experience as a teacher that the difficult thing in Latin is not vocabulary nor forms, but word order. It is my opinion that if the difficulty of word order could be solved satisfactorily, much of the objection that is now raised against Latin would disappear...

Not only is the order in which Latin words occur in a sentence difficult, but it partly defeats one purpose of Latin study, namely its contribution to the student's use of English...

Therefore we question the pedagogical value of the pupil's too often reversing his natural way of thinking...

Here are four reasons in its favor (that is, the use of an Ordo text, WES): first, one less difficulty to be faced by the student at the beginning of his study of language; second, no harm would be done to his native tongue; third, it would be fairer to the student for whom any language is difficult; fourth, it would be fairer to Latin itself, which suffers in competition with modern languages because the student has the impression that Latin is more difficult than a modern language."

More insidious, however, than these recurring proposal for Ordo texts, is the use in texts of an order which is almost an English order; this is so common as to be almost universal in traditional texts, whether reading method or analytical.

Problem. Take any standard text with which you are familiar. Discover the principles which guide the arrangement of words. Specifically what information is given by this word order? Note the following: 1) Are there any sentences that have the order that occurs in Cicero's Vitam regit fortūna, nōn sapientia? 2) Are there any examples of a predicate nominative that precedes the subject? 3) Are there any examples of an adjective that is separated from its noun, as in Vergil's "Nāvem in conspectū nūllam, trīs lītore cervōs prōspicit errantīs."
Does the subordinating element ever come second, third, or fourth in the clause as it does with such frequency in Latin; compare Martial’s

"Vitam quae faciant beatiorem
jucundissime Martialis, haec sunt." ¹

Not only have the traditional texts "streamlined" the grammar by adding the English signals of position but they have also adjusted the lexicon to make it easily intelligible for a speaker of English. Words are assigned one English meaning when they first appear in the "Vocabulary" and they are not permitted to have any other reason. Exceptions are so rare as to be negligible. Thus rēs is used in contexts only where it may be translated by "thing"; such sentences as Rem nōn spem, fāctum nōn dictum quaerit amīcus do not appear. There are a very few words which are assigned several meanings (faciō "do, make" and agō "do, drive, thank" are two that come to mind).

Problem. Check the meanings listed in a traditional textbook for gero. Does the word ever pattern with any object except bellum or prōelium? In other words, can you always say "wage" when you see gero and be right? Now check the usage in Ovid. How many times does he use gerō? How many times does it occur with bellum (bella) or prōelium? How many times with other objects? What are some of these objects? How well would "wage" work with them? How about the usage in Horace? Pick another word that occurs in a traditional text and check in any other author. What do you find? One meaning in the traditional text and multiple meanings in the Latin author? One meaning in both? Multiple meanings in both?

It is true that good teachers invariably tell their students that words have many meanings, but it is certainly unsound pedagogy to tell the students something that their total experience denies: no matter what the teacher says, the student knows that giving the meaning listed in the vocabulary always meets with success.

It is for this reason that teachers have come to believe that vocabulary is the only important thing in language learning. I have heard this rather cleverly expressed to the effect that since language is made up of words it is nice to know some of them. Pithy but not true. Language is made up of sounds; these sounds have significant arrangements, which we call MORPHEMES; these morphemes in turn have significant arrangements, which we call syntax. The term word, in fact, does not always seem to be a useful term, in such languages as Eskimo and French. The content bearing part of the language

¹See below in Chapter Nine for the usage in Martial.
(which the traditionalist mean when they speak of "vocabulary") is an essential part of the language but only a part. No language can operate without all the parts. But not only do traditional teachers misunderstand the function of the lexicon, but they believe that it may be taught in lists by one-to-one correspondences, and the textbooks writers have given the teachers what they wanted.

Illustration. Here is a quotation from CJ, 43, 1934, pp 366 ff:
"Vocabulary is the sine qua non of any foreign language. You can get the meaning fairly well without too much syntax, you can even get a good deal of the meaning without too sure a control of inflections, but without words you are lost."

Illustration. Here is another quotation, this one from a talk given by Donald J. Lloyd at the College Conference on Composition and Communication, 6 March 1954:
"The grammatical signals of English work unnoticeably; they cradle the noun, verb, adjective, and adverb as water supports and sustains the fish that swim in it; and a word apart from these signals is as dead as a fish in a basket. Patterns of order in the utterance, relatively settled since Middle English times, are scarcely mentioned before our own day, so quietly do they do their work. Prosodic contours of pitch, stress, and juncture that segment the utterance into meaning-groups were almost unnoticed until Pike, pondering our inability to hear and reproduce the significant tones of tone languages, turned his attention to the tonal factors of English. Inflectional endings and what Fries has called function words fall modestly in unaccented syllables, inconspicuously cementing the stressed elements of vocabulary together. The child learns all these grammatical signals at such an early age that he is not conscious of them; they precede his sense of words as words; he knows them before he has built up an extensive vocabulary. The English lexicon is not the English language; these signals are; we learn them only by experience with the language. We learn words by experience with language and with the world outside language -- with men, things, qualities, and actions."

Problem. One of these quotations is sensible, the other is complete nonsense. Can you tell which is which? In what ways do the English signals be said to work "quietly" and "unnoticeably"?

Problem. A chemistry student is working from a foreign textbook, with only a dictionary to help him. He discovers, by looking in his dictionary, that he is to pour one substance into another, the two substances being water and sulphuric acid. Isn't a knowledge of the vocabulary all that he needs in this instance to complete the experiment? (From an article by Martin Joos)
The Fundamental Mistake in Traditional Techniques

If we may pass momentarily from the field of linguistics to that of pedagogy, the second reason for the failure of the traditional system lies in the techniques which students have been taught to use and which are implicit in the texts themselves. Linguists ascribe the incompetence of Latin teachers in their control of the language to the fact that the subject is not treated as a language, that is, it is not approached as learned, patterned, oral behavior but as a discrete collection of paradigms, word lists, and grammatical rules which one manipulated slowly (and usually painfully), like the solving of a cryptogram or crossword puzzle. Most linguists would regard the learning of a foreign language as more similar to learning to ride a bicycle than to solving a crossword puzzle.

This view of language learning alarms some language teachers who feel that it would be disastrous to adopt a method that lost the old proven values even if it did result in improved competence in the language, for what is a man profited, if he shall gain the whole world, and lose his own soul? We believe that this book will demonstrate that absolutely nothing that was good and useful in the old discipline as been lost in the structural approach and the techniques which it employs. On the contrary, it enables all students who care to exert the effort involved to reach the goal which only a few exceptional students could attain in the past.

The Application of Linguistics to Language Teaching and Learning

Both the analytical and reading methods have been widely used in the past in the modern languages, along with a conversational method, in its extreme form called the Direct Method. Recently however, through wide publicity, some of it unauthorized, fantastic, and ultimately detrimental to the cause it was trying to support, many Americans have been aware that a new approach to language teaching, popularly and erroneously called "the Army Method", was used during the war. The revolutionary part of this "Army Method" was that for the first time, on a large scale, textbooks were written by men with training in structural linguistics. Some of these texts were good and some were rather bad; they were all written under great pressure.

Since we depart from linguistics proper, the reader should understand that not all linguists would agree on the assumptions of this section.
The claims and counterclaims made after the war about the efficiency of this approach are of little interest to us here. The courses were taught under such widely varying conditions that it is difficult to evaluate the system itself; some of the teachers were men who were superbly trained, others either had no knowledge of linguistics or were even hostile to it. The fact that the students were specially chosen, that they spent long hours with native speakers, that they were subject to military discipline, that success or failure seemed literally a matter of life or death, all make an objective comparison with traditional methods impractical. But when all was said and done, the success of the approach, even in its primitive form, led an increasing number of institutions, of which Cornell, Georgetown, Michigan, and the Foreign Service Institute of the State Department were among the first, to install this approach in elementary language classes, along with the mechanical equipment necessary to operate at maximum efficiency.

It is this approach which, mutatis mutandis, is being developed in the Elementary Latin Program at the University of Michigan. It rests upon the assumption that a foreign language is difficult precisely at the points where it differs from the learner's native tongue; it therefore follows that accurate analysis of the two languages to discover these contrasts is indispensable. Knowledge of the difficulties will suggest new techniques. It is also believed that even though a reading knowledge of Latin is our ultimate goal, classes will learn faster and easier with massive oral work, and considerable use is made of such equipment as tape recorders, projectors for slides and filmstrips, and autodidactic machines.

The Difference between the Structural Approach and the Direct Method

The structural approach should not be confused with the direct method, even though some of the techniques are similar. The direct method made such demands upon the teacher that only the most gifted were successful. The proponents of this method, talented as they were, never discovered the means to train teachers. It is well known that the only people who could successfully use this method were those who had been brought up in the system itself. There were no guiding principles. One simply started with "easy questions" and gradually worked up to the point where the students could answer "hard questions". But what made

---

1 Needless to say, not all language courses at all of these institutions employ a structural approach. 2 These machines will be discussed later.
the questions hard or easy? How did a teacher construct these questions? This one discovered only after a long apprenticeship and trial and error. The structural approach claims that an accurate knowledge of how the language operates will permit one to explain such matters to prospective teachers. 

Problem. Here are two final questions to examine. Think through carefully the implications that these passages contain. If you were an intelligent administrator, without experience in foreign languages, what would your reaction be?

"The best solution of the problem of better use of English is a period of high school Latin in which there is a never ending application of the principles of Latin grammar to English grammar. Returning students testify of their own accord that their drill in Latin grammar left them never in doubt whether to say "It is I" or "It is me"; "the man whom I saw" or "the man who I saw"; "if I were you" or "if I was you", and many other language crudities." (Dorrance S. White, CJ, 46, 1950-51, p 113)

"We learn that a word is a direct object of a verb, but does it look, in English, different from the subject? We learn that an adjective agrees with its noun and a verb with its subject. Can we see it happening? No, English has lost most of its inflectional endings... It is easier to see the grammar in Latin." (CJ,44,1948-49, 325) Answer the questions which are raised here: does an object "look different" from the subject in English, etc.?

The Teacher

It is often said that the teacher is more important that the method. We do not dispute this. A good teacher, that rara avis, exercises a profound effect on many pupils, and a bad one can do great damage. But all this is beside the point. The structural approach does not deal with a new method of teaching the same skills and the same facts; it is essentially an entirely different set of skills. Once these skills are learned, some of the other skills, such as recitation of paradigms, can be learned overnight.

It is frequently asked whether this approach does not make greater demands upon the teacher. The answer, fortunately, is in the affirmative. One of the worst aspects of the older system was the fact that if one did not care about results it was the easiest subject in the curriculum to teach. There were no native speakers to embarrass one by starting a conversation. With no knowledge of either the language or the literature one could concentrate on paradigms and word lists, all climaxed with a Roman banquet in the gymnasium.
One of the most discouraging things about our profession is the number of teachers who will say that they always liked to teach Latin better than any other subject because it was so definite. This security is an illusion, nurtured by the texts that have excised every difficulty and every irregularity from the language.

Problem. A member of a committee that was constructing a national examination objected strenuously to the inclusion of the phrase nāvem dēdūcere on the grounds that it was unfair to the students. When pressed to explain, he pointed out that this was "just about the only idiom that there is in Latin." What did he mean?

Too long we have consoled ourselves with the thought that Latin was a hard subject well taught. We have sneered at the "life adjustment" courses and failed to see how substitutism has weakened our discipline. Even where the emphasis has been on the language we have taught the wrong kinds of skills. We must awake to the fact that in academic circles Latin is a byword for a subject that no one learns. We have excused our lack of success by saying that modern day students were lazy, that administrators were hostile--putting the blame everywhere except where it really belongs, on ourselves. We have not availed ourselves of the help that we might have had from linguists, electronic engineers, and psychologists.

The purpose of the structural approach is to train a new generation of teachers who can seize the opportunities that are now presenting themselves. There is no hope of retraining the average teacher; the most that we ask is that they not obstruct. As Max Planck said in defence of his quantum theory, "New scientific truth does not triumph by convincing its opponents and making them see the light but rather because its opponents eventually die." ¹

¹Quoted by L. Sprague de Camp in "Orthodoxy in Science", Astounding Science-Fiction, May 1954, pp 116-129. The whole article is an excellent summation of the resistance by scientists to new ideas; he makes the point that such resistance is necessary and desirable.
CHAPTER TWO

THE SCIENCE OF LINGUISTICS

Definitions

While in common parlance a linguist is a man who knows how to speak several languages, in the restricted sense of the word in which it will be used in this book, a linguist, or more properly, a structural linguist, is one who studies the structure of different languages with scientific techniques. In the following pages he is often contrasted with "traditional language teachers" and "naive speakers". There is an obvious danger in such a dichotomy, but it seems to be necessary. When we speak of the traditional language teacher, we mean those who have had no acquaintance at all with structural linguistics; it is true, however, that some of these have through plain good sense rejected some of the tenets of the traditional grammar. The generalizations made here, therefore, may occasionally be misleading. In the case of the structural linguist, however, the situation is a little different. It is believed that the statements which are made under the rubric "A structural linguist believes" are those to which no one with training in structural linguistics would object in principle.

We must digress at this point to make the perhaps unnecessary observation that structural linguistics is not the same as historical linguistics. We do so to avoid any possible misunderstanding since in the past many classicists, having never heard of structural linguistics, assumed that a "method" of teaching Latin which employed linguistics must spend most of its time explaining the ablaut series and Verner's Law. Historical linguistics deals with the history of linguistic change; structural linguistics is the science of describing a language by the techniques of structural analysis. The former has little importance for language learning, although like many other things, it may be of interest to bring into the class occasionally. The latter is indispensable.
The study of structural linguistics has progressed to a point where it may be called a science. Language, in fact, is the only one of the many human activities which we can handle in a consistently scientific manner. Considering the many "social sciences", we must obviously define our terms.

In the first place, a scientific statement is one which may be disproved if it is wrong. The older grammatical statements were usually unscientific and could not therefore be disproved.

Illustration. In the later pages of this book the parts of speech are defined. These criteria can then be applied to any Latin text, and if words appear which the criteria cannot account for, then the criteria are shown to be at fault. Compare this with the traditional definitions, such as Gildersleeve and Lodge:

"The Interjection is either a mere cry of feeling:āh! ah! and does not belong to language, or falls under one of the above-mentioned classes."

"The Particles are mainly mutilated forms of the noun and pronoun."

"The Adjective adds a quality to the Substantive: bonus vir, a good man."

This does not mean that scientific statements are in themselves superior (or inferior) to other kinds of statements. For certain subjects scientific statements are appropriate, and language certainly seems to be one of these subjects; for other subjects, such as poetry, they may be inappropriate. In particular we would like to disavow any intention of claiming to be scientific because it is the fashionable thing to do. For example, the word Language Laboratory, although it is well entrenched in our language, is deliberately misleading, since the student does not make experiments, which is his activity in a science laboratory of any sort, but he practices a skill.¹

Problem. Which of the statements are scientific in the sense just described? Note that we are not concerned with the truth or falsehood of the statement, merely with the question whether it could be disproved if wrong.

A. A. Hill is discussing (in "An Analysis of The Windhover: An Experiment in Structural Method", PMLA 70, 1955, pp 968-978) the opening two lines of a poem by Gerard Manley Hopkins:

¹See Gustave Mathieu, "Automated Language Instruction: New Deal for Student and Teacher", Automated Teaching Bulletin, 1, 2, pp 5-9
"I caught this morning morning's minion, king- 
dom of daylight's dauphin, dapple-dawn-drawn Falcon, in his riding..."

He says: "I suggest that it should be read thus:

king/đom òf dáylight's daúphín.

The word kingdom in normal speech has a plus juncture which is required 
by the sequence velar nasal, dental stop."

Are any parts of this critique scientific?

Evaluate the following quotations to see whether they may 
be called scientific or not:

"Quebec... has a mean January temperature of 23 degrees 
of frost, and Montreal, farther inland, is colder still." (Paul 
Hermann, Conquest by Man, New York 1954, p 277

"New York has a mean July temperature of 23 degrees of 
frost, and Miami Beach, which is still further north, is colder 
still." \text{\textit{[ESE]}}

"And it is also a fact that these glorious voyages of explora-
tion by the Greenland Vikings did not remain unknown to the 
Europe of their day. Not only did the seafarers and navigators 
hear of them--including in all probability, later on, Columbus--but the Vatican was no less well-informed, and with it no doubt 
also the great financial and mercantile houses of Europe during 
the high Middle Ages." (Hermann, op cit)

"This triumph of Stokes' law has contributed in no incon-
siderable degree to the scientific reputation of several physici-
ists yet living." (American Scientist, 41, 1953, p 176)

"If Vergil had wanted to make Aeneas a superman, he 
wouldn't have been initially presented as mortal-like, lost in 
a storm." (Frank H. Cowles, "The Epic Question in Vergil", 
\textit{CJ}, 36, 1940, p 135)

"The story of the growth of our understanding of the 
moon, its nature and its history, is a fascinating one." 
(Ralph B. Baldwin, The Face of the Moon, Chicago 1949, p vii)

"By way of recapitulation we present all the morphemes 
analyzed in \#2 and discuss the allomorphs.

\(\sqrt{1}: /n/ \) before \(\sqrt{\_}\) Mu; \(\sqrt{\_}\)m\(\_\) elsewhere

\(\sqrt{2}: /v/ \) before \(\sqrt{\_}\) Mu; \(\sqrt{\_}\)t\(\_\) elsewhere

(George L. Trager, "French Morphology: Personal Pronouns and 
the 'Definite Article'”, Language \textit{34}, 1958, pp 225-231)

"I adopt the usual distribution of words into eight classes, 
because, if any number, in a thing so arbitrary, must be 
fixed on, this seems to be as comprehensive and distinct 
as any." (W. H. Wells, Grammar of the English Language, 
1846, part 2, p 4, quoting Priestley)

"The difference between substantive and adjective is largely 
a difference of mobility; that is, the substantive is fixed in 
its application and the adjective is general." (Latin Grammar, 
B. L. Gildersleeve and Gonzalez Lodge, 1848, p 9)
"When we read this poem, although our imagination may call up a picture of the sea, we are having an experience different from the experience of looking at the real sea. In other words the poem does not attempt to provide us with a substitute for a trip to the seashore." (Cleanth Brooks and Robert P. Warren, Understanding Poetry, New York 1950, p 74. This book has an excellent section in the introduction on the difference between scientific and poetic statements. Oddly enough, the authors are trying to demonstrate the validity of poetic statements in certain situations; this book is trying to demonstrate the validity of scientific statements about language.

Another characteristic of a science is its ability to predict. Under this definition, history is not a science because no amount of knowledge of history can predict the future. In an interesting article Greenberg (Science, 30 Oct 1959, p 1167) says:

"Grammatical theory is therefore necessarily predictive, in a certain sense, in that the rules of the grammar of a particular language enable us to project new grammatical senses not contained within the corpus. It is likewise only such a theory that will do justice to the ability of the speakers of a language to produce sentences they have never spoken or heard previously and of their hearers to understand such sentences."

The linguists of the nineteenth and twentieth centuries were content to describe what they heard. But the trained ear of such men as Henry Sweet (best known to the public in his guise as Professor Higgins) could hear so many "fine distinctions" that the system became unwieldy. Realization grew that no two acts of nature are ever identical and that the same word can never be pronounced twice alike, even by the same speaker. Daniel Jones is said to have been able to hear 120 different vowel sounds in English, and Martin Joos has demonstrated in a lecture at Ann Arbor a system for noting 507 contrastive pronunciations of the word fence, chosen for its phonetic simplicity.

Problem. What is a "fine distinction"? If you have now read Chapter Three, can you suggest a technical word for "fine"?

In a word, without the invention (or discovery, if you will) of phonemics, linguistics would have suffocated.

Illustration. "In the prestructural period of descriptive linguistics the tendency became more and more prevalent, in the name of a naive empiricism, to transcribe phonetically in an attempt to reproduce as accurately as possible the actual sounds, thus
producing what, from the point of view of the structure of
the language studied, was an evergrowing mass of irrelevant
detail. The use of instrumental phonetic apparatus hastened
the realization that this type of analysis was a cul-de-sac,
for it became apparent from such recordings that in the
sound wave itself not even two repetitions of the 'same'
utterance in the same language are ever physically identical." (Greenberg).

Evolution of Linguistics

The non-scientific approach to language, still dominant in most of our schools
and colleges, is a direct inheritance from the medieval scholastics, who saw
divine inspiration in the eight parts of speech ("Octavus numerus frequenter in
divinis scripturis sacratis inventur") and in the three person, which were
created "ut quod in Trinitatis fide credimus, in eloquiis inesse videatur."

This medieval view of grammar, which we repeat, is still firmly entrenched
in our schools and colleges, goes back to antiquity. As is well known, there were
two opposite schools of thought concerning grammar in ancient Greece. Opposed
to the anomalists like Crates of Mallos were the analogists like Aristophanes
and Aristarchus, who would admit of no exception to the rules which they laid
down. However distressing it may be for classicists, our beloved Greeks were
inferior grammarians. One of our most distinguished colleagues, Henry
Hoenigswald, has commented (in a speech before the 1959 meeting of the APA)
that the Greeks were essentially anti-linguistic; that no student of Oriental
languages accompanied Alexander to the East, and that the very name of the
study --grammatike-- meant the study of written marks, not language.

As long as the study of language was dominated by the Greek analogist
viewpoint, no progress was possible. Anything that discovered that did not
conform to known "rules" was ruled "incorrect". But two factors changed the
situation. One was the discovery by the Western world of the works of
Panini, a Sanskrit grammarian of the fourth or third century BC, whose writings
have been called by Bloomfield (Language, New York 1933, p 11) one of the
greatest monuments of human intelligence that we have.

Illustration. "Although linguistics is a very old science, its
modern experimental phase, which stresses the analysis of
unwritten speech, could be called one of the newest. So far
as our knowledge goes, the science of linguistics was founded,
or put on its present basis, by one Panini in India several
centuries before Christ. Its earliest form anticipated its most
recent one. Panini was highly algebraic, i.e., pattern symbolic, in his treatment; he used formulas in a very modern way for expressing the obligatory patterns of Sanskrit. It was the Greeks who debased the science. They showed how infinitely inferior they were to the Hindus as scientific thinkers, and the effect of their muddling lasted two thousand years. Modern scientific linguistics dates from the rediscovery of Panini by the Western world in the early Nineteenth Century." (Whorf, "Four Articles")

The second factor responsible for discrediting traditional grammar was the opening up of new worlds in the Americas and in the Pacific, when scholars and missionaries turned their attention to languages which were very different from what Whorf terms the SAE complex (Standard Average European). At first they tried to fit them into the framework of Latin grammar, but within the last century it became apparent that this was not only impractical but impossible. Once the break had been made and it was seen how efficiently languages could be described if they were not forced into the bed of Procrustes, it was realized that even the SAE languages, in spite of certain obvious similarities and their general common Weltanschauung, are disparate systems and must be described in terms of their own characteristics.

The beginning of the scientific study of language in the Western World is sometimes considered to have begun with the publication in 1867 of William Dwight Whitney's Language and the Study of Language. This was the same year that Lister announced his theory of antisepsis. It is humiliating to realize that most of our textbooks and even some of our scholarship continues on as if Whitney had never lived, particularly when we consider the progress that medicine has made in the same period of time.

The sceptic might well ask at this point whether the slow acceptance by the profession and the absolute ignorance of the public does not prove that the science of linguistics has not proved itself. It does not. There is no example that I know of where a structural linguist has returned to the traditional path. The answer lies in public apathy to languages and language instruction. We may see a parallel in medicine itself. In 1617 John Woodall showed that scurvy could be prevented by the use of lemon juice. It was only in 1795, after a million seamen had died of this disease, that the British Admiralty instituted the regular distribution of lemon juice. It has been suggested that the reason for the lag was that the death of sailors was a routine matter that was scarcely worth attention. (From Louis N. Roddis, James Lind: Founder of Nautical Medicine, New York 1950(?)
Resistance to Scientific Linguistics

Public apathy, however, is not the whole explanation. There are other good reasons why the average teacher and scholar were suspicious of the rise of the scientific study of language. For one thing, the whole concept of scientific thinking is repugnant to some humanists. It was revolutionary enough to contradict almost everything that the traditionalists had been taught about language. Many of them believed that it threatened the security of their own position. Atypical only in his frankness was the senior professor who expressed himself approximately as follows: "To admit that you (the structural linguists) are right would be tantamount to admitting that I have been a poor teacher for forty years, and that I will never do!"

In particular, three of the tenets of the structuralists appeared (erroneously, as will be shown below) to be hostile to the classics and hence to the whole humanistic tradition:

1) It denied the competence of the Greek grammarians and the validity of universal grammar which was based on their work.

2) It denied the normative approach of the analogists, thus apparently opening the way to chaos and supporting the long discredited anomalist philosophy.

3) It asserted the primacy of the spoken word and hence by inference must be anti-literary.

The following pages will show why these fears are baseless.

Definition of Traditional "Grammar"

Since we are about to discuss traditional grammar, it may be well to define our terms. There are at least four common meanings of the word in use by both traditionalists and structuralists, and misunderstandings often arise when one is not clear which meaning is intended.

It may be used in our sense of structure, that is, the language system: the significant contrasts in sounds, the arrangement of these sounds into meaningful units, and the arrangement of these units into larger constructions. We might say, therefore, that a normal child has learned the grammar (i.e., the structure)
of his language at the age of five and a half or six, meaning that he understands
the speech of his community and can make himself understood. This use of the
term we will call Grammar\textsubscript{1}. A child who cannot learn Grammar\textsubscript{1} needs
special care and usually is placed in an institution.

This fact of the mastery of Grammar\textsubscript{1} at an early age is a commonplace
among structural linguists, but it is generally unknown. Teachers often believe
that in teaching reading and other skills they are teaching the child his language.

Illustration. "We have seen that it is not necessary to have a
complete knowledge of words and constructions before beginning
to read. We do not have this in the mothertongue, and yet
we manage to read successfully and extensively." (Byrne,
The Syntax of High-School Latin)

Problem. What part of Byrne's statement is true? What
part is not true? Is there any reason why six is the age
when children are sent to school?

Grammar\textsubscript{2} is the discussion of this structure. The child who makes a
buzz rather than a hiss at the end of shoe to signal "more than one" but
uses a hiss for the same signal at the end of sock knows Grammar\textsubscript{1} but
he does not know that this signal is called "plural". He therefore does not know
Grammar\textsubscript{2}. The English teacher who thinks that both shoes and socks end in the
same sound does not know Grammar\textsubscript{2} either. In the midst of the general uproar
about children who do not know "Grammar", the structural linguist, if pressed,
will have to confess that almost none of the teachers know it either.

Grammar\textsubscript{3} is the effective use of the structure in order to effect the maximum
cooperation from one's listeners. In a negative sense, it is the avoidance of
linguistic taboos like ain't; in a positive sense it is the skillful arrangement and
choice of structures, a skill of unbelievable complexity and the result of one's
total educational experience. One of the worst delusions in education is the
belief that a two semester course in Freshman English can impart this skill.
The ultimate in this skill may be poetry, where such a fantastic amount of
information is compressed in small compass that the poem may be incompre-
hensible to the vast majority of the speech community. In this case the
listener whom the poet is attempting to please may be solely himself, his
poetical integrity, or his Muse, whichever name you choose to give.

Grammar\textsubscript{4} is a subject taught in school, the study of one's own language.
It does not and cannot deal with Grammar\textsubscript{1} (although most of the teachers
believe that it does), and in the opinion of structural linguists treats Grammar\textsubscript{2}
DEFINITION OF TRADITIONAL "GRAMMAR"

and Grammar, in an arbitrary and inefficient fashion. It is for this very reason, they would maintain, that Grammar has been the most unpopular subject in the curriculum with the students and has drawn the fire of many educators. As Gleason says (p 126), "It gives the student the impression that grammar is essentially a specialized type of formalized nonsense, of no practical value, though traditionally part of the educational process."

In studying Grammar, the students were asked to see things in English grammar, such as gender, datives, and agreement of adjectives, which in fact are simply not there. This is the reason for the reason for the oft repeated testimony, so dear to the heart of the Latin teacher, "I never understood English grammar until I studied Latin." This is an intolerable situation: if English grammar can be understood at all it should be understood by its own criteria. Lest the Latin teacher take alarm at this point, we should interject that this position of the structural linguist most emphatically does not deny the value of Latin for the study of English; it denies the usefulness of traditional English grammar.

Grammar has been even more unrealistically taught. The teacher passed from teacher to teacher, each one of whom had a separate set of taboos, each one differing from the set which the student had been exposed to the previous year and usually based on myth, ignorance, and prejudice.

In the study of a foreign language, Grammar has meant the learning of Grammar through the application of Grammar. The structural linguist believes that language is talk, not talk about talk. Some generalization about the structure is probably necessary, particularly with adolescents and adults, but this must never take the place of using the structure.

Illustration. "Rules are only temporary substitutes for habits, and the sooner a rule is forgotten because it is absorbed and dissolved in a habit, the better. We want the student to get to the point where he can forget the rule and take the habit for granted. (W. F. Twaddell, "Meanings, Habits, and Rules", Education, Oct 1958, reprinted in Language Learning 2, 1949, pp 4-11)"

Grammar plays almost no part in foreign language instruction until one has acquired practically native competence. The learner of a foreign language makes mistakes, that is he forms impossible sentences. The native speaker of the language cannot by definition make this kind of mistake; whatever he says is the language, but it may be a form that is considered highly objectionable by
some other members of the speech community.

The Structural Linguist's Attitude toward: Universal Grammar

The structural linguist\(^1\) objects to forcing languages into the mold of Latin grammar, to listing paradigms where they are non-existent or impractical and to describing non-existing categories merely because they occur in Latin. He objects to translations and descriptions which "simplify" the language by ruthless amputation of categories deemed unnecessary because they are not found in Latin. But this attitude toward the application of Latin grammar to other languages does not mean opposition to the study of Latin itself. In fact classicists have no better friends anywhere that the structural linguists. They are staunch supporters of our discipline because of the unique position of Latin and Greek as two of the outstanding examples of cultural languages in the world.

Problem. What are the advantages of an arrangement like the following:

\[
\begin{array}{ll}
\text{I walked} & \text{we walked} \\
\text{you walked} & \text{you walked} \\
\text{he, she, or it walked} & \text{they walked}
\end{array}
\]

Could the facts be more efficiently stated? What are these facts?

The verb in the language of the San Blas Indians has been estimated to have over 10,000 forms\(^2\). Would a paradigm be practical in this language? Is a paradigm useful in describing any language? Is it useful in Latin? Is a paradigm useful in teaching any language? Is it useful in Latin?


<table>
<thead>
<tr>
<th>Tense</th>
<th>Form</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicative</td>
<td>samúi</td>
<td>&quot;which is (will be) cold&quot;</td>
</tr>
<tr>
<td>Past Indicative</td>
<td>sámukaqta</td>
<td>&quot;which was (used to be) cold&quot;</td>
</tr>
<tr>
<td>Presumptive</td>
<td>samukaróo</td>
<td>&quot;which probably is (will be) cold; which I think will be cold&quot;</td>
</tr>
<tr>
<td>Past Presumptive</td>
<td>sámukaqtaro</td>
<td>&quot;which probably was cold&quot;</td>
</tr>
<tr>
<td>Provisional</td>
<td>sámukereba</td>
<td>&quot;which, if cold&quot;</td>
</tr>
<tr>
<td>Conditional</td>
<td>sámukaqtaara</td>
<td>&quot;which, when cold&quot;</td>
</tr>
<tr>
<td>Alternative</td>
<td>sámukaqtari</td>
<td>&quot;which is cold now (and something other than cold)&quot;</td>
</tr>
<tr>
<td>Infinitive</td>
<td>sámuku</td>
<td>&quot;characterized by coldness or cold manner&quot;</td>
</tr>
<tr>
<td>Gerund</td>
<td>sámukute</td>
<td>&quot;being cold&quot;</td>
</tr>
</tbody>
</table>

\(^1\)It is believed that the following statements represent a common core of belief among linguists. \(^2\)Eugene A. Nida, Linguistic Interludes, pp 13
THE STRUCTURAL LINGUIST'S ATTITUDE TOWARD UNIVERSAL GRAMMAR

Wouldn't an American be able to get along with just one of these adjective forms and forget the rest? Wouldn't the Japanese be better off without such a useless complication? How does a Japanese, in speaking rapidly, choose between, say, the Presumptive and Alternative? Do you believe that the Japanese actually observe these distinctions? How difficult do you believe it is for the children in school to learn to make these fine distinctions?

Problem. As mentioned above, in Cree nouns are divided into two classes, animate and inanimate. Could the same division be made in English? What would the advantages be? Make up a rule for animate vs. inanimate in English parallel to the rule about gender. Which is more useful?

Certain classicists have maintained that the chief value of two years of high school Latin is increased accuracy in English by application of the rules of Latin grammar. The structural linguist considers this view, in the sense in which it is meant, trivial. In the first place, he believes that language habits are learned by drill and repetition, not by application of rules.

Illustration. There is the story of the little boy who used the expression "I have went". The teacher made him stay after school and write "I have gone" a thousand times. When she returned she found this note, "I have wrote a thousand times 'I have gone' and now I have went home." Does this story seem realistic to you? Wasn't the student getting drill and repetition?

In the second place, the structural linguist believes that the intellectual value of foreign language study, quite apart from its practical value, which may or not be present in the student's situation, lies in precisely the opposite direction. The true value—often learned but seldom taught—is the increased sophistication that arises from an awareness through experience of the great differences in methods of expression and in the cultures which they represent. Good teachers have always known this, and they may have told their students, but their techniques of teaching and their grammatical explanations overtly denied it.

Problem. Find linguistic parallels for the following, taken from Whorf, "Four. Articles"

"For instance, if a race of people had the physiological defect of being able to see only the color blue, they would hardly be able to formulate the rule that they saw only blue. The term blue would convey no meaning to them, their language would lack color terms, and their words denoting various sensations of blue would answer to, and translate, our words light, dark, white, black, and so on, not our
word blue. In order to formulate the rule or norm of seeing only blue, they would need exceptional moments in which they saw other colors. The phenomenon of gravitation forms a rule without exceptions; needless to say, the untutored person is utterly unaware of any law of gravitation, for it would never enter his head to conceive of a universe in which bodies behaved otherwise than they do at the earth's surface. Like the color blue with our hypothetical race, the law of gravitation is part of the untutored individual's background, not something he isolates from that background. The law could not be formulated until bodies that always fell were seen in terms of a wider astronomical world in which bodies moved in orbits or went this way and that."

We all know that the saying "The exception proves the rule" was coined at a time when the word prove meant "test", and that the meaning was that if it was a good rule, it could survive a few exceptions. In what sense is the saying true if we interpret it, as the naive person does, to mean "proves to be true"?

Problem. We have all learned in school that in English adjectives agree with their nouns in number. What does this statement mean? What is its origin?

The Structural Linguist's Attitude toward Normative Grammar

The universality of Latin grammar is believed by traditional grammarians to extend not only to the description of a language but to prescription on matters of what is "right" and what is "wrong" in that language. The reason for this absurd position is the historical fact that in the middle ages and Renaissance one of the most important aspects of learning was the ability to write good Latin. No attention was paid to one's own dialect, which as Dante expressed it, was "acquired without any rules, as one sucked one's mother's milk."\(^1\) But with the industrial revolution came a weakening of class barriers, and enterprising members of the lower classes began the slow climb upward. They soon discovered that the dialect which they spoke in their lower class environment was perhaps the one thing above everything else that betrayed their origin. Consequently there was a demand for grammars of English. But these grammars, although they did of course reflect to a certain extent standard speech of the upper classes, since they were written by people in that class, relied upon Latin

---

\(^1\) Robert A. Hall, Jr., *Leave Your Language Alone!* Ithaca, N. Y. 1950, p 171
grammar instead of usage for their criteria of "correctness". These analogists, like their ancient counterparts, would admit of no exception to their rules and rejected the usage of all authors, no matter how distinguished, with such remarks as "Even our most approved authors offend against every part of grammar"\(^1\).

The position of the structural linguist is that if one wished to write like one of the most approved authors, then he should study their language and style and model himself on them. The task of the normative grammarian, consequently, should be to study these approved authors and discover their usage.

Illustration. Buchanan, in 1769, commenting on the "errors" in Swift, Addison, and Pope, says querulously, "Had they not the Rules of Latin Syntax to guide them?"\(^2\)

**Problem.** What is the rule for the use of shall and will in English? What is your authority for this rule?

Illustration. The first statement concerning shall and will seems to have been made in 1765 by William Ward\(^3\), who based his argument not on actual usage by respected people but on the "fundamental meaning" of the words. Thus, since will "really" means volition and shall "really" means obligation, it is reasonable that we should use shall for ourselves and will for others.

As a result of this ukase, which violates all usage, both of the eighteenth century and the twentieth, there is the widest diversity in traditional grammars concerning the use of these two words. Hardly a statement is made in any that is not contradicted by the others. The linguistically naive, however, still put blind faith in "the" rule which they laboriously learned at some time in the past from some conscientious teacher.

The actual facts, based on a study of 20,000 uses taken from British and American plays, seem to be as follows.

Shall is almost non-existent in independent declarative statements in American speech, somewhat more common (in all three persons) in British speech. Shall, in both American and British speech, is common in questions for the first person. In subordinate clauses there is a striking difference between American and British: the British use shall for the first person, where Americans use will.

**Problem.** Which is therefore correct to use, shall or will in the first person of subordinate clauses? Does it make any difference where you are? Why were plays chosen for this study? Would these conclusions be valid for Formal Edited English? How would one find out the usage in Formal Edited English?

\(^1\)From Charles C. Fries, PMLA, 42, 1927, pp 221-237

\(^2\)Ibid.

\(^3\)The data on shall and will are from Fries (location uncertain); Hall (op. cit. p 23) says that the rules were first formed by John Wallis in the seventeenth century.
Few structural linguists would deny the validity of normative grammar\(^1\), although they might deplore, as human beings, the conditions of our society which may make it necessary. As much as any one else, they realize that the road to success may be blocked forever to one whose speech betrays an inferior social origin.

Illustration. The following conversation was reported from a party: "I don't take no exercise. Every mornin' I does my callist'enics and I leaves it go at dat." What is your reaction to the speaker? To the party? What about the speaker as a human being? Is he good? Kind? Generous? Any one you would like to meet?

Problem. A student who had failed at Michigan applied for admission to another college and reported to his former advisor at Michigan, "They didn't have none of them courses I wanted." Why did this student fail at Michigan? What do we know of his friends and interests in high school? What would a personal interview have told the admissions officer?

It is one of the commitments of America to erradicate such artiticial barriers, and this must be done through instruction. What the structural linguist asks are standards that are based on actual usage by the best speakers and writers who play a leading part in the conduct of American affairs. Otherwise the usage which the students are taught will have no utilitarian value.

Illustration. Here is a list of prohibited expressions, the last three of which I owe to an article by Eugene S. McCartney's article, "Was Latin Difficult for a Roman?", CJ, 23, 1927-28, pp 163-182. The others I owe to my teachers and my children's teachers.

It is me. I don't think it will rain.
Between you and me. He took the train to Boston.
These are the most perfect A clapboard fell off the
diamonds I have ever seen. delapidated house.
However, he decided not to. He chopped wood assiduously.

Needless to say, these prohibitions were the ones which the prohibitors worked particularly hard on, since almost no one else avoided these particular errors. Perhaps an elucidation of the error, as given by the prohibitors, would be helpful.

#1 is known to us all: the verb to be cannot take an object.

#2 was prohibited by my daughter's second grade teacher, who drilled them on "Between you and I". This is the concomitant of teaching "It is I". In #3 we are told that you cannot qualify perfect, the Declaration of Independence not withstanding. In #4

\(^1\) Hall is an exception; see below, p 36
we were told that however could never begin a sentence. It is now apparent that this rule arose from the fact that the Latin words autem and tamen are postpositive. In #5, you are thinking and you have just said that you weren't. In #6, you don't take the train, the train takes you. In #7, a house may not be called delapidated if it is made of wood. And in #8, one can't chop wood sitting down, which is the meaning of assiduously.

Problem. In the early days of radio a neighbor of ours, an English teacher and a Republican, came to our house to hear an address by President Hoover. It turned out that his interest in the speech was to list the numerous grammatical errors which the President committed. What kind of errors would these be?

Problem. What are the reasons for prohibiting the following expressions in speech:

Use of who in "Who did you see?"
Split infinitive
Use of a preposition at the end of a sentence.
Are these prohibitions observed by people who are prominent in the affairs of our country? Does Formal Edited English have any special conventions? Would it be advisable to have one set of rules applicable to all levels of language, colloquial, semi-formal, and formal speech and semi-formal and formal writing. What would the advantages be? The disadvantages?

Vested interests have an obvious reason for wishing to create or perpetuate the feeling of insecurity felt by those who are rising in the social scale. Scare advertising, even by otherwise reputable publishers, screams THOUSANDS are HANDICAPPED by POOR ENGLISH--and don't know it! We are then urged to MAKE THIS TEST NOW. We are not surprised to be told that even educated men and women miss questions on this test.

Normative grammar has extended to pronunciation. In many instances this means simply that an English or speech teacher from one part of the country is attempting to teach pronunciations that are at complete variance with the normal standard pronunciation in that area. Little harm is done, outside of the waste of million of hours of manpower, since the children have the good sense to refuse to talk in a way that sounds ridiculous to their friends and elders.

Illustration. Teachers from a part of the country where Tuesday is pronounced /tuwzdi/ are this minute busy

1 The old lady in Northampton, Mass., who was asked what her reaction would be if someone told her "It is me" was incorrect and who answered "I'd tell them to mind their own business" was obviously secure.
in areas where the word is /tuwzdi/ trying to make their little charges say /tuwzdi/ or perhaps /tuwzdey/. At the same time, teachers from /tyuwzdi/ areas are hard at work in the /tuwzdi/ parts of the country.¹

The structural linguist, as we have said, is quite aware of the barriers created by non-acceptable speech. He deplores the very real suffering that occurs through ignorance, when a person with speech that is standard in one part (or even a large part) of the country moves to another dialect area and is judged as poorly educated. He recognizes that differences based on class distinctions will not be ignored, but he asks for enlightenment on regional differences.²

Illustration. He don't is slightly substandard in most of the country but standard in Georgia. A prominent educator from Georgia had great difficulty in getting his message across to a Philadelphia audience because they froze at the first He don't. Ain't is substandard everywhere—except among the first families of Charleston, S. C., who have of course learned to refrain from it in the presence of outsiders.

Problem. Who was to blame for the misunderstanding described in the paragraph above?

Problem. Here is a statement by a leading structural linguist on normative grammar:

"It is still true that many high school and college students come from homes where standard English is not habitually spoken. For these the English program of school and college means the substitution of one form or dialect of English for that which they normally employ— for standard English is currently a social dialect and historically a regional one. The magnitude of this task is literally overwhelming, unequalled by anything in past educational history." (Albert H. Marckwardt, "The Future of English", a pamphlet distributed by Scribners, 1949.

What is the writer's attitude toward "correct" and "incorrect" forms? If the task of changing speech habits is as formidable as he says, wouldn't it be simpler to let every one talk and write as he pleases? Compare the opinion of Hall (p 248):

"The message that linguistics has for our society at present is primarily the one we have used as the title of this book: LEAVE YOUR LANGUAGE ALONE! We put it this way on purpose, to emphasize that any meddling with our language, by ourselves or others, in the name of "correctness", of

¹The material in slant lines is a PHONEMIC TRANSCRIPTION, which will be explained in Chapter Three. Your instructor will read them to you.

spelling, or of nationalism is harmful."

Are these two views compatible? If not, which one seems preferable? Are they equally representative of the views of structural linguists, as far as you can tell?

Illustration. An excellent example of methodology in discovering what the usage of various social groups actually is may be seen in American English Grammar, New York 1940, by Charles C. Fries, in which he was given access to the files of a government agency. The following information was then gathered about the writers of these letters in order to assign them to one of three social groups:

Place and date of birth
Place and date of birth of parents
Present address
Record of schooling
Record of occupations
In some cases (chiefly in the case of the lowest group) a confidential report on the family.

Out of all the writers, three social groups were formed. The first group was composed of those who met all three of the following requirements:

a) At least three years of study at a reputable college
b) Recognized standing in one of the these occupations:
   college professors
   physicians
   lawyers
   clergymen
   officers above the rank of lieutenant
   school superintendents in cities above 25,000
   editors of newspapers in cities above 25,000

c) No mistakes in spelling or serious mistakes in punctuation

The second group was made up of those who met the following requirements:

a) Formal education from first year in high school to first year in college
b) Position as "substantial citizens" in such occupations as the following:
   business men
   electricians
   foremen of large shops
   superintendents of mills
   heads of police departments
   undertakers
   Red Cross workers
   nurses
   sergeants in the army
   etc.

c) No habitual mistakes in spelling

The third group comprised those who met all three of the following requirements:
THE SCIENCE OF LINGUISTICS

a) Education not beyond the eighth grade
b) Occupation only manual and unskilled; all clerical workers were rejected
c) Habitual misspelling of simple words; such punctuation errors as lower case for I or proper names, no use of period

Note carefully that to qualify for either the first or third group the writer had to meet all the requirements. For example, the letters of a person who had little education and who habitually misspelled words would not be examined if his trade was an electrician.

The differences that appeared in the written usage of these three strictly chosen groups was labeled Standard English, Common English, and Vulgar English.

The Structural Linguist's Attitude toward the Spoken Word

Early scholars were interested in the classical languages, Latin, Greek, and Hebrew. Spoken languages like French, Italian, English, and German were thought unworthy of study. This attitude contributed to the belief that the real language was the written word, that speech was pronouncing the letters. The structural linguist, on the other hand, takes the point of view that the spoken language is primary and that the written language is a system for recording what someone has said or might have said. It is, if you like, a secondary system of language like drum-talk, whistle-talk, or the sign language of the death. Such an attitude, needless to say, is not incompatible with a love of literature.

Problem. Here is one modern definition of language: "A language is a system of arbitrary vocal symbols by means of which a social group cooperates." (Outline of Linguistic Analysis, Bernard Bloch and George L. Trager, p 1)

Explain precisely what is meant by the words system, arbitrary, vocal, and symbols. In what ways does this definition differ from the traditional concept of language?

Illustration. The common (and mistaken) belief that all questions are signalled in English by rising pitch is due to the fact that all questions, regardless of type, are marked with the same kind of punctuation, a question mark. Therefore, a feature that marks certain kinds of questions is assumed to mark all kinds.

Problem. How does English signal questions?

Problem. It is easily demonstrated that Latin vowels had a component of length; to rephrase it, Latin had not only the five vowels a, e, i, o, and u (with the Greek y) but also a, e, i, o, and u. Why do most classicists ignore this
feature in reading Latin aloud and in writing it?

Illustration. We have all heard foreigners praised for speaking English "better than we do." This means one of three things: the foreigner, not knowing any better, follows certain prescriptive rules which speakers of English do not, such as the shall and will prescription; he does not observe SANDHI change (see below); or he uses spelling pronunciations for such words as often and iron, saying /‘often/ instead of standard /‘oftin/ and /‘ayrn/ for standard /‘ayrn/.

Illustration. We read frequently of some primitive people who "have no language". This strange statement means that their language has no writing system.

Illustration. Perhaps the most striking example of the preoccupation with written symbols and complete disregard for the spoken language is the statement that English has five vowels, a, e, i, o, and u and sometimes y and w. This means that these five (or seven) letters are used to represent the nine vowels and thirty-six vowel nuclei that are found in English. It ignores such ancillary devices of indicating vowels, such as the doubling of consonants to distinguish the simple vowels from the complex vowels, as in later and latter. The inclusion of w is interesting. Every one knows the rule but no one, to my knowledge, had ever offered a satisfactory explanation. Does it mean that w is used to indicate a complex vowel nucleus, like owe? If so, why not include h, as in oh? Or does it rest upon the existence of the solitary word cwm /‘cuwm/ borrowed from the Welsh and known only to mountaineers?

Problem. The following observation was made by a dinner partner: "The only trouble with English is that we don't pronounce words the way they are written." Discuss the implications of this.

Problem. It is observable that many words have at least two pronunciations, one its form when pronounced alone, the other when it occurs in a larger construct. This is called SANDHI change. An example would be the word of, whose citation form (as well as the form used in slow, formal delivery) is /əv/, but whose sandhi form is /ə/. Find additional examples of words with sandhi change. What is the naive view of sandhi change? Do traditional grammars deal with sandhi? Do the dictionaries?

---

1 No system of writing puts all the language down on paper; it is necessary to know the language in order to read it aloud, that is, to turn it into understandable speech. As is known to us all, English is singularly capricious in its spelling.

2 For a description of the sound of the unusual characters, see Chapter Three.

3 The term comes from the Hindu grammarians.
of common words; many words which are spelled differently are pronounced alike, while many words which are spelled alike are pronounced differently. One of the difficulties which an English child has in "learning to read" is to infer from the redundancy of the passage which word is meant.

Illustration. How would you pronounce the word tear? In answer to the question, "What fell from his eye?" the answer would be /tɪər/ but in answer to "What ruined his coat?" the answer would be /tɛər/.

Consider this fragment of conversation.

"I am giving my mother a present for Christmas."
"What?"
"A box of candy."

Now contrast it with the following:

"I am giving my mother a present for Christmas."
"What?"
"I said, I am giving my mother a present for Christmas."

In the first conversation the what is pronounced with falling intonation and signals, "Message received; wish additional information." In the second it is pronounced with rising intonation and signals, "Message received; do not understand; please repeat."

Problem. A foreign student has been taught English by traditional textbooks. He participates in the following conversation with an American whom he has just met.

FS: Where do you live?
Am: California.
FS (who has visited Los Angeles and wishes to find some common interest to talk about): Where?
Am: CALIFORNIA!
Fs: (alarmed but persistent): Where?
Am: CALIFORNIA!!!
Fs: (now thoroughly rattled): Where?
Am: CALIFORNIA!!!
Fs: (what else can he do?): Where?
Am: CALIFORNIA!!!

What had the foreign student been told about the intonation of American questions?

This insistence upon language as primarily an oral activity and only secondarily a written one is fundamental, but it does not mean that the structural linguist is hostile to literature. In fact, most linguists teach

1See Chapter Six, pp 87-89
courses in literature as well as in linguistics. In spoken language we find the linguistic expression of a culture. In every society some people are more articulate than others. In a primitive community these people are story tellers; in a more complicated community they are actors, lecturers, and the like. In literature we find the highest achievement of linguistic expression by the most articulate members of our culture, although like Goldsmith, their articulate-ness may not extend to their speech. But literature should be approached through speech; poetry, for example, should be read aloud. And we can truly understand artistic expression only when we understand in what respects it differs from ordinary conversation. This is the great handicap under which we labor in trying to understand Greek and Latin literature.

The Greeks and Romans displayed a certain amount of ambivalence to the spoken word. We have animadverted above (p 25) on the anti-linguistic attitude of the Greeks. The Romans were wont to contrast speech unfavorably with both writing (Littera scripta manet, verbum at inane perit) and with action (Rem non, factum non. dictum quaerit amicus). We all recall the scorn with which Turnus assails the orator Drances:

Larga quidem, Drance, semper tibi copia fandit
 tum cum bella manu poscunt, patribusque vocatis
primus ades. Sed non replenda est curia verbis,
quae tuto tibi magna volant, dum distinet hostem
agger murrorum nec inundant sanguine fossae.

On the other hand, we know that both the Greeks and the Romans placed great emphasis on oratory, of which the attack by Turnus is one manifestation. It was, in fact, the goal of education. It is also true that from the time of Asinius Pollio Roman poets "published" by reading their works aloud, a practice which the Greeks had also employed. Finally, there is some evidence that the Romans habitually read aloud.

Illustration. There is a passage in one of the Church Fathers about some one who called on one a famous personage. On inquiring for him he was told, "He must be reading in his study; I heard him as I passed by." (Location?) Familiar to us all is the story of Cydippe who committed herself to Acontius by reading aloud an oath which Acontius had written on an apple and tossed to her. Of interest are the opening lines of Ovid's Heroides xxii, where he has her say that she was careful to read Acontius' letter silently:

Pertimum sciretumque tuum sine murmure legi
jura ret ne quos inscia lingua deos.
Misunderstandings between Linguists and Traditional Language Teachers

Since the facts are so clear, why should there be any resistance to linguistics?\textsuperscript{1} The answer may be unpalatable but it is true: ignorance on the part of the traditional language teachers and arrogance on the part of the linguists. When one has spent his whole life in the study of a language, it is aggravating, to say the least, to be told that your views are naive. Traditionalists are puzzled to hear linguists discussing a language which is familiar to all but in terms which the traditionalists can make nothing of. One reaction is that the talk is pure nonsense, but it is difficult to maintain this view in face of the fact that the linguists seem to be able to communicate with themselves, if with no one else. A more common belief is that the linguists are only disguising well-known facts in complex verbiage. If they would only talk plain English, runs the argument, we could understand them.

To a very limited extent this is true. It is true in the same way that it is true that if physicists talked plain English we could understand them. The only difficulty with this idea is that a talk which a physicist (or a linguist) can deliver in half an hour would take several years to deliver without the use of technical terms which his audience understands. In other words, several years of study in "plain language" enables the audience to comprehend the terms and the concepts which they represent. A phoneme, in short, is not just fancy talk for a letter.

Illustration. Later on in this book you will read "The graphemes q and k are superfluous, since they are in complementary distribution with c." This statement is meaningless unless you know the term and the concept of complementary distribution.

One can understand and sympathize with those who have made some attempt to understand linguistics and simply find it incomprehensible. Particularly in the field of applied linguistics a baffled teacher is apt to feel that if it is too hard for him it will surely be too hard for his students. There are several answers to this. The first is that his students will not be studying linguistics but will be learning a language through techniques and materials which are based on the

\textsuperscript{1}From this point on, the words linguist and linguistics will have structural implied.
findings of linguistics. The second is that because the adult finds the study of linguistics difficult we must not assume that the younger generation would find any difficulty in whatever linguistics was worked into the course. M. Butterfield says in his The Origins of Modern Science (1949): "The supreme paradox of the scientific revolution is the fact that things which we find easy to instill into boys at school...defeated the greatest intellects for centuries" and again: "Of all forms of mental exercise, the most difficult to induce...is the art of handling the same bundle of data as before but by placing them in a new system of relations with one another by giving them a different framework." That is precisely the situation when the traditional language teacher runs into linguistics. The data—the facts of the language—are the same, but they are arranged so differently that they seem to be chaotic.

The history of science is full of examples of opposition by highly intelligent men to ideas which have since been universally accepted by their profession; the irrational objections by Agassiz and his school to the theories of Darwin is one example which comes to mind.

On the other hand it has been observed with some justice that if the much maligned missionaries have not always been good linguists, it is equally true that the linguists have not always been good missionaries. It is hard to hold one's tongue when colleagues in a patronizing fashion attempt to correct what they conceive to be mistaken ideas and display complete ignorance about the most elementary facts of language.

Illustration. At a meeting of a group interested in the teaching of foreign languages the speaker was discussing how to test a learner's comprehension of English questions and how to test a learner's comprehension of the signal. He explained that on written tests the question mark was left off to see whether the student had mastered the signal of reversal of the verb to show interrogation. A member of the audience objected, claiming that this was an artificial difficulty, since in written language the student would always see a question mark and in spoken language the voice would always be raised. When the speaker (and several others) immediately replied that not all English questions have a rise in intonation at the end, the questioner gave a gasp of incredulity, smiled pityingly, and asked, "How can you ask a question in English without raising your voice at the end of it?" The answer given was "You just showed us." On another occasion a member of a committee concerned with foreign language instruction granted that other languages might have phonemes, but that Spanish was a special case, and in Spanish it didn't make any difference how you pronounced a word.
Illustration. To see how little impact the work of a century of linguists has had on the general literate public, one need only open an publication at random. Here are some quotations taken from the Saturday Review, 5 March 1960:

"It (Chinook Jargon) has no grammar--almost nothing but vocabulary, and not much of that." (Review of Trask)

"For the most part, we were educated in the Twenties. We had to know how to read and spell to graduate from grammar school; we had to know how to punctuate and conjugate to graduate from high school." (Letter to the editor explaining her superiority in her job to the rest of the younger staff)

Problem. How would a language without grammar work? In what way would the ability to conjugate (supply "English verbs ") improve the efficiency of office workers?

Problem. Comment on the following selections from the article on Gender in the World Book:

"Living things are classed as male or female, and things without life as neuter or sexless. In the same way, words are said to belong to the masculine, the feminine, or the neuter gender... English is the only important language which is logical and accurate in the use of gender... Nouns of common gender are followed by masculine pronouns. "Every member of this group must bring his book to the next meeting." Some speakers feel uneasy about using his for a group containing women. But in such instances as the above it is incorrect to use their, because every is singular."

On the bright side of the picture, however, rapid progress is being made in certain fields. The real leaders in American education, such as the deans and presidents of colleges and universities, heads of government agencies, officials of foundations, and the like, are constantly learning more and more about the importance of linguistics. For an entertaining account of the difficulties which one of these persons (William R. Parker) met in his attempts to convert some of the old guard in his capacity as Executive Secretary of the Modern Language Association, one should look at his article "Adventures among Language Teachers and Linguists" (Monograph 8, 1955, pp 165-172, The Institute of Languages and Linguistics, Georgetown University).

There have been a number of articles intended to convince the language teacher of the value of linguistics. Temperate in tone but still forthright, they are highly recommended as missionary propaganda. Two of the best are Sumner Ives, "Linguistics in the Class Room", College English, 1955, pp 165-172.) To be avoided, for missionary purposes, are such polemical (as they seem to the naive) works as Hall's Leave Your Language Alone!
To the credit of the classical profession, it may be a fair statement to say that its members have shown themselves, of all the large language groups, the most ready to listen to suggestions for improvement. And this in spite of the fact, as we have shown above, the position of the linguist is apparently, although not in fact, opposed to the traditional classical one.

Problem. Examine the following statements by linguists. Knowing what you do about the linguists and their position, would you say that they indicate hostility to the classics? Could any of them be interpreted by an intelligent but na"ive classicist as hostile?

"A linguist that insists on talking about the Latin type of morphology as though it were necessarily the high-water mark of linguistic development is like the zoologist that sees in the organic world a huge conspiracy to evolve the race-horse or the Jersey cow." Sapir, Language (New York 1921) p 131

"The bondage of English grammar to Latin patterns is being broken, and with the break has come a period of rapid advance in our own understanding." (Gleason, p 126)

"By 'intelligent person', we mean here one who is linguistically sophisticated, and who is not bound be traditional notions about the supremacy of Latin grammar or the absolute-ness of 'correct' speech." (Hall, p 210)

"In the old days, this minority was condemned en bloc to study Latin and Greek. The bitter struggle against the abandonment of this custom seems unwarranted, in view of the fact that the pupils learned to read neither of these languages. There remains the fairly widespread four years' Latin course of our high schools; apart from other factors, its ineffectiveness is explained by the fact that scarcely any of the teachers have a reading knowledge of Latin." (Bloomfield, pp 503-504)

If these statements still seem to you to be inimical to the study of Latin, we suggest that you examine them in situ. You might also examine the statement by prominent linguists in CW 1952-53, pp 97-100, on the value of the study of Latin.

Within the last few years, therefore, linguists and language teachers have drawn closer together, and all signs point to stronger ties in the future. More and more institutions are including courses in linguistics in their programs and building their language courses on a foundation of linguistics. The Linguistic Society of America has at long last formed a committee on education after years of maintaining that it was the responsibility of the language teachers and not the linguists to inject linguistics into the language program.
The value of linguistics is just as great for a teacher of classics as for our colleagues in the modern languages. Teachers who had discovered empirically that there was something wrong with "easy Latin", who could not be persuaded by any amount of statistics that 1471 words was all that was needed to read Latin", who felt that time spent on traditional "grammar" was wasted, who found translation slow and monotonous, have seen in the science of linguistics the tools to examine and evaluate different techniques and the language to explain why some practices are sound and others are not. The structural approach claims specifically to predict the areas of difficulty. This same knowledge enables us to suggest solutions to the difficulties that it uncovers.

Why There is Not "A" Structural Method

The observant reader will have noticed that we have everywhere spoken of a structural approach, not of a structural method. The linguist believes that traditional language teaching is based upon a false concept of the nature and facts of language. He is not so much interested in how language is taught as he is in what is taught. The structural approach explains the nature of the contrasts between native language and target language; it is then the task of teachers, psychologists, and experts in learning theory to devise ways of helping to learn the language with particular attention to the points of difficulty which linguistic analysis has disclosed. The author of this book, however, besides being a linguist, also happens to be a practical classroom teacher and has devised several techniques for teaching the skills which he believes essential. The latter part of this book will contain an exposition of these techniques and the materials which they require. The fundamental assumptions that underlie the structural approach seem incontroversible: languages are different, not alike, and an accurate analysis of these difficulties is essential for efficient teaching. As far as the techniques go, we cannot say that any one of them is necessarily the answer, and experience has proved that we are rapidly replacing certain techniques with others that prove superior.

Illustration. Ernst Pulgram in two articles ("Preparation for Language Teaching", Monograph 6, 1954, Georgetown University Monograph Series on Languages and Linguistics, 75-85 (?) and "Linguistics for Language Teachers", The French Review, 31, 1958, pp 410-419) shows clearly that there is no such thing as
one linguistic method in which all linguists would necessarily concur by virtue of their profession as linguists, and his very position on certain types of methodology show this. For example he says, "I am not convinced... that for the acquisition of a reading knowledge alone... an intensive and extensive oral-aural preparation in the foreign language is important or even particularly helpful... But, if I am proven in error I shall gladly change my mind."

As will appear, the author of this book, bearing in mind that language is learned, patterned oral behavior, recommends massive oral-aural drill. At the present this seems the most practical way of learning Latin, even for reading purposes. But if a more efficient way is discovered, let us say through writing, then we would abandon the oral-aural method for the new.
CHAPTER THREE
STRUCTURAL ANALYSIS: PHONOLOGY

Definitions

We have said that the linguist believes that difficulties arise in learning a language where that language differs from the student's own tongue. It was further claimed that through structural analysis these difficulties can be identified, thus suggesting possible techniques for dealing with them. We shall now examine a little more closely what we mean by "structural analysis". This and the following three chapters are propaedeutic for Chapters Seven through Thirteen, where the contrasts between English and Latin are developed in some detail. Chapters Three through Six, therefore, furnish a superficial view of structural linguistics for the purposes of language teaching and learning.

All the phenomena of language together form its structure. Although the structures of two languages may resemble one another occasionally in partibus they are always different in tótó. The structure of a language is conventionally divided into four sections:

1) Phonology
2) Morphology
3) Syntax
4) Lexicon

Phonology deals with the significant features of the rumble of speech; morphology is the significant arrangement of the minimum units of sound; syntax is the significant arrangement of these latter arrangements; and lexicon is the total stock of the arrangement of minimum units of sound.

For teaching purposes it seems wise to follow Professor Fries in adding a fifth section, that of contextual orientation, the meaning of utterances in their significant environments.
Phonological Features

Language is made up of sounds, and some features of these sounds have linguistic meaning. It is the function of the study of phonology to determine which features are meaningful.

Illustration. "An ant is always larger than an elephant" has linguistic meaning although we may reject the message it carries. The concept that only some of the acoustical phenomena have linguistic meaning is the substance of this chapter.

We have said above (p 24) that it is impossible for even the same speaker to repeat a word in identical fashion. Herein lies a paradox: how do we recognize a word (any word) since we have never heard it before? Linguistics has solved the paradox. Certain features of the word are similar to those heard before. Fries calls these similarities RECURRING SAMES.

Illustration. The concept of recurring sames is familiar in our daily life. How do we recognize the make of an automobile that we have never seen before? We disregard certain striking features, color for instance, and note the recurring sames. This car looks like other Fords that we have seen before in significant features. By many objective standards a Pekingese resembles an Angora cat more than he does a Great Dane; we group it with the Great Dane because of the recurring sames, the significant features that they share in common.

Kenneth L. Pike has developed this concept of the significant versus the non-significant in human behavior in his book Language in Relation to a Unified Theory of the Structure of Human Behavior (Glendale, California, 1954). The significant he terms "emic" and the non-significant "etic", for reasons that will be clear when you have read this chapter.

Out of all the possibilities of vocal sound, then, each language uses a certain number of significant features in certain combinations. The number of significant sounds in different languages varies from about two dozen to perhaps three times that number, and no two languages ever examined use the same set. One speaker will pronounce a given word very differently, and yet it will be recognized by his neighbor because the listener ignores the differences and correlates what he hears with the significant features of his own speech.
Illustration. Have someone read a short sentence aloud. First, repeat what he said. Next, mimic what he said. In the first case you reproduced the significant features. In the second, you reproduced, with greater or lesser success, depending upon your ability as a mimic, the non-significant features as well.

Problem. What kind of information is transmitted by the significant features? Is any information conveyed by the non-significant features? If so, what kind of information is it? If the answer is negative, how do we tell one speaker from another if he is not visible?

Phones, Phonemes, and Allophones

An individual sound is a PHONE, and like snowflakes, no two are ever alike. Some phones resemble one another in ways that are significant in a given language system; such phones are said to belong to the same PHONEME. A phoneme is the Platonic ideal of a significant sound. Since the Roman alphabet does not adequately describe the phonemic system of English it is necessary to add new symbols and to restate the value of the old ones. Such phonemic transcriptions are placed between slanted lines, while PHONETIC transcriptions are placed between square brackets. A phonemic transcription includes only the significant sounds; a phonetic transcription includes all the acoustical features in which the transcriber is interested, whether they are relevant to the language or not. In studying a language a linguist notes all he hears in a phonetic transcription; only after he studies this data does he know what is significant in the system and what is not.

There are phones that resemble one another in significant ways (and are thus members of the same phonemes) and also resemble one another in non-significant ways as well. We say that such phones belong to the same ALLOPHONE. Two allophones differ acoustically in non-significant ways but are members of the same phoneme because of their recurring sames. Two sounds that are allophones in language A may be separate phonemes in language B; this is one of the chief sources of difficulty in language learning.

Some allophones are in FREE VARIATION, that is, it makes no difference which variant is used in the same position.

Illustration. Final [k] and [g] are significant phonemically in English because of the existence of pairs like tack /tæk/ and tag /tæg/. In German, however, the word Tag "day" may

\[1\]

For an explanation of the symbols, see the Appendix.
be pronounced with either a [k] or a [g]. There is no difference in meaning, and a native speaker would probably not even be aware of which allophone a friend used. He would consider it the "same" sound, and in a phonemic sense it is.

Problem. Can you predict one difficulty that a speaker of German would have in learning to speak English? How would you deal with this difficulty?

Illustration. In the Nanking dialect there is no contrast between [m] in final position and [ŋ] in final position\(^1\). To show this non-phonemic contrast one would write [mɪŋ] and [lɪŋ], where the sign ~ stands for "in free variation with". In other words, in this dialect one may say either [mɪŋ] or [lɪŋ] and be understood. Phonemically, therefore, one would write these words /mɪŋ/ and /lɪŋ/\(^2\). In this dialect, [n] and [ŋ] are allophones of /n/.

In English, however, this contrast is significant because of the contrast between sin and sing, which one would write phonemically as /sɪn/ and /sɪŋ/. What was phonemically non-contrastive in Nanking is significant in English.

Problem. Can you predict one difficulty that a speaker of the Nanking dialect would have in learning to speak English? How would you deal with this difficulty?

Do not confuse this type of free variation between allophones with the free variation that sometimes exists in words between phonemes. For example, the word trough is /trʌf/ in some dialects and /trɔθ/ in others. But /f/ and /θ/ are separate phonemes because of the existence of such words as loaf /lɔf/ and loath /lɔθ/.

Problem. Consider the words wreath and wreathe. Are the final sounds allophones of the same phoneme or separate phonemes? There are two pronunciations of the word with, one with the final sound of wreathe, the other with the final sound of wreathe. What can you say about these two final sounds? One phoneme or two? What about the distribution?

Sounds may be allophones, therefore, because they are in free variation. There is one other type of allophone, that which is conditioned by its environment. A VELAR STOP in English, for example, is articulated differently before a FRONT VOWEL than before a BACK VOWEL; that is,
the phonetic quality of the stop changes in anticipation of the following vowel. To rephrase once more, the tongue has already moved into position for the vowel that is to come when the velar stop is produced, thus changing the phonetic quality of the stop.

Illustration. Listen to the different /k/ sounds in the series kill, cat, cot, cool, coal, and cut. Compare them in turn with the /k/ of luck. The acoustical differences are -- in English -- non-significant because they are automatically determined by their environment. Should we make one slight change (slight but in English significant) and produce a VOICED velar stop instead of the VOICELESS one /k/, we would have the English phoneme /g/. The fact that this difference is significant in English is proved by the existence of the series gill, gat, got, ghoul, goal, gut, and lug.

(When voicing occurs, the vocal cords vibrate. One can easily test this by producing minimal pairs like tap and tab. A vibration will be felt in the larynx when /b/ is produced, while there will be none for /p/, its voiceless counterpart. One may also hear the difference by blocking the ears.)

(There is also another contrast between /k/ and /g/; the first is TENSE, the second is LAX.)

The /k/ in kill is articulated in the front part of the mouth because the tongue has already moved forward to produce the vowel /i/, which is called HIGH FRONT because of the position of the tongue. On the other hand, in cat the /k/ is produced in a different part of the mouth because of the LOW FRONT vowel /æ/. In caught /kot/ the vowel is LOW BACK, with a resulting non-significant change in the /k/. But in Eskimo there is a significant contrast between a front and a back voiceless velar stop.

Illustration. The front voiceless velar stop may be written /k/ and the back counterpart /g/. Their existence is proved by their occurrence in identical environments with significant contrasts. Thus we find minimal pairs like /nigisuktuna/ "I want to eat" and /nigisuktuna/ "I know how to eat". (Data from Eugene A. Nida, Linguistic Interludes (Ann Arbor 1947)

Illustration. Allophones in one's own language are at first difficult to hear because one has been conditioned to react to them as "sames". If you still have difficulty in making the distinctions, you may be able to see a difference which you have trouble in hearing. Light a match and hold it a few inches away from the lips. Now pronounce the word spill. The flame will continue to burn steadily. But when you produce pill, the flame will flicker or even go out because of the aspiration in initial /p/ in English. The aspirated and unaspirated voiceless
BILABIAL STOPS are allophones of English /p/ because the presence of aspiration or its absence is automatically conditioned by the presence or absence of initial /s/. The lack of aspiration in spill therefore carries no information except that an /s/ must have preceded the /p/. (This information, however, is not inconsequential and contributes to the REDUNDANCY of the language, for which see Chapter Six.) Final /p/, as in lip, is often produced without any parting of the lips at all. All of these different voiceless bilabial stops are allophones of the phoneme /p/. The mastery of these phonemes is one of the chief burdens in learning a modern foreign language.

In French, for example, there is no aspirated /p/. An American in producing French initial /p/ will have to unlearn his habit of aspiration in this position. In Mandarin Chinese, however, aspirated and unaspirated bilabial voiceless stops are in contrast and form separate phonemes. That is to say, the presence or absence of aspiration is not automatic but is significant. Pa with breath means "lie flat" and without it means "eight".

As suggested in the illustration above, when we say that the contrast between allophones is non-significant, we do not mean that the contrasts are unimportant. The redundancy which they introduce into the system is of great value in transmitting messages properly. For instance, if there was doubt in the listener's mind as to whether he had heard pill or spill in "He took a _____", the presence of unaspirated /p/ would show that the word was spill. Recent researches suggest that we may not be quite sure what part of the stream of speech actually conveys the information.

Illustration. "Joos tells us that if one pronounces syllables such as pop versus tot and records them on tape, and if one then cuts with a pair of scissors the consonants off from the tape at the point where segmentation would seem to occur either by a particle view or a wave view of the type just mentioned, and if one then plays back on the recorder the vowel sound only, the two syllables are still distinguishable as pop and tot! This extraordinary and unexpected result forces us to investigations which show clearly that not only is there fusion at the points where sounds bump into one another in the sequence, but that sounds which are "due to appear" late in the sequence may actually be in part anticipated early in a sequence. The anticipation affects the early sounds. And sounds which appear early in the sequence, from the point of view of normal, ordinary segmentation, actually decay so slowly in articulation and resultant effect that their influence is felt late in the sequence." Kenneth L. Pike, "Language as Particle, Wave, and Field", The Texas Quarterly, 2, 1959 pp 37-54
Problem. Besides hearing and seeing the acoustical differences between allophones, it is sometimes possible to feel the difference. Say the words pin and prune. Are the lips in the same place for producing the /p/ in both words? Contrive a list of rhyming words beginning with /p/. Describe the differences.

Problem. Here are some examples from Yipounou (data from Eugene A. Nida, Learning a Foreign Language, New York 1950). What major contrast with English do you see? (Not all the examples are pertinent to the problem.)

andi "his" 
tagila "to cry out"
butamba "world" 
pūgga "wind"
kala "a long time ago" 
divingu "only"
yitu "faith" 
mbari "cause"
tagila "to cry out to me" 
agobungu "may he be not destroyed"
kala "a crab" 
pūgga "fibre"
nzambi "God" 
tamba "but" 
-gala "to deny"

What problems would you expect a speaker of English to have initially with this language? The combination of letters ng in English stands either for /ŋ/ or /ŋg/, as singer and finger respectively. What error would an American be likely to make in reading the word divingu?

There are two difficulties that face the learner in approaching the study of phonology. First, he cannot imagine that speakers of a language can really hear such "fine distinctions" as the contrasts between /kala/, /kala/, and /gala/, as given in the illustration above, where there seems to him that the natives are saying only /kala/ and /gala/. The second difficulty is the other side of the coin. It seems incredible that Koreans, for example, cannot hear the difference between loot and root. I well remember my own naive amazement when I first encountered this last example; I could literally see no possible similarities between /l/ and /r/.

The practical aspect of structural analysis for the language teacher is that we can predict that a speaker of Nanking will have difficulty with final /ŋ/ and /ŋ/ in English and would devise drills with such pairs as tan/tang, sin/sing, and the like. Without it one would proceed entirely by trial and error. We would be shocked, amused, or irritated by the Japanese who could not distinguish between agree, ugly, and angry. Structural linguistics would have forewarned us.

Problem. "The nonlinguist so takes for granted the type of analysis into individual sound units which underlies alphabetic writing that he is unlikely to realize that there is a complex set of theoretical assumptions involved. He tends to believe
that alphabetic writing simply renders each different sound by a different letter symbol. In fact, however, there are sound variations of which the naive speaker is generally unaware." Greenberg, op cit.

What are these "sound variations" of which Greenberg speaks? Just what did the inventor of the alphabet do?

We shall now redefine our terms a little more precisely. Two phones are members of the same phoneme when they have several features in common and when they are either in free variation (like Nanking [lin~liŋ]) or when they are in COMPLEMENTARY DISTRIBUTION. This latter term occurs in almost every discussion of phonemics, and comprehension of the concept is essential.

Two sounds are said to be in complementary distribution when they share no environment in common.

Illustration. There are two abbreviations St. in English. They cannot be confused, however, because they are in complementary distribution: one never occurs in the environment that the other one does; one always precedes a proper noun (and means "Saint"), while the other always follows a proper noun (and means "Street"). In the same way, the words lip and pill contain the same three phonemes. Acoustically, however, /l/ sounds very different from /p/. Initial /l/ in English is known in phonetics as "clear" and the final /l/ as "dark". Initial /p/, as we have shown, is acoustically different from final /p/; one has a little puff of air, while the second is (usually) unreleased.

Problem. Listen carefully while you say pill several times. Then try to say it backwards. Contrast the result with the word lip.

Illustration. English aspirated and unaspirated /p/ are in complementary distribution and are members of the same phoneme because they share no environments in common.

Problem. What are the environments of these two allophones of /p/? Give examples. Can you give examples of a language where aspirated and unaspirated voiceless bilabial stops are separate phonemes? What proves that they are not merely allophones?

The beginner should clearly understand that the choice of written symbols is arbitrary, and he should never make the mistake of assuming that a phoneme in another language has the same phonetic qualities as the English phoneme that is written with the same symbol. For example, the contrasting bilabial stops in Chinese, which we have chosen to write /p/ and /p̚/ are sometimes written /p/ and /b/. We chose the symbol which we did for two reasons; it would presumably be familiar to the reader because of its use in Greek, but more important, if we had chosen /b/ the reader would have undoubtedly
assumed that Chinese /b/ had the other features of English /b/ besides lack of aspiration, namely voicing, which is not the case.

Illustration. Gleason (p 239-240) expresses it admirably.

"There is another objection to comparing languages on the basis of the presence or absence of certain phonemes. What precisely is meant if one says that English, Loma, Luganda, and Kiowa are alike in having a /b/ phoneme? Very little, unless one can maintain that the /b/ of the four languages is in some respects the same thing. But, as we have seen, phonemes can be defined only in reference to a given speech form. Each of these languages has its own set of phonemes and of contrasts between phonemes. It happens that, for certain reasons, partly non-linguistic, the symbol /b/ has been selected to represent one member in each system. This fortuitous circumstance is, in the case of these four languages, the only link, and the comparison just quoted is linguistically meaningless. The English /b/ is a voiced labial stop, the only such phoneme in the language. The Loma /b/ is one of four voiced labial stops in its system, each contrasting with the others in some additional feature. The Luganda /b/ contains a voiced labial stop allophone, but also a voiced fricative allophone, and the latter is approximately as common as the former. The Kiowa /b/ is used to represent a voiced labial fricative, there being no voiced stop to require the use of this symbol. Our statement is comparable to saying, "This hat, this dress, and this pair of shoes are all the same size, since they are all sevens."

Problem. English /b/ is also lax and unaspirated. Why did Gleason in the passage just quoted fail to mention these features?

Problem. What do you think will be the conclusions about the way to pronounce Latin?

The analysis of phonemes by distinctive features is one of the contributions of the Prague school of linguistics. Here is Greenberg's explanation (op cit): "Every sound is characterized by a set of simultaneous features, features some or all of which recur in other sounds in other combinations. For example, the English b sound has, among other features, that of bilabiality (being formed by articulation of both lips), stop closure, and voicing (vibration of the vocal chords). We then set up the requirement that all the allophones of the same phoneme have a set of features in common which are unique and separate it from every other phoneme... Features which do not figure in this definition are irrelevant."

The importance of the criteria of distinctive features may be illustrated by English [β] and [γ]. These sounds are in complementary distribution, for the
spirant [h] never occurs in final position and the nasal velar [ŋ] never occurs in initial position. Are they not then members of the same phoneme, which we could write /h/? The answer is negative: they are not members of the same phoneme, in spite of being in complementary distribution, because they do not share a sufficient number of simultaneous features; the only feature, in fact, which they have in common is that of consonantality, which is found in many other sounds.

Problem. Our definition of a phoneme has turned out to be eight pages long. Here are two dictionary definitions, the first from Thorndike-Barnhart, the second from The Oxford Universal Dictionary.

"One of a group of distinctive sounds that make up the words of a language. The words cat and bat are distinguished by their initial phonemes /k/ and /b/.

A phoneme comprises several sounds (allophones) which are not meaningful in themselves.

The p in pit and the p in ship, though differing slightly in pronunciation, belong to the one phoneme /p/.

"A speech-sound considered in respect of its functional relations in a linguistic system."

How satisfactory are these definitions? For whom would they be useful? Gleason says (p 9): "The phoneme is one of those basic concepts, such as may be found in all sciences, which defy exact definition." What does this imply about the way to teach phonemics?

Problem. We have all heard the statement that Spanish or some other language is a "phonetic language". What do the speakers mean? Would they call English a phonetic language? Is it? Is it meaningful to say that any language is "phonetic"?

Minimal Contrasts

The learner may be misled in some of the examples of minimal contrasts unless he understands that these contrasts are important for the significant simultaneous features. When we speak of the contrasting feature between the series /p t c k/ and /b d j g/ we speak of a minimal contrast in the feature of voicing versus lack of voicing. There are also other concomittant features in which we are not interested, such as aspiration versus non-aspiration and tenseness versus laxness. One of the problems that faces the linguist is to decide which features are significant and which are merely concomittant, and scholars may not always agree.
Illustration. In English there are three common ways to show plurality, by adding /s/, /z/, or /t/ and the choice depends upon the type of phoneme at the end of the singular form. Thus the plural of shoe /suw/ is /suwz/, while the plural of sock is /sɔks/. The traditional language teacher, however, sometimes finds this hard to believe. In the first place she is misled by the spelling shoes. Secondly, final /z/, the voiced counterpart of /s/, in final position trails off into voicelessness. One may see the contrast between final /s/ and final /z/ in such a pair as juice /jus/ and Jews /juz/.

Suprasegmental Features

To this point we have been discussing the SEGMENTAL phonemes. Languages also have SUPRASEGMENTAL phonemes, so called because they may extend over a number of the segmental phonemes. In English it is not possible to produce any utterance without including certain significant PITCHES, STRESSES, and JUNCTURES.

In languages which are known as "tone languages", pitch (or tone) is significant on the word level. There are many such languages; ninety per cent of all languages south of the Sudan are tonal, and in the Western hemisphere they are common, among them Apache, Navaho, Chipewyan, Yellow-Knife, Mixteco, Mazatec, Cuicatec, Zapotec, Chatino, and Chinantec.

Illustration. In Ngbaka (data from Nida, LAFL p 111), there are three words /l/, but the meaning varies with the pitch. /l/ (high tone) means "face", /l/ (mid tone) means "name", while /l/ (low tone) means "water".

In Chinese there are four contrasting tones significant on a word level: level, rising-and-falling, rising, and falling. Observe these minimal contrasts:

<table>
<thead>
<tr>
<th>fū</th>
<th>shī</th>
<th>fū</th>
<th>shī</th>
<th>fū</th>
<th>shī</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;man&quot;</td>
<td>&quot;to lose&quot;</td>
<td>&quot;province&quot;</td>
<td>&quot;history&quot;</td>
<td>&quot;fortune&quot;</td>
<td>&quot;ten&quot;</td>
</tr>
<tr>
<td>&quot;rich&quot;</td>
<td>&quot;city&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In English, however, it is the tone contour of the entire phrase or sentence that is significant. "Five?" contains a rising tone, while "Five!" contains a falling one. Stress is also significant in English on the phrase level, as in the difference between "YOU did!" (In answer to "Who did it?") and "You DID?" (incredulity), and on the polysyllabic word level, as in the difference between perMIT and PERmit. Junctures are the different kinds of pauses that mark off larger linguistic units, such as words, phrases, and clauses. Conventions
such as italics and punctuation give some indication of the types of supra-segmental phonemes to be employed in reading, but they are most inadequate. It would be most misleading to rely much on these conventions.

Problem. In Ibo a verb is made negative by a change in tone. (Data from Eric Hamp, "Language in a few Words", The Journal of General Education, 5, 1951, pp 286-302) Would such a system lead to misunderstanding? How does English negate the statement "I want some pie"? One system would seem to be more economical than the other; does the lack of economy have any redeeming features?

The Differences between Phonetics and Phonemics

A phoneme then is the smallest significant unit of sound in a given language. That division of the structure of the language that deals with phonemes is called PHONOLOGY.

PHONETICS, on the other hand, is the technique of identifying and recording as many sounds as desired; PHONEMICS is the technique of representing only the significant contrasts. In dealing with an unknown language, the linguist must begin by transcribing phonetically all the sounds that he hears, since at the start he has no way of knowing what features are in significant contrast with the rest of the system. Later he cooks this raw mass of information (to use Pike's colorful figure) and arrives at a phonemic analysis.

What he "hears" at first is conditioned by his previous experience. A naive investigator who knew only English would "hear" English contrasts. Even a sophisticated researcher is under the same kind of handicap; he would at first be struck by the contrasts he "heard" which were familiar to him from his previous work, whether they were significant in the system or not. The trained linguist, if competent, would eventually discard the non-significant contrasts.

Problem. In Nandi there is a word for "store" which is phonemically /tukat/. (Data from Nida, FAFL p 126). The following spellings for this word have been recorded: dugad, dugat, dukad, tukat, tugad, tugak, dukad, and tugat. What conclusion do you draw about the phonemes /t/ and /k/? What would you surmise about the phonemic contrasts in the native language of the missionaries who devised the writing system?

Problem. Nasalization is phonemically significant in French, where we find nasal vowels in contrast with oral vowels. Nasalization is phonetic in English, not phonemic; speakers of English tend to partially nasalize any vowel that is contiguous to a nasal consonant. It is frequently noticed by Americans.
that Frenchmen "talk through their noses." Strange to say, however, Frenchmen make the same observation about the Americans. Explain this anomaly.

It should perhaps be mentioned in passing that phonemics has nothing to do with phonics, defined by Thorndike-Barnhardt as "simplified phonetics for teaching reading." According to Arthur L. Gates, in a reply to Rudolf Flesch's Why Johnny Can't Read which he put out for the Macmillan Company in 1955, there are 35,000 ways of spelling the word circumference by the use of phonics.

Types of Phonological Structure

Languages not only all have different sets of phonemes but have different kinds of restrictions upon the distribution of these phonemes. Just as every language makes use of only a small part of the sound available, so they all use only a small fraction of the possible combinations. Some languages have a small inventory of phonemes and extremely simple rules of distribution. Other languages will have a large stock and complicated distribution, and in between are languages with a small stock but complicated distribution, and the reverse.

Illustration. At one extreme we have the Polynesian languages. Hawaiian, for example, has only fourteen segmental phonemes (nine consonants and five vowels) and a syllable distribution of only V and CV; that is, a syllable may consist of a vowel or a vowel preceded by a consonant. There are no final consonants and no consonant clusters of any sort. Other languages have segmental phonemes that approach a hundred. English is an example of a language which has an average number of segmental phonemes (twenty-four consonants and nine vowels) but whose PHONOTACTICS are extremely complicated.

Problem. Limiting yourself to monosyllable words, discover some of the permissible consonant clusters in English, as well as some of the permissible final clusters. Be sure that you are discussing sounds and not written letters! Whorf (in "Four Articles") has a structural formula of the English monosyllabic word which gives a graphic representation of this complexity.

Illustration. Clusters that are permitted in some languages seem to us to be outrageous. Eric Hamp ("Language in a Few Words") cites Russian vstrechatsya "to meet one another" and vverkh "upstairs", Georgian vhmfsqsi "I pasture my flock", Albanian mpshtiell "to wrap", and Czech ětvrt "one quarter". One must be careful, in regarding such examples, not to assign to them
either the value of English letters or English phonemes. The letter q in English, for example, is always followed by u; for this reason the Georgian example looks even stranger than it actually is. On the other hand, there are no geminate consonants in English, but the double letter is a common spelling device to distinguish the simple vowel from the diphthongs. The Albanian mpshtëll thus has a more complicated final cluster than appears at first. But aside from such obvious differences, we may not conclude that we know the value of a phoneme merely because the written symbol resembles one with which we are familiar. The Czech /r/ in the example given above is vocalic.

Alternate Linguistic Solutions

The language teacher coming to the field of linguistics for comfort and support is at first encouraged by the united front which the linguists present. They seem in substantial agreement on all points. But our language teacher will not attend very many meetings or read very many journals before he realizes that there are differences of opinion. These differences do not vitiate the standing of linguistics as a science. In the first place, there are good linguists and there are bad ones. In the second place, more than one solution of a problem is often possible. But these alternate descriptions, if competently done, are mutually convertible. Furthermore, knowing the basic assumptions of the linguists involved, one may predict the nature of the differences.

Illustration. Linguist A feels strongly that the inventory of phonemes should be as low as possible. His colleague inclines toward pattern symmetry. We may then predict that in investigating a given language our first investigator will list x number of phonemes with y consonant clusters, while the other will have x + y phonemes and no consonant clusters. One reduces the inventory but complicates the phonotactics; the other increases the inventory and simplifies the phonotactics. Which is the more elegant solution, of course, would depend entirely on the nature of the data.

The Importance of Understanding Phonology for Language Learning

As Gleason, that eminently sensible scholar, says (p 166): "An understanding of the phonemic principle is, for most adults, a sine qua non of successful language learning. It is certainly the most important single concept that a prospective language student can get out of linguistic training." To be understood at a low level, one need only produce the necessary phonemic contrasts, using the phonemes from your own language as far as possible. However, misunder-
standings will arise as soon as one passes beyond the Comment vous appelez-vous and Deutschland is schön stage, if one uses an allophone for phoneme X in such an environment that the native speaker takes it for an allophone of phoneme Y.

Illustration. As we have mentioned before, final k and g are allophones of the same phoneme in German. During the war a German friend of mine became enraged when a simple request to pass the pork was ignored by every one. In producing "Pork" he used an allophone for the final phoneme which everyone interpreted as an allophone of /g/, not /k/. In addition, the vowel was interpreted as /a/. In spite of the fact that the pork was in full view, no one could connect it with the /parg/.

An amusing example of this type of confusion (although it did not involve native speakers) occurred in my presence in a hardware store in Philadelphia, owned by a German. An Italian came in to purchase some asphalt tile for his bedroom, or as he pronounced it, [badrum]. To the German, however, this word sounded almost like [bahdram], which was his pronunciation of bathroom. They almost came to blows when the German thought the Italian was trying to tell him that his bathroom measured fifteen by twenty feet. The Italian was using [a] as an allomorph of /e/; the German was using [ah] as an allophone of /æ/ and [d] as an allophone of /ð/.

Often the redundancy of the language permits one to be understood even if one misuses the allophones in a foreign language. If one wishes to acquire a "good accent", one that is socially acceptable, he must learn to produce the allophones. To do this well, the gift of mimicry is required. But proper materials, ones that highlight the essential contrasts and demonstrate in practical fashion the phonemic principle, will be of great assistance.

Problem. Portuguese has no phonemes that resemble English /ʃ ʒ h r y w/, as in the initial sounds of chew, jump, thigh, thy, hose, rose, year, and we're. Spanish does not have /v z s j/ as in vote, then, zoo, pleasure, shoe, and jump. (Data from Robert Lado, Linguistics Across Cultures, Ann Arbor, 1957). Spanish and Portuguese are so similar that they are sometimes mutually intelligible. Would you think it desirable, necessary, or harmful to place speakers of these two languages in different classes in punctuation? Be prepared to defend your answer.

Problem. Spanish /d/ has two common allophones, a stop, used initially, as in dos "two" and a fricative [d] used intervocally, as in lado "side". (Data from Lado, LAC) The first resembles English initial /d/, as in day /dey/, the second is like English /ð/, as in then /ðen/: two allophones in Spanish, two phonemes in English.
How would you teach a speaker of Spanish the English /θ/? What advantages does he start with? What disadvantages? What difficulty would he have with words like ladder and writing? What drills would you devise for him?

Problem. Perhaps the most noticeable single feature of a heavy Spanish accent is the consistent placing of a vowel before English /sp/, /sk/, and /st/, as in spare, scare, and stair. Why is this so?

Problem. The application of phonology for teachers and students of modern languages, both in materials and in classroom techniques, is probably obvious. Without a knowledge of phonology one cannot readily understand the procedures in morphology, which follow along much the same general lines as phonology. But is their any immediate practical value of phonology for a Latin teacher or student? For a student or teacher of English literature?

Problem. The structural linguist notes that stress in French is very weak and that it is moreover non-phonemic. Does this throw any light upon the traditional division of French orthographically into words? What is the justification for counting seven words in Il n'y a pas de quoi?

Complexity of the Study of Phonemics

A word of caution is inserted here to remind the reader that the preceding pages are only a superficial glance at phonology to lay groundwork for a comparison of the main points of contrast between the English and Latin phonemic system. That survey, in turn, will not do more than indicate the outstanding points of difference. A course in phonemics is a semester course.
CHAPTER FOUR
STRUCTURAL ANALYSIS: MORPHOLOGY

Definitions

An individual occurrence of a sound is a phone and is unique; the class into which a phone falls by reason of features which are significant within the language is the phoneme. Classes of sounds which are members of the same phoneme but differ from one another only in non-significant ways are allophones. We find much the same kind of structuring in morphology. A MORPH is an individual occurrence of a minimum unit of meaning; it falls into a class, the MORPHEME, whose subclasses are ALLOMORPHS.

Illustration. Boy /boy/ is different from boys /boyz/, and the difference lies in the /z/ which was added to /boy/. We do not cut /boy/ because we see no recurring same in such a form as /bo-/ . We would cut faulty /folti/ into /falti/ and /-iy/ because of the existence of the word fault and the suffix /-iy/ in other words like cloudy, frosty, and the like. So much seems self evident. The problem arises when we attack the allomorphs. We have no trouble with cat /kæt/ versus cats /kæts/ and rose /rowz/ versus roses /rowzɪz/. These are positional variants of the /-z/ which we saw in /boyz/, and we can easily formulate a rule which describes the distribution.

Problem. Try out a series of singular/plural contrasts (avoiding the minor classes such as man/men) and state the rule. How would you go about teaching this feature of English to a foreigner? Would the problem be the same for speakers of different languages?

We therefore speak of "the plural morpheme", meaning the addition of /-s/, /-z/, and /-iz/ to noun forms, but including (and here is where the complexity of description comes in) such pairs as goose/geese, child/children, sheep/sheep, datum/data, and even that horror jinnee/jinn. For convenience we take one of the allomorphs and let it stand for the whole class, placing it in braces to distinguish it from a phonemic transcription.
Problem. Which allomorph would you think appropriate to use for the plural morpheme? By choosing this allomorph does it confer special status upon it? That is, do we say that X is "the morpheme" and Y and Z are allomorphs? How should this be stated?

Problem. The spelling of the regular English plurals is MORPHOPHONEMIC. Explain the term.

When one has defined the terms, there is little more to be said. One can only study specific problems in morphology. Nida's book Morphology consists largely of problems, accompanied by brief notes.

Illustrations and Problems

Problem. The English verb has two tenses, which we may term the past and non-past. State the allomorphs and their distribution. What problem do you immediately encounter in some of the most common verbs? What particular difficulty does this present in teaching English as a foreign language? Do what extent would a statement of the morphology of the English past be helpful in learning English?

Problem. It is plain that phonemic analysis must precede morphemic analysis. One of the faults of traditional descriptions of English has been the neglect of this simple principle; in other words, the written form was taken as the guide. What would have been your answer to the above problem if you had observed the written form? In what way does it falsify the data? In what way does it conform to reality?

Problem. In Egyptian Arabic we find the following words:

- katab "he wrote"
- katib "writing"
- kitab "book"

What is the common element here? What is the meaning of this common element? What is the nature of the changes in the words?

Illustration. Many languages build up extremely long and complicated "words". Observe the following from Turkish:

- sev- "love"
- sevme "to love"
- sevdirmek "to make to love"
- sevmemek "not to love"
- sevlememek "to be impossible to be loved"
- sevlemmek "to be impossible to be made to be loved."
ILLUSTRATIONS AND PROBLEMS

In some languages it would be impractical to construct a paradigm, either because the form class had little or no change or because there would be so many possible changes that a paradigm would become unwieldy.

Problem. Are paradigms practical for describing English? Does it follow that what is practical in describing a language is necessarily practical for teaching it? Is reading a description of a language the same as learning to speak it? Is it necessary, desirable, or harmful to give the learner a description of the language? Would the age of the learner modify the answer? If not, why not?

As every schoolboy knows, Latin morphology is complicated. Under such circumstances it is often comforting to find another language in which the problem is even more acute. Paradoxically, one can always finds something just a little more difficult from another language.

Illustration. Navaho shows considerable complexity, both in its phonology and in its morphology. The verb, for example, consists of a root with eleven possible prefixes (with three and nine mutually exclusive. (Data from Nida's Morphology)

1. Adverbal prefix: ?á- "thus", ná- "back", naa- "around"
2. Theme prefix: dah- "start off", ?aláh- "together", dah- "up on"
3. Iterative mode: ná- "again and again"
4. Number: da- "distributive plural"
5. Direct object: ši- "me", bi- "third person", yi- "third person (when subject is also third person)", ha-, ho- "time, place"
6. Deictic prefix: ?a- "someone, something", ji- "third person"
7. Adverbal prefix: ni- "completive", di- "inceptive"
8. Tense: di- "future"
9. Mode: si- "perfective", go- "optative", yi- "progressive"
10. Subject pronoun: š- "I", ni- "you (sg)"
11. Classifiers: zero, d-, k-, and l-
12. The stems, which occur in several different possible forms: -?aah "momentaneous imperfective", -?áh "continuative imperfective", -?á "perfective, -?áh "progressive and optative", and -?aah "iterative" of the stem meaning "to handle one round or bulky object".

The following words illustrate the ways in which these constituents of various orders combine:
STRUCTURAL ANALYSIS: MORPHOLOGY

?áhodoolít “he will make the place thus” (< ?á- "thus", 1
ho- "place", doo[di- "future" plus yi- "progressive"
9
0- "zero classifier", -lít: progressive stem "to make")

Ádadioot'áal “he will forgive you” (<ún- [ná- "back"]
8
da- "distributive plural, di- "inceptive", doo- [di- "future"
9
plus yi- "progressive"], t' "classifier" [<d- "classifier" plus
11
? of the stemm -?áal], -?áal [progressive stem] "to handle")

The stem analyzes reality in a way that seems strange to us. Thus the verb which means "pick up" patterns with the following stems. (Data from an article by Harry Hoijer, Language 27, 1951, p 116)

näidi- "causes upward motion"
-t?ah of a round solid object
-t?ih of a long slender object
-tteh of one animate object
-nil of a set of objects
-tekah of a rigid container with contents
-zk?os of a fabric-like object
-z?od of a bulky object
-?još of a set of parallel objects
-žah of an unspecified mass
-ž?bl of a wool-like mass
-?deh of a mudlike mass
-len of a rope-like object

(NB. The phonemics were reconstructed from notes in another system and may well be wrong.)

Morpheme translation of individual words suggests some of the differences between Navaho and Standard Average European:

"Here's a letter." näkös ("Something is being moved about as a fabric like object."

"There's the full moon." hanibaž ("Something has rolled out as a hoop-like object."

The word for "highway" is not a noun but a verb which might be rendered "being-broad it-acts-like-a-road", that is the English noun is translated by a two word verb. (Data from Nida LAFL p 70)

Problem. Examine the following partial paradigms from Quecha.

t'ika "flower"
t'ikay "my flower"
t'ikaykuna "my flowers"
t'ikaykunaman "to my flowers"
t'ikaykunamanta "of my flowers"
t'ikaykunamantapacha "from my flowers"
t'ikaykunamantapachalla "from my flowers only"
ILLUSTRATIONS AND PROBLEMS

"also from my flowers only"
(Data from Nida LI p 15)

Types of Morphology

As is apparent from these few problems and illustrations, morphology differs greatly from language to language. An attempt has been made to dichotomize languages by setting up SYNTHETIC and ANALYTIC types, the first including languages that use many BOUND morphemes (morphemes that occur only in a larger construction and never—except in citation—stand alone); the second including the languages that use few bound morphemes but many FREE ones.

Problem. Although Eskimo has its share of short words it also exhibits words of some length. In fact, sometimes a single "word" will seem to be equivalent to an English sentence. *awlisautiss?ar-siniarpuna* means "I am looking for something suitable for a fish-line". We must consider it a single word since no element can stand by itself. In Chinese each word is a one syllable morpheme, a compound word, or a phrase word. What type of language would Eskimo be? Chinese? English? French? Latin?

Perhaps in the problem above you have already discovered that while the extremes are nicely covered by the terms analytic and synthetic, the nomenclature is inadequate for most languages. Therefore another system has been devised, dividing languages into four types, ISOLATING, AGGLUTINATIVE, POLYSYNTHETIC, and INFLECTING. An isolating language uses no bound forms: many Oriental languages are of this type (but not Japanese or Korean), among them Chinese, Burmese, Black Thai, Lisu, and Nosu. (Data from Nida, LAFL p 155)

In an agglutinative language the bound forms are added to one another, either as prefixe or suffixes. A polysynthetic language is one in which the word is highly complex, containing bound forms that represent such semantic elements as subject, object, direction, qualification, etc. Inflecting languages are like agglutinative languages in using affixing but are characterized chiefly by the fact that the elements that are added contain not one meaning but several, as in Greek the morpheme \{-n\} shows both accusativeseness and singularity.

In the end, all systems such as this for classifying languages have limited usefulness for the reason that most languages have characteristics of more than one class; therefore labeling a language as a member of one class is sure to be misleading. But in spite of this there is some utility in the divisions given.

---

1 This section is based largely on Bloomfield pp 207-208 and Sapir pp 127-156
Illustration. In English we can add -ness to good and produce goodness. But this fact does not make English an agglutinative language to every radical element: there is no *awayness and no *fightness.

Problem. What type of language is English chiefly? Can it be said in any sense to be an inflecting language? What does the {s} on the third singular of the non-past tense show? What kind of language, from the examples given, does Navaho seem to be? Quecha? Turkish? Why have no examples of morphology been given from the isolating type?

Problem. What type of language does Yana seem to be to judge from the following example?

yăbanaumawildjigummmaha'nigi

stem: yă- "several people move"
elements of mode: -ha- "encouragement"
- nigi- "we"
moodifiers: -banauma- "everybody"
-wil- "across"
-dji- "to the west"
-gumma "indeed"

What does this "word" appear to mean?

Allomorphs

The real problem in morphology comes when we describe the positional variants, the allomorphs. Here is a typical problem in morphology at an elementary level, taken from Nida's Morphology, p 16. The language is Tzeltal.

Problem. What are the allomorphs for the possessive element of the first person, the second person, and the third person?

1  hk'ab "my hand"  1a  k'ab "hand"
2  kakan "my leg"  2a  akan "leg"
3  alumal "your land"  3a  lumal "land"
4  awinam "your wife"  4a  inam "wife"
5  sk'op "his language"  5a  k'op "language"
6  yat'el "his work"  6a  at'el "work"

We should warn the reader that problems such as this are usually simplified in some way in order to avoid confusing the learner with extraneous information. In the data above, for example, word-initial prevowel glottal stops have been omitted.
ILLUSTRATIONS AND PROBLEMS

Problem. Here is a second easy problem, also taken from Nida’s Morphology (p 18). The language is Tojolabal. We have followed Nida’s format.

Instructions:

a. Identify the morphemes.

b. List all morphemes having allomorphs.

c. Describe the distribution of all allomorphs having phonologically definable positions of occurrence.

1. hman "I buy"
2. ak’an "you (sg) want"
3. -man "to buy"
4. slap "he dresses"
5. -k’an "to want"
6. kil "I see"
7. awal "you (sg) say"
8. -il "to see"
9. -lap "to dress"
10. yu? "he drinks"
11. -al "to say"
12. -u? "to drink"

Once again we remind the reader that the purpose of this book is not to train linguists but to equip Latin teachers to evaluate and use texts based on linguistics. If you are interested in linguistics per se or if you intend to explain the structural approach to others or if you wish to construct materials, then further study will be required. It is difficult to study phonetics and phonemics by oneself, since they are concerned with sound and are not readily comprehended from books.

Once the phonemic analysis is made, however, one can study the morphological problems from books. We recommend most highly both Nida’s Morphology and Gleason’s An Introduction to Descriptive Linguistics. The first is essentially a workbook, while the second has an excellent workbook that accompanies it. Here is a typical problem in morphology taken from Gleason.

Problem.

1 atanipenda he will like me 15 atanipiga he will beat me
2 atakupenda he will like you 16 atakupiga he will beat you
3 atampenda he will like him 17 atampiga he will beat him
4 atatupenda he will like us 18 ananipiga he is beating me
5 atawapenda he will like them 19 anakupiga he is beating you
6 nitakupenda I will like you 20 anampiga he is beating him
7 nitampenda I will like him 21 amenipiga he has beaten me
8 nitawapenda I will like them 22 amekupiga he has beaten you
9 utanipenda you will like me 23 amempiga he has beaten him
10 utampenda you will like him 24 alinipiga he beat me
11 tutampenda we will like him 25 alikupiga he beat you
12 watampenda they will like him 26 alimpiga he beat him
13 atakusumbua he will annoy you 27 wametulipa they have paid us
14 unamsumbua you are annoying him 28 tulikulipa we paid you

Note: The forms glossed "he" could as well be glossed "she". The forms glossed "you" are all singular. The plural "you" is omitted from this problem because of a minor complication.
Give the morphemes associated with each of the following meanings:

subjects: ........... I
............ you
............ he
............ we
............ they

objects: ........... me
............ you
............ him
............ us
............ them

tenses: .......... future
............ present
............ perfect
............ past

stems: .......... like
............ beat
............ annoy
............ pay

What is the order of the morphemes in a word?
Supply the probable forms for the following meanings:

............ I have beaten them ............ you have beaten us
............ they are beating me ............ we beat them
............ they have annoyed me ............ I am paying him

Supply the probable meanings for the following forms:

atanilipa ....................... walikutupenda ..................
utawapiga ....................... nimemsumbaa ..................

Unlike Nida's book, the Gleason production is a workbook, whose sheets are filled out by the student and handed in for correction.

Importance of Understanding Morphology for Language Learning

A knowledge of morphology will permit the author to construct materials more effectively. Not only will he avoid explanations that are misleading but he will know precisely what the problems are. A traditional grammarian sees a vast number of "endings" and deals with them seriatim. The linguist sees the morphemes and allomorphs and presents his material in an entirely different fashion.

Problem. The book from which I studied Latin as a boy had a section on "nouns in -er". The nominative was described as "ending" in -er, the accusative in -um. According to this rule, produce the accusative of puer.

Problem. What would you say is the morpheme for the nominative singular of masculine and feminine Latin nouns? Are there allomorphs? Look in Bennett's grammar to see how he describes the nominative of the third declension. Also look in Diederich to see how he approaches the problem.

Problem. In what way does LASA differ from traditional texts in the order in which it presents nouns and verbs? What is the justification for this departure?
The linguist regards language as a series of stimuli and responses, in which either the stimulus or the response, and usually both, are oral. This view, if correct (and it is the assumption here that it is, although this is an area of language about which not much is known), has implications for language learning.

Problem. What is the stimulus and response when a student is asked to decline a noun? Is this a useful activity? In what language is the stimulus? In what language is the answer? If the answer to the last question was "Latin", can you justify the answer? When a teacher asks, "What case is puellae?" what language is the word puellae? Is it Latin? Or is it the English name of a Latin word? In what way do these stimuli and responses train a student to think like a Roman?

What are the stimuli and responses in a Pattern Practice such as those found in LASA? In the Questions and Answers on the Readings and Basic Sentences? In what language are the stimuli? The Responses? Is this a useful activity? Do these stimuli and responses train a student to think like a Roman? What is meant by "thinking like a Roman"? Is it a desirable result? Can it be achieved? Can it be achieved it a modern language?

It is commonly believed by traditional teachers, I believe, that the Latin verb system is more complicated and difficult than the noun system; at least that is the consensus of opinion among the teachers in the Elementary Latin Program at the University of Michigan concerning their former feelings. Structural analysis shows us that the opposite is the case, that the noun shows far more skewness (see below) than the verb. The morphology of the Latin noun seemed easier because a) the description of the verb was unnecessarily complicated and b) the students could guess the function of the nouns without any knowledge of the morphology through English signals of word order, whereas such help could not be given (in most instances) in the verbs.

A study of morphology, particularly when a number of different languages are studied, quickly convinces anyone of the arbitrariness of language. Teachers in the past, as our illustrations in Chapter One illustrate ad nauseam, have been wont to ascribe unwarranted excellence to the Latin system. There is no virtue in having five cases; if a language has case, it has to have some number, and five is as good as any. It is well known that Greek has four cases (we are here omitting the vocative from both Latin and Greek on both morphological and syntactical criteria), and other languages have other numbers. All of them are capable of expressing thought, and the fact that not all of them have produced
philosophers and writers that are known and respected in America is due to factors that are non-linguistic.

Illustration. Eskimo has eight cases, whose functions are as follows (data from Nida LI, p 79-80):

- absolutive: subject of intransitive verb or direct object of a transitive verb
- relative: subject of a transitive verb and substantive reference to a possessor
- locative: "in" or "at"
- ablatiaive: "away from"
- perlatiae: "passing by or through"
- allative: "arriving at"
- simulativa: "like to"
- instrumental: "by means of"

Russian has six cases (and, like Latin and Greek, an occasional vocative):

- nominative
- accusative
- genitive
- instrumental
- dative
- locative or prepositional

Latin morphology, particularly of the noun, is difficult in two ways. The first, as mentioned above, is its SKEWNESS, which Archibald A. Hill (Introduction to Linguistic Structures, New York 1958) defines as "lack of symmetry in distribution of elements with resulting complexity."

Problem. Can we predict from the form of a noun what gender adjective will pattern with it? Can we predict from the nominative what the genitive will be? Can we predict from the genitive what the accusative will be?

Problem. There are five possible contrasts in the singular of a Latin noun. How many nouns have all five contrasts? If we include the vocative, there are six possible contrasts in the singular. How many nouns have all six? How many contrasts are possible in the plural? How many do we actually find? This disparity is called skewness.

This skewness in the morphology not only makes it difficult to learn the morphology but causes resulting confusion in the syntax. Omitting the vocative there are theoretically ten contrasting forms for a noun. How many contrasts do we actually find for mēnsa? Hostis? Servus? Manus? Diēs? Speciēs? Fors? Nihil?

Problem. What effect does this ambiguity have on Latin poetry? What does Vergil mean when he says (A. I. 69), "Incute vim ventīs"? Is ventīs dative or ablative or both at once?
Complexity of the Study of Morphemics

As we have tried to suggest in the previous chapters, such fields as phonology and morphology are extremely complex. Like a course in phonetics and phonemics, morphemics normally occupies a full semester. However, for the purposes of language teaching we need not go into all the problems. All that is really required in morphology is a knowledge of how the major patterns work. Drills may then be constructed to teach these patterns. The minor patterns, the ones that cause the descriptive linguists most of their trouble, we may teach as unique or extremely limited patterns which must be memorized as units.

Illustration. In describing the Latin verb, we will discover that the person-number endings are \{m s t mus tis nt\} for the active and \{r ris tur mur min\ntur\} for the passive. There is obviously an \{r\} passive here, but any attempt to make statements is complicated. For teaching purposes, at any rate, it is undoubtedly better not to try to isolate the passive morpheme. In the same way, regardless of what a linguist might do in describing the language, for teaching purposes it seems better to describe the present perfective endings as \{i isti itimus istis ibrunt\} than to try (as Hill does, p 467) to equate the present perfective endings with those of the imperfective system. This is in no way a criticism of Hill's methodology or results: different descriptions are permissible for different purposes, and we must always raise the question of cui bono. We must fall neither into the trap of assuming that the linguists are only saying what the traditional grammarians have been saying all along nor into the other one of feeling that the descriptivist's statements should be introduced into our texts without modification.

Problem. Here are a few of the traditional problems that confront the worker in morphemics. Note that first you must decide upon your assumptions and then be consistent, no matter how difficult this may be.

CHAPTER FIVE

STRUCTURAL ANALYSIS: SYNTAX

Definitions

A phoneme, then, is the minimum significant unit of sound, and a morpheme is the minimum significant arrangement of phonemes. The significance depends upon meaning in the sense that a speaker of English proves the existence of a contrast between the voiced and the voiceless bilabial stops when he tells us that pat and bat are not the same word. In the same way we can find a common element of "more than one" in the /s-z-iz/ that we so often find on the end of English nouns. SYNTAX is in turn the significant arrangement of morphemes.

Difference between Morphology and Syntax

The boundaries between morphology and syntax are not always clear nor is the distinction always a useful one. Here is a summation of the problem by George L. Trager (The Field of Linguistics, Studies in Linguistics, Occasional Papers 1, 1949): "For many languages it is convenient to describe certain kinds of arrangement of morphemes on one level, and then to describe separately the arrangements of such previously described arrangements along with other morphemes not included in the previous description. When this is done, the first level is called the morphology, the second the syntax."

In some languages, what we would consider a sentence is contained in a single word, of which no part may stand by itself.

Illustration: In Oneida, the sentence "I am looking for a village" is rendered gnaglaslizaks. The morphemic breakdown is as follows:

- g- "I"
- -nagla- "living"
- -sl- (makes a noun out of "living")
- -i- (makes a verbal out of "looking")
- -zak- "looking"
- -s continuous action

"village"
"look"
Illustration. Here is an utterance from the language of the San Blas Indians:

ampo'ittimalasarsösana: "the two of us just about hit them but did not"

- an → am: 1st person
- po- makes dual of an-
-itti- 3d person
- mala- pluralizes -itti-
- sarsö "hit"
- sa- past tense
- na reversive (Data from Nida, LI pp 12-13)

In such languages as those illustrated above, would we consider the arrangement of morphemes as syntax or morphology? (What do we mean by "arrangement"?) If none of the parts could stand by themselves but always occurred as part of a larger construction, then we would place this arrangement under the morphology; if the parts can stand alone, then it comes under syntax.

The Function of Word Order

In some languages the order of individual words is important syntactically.

Illustration. Observe the following contrast in Chinese:

wō pú ō tā "I do not fear him"
ū tā pū ō wō "He does not fear me"

Problem. In what way does this example seem to resemble English? In what ways does it differ?

English is a language in which word order is extremely important as a syntactical device; it shows subject-object relationships, modification of nouns, verbs, and adjectives, and helps identify parts of speech.

Illustration. Subject-object relationship may be illustrated in a minimal contrast as follows:

The dog sees the boy vs. The boy sees the dog.

Modification may be seen in the following contrasts:

The big boy sees the dog vs. The boy sees the big dog.
an awful pretty hat vs a pretty awful hat
The slow man ran the train vs. The man ran the train slow(ly).

Identification of parts of speech appear in the following:

They man the ship vs. They ship the man.

If this seems too obvious to mention, we should recall this
Dorrance White in an article in CJ 1950 (?) denies that this is so.
Selected Features of English Syntax

In English, four parts of speech are morphologically marked: nouns take [-s] to indicate plurality and/or genitive; verbs take (a different) [-s] to show third singular of the non-past tense; adverbs are formed from adjectives by the addition of [-liy], and adjectives take [-er] and [es] to show comparison.

These four parts of speech are the content bearing part of the language. Syntactical meaning is conveyed by (1) word order, (2) bound morphemes such as the [-s] above, and (3) certain free forms which although not devoid of lexical content carry primarily syntactical meaning and are called FUNCTORS.

Illustration. The sentence "The boy loves the dog" differs from both "The dog loves and boy" and "The boy hates the dog". The difference in one case is syntactical, in the other lexical.

Among the functors in English are noun markers like the and a/an, verbal auxiliaries like is, do, have /hæf/, and many others. These words are the signals that tie the lexical items into a meaningful whole. Because word order is such an important device, these functors are sometimes omitted in headlines or other telegraphic speech, and ambiguities often result.

Illustration. Three famous examples are EYES RED IN STATE DEPARTMENT; SHIP SAILS TODAY; and PROFESSOR RAISES LEAVES IN FALL. Further examples are at hand in every paper. At hand is the Portland Sunday Telegram, where we read RIVAL ARMS CUT PLANS WILL KEEP ENVOYS DEBATING

On page 2 we read YARMOUTH YOUTH INJURED SKIING. Since it is unlikely that this young man has done something detrimental to the sport, we do not usually even notice that ambiguity is present.

We may replace the content bearing words with members that belong to the same class, but we soon find that there are syntactical restrictions upon such substitution. In the first place, not all items are lexically compatible, but this is a trivial and uninteresting factor and not a syntactical restriction. We find that in the example "The boy loves the dog" not all verbs will fit into the slot occupied by loves.

Problem. What would be examples of verbs that will not fit into the frame "The boy ______s the dog"?
Of equal importance is the fact that in the slot occupied by the dog we may drop items that are not nouns, like to go fishing in the summer with his brother. We even find minor restrictions on the same parts of speech, such as the fact that in the slot "The boy loves the____", not all nouns will fit. For example, New York is morphologically marked as a noun because it takes the [-s] morpheme; but it will not fit in our slot after the. Neither will Smith, unless we expand it to Smith who saved his dog or unless we make it plural. Such facts about the arrangement of free forms constitute the study of English syntax.

Problem. Observe the following contrasts. What do the functors tell you about the meanings of the word Pontiac?

I live in Pontiac.
I live in the Pontiac.
I live at the Pontiac.
I live on Pontiac.
I live at Pontiac and Spruce.
I live on the Pontiac.
I live in a Pontiac.

Problem. If we examine the sentence "The boy runs quickly", we find that we can make many substitutions in [ly] for quickly, such as rapidly, beautifully, etc. We also find that for slowly we have a variant. What is this variant? There are also words that do not end in -ly at all that fit into this slot. What are some of them? Is the variant slow Vulgar English? If so, what are the criteria? Usage? Logic? Can home fit into the slot above?

Problem. Consider the utterances "The bomb blew up the street" and "The wind blew up the street". Are the two blew up's structurally the same? Can the word order of either or both be changed without change in syntactical meaning? What happens if you try to TRANSFORM these utterances from active to passive?

Problem. What items besides a single noun can fit in the slot occupied by The boy's in "The boy's dog ran down the road"? Can their be a modifier? More than one? Can the modifier consist of more than one word? How long can the items be?

A noun in English can be made to modify another noun by placing it just in front of the HEAD noun, as in table cloth, house wren (both with stress PRIMARY-TERTIARY) and in garden wall (with stress SECONDARY-PRIYMARY (Hill, p 232). Often we can reverse the combination: thus a wren house, wall garden, and cloth table, although none of them words
that I am conscious of ever having heard before, still "sound right." This modifying element is called the NOUN ADJUNCT.

Problem. Traditional grammar called these noun adjuncts adjectives. They differ from adjectives both morphologically and syntactically. Describe the differences.

In the paragraph above, describe in structural terms what is meant by the phrase sound right.

So rigid is English word order that virtually no changes have taken places for many centuries and the variations which are permissible for stylistic reasons but do not change the syntactic meaning (however much they may change the emotive meaning) are strictly limited. The order of modifiers of nouns, for example, permits of almost no changes but have almost unviolable rules of order according to nationality, size, shape, color, noun determiner (such as the, a, these, etc.) and age.

Problem. Take an English noun (politician will do) and prefix successive modifiers. Note the order. Which items have a flexible order? Which ones permit of no deviation?

Some elements in English have comparative freedom of movement. Examine the utterance "He worked hard at the office all day". What variations seem completely natural? Which ones sound a bit strange, as if from such special form of language as poetry? Which ones sound impossible? How does the change of order effect the meaning of the sentence? What distinction in "meaning" must we make?

Problem. It has sometimes been said that the word order in Latin may be changed without changing the meaning of the sentence? In what way is this true? In what way is it not true? Some one once remarked that word order is more important in Latin than in English? Is this statement true or false?

Selected Features of Latin Syntax

In Latin, syntax is the significant environment of words. Word order plays a minor role syntactically, but as suggested above, is of the utmost importance for stylistic reasons.

Illustration. The form mīlitis is marked morphologically as a genitive. The signification of "genitive" varies with the environment. Traditionally, categories have been based on the meaning of the phrase, such as Possession, Source, Material, and the like. We discover what the significant part of the environment is by making substitutions. By this technique we discover that mīlitis may be the complement of a verb like mēmēnī or it may modify an adjective like peritus. But its usual environment is another noun which it modifies. By
modification we mean that it is syntactically subordinate
to another element; that is, if we were to discard elements,
the modifying element would be discarded before the word
it modified. Thus in "Civès militis ducem laudant", we may
peel off militis and still retain a grammatical (i.e., one that
is constructed in accordance with what we have discovered
to be the rules of the language) sentence, but we cannot
drop out ducem with the same result. The head of the con-
struction militis ducem is ducem and the construction as a
whole is accusative, whatever that may mean, perhaps object
of a transitive verb, as in the example above. As for signifi-
cation, the meaning is that the ducem is not now just any
leader but is restricted to the particular leader of the militis.
In militem ducis, on the other hand, the head is now militem
and ducis is the modifier; the signification of the vocable
militem is now restricted to the soldier that serves this par-
ticular leader. Attempts to further classify by meaning, as
to say that ducis is Genitive of Superiority and militis is
Genitive of Inferiority, are fruitless and the subject of much
of traditional grammar.

Problem. Observe this portion of the Fōns Bandusiae ode
of Horace (3.13):

nam gelidōs inficiet tibi
rubrō sanguine rīvōs
lascīvī subolēs gregis.

What effect is gained by placing the rubrō sanguine
inside gelidōs... rīvōs? What does Horace say about the
color of the water and the temperature of the blood? What
does he say happens to the clear cool water? How does he
say it?

Importance of Understanding Syntax for Language Learning

The first thing which a structural view of language learning would suggest is
a definite answer to the old question "How much grammar should the student
learn?" If by grammar is meant structural syntax, the answer is short and
unequivocal: all of it. One of the worst mistakes of the traditionalists who
were trying to improve Latin teaching was to resort to amputation. This
approach to the problem is very much with us; the Congress of Living Latin
constantly addresses itself to the problem of the simplification of syntax. Now
since the term syntax, like the other divisions of language, can mean either
the facts themselves or the description of these facts, one might assume that
they intended to simplify the description of syntax, a goal which we would
consider eminently desirable and to which we will address ourselves presently;
but the literature shows that instead they intend to operate on the Latin language
itself, to simplify it. The complete ignorance of the simplest facts about
what language is and how it operates which such a proposal indicates is nothing less than shocking.

The second thing which even a cursory examination of the syntax of Latin and English will show beyond any question of doubt is that the chasm between Latin grammar and English grammar is immense. English syntax, because it is almost at the extreme end of the scale as an isolating language, is complex and hard to describe. It is unavoidably complex because the morphology carries very little of the syntactical meaning; it is hard to describe presumably to perplex that nationality of scholars who have done the most for structural linguistics. Latin syntax, on the other hand, is comparatively simple since the burden of signalling syntactic meaning is carried largely by the morphology; each one of the inflectional morphemes is found in a limited environment. In addition, it seems more than likely that regularizing tendencies of the grammarians have made Latin appear a great deal more simple than it was in actual fact. We refer not only to the regularizing of the language in its written form by the Romans themselves but also to the drive for analogous unity by the medieval scribes and modern scholars.

Illustration. The manuscripts of Cicero show that pônō is used with both in and the ablative and in and the accusative. An editor of Cicero changed all the in with the accusatives to in with the ablative, in spite of the fact that we have inscriptions of evidence for in with the accusative and it is also found in the manuscripts of other writers.

Problem. The time honored excuse given by Latin teachers to worried parents has been "Johnnie just doesn't know his English grammar". How valid is this excuse? Does Johnnie's teacher know English grammar? What is meant in this instance by "English grammar"?

Problem. From the point of view of syntax alone, is English more like Chinese or like Latin? In comparing language systems, would it be reasonable to consider only the syntax? What about the Weltanschaunung of these three languages? Is English more like Chinese or like Latin? How about the lexicon?
CHAPTER SIX
STRUCTURAL ANALYSIS: LEXICON

Definitions

In structural linguistics, the LEXICON of a language is the stock of morphemes which the language employs, with particular reference to the meaning of these morphemes. In the word governments we have three types of morphemes, the [govərn], the [mənt], and the [s]. The first is the radical element, the second is derivational, and the third is inflectional. In this discussion we shall be concerned with the first; more strictly speaking, we shall be concerned with vocables in the traditional sense of "vocabulary", including the radical and derivational morphemes, but not the inflectional. In fact, for practical purposes, the traditional system of listing the lexicon (at least in Latin) seems superior. The meanings of civitās are not merely the meanings of cīvis plus -tās, any more than "kicked the bucket" is the sum total of the meanings of the separate morphemes.

The Three Main Mistakes in Teaching Vocabulary

Traditional books and methods have made three major mistakes in teaching the lexical part of the language:

  a) they have emphasized lexicon at the expense of the rest of the structure.
  b) they have taught lexicon in isolation and by word-to-word correspondences with English.
  c) they have misunderstood the facts of lexical frequency and hence misused word-counts.

Undo Emphasis on the Lexicon

To argue that one part of the structure is "more important" than another is a patent absurdity. There can be no language if any of the parts are missing, yet we are frequently told in the popular press that certain languages (the favorites being "primitive" languages and English) just don't have much grammar, just
vocabulary (see above, p 44). To our shame, the same philosophy often crops up in our professional journals (see above, p 16). The linguist believes theoretically and has discovered empirically that if one concentrates on the first three levels, employing a minimum of vocabulary, then later the vocabulary increases at an enormous rate, almost without effort, as it were. The traditional approach not only leaves the student woefully short on the first three levels but hopelessly confused on the fourth. The very words that he has "learned" so well in his early stages cause him the most difficulty when he tries to read (or rather, to translate) an author. Inasmuch as the entire corps of traditional language teachers would react violently to the above statements, it will be necessary to examine in some detail the reasons for their secure but mistaken beliefs about the lexicon.

We have stated above (pp 27-28) that a normal child has learned the structure of his language at the age of five and a half, at which time he can communicate with the members of the community and is sent to school. That is, with the exception of a few unimportant details ("baby habits") he has mastered the phonology, morphology, and syntax, along with some of the lexicon. The baby lisp and the cute little mistakes in morphology soon disappear; the learning of lexicon continues for the rest of the child's life. The lexicon, therefore, is the only part of the process of learning our own language that we remember. It is for this reason that in approaching a foreign language the naive learner thinks solely in terms of vocabulary.

Secondly, morphology has traditionally been taught by recitation of paradigms and syntax by recitation of rules, both of them reinforced by "prose composition". Since such activities were grossly inefficient and no other techniques were known for learning phonology, morphology, and syntax, teachers turned their attention to learning vocabulary lists, where progress seemed better. The ultimate goal of the course, reading, was viewed largely as the acquisition of vocabulary. It is observable that in most reading courses there are no exercises of any sort for morphology or syntax, but there are frequently word lists for systematic study.

In the third place, it has been customary to use annotated editions that supply the student with the meaning of "rare" words. Teachers have not been aware of just how much information the supplying of the exact meaning of a "rare" word gives the student. All languages contain the feature of REDUNDANCY, to which brief allusion has been made before (p 54); that is, a language conveys information by several signals simultaneously, so that it is not necessary for
the receiver to hear all the message in order to acquire the information that the message contains. It is this feature that makes possible the solving of word puzzles. If therefore a student is furnished the exact meaning of several key words in a sentence (and the "rare" words carry a great deal of the information), with a little ingenuity he can often piece together the meaning without paying much attention to the morphology and syntax. The structuralist takes the opposite point of view from the traditionalist. The phonology, morphology, and syntax of any language is strictly limited; the lexicon is for all practical purposes infinite. With a thorough command of the lower levels of structure the student can make use of redundancy and arrive at the meaning of the unknown lexical items.

Digression on Redundancy

Because of the immense part that redundancy plays in language, it seems desirable to explain the concept a little more fully at this time. If we were to hear the utterance "The boys are running down the street" but because of some disturbance were not able to hear whether one said boy or boys, this information would not be lost in this particular utterance because of the fact that here English gives two signals of a plural subject, one in the subject itself and one in the verb, with the obligatory is/are contrast. In the utterance "We saw the boys" this particular redundant feature is not present, but there are still others. If, for example, one missed the initial phoneme on boys, the message still might come through. From the time span, the hearer would know that a single phoneme or perhaps a cluster, but not several syllables, was missing. Of the phonemes available, we may not consider /λ/ because that never occurs initially. Of the permissible ones, not all form recognizable vocables; there is, for example, no /loy/ in my speech. If one had previously been discussing some boys, then the listener would probably supply the missing phoneme without conscious thought.

Redundancy is present in many forms. The articulation of English /k/ with the tongue in high front position predicts a high front vowel such as that in kill /kil/; the actual occurrence of the /i/ is therefore redundant since it was already predicted by the high front /k/. (It is possible, however, that it is the /k/ and not the /i/ that is redundant; see above p 54)

Problem. The extent to which one may predict is one measure of redundancy. As an experiment, have a friend choose a newspaper item, in which you are to try to guess the exact wording. Begin by trying to guess the first Grapheme,¹ When you have

¹Grapheme is used for a significant set of written symbols. It
guessed the first grapheme, proceed to the second, and so on. What is the hardest grapheme to predict? What is the easiest? Are some graphemes better guesses than others or is the distribution random? Would any graphemes never occur in initial position?

If the item began "President Eis--" what would be a good guess for the next grapheme? Is this next grapheme completely predictable? If so, explain why. If not, give other possibilities.

Problem. Another way to test redundancy is by the use of CLOZES. The following text, presumably unfamiliar to the reader, has every fifth word removed, starting arbitrarily with the second word. It is the opening of a poem by Tennyson.

Thou l___ of the Lily! thy g____ flowers are blooming
In j____ on thine hills, but t____ bloom not for me;
F____ a dark gulf of w____, all my fond hopes e____,
Has roll'd its black w____ 'twixt this lone h____ a____ thee.

The far-distant h____ and the groves of m____ childhood
Now stream in t____ light of the sun's s____ ray;
And the tall-w____ palms of my own n____ wildwood
In the blue k____ of distance are melting a____.

The second item, of approximately the same length and with every fifth word removed, starting with the second, is taken from the North Conway Reporter, 11 Feb 1960:

On S____, Feb. 7, a car w____ reported to us as b____
stolen from the Skimo p____ lot, time reported t____
us 12:30 p.m. T____ car was found abandoned o____ the Pumpkin
Pine road a____ about 4:15 p. m., and the owners were n____
At about 7 p. m., Officers Lowd and Anthony a____
two juveniles that confessed t____ they had taken the c____
These juveniles were asked w____ They had taken the a____
and all they could s____ was that they just w____ to drive
a car.

Why does one selection seem much harder to complete than the other?

From an understanding of redundancy it is apparent why a student can translate a page of Vergil without much attention to the morphology or syntax if he is given the meaning of the words that "do not occur on the word list". The exact meaning of these words in their context permits a shrewd student to reconstruct the missing parts through redundancy without any particular knowledge of Latin. All "Visible Vocabularies" are a snare and delusion. As is well known, there are texts on the market that have all the vocabulary immediately visible.

includes not only letters but also punctuation, different kinds of type, spacing, and the like. It is therefore much broader than our word letter.

The name comes from the "closure" which some psychologists assume takes place when a subject is asked to read a passage with such removals. See below.
First of all there is, in such texts, a pull-out sheet of the two or three hundred most common words with a few English glosses, such as for manus, "hand, band, deed". In such lists it almost seems as if a one-to-one glossing were preferable to the confusion that arises when more than one meaning is given without explanation and without examples. This is especially true when we come to the functors, words that have syntactical but not lexical meaning. To see under et the gloss "as, when, that, so that, how" is nothing less than shattering for a student. All words not on this "basic lists" are translated in situ, along with the numerous "idiomatic uses" which show up. Wishing to see how these texts would work with students who had been trained by the structural approach (hereafter referred to as "SA students") we have several times given such texts to students for collateral readings. They inevitably returned the texts within a day or so.

Return to "Undo Emphasis on the Lexicon"

Finally, teachers have been misled by the apparent "thoroughness" of vocabulary drill. There is a definiteness about it that appeals to both teacher and student. If a class can answer in chorus to flash cards, surely they must be learning something!

Problem. Just what are they learning? What is the stimulus? What is the response? Will they find this conditioning useful in reading a Latin author in Latin without recourse to English?

Teaching One-to-One Correspondences

By the term "one-to-one:correspondences" we mean the teaching of vocabulary as points of meaning rather than as areas of meaning. The fact that agō is glossed "do, act, drive, thank" does not make it any the less "one-to-one" just because there are four points instead of one.

Language teachers deny vociferously that they teach one-to-one correspondences, perhaps because of a misunderstanding of the term as defined above. But any child who is told about "idioms", who has ever seen a black box with the item patria -ae, f. "native land", who is asked for the "literal" meaning of a word, or who is given vocabulary tests with the stimulus in one language and the response in another is being taught one-to-one correspondences.

Words do not have "real" or "literal" or "idiomatic" meanings. A word is an area of meaning, not a point of meaning, and these areas almost never coincide from one language to another. Exceptions are found in technical terms. It is naive to believe that because the "real" meaning of the French word temps is
"time", *il fait beau temps* is therefore an "idiom". So ingrained is this belief in our culture, both among students and teachers, that it is extremely difficult to make a point that to linguists seems self evident. The reader is asked to suspend judgement until he has seen the argument.

Illustration. The native speaker often times cannot see that a word in his language has the different meanings that dictionary makers (and foreigners) claim that it has. Breaking through the monolingual barrier here is very hard. Strange to say, the monolingual concept may linger on, even if the speaker has learned another language. I once tried to explain this concept of lexicon to a friend of mine, Austrian by birth, who speaks English almost without accent. Choosing at random the German word Tisch, I explained how it of course had different meanings such as "table", "food", and going on to the numerous compounds like Tischaufsatz: "dumbwaiter" and the like. She was unconvinced. With real anguish in her voice she kept repeating "But Tisch means Tisch!". And of course in one sense she was right: a language forces one to group together under the same rubric entities that members of another culture find disparate.

If one believes that words are areas of meanings and not points of meaning, it seems pointless to ask for "the French word for apple." It is quite true that rather often the English word *apple* is rendered by the French word *pomme*, more often, probably, than by any other word, but to assume therefore that *apple* equals *pomme* or that *pomme* in anyway, except that of more frequent meaning that certain other words, "means" *apple* is a grave mistake. *Pomme de terre*, for example, is "potato", and the French equivalent of such expressions as *apple-polish*, *apple of my eye*, *the old apple* (a baseball), and the like do not contain the word *pomme*. If one is apt to consider that such expressions as those given above are "idiomatic", consider the following.

It is known\(^1\) that roughly speaking the most common meaning of a word occurs about one half the time. The next most common meaning occurs one quarter of the time, the next one eighth, and so on. To say that the meaning of a word in language X is the English word A is only to say that the most common meaning of the word in language X is equal to the most common meaning of the word A in English. Consider then the possibilities of error if one automatically reacts to the word in language X by the English word A. If my mathematics is correct, there is only one chance in four of being correct. When one considers a text of any length, the chances of a correct interpretation become astronomically small.

\(^1\)I owe this to Martin Joos in a private conversation. I have not yet tested these figures, but they conform to an impressionistic view which I have of the frequency of meaning.
as any language student will testify. There are only two reasons why these facts about lexicon do not make it impossible to learn Latin at all. In the first place, some of the secondary meanings are also equivalent. Secondly, there is the factor of redundancy, which shows the student, if he is at all alert, that this word must mean something different from what it has meant before or, as he is more apt to naively interpret it, that this strange combination of English words must be the Romans' strange way of saying thus and so.

Illustration. Even a small dictionary will demolish any belief in one-to-one correspondences. Quite at random I chose the word trunk. What is its equivalent in, say, German? To answer, I took in my small desk dictionary (D. C. Heath, 1888, 629 pages). But the real question is which meaning of trunk and when do the German equivalents mean English trunk and when do they mean, perhaps, "hull of a vessel", "family", or "handle". That is the real problem of lexicon, and unless that is met squarely, the student is wasting his time; he may learn the language eventually, but he will learn it in spite of the activities concerned with lexicon, not because of them.

Turning to our small German dictionary, we find the following: der (Baum) Stamm; der Rumpf (of men, etc.); der Rüssel (of the elephant); (traveling —) der Koffer, die Kiste; der Schaft (of a column).

When we go to an English dictionary of comparable size (Thorndike-Barnhart, 896 pages), the entry reads:

1. the main stem of a tree. 2. a big box for holding clothes, etc., when traveling. 3. a body without the head, arms, and legs. 4. the main part of anything: the trunk of a column. 5. line between telephone exchanges. 6. Am. the main line of a railroad, canal, etc. 7. an elephant's snout. 8. trunks, Am. very short trousers or breeches worn by athletes, swimmers, acrobats, etc.

Allowing for the time-lag, these entries agree fairly well. But the Oxford Universal Dictionary, which is somewhat larger (2515 pages) has four main headings with twenty sub-meanings. But the real difficulty starts when we start examining the German words which "mean trunk." Taking them in the order that they appeared several paragraphs ago, we find that der Stamm, in this same small dictionary, has its own area of meaning: 'stem, trunk, stalk; family; race, stock, breed; trunk; root, stem (of words), stock (of Agr. etc.); nucleus, officers (of a regiment); stake (Cards), card(s) left after dealing (Cards); capital; einem — Kegel schieben, to play a game of skittles; die Zwölf Stämme, the Twelve Tribes; auf dem — , standing (timber); die Stämme in Schottland, the Highland clans; der Apfel fällt weit vom — e, like father, like son" plus 43 compounds

Under der Rumpf are listed "trunk (of a tree, etc.); body (of a man, etc.; of a machine; of a shirt); carcass (of a fowl); torso; leg (of a boot); mill-hopper; hull (of a vessel); —— des
Hochofen. blast furnace; mit — und Strumpf, altogether, completely" plus three compounds.

For der Rüssel: "snout; trunk; proboscis; muzzle" plus three compounds. — Käfer, weevil; — maus, the muskrat; and — tier, Proboscidiens.

For der Koffer: "trunk, chest, coffer" with seven compounds.

For die Kiste: "box, chest, coffer, trunk, crate" plus — nbau, embankment of piles and brushwood and — npfand, daughter's portion (Law).

And finally, for der Schaft: "shaft (of a lance, of a column, etc.); stock (of a gun); händfe; shank; leg (of a boot); trunk (of a tree); flower stalk; cutwater (of a ship)" with eight compounds meaning successively "apophyge; pin-wire; boot-tree; last; stocking-weaver's turning needle; fluting of a column; pin-cutter; pier-glass".

Problem. Choose at random a common English word. Using an English dictionary and a foreign one of approximately the same size, list the meanings as above. What conclusions do you come to about learning vocabulary by flash cards? If flash cards are efficient, explain why. If they are not, what would you suggest in their place?

In examining the lexicon of a language we encounter particularly baffling ways of classifying reality. So many apparently diverse meanings are included under each and every word that we soon discover that it is useless to speak of the "real" meaning of a word; we can only speak of more and less common meanings.

Problem. Students are often told that the "real" meaning of nice is "precise" and that when one says "I had a nice time at the party", one means that they had a precise time. How many meanings does a desk dictionary (the Oxford Universal, for example) list for nice? What is the earliest meaning? Is there a meaning of precise? What is its date? What justification is there for choosing this meaning over the others? Is it the most common meaning? (the Thorndike-Barnhart dictionary lists words by their frequency) Is the use of nice in the sense of "agreeable" a recent innovation? Why is it wrong to use it in this sense? What does nice mean in the phrase "You'll be nice and warm here"? What is the positive form of "It's not nice to cut your salad with a knife"? What is the real meaning of nice?

Illustration. The spectrum is a continuum of light waves from 40 to 72 hundred-thousandths of a millimeter. Without a break anywhere one "color" flows into another. Yet a speaker of English, if asked to divide off the "different colors" will make six separate cuts. He may not make them in exactly the same place as another speaker of English, but six cuts there will be, giving the colors that we know as violet, blue, green, yellow, orange, and red (with perhaps a division with sophisticated speakers of indigo). A speaker of Maya, however, will make four cuts giving colors that we would translate as yellow, green, blue, and red.
Problem. Obtain a printed representation of the spectrum. Lay it over a sheet of acetate. Have a speaker of English mark off the "different colors". Then with another sheet of acetate, try another speaker of English and compare the sheets. Are there the same number of cuts? Do the cuts lie exactly on top of one another? What connection do you see between this and phonemics? Where do the divisions come between vowels in the speech of different people?

Problem. What is the "translation meaning" of the Latin purpurus? Look it up in a large Latin dictionary. To what sort of things is it applied? What color is it? (If interested in this problem, see J. André, Étude sur les Termes de Couleur dans la langue latine, 1949)

We find that in some languages different words are obligatory for different speakers. This is not to be confused with the phenomenon which we observe constantly that certain forms are confined to specific classes or that some expressions are more in use among women than among men. We are speaking rather of rigidly restricted distribution of items.

Illustration. One of the best known examples is that of the Carib Indians, where the men speak one language and the women speak another. The women Chiquitos of Bolivia use different grammatical forms from those of the men (Jespersen, Language p 237). Edward Sapir has shown ("Male and Female Forms of Speech in Yana", Selected Writings of Edward Sapir, pp 206-212) that the men of the Yana tribe use different words for many items from those that the women use. In Japanese there are certain words which not be used when speaking of one's own family, property, or activities, for which there are synonyms. These have been called, somewhat misleadingly perhaps, humble and honorific terms. Examples are

- haha "my mother"
- okāsama "your mother"
- chichi "my father"
- otōsama "your father"
- taberu "I eat"
- meshiagaru "you eat"

Languages form compounds that to a speaker of another language seem at first to have no meaning. This is particularly true when they use the different meanings of a word to tie into the same bundle what seem to an outsider to be entirely different entities. For pedagogical purposes it is extremely useful for a teacher to be able to explain the common element that these words have in common. A student who knows that there is a common element in ámittere and tränsmittere
will remember them easier.

Illustration. One might well consider that the acts of kicking, binding in bundles, biting, being mean to, and pounding had little or nothing in common. Observe, however, the following compounds in Dakota of the stem xataka "to grip":

naxta?ka "to kick"
paxta?ka "to bind in bundles"
yaxta?ka "to bite"
lc?a?xataka "to be mean to"
boxta?ka "to pound"

(Data from Boas, Handbook of American Indian Languages)

Reliance upon Frequency Counts

Language teachers and students have a blind faith in word lists. Every one, it seems, has heard of Max Müllér's estimate that an English farm laborer has a vocabulary of 300 (or 800) words, and the search has been for the right words. Such a pursuit is a will-of-the-wisp.

In the first place, frequency counts are useful only for what they count. They cannot predict. Thus, if a student is to read the first six books of Vergil's Aeneid, then every word contained therein is a "useful" word, and no word that is not there can be considered "useful". In actual practice, however, it is difficult to construct materials that are 100% efficient in this matter; the best that we can do is to base the elementary materials upon the lexicon of a given author and admit other words with reluctance.

Secondly, we cannot say that one word is more important or necessary than another merely because it occurs more often. If a student is to read -- and master-- the corpus, then all the words that occur in it are of importance. The really high frequency words we simply cannot avoid in any sort of material that pretends to be Latin; all the others, regardless of frequency, are of equal importance for reading a specific text in which they occur. There is a danger here that we may sound like the (apocryphal?) professor who remarked to his class, "Take good note of this word here and learn it well; it is the only time it occurs in all Greek literature, and you will never have another chance to learn it if you do not do so now." If one is learning words as words, then this advice is of course ridiculous. But if one is studying literature, is this passage worthless because it contains a hapax legomenon? Are the students not responsible for this passage? Or are they responsible for everything except the rare word?

1The key article for this is "Natural Frequency and Word Counts" by William E. Bull, CJ 44, 1948-49, pp 469-489
Illustration. Redux is a "rare" word in the first six books of the Aeneid, since it occurs only four times. For this reason it is not usually included in the list of recommended words. But let us examine these four occurrences. The first two occur in the prophecy of Venus in rapid succession: she tells Aeneas (1.390) that his allies are now reduces, and she calls attention to the scattered swans who are now also reduces (1.397). It is the keyword of the entire speech, so much so that in our classes we habitually refer to the passage as the redux passage. The third occurrence is 3.96, in the prophecy of Apollo:

"Dardanidae dūrī, quae vōs ā stirpe parentum
prīma tulum tellūs, eadem vōs ūbere laetō
adcipiet reduces. Antiquam exquirite mātrem.
Hīc domus Aenēae cūncīs dominābitur ōrīs
et nātī nātōrum et qui nāscuntur ab illīs."

Note particularly the position of reduces above. Are we to call our students attention to the emphasis which Vergil gives this word and then tell them in the next breath that they need not remember it because it is unimportant? In a sense this word is the theme of the Aeneid, the seeking, not after the new, but the seeking of a return to the old. The final instance (in the first six books) is 5.40:

At procūl ex celsō mīrātus vertice montis
adventum sociāsque rātēs obcurrit Acestēs,
horridus in jaculīs et pelle Libystidis ursae,
Trōia Crīnīsō conceptum flūmine mātēr
quem genuit. Veterum nōn inmemor ille parentum
grātātur reduces et gazā laetus agrestī
excipit ac fessīs opibus solātur amīcis.

An SA student is constantly asked to comment upon passages such as these and to discuss the key words. Certainly reduces is one of these words. The student who remembers Book One will recall that the last time the Trojans were reduces they had escaped the sea only to fall into far worse danger—the hospitality of Dido. Now they are safe, truly safe, both from the sea and more important, safe from Dido. In contrast to the sybaritic court of the Carthaginians they are met by loyal old Acestes, "horridus in jaculis et pelle Libystidis ursae".

But how could a student answer such a question if he were excused from knowing rare words such as reduces? Or for that matter, how would he know about Acestes, since horridus occurs only six times in the first six books, jaculum four times, pellis twice, Libystis once, and ursa once? The only conclusion that one could come to if he embraced the theory of frequency would be that vocabulary cannot be learned.

One of the most thorough studies of frequency of Latin words was that of Diederich, who claimed that his basic vocabulary of 1471 words will "enable the reader to recognize directly about 85% (in round numbers) of all the words he will ever read in Latin literature, and to deduce the meaning of about 10%
as derivatives or compounds of known words." Since this philosophy has had wide acceptance, it should be refuted.

Diederich's most serious error was his belief that words have only one meaning. This is implicit throughout the work, as when he says that when a student knows twenty-one Latin words, "he already knows the meaning of one-fourth of all the words he will ever read in Latin." Notice that he does not explain what he means by "know" or "the meaning." In a devastating attack on Diederich (which to my knowledge has never been answered, nor could it be), Bull points out that by the time a student "knows" "the meaning" of these twenty-one words, he does not need a word count, for he knows Latin.

These "common" words are precisely the most difficult in the language, for they are either functors, whose meaning is chiefly syntactic, or they have many meanings lexically. In the famous Thorndike Word List, the first 500 words, according to Charles C. Fries (Teaching and Learning English as a Foreign Language) have a total of 14,070 separate meanings.

Problem. Diederich's words as -que, qui, et, sum, in, is, hic, non, cum, ad, ille, ut, omnis, ā/āb, suus, dīcō, nec, dē, sed, ipse, and sī. Pick out one of these words and look it up in the Harper's Dictionary. What is the meaning of the word you selected?

Problem. The ten most common verbs in Diederich's list are sum, dīcō, possum, faciō, videō, habeo, dō, veniō, ērō, and volo. Count the number of meanings for any one of these as given in Harper's. You have learned in your school days "the" meaning of each one of these. Take this meaning and find from a dictionary of about the same size as Harper's the number of entries which this English word has. How many of them could be rendered by the Latin word?

Problem. The ten most common nouns in Diederich's list are deus, rēs, dēs, rēx, homō, tempus, locus, pater, dominus, and manus. Are these hard or easy words? Defend your answer.

Bull points out that the "rare" words are the content bearing words and demonstrates that one can more readily ascertain the general content of a passage through the "rare" words than through the "common" ones. The following, his example, although the questions are not.

Problem. In the following passage 29 "rare" words have been omitted, leaving 44 "common" words. You are to see if you can give the content of the passage:
The _____ should be to _____ the _____ and of his _____ He should _____ in all the _____ which we have _____ above. He may have to for a _____, but such a _____ should _____ his _____ of _____ He should _____ to be _____ to the _____ of _____ and to _____ to them _____.

Put in content bearing words that make a sensible statement. Compare it with the effort of some one else in the class. What conclusions do you draw. What kind of information is given by these "common" words? Is this information important or unimportant?

Now regard the same passage when we leave in the 29 "rare" words but remove the 44 "common" ones:

second aim increase range variety emotional responses develop directions enumerated supress overt expression time suppression sharpens awareness emotional situations learn enjoy inner experiences learn sensitive feelings others respond properly

What kind of information is given by these "rare" words? What would the common word not do the passage if inserted after the four should's? In what way has Bull given undue importance to these content words? What would have happened to the information if he had listed these words alphabetically?

Bull points out that a reader who knew 70% of the running words (i.e., the total number of words, including repetitions) would actually know only 10% of the content bearing words. It has been shown ("The One Thousand Frequent Spoken Words", Charles Voelker, Quarterly Journal of Speech, 28, pp 189-197) that fifty words make half the running spoken words in English. Bull poses a question that demolishes all reliance on frequency lists as predictors: Since fifty words take up half the curve, can the relative position of the 300,000 other words\(^1\) on the flat part of the curve have any real meaning?

The Extent of the Lexicon

If language teachers have overemphasized the importance of lexicon, prestructural linguists, like Max Müller, grossly underestimated its extent, and this thinking has carried through in language teaching. The one thing which we now think we know about vocabulary is that you can't count it. For one thing, how does one go about counting words? How do you handle the different meanings of words? How do you know that you have got all the available words?

\(^1\)This is Bull's figure; he does not explain how he arrives at it or what it means. Unabridged dictionaries of English have a much larger number of entries than this.
We have all heard of "primitive languages", whose vocabularies are pitifully low. Research by linguists proves that this is a delusion. The first naive investigators, full of ethnocentric attitudes, asked their informants about names for concepts that existed in their SAE culture. Finding occasional lacunae here and there, they deduced that the vocabulary was small. What they were unaware of was that the native, full of ethnocentric attitudes, had come to the same conclusions about the visitors. To a member of a tribe that recognized and had terms for seventy or eighty kinship terms, our system of aunts, uncles, and "some kind of cousins" would seem inadequate to an absurd degree. People in primitive cultures have developed skills in certain activities that are incomprehensible to us. The aborigines of Australia, for example, can perform feats of tracking that to us seem completely impossible. Since this skill is passed on from generation to generation, there must be a large and complex vocabulary that describes it. Yet how could an SAE investigator ever arrive at the terms?

We have grown up with the belief that English contains more words than any other language. In a sense this is fallacious. No one's dialect contains all the words that are found in a large dictionary. It is true that a literate culture reaches back through its literature for many centuries and records words that otherwise would have been lost; whether the speakers of these languages actually possess a larger vocabulary than an equally intelligent member of a primitive society is questionable, and it may be that such a question is not even a meaningful question. For all intents and purposes, all lexicons are infinite, if only for the reason that they become obsolete even while they are being compiled.\(^1\)

Problem. The word pot has completely different meanings, depending on whether one is talking about cooking, poker, or electronics. What justification would there be for listing these under the same word? If you believe that they are the "same word", would you list pair and pear as the same word? Justify your decision. Would you list them under the same word if they were both spelled alike? How about bear, noun and verb?

The Dictionary of Occupational Titles lists 17,452 separate occupations in the United States. Each one of these has its own vocabulary, most of which never appears in a dictionary.

Problem. List twenty words which do not appear in some specific English dictionary. If you find it hard to begin, think of some professional interest, a hobby, or perhaps some slang terms.

\(^1\)This would not be true of a dead language or of the corpus of an author.
THE EXTENT OF THE LEXICON

We have stated on the previous pages that lexicons become obsolete even before they are completed. This is true because languages are in constant flux. This fact is known to every one, and yet it is odd to observe traditional language teachers reacting as if they were not aware of it, by trying to posit the speech of several decades past as the norm.

New words constantly move into the lexicon. English, for example, had no word to describe children who had one or both parents in common except the terms brother and sister, which were restricted to sex. Psychologists found a need for such a word that did not indicate the sex of the child and (in 1897) coined the word sibling.

Problem. List a half dozen words that have come into use during your lifetime. How did you discover the meaning of these words when you first met them? Did you look them up in the dictionary?

On the other hand, words rapidly drop out of the language. My grandfather undoubtedly knew the names of several score parts of harness.

Problem. How many parts of harness can you name? Thinking back to your childhood, what terms did you use that are unknown to school children today? What adjective would you have used to describe an orchestra whose music was appealing? What appellation would you have used for a girl who was attractive to boys? For a boy that was attractive to girls? What are the modern equivalents? (Careful here! You had better check with informants!)

Horace says (AP 70-71):
Multa renāscantur quae jam cecidēre, cadentque quae nunc sunt in honōre vocabula, sī volet īsus.
In what sense is the first line true?

Although one's tendency is to distrust all frequency counts, it is encouraging to notice that at least there has been an increase in the size of the figures of vocabulary in recent years.

Illustration. One study (by Mary Katherine Smith and Henry D. Rinsland, cited by Ruth G. Strickland in "The Language Arts in the Elementary School", Boston 1951, pp 190-191) estimates that children in the first grade have a passive vocabulary of 24,000 words and an active writing vocabulary of 5,000. Another study (used by Ruth Hirsch in "Audio-Visual Aids in Language Teaching", Monograph Series on Languages and Linguistics, Georgetown, #5) estimates that the vocabulary of a college undergraduate is around 150,000 basic words, that of a first

Quick would be a basic word, while quickly would be considered a derivative and would not be counted.
grader around 16,000, and that of a four year old around 5,000.

We can, of course, count the words in a literary corpus. We are told (A. L. Kroeber, Anthropology, New York 1948, pp 230-231) that there are 24,000 different words in Shakespeare, 17,000 in Milton, and 7,200 in the English Bible. But we should recall that it is impossible that Shakespeare or Milton used their entire stock of lexicon in composing their works; there were (literally) countless others that no occasion of writing ever elicited or which they considered for one reason or another inappropriate.

Illustration. "Popularly, the wealth of a language is supposed to depend upon the number of different words which it uses, but this number is indeterminate, since words are freely formed according to the analogies of morphologic construction. For instance, having counted play, player, and dance, shall we count dancer as a fourth word, even though it contains no additional glosseme? If so, then the number of words in any language is practically infinite. When we are told that Shakspere used 20,000 different words in his writings, and Milton in his poems some 8,000, we mistakenly conclude that less eloquent speakers use far fewer. It is an indication of Shakspere's genius that he used so many different words in so small a volume of speech as contained in his works, but this volume of speech is small compared to the amount which even a taciturn person will utter in the course of a year. The myths about peasants, workingmen, or savages who use only a few hundred words have no foundation in fact; in so far as one can count words (ignoring, for instance, the inflected forms of a language like ours), every adult speaker uses at least somewhere round 20,000 to 30,000 words; if he is educated -- that is, if he knows technical and learned words -- he uses many more. Everyone, moreover, understands more words than he uses." Leonard Bloomfield, Language, New York 1933, p 277 (Note: Bloomfield limits the word morpheme to a unit of lexical meaning, while a unit of grammatical meaning he calls a tagmeme; the term that embraces both is glosseme.)

Problem. Account for the discrepancy in the figures given by Bloomfield and those given by Kroeber.

The Distribution of Hapax Legomena

Lexical statistics, when properly handled, yield some interesting information, the strangest of which is the following. In any text (of a certain minimum length) the following proportion seems to hold: Just under 50% of the different words (not running words) in the text will occur just once. To restate, out of the total lexicon of a given author, one half of this total is used just once. In
this calculation, separate forms of the same lexical item are counted as different words. Counts on any other basis lead into difficulties. For instance, we would agree, perhaps, that go and goes belong to the same "word", but how about went? Should we include under this go the noun, as in "have a go at it"? What would we do with "real gone"? One might easily enough, on syntactical criteria, separate the different parts of speech, but any other division is difficult. These counts, then, are based on the sole criterion of graphemic shape. Other criteria would change the statistics but not the implications. One might, with some justification, include the inflected forms under the citation form; this would drop the percentage of hapax legomena. Because this generalization seems so sweeping and so difficult to believe, we have included a number of illustrations taken from different investigators.

Illustration. A model word count was done for James Joyce's Ulysses. The facts which concern us are the following:

260, 430 running words
28, 899 different words
16, 432 words occur once
4, 776 words occur twice
2, 194 words occur three times

R. C. Eldredge did a word count in 1911 from newspapers. The results:

43, 989 running words
6, 002 different words
2, 976 words occurred once
1, 079 words occurred twice
516 words occurred three times
294 words occurred four times
212 words occurred five times

The German scholar Kaeding was responsible for a massive word count. The results (taken from Bongers, History and Principles of Vocabulary Control) are these:

11, 000, 000 running words (approximately)
258, 173 different words
Of these different words, 50% occurred just once in the count.

J. David House analyzed letters written to an agricultural college (Elementary School Journal, 1917, pp 708-718):

65, 000 running words
1, 869 different words
816 words occurred once.

It is apparently hard to avoid approaching this ratio even if one consciously tries to introduce repetition in order to write simplified material. C. A. Gregory (Journal of Educational Research, Feb. 1923, pp 127-131) examined four books of required reading for the third grade: there were 5, 190 different words, of which 30% occurred but once.
E. T. Hough (National Society for Study of Education, 1918, pp 40-45) found that in ten second year readers, over half of the words occurred three times or less.

One of the best known investigators of this phenomenon of vocabulary distribution was George K. Zipf, whose Principle of Least Effort depended partly on such statistics. In an earlier piece of research ("Selected Studies of Principles of Relative Frequency", Harvard Studies in Classical Philology, 40, 1929, pp 1-95) he analyzed four plays of Plautus:

33,694 running words
8,437 different words
5,420 words occurred once

Finding all this a little hard to believe, I took upon myself to analyze a literary text, a selection of Ovid's Ars Amatoria which I had compiled for classroom use. The proportion of words that occurred once was almost exactly 50% of the total number of different words. I then chose a book written for children, the famous Ferdinand by Leaf Munroe. Here are the results:

737 running words
228 different words
110 words occurred once, or 48%

There are seven words in Ferdinand that do not occur in James Joyce's Ulysses. They are Vanderilleros, bumble, Picadores, snort, snorting, spears, and supposed. To work in the manner of those who put credence in frequency lists, we might come up with the gloomy conclusion that even when one had learned the entire vocabulary of Ulysses, one would still not know 6.4% of the vocabulary of Ferdinand.

Problem. What does this problem of the hapax legomena mean for language learning? Should we give the students the rare words in a visible vocabulary? What will they do when they are presented with a new author in a Teubner text? Does it mean that one can never read a language without a dictionary within easy reach? How do we read our own language? How much do we employ a dictionary?

Problem. Does this proportion of 50% hold throughout the language? That is, if we could have a count of all the words that have been spoken in the United States since 1900, would half of the words have occurred only once?

Problem. What does this mean for the restoration of ancient texts? Philologists have been suspicious of words that occur only once, particularly if this requires any restoration. Is this suspicion justified?

Problem. How large a sample of the Latin language do we possess? What proportion of the amount of Latin that was ever written might it be? What would the proportion of written Latin to spoken Latin have been? How confident can we be about our rules?
Importance of Understanding Lexicon for Language Learning

A proper understanding of lexicon will lead the teacher inevitably to the realization that the learning of words by lists has no place in language learning. The frequency lists themselves are useful only for what they count; they cannot predict. If one intends to read the first six books of the Aeneid, such words as imperator, casa, and praesidium are not "useful" words, regardless of their occurrence in first year texts. There is only one way to learn lexicon, just as there is only one way to learn the phonology, morphology, and syntax. We do not learn the phonology by pronouncing separate phonemes nor do we learn the morphology by producing morphemes. They must all be learned as language, in a matrix. In other words, the student must learn (and this means overlearn) meaningful wholes and must find out how to manipulate these meaningful wholes.

Contextual Orientation

It is possible to know all the pertinent facts about the phonology of a given utterance, all the morphology, all the syntax, and all the lexicon and still fail utterly to understand the meaning of the utterance through ignorance of the CONTEXTUAL ORIENTATION. The same utterance would arouse different reactions in different environments. Because of our common background, we take for granted certain knowledge, the lack of which makes our conversation unintelligible to a foreigner who may know the rest of the language sufficiently well to be understood. An account of a baseball game in an American paper would be impossible for a foreigner who did not have baseball in his background, even if he were furnished a glossary of the unfamiliar terms. Here we have one of the chief difficulties of reading Latin (the other being ENTROPY1).

Illustration. This particular difficulty is one that is too well known to Latin teachers to require much documentation. As an example, however, we might give a couplet from Martial (1.50):

Si tibi Mistyllos coquus, Aemiliëae, vocātur,

dicātur quâ rē nōn Taratalla mihi?

If the meaning is not clear, the reader is advised to consult

---

1 Entropy is the opposite of redundancy; a document contains entropy when the possibility of predicting is low. Doggerel verse and lyrics of popular songs are highly predictable; poetry is not predictable and therefore contains a great
the Iliad (1. 465).

SUMMARY OF STRUCTURAL ANALYSIS

It is the assumption of the linguist that difficulties will arise where there are points of contrast between the target language and the learner's language and that special drills, based on a precise knowledge of what these contrast are, will be necessary. Traditionally we have concealed these differences by claiming that the languages were fundamentally alike and that the differences were superficial. The following chapters will therefore analyze and contrast English and Latin systematically to see what points will cause the learner difficulty. In a later section we will suggest possible techniques for attacking these difficulties.

Linguistic Interference

It is of the utmost importance to understand that there are degrees of contrast between languages. Some features (whether phonological, morphological, syntactical, or lexical) may be almost identical, while others are totally dissimilar. In between are all gradations of contrast, some features being similar and others different in varying combinations. Obviously the items that are almost identical cause the least trouble, and one must perforce rely to some extent in the beginning to convey information to the student. But it is not so obvious, perhaps, that it is not the items that are entirely dissimilar that cause the most trouble (although they are hard) but the ones that are alike in some ways and unalike in others. The student not unnaturally draws the conclusion that because the item is like one in his own language in some respects it must be alike in all.

Illustration. An American student learning French has no trouble with the first phoneme in fait because the sounds are almost identical in French and English. He finds it hard to produce the vowel sound in rue because it is so very unlike English. But by the same token, if he pronounces it like the English word rue, he knows that this is not the sound which his instructor made. He may not want to make a ridiculous sound like the French word; he may honestly try to reproduce it and fail, but he is not deceived into thinking that he gave it. If, however, he tries to produce the initial phoneme of French paix, he may really think that he has copied his model exactly, even though his /p/ is heavily aspirated in a non-French manner. He is so misled by the features in common (both bilabial voiced stops) that he fails to perceive the contrast of aspiration versus non-aspiration. The proper pedagogical procedure would be to get him to hear the difference deal of information. That which is predictable obviously cannot contain any information.
in the /p/ of English pay and spay and then have him put the [p] of /spey/ into the initial phonème of /pey/. This would approximate the initial /p/ in French paix.

Problem. In light of what has been said, which would you say would offer the greater difficulty to a learner of French, the initial /r/ of rue or the vowel sound? If possible, check this.

Problem. Speakers of English, in response to the slightly substandard "I am very pleased to meet you" would say "Thank you". Those whose native tongue is Yiddish say "Likewise". Explain.

Problem. A friend of mine, shy and polite by nature, while living with a German family, dined most inadequately for several weeks. When asked if he would like potatoes, meat, etc., he always replied "Thank you", although naturally he said it in German. What did he say in German and why did he go hungry?

The amount of interference from the foreign language can be severe. The evolution of the lingua franca known as Pidgin English was due to the interference of native dialects on persons who believed they were speaking English. Nida (LAFL, p5) has several anecdotes of missionaries who considered themselves fluent in the native language whereas they were in fact unintelligible except to a few native who had learned the kind of language that the missionary talked.

Problem. Chinese has classifiers that are used with certain classes of nouns:

kè or kò with humans
chī with animals
chèn with things, clothes, etc.

What is the explanation of such items in Pidgin English as two fella man, five piecee shirt, and the like?

Miss Yao Shen has an entertaining article (in Language Learning 3, pp 3-4) in which she analyzes the kinds of lexical interference which a speaker of Chinese has in learning English. The title illustrates the severity of this interference, "On 'I Can't Open the Light, the Open-Shut is Bad'".

Illustration. The explanation of the title of Miss Shen's paper is as follows. There is in Chinese a lexical item k'ài, which is glossed in the dictionaries by "open". But we find the following combinations:
k'ai men "open the door"
k'ai deng "turn on the light"
huo ch'e k'ai "the train leaves"
k'ai ch'e "drive a car"
k'ai fun "serve a meal"
k'ai heung duei "move troops"

Wishing to find the equivalent of k'ai in the phrase k'ai deng, the Chinese student looked up the item k'ai in the small dictionary which students prefer ("The big ones are so confusing!") and found "open".

Problem. A Chinese student wished to say in English, "When does the train leave?" Can you predict what he actually said?

Problem. In Chinese it is not uncommon for two words of opposite meanings to combine to form a third concept. Thus hei bai ("black-white") is the word for "difference", ten di ("heaven-earth") is "universe", and nam bei ("south-north") is "direction". What does this suggest about the expressions cited by Miss Shen, "The open-shut is bad" and "I don't know whether the shoe's big-small will fit my feet."?

Problem. An American in Germany met a young lady whose last name escaped him. Unknown to him she was a divorcee who had recently remarried. When he asked, "Was ist Ihren letzen Name?" she became highly indignant. Why? What does Familienname mean in German? (From a talk by Harry R. Warfel before the Third Modern Language Audio-Visual Project Consultation at Wayne State University, 6 Dec 1957)

Philosophical Implications of Structural Linguistics

In even a cursory glance at language such as this, it is evident that speakers of different languages structure the universe in different ways or, as it has been said, they cut the pie of existence into different slices. Here is the author who has written so cogently upon this subject:

"We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds—and this means largely the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it this way— an agreement that holds throughout our speech community and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one, but its terms are absolutely obligatory; we
cannot talk at all except by subscribing to the organization and classification of data which the agreement decrees.

This fact is very significant for modern science, for it means that no individual is free to describe nature with absolute impartiality, but is constrained to certain modes of interpretation even while he thinks himself most free. The person most nearly free in such respects would be a linguist familiar with very many widely different linguistic systems. As yet no linguist even is in any such position. We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated. (Benjamin Lee Whorf, "Four Articles, etc.")

Problem. What do you think of the following statement?

"All disciplines are concerned in some fashion or other with linguistic problems. This is so with respect to fields as diverse as the natural and behavioral sciences, mathematics, history, and such humanistic pursuits as the study of literature." (Greenberg, p 1165) What light would this throw on the value of Greek and Latin?

Problem. Study the following quotation from Sapir's Language p 105:

"It is almost as though at some period in the past the unconscious mind of the race had made a hasty inventory of experience, committed itself to a premature classification and allowed of no revision, and saddled the inheritors of its language with a science that they no longer quite believed in nor had the strength to overthrow."

Does the sun rise in the morning? Did you ever put on your shoes and stockings? Can you plug a crack in the wall to keep out the cold? If you empty a gasoline can of its gasoline, is it then full or empty? Is it now safer or more dangerous than when full of the liquid?

Whorf was much interested in the interreaction of language and culture and evolved the thesis (called now the Whorfian Thesis) that grammatical categories reflect the basic philosophy of a culture. This has been extended by some linguists and anthropologists to mean that the grammatical forms in turn affect the thinking of a given linguistic group.

Illustration. "Our languages tend to classify things in opposites with no middle ground. This tendency may have contributed to the growth of scientific analysis. It also reinforces other kinds of behavior and sets of belief in our culture. The highly moral orientation of our culture tends to give moral overtones to dichotomies which are fundamentally non-moral. Thus the moral tone of good vs. bad, right vs. wrong, moral vs. immoral is also attached to pairs like clean
vs. dirty ("Cleanliness is next to godliness"), work vs. leisure ("Satan always finds some work for idle hands to do.") High on this list is success vs. failure and, for Americans only slightly lower, practical vs. impractical and theoretical. ("We need a common sense practical man for this job and no long-haired theorists.") Democracy vs. Communism and American vs. foreign are excellent examples of this bipolarization.

Thus the moral, clean, hard-working, practical American will be successful. By the same token if a problem has not been solved within ten years, the American looks for the cause (the individual or group who "plumbered the deal"). Action is preferable to planning; success can only follow the moral compulsion of "doing something", changing things, which is equated with progress. (In contrast, for example, Chinese seems to strengthen the individual's identification with a family extended back and forth in time and outward in space. Life is not seen in mutually exclusive terms of black and white but as a sort of blurred middle-ground gray. Hau generally translated "good, fine, etc." and but hau "not good" could both be translated more accurately as "Considering everything, things could be a little worse-- or a little better".) (From "Language and Culture" by Henry Lee Smith and Charles A. Ferguson, distributed by the Foreign Service Institute of the Department of State)

This Whorfian Thesis has been carried to extreme lengths. A recent radio program, "A Word in Your Ear", part of a series called "Ways of Mankind" shows the different ways that mothers in different cultures correct their children. The French mother (calm, reasonable voice) advises, "Sois sage", "Be wise." The German mother (harsh strident voice) says, "Sei richtig!", interpreted as "Get in line!", while the Hopi mother, with a voice like a perfume commercial, croons (in English), "It is not the Hopi way."

Problem. If we ignore the tone of voice, what essential difference is there between these three? Could a possible translation of the German "Sei richtig" be "It is not the German way"? How would this sound if crooned? If said in harsh tones?

Problem. Now that you have had a superficial glance at the science of language, discuss the following paragraph ("Description of Language Design" by Martin Joos, The Journal of the Acoustical Society of America, 22, 1950, pp 701-708)

"We can allow other people --telephone engineers or sociologists, for example, to speak artistically, imprecisely, about language. But as linguists we lay upon ourselves the condition that we must speak precisely about language or not at all. We can do that, of course, only under two conditions, of which the first has already been hinted at. First, we must limit our field, leaving outside it certain things to be treated precisely by engineers or by sociologists, while we speak of them more or less artistically. Second, within our field we must adopt a technique of precise treatment, which is by definition a mathe-
mathematics. We must make our "linguistics" a kind of mathematics, within which inconsistency is by definition impossible. True, miscalculations may occur through inadvertence. And different workers describing the same language may arrive at conflicting statements because they have started out from different sets of axioms. But in principle every possible statement of ours must be either true or false--nothing half-way.

Have linguists succeeded in setting up such a mathematical style for describing language designs? Well, not quite; but our science is still young. In its mathematical phase it is just a quarter of a century old, for we date it from Bloomfield's "Set of Postulates for the Science of Language" (in the journal Language in 1925). And even physics has not yet entirely resolved the conflict between quantum theory and the wave theory of light. But of all the sciences and near-sciences which deal with human behavior, linguistics is the only one which is in a fair way to becoming completely mathematical, and other social scientists are already beginning to imitate the strict methods of the linguists."

What does Joos mean by mathematical? Would such statements be useful for students learning a foreign language? Would they be useful for some one writing a drill book? Are traditional statements about language useful for the student learning a foreign language? For the author of a text?

Problem. Here is a final examination in linguistics that seems to admirably cover the ground which we have been over.

"Each of the following statements is partly or wholly incorrect. Write a brief but cogent refutation of TWELVE statements, basing your arguments on the materials of this course. Keep your answers as short as possible (not more than three or four sentences each), but try to expose the crucial weakness of the statements you choose to refute.

1. The structure of a language is simply the linguist's orderly description of what the speakers of the language say when they talk.

2. There is no need for a lot of newfangled terms in talking about linguistic structure. All we need are the traditional terms of Latin grammar, perhaps with one or two new definitions.

3. The only linguistic reality is the spoken sound. Hence the only transcription that reflects reality is a minutely phonetic one, setting down every sound exactly as the writer can hear it. A phonemic transcription distorts the facts of speech by introducing the writers personal preconceptions.

4. To determine whether two sounds belong to the same phoneme or not, the only valid test is to ask whether they distinguish words of different meanings.

5. Pitch differences are not phonemic in English because they never distinguish different words. Pitch in English is merely a matter of sentence intonation, expressing the speaker's attitude toward what he says.
6. It is impossible to make a complete phonemic analysis of a language without first establishing word boundaries.

7. The initial affricative in English chin consists phonetically of the consonants in tea and she. Therefore this sound is not one phoneme but two: ĭ plus șh.

8. The initial consonants of thin and then are phonetically different; but the fact that they have always been spelled alike (th) shows that we need not regard them as different phonemes.

9. If we are to be truly scientific, we must isolate the morphs (or morphemes) of a language without any appeal to meaning.

10. Since utterances have meanings, it is inconceivable that the morphs (or morphemes) of a language can ever be isolated except on a strictly semantic basis.

11. The meaning of a morph (or morpheme) is the mental image present in the speaker's mind when he speaks it, or the mental image called up in the hearer's mind when he hears it.

12. The total meaning of every utterance is exactly equal to the sum of the meanings of the morphs (or morphemes) contained in it.

13. Some utterances have a total meaning which is unrelated to the meaning of any of the morphs (or morphemes) contained in it.

14. The only valid statement that can be made about such a plural as feet is that the noun foot forms its plural by vowel change.

15. The cran of cranberry is not a morph (or morpheme) because it never occurs without a following berry.

16. The number of morphemes represented in an utterance is always equal to the number of morphs contained in it.

17. In cutting a morpheme sequence into immediate constituents, we are sometimes faced with a choice between alternative possibilities. This proves that our techniques of grammatical analysis are wholly arbitrary and hence can have no scientific validity.

18. Once we have worked out a phonemic transcription for a given language, we must continue to use it throughout the rest of our description.

19. In every language there are peculiar idiomatic expressions which cannot be described in grammatical terms.

20. The chief object of descriptive linguistics (linguistic analysis) is to prepare the ground for historical and comparative studies of language.
CHAPTER SEVEN

PHONOLOGY OF ENGLISH

Purposes of This Description

We have said that a linguist writing a description of a language should describe it in terms of what it is, not in terms of what it is not or in terms of what it ought to be. For teaching purposes, however, it is no only defensible but necessary to to describe both languages in terms of what they are not, to contrast the target language and the learner's language with one another. The following description of English, therefore, is made solely for the purpose of sketching the major contrasts of English and Latin. Repetition of some of the material in Chapter Three is intentional. This chapter relies primarily upon Gleason and Hill, both of whom in turn follow the analysis set forth by Henry Lee Smith, Jr. and George L. Trager in An Outline of English Structure (Norman, Oklahoma, 1951).

The Consonant Phonemes

According to the analysis of English by Smith and Trager, there are forty-five English phonemes, thirty-three segmental and twelve suprasegmental. When we consider that to represent these significant units we have available in ordinary writing only an alphabet of twenty-six letters and half a dozen punctuation marks and that furthermore these inadequate symbols represent the pronunciation of English current four hundred years ago, it becomes obvious why we must devise new symbols and assign new values to some of the old ones to describe the phonology. The twenty-four consonant phonemes and the symbols by which they are transcribed, are as follows.
There are sixteen phonemes made up of pairs that contrast chiefly in voicing
and lack of voicing:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Example in initial position</th>
<th>Example in final position</th>
<th>Symbol</th>
<th>Example in initial position</th>
<th>Example in final position</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>pill</td>
<td>cup</td>
<td>/t/</td>
<td>fail</td>
<td>luff</td>
</tr>
<tr>
<td>/b/</td>
<td>bill</td>
<td>cub</td>
<td>/v/</td>
<td>veil</td>
<td>love</td>
</tr>
<tr>
<td>/t/</td>
<td>tab</td>
<td>pate</td>
<td>/θ/</td>
<td>thigh</td>
<td>wreath</td>
</tr>
<tr>
<td>/d/</td>
<td>dab</td>
<td>paid</td>
<td>/ð/</td>
<td>thy</td>
<td>wreathe</td>
</tr>
<tr>
<td>/c/</td>
<td>chip</td>
<td>match</td>
<td>/s/</td>
<td>sing</td>
<td>boss</td>
</tr>
<tr>
<td>/j/</td>
<td>gyp</td>
<td>Madge</td>
<td>/z/</td>
<td>zing</td>
<td>Boz</td>
</tr>
<tr>
<td>/k/</td>
<td>cash</td>
<td>dock</td>
<td>/ʒ/</td>
<td>sir</td>
<td>hash</td>
</tr>
<tr>
<td>/g/</td>
<td>gash</td>
<td>dog</td>
<td>/ʒ/</td>
<td>jeu d’esprit</td>
<td>rouge</td>
</tr>
</tbody>
</table>

The four pairs in the left hand column are stops, while those in the right
hand column are spirants. As for the points of articulation, /p b/ are labial,
/t d/ are alveolar, /c j/ are alveolar-palatal, and /k g/ are velar; for the
spirants, /f v/ are labiodental, /θ ð/ are interdental, /s z/ are dental, and
/ʒ ʒ/ are alveolar-palatal.

From the examples given it is obvious that /ʒ/ is rare in English. It is
often said (Hill, p 32 and Gleason, p 18) that it never occurs initially, but there
are at least two words, jeu d’esprit and joie de vivre, as well as proper names
like Jacqueline. It might of course be objected that these words are French. It
would be difficult to support such a view. The first two (to disregard the proper
names, since they are always a special case) are listed in the Barnhardt dictionary.
They fit perfectly in the slot occupied by potatoes in "She has plenty of potatoes"
and the resulting utterance would be understood by most educated speakers, even
though they had studied no French. On the other hand, it is certain that a speaker
of French who knew no English would not be able to identify the French elements
in "She has plenty of jeu d’esprit" as spoken by an American. Even if the
American knew French and spoke it well, he would not, in the English matrix,
produce French sounds. If he could accomplish this tour de force, then the
resulting utterance, half English and half French, would not be comprehensible
to an American. Finally, if we were to throw out jeu d’esprit and joie de vivre,
then all the arguments would apply equally to rouge, which both Hill and Gleason
use as an example of the (rare) occurrence of /ʒ/ in final position.

Even in medial position it is not common, and Gleason (p 19) knows of only
four minimal contrasts between it and its companion /ʒ/: dilution/delusion,
glacier/glazier, Aleutian/allusion, and Asher/azure.
There are three nasals /m n η/, bilabial, alveolar, and velar, two liquids /l r/, respectively lateral and non-lateral, and three semivowels /y w h/, which are glides up and forward, up and backward, and toward the center.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Example in initial position</th>
<th>Example in final position</th>
<th>Symbol</th>
<th>Example in initial position</th>
<th>Example in final position</th>
</tr>
</thead>
<tbody>
<tr>
<td>/m/</td>
<td>mat</td>
<td>sum</td>
<td>/y/</td>
<td>Yale</td>
<td>****</td>
</tr>
<tr>
<td>/n/</td>
<td>gnat</td>
<td>sun</td>
<td>/w/</td>
<td>wail</td>
<td>****</td>
</tr>
<tr>
<td>/η/</td>
<td>****</td>
<td>sung</td>
<td>/h/</td>
<td>hail</td>
<td>****</td>
</tr>
<tr>
<td>/l/</td>
<td>light</td>
<td>full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/r/</td>
<td>write</td>
<td>fur</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The velar nasal never occurs initially, while the three semivowels when following a vowel form a complex vowel nucleus or diphthong and will be discussed under the vowel phonemes.

Explanation of terms. A stop is a sound produced by completely blocking the stream of air. The point of articulation is the place where this closure occurs. The labial stops are produced by the lips. Alveolar stops are made by closure of the tongue when placed against the upper gum, just behind the teeth. Palatal stops are produced when the tongue tip is on the hard palate (the roof of the mouth); alveolar-palatal stops /ç ʝ/ are articulated between the alveolar ridge and the hard palate. Velar stops /k ɡ/ are produced by the back of the tongue making closure with the velum, the back portion of the mouth, beyond the hard palate. To locate these parts of the mouth, produce the example words and note where the articulation takes place. The terms used for the spirants, namely labiodental, interdental, dental, are probably now self-explanatory.

The term liquids is the conventional one for /l r/ but is not in harmony with the rest of the terminology, since it describes impressionistically the sound rather than describing the articulation. As they are produced by the tongue, they might be called linguals, as Hill suggests (p 41). The term lateral means that while the tongue is in position against the roof of the mouth the air passes around the sides of the tongue, whence the term lateral.

The term spirant refers to sounds made with constriction at the point of articulation but without closure. It too refers to an impressionistic description of the sound and not the type of articulation that produces it.

Problem. The words in the left hand column are matched by words in the right hand column that are alike except in one phoneme, whether initial, medial, or final. Match them up and be able to identify the contrasting phonemes.
## Distinctive Features of the Consonant Phonemes

In describing a phone or phoneme one identifies it by the articulatory phenomena necessary to produce it (with such exceptions as noted above). Thus we describe English /p/ as a voiceless bilabial stop. The /p/ in English spill would be described as an unaspirated voiceless bilabial stop if one were interested in the non-phonemic contrast between pill and spill, but usually one gives the significant contrastive features.

**Problem.** Give an English word (not one that has been given as an example in this chapter) in initial position and in final position; if the phoneme does not occur in any position, so state.

<table>
<thead>
<tr>
<th>voiced alveolar stop</th>
<th>velar nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiceless alveolar-palatal stop</td>
<td>up and forward semivowel</td>
</tr>
<tr>
<td>voiced interdental spirant</td>
<td>lateral liquid</td>
</tr>
<tr>
<td>voiceless velar stop</td>
<td>voiceless labiodental spirant</td>
</tr>
<tr>
<td>bilabial nasal</td>
<td>voiced labial stop</td>
</tr>
<tr>
<td>non-lateral liquid</td>
<td>alveolar nasal</td>
</tr>
</tbody>
</table>

**Problem.** Which of the following words contain /g/? Linger, singer, finger, hanger, danger. How many have /ŋ/? Do walking and walkin' have the same number of phonemes?

What is meant when one says that someone "drops his g's" in producing words in -ing?

## The Vowel Phonemes

There are nine vowels /i e æ a ɔ u ø/. They are best shown in a schematic diagram of the mouth, where the terms high, mid, low and front, central, and back refer to the position of the tongue when these sounds are produced.
THE VOWEL PHONEMES

The vowel system is harder to describe than the consonants because most of the dialect differences are contained in the vowels. There are in fact few words that have the same vowel nuclei in all dialects (Gleason, p 27). One of the standard examples (it is almost impossible to write a book on linguistics without it) is the merry/marry/Mary contrast. In certain parts of the Mid-West these words are homonyms. In other parts merry and Mary are pronounced alike but are distinguished from marry. In coastal New England all three are distinguished. "Mary Christmas" is a funny name in the Mid-West, but not in New England. To say that the New England pronunciation is superior or that the Mid-West pronunciation is slovenly is naive, but has been the habit of New England school teachers in the Mid-West for years.

It is inevitable, therefore, that unless the reader uses the same dialect that the author does some of the examples will seem confusing. I well remember confusion on reading that /a/ was the sound in hot and father, since these words in my dialect are /hot/ and /fathər/.

The greatest difficulty comes with the three vowels in the bottom right hand side of the diagram, /aʊ/ /eɪ/ /ə/. We will therefore begin by describing the other six: /i:/ as in bit, /e/ as in bet, /æ/ as in bat, /ɔ/ as in but, and /u/ as in put. The /i:/ requires a little more explanation, although it is extremely common. It is the most frequent vowel in unstressed polysyllabic words like history, mathematics, and the like. But it also occurs in stressed position, although examples of minimum contrast with other vowels that fit all dialects are not easy to find. The one that works best is the word just. If in pronouncing at normal speed in your normal speech you have a contrat between "He is a just man" and "He came in just a minute ago", the first being /jəst/ and the second being /jɪst/, then you have barred i in your dialect. The second just, in turn, is different also from both gist /jɪst/ and jest /jɛst/.

Writers of dialect stories have long noticed the presence of /i/ and have tried to indicate it by various devices. We find for can /kæn/ both kin and k'n; for pretty /prɪti/ or /pərti/ we find purty. Other examples are the spellings whup for whip /hwɪp/ and /wɪp/, kvwers or kvuvers for covers /kɪvərz/, and jist for just /jɪst/. In the first set, /i/ is the standard pronunciation, while in the last set it is dialectical. Conventional spelling is limited to the five "vowels" (meaning of course, graphemes used to represent the simple and complex vowel nuclei). When an author spells a word with a different vowel from the conventional one, the chances are good that he is trying to represent barred i.
We have now dealt with the easily described /i e æ ə u/ and the more difficult (but extremely common) /ɪ/. Few Americans have simple /o/. Some New Englanders have it in home, whole, and road, where most people have /howm/, /howl/, and /rowd/. It is common, however, in the sandhi form of going to /gərə/, but its usual place is in complex nuclei with the semivowels.

The low central /a/ is common, as in hot /hɒt/, but in New England /hɒt/ is found. For those who use hot /hɒt/, simple /ɔ/ is not common. The test word father is common for /a/, but unfortunately for the explanation besides /fɑðər/ we also find /fɑðər/. But whether /h/ is present or not, if the vowel nucleus of hot and father are different, then one has both /a/ (or /ah/) and /ɔ/ (or /əh/). To find out whether one has /ɔ/ or /əh/, one should try the pairs cot and caught. If there is a difference, then one has both /ɔ/ and /əh/.

We now turn to the semivowels /y w h/, which we have already touched on above. There are nine simple vowels, all of which may occur alone or with any of these three semivowels. There are therefore thirty-six possible vowel nuclei, all of which occur in American English, although not, as far as is known, in any one dialect. The writer's speech, for example, contains all nine vowels (although /o/ is rare) and ten complex nuclei.

Illustration. The following contrasts and transcriptions will prove useful for most people.

mitt /mit/ and meat /miət/
met /met/ and mate /meɪt/
lout /laʊt/ and light /laɪt/
gout /gaut/ and goat /gəʊt/
haws /hæz/ and house (the verb) /hæz/
got /ɡat/ and gout /ɡəʊt/
pull /pʊl/ and pool /pʊl/.

Problem. In what dialect(s) is the word bird pronounced /bɔyd/? What is the conventional dialect spelling of this pronunciation? Is the word ever pronounced /boyd/?

Here follow common variant pronunciations. Which ones occur in your speech? Try to produce the others. Remember that words in isolation and words in context frequently have different forms ("sandhi change"). The "name" of the word is often not the sound that it has in a speech situation.

cot /kɒt/ kɒt/
cought /koʊt/ /kəʊt/
bomb /boʊm/ /bəʊm/
balm /baɪm/ balm/
(tin) can /kæn/ /kɪn/
(we) can /kæn/ /kəʊn/
THE VOWEL PHONEMES

year /yiyr/ /yir/ /yihr/ /yih/
food /fuwd/ /fud/
knotty /natiy/
aughty /natiy/ /notiy/
cod /kød/ /kad/
cawed /kød/ /kad/ /kød/
go ing to /gon/ /gone/
sister /sister/ /sistər/
can’t /kænt/ /kænt/ /kant/ /kahnt/
aunt /aunt/ /ant/ /ahn/
ant /aent/ /aent/
barn /barn/ /bahn/
cord /kɔrd/ /kɒd/

(NB. For the two can’s try the sentence "We raise tomatoes; we eat what we can, and what we can’t, we can."

Illustration. The writer’s dialect (Costal New England with overlayers of Philadelphia and MidWest) contains all the consonants, all the simple vowels (although /o/ is rare), and the following complex nuclei:

/iy/ as in feet /fiyt/
/ey/ as in say /sey/
/eh/ as in bear /behr/ (only before /r/)
/ay/ as in light /layt/
/aw/ as in now /naw/
/ah/ as in father /fahtər/
/ɔh/ as in autumn /ɔhtm/ and caught /kɔht/ as opposed to cot /kɔt/
/oy/ as in joy /joı̈/
/ow/ as in load /lɔw/
/uw/ as in new /nuw/

Problem. Analyze the phonemes of your own speech.

The Suprasegmental Phonemes: Pitch

There are four degrees of pitch in English, written /1 2 3 4/. Most linguists label the highest /4/, although there are a few linguists who reverse this. It is rather common in texts, especially those intended for teaching English as a foreign language, to use contour lines. Although wasteful of space, it is far more graphic. Observe the following examples of pitch contours; conventional spelling is used in order to focus attention upon the suprasegmental phonemes.

Illustration. "Where are you going?" (Question, /2 3 1/

"I’m going to the movies." (Answer, /2 3 1/)
The long horizontal line represents /2/, the top of the curve is /3/, and the tail is /1/. This /3 2 1/ contour is common in both questions and answers.

Note the information conveyed by pitch in the following contrasts (The feature of juncture also enters in here; see below):

You're going to the movies. (Statement, /2 3 1/)

You're going to the movies? (Question asking for a yes-or-no answer, /2 3/

You're going to the movies? (Excited question expecting explanation, /2 4/

The common pitches are /1/, /2/, and /3/. /4/ is reserved for emphasis, and for this reason is considered by some linguists as non-phonemic.

Questions which employ the inverted verb use either /2 3/ or /2 3 1/ to elicit yes-or-no answers:

Are you going to the movies? /2 3/

Are you going to the movies? /2 3 1/

Traditional grammarians have denied the evidence of their senses, as in this quotation from Blount and Northrop, Grammar and Usage (New York 1953) p 9: "Interrogative sentences, when they can be answered by yes and no, are closed in speaking by a rising inflection."

Note the following, already commented on above (p 40):

"I am going to New York next week."

"When?") (/2 3/, signaling "Message received; please repeat" and eliciting an answer like "Next week".

"When?" (/3 1/, signaling "Message received; desire further information" and eliciting an answer like "On Thursday".

Problem. What are the pitch contours in counting? How do you know when the end of counting occurs? (NB: The feature of juncture may be ignored for the present.)

The Suprasegmental Phonemes: Stress

There are four degrees of stress in English, written /'âˆ/. In Latin stress is predictable and therefore non-phonemic.

Problem. Explain the therefore.

In English, however, there are contrasts like perMIT (verb) and PERmit (noun) which are not predictable and therefore are phonemic. Considering the purpose of this book we shall content ourselves with a cursory examination of
this particular phenomenon of English.

Problem. Find other minimal pairs of nouns and verbs that show this same contrast. In some of them there may also be a vowel change, as in \textsc{REcord} (noun) vs. \underline{reCORD} (verb), where the noun has /\textipa{re}/ and the verb has /\textipa{rily}/.

These stresses, in descending order of emphasis, are \textbf{primary}, \textbf{secondary}, \textbf{tertiary}, and \underline{weak}. Syllables receiving weak stress are left unmarked, unless one wishes to call attention to the fact that the stress is weak. Items in isolation or in lists, if monosyllabic, have primary stress. The other stresses show up in polysyllabic words or in phrases.

Illustration. The pairs given above illustrate primary and weak stress, the noun being /\textipa{pərmɪt}/ and the verb /\textipa{pərˈmit}/. Tertiary stress appears in such words as \underline{sanctuary} /\textipa{sæŋˈkwaːriə}/ and \underline{occupation} /\textipa{ɔkˈwɒpəˈʃən}/. Secondary stress may be seen in contrast with tertiary stress in the contrast between \underline{blackbird} (a bird that is black) and \underline{blackbird} (a kind of bird), the first being /\textipa{blækbɜːrd}/ and the second /\textipa{bækˈbɜːrd}/.\footnote{The feature of juncture has been omitted in this and several of the following examples. The reader should restudy these examples after reading about juncture.}

Problem. Ignoring juncture, what is the point in the following children's jokes?

\begin{itemize}
  \item What's that in the road? A head?
  \item Did you ever see a board walk?
  \item Did you ever see a horse fly?
  \item What are we having for dinner? Mother?
\end{itemize}

Problem. A termite walked into a bar and asked, "Is the /\textipa{ˈbɑːrtəndər}/ here?" Why is no joke if we say instead, /\textipa{bɑːrtəndər}/? (Again, differences in juncture are also present.)

Illustration. The pattern // or /// (accompanied by differences in juncture) frequently distinguishes a proper name or a compound from an adjective plus noun construction, as in \underline{whitehouse} vs. \underline{White House}, \underline{strongheart} vs. \underline{Strongheart}.

Problem. Write the proper stress for hothouse (where one raises plants). Write the phrase with which this is in minimal contrast. What would /\textipa{ɪndiˈyanhêd}/ mean? How about /\textipa{ɪndiˈyanhêd}/? There are two kinds of French books. What are they? What is the difference in the stress pattern? With what does twelve years old contrast with almost minimally? Is it true that \underline{Long Island is a long island}? Find other minimal pairs for this pattern.

The Suprasegmental Phonemes: Juncture

In the preceding sections reference has been frequently made to
juncture, because it is so closely connected with pitch and stress. It cannot, however, always be predicted from either of these and is therefore itself phonemic. There are four of these junctures, written / inside space, referred to as plus, single bar, double bar, and double cross juncture. Plus juncture is the phoneme that, in addition to the stress pattern, distinguishes black bird from blackbird, there being plus juncture in the first, none in the second. That this plus juncture is truly phonemic and not an automatic concomitant of the stress pattern is shown by such minimal contrasts as nitrate /náytrèyt/ and night rate /náytrèyt/. Further minimal pairs (Hill) are that stuff and that's tough, an aim and a name, we'll own and we loan, and (if the stresses are kept alike) I scream and ice cream.

Problem. Does plus juncture ever coincide with "word boundaries", as conventional spelling represents them? Does it always coincide with these written conventions? If you think the answer is negative, see if you can adduce examples. What contrast in juncture do you hear between Anchises and Ann Kelley? Is there a contrast between slyness and minus?

The other three junctures / inside space, inside space, inside space/ represent the kind of closing of clauses which conventional punctuation attempts (inefficiently) to represent by commas, semicolons, question marks, periods, dashes, parentheses, and interjection marks. Let us return to the examples given on page 118. You're going to the movies with contour / in / / inside space inside space / is a statement, with contour / in / / inside space inside space / it is a question. But as suggested above, the contrast does not lie solely in the pitch. The statement ends with double cross juncture, the question with double bar.

Illustration. One can clearly see the contrast between / inside space inside space / and / inside space inside space / in lists and counting. You can now rephrase your answer to the problem given on page 118: "How do you know when the end of counting occurs?" Parlor bedroom bath means "Parlor, bedroom, bath, and that's all" or, as the students say, "Period." Parlor bedroom bath predicts another item like and study.

Problem. Read the following: John Mary Fred. What is the message? What pitch phonemes would occur with this? Read this one: one two three four five. Again, what is the pitch contour and what is the message?

There are two main uses of double bar juncture, to indicate incompleteness and to signal questions. The double cross juncture, on the other hand, signals "End of message; ready to receive". The other party may now introduce a new topic of conversation, which he may not do after / inside space inside space /, unless it signals a
question.

In the counting sequence used above, the reader may have used a pitch contour of /3 1/ rather than /2 3 1/. If this were true, then the juncture would have been single bar.

Illustration. Count or enumerate items in a list (reading a sentence as "mere words" will do) with pronounced upturn (that is, with /2 3/ contour). This list will contain /1/ between items. Now count in more of a monotone (but still with /2 3/ contour). This list will contain /1/.

The insertion of /1/ makes modification clear when there is ambiguity. A+greasy+Scout's+uniform# is ambiguous: is it the uniform of the Scout that is greasy? The ambiguity is gone in A+greasy|Scout's+uniform# is not ambiguous: the uniform is greasy, not the Scout.

A common use of /1/ is to separate two clauses that are connected by and, but, when, and other conjunctions, both coordinate and subordinate: I was on my way down town| when I saw Mr. Jones.

Problem. Here is a sentence which is completely ambiguous when read as indicated in the first transcription, unambiguous in the next two. What are the two messages? How may they be distinguished?

/ə+sûnz+râyz+mîyt#/ 2 3 1
/ə+sûnz+râyz|mîyt#/ 2 3 1
/ə+sûnz|râyz+mîyt#/ 2 3 1

Problem. The following (in which conventional punctuation has been omitted) are susceptible of different interpretations. What are they and how are they signaled? Which utterances may be read ambiguously?

are you reading scott
what are you reading scott

Illustration. My eleven year old daughter, on having the phenomenon of juncture explained to her, produced the following: "A man went home one night and asked his dog what he had been doing. The dog said, "Nothing.''' The other daughter volunteered the definition of a tired Santa Claus as a beat Nick.

Distribution of Phonemes

While the inventory of English phonemes is unusual neither for its length nor its brevity, the distribution of this inventory presents a number of interesting problems. Hill devotes a chapter to this aspect of English, which he calls phonotactics. We have in the main followed Gleason, whose statements are somewhat more simple since he did not choose to deal with proper names.
Never occur in word initial position: \(/\eta \, \tilde{z}/^1\) 
Occur alone in word initial position but never in combination with another consonant: 
\(/v \delta \, z \, c \, j/\) 
Occur either alone in word initial position or in clusters:
  a) only as first member of cluster: 
  \(/b \, d \, g \, s \, \tilde{s} \, h \, \Theta/\) 
  b) only as last member of cluster: 
  \(/y \, w \, r \, l \, m \, n/\) 
  c) as first, last, or middle member of cluster: 
  \(/p \, t \, k \, f/\)

This statement is not yet complete, for it does not describe which combinations occur. For example, \(/\Theta/\) commonly clusters with \(/r/\), as in throat, rarely with \(/w/\), as in [n]hawk, rarely with \(/y/\), as in thews, and never with \(/l \, m \, n/\).

It is interesting to note that the rare combinations are as easy and "natural" for a speaker of English as the most common. The /bw/ in bwana and Buenos Aires offers no more difficulty than the common /br/. It is true, however, that many speakers do not have these rare clusters; the word pueblo (more common as a proper name) has, in Colorado, the general pronunciation of /piyeyblow/, which is more common than the writer's /pweyblow/.

It used to be said that /\tilde{s}/ clustered only with /r/, as in shrub, but the recent invention of shmoo and the highly productive cancer-shmancer combination has made this observation obsolete. In passing one might note that the humorous effect of these /\tilde{s}m-/ words comes from their un-English sound. The English phonological system could embrace these words, however, because of the existence of proper names like Schmaltz. Note again, however, that Schmaltz is a funny name in English.

Problem. Observe the initial clusters in the following. Compare them with Gleason's table. Are there any for which he has made no provision? If there are, account for the omission.

Splash, zouave (two pronunciations), scream, stew (in the pronunciation which a dialect writer might render "steeyew"), zwiebach, square, queen, sclerosis, pueblo (two pronunciations), Schmidt, guava, blight. Buena Vista (two pronunciations), Gwaine, Schwartz, Vladimir, sphinx, view, tsar (dictionary pronunciation), 'Zwounds!, who, wheel (two pronunciations), "Zblood!" (from Hagg)

Problem. The word svelte has several pronunciations; besides the "correct" one /svelte/ there is /svelite/ and /swelt/. Why is the term correct placed in quotation marks? Are all these

---
^1So Gleason, but see above (p 112) for examples of initial /\tilde{z}/.
pronunciations equally acceptable? Where are they acceptable? Can you account for the presence of the last two pronunciations?

Problem. What does the spelling of such words as knight and gnat suggest about clustering in the older forms of the language?

Problem. Consider the words who, where, when, wheel, whole. Which ones begin with /wh/? Which ones have only /h/? Which ones have only /w/? Which ones have /hw/? Which ones have variants? Is the proper pronunciation of wheel /hwyl/ or /wiyl/? What is your authority? There are three ways to pronounce the beginning of whoop. What are they?

Initial clusters of two consonant phonemes (vowels do not cluster in English) are common, and three, as you have seen, are not unknown. In postvocalic position, however, there is even more diversity. Numerous doublets, like /-ft -st -sk -sp -vd -rb -rk -rd/ may take a final /s z ʒ/ to make noun and verb forms. An example would be casks /kæskz/.

Problem. Find other examples.

Problem. What final clusters are in the following: unkempt, junked, sharped, borned, girls?

Problem. Intervocalic clusters are numerous. Turning to the beginning of Chapter One (p 1), examine the intervocalic clusters in the first paragraph. What combinations do you find that are not permissible in initial or final position?

Latin has no clusters that are not found in English (except for a few rare words like stloppus) and severe restrictions upon clusters in final position.

Points of Controversy

It has been said above (p 62) that alternate solutions are possible for linguistic problems. Here are some of the points of English phonology about which there have been discussion.

Some linguists prefer to treat the phonemes /č/ and /ʃ/ as clusters /tʃ/ and /dʒ/, thus writing chaw and jaw as /tʃɔw/ and /dʒɔw/. Such a solution results in an economy in the inventory of phonemes, but many linguists believe that it does not adequately handle such contrasts as white shoes vs. why choose.

More fundamental, perhaps, is the controversy over postvocalic /h/. To explain the problem, we must explain a little more fully the material that was first presented on page 58. Two phones, to be classed as a member of the

\(^1\)For the evidence, see Hill, p 36-37
phoneme must fulfill two requirements: it must either be in complementary
distribution or free variation and it must show physical similarity.

Illustration. If we were to repeat any word a number of times,
it would be impossible to exactly reproduce the sound of any
phoneme, yet a speaker of the language would recognize the
'different' sounds as the 'same' word. These different sounds
are said to be in free variation. The example which was given
above (easy to see because the non-significant difference
happens to be significant in English) was the Nanking [ŋ] and
[y]. In this language there is a nasal, but it does not matter
whether it is alveolar or velar. (Cf. p 52)

As for complementary distribution, the /l/ in light and
in full (initial and final position) are so different that the
reader should by now have no trouble in hearing the difference;
yet because the /l/ of full never occurs in initial position
they are members of the same phoneme. They have physical
similarities and are in complementary distribution.

But note that the phones must fulfill requirements both of sharing certain
features and meeting requirements of distribution. There is no question
about the distribution of [h] and [ŋ], where [h] is the initial sound of hit and
[ŋ] is the final sound of ring. They are in complementary distribution, but
there is no physical similarity except that of being non-vowel. (Cf p 57-58)
The same problem now arises with another contrast but is not so easily disposed of. The initial [h] of hit is in complementary distribution with the type of
glide seen in the distinction (where made) between cot and caught. The question
therefore arises: do they share enough features to be listed as members of
the same phoneme? In other words, how many features are "enough"?

Hans Kurath, for example, (The Binary Interpretation of English Vowels,
Language 33 (1957) pp 111-122) believes the similarity is not sufficient
and adduces diachronic evidence to support his view. Hill, however, who
accepts the spirant initial /h/ as an allophone of /h/, with the semivowel
offglide another allophone, states his position clearly: "Yet it now seems
inescapable that distributional criteria take precedence over physical
similarity and dissimilarity." (p 52) This criterion is that of PATTERN
CONGRUITY, the desire to fill as many holes in the pattern as one can.
If the initial sound in hit is classified as a spirant phoneme, then we find
that the other four voiceless spirants /f θ s š/ all have voiced counterparts
/v ɔ z ʒ/, but the spirant phoneme in hit would not.

The other two semivowels /w y/ also occur initially as consonants, as in
well and yell. To assign the acoustical phenomenon that we observe in caught
in contrast with cot would result in additional skewing (cf p 74) of the pattern. To assign the initial spirant and the offglide to the phoneme /h/ removes two holes in the pattern.

Stated in this fashion (spirant consonant vs. offglide semivowel), But Hill (pp 37-39) thinks that the classification of [h] as a spirant is faulty and that it may easily be classed as a voiceless vowel without any fixed point of articulation. It is obvious, we hope, that the learner cannot pretend to judge between the merits of such a controversy as this, but it is important to know that they exist. The reader, if interested, is referred to the Kurath article mentioned above, as well as to a reply by James Sledd in Language 34 (1958) pp 252-258 ("Some Questions of English Phonology") and a counter reply by Kurath in the same issue, pp 259-260. Gleason (p 38) accepts postvocalic /h/ in a compromise by writing /h/ for the initial sound and /h/ for the semivowel.

A third problem is like the last in the vowels. The system devised by Professor Fries and used in the English Language Institute lists eleven vowels as follows:

/æ/ as in not /nat/ /u/ as in soon /sun/
/e/ as in say /se/ /i/ as in full /ful/
/s/ as in says /sæz/ /æ/ as in add /æd/
/ı/ as in eat /it/ /e/ as in come /kæm/
/ı/ as in is /iz/ /o/ as in dog /dog/
/o/ as in know /no/ (Data from Ann Anthony, "Tools for Teaching Pronunciation", Language Learning 2, 2 (1949) pp 36-40)

There are then three diphthongs:

/æt/ as in I /at/
/au/ as in noun /næn/
/ɔr/ as in boy /bɔr/

Problem: What differences do you see in the systems? Smith and Trager tried to construct a system that would account for all dialects of English. What principles seem to have guided Fries? Which system seems superior? For what reason(s)? For what purpose?

Importance of Understanding English Phonology

We have said above (pp 62-63) that it is essential for a language teacher to understand phonology. We will now examine more closely the reasons why a knowledge of the phonology of English is useful for a Latin teacher. First and foremost, perhaps, since phonology is the first stage in language analysis, it is plain that one cannot understand the subsequent analysis without it. But from
the point of view of the classroom teacher who wants only enough linguistics to teach the language and literature, is it useful? The answer is affirmative. In the case of a modern language, knowledge of the phonology of both target language and learner's vernacular will indicate the points of difficulty. In Latin, since it has no living speakers, the situation is entirely different. Knowledge of the phonology of the two languages will indicate clearly what sounds one should make to change the written page into a stream of speech. The teacher will be aware of exactly how much help is given the students when the Latin is read aloud.

Problem. A teacher of Greek reportedly never pronounces a word of Greek in his classes. When the students ask how it sounded, he replies that we don't really know and therefore we shouldn't make any sounds at all. Can you support or attack this position in structural terms?

Problem. A professor of Latin habitually reads Latin in a complete monotone since the manuscripts indicate no punctuation. Can you support or attack this position in structural terms?

Problem. As language teachers we often are asked to comment upon texts in other languages. Here is a quotation from such a book. "A marked difference in pronunciation between Italian and English is that in Italian the unstressed vowels keep their pure sound, while in English unstressed vowels are often slurred." (Joseph L. Russo, First Year Italian (1937) p 2) What do you know about the book? Would it be entirely satisfactory? Would it be entirely unsatisfactory? What does the author mean by pure and slurred? Comment on the connotative effect of these two words. Do Latin teachers ever adopt this same approach?

Latin teachers (if they proceed beyond the elementary stages) cannot very well ignore the study of English poetry in their classes. A knowledge of English phonology is of great value in such activity. Aesthetic criticism frequently relies upon such a statement as "Read one way, line 10 means x, but read another way it means y."¹

Problem. From a book of criticism like William Empson's Seven Types of Ambiguity find such a statement and restate it in structural terms.

¹One of the first attempts to make aesthetic statements in terms of linguistics was "An Analysis of The Windhover" A. A. Hill, PMLA 70 (1955) pp 968-978.
CHAPTER EIGHT

PHONOLOGY OF LATIN

Peculiarities of a "Dead" Language

We have constantly emphasized that to a linguist sound is primary, writing secondary. So fundamental is this assumption that one can determine is a matter of seconds whether a text is structurally oriented or not: a book that begins by explaining how the letters are pronounced is not structural. It may not be a bad text book because it is not structurally oriented, but it cannot be a good one. A structurally oriented book would begin by explaining the phonemic system of the language, particularly with reference to the learners' language and would present drills (preferably through tapes); eventually (fairly soon in the case of some languages, later in the case of others) it would explain how the writing system represents the phonemic system. Such a book might be a good book or it might be a bad one.

Illustration. A recent book on Italian explains that the sound k is rare in Italian. The phoneme /k/ is common in Italian, the letter k is not.

In Latin, and other ancient languages, however, this criterion does not apply. Such languages have no native speakers and exist only in the form of written documents. The actuality is therefore the litera scripta. But our basic assumption that language is learned, patterned, oral behavior still holds; our task is to bring the written page to life, to transform it into speech in the most efficient way. This chapter will accordingly show how to accomplish this.

From the corpus of Latin literature itself and from certain specific statements of grammarians and others, we can reconstruct the phonemic system of Latin and assign approximate phonetic values to them. Now here is the contribution which linguistics has to make on this point: to create speech from the written page of Latin, we must maintain
all the significant contrasts that the printed page affords, using the phonetic structure of our own language, whatever that may be.

This means that a Frenchman will pronounce Latin differently from an American or a German, but if they are all maintaining the significant contrasts, then all are equally "correct". On page 57 we quoted Gleason to show that there is no such thing as a /b/ phoneme. When one sees the grapheme b in a Latin text, the only possible solution is to represent it by the /b/ in one's own speech. To refer to Gleason's example, a speaker of English would use a voiced labial stop, while a speaker of Kiowa would use a voiced labial fricative. The problem of the latter would be to find in the inventory of his language something for Latin /v/, with which his /b/ might be confused.

It is true that we know something of the acoustical properties of Latin phonemes. We know, for example, that Latin /t/ was dental; therefore a Frenchman, whose /t/ is dental would be close to what the Romans actually said than a German or American, both of whom have an alveolar /t/. If we wish, we may ask our students to modify their phonemes. We may tell them that the Romans used a trill /r/ rather than the American flapped /r/ and praise those who produce the trill, but we would be foolish to spend very much time on such activities. It is command of the allophones that gives the foreigner a "good accent" and in Latin the nature of the allophones is largely unknown.

Conversion of Graphemes into Speech

In examining the writing system of Latin, we immediately notice that there are superfluous items. We note that c and q are in complementary distribution: q occurs only before u when the latter represents /v/; the letter c never occurs before u when the latter represents /v/. The letters c and k, moreover, are in free variation. K occurs only initially before a (as in Karthago) and only in proper names; furthermore the letter C is used in all of these. The grapheme x is also superfluous since it is a representation of /cs/. We know from the statements of the grammarians that k, q, and c were all allophones of one phoneme; we discard the k and q because they are less frequent and write the phoneme as /c/, although this conflicts somewhat with conventional linguistic usage, which employs /k/ for velar stops. This leaves us with a writing system of twenty letters (putting aside for the moment several rare foreign phonemes which are represented in various ways): fifteen consonants and five vowels. We will note later that although
not consistently represented in the documents, there was a component of length for the vowels which can be reconstructed with considerable accuracy. The consonants, then, are /p b t d c g f r l s m n h j v/, to which we may assign value of English phonemes (not English letters you will note), with the following modifications if desired. In practice teachers have their prejudices and stress one or two variations; the writer's penchant is for the trilling of /r/.

/p/ voiceless bilabial stop, but non-aspirate (as in French) and not aspirate as in English in initial position
/b/ voiced bilabial stop as in English; the grapheme b in such words as urbs and obtemperēre is a MORPHOPHONEMIC spelling for /p/
/t/ voiceless non-aspirate dental stop (as in French), not aspirate in initial position and alveolar as in English
/d/ voiced dental stop as in French, not alveolar as in English
/c/ voiceless non-aspirate velar stop, but non-aspirate (as in French) and not aspirate as in English in initial position
/g/ voiced velar stop as in English; before /n/ (as in agnus) /g/ had the allophone [ŋ], and the teacher may wish to employ this, since it has considerable snob appeal.

The three voiceless stops /p t c/ in being non-aspirate contrast with three rare foreign phonemes /p t ç/, represented in the writing system by ph, th, and ch.

/f/ as in English
/r/ a trilled lateral as in French or German, not flapped as in English
/l/ as in English
/s/ voiceless dental spirant, being in contrast with the rare foreign phoneme /z/
/m/ initially as in English. In final position probably had an allophone of nasalization of preceding vowel. Because of the high functional load of this phoneme we recommend substituting English /m/ in all positions, with lip release in the important final position to increase the redundancy
/n/ as in English; before velar consonants /c g/ had the allophone [ŋ], which students will produce without conscious thought because in English the digraph ng more often represents /ŋ/ than it does /ng/. There is no snob appeal in using it.
/h/ in initial position like English but with less aspiration
/j/ in initial position like English /y/. When intervocalic the grapheme j represents /ij/, comparable to English /iy/. The evidence for setting up /j/ as a separate phoneme
rather than an allophone of /i/ is strongly suggestive but not conclusive. For teaching purposes, however, the use of two graphemes would give assistance to the student in recognizing derivatives.

/\w/ in initial position like English /\w/. The same kind of arguments for setting up /i/ and /j/ as separate phonemes also apply to /u/ and /\w/.

There are also four consonant phonemes found only in words borrowed from other languages (except for Catullus 84) and not part of normal Latin speech. There was a series of aspirated stops, sharing features with the unaspirated stops /p t c/. These aspirated stops were written ph, th, and ch. It is clear that these spellings represent neither a cluster of /p t c/ plus /h/ nor the [f θ] usually employed by Latin teachers (although c is not usually so employed). The proof is found in statements by the Romans themselves and by the facts of Greek phonology from which these phonemes were borrowed. This aspiration was affected by cultivated speakers and aspirants to culture (cf. Catullus 84, Chommodus dicidebat etc.). Through false analogy it was introduced into native Latin words, giving pulcher and sepulchrum. The functional load of the contrast of this /\p ʰ ē/ with /p t c/ is not high, and there seems to be no objection to the traditional use of English /f k ɵ/.

The personal practice of the author is to use English /p t k/ for both, but to use the allophones [pʰ kʰ] (as in spill, still, and skill) for Latin /p t c/ and the allophones [pʰ kʰ] (as in pill, till, and kill) for Latin /pʰ ē/.

There is one more rare foreign phoneme /z/, a voiced dental spirant.

Pattern Congruity

Descriptions of languages may differ somewhat if they are done with different purposes in mind. Below is a diagram of the consonant phonemes of Latin, as Hill groups them (p 441), with one important change:

\[
\begin{array}{ccc}
p & t & c \\
b & d & g \\
m & n & \\
f & s & h \\
l & r & \\
\end{array}
\]

Problem. Knowing how Hill feels about pattern congruity, how do you think he actually presented the pattern? There are other
differences between Hill's description and ours. What are they? Referring to Hill's text this time, what difference do you notice in the symbols that he uses and the ones that we used above? Which system is better? Why?

Phonotactics

Permissible consonant clusters are and most of them also occur in English. Hill summarizes the arrangements thus (p 445): "The maximum initial cluster is three, and there are order groups as in English; the first group consists of spirants, the second of stops, and the third of linguals and nasals. In initial position the order must be 1-2-3, but in medial and final position, it may also be 3-2-1 as in English. The mixed and special sequences found in English are absent." He then gives additional phonotactical restrictions which further reduce the number of permissible clusters (example: "No two stops, one of which is voiceless and the other voiced, occur in clusters."). Only a few of the theoretically possible clusters actually occur. There are but five clusters of consonants found in initial position: /spl spr stl scr str/.

Problem. Only two of these clusters are common. What are they? There are seven words in Latin that begin with /stl/. What are they?

Problem. Do all the phonemes occur singly in initial position? If not, which ones do not? Do all the phonemes occur singly in final position? If not, which ones do not? Give examples of clusters of two consonants in final position, then examples of clusters of three consonants in final position. What is the relative frequency of word initial, word medial, and word final clusters?

For practical purposes the study of the phonotactics of Latin shows us that so far there is only one consonant cluster that does not occur in English, the rare /stl/. There is however, one other striking feature of the phonotactics, one that causes the only real difficulty when a speaker of English tries to indicate all possible contrasts. This is the fact that all the consonants except /h j v/ and the imported /p ð t c/ occur as intervocalic geminate clusters. In this it resembles Italian, with its contrast between fato and fatto. It is in sharp contrast with English, which has no geminate clusters.

Problem. In view of the last sentence, how do you explain the existence of the pair later vs latter? Examples of contrast in Latin between single and double intervocalic consonants are colis vs collis, sumus vs summus, and stupeô vs stuppeô. Find other examples of such contrasts, preferably in minimum contrast.
Finally there is the rare foreign phoneme /z/. In poetry we observe that in words that have the grapheme z in medial position the preceding syllable always scans long, as in gaza. We therefore conclude that the grapheme z in medial position stands for /zz/. Single /z/ occurs initially but not finally. To reproduce initial /z/ we recommend English /z/; for /zz/ the easiest solution for a speaker of English would be /dz/.

The Latin Vowel System

Latin has five graphemic symbols for its vowels, a, e, i, o, and u, plus the rare foreign phoneme y. Variant spellings of such words as here vs heri, maximus vs maxumus, optimus vs optumus, satura vs satira, monimenta vs monumenta, libet vs lubet, prōmuntu̇rium vs both prōmuntorium and prōmornu̇rium suggest that there was actually another vowel that was high central. All five vowels, as well as the rare foreign phoneme /y/, may carry the component of length, the functional load of which is extremely high. To ignore this feature is to ignore one of the most important contrasts in the language, as we shall show below.

Schematically the Latin vowel system looks like this:

```
_ i  (y)  u_
      e       o
      a
```

At first glance it would seem that we have a fine fit with English, but we soon discover that complications arise. In the first place, you will recall from p 116 that few Americans have simple /o/ in their speech. The second difficulty is that while /a/ as in pot is common in most of the United States, it happens to be rare in many dialects of eastern New England, where the word is /pɔt/. The production of some sort of contrast between /a/ and /o/, as in omnis vs amnis, is the chief problem in pronouncing Latin for a speaker of English. It is further complicated by the fact that we must distinguish between long and short /a/ and long and short /o/. Many eastern United States dialects, where they do have /a/ and not /ɔ/, have in place of the more common /a/ the complex nucleus /ah/, which would result in a diphthong and hence give a long syllable in poetry.

We therefore may the following recommendations for production of the sound of the Latin vowel phonemes:
THE LATIN VOWEL SYSTEM

/i/ as in English bit /bit/  
/e/ as in English bet /bet/  
/u/ as in English put /put/

For /a/ and /o/, the teacher must analyze the dialect which he and the class employs and find some sort of contrast to use. If the class is heterogeneous, he should be warned that no solution will seem acceptable to all students, some of whom will vigorously maintain (until their ear becomes attuned to it) that he is not making any distinction. Possible solutions for /o/ (which will be a problem in almost every dialect) would be to produce the /o/ found in the sandhi form of going to /gonə/. One might try to get the class to imitate the dialect of costal New England and say whole /hol/, road /rod/, and home /hom/. Martin Joos has suggested to me that in Michigan a possibility would be to ask them to produce the first part of the complex nucleus of coin /koyn/. Since English /o/ in most dialects is never found in its simple form but only in complexes /ow/ and /oy/, students may be expected to produce the name of the grapheme, that is to say, /ow/. Costal New Englanders may use /ɔ/, but they must be sure not to use /ah/; for /a/ they should try to produce a sound between English /æ/ and /ɔ/. No matter what light analysis of the dialects produces, the contrasts must be taught by minimal contrasts, such as omnis vs amnis, obit vs abit, onus vs anus, ob vs ab (and the compound verbs with these prefixes), aculeus vs oculus, ador vs odor, apériō vs operiō, apis vs opis, arcus vs Orcus, artus vs ortus, as vs ōs, aveō vs ovō, aviam vs ovium, avis vs ovis, avī vs ovi, arbōs vs orbōs, and the like. Perhaps the epitaph which Schopenhauer is said to have written for his housekeeper might be useful: Obit anus, abit anus.

The component of length, the ancient grammarians tell us, carried with it a change in the quality of all the vowels except /a/. The closest phenomenon in English to vowel length is diphthongization. For the front vowels we suggest using /y/, so that Latin /i/ is pronounced like English beat /biyt/, Latin /e/ like English mate /meyt/. For the back vowels we may use English /w/, giving a Latin /o/ as in English coat /kowt/ and a Latin /u/ as in English pool /puwl/. For Latin /a/ we suggest English /ah/ as in far /fahr/. Here a complication arises. Many speakers of English use /h/ after /a/ only before /r/. Such students must make a conscious attempt to use /ah/ in other environments in Latin than just before /r/. Conversely, those who have /ah/ instead of simple /a/ in words like father must develop a contrast between words like pater vs mäter and fräter. Because of the high functional load between /a/ and /ählen, particularly in word final position, it might be desirable to use English /ə/.
is the practice of the writer to use English /a/ for Latin /a/ in word final position to increase the redundancy. This seems like an easy solution since Americans normally interpret final written a in English as schwa, as in Coca-Cola /kɔkə kɔkwə/ and alma mater /əhlmə mahtər/.

The rare foreign phoneme /y/ had the sound much like the French vowel in sûr, while /ȳ/ was like that of German kühl. One may teach these unknown sounds or use English /i/ and /ih/. Since /i/ is not common in stressed position in many dialects and /ih/ even less so, the best solution (although certainly not one that will appeal to everyone) would be to simply use /i/ and /iy/, thus ignoring the contrast. The loss of information will be small, since there are no minimal contrasts between /y/ and /i/ that I know of, but it does violence of course to the facts of the language. The writer's own practice is to use the French and German phonemes described above, to encourage students to use them, but not to drill on them or correct students in class who employ /i/ and /iy/.

The diphthongs in Latin cause little trouble. There are only three common diphthongs and five rarer ones. Since English contains twenty-five diphthongs (although no dialect has them all), we should anticipate little trouble finding reasonable substitutes in English, although we must remember that we have used six of the English diphthongs to represent the component of length.

The common Latin diphthongs are written ae, au, and oe, representing, as we know from the statements of the Romans, /ai au oi/. For these we suggest the diphthongs found in English bite /bait/, bout /bowt/, and boy /boi/.

The graphemic system contains five other digraphs, ei, oi, ai, ui, and eu. The observant reader will have already noticed that we have dealt with /ai/ and /oi/ under the digraphs ae and oe, and the digraphs ai and ui are variant spellings. For the remaining three digraphs, ei, ui, and eu we propose respectively the /eh/ as in English mare /mehr/, /uy/ as in the one syllable pronunciation of buoy when it contrasts with boy, and /əw/, as in the English pronunciation of note. Now it is unlikely that your students will have all three of these diphthongs. It seems advisable, therefore, to examine the distribution of these diphthongs to see whether they are frequent enough (or whether the functional load is high enough) to warrant spending much time on producing a contrast. We will list them under the phoneme:
/ej/ is represented by the digraph ei in deinde, diei, and aureis when these words are pronounced as dissyllables, and by ehi in dehinc when the word is a monosyllable. It is found in the genitive of certain proper names (like Oilei) and in the interjection hein. It is most commonly represented by the digraph ej, which is phonemically /ei/; see above, p 129.

/ui/ is found in only four words, but these are the high frequency words huic, hujus, cui, and cujus. It will be noticed that in hujus and cujus there is the same use of the grapheme j to represent /ij/ that we noted in the paragraph above.

/eu/ appears in the common words nev, sev, seu, heu, and in Greek loan words like the four syllable name Illioneus.

It is the writer’s conclusions that although the diphthongs are "rare" in the sense that they do not occur in many different words, they do occur in very common words and that accordingly some sort of pronunciation must be used to distinguish them. Perhaps the hardest would be /ei/, since Americans who do not have /eh/ would give /ey/, thus making it identical with /e/.

To conclude this section on the diphthongs, we will also describe the distribution and the graphemic representation of the common diphthongs /ai au oi/:

/ai/ is most commonly written ae and appears both in the radical element of words and in the inflectional elements. The spelling ai would actually have made the description of the morphology clearer for learners. The digraph ai is an old spelling and is occasionally found in our texts as an archaism, as in the Aeneid 6.747. There is a third spelling, aj, limited to forms of the verb ajó /aijó/.

/au/ appears only in the form au and is found only in the radical element of words.

/oi/ is fairly frequent in the radical element of words, where is has the spelling oe. The spelling oi is an archaism. It is also spelled oj, as in Trójanus /troijanus/.

**Functional Load of Vowel Length**

Since the Romans never settled on any one system of indicating vowel length, classicists, who have traditionally regarded language as written marks on a page, consistently issued texts where the vowel length is not indicated. As a result, most classicists of the present generation are not familiar with the length of vowels in most Latin words and are unaware of its importance. It will be the purpose of
this section to demonstrate the high functional load of the contrast between long and short vowels. The quantity of vowels can be ascertained from the documents in all but a few doubtful cases. This component of length is as much a part of Latin as, say, the contrast between voiced and voiceless stops in English. Indeed, we can understand the Latin sendenzen wid de long marzh, which we know Ladin well enov, but we are brezenda de zduden wid de zame zord of problem dad a voreigner would have in drying do read dis sedenz, in whij de diztingdiamond bedween voiced and voiceless haz been omidded. We can read it, because we know English; how about the foreigner learning English? This comparison is not meant to be facetious. There are five (six, counting /y/) pairs of vowels in Latin set apart by presence or absence of length; there are eight pairs set apart in English by presence or absence of voicing.

From the point of view of the linguist the situation is clear: length is a feature of the Latin language and should be retained. The language teacher, however, who probably does not know vowel quantities, wishes to know whether the effort will be worth the trouble. In other words, what is it good for?

Problem. We will start with an amusing example, furnished by Professors Warren E. Blake. Read aloud the following hexameters, then translate them:

Nescio quid putes, pastor. Cur oblitus ovis mala comes et mora ac conmicta alia rapis?

More familiar is the Mater mea est mala sus, which has the advantage over the former example in that it makes sense either way, while the distich will only scan one way and have meaning one way.

Vowel length distinguishes not only radical elements (like ălia/ālia above) but also members of the paradigm (as in the contrast between ducēris and ducēris). We note the following paradigmatic contrasts:

a) first declension nouns, nominative singular with ablative singular, as in viā/viā

b) certain third declension nouns ("i stems") and most third declension adjectives, nominative singular with accusative plural, as in nāvis/nāvis and omnīs/omnīs (neuters excluded)

c) fourth declension nouns, nominative singular with nominative and accusative plural and genitive singular, as in manūs/manūs (neuters excluded)

1(From p 135) For the facts see J. C. Rolfe, "The Use of Devices for Indicating Vowel Length in Latin", Proc. Amer. Phil. Soc. 61 F (1922) pp 80-98
d) regular third conjugation verbs, second person singular present imperfective passive with future imperfective, as in régérēs/ rēgēris

e) regular third conjugation verbs, second person singular present imperfective passive and imperfective active infinitive with second person singular future imperfective passive, as in regēre/ regēre

f) certain second conjugation verbs, second person singular present imperfective passive and imperfective active infinitive with third plural present perfective active, as in mōvēre/mōvēre

g) certain third conjugation verbs, imperfective active infinitive with third plural present perfective active, as in défendēre/ défendēre, where there is one contrast, and as in fōdēre/ fōdēre, where there are two

h) the verbs that have the double contrast fōdēre/fōdēre also have a contrast in fōdit/fōdit and fōdimus/fōdimus

i) a limited number of first conjugation verb, second person singular present imperfective subjunctive passive and future imperfective active, as in jūveris/jūveris (The only other verbs seem to be adjuvō and lavō)

j) a limited number of heteroclitic adjectives, masculine-feminine nominative singular and complete genitive singular of the third declension form with the dative-ablatīve plural of the first and second declension form, as in hilarīs/hilarīs

k) a limited number of heteroclitic adjectives, genitive singular of the third declension form with the dative-ablatīve plural of the first and second declension form (like the example above, but without the nominative singular), as in violentīs/ violentīs

l) unique contrasts, but ones that are important because of the high frequency of the words involved are found in hōc/hōc hic/hic, alīus/alīus, and quīs/quīs (although the form alīus is rare)

We should point out that the ending -re as a variant of -ris, which appears in (e) is not rare, as one might gather from our edited texts. "In the second Singular, passive, in all tenses of the Present stem, the ending -re is much more common in early Latin than -ris, and is regular in Cic. except in the Pr. Indic., where he prefers -ris on account of the confusion with Pr. Inf., admitting -re only in deponents, and then but rarely. In general, the Pr. Indic. -re is rare in the first and second conjugations, more rare in the third, and never found in the fourth, in prose authors. Post-Ciceronian prose writers, e.g., Livy, Tacitus, prefer -ris, even in the other tenses of the Present stem. The poets use -ris or -re to suit the meter." (Gildersleeve-Lodge, p 89)
The variant -ēre for -ērunt, while not common in prose (except for Livy and later writers) is so common in the poets that it should be taught simultaneously with -ērunt; because it lacks the nt that all other third person plurals have and because it is easily confused with the infinitive, more drill must be given to this form than to almost more than any other. As for its importance, in the Latin hexameter poems there are 2, 183 instances of -ērc against only 557 of -ērunt, and in Vergil there are 231 examples of -ēre, compared with 29 in -ērunt. (Cf. J. Marouzeau, Traité de Stylistique Latine, p 126)

We might have included in (e) and (f) the first imperative passive (regerē and movere), which are homonymous with the imperfective infinitive, but omitted it because of its rarity (figures not available).

Besides these contrasts within the paradigm of the same word, there are many words that are distinguished from another word of the same part of speech by vowel length. There are three types:

m) There are a few items whose paradigms are identical throughout except for the component of length in the radical element of the word, as in pōpulus/pōpulus, condītus/condītus, and vāstus/vāstus.

n) There are more items who have some, but not all, of the forms in the paradigm distinguished solely by length, as in cōlum/cōlum, ēsse/āsse, ēdere/ādere, and vincīs/vincīs.

o) There are items which belong to the same part of speech, have no form of the paradigm in common, and yet are distinguished (in certain instances) by a difference in length in the inflectional element of the words, as in lūcis/lūcis and aurīs/aurīs.

Very numerous are contrasts between words that belong to different parts of speech. There are again three types:

p) The contrast may be in the lexical element. The resemblance in the inflectional element is fortuitous, since what is the inflectional morph of one word may be part of the lexical item of the other, as in vomerē/vomere, where the -re of the first is a morph, but −re of the second is only part of the radical element and part of the inflectional element. Other examples of this type are sērō/sērō, veritās/veritās, mōrī/mōrī, rēgiō/rēgiō, vocēs/vocēs, fūrōr/fūror, and mōrā/mōrā.

q) The contrast may also be in the inflectional element, and here again the contrast in not usually morph against morph. Examples are sītīs/sītīs, gērā/gērā, vērīs/vērīs, amīcī/amīcī (and so most other adjectives of this declension), and comitātūs/comitātūs (and so many perfective participles that have a counterpart in a fourth declension noun).
r) The contrast may exist in both the radical and the inflectional elements, as in secūris/secūris, natis/natis, and juvēris/juveris.

**Problem.** Using the lettering system above, what type of contrast exists in the following pairs?

| ailia/ālia | lātrō/lātrō | sēnsus/sēnsus |
| cānum/cānum | lāvimus/lāvimus | sudēs/sudēs |
| collīs/collīs | lēvis/lēvis | tēnē/tēnē |
| corōnā/corōnā (2) | lūf/lūf | ūrina/ūrina |
| dēlectō/dēlectō | mōlēs/mōlēs | vāgis/vāgis |
| dūci/dūcī | modō/modō | vēnit/vēnit |
| édēns/édēns | -né/-né | vetēre/vetēre |
| émēre/êmēre | nītere/nītere | -vē/-vē- |
| fallēre/fallēre | pāvēre/pāvēre | vidēre/vidēre |
| fātuus/Fātuus | pellēris/pellēris | vēnēris/vēnēris |
| dōnā/dōnā | pīla/pīla | victus/victus |
| fāstus/fāstus | plāga/plāga | villīs/villīs |
| humilīs/humilīs | rēgēs/rēgēs | vērum/vērum |
| indecōrīs/indecōrīs | sēdēs/sēdēs | vsicus/vsicus |
| irritās/irritās | stāgnum/stāgnum | vītī/vītī |

(The authority that has been followed for the long quantities is Walde-Hofmann, Lateinisches etymologisches Wörterbuch, 3d edition, 1938–1954.)

**Problem.** Mark the quantities for both the words which the following items represent. Example: the word that is generally written fides may stand for either fīdēs (noun) or fīdēs (verb). Since there are two nouns, there is a double set of contrasts. fīdēs (faith) vs fīdēs (you will trust) and fīdēs (string) vs fīdēs (you will trust). Forms with asterisk have two sets of contrasts.

| amicus | educes | liber | nomina | potes | solere |
| acer | emi | libro | notus | potis | soles |
| anus | favere | lites | novi | porrigo | soli* |
| ave | femina | lustrum | oblitus | porta* | spira* |
| baro | fervere | lutum | odi | putet | serum |
| cadis | ferimus | mala | ora* | puris | solum |
| callis | foedere | manibus | os | rapis | stipes |
| canes | foris | manes* | orbis | ratis | suis* |
| care | fugeris | mensis | orno | repens | stridere |
| caro | fretum | mea* | ova | ratus | sublimis |
| cecidit | fugimus | mensis | ovis | refert | sudis |
|colo | furis | manet | palam | rota* | suris |
| cedo | inbecillus | malo | pax | sagum | squālus |
| comes* | inermis | molis | palum | serva* | truncā |
| clavis | inerbus | mica | parere* | scabere | titio |
| comis | is | metis | palus | salis | trepida* |
| color* | jugis | mora | pares* | satis | tribus |
| considere | labes | misere | paries | scutula | trudis |
| cura* | labor | memora | pellis* | securi | telo |
| custodis | latus | muris | pedes | seni | teres |
| decori | lavit | nato | pedis | sentis | taliis |
| dico | labrum | ne | penes | sera | teges |
| doli | lectus | nitor | placet | sedere | turba* |
| educes | leges* | nolis | planus | sil | tuber |
In addition to the completely minimal pairs that we have been discussing, there are numerous pairs that are almost minimal, and these cause the learner almost as much difficulty as the others; in fact, in his imperfect command of the language he may actually think that the forms are identical.

Illustration. Liquet/liquit, famem/fāmam, luctor/lūctus

Problem. Gather other examples of contrasts in vowel length, both partially and completely minimal.

Free Variation in Vowel Length

There are a few words and types of words where long and short vowels are in free variation.

Illustration. The most common type is the phenomenon known as iambic shortening. This occurs in certain disyllabic words where a final long vowel may become short, as in herī-herī and amō-amō. It was originally confined to words that had a short vowel in the first syllable, but by analogy included pairs like pācō-pācō.

Problem. Find examples of iambic shortening. In particular, what is the verb form where this is particularly common in addition to the first person singular?

Illustration. The /e/ in videt is short, following a phonological rule that says that a long vowel becomes short before final /t/. In poetry, however, we find such lines as in the first book of the Aenēid, line 308, "qui teneant (nam inculta videt), hominēsne feraene", where the /e/ of videt is long. This phenomenon is called diastole, and is not limited to words where a long vowel had become short in accordance with phonological rules, but is found in such lines as Aeneid 4. 64: "pectōribus inhīans spirantia consult exta", where we must for once concede that the poet acted metri causā. A similar phenomenon is systole, where long vowels are shortened, as in the Aeneid 2. 774: "Obstipui stetēruntque comae et vox faucibus haesit."

The future perfective indicative active and the present perfective subjunctive active have free variation between long and short /i/ in the second singular and first and second plural, as in amāveris-amāveris for both forms.

Finally, we find free variation in proper names, such as Dīāna-Dīāna and Italia-Italia. This happens even in the works of the same author, as when Vergil uses Sychaeus in line 343
of the first book of the Aeneid and five lines later uses Sychaeum.

Problem. Using a conventional grammar or the introduction to a Latin poet where matters of meter are discussed, gather additional examples of both diastole and systole. In what way does this require us to modify our view of the importance of vowel length?

The Importance of Teaching Vowel Quantities

From a theoretical point of view, considering all these contrasts, we would have to conclude that the functional load of the component of length was high and that to ignore it was to disregard one of the most important phonemic contrasts in the language. Experience in the classroom supports this. Students who have been required to produce the contrast between long and short vowels, both in speech and in writing, are unanimous that a text with the quantities marked is far easier to read than one where they are not. Is Latin so easy that we can afford to omit any legitimate help? It is true that a professional classicist will eventually have to learn to read from unmarked texts, but through the redundancy he will be able to reconstruct the correct quantities. One reason for the inability of classicists to read Latin may well be that in reading unmarked texts they are dealing with ambiguities which originally never existed. Latin is by nature a language with considerable ambiguity (no noun form, for example, has all the possible cases, and except for some nominative singulars, all the noun forms have a resemblance, either real or specious, to other forms in the morphology), and the deliberate insertion of additional ambiguity makes it difficult indeed. Our recommendation, therefore, is that every text printed in the future indicate vowel length.

Suprasegmental Phonemes

We know much less about the suprasegmental phenomena of Latin than we do the segmental phonemes, although some of the work now being done suggests that we may discover rather more about them in the future. Key articles are A. A. Hill, "Juncture and Syllable Division in Latin" (Language 30, 1954, pp 439-447), Henry M. Hoenigswald, "A Note on Latin Prosody: Initial s Impure after Short Vowel" (TAPAPA 80, 1949, pp 272-276), Maurice P. Cunningham, "Some Principles of Latin Phrasing: Quintilian 11. 3. 35-38 on Aeneid 1. 1-3" (CW 47, 1953, pp 17-22) and "Some Phonetic Aspects of Word
Order Patterns in Latin" (PAPA 101, 1957, pp 481-505). The chief facts that emerge are as follows.

Stress was not phonemic since it could be predicted. The stress fell on the next-to-last syllable of a word if the syllable was long, otherwise on the syllable before. A long syllable was one that contained a long vowel, a diphthong or ended in a consonant; a single consonant was pronounced with the following vowel, while doublets and triplets were split (usually). Dissyllabic words were accented on the first syllable. This predictable (and hence non-significant) stress contrasts with English, where it is non-predictable and therefore significant and phonemic. Apparent exceptions are nostrás, illíc, tantón, vidén, fümát, Vergílii (data from lecture by Fred W. Householder in Ann Arbor, 1958). These are explained however as contractions which retained the stress of uncontracted forms: nostrátis, illíce, tantöne, vidène, fümávit, and Vergílii.

Problem. Hill (p 442) posits three grades of stress. Discover the basis for this assumption and evaluate the conclusions.


Problem. How can we say that stress is non-phonemic? If it falls on the next-to-last syllable except under easily defined circumstances, then doesn't it determine word boundaries and is hence significant?

About pitch we know little, so little, in fact, that it is still sub júdice whether the "accent" spoken about in the previous paragraph of the text was stress (as assumed there) or pitch or perhaps a combination of the two. Therefore a number of statements by the Romans themselves that are still puzzling to us, and in these may lie the secret.

Problem. To examine some of these statements might be rewarding. One could start with Cunningham's article, "Some Phonetic Aspects, etc." Other places to look would be in Priscian, Books One and Two (Book One is on phonology entirely, Book Two is partly on phonotactics), Martianus Capella (3.60 & 63), Diomedes (2.428), Jerome (praefátiō to Isaiah).

We are a little bit better informed about juncture, or to phrase it perhaps more accurately, many of the statements of the ancients have been interpreted in terms of juncture, although it may well be that they can be shown to apply
to pitch and stress. Juncture, then, apparently distinguished word boundaries; this at least is the general concensus of opinion, based on such passages as Priscian (2.3.14), where he says that vīrēs is different from vī rēs. We thus equate this with English /+/, although it should be stressed again that this does not commit us in any way to accepting any belief that it was phonetically like English plus juncture. If we do not accept /+/, then we must consider that stress is phonemic and marks the word boundaries.

Problem. Interpret Priscian's remark in terms of stress (or pitch) and not juncture. How do the other remarks of the ancients fall into this concept?

Other passages (they are gathered in Cunningham's article, "Some Phonetic Aspects, etc.") seem to indicate that there were three other junctures, also rather similar to English in their signification, if not their distribution. There was, according to Quintilian, a juncture of /#/; in discussing (11.3.38) the opening lines of the Aeneid, he says: "Cum illuc vēnerō atque altae moenia Rōmae, dépōnam et morābor et novum rursus exōrdium faciam" ("When I came to the part atque altae moenia Rōmae, I would drop my voice and stop and make a new beginning."). The dropping of the voice and the cessation of speech, as well as the signification, correspond to English /#/; although at the risk of being tiresome we should reiterate that the acoustical phenomena associated with English /#/ would probably sound strange to Roman ears, just as English /b/ or any of the rest of the phonemes. Augustine (Dē Doctr. Chr. 3.3.6) tells us that questions without any interrogative words could be distinguished from graphemically identical statements and that such questions expected affirmation or denial (like English yes-or-no questions), and furthermore that they were distinguished by their pronuntiātiō. If we assume this to be juncture, we may assign it the symbol /II/. Finally, there is a sentence in Quintilian (11.3.36), again discussing the opening lines of the Aeneid, which seems to show single bar juncture. We will give only the most pertinent parts: "Suspenditur arma virumque canō, quia illud virum ad sequentia pertinet, ut sit virum Troiae quī prīmus ab ērīs... Tertīō Itāliam, quia interjectionē est fatō profugus et continuum sermōnem, quī faciēbat Itāliam Lāvīnaque, dīvidit" ("The phrase arma virumque canō is set off because the virum belongs with what follows, as if the order were virum Troiae quī prīmus ab ērīs... There is a third pause (in the omitted section Q discusses a pause after ab ērīs) after Itāliam, because fatō profugus is an insertion
and separates the continuous flow of speech that we would have had with \underline{Italiam Lävinaque."}.

Hill ("Juncture and Syllable Division in Latin") argues that (+) not only marked word boundaries but also sometimes occurred internally; thus when the grammarians tell us that \underline{potestás} should be split between the \_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, they are describing /pote + stās/. Such a juncture would permit a phonological rule as follows: "Two true vowels are always separated by a consonant, by length, or by a juncture" (p 445). In a word like \underline{adscribō}, Hill would explain the lack of assimilation (the fact that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ does not become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) by the presence of plus juncture.

We now return to our central thesis: in what way does a knowledge of the contrasts between English and Latin suprasegmentals help the Latin teacher? In the first place it seems clear that however much we may discover about the phonemic quality of the Latin suprasegmentals, we will not learn enough to make it practical to make the effort to teach them. There are therefore only two solutions apparent. One is to read Latin in a monotone with as few suprasegmentals as the human mechanism can produce. This seems intolerable. The other is to continue to do what most of us have done in the past, to read with the suprasegmentals of our own language. The contribution which linguistics has to make is to make the teacher aware of exactly how much information is being given when the Latin is read "with expression". It should also end the jejune arguments about which nationality pronounces Latin more correctly.

Illustration. See the report by Ernst Pulgram on the Congress for Living Latin, in CJ 195-. Also compare the rejoinder by Goodwin Beech. Does Pulgram make his point successfully? What about Beech's reply? Of course, if Latin were adopted as an international language, then some uniformity in suprasegmentals would have to be reached and "informants", skilled in reproducing them, would then produce model tapes for the rest of the world to imitate.

As an example of the type of distinction which seems hardly worth the effort to imitate, we are told by Augustine (Dé Doctr. Chr. 3. 4. 8; data from Cunningham's article) that in the sentence Propterea consölāti sumus frātrēs in vōbīs the frātrēs is ambiguous and that the suprasegmental features do not tell us whether it is accusative or vocative. In English of course, calls are set off by juncture. It would seem like a useless tour de force to attempt to teach students to pronounce Consölāti sumus, frātrēs, in vōbīs exactly like Consölāti sumus frātrēs in vōbīs.
Removal of Ambiguities through Suprasegmentals

There are numerous ambiguities in written Latin which the use of English suprasegmentals will remove. In some cases study of the segmental phonemes, as revealed by the graphemes, will show that the ambiguity is only apparent; at other times true structural ambiguity will exist, but the contextual orientation will prove that only one interpretation is possible; and at still other times there will be real ambiguity, where the reader must choose one meaning and by use of the appropriate suprasegmentals indicate which meaning has been chosen.

Illustration. There exist in Latin many ambiguous forms; in fact, there are very few noun forms (except for the nominative singular of the third declension) whose shape marks them as belonging to one case and number. Frātrēs, for example, can be three cases; puellae can be four; and the dative and ablative plural are always alike. Furthermore, puella is not only truly ambiguous (nominative singular or vocative singular) but for the beginner may easily be confused with the nominative-accusative plural of neuters. When we ask a student to read the Latin aloud "with expression", we in effect ask him to comment on the case (and syntax) of many of the nouns. This is what Quintilian means (although of course he was referring to the Latin suprasegmentals) when he said that a student could not insert the proper suprasegmentals if he did not understand what he was reading: "Unum estigit quod in hac parte praecepiam: ut omnia ista facere possit, intellegat (1.8. 1-2)." If a student, for example, places /w/, /l/, or /k/ between genus and unde Latinum in line six of the Aeneid, it is plain that he does not know that unde is postpositive and that Latinum modifies genus.

There is a rare sentence type in English (but "rare" in structural items still means that it is entirely familiar to all speakers, although perhaps not used by them all) illustrated by "Talent Mr. Micawber has!" This is read with double bar juncture between the first and second words, thus marking them as object and subject. (It may be remarked in passing that in poetry this order of OSV may be truly ambiguous and the ambiguity cannot be removed by suprasegmentals, as in "All the air a solemn stillness holds."). We therefore read such lines as Aeneid 1. 185 with the same juncture: "Hōs || tōta armenta sequuntur." It may well be argued that the sentence is actually entirely unambiguous and to insert such a redundant feature as double bar juncture is to shift attention from the morphological (and peculiarly Latin) signals of case to the suprasegmentals (which are actually English). This is quite true, and here rests our case. The teacher who knows what help is given by these suprasegmentals will know how to handle the situation better than one who innocently believes that all that has been done has been to read "with expression". To turn aside for the moment to method, one might have the student read the passage to determine whether he has understood the morphological signals (of course, one would expect that at this level the students could interpret such a simple
sentence, but this is given exemplī grātia and a simple instance was chosen deliberately. Or Latin question and answer would serve, as "Quōs alia animālia sequuntur?" for which a proper answer would not, of course, be hōs but rather ducēs.

A real ambiguity, resolvable from context, exists in the type of sentence mentioned by Augustine, where there is no question word present but where the context reveals that it is a question. An example (there are many) would be Terence Ph. 858: Tū quoque aderās, Phormiō? We would be mistaken, however, if we assumed that a student understood the structure just because he read it with the (correct) /2 3/ contour. In English there exists a similar type of sentence You're going to the movies, read with /2 3/ contour when a question mark follows and with /2 3 1/ when a period follows. In choosing what appears to be the proper suprasegmental to read the Latin sentence the student only shows that he reacted properly to the question mark; it does not show that he knew anything else about the structure. On the other hand, if he reads Aeneid 1.348 ("Quōs inter medius vēnit furor") in the proper fashion ("Quōs inter medius + vēnit + furor") instead of "Quōs + inter + medius" has shown that he understands the comparatively difficult fact that inter governs the preceding word quōs and not the following word medius.

Finally, an example of a true ambiguity not resolvable from context in any final sense, is found in lines 246-7 of the second book of the Aeneid:

Tunc etiam fātis aperit Cassandra futūris
ōra dei jussū nōn umquam crēdita Teucrīs.

Printed in this way and read with plus juncture only between ōra and dei the sentence is ambiguous: was it Cassandra herself or just her words that were deemed to be nōn crēdita? The situation parallels that of The sons raise meat discussed above (p121). In our edition of Vergil we have inserted a comma between ōra and dei to indicate that it is Cassandra who is nōn crēdita, and that the line should accordingly be read with double bar juncture between these two words. Without this juncture the line remains ambiguous. Whether it is better to retain the ambiguity or not is a question of aesthetics and beyond the scope of this book. A similar example may be found in line 28 of Book One, rapti Ganymēdis honōres, but it is different in two ways: the ambiguity may be removed whichever interpretation one adopts through suprasegmentals but not through punctuation.

Problem. What are the two interpretations? Write the line with junctures to show each interpretation. Is it possible to read the line ambiguously?

Problem. In a Latin author find examples of the following ambiguous constructions: a) subject-object with a transitive verb, b) post-positive et, c) predicate nominative, and d) genitive between two nouns. Indicate how suprasegmentals can distinguish.
In the Illustration above the phrase Quōs inter was written /quōsinter/. This is our suggestion for the phenomenon known as elision, to remove the plus juncture. Whether the facts will support such a suggestion will depend upon further investigation.

Illustration. Here is a transcription of the author's reading of the opening of the Aeneid with the junctures marked. It should be observed that other combinations of juncture are permissible; remember that even in enumerating a list one may use in English either single bar or double bar (cf p 121).

Arma + virumque + canō | Trojae + qui + prīmusabōrīs |
Italiam | fātō+profugus | Lāvīnaque+vēnit ||
ītora | multumilleet+terrīs+jactūtusetaltō |
vī+superum || saevaee+memorem+Jūnōnisobīram |
multa+quoqueet+bellō+passus | dum+conderturbem ||
inferretque-deōs+Latiō | genusunde Latīnum ||
Albānīque+patrēs | atquealtae+moenia +Rōmae#

It will be noted that elision of vowels has been treated in a way similar the elision of consonants, namely by omitting plus juncture. The obvious phenomenon in poetry that we call elision is puzzling. As long as one is concerned only with marks on paper, it is comparatively easy to state the occurrences of elision. But if one thinks in phonetic terms or, in our case, tries to devise some practical solution to turn the marks on paper into speech and particularly into the musical variety that we call poetry, real problems exist. The traditional view, that the first vowel (except for certain instances, where it was the second one) disappeared, could be true, one would suppose, only if there was no juncture intervening. And yet there are many clear examples of vowel elision across what must have been juncture boundaries, or, to face up to our peculiar problem, what would be juncture boundaries if we read with English suprasegmentals.

Illustration. In the following passages the junctures have been marked according to the system indicated in the previous pages. Notice that there is elision across both double bar and double cross juncture; we have omitted examples of elision across the other junctures as being too common to note.

Mediās aciēs mediōsque per ignīs
invēnēre viam#At, crēdō, mea nūmina tandem
fessa jacent , odiīs aut exsaturāta quiēvī. (Aen. 7. 296-298)
Nec minor in castris luctus Rhamnéte repertō
exsanguī et prīmis ūnā tot caede perępbris
Serrānōque Numāque#Ingēns concursus ad ipsa
corpora... (Aen. 9. 452-455)
Clāmōre incendunt caelum Trōesque Latīnique#
Advolat Aenēās vāgīnāque ēripit ēnsem. (Aen. 10. 395-896)
Nunc etiam horribili visū portenta sequuntur
et sociī amissī petīē'runī aethera pennīs
flūminibusque vagantur avēs (heu! dīra meōrum
subplicita!) et scopulōs lacrimōsīs vocibus inplent. (Aen. 11. 271-
274)
Ergō iter ad rēgem pollūtā pāce Latīnūm
indicit prīmis juvenum et jubet arma parārī,
tūtāri Itāliam, dētrūdere finibus hostem;
se satis ambōbus Teurcisque venīre Latinīisque#
Haec ubi dicta dēdit divōsque in vōta vocāvit,
certātim sēsē Rutulī exhortantur in arma. (Aen. 7. 467-472)
Genitor mihi tālia namque
(nunc repeto) Anchīsēs fātōrum arcāna relīquit. (Aen. 7. 122-123)

In view of these facts we suspect (but have not investigated to prove) that this
elision of vowels was actually the omission of juncture. This may have been the
sort of thing that Gildersleeve had in mind when he said (Gildersleeve-Lodge,
p 453): "Elision is not a total omission but rather a hurried half-pronunciation,
similar to grace notes in music."

Evaluation of the Reconstructed Pronunciation

The reconstructed pronunciation which we have suggested will be easy for the
students to learn, since it is built upon the English phonemic system; it also is
a reasonable approximation of the pronunciation of literary material which
originated at the beginning of the Christian era. To attempt to imitate the Roman
phonetic qualities further would lead to the ridiculous position of having to shift
the pronunciation when reading different periods. We should explain to our
students the basis of our pronunciation and explain that to an educated Roman
our pronunciation would presumably be intelligible in the main but marked with
a heavy foreign accent.
**Problem.** What would cause the "heavy accent"?

One may reasonably wonder about aesthetic considerations. Does the Aeneid as we read it sound the way Vergil intended it to sound? The answer is obviously in the negative, but there seems to be little that we can do. With the greatest of effort we could never capture the phonetic qualities of Latin. We have probably all heard a foreigner read English poetry effectively in spite of the unaccustomed accent. Finally we may take some comfort in the fact that the difference between our pronunciation and Vergil's is surely no greater than a modern reading of Hamlet compared with the actual pronunciation of Elizabethan England, when foot and out both rhymed with modern day boot, fit sounded like modern feet, reason like modern raisin, and so forth.

The Church or Italian pronunciation is not as efficient as the one suggested because it does not make all the possible contrasts. To use \( \text{æ} \) and \( \text{ɛ} \) as allophone of /æ/ offers no difficulty whatsoever. To use \( \text{z} \) as an allophone of /t/ before /i/ again results in little loss of information, since /z/ is so rare. But great difficulties arise in the vowel nuclei. To take one example, the phonemes /ε æ/ and the diphthong /æe/ are homophonous in most varieties of Church pronunciation. Hence if one wishes to use the Church pronunciation he must find some way to cope with these difficulties and devise drills. In passing we should note that there is no standard Church pronunciations, although some varieties have more prestige than others.

**Recommended Spellings of Latin**

So far we have been considering the most efficient way to convert the written page into the rumble of speech. We will now turn our attention briefly to another problem: out of the welter of manuscripts and texts, what is the most efficient graphemic system to adopt? Unless one wishes to present facsimiles of manuscripts (which still would not represent classical practices), the editor must do something towards normalization of the text, even if it is only filling out abbreviations and including punctuation. We incline to the view that a course of Latin study should attempt to use the same system of spelling throughout. We therefore make the following suggestions.

For punctuation, one should use the marks that represent as best as possible the suprasegmentals of the readers' own language. There is no other authority to follow. In the past American editors have often blindly followed European
editions, using punctuation that was either meaningless or misleading to Americans.

For spelling we would urge several practices which should materially aid the learner. The first, as the reader will guess, is to mark the long quantities in all texts published in the future. The second is to use an apostrophe to indicate a shorter variant, such as mandā'sset for mandāvisset. This grapheme, however, does not necessarily indicate a contraction, for we would use it for vinc'ulum, which is not a contraction of vinculum at all but rather the original, from which vinculum developed an anaptyctic vowel. The writing of mandā'sset, therefore, does not commit the editor to the view that the word is a contraction of a longer form but merely calls attention to the fact that it is a shorter variant. (See the review of Latin: A Structural Approach by Robert Godel in Kratylos, 1959, p 191.)

The third suggestion is to use unassimilated forms for prefixes as far as possible in order to indicate more clearly the morphology. In using such a MORPHOPHONEMIC spelling one would write accēdō, which the students would pronounce /accēdō/. In the past there has been considerable variation, such editors using assimilated forms, others unassimilated part of the time and assimilated the rest of the time.

Illustration. F. A. Hirtzel, in the OCT Vergilīs consistent in his use of assimilation. We applaud the consistency but argue that it is more difficult for the students (see below). In the same OCT series, S. G. Owen, editing Ovid, writes impulsum (Ex Pont. 4. 10. 16, Tr. 1. 9. 19), in contrast with Hirtzel's impulsus (Aen. 12. 856 and G. 2. 211) and the impulsus of Wickham and Garrod in their Horace (O. 4. 6. 10). The same inconsistency may be noticed in Postgates Corpus Poetarum Latinorum, where the Ex Pontō and Tristia sections have impulsus (as one might expect, since they were done by Owen) but where the Fasti, done by G. A. Davis has impulsus (as in 2. 112), while the Metamorphoses (by G. M. Edwards) has in its turn impulsum (4. 29). Did Ovid write impulsus at one period of his life and impulsus at another?

We see the same confusion when we compare different texts of the same author. The OCT Horace (Wickham and Garrod) has impubem (O. 2. 9. 15), but the CPL (Gow) has impubem.

More confusing, however, is lack of consistency by the editor. Although Owen, as mentioned earlier, writes impulsum, he has the assimilated form in impia (Tr. 3. 9. 9) but immōtas (Tr. 3. 10. 38). A difference between the two kinds of in- prefixes? Apparently not, for he writes subbrueris in Tr. 3. II. 23 but surripiam in Ex Pont. 4. 2. 40.
The advantages of a consistent morphophonemic spelling for the prefixes would seem to be as follows. Students have trouble, experience shows, in recognizing the morpheme /ad/ in such as form as /accēdō/. To spell the word adēcíō therefore helps him. The question to answer is obviously whether such aid is legitimate. In the first place, we find texts with such a spelling. In the second place, if we use an oral-aural approach the student will constantly be asked to produce /accēdō/ from the written adēcíō. He will therefore learn the principle of assimilation better than if the spelling is accēdō, where the only check is for the teacher to ask him for a morphological analysis of the word.

This morphophonemic spelling would also include the use of conferō for /cōnferō/ and instructō for /instructō/, so that the students would know that the con and in are the same items as in contulit and intulit. The students would know that all vowels become long before /nf/ and /ns/, as testified by Cicero (Or. 48. 159).

We had originally intended to use only forms actually attested by Harper's, but oddly enough that led into an inconsistency of its own. If one writes occīdō (which Harper's attests), then is it not pedantry to write occēdō since Harper's does not give it but only occīdō?

**Problem.** What would the reaction of a student be who all through his course had had this morphophonemic spelling when he first saw the spelling accēdō (or accēdo, without the macrons)?

Finally, we would propose the following minor variations from common practice: the use of hoc and hic before vowels where the meter requires a long syllable in place of conventional hoc and hic or abominable hōc and hīc, as in hoc erat, the use of conjicit for the more common conicit or cōnicit, as in Aen. 9. 411; and the use of abjete for abiete, when the meter shows that it is trisyllabic (as in Aen. 2. 16). The use of hoc and hic is substantiated by statements by the Roman grammarians, although Hill interprets the evidence to show /hoc + erat/. We have the express statement of Servius (ad Aen. 9. 411) that he read cōnicit and that this was the old form of conjicit. If one wishes to, one can ask the students to produce [cōnicit] when they see /conjicit/.

This spelling has been used in Vergil's Aeneid: A Structural Approach, and it is likely that the average teacher would not even notice the spellings, since they have met most of them before, one way or another.
Importance of Understanding Latin Phonology

Only by understanding the facts set forth in this chapter can the teacher make a reasonable judgment on what kind of pronunciation to use in order to make an oral-aural approach efficient. It will permit intelligent criticism of systems of pronunciations now in use and will indicate clearly why certain contrasts are made and others ignored.

Problem. An understanding of phonology indicates that some information is lost when all possible contrasts are not made. What possible contrasts are seldom made by Latin teachers? How much information is thereby lost?

Problem. An article on Latin was recently submitted by the publishers to a classicist for "vetting". Where the author had listed the consonant phonemes, the expert noted that he had forgotten k, q, and x. Comment on the expert's attitude toward linguistics. Why, in his opinion, had the author used the word phoneme?

Problem. When a teacher says, "Johnny, decline puella", what language is the word puella? Write the usual pronunciation. What is its syntax? Is it subject or object?

Problem. Read the article in the Oxford Classical Dictionary on Pronunciation, Latin. What differences do you note in treatment between it and that given in this book? Do the same thing for the section marked Phonemes under Latin2, Structure of Latin in the Encyclopedia Americana, by Fred W. Householder. Make the same sort of observation on the treatment there with the first two.

Problem. Support or refute in linguistic terms the following observation "I feel that most scholars I have heard read Latin aloud try to indicate grammatical relationships by means of vocal manipulation, especially in cases of complex and involved word order patterns. This seems otiose, since grammatical relation is expressed in Latin primarily by morphological means." (Cunningham, "Some Phonetic Aspects, etc.") Read the article and determine whether he means phonetic or phonemic.

Problem. Recent articles on elision were the following: L. Brunner, "Zur Ellision, etc." Museum Helveticum 13, 1956, pp 185-192; J. Soubiran, "Elision de monosyllabes", Pallas 4, 1956, pp 29-40; J. Soubiran, "La structure du vocab. Lat.", Revue des études latines 84, 1956, pp 39-40. Examine these to see if they support or refute the theory of plus juncture outlined above.