REPORT
OF THE ELEVENTH ANNUAL
ROUND TABLE MEETING
ON LINGUISTICS
AND LANGUAGE STUDIES

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Foreword

The Eleventh Annual Round Table on Linguistics and Language Studies was held on April 8th and 9th, 1960, at the Edmund A. Walsh School of Foreign Service, on the campus of Georgetown University. It was gratifying to see the opening of the second decade of this series marked by a record attendance and participation. This monograph reproduces all the papers and talks given at the Eleventh Round Table, along with selected portions of the discussions that followed.

Once again, our thanks go to the Administration of Georgetown University, and of the Institute of Languages and Linguistics for making the meetings possible. Particular thanks are due to Robert P. Fox, and to the assistant editor of this monograph, Allene Guss.

— Bernard Choseed, Editor
Introduction

Welcoming remarks by the Reverend Frank L. Fadner, S.J., Regent, School of Foreign Service, Georgetown University.

Ladies and Gentlemen, Colleagues:

I am sure you will all agree that the subject matter of this year's conference will prove to be most thought-provoking. You are being asked to turn your thoughts to the role of the linguist in the interpretation of literature and culture, his rightful place, therefore, in the classroom as an aid to the enlightened teacher of language.

In such a frame of reference it is gratifying to note that the young science of linguistics runs little risk of degenerating into the inert pedantry of formalized jargon. This consciousness of the hook-up with human life and learning — as indicated in the catalogue of subjects to be considered in the course of these sessions — is a constant guarantee against the onset of empty and sterile formalism.

In the name of the Very Reverend Edward B. Bunn, President of Georgetown University, I consider it a distinct honor to welcome you old and new friends to the Eleventh Annual Round Table Meeting sponsored by the Institute of Languages and Linguistics of our Edmund A. Walsh School of Foreign Service. May God bless you in all your deliberations.

Welcoming remarks by Professor Salvatore J. Castiglione, Director, Institute of Languages and Linguistics.

I am very pleased to extend to you, on behalf of the Institute of Languages and Linguistics, a very cordial welcome to this Eleventh Round Table Meeting on Linguistics and Language Teaching. I thank all of you for coming to this meeting, but I extend a word of special thanks to the members of the various panels and to the luncheon speakers. I express my gratitude to Professor Choseed for his tireless efforts in attending to the numerous details of organizing this meeting. To him and to the faculty and staff members who have helped with the arrangements go my warmest thanks.
As we embark on the second decade of Round Table Meetings, I find myself thinking of the first of the meetings in this series, held in April 1950. The Round Table Meetings that have been held in the intervening years have, it is true, attracted ever larger numbers of participants and have covered a wide variety of topics, but it was that first meeting, it seems to me, that set the basic pattern for all subsequent meetings. I recall quite clearly that at the 1950 meeting the participants did indeed sit around a table (in what was until recently the Institute’s Multi-Lingual Conference Room, at 1719 Massachusetts Avenue), that the papers which were read were followed by very stimulating discussions, and that the feeling prevailed that here was the kind of meeting that permitted those in attendance to be truly active participants. Proof that many of those who have attended the first ten Round Table Meetings have availed themselves of the opportunity to join in the discussions is found in those volumes of the Monograph Series which contain the Reports of the meetings, consisting of both the papers read and accounts of the subsequent discussions. It is a well-known fact that these Reports contain many very worthwhile contributions by some of the world’s most eminent scholars in the field of languages and linguistics.

Today, ten years after that first meeting, we are assembled in a considerably larger room. I am pleased that it has been possible to reproduce the physical aspect of the "round table"; I am confident that the traditional "round table" spirit will prevail throughout this meeting, as we listen to our colleagues’ prepared remarks and exchange views with them.

It is my wish that you will derive much satisfaction from this meeting and that you will be on hand for many such meetings in the future.
PANEL I

LANGUAGE AND MEANING
I. Introduction

When an individual is asked on a particular occasion to assign a meaning to an expression, he usually experiences little difficulty. At a more sophisticated level the scientist might without too much trouble investigate classes or types of meaning, causes for certain related events, or a theory to explain a certain phenomenon. But when the philosopher of language or of science attempts to formulate some general principles for, or behavior of, meanings, causes, or explanations, he is usually greeted with a stubborn opacity. Somehow, the reasons for why or how expressions mean, or how theories explain, seem always to elude us; what it is in, or about, an utterance which permits it to mean, in the peculiar way that linguistic expressions mean things, seems to be impossible to capture or characterize.

This is not to say that there has been no progress at all in our understanding of how expressions are used. Certain classical distinctions have proved to be of lasting interest: thus, we would all, I am sure, agree that one must differentiate between the denotation, or reference, of a term which denotes and the connotation, or meaning, of terms, or perhaps of all expressions, and it is now quite commonly recognized that not all expressions denote. But while much formal analytic work has been done in the theory of reference, say by Tarski or Martin,\(^1\) the notion of connotation has not yielded to analysis in a like manner. There are some more or less ingenious studies of synonymy and of significance, as for example those of Quine or Goodman,\(^2\) but more often than not they have provided us the negative knowledge that, whatever else we might think about meaning, there are certain things it can not be. It is quite valuable

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to know why we must not confuse meaning, in its ordinary sense, with
reference, or naming, or with emotional significance, or, as in Os-
good, the so-called "semantic differential", or, as in Skinner, with
the disposition to behave in certain ways; but these clarifying distin-
tinctions do not really advance our understanding of meaning itself
very much.

On the contrary, what these distinctions have done so far is re-
move entirely from the area of semantics certain aspects of linguistic
behavior so that they might better be treated as a part of another
discipline, say of the logic of reference or the psychology of associa-
tion or motivation. And for the moment there does not seem to be
any other prospect than the further chipping away of other aspects of
"meaning" and the analysis of these aspects within other sciences.
This is simply to say that there is at present no compelling reason to
believe that there is such a thing as a science of meaning.

Now one of the prime motivations for engaging in linguistic re-
search is the linguist's conviction that by studying the formal, or
syntactic, features of sentences he can somehow clarify at least
some aspect of meaning. We might formulate this conviction in
another way: to make sense of meaning one might ask what sort of
device would be required to understand natural-language sentences
the way people seem to. The linguist suggests that such a device,
accepting as input the individual sentences of some language, to-
gether with its grammar and perhaps also many other things, might
yield as output for each presented sentence a kind of structural
description of that sentence. If, then, he could find a device which
correctly assigned to each sentence its proper structural descrip-
tion, these descriptions, together with, say, the meanings of certain
words in the sentences, might serve as a formal analysis of the
meanings of the sentences.

---

3Osgood, C. E., G. Suci, and P. Tannenbaum, The Measurement of Meaning

See also a critical review of the latter by Chomsky, N. A., Lg. 35 26-57
(1959).

5For details of this view, see Chomsky, Syntactic Structures, S-Gravenhage:
Mouton & Co., 1957, esp. Chapt. 6, also Lees, R. B., The Grammar of
English Nominalizations, Bloomington: Research Center for Anthropol-
ogy, Folklore, and Linguistics, Publ. #12, 1960 (IJAL 26 #3 Suppl.).
Such a proposal attempts to study sentence-meanings in terms of word-meanings, or at least in terms of certain word-denotations, together with the grammatical structure of sentences. It might, at least for the time being, be quite therapeutic to focus our attention onto sentences and away from individual words, at least until the role of grammatical description in determining the meaning of a sentence has been specified. We might then say that certain terms are first learned by the child as denotative expressions from the extra-linguistic context in which they are used, but that then the great majority of words acquire meanings for him from their use in defining or quasi-defining linguistic contexts within sentences. Underlying this entire process, however, is his as yet unexplained ability to acquire the grammar of his language from the sentences he hears.

One of the specific tasks of the linguist in attempting to provide a grammatical foundation for our understanding of meaning is then to give a syntactic analysis for certain apparently semantic notions, whenever possible. The reason this would appear to be an effective research program is that, if successful, it would explicate a previously unclear notion on the basis of well-accepted grammatical primitives and formally justifiable principles of grammar construction, both of which can be legitimized on semantically independent grounds. For example, it is possible that the problem of explaining how sentences mean might thus be reduced to the simpler problem of the meanings of "kernel sentences"; and if the number of kernel sentences in a language is finite, as may well be the case, this reduction would represent a huge gain in insight. It is within the context of these remarks that I shall attempt to show how one might formalize an important concept usually thought of in exclusively semantic terms.

This is by no means a new kind of program. We have on many occasions seen the favorite explanations of the grammar-school English teacher criticized with varying success by linguists. The usual charge is that the definitions of the parts-of-speech are notional and therefore vague or unworkable. And the usual proposal, again with varying degrees of success or plausibility, has been that categories must be redefined in terms of directly observable, if possible, even physical, features of expressions. For example, the teacher is enjoined to avoid such semantic formulations as that of

6 Lees, op. cit., footnote 60, p. 176.
"noun" as "name of a person, place, or thing" and to offer instead the presumably more scientific, "formal" explanation of "nouns" as "words which do (or perhaps only can) take an ending -s, or the like"; and if she can manage a more sophisticated analysis, to add the notion of "nominal" as "expression which does (or can) replace the latter words". I cannot take the space here to discuss these contemporary proposals and why they are in many ways little or no improvement over the older and equally true, or, as the case may be, false, view of grammatical categories, except to remark that the idea of formalization which I have in mind for this study is a far more sophisticated one than is presumed in the explanation of "noun in English" as "word before -s".

One point about scientific explanation is essential for understanding. To formalize the notion "noun" it is not necessary to provide an automatic method to decide for any arbitrarily selected expression whether that expression is a noun, as has been quite generally presumed both by the old-fashioned grammar-school teacher and by the new-fashioned linguist. But to formalize, or explicate, any but the most trivial grammatical notions, it is necessary to presuppose the idea of "a grammar of English" (that is, for an English grammatical notion). The latter I take to be, briefly, that finite set of rules of a certain form which correctly generates the infinite set of grammatical sentences of English in a certain way. For reasons of space limitation, I must in the following presume some familiarity with at least a few technical details of grammar construction and validation.

Thus, to finish off this parenthetic discussion on formalization, we would say that the notion "noun in English" is then given exactly by: "any morpheme (or word, as we wish) which is an expansion of the English grammatical category N in an English grammar, or a transformational replacement of the latter".

II. The Concept of "Modifier"

A. Endocentric Non-Head

The notion for which I seek an analysis here is the important concept of "modifier". The idea of one expression modifying another

\[\text{Chomsky, Syntatic Structures.}\]
is, I suppose, quite ancient, and it certainly underlies the old-fashioned definitions of adjective and adverb as, respectively, "word which modifies a noun" and "word which modifies a verb, adjective, or another adverb". There is an unmistakable plausibility about these notional definitions which demands analysis, but so long as "modifies" is taken in its usual semantic sense of "limit or restrict the meaning of; qualify", we can expect little clarification.

When the term "modifier" is used in grammatical works which attempt to avoid the use of semantic notions, it is nearly always taken to be roughly equivalent to "subordinate element of an endocentric construction", to use Bloomfield's terms. This no doubt underlies Jespersen's notion of "rank" within the distinction of "junction" versus "nexus". Hockett simply accepts Bloomfield's analysis, using the term "attribute" for a non-head in endocentric constructions. Both Hill and Francis are more difficult to interpret; the latter, for example, tries simply to describe certain syntactic constructions which are typified by, or are expansions of, minimal two-word cases, and one of these is called the "structure of modification", including adjective-noun, adverb-verb, etc. Francis avoids some difficulties by not even attempting to give a putative method for recognizing modifiers, but he buries the relation between adjective and adverb behind the mysterious notion of "structural meaning", a concept strongly reminiscent of Fries and perhaps to be understood as "grammatical structure" or the like.

The best discussion of the notion of modifier which I have yet found occurs in the glossary of James Sledd's recent grammar. He begins

---


by defining "modifier" as a non-head in an endocentric construction, as in other works, but then he goes on, unlike most others, to bring up certain difficulties with this explication... in fact just those difficulties which we shall try to avoid in our formulation. Sledd calls attention to the following three points: (1) modifiers cannot be characterized by the idea of limitation of meaning, else nearly any words in a sentence could be construed as modifiers; (2) modifiers cannot be simply non-heads, else verbal objects would be included, and this is not usually intended; and (3) in any case, the whole notion of "head" is not clear since in verb phrases it is the main verb which is taken as head, yet the auxiliary is the part which may be substituted for the whole.

One might attempt to save this idea of non-head by a more detailed or careful formulation of subordination. Thus, it might be possible to construe the relevant constructions in such a way that, while adverbs are attributive after a verb, objects are not; and of the auxiliary and main verb of a predicate, neither is attributive to the other. This is not at all difficult and in fact is already implied by a careful analysis of English sentences, in the following sense. It seems reasonable to analyze all English verb phrases as either transitive, intransitive, or copulative, and to include among the first those from which the object may later be deleted. In other words, the predicate of a sentence like: They smoke, is construed as elliptical for something like: They smoke cigars. It is then the case that the object of a transitive verb accompanies it obligatorily. Now, if subordinate elements are taken to be only those which are chosen optionally in the expansion of constituents, the object of a verb is not subordinate. The same argument applies to the basic constituents of the verb-phrase itself: the auxiliary, as a category, is not subordinate to the main verb, but is rather an obligatory constituent... sentences like: Yes, he can. are to be analyzed on this view as elliptical, that is, as derived from sentences of the form: Yes, he can swim. Thus we have a way of avoiding Sledd's main difficulty.

Lees, op. cit., Chapt. I, Rules (4) and (6), pp. 7-8, and Chapt. II, Transformational Rule (T1), p. 33. It is probably convenient to reformulate the constituent-structure rules of Chapt. I so as to generate only sentences in Be as copula-type sentences, all other copula-like sentences, such as those in stay, become, seem, etc., being analyzed as intransitives derivative from Be-sentences by certain grammatical transformations to be added to Chapt. III. This has the advantage, amongst others, of permitting all Manner adverbials to be derived by expansion in the same way, it eliminates the categories of Vb and Vcs from the constituent-structure, and it consolidates all copula-predicates in a single rule.
B. Subordinate to Major Constituent

Notice now, however, that there are still other difficulties. For example, within the auxiliary elements of the verb phrase it seems reasonable to construe only the tense-marker, Present or Past, as obligatory; all other constituents, such as modals or Be+Ing or Have+En, etc., are optional additions to the tense-marker. This would make these optionally chosen elements "modifiers" of the tense morpheme! It is not likely that grammarians would be willing to construe Be+Ing as an attributive to Present-Tense in a sentence like: John is sleeping.16

Perhaps one could avoid this latter difficulty too; for example, we might permit subordinate elements to be construed as modifiers if and only if they are subordinate to major sentence-constituents, where this latter notion of "major" is intended to comprehend nouns, verbs, adjectives, and the like, but not parts of the verb auxiliary or articles, say. This analysis is still not beyond the power of our present grammatical notions, but it is very much more difficult than anything which has been suggested so far.

To understand how this latter task might be accomplished, it is necessary to introduce the notion of optional grammatical transformation. On the strength of a rapidly accumulating body of empirical evidence, it seems quite certain now that the rules of natural-language grammars cannot be restricted to those which permit the expansion of constituents on branching-diagrams, or trees of derivation, and thus yield the so-called immediate-constituent analysis. The latter type rules generate a certain subset of the sentences, called the kernel sentences, imposing upon each its proper bracketing or tree. Then there must be rules of a new, more powerful type which permit the conversion of whole trees of derivation into new, derived trees, and they can serve to embed one sentence within another. Furthermore, it is likely that all the recursive power of the grammar is contained wholly among these so-called transformational rules; this is the feature which permits the generation of a denumerable infinity of

15ibid., Rules (37) and (38), p. 19.
16Analyzed as: John+Pres+Be+Ing+Sleep#, obligatorily transformed by the rules of Chapt. II to yield proper morpheme order and word-boundaries.
sentences from only a finite number of rules by allowing the derivations to bend back upon themselves.\textsuperscript{17}

In most cases the newly created transforms from one underlying source-sentence are substituted back into the other underlying source-sentence in place of one of its former individual constituents. For example, the nominalization transformations serve to convert sentences into nominals and then substitute these in for abstract nouns in other sentences. This means, then, that while there may at any time be available only a finite number of nouns in the lexicon of the language, there is surely no end whatever to the number of new nominal expressions which may be produced by nominalization transformation. In other words, these transformational rules serve to extend the category of noun from a small, finite class of noun morphemes into an infinite class of nominal expressions.\textsuperscript{18}

Now Chomsky has suggested that perhaps one could exactly characterize what we designated before as "major category" by the possibility of this infinite extendability under grammatical transformation.\textsuperscript{19} The reason this seems so is that it is just the categories of noun, verb, adjective, and adverb which are so extendable in English. We have just mentioned that nouns are extended by the nominalizations. Chomsky's own so-called Complement transformations extend the category of verbs.\textsuperscript{20} The Relative Clause transformation and Adjectival Complement construction extend the adjectives.\textsuperscript{21} And there will, of course, be various extensions for adverbs through the generation of adverbial clauses.

\textsuperscript{17}Chomsky, op. cit., Chapt. 5

\textsuperscript{18}Lees, op. cit., Chapt. III

\textsuperscript{19}Personal conversation.

\textsuperscript{20}Chomsky, \textit{A Fragment of English Grammar}, mimeographed notes for Third Texas Conference on Problems in the Analysis of English, University of Texas, 1958 (to be published), pp. 6-7.

\textsuperscript{21}Lees, op. cit., Rules (GT14) through (GT16), p. 84 and (GT19) through (T56), pp. 89-90. Again, it is convenient to reformulate these rules somewhat. First, to Rule (24), p. 15, we add an optionally chosen element to the non-phrase to represent all nominal modifiers:

\[
(24^1') \quad N \longrightarrow \begin{cases} N_C \\ N_a \end{cases} (C_n)
\]

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Thus, we might formulate the notion of "modifier" as "element which is subordinate to a major constituent," and this would then comprehend exactly the adjectival and adverbial constituents of the sentence.

C. The Generalized Adjectival Source

Certain further difficulties now arise, however. First of all, there is a general objection which can be raised against any of these formulations, namely, that they consider all so-called adverbial expressions to be modifiers, and this seems to be at least somewhat counter-intuitive. There are at least the following five types of adverbial expression which, on this view, would be attributive to a major sentence-constituent:

1) *Sentence-adverbials (Adv)* which arise in the very first constituent-structure rule in an English grammar: \( S \rightarrow \text{Nom(Adv)} \text{VP} \); for example, *certainly* in the sentence: *This is certainly true*. They may be optionally and stylistically shifted to initial position: *Certainly this is true.*

2) *Preverbs (Prev)* which arise in the second rule: \( \text{VP} \rightarrow \text{(Prev)Aux+MV} \); for example, *almost* in the sentence: *We are almost finished.* Like sentence-adverbials, their normal position is after the second member of the auxiliary in most sentence-types, and there are both affirmative and negative subtypes.

(1) Sentence-adverbials (Adv) which arise in the very first constituent-structure rule in an English grammar: \( S \rightarrow \text{Nom(Adv)} \text{VP} \); for example, *certainly* in the sentence: *This is certainly true*. They may be optionally and stylistically shifted to initial position: *Certainly this is true.*

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(\( N \) = the part of the noun-phrase excluding the number, morpheme and the article, derived thus: \( \text{Nom} \rightarrow \text{NP+N°, NP} \rightarrow \text{T+N, N}_C = \text{concrete nouns, N}_A = \text{abstract nouns, and C}_N = \text{nominal modifiers} \). Then the Relative Clause transformation (GT19) can be reformulated as:

\[
\begin{align*}
\text{GT19'}: \quad & X+Noun+C_N(N°)-Y \\
& WH(P)(T)\text{Noun'}+N°+Z
\end{align*}
\]

\( X+Noun(N°)(,)WH(P)(T)\text{Noun'}+Z-Y \)

(where \( N\text{oun} = \text{Noun'} \), we ignore details involving genitives, \( N\text{oun} = N_C, N_A \), etc., \( WH = \text{the interrogative morpheme for wh-words, P = preposition, T = articles, (,) is the intonational marker for non-restrictive clauses, and X, Y, and Z are any arbitrary strings. Subsequent obligatory rules reduce the complex following the WH-morpheme to the proper wh-relative pronoun}.

\( ^{22} \)The rules given in this section are slightly reformulated from Lees, ibid., Chapt. I, according to the remarks above in footnote 14. 

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(3) Locative and Time Adverbials (Loc and Tm) arising in the third rule: \[ MV \rightarrow \{ \text{be+Pr} \} \ (\text{Loc})(\text{Tm}) \]; for example, \textit{in town} and \textit{tomorrow} in the sentence: \textit{I'll meet him in town tomorrow}. Tm can also be stylistically shifted to initial position.

(4) Various Manner Adverbials (Man) which may follow transitive-verb objects, certain action-verbs and their complements, and intransitive verbs of certain types. These arise in two rules:

\[
V \rightarrow \begin{cases} 
V_{\text{tr}} + \text{Nom(Man)} \\
V_{\text{I}} \\
V_{\text{mid}} + \text{Nom} 
\end{cases}
\]

\[
V_{\text{I}} \rightarrow \begin{cases} 
(V_{\text{ac}} + C_i) \ (\text{Man}) \\
V_{\text{in}} \\
V_{\text{p}} + C_i 
\end{cases}
\]

(where \( V_{\text{tr}} \) = transitive verb, \( \text{Nom} = \) verbal object nominal, \( V_{\text{I}} \) = general intransitive, \( V_{\text{in}} \) = ordinary intransitive verb, \( V_{\text{ac}} \) = action-type copula verb, such as \textit{become}, \textit{turn}, etc., \( C_i = \) copula predicate). Manner adverbials may also be of various subtypes which we shall wish to distinguish, namely, various Instrumental, Concomitive, and other prepositional phrases on the one hand, and on the other, descriptive adjectives plus the Ly-suffix. Some examples would be:

- John drove it in \textit{with his hands}. \( (V_{\text{tr}} + \text{Nom+Instr}) \)
- John drove in \textit{with his cousin}. \( (V_{\text{in}} + \text{Concom}) \)
- John drove carefully. \( (V_{\text{in}} + \text{Adj + Ly}) \)

(5) Attributive Adverbials (Adv\(_a\)) which may precede adjectives, arising originally from the expansion of the copula predicate in the rule:

\[
\text{Pr} \rightarrow \begin{cases} 
\text{NP} \\
(\text{Adv}_{a})\text{Adj} \\
\text{Loc} 
\end{cases}
\]
These also may be of two subtypes, one of which is composed of an abstract adjective plus the Ly-morpheme. Examples would be:

John is quite careful.  \((\text{Adv}_{a})\)  
John is extremely careful.  \((\text{Adv}_{a} A + \text{Ly})\)

Now our point here is that it is really only the cases of Ly-adverbials and attributive adverbials which seem like bona fide "modifiers". To take the clearest case as an example, it does not seem intuitively correct to call the preverb not in: \(\text{John is not careful.}\) a "modifier" in the sense that we would consider, say, very a modifier of the following adjectival to which it is attributive in: \(\text{John is very careful.}\) Nor would we wish to consider the adverbial phrase on Tuesdays in: \(\text{John drives on Tuesdays.}\) to be a modifier of the verb in the same way as we would call slowly a modifier of the verb in: \(\text{John drives slowly.}\)

A second difficulty which arises in the present formulation is a rather technical one having to do with the exact way in which adjectival expressions are generated in English. Let me indicate this very briefly by the following considerations: for every sentence of the following forms:

\[
\begin{align*}
\text{The man is very clever at cards.} \\
\text{The man is at home.} \\
\text{The man is president of the firm.} \\
\text{The man is sleeping.}
\end{align*}
\]

there will always be a nominal expression within other sentences with the forms:

\[
\begin{align*}
\text{. . . the man who is very clever at cards . . .} \\
\text{. . . the man who is at home . . .} \\
\text{. . . the man who is president of the firm . . .} \\
\text{. . . the man who is sleeping . . .}
\end{align*}
\]

(and we shall ignore here the detail of restrictive versus non-restrictive relative clauses). And to each of these there will also correspond nominals:

\[
\begin{align*}
\text{. . . the man very clever at cards . . .} \\
\text{. . . the man at home . . .} \\
\text{. . . the man, president of the firm, . . .} \\
\text{. . . the man sleeping . . .}
\end{align*}
\]
Finally, to each one of the first and last type listed there will also always be another nominal expression with preposed adjectival, in case the latter is a single adjective (with or without \( \text{Adv}_a \)) or a single participle, as in:

\[ \ldots \text{the very clever man} \ldots \]
\[ \ldots \text{the sleeping man} \ldots \]

For these reasons and others it seems correct to derive prenominal adjectival attributives in English from the Relative Clause construction by deletion of the relative pronoun plus the copula verb. This analysis, impeccable though it might be in other ways, has the disadvantage, however, of introducing all adjectival modifiers into sentences in a new, transformational way. This means that the "attributiveness" of adjectivals does not arise in quite the same manner as does that of adverbials, which, as you will recall, were said to be modifiers because they were subordinate, that is, optionally chosen, constituents in expansions of major categories. Without some extension of the theory, it is no longer apparent why adjectives and adverbials are both analyzed as "modifiers".

We come now to my final suggestion, which is already implied by the discussion of the first-mentioned difficulty. If we examine just those adverbials which I have chosen to consider impeccable "modifiers" we note that they are either attributive to adjectivals, as in the case of \( \text{Adv}_a \), or else they involve adjectivals in another important way which I shall now describe. (By "attributive" here I mean just the usual notion of "subordinate" or "optionally chosen element in the expansion".)

The adverbials in question are Manner adverbials consisting of descriptive adjective plus the Ly-suffix. When we study the nominalization transformations of English, as I have done in my forthcoming book, we note that sentences containing such Manner adverbials shift the adverbial under Action-Nominalization into an adjective which is attributive to the nominalized verb.\(^{23}\) Thus, for example, John drives safely. \( \rightarrow \ldots \) John's safe driving \( \ldots \)
John explains it clearly. \( \rightarrow \ldots \) John's clear explanation of it \( \ldots \)

\(^{23}\)Lees, ibid., Rules (GT7) and (GT8), pp. 67-8.
We might say, then, that such a Manner adverbial "modifies" its verb in the same sense in which its underlying adjective modifies the derived nominal.

Incidentally, those attributive adverbials which consist of an abstract adjective plus the Ly-suffix also behave in a similar way: under nominalization of the adjectival phrase in which they are subordinate, they yield the underlying adjective as an attributive to the nominalized version of the old head, thus:24

John is awfully silent. \[\rightarrow\] John's awful silence . . .

To this point I have shown that of all the constructions considered, those which I designated as "modifiers" are either (1) adjectival expressions derived from the Relative Clause, or (2) attributives to adjectives, or (3) contain adjectives in such a way as to yield attributive adjectives under nominalizations.

Notice that this view brings out a connection between the notions of "modifier" and "description," for the important underlying construction in every case, that is, the Relative Clause, generates adjectives, the paradigm example of "modifier," from the predicates of copula-sentences in Be+Pr, and these latter are, of course, "descriptions" par excellence.

The analysis which I have suggested, like any scientific description, is not known to be exhaustive. That is to say, there may well be other types of expression in English sentences to which we would all agree to apply the name "modifier" but which are not subsumed under the description given. In fact, it is quite easy to find one. For many Manner adverbials in -Ly there is a corresponding prepositional-phrase adverbial with much the same meaning and which contains the noun from which the underlying adjective was itself derived. For example, corresponding to the Manner adverbial carefully in the sentence: John drove carefully, there is another adverbial expression containing the noun care: John drove with care., and it seems quite reasonable to call this latter adverbial a "modifier of the verb".

Now I do not yet know how properly to analyze such expressions, nor what the relationship is between the corresponding members of

24Ibid., Rules (GT17) and (GT18), p. 85
such pairs. However, it would be no great surprise to find that on purely formal grounds one needs to derive one of the two types transformationally from the other, and the direction of such a derivation would affect the way in which these adverbials are related to adjectives, if in fact they are so related. If the prepositional phrase be derived from the Ly-adverbial, then detailed selection rules will be required for the correct choice of the preposition, though the choice may be restricted to *with* and *by*. On the other hand, if the Ly-adverbial is derived, then selection rules are required for the adjectival derivative affix:

\[
\begin{align*}
\text{care} + \text{adjectival affix} &= \text{careful} \\
\text{instinct} + \text{adjectival affix} &= \text{instinctive} \\
\text{accident} + \text{adjectival affix} &= \text{accidental}
\end{align*}
\]

However, we must not overlook the fact that not all adverbial prepositional phrases which seem to be Manner adverbials of the kind in question here can be so connected with an Ly-adverbial. For example, in the sentence: *John plays by ear*, we might wish to analyze *by ear* as a modifier of the verb, but there is no obvious way to connect it with some adjectival expression. No doubt there will be other types of expression for which my analysis gives no ready explanation.

In summary, then, I have shown that a large number of those expressions of English which we would call bona fide "modifiers" are syntactically connected in well-defined ways with descriptive predicates of the copula *Be*, the characteristic cases of "attribute". This makes it quite plausible that the concept of "modifier" is not a semantic notion, but a purely grammatical one. It is not difficult to conceive of very similar analyses for German and for Turkish, and it is quite important to extend such studies at this point to see what, if anything, in the notion of "modifier" is universally applicable to languages.

1. \( S \rightarrow \text{Nom(Adv)}\text{VP} \)
2. \( \text{VP} \rightarrow (\text{Prev})\text{Aux+MV} \)
3. \( \text{MV} \rightarrow \left\{ \begin{array}{l}
\text{be+Pr} \\
\text{V}
\end{array} \right\} (\text{Loc})(\text{Tm}) \)
4. \( V \rightarrow \left\{ \begin{array}{l}
V_{\text{tr}+\text{Nom(Man)}} \\
V_{\text{mid}+\text{Nom}} \\
V_I
\end{array} \right\} \)
5. \( V_I \rightarrow \left\{ \begin{array}{l}
V_{\text{ac+C}_I} \\
V_{\text{in}} \\
V_{\text{p+C}_I}
\end{array} \right\} (\text{Man}) \)
6. \( \text{Pr} \rightarrow \left\{ \begin{array}{l}
(\text{Adv}_a)\text{Adj} \\
\text{NP} \\
\text{Loc}
\end{array} \right\} \)
7. \( \text{Nom} \rightarrow \text{NP+N}^o \)
8. \( \text{NP} \rightarrow \text{T+N} \)
9. \( \text{N} \rightarrow \left\{ \begin{array}{l}
N_c \\
N_a
\end{array} \right\} ((,)C_n) \)
10. \( \text{N}^o \rightarrow \left\{ \begin{array}{l}
\text{Sg} \\
\text{Pl}
\end{array} \right\} \)
11. \( \text{Aux} \rightarrow \text{Aux}_1 (\text{Aux}_2) \)
(37) \[ \text{Aux}_1 \rightarrow \text{Tns}(M) \]

(38) \[ \text{Aux}_2 \rightarrow (\text{have+En})(\text{be+Ing}) \]

(39) \[ \text{Tns} \rightarrow \begin{cases} \text{Pres} \\ \text{Past} \end{cases} \]

The Relative Clause Transformation:

\[
(\text{GT19}) \quad \begin{cases} X+N+C_n(N^\circ) \rightarrow Y \\ WH(P)(T)N^\prime+N^\circ+Z \end{cases} \rightarrow X+N(N^\circ).(.) WH(P)(T)N^\prime+N^\circ+Z \rightarrow Y
\]
Synchronic and Diachronic Aspects of Distributional Meaning

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A distributional concept of meaning is one which relies on the shape of the corpus, and on the speaker's decision (arrived at by pair tests or in whatever way) on the sameness or difference of two texts. Such a concept accomplishes something, in the sense that some of the configurations of segments, segment classes, and constructions, which stand out distributionally, turn out to identify relationships which the ordinary person calls semantic — the chief discrepancy being that his criterion claims to lie in quality, rather than in pattern. The relation of distributional meaning and naive meaning is comparable to the relation between phonemic systems and their so-called psychological correlates, or between the use of diagnostic frames to determine parts of speech, on the one hand, and the recourse to the name-of-place-person-or-thing type of content definition on the other. Nothing more is claimed. Nor does it matter whether we say that a given text such as ultra-violet truth is a chair of apples fails to occur because it has no meaning, or whether we say that its non-occurrence furnishes us a tool with which to measure the meanings of the constituents — segmental, supra-segmental and constructional. The latter is merely safer.

Let me illustrate. Let us suppose first of all that we possess something like a very large corpus, or a method of eliciting, capable of producing more corpus — an idiolect, in other words. This idiolect is segmented, phonemicized (or morphophonemicized) and equipped with morph boundaries. There will, of course, also be discontinuous morphs, suprasegmental morphs, features of arrangement or order (of the kind that form the classes called constructions), as well as the other familiar refinements. We may list these morphs in a dictionary: A, B, C . . . . Each of them has its privileges of occurrence, which may be thought of simply as the texts in which each occurs. Now, obviously, it is possible to judge the mutual relation between the privileges of occurrence of any given two, or three or four morphs. For instance, three given morphs may behave as follows: There is one class of texts in which A and C are interchangeable; a second in which B and C are interchangeable; three more defined by the fact that only A, only B, only C are found; and a sixth
(trivial) class of texts in which all three are lacking: (1. page 27). It takes little effort to see that these three morphs are in the relationship just described:

A *sleep*
B *slep*
C *hope*

To represent each text class (or environment class) by one short, one-sentence text:

| first column | you cannot s, b forever |
| second       | he had always s, hт |
| third        | you look s–y |
| fourth       | sorry, I over s–l |
| fifth        | I h— you're all right |
| sixth        | don't–X—from it |

In other words, the pattern which you see here is a graphic representation of what we call two allomorphs forming one morpheme (A; B), and another morpheme, this one monomorphic (C). Note that what is recorded here are simply relationships among, or differences between occurrences. There is no suggestion of meaning content provided. Also, nothing defines the vertical columns, beyond the fact that each stands for a different area of interchangeability between A, B, and C. We could not have two columns with the checkmarks in the same locations; and nothing is said about other similarities or differences between the texts that form each class.

Now, let us look at another pattern, much simpler: (2. page 27). There are only four environment classes: one in which D, E, and F occur, one in which D and E occur to the exclusion of F, and one in which F occurs to the exclusion of the others (not to mention the remaining, trivial class). Are there any morphs in nature which behave like that? No, not really — but there are approximations. Of the following, perish, die, and sit, it is true that they are somewhat like our D, E, and F respectively: we have *he is perishing, he is dying, he is sitting* (VII); *he is dying from his wounds, he is perishing from his wounds* (but not, *he is sitting from his wounds* (VIII)); and, *sit up and take notice* (IX). Now, of course, there are also texts in which die occurs but perish doesn't: *the wind dies down*, for instance; and no doubt there are others in which the converse is true. To this extent, Figure 2 is not applicable. But the fact that such
texts are extremely few is a good measure of their synonymity. This needs no argument, really. In fact, there is one context in which formalism, distributionalism quite contrary to its usual shamefacedness, has invaded everyday life: if a quarrel arises as to whether two words mean the same thing or not, the classical recourse of the party upholding the negative is to find a text (a phrase or a sentence) in which one fits but the other does not — "the wind dies down, but it doesn't perish down". Note that allomorphs (A and B in Figure 1) are related to synonyms (our C and D) very much as are positional allophones to free variants, with similar effects. If there were true synonyms, that is if die and perish were absolutely interchangeable we would be justified in speaking of one morpheme, represented by two morphs in free variation. Morphemes are defined by their differential occurrence with regard to all the other morphemes of the language; morphs are identified by their phonemic shape.

The graphic picture for two contrasting entities, then, is that given in Figure 3. Generally, if we haven't contrasting entities, we shall have \(2^n\) environment classes — always including the final, empty class.

In this fashion, relative nearness in meaning, or if you prefer, the identity of semantic "fields" as they are called in historical literature, can be thought of as represented by absence of randomness, by the greater or lesser density, with which the various columns are filled. For instance, consider Figure 4: The entries for the first, fourth, and seventh row will tend to appear, in various permutations to be sure, within one part of the columns. And those for the second, third, and sixth, within another. Many things can be said in common of shores, slopes, and sides — and other things can be said in common of businesses, treasuries, and counters. To be sure, there will also be a strong environment class in which all seven occur, such as the — is over there (Column 1). But it is characteristic that many of these environments also exist for many other nouns. In fact they come close to existing for all other nouns. We are beginning to handle the kind of environment which has had a long (though not unchallenged) usefulness as a diagnostic frame for the setting up of parts of speech classifications. One feature of (4) lies in the fact that we see two semantic "fields" emerge from a plotting. The other has to do with the fifth morph, bank. This is the one item which mars the division of the two fields. If there were more cases like bank, there would be no two fields. Under these conditions, of course, we
speak of homonymy (homophony), or, rather of polysemy. We see that homonyms, too, have their graphic characteristics; they could be recognized from an ideal plotting, such as is here sketchily hinted at.

Perhaps I have been able to show what distributional meaning does and what it does not do. What seems most important to me is the fact that it is an extension of otherwise recognized, perhaps indispensable, procedures such as the establishment of phonemes and the formation of grammatical classifications or morpheme classes. Grammatical classifications have their "meanings", too. It was hailed as a major accomplishment that this meaning need not be relied upon as an undefined extra-linguistic property of "reference", but emerges from a study of how texts contrast with one another. I see no reason why the same does not hold also for the semantics of morphs and morphemes. That the step from grammar to dictionary is not a step from form to content is suggested, anyhow, by the borderline area in which we deal neither with occurrences or meanings of large morpheme classes, nor with those of individual linguistic forms of the noun-adjective-verb type, but with affixes, particles, and the like. These entities are said, in traditional parlance, to have both a meaning and a use; they are sometimes taken up in the dictionary (and defined or translated) and sometimes in grammar (where their occurrence is described). Look up Greek *an* in a dictionary, and you will find such a translation as 'forsooth' or 'perhaps'; but you will also be told — much more helpfully — that *an* is used with the past tense, if the period contains an *if*-clause with a past tense, and the like. In other words, the distributional picture is a unified picture. So much about synchrony.

Now, let us see how a similar point can be made with regard to history, to change. Time being short I shall confine myself to one particular question, and at the same time use this welcome opportunity to correct a somewhat vague formulation of which I have been guilty. The question is: What is the true relation between so-called semantic and analogic change.

5-a pictures a very simple semantic change. Lt. *quare* (Fr. *car*) has gone from the meaning 'why' to the meaning 'for (because)'. (Incidentally by a very interesting mechanism — but the mechanism does not interest us at this particular moment.) By and large, the amount of contrast and the area of contrast, including the relationship of contrasting vs. characteristic environments between *quare* and
nam (Lt. 'for') is the same as that between pourquoi and car — or better, to the extent that they are the same and show up as the same in an ideal gigantic table of distributions can we say that pourquoi has replaced quare — the meanings are more permanent than the morphs that fill them, or the morphemes (our Saussurian morphemes) are the same, but they are filled by a different morph content. This is one way of describing semantic change — a way which is not at all unfamiliar. Indeed, we often say that the concept of "why" used to be "expressed by" quare, while it is later on expressed by pourquoi. In the case of nouns, to which our semantic speculations are all too often limited, we are apt to say "an object gets a new name". (The permanency of the morpheme and the volatility of the morphs is summarized by the condensation in 5-b.) But just as often we start from the other end and follow the morph, rather than stick to the morpheme; we say that quare/car has changed its meaning.

Semantic change is a property of morphs or morph sequences, not of morphemes or constructs.

5-c is a reminder that not all semantic changes leave the morphemic structure intact. In fact, Fr. car may be said to replace not one morph, nam, but two different, slightly contrasting morphs, nam and also enim. (The slightness of their contrasting is crudely brought out by parentheses, and conversely by extra strong, double entries of near-synonym character for their common characteristic environment.) From the viewpoint of the later stage (French), Columns 1-2-3 and Columns 4-6-7 are one solid environment class each. There has been a merger of morphemes, and incidentally, there has also been the above-discussed semantic change of the morph (sequence) quare.

Finally 6: 6 describes what we call the analogic change of the past participle of wax (as in waxing impatient) from waxen to waxed. A glance at 5 above shows the essential difference. While the words for "why" and "for" (disregarding now, enim) were at both stages morphemes, with one contrastive and two characteristic environments (pattern 3!), -en and -ed, on the other hand, were at both stages allomorphs, with the contrastive column lacking. Therein lies the tone difference — not in the affix character of the endings (of course bound forms can also undergo change of meaning). Nor does the difference lie in the so-called analogical mechanism which has given its name to the whole process — after all, the mechanism of 'analogical creation' is a powerful force behind all kinds of linguistic
change. All this would have been less confusing if it had been realized that our customary style in reporting analogic changes is the morphemic formulation — and not the morphic one which is our ordinary choice in dealing with semantic change. We say, naturally, that the participle changes its form — not, that -ed occurs in a new environment.

These few hints must suffice. Before I conclude, I would like to say that I have had to gloss over many difficulties, of which I am nevertheless quite aware. Some, for instance, object to the idea of inductive reasoning from a chimerical total environment which may be implied here.

I will say only that my conception of the environment of a form is not merely the unstructured physical remainder (preceding and following) in the flow of speech, but consists of the forms and constructions co-occurring with our form in a kernelized version of the text, plus the transformations operating on that basic version. I admit, of course, that my simple-minded examples do not particularly suggest this.

In a friendly exchange of opinions, Mr. Lees has called the notion of total environments "ineradicable". It may not be ineradicable at all; it may well be that there are grave theoretical objections to it, and generically, to the way in which linguists have built up their procedures and definitions, including those for entities like the N’s, the V’s, and the P’s of transformational syntax. All that may require a different basis. But even so, the proposition that grammatical structure and semantic structure are different in degree but not, metaphysically, in kind, may be expected to prevail, because it is valid.
text classes:
morphs:

allomorphs

example: A sleep B sleep C hope
I you cannot — forever II he had always — t
III you look — y IV sorry, I over—t
V I — you're all right VI don't — from it

synonyms

D perish E die F sit (only approximated in nature; "there are no true synonyms.

contrast

homophones

1 2 3 4 5 6 7 8 9.. n
<table>
<thead>
<tr>
<th></th>
<th>Lt. quare</th>
<th>nam</th>
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</thead>
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<td>&gt; Fr. <em>pro quid</em> &gt; pourquoi</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>quare &gt; car</td>
<td>x</td>
<td>-</td>
</tr>
</tbody>
</table>

### 5b

<table>
<thead>
<tr>
<th></th>
<th>quare</th>
<th>nam</th>
<th>pourquoi</th>
<th>car</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>x</td>
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<td>x</td>
<td>(x)</td>
<td>(x)</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

### 5c

- **en**
  - x
  - x
  - -

- **ed**
  - -
  - x
  - -

### 6

- **give**
  - -
  - x

- **wax**
  - x
  - -

- **live**
  - -
  - x
Semi-Structural Approach to Meaning: En in French

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One of the features of research in the relatively new area of language science called "machine translation" is the fact that, being a multi- or trans-discipline endeavor, it has brought together what might be looked upon as an heterogeneous group of people. Among those working in the field are mathematicians with little knowledge of linguistics or languages. There are, on the other hand, linguists who are ill at ease with foreign languages and have only a minimal mathematical formation. There are polyglots with no disciplined formation in either linguistics or mathematics. There are engineers whose interests are primarily in instruments, and finally, there are the market place people who are interested in production and sale. This, of course, has not always made for too happy a situation and has led one of our colleagues in linguistics to rather uncharitable — and uninformed — remarks at our recent national symposium concerning the legitimacy of machine translation as a field of scientific endeavor.

After a decade we are moving away from the angels-on-the-head-of-a-needle phase where bellicosity frequently took the place of scientific humility. We are also moving away from the genius phase where not a few urged that their inchoate approach to the problem was a panacea. Now that the tranquility born of experience is gradually descending upon us, we are able to examine the problem with greater detachment and less personal concern, but still there is a long road to be traveled, and one is now and then taken aback by analyses of the problems which focus on invented sentences such as:

"Le chien noir de notre voisin mange toujours sa soupe chaude." or: "Flying planes can be dangerous."

Before proceeding with the analysis of the particle "en", which is the basis of this paper, it will be well, I feel, to restate clearly certain basic postulates or assumptions which have guided the research at Georgetown University in the field of machine translation.

In 1953 I defined machine translation as the transfer of meaning from a set of patterned visual signs called the source language to another set of signs called the target language by machine and with
a minimum of ambiguity. This definition, cited by some of my colleagues at various meetings on the subject, has not been challenged. It would seem clear, therefore, that the basic objectives in machine translation, or indeed in any translation, is the transfer (as the word itself means) of meaning.

It is further quite obvious, so it seems to me, that this objective or transfer by machine implies a minimum of ambiguity in order to reduce the amount of human intervention which will remain necessary in the calculable future to revise the printout or output texts.

The basis of the Georgetown research from its inception was to insist upon the examination of actual language material in a given scientific field rather than to concoct sentences or contexts calculated to illustrate the type of ambiguity which could not be reduced to mechanical processes at least at this stage of our knowledge. That is why when a sentence like "flying planes can be dangerous", is put together for certain illustrative purposes, my disposition has been to ask in what specific text was this sentence found. This is predicated upon the rather naive notion that writers in scientific disciplines or technological fields write for the purpose of communicating information with as much clarity and as little ambiguity as possible.

The insistence upon focusing the research on actual texts, preferably available in the source and target languages, is to permit more reliable establishment of lexical equivalents from contextual sources rather than from a dictionary.

The analysis of the text has several basic objectives:

1. The establishment of a lexical list with a contextually determined target equivalent;

2. The establishment of occurrence frequency with the possible ultimate objective of setting up lexical lists based on the frequency factor;

3. Study of structural characteristics in contexts, which may be taken as the starting point for the formulation of more generalized linguistic operations;
4. The collation of what may be called non-linguistic material or table listings;

5. The identification of idiomatic forms, again with equivalents derived from contextual data; and finally,

6. The identification in context of occurrences which do not yield to lexical, structural, or idiomatic analysis and categorization. With time these will be the object of systematic study, arriving at an inchoate delineation of semantic structure, which as Martin Joos recently told our staff, cannot be considered amorphous but should rather be recognized as crystalline, i.e., structured.

A last important facet of our methodology has been to proceed on the basis of empirical, successive, and cumulative experiments actually tested on a computer in terms of producing running text translations.

We have not been unaware that certain aspects of our methodology have been the object of skepticism, if not worse. Nevertheless, it is gratifying after eight years of work to find that more and more groups are coming to recognize that test-focused cumulative and machine tested operations should be the basis of research, whether this method is called empirical, cumulative, cyclical, experimental, or whatnot.

In approaching the study of the behavior of "en" in French, in association with six members of my seminar, the first procedure was to use what I think has been called "predictive syntax", and which I would prefer to name "inventorial procedure". It consisted in listing all principal functions that the item under consideration can fulfill in context, and in verifying on the basis of contextual clues which of the possible functions and target equivalents is or are found to be the right ones in a particular context.

Let me say in passing that whether we call it "decoding and encoding" or "analysis and synthesis" we are in effect defining the same operation in terms of source and target, even as the term "generalized operation" is synonomous with the currently more fashionable word "algorithm".

Now then, on with "en": What are its possible functions and English equivalents? The complexity of a theoretical definition can
be readily recognized by merely quoting the *Petit Larousse*: *En*, preposition qui a à peu près le sens de *dans* (Latin *in*), elle indique le lieu, la situation, l'ordre, l'espèce, le temps, la matière, l'état, la forme, etc.

Or again "en", pronom personnel, troisième personne, (Latin *inde*) de lui, d'elle, d'eux, de là, à cause de cela, etc.

And finally, *en être pour*, perdre inutilement, *en être pour sa peine*.

If we now think of "en" in terms of comparative structures and lexical equivalents in respect to English, we could list the following: (see attachment Number II, page 35).

The list given in attachment II is not exhaustive but it is adequate to make the point with which this paper deals. It is obvious even at first glance that the formulation of an algorithmic structure which would permit the mechanization of the operations related to "en" in machine translation in categorized occurrences (prepositions, adverbial pronouns, prepositional pronouns, superfluous items in target language, partitive pronouns, both affirmative and negative) or non-categorized occurrences ("idioms") would present quite a complicated task.

Having defined our preliminary theoretical framework, our group proceeded to examine a printout list of some 3400 occurrences of "en" in context taken from running corpora of approximately 200,000 words in the field of nuclear physics. The findings are in my opinion strikingly interesting and illustrative of the validity of text-focused research.

Slightly over 24 percent of the occurrences were equivalent to the English preposition "by" and the formal clue for the selection of the target word "by" for the source particle "en" was simply the ending of "-ant" in the immediately following item, except if "en" is the initial word in a sentence.

Next we find that "en" equals "in" before a noun in about 64 percent of the occurrences studied, whether or not the noun is preceded by modifiers. The other non-classified uses represent about 12 percent of the total. These we propose at this stage simply to treat as unanalyzed idiomatic forms for which a simple lexical procedure can be programmed. This list, until we have more data, will be
considered as consisting of two parts, one to be called "temporary idioms" and the other "permanent idiom forms". The theory back of this procedure is that after we have accumulated and studied more data, it is conceivable that some of the occurrences which do not appear at this stage to lend themselves to structural formulation and classification, may later prove to be subject to such procedure. In this case the categories could be programmed in terms of a generalized formulation.

In flow-charting the operation just described, we would set up the procedure as follows: This is illustrated in attachment III.

1. Is the item plus one an "X" item? i.e., is it entered as in the idiom category? If yes, select the idiom target entry.

2. If no, is the item plus one a "-ant" suffixed item? If yes, translate by the English equivalent "by".

3. If no, is item plus one or item plus two a noun? If yes, translate by "in".

Thus it is seen that what on the basis of theoretical formulation appeared to be a complex set of operations, may in fact be reduced to, at least on the basis of 3400 occurrences, three basic operations.

It would be possible I believe, to set up a fourth operation which would deal with active verb forms entering in a category which would be preceded by "en" as a pronominal preposition or again as a pronominal adverb. For example, il en revient — (from there) or as a partitive pronoun; for example, il en retient, il en existe, il en apporte. However, on the basis of the data currently available from the examination of some 3400 occurrences, the total of occurrences which do not fall within the second and third major operations represented on the chart of attachment make up only 12 percent of the total and it seems more practical if somewhat less elegant to have recourse to the idiomatized formula.

This investigation would seem to support the assumption that in machine translation the primary consideration should be to concern oneself with the problem of transfer rather than of internal or comparative theoretical analysis.
There seems to be little necessity at this stage of our research to burden the work with a complex set of operations to handle a particle which can be effectively manipulated by a simple formulation. The inventorial listing of all possibilities and the subsequent analysis of the context in terms of all conceivable occurrences may be long-range desirable targets, but it should be attained and developed on the basis of empirically accumulated evidence rather than a hypothetical basis.
**En in French**

I. The dictionary definition of the French word “en”:

1. préposition qui a à peu près le sens de dans (Latin in) elle indique le lieu, la situation, l'ordre, l'espèce, le temps, la matière, l'état, la forme, etc.

2. pronom personnel, troisième personne, (Latin inde) de lui, d'elle, d'eux, de là, à cause de cela, etc.

3. as an idiom, *en être pour*, perdre inutilement; *en être pour sa peine*.

II. List of Major English Equivalents of French “en”:

**A. Prepositional use before a noun**

<table>
<thead>
<tr>
<th>Preposition</th>
<th>English Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AS</strong></td>
<td><em>en fonction de</em></td>
</tr>
<tr>
<td><strong>AT</strong></td>
<td><em>en un point quelconque</em></td>
</tr>
<tr>
<td><strong>IN</strong></td>
<td><em>il est en classe</em></td>
</tr>
<tr>
<td><strong>INTO</strong></td>
<td><em>mettre en equation</em></td>
</tr>
<tr>
<td><strong>OF</strong></td>
<td><em>un tube en acier</em></td>
</tr>
<tr>
<td><strong>ON</strong></td>
<td><em>en moyenne</em></td>
</tr>
<tr>
<td><strong>TO</strong></td>
<td><em>il va en France</em></td>
</tr>
<tr>
<td><strong>ZERO</strong></td>
<td><em>un tube en acier</em></td>
</tr>
</tbody>
</table>

**B. Prepositional use before a present participle**

<table>
<thead>
<tr>
<th>Preposition</th>
<th>English Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BY</strong></td>
<td><em>en proposant</em></td>
</tr>
<tr>
<td></td>
<td><em>en opérent</em></td>
</tr>
</tbody>
</table>

**C. Conjunction**

<table>
<thead>
<tr>
<th>Preposition</th>
<th>English Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHILE</strong></td>
<td><em>en préparant les</em></td>
</tr>
<tr>
<td></td>
<td><em>instruments. . .</em></td>
</tr>
</tbody>
</table>

**D. Pronominal Adverb**

<table>
<thead>
<tr>
<th>Preposition</th>
<th>English Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FROM</strong></td>
<td><em>il en vient</em></td>
</tr>
<tr>
<td><strong>THERE</strong></td>
<td><em>he comes from there</em></td>
</tr>
</tbody>
</table>
E. Partitive Pronoun

SOME  il en apporte  he brings some
ANY   il n'en a pas  he doesn't have any

F. Pronominal Preposition

BY    en être affecté  to be affected by it

G. Idiomatic Examples

en être autrement  to be different
de plus en plus  more and more
il en est de même  it is the same
en grand  in a large way
en petit  in a small way
III. PRELIMINARY PROCEDURE FOR MT HANDLING OF FRENCH "EN"

1. 

- i + 1 et. seq. x i

2. 

- i + 1 - ANT

3. 

- i + 1 OR i + 2 N

- YES IDIOM ENTRY

- NO BY

- NO IN
SAMPLE OF M.T.

DEPENDING ON $\mu$ QU'EN APPARENCE, RAPPELONS EN EFFET QUE LE RAPPORT DES PERMEABLETÉS ENTRE DANS L'EX.

SQUEZ QUE LES RELATIONS DE $\kappa$ FRESNEL, IL EST AISE D'EN RETROUVER L'ORIGINE DANS LES ÉQUATIONS DE $\kappa$ MAXWELL.

MENT CETTE PROPOSITION, SE REPORTER AUX EXPRESSIONS EN FONCTION DE $\iota$ ET $\alpha$ DONNEES AUX $\alpha$ ALPH.

ENCE NORMALE À FAIRE L'OBIET DE NOMBREUSES RECHERCHES EN $\kappa$ ALLEMAGNE, PENDANT LA DERNIÈRE GUERRE.

$\kappa$ PAR LES FORMULES EN $\iota$ ET $\alpha$ S'OBTIENNENT EN REMPLACANT DANS LES $\kappa$.

AR LES FORMULES EN $\iota$ ET $\alpha$ S'OBTIENNENT EN REMPLACANT DANS LES FORMULES GÉNÉRALES K PAR $\exp \cdot \kappa$-UP.

LES PARAMÈTRES PEUVENT DONC ÊTRE EXPRESSEES EN FONCTION DE $\iota$ ET $\alpha$ R, IL SUFFIT DE REMPLAC.

LE LECTEUR RÉCONNAÎTRA, DANS LES EXPRESSIONS EN $\iota$ ET $\alpha$ R DE $\exp \cdot \kappa$-UP, $\exp \cdot \kappa$-SUB-M.

ET $\exp \cdot \kappa$-SUB-M LES FORMULES GÉNÉRALEMENT DONNEES EN THÉORIE DE LA RÉFLEXION VITREUSE SOUS LE NOM DE FORMULE 22811.

CE FAIT SE VÉRIFIE DIRECTEMENT EN ÉCRIVANT LES FORMULES, IL EST D'AILLEURS UNE CONSÉQUE 22819.

$\kappa$ PAR LES RAYONS INCIDENT ET RÉFRACTE SONT EN PROLONGEMENT.

LE PARTAGE DE L'ENERGIE ENTRE L 22834.

QUELCONQUES, N'ONT PAS ENCORE ÉTÉ DONNEES, IL EN EST DE MÊME DES FORMULES RELATIVES AUX CAS PARTICULIERS 22845.

OUVERTE DE $\kappa$ FRESNEL EST PUREMENT DIVINATOIRE ET, EN LUI - MÊME, INCOMPATIBLE (VOIR CE QU'EN DISENT PA 22856.

ET, EN LUI - MÊME, INCOMPATIBLE (VOIR CE QU'EN DISENT PAR EXEMPLE $\kappa$ DUHEM DANS SA $\kappa$ THÉORIE PHYSIQUE ET $\kappa$ PAINLEVE $\alpha$ (UP-1*), IL NE PEUT EN AUCUNE MANIÈRE RÉFRACTE SOCUSÉ COMME UNE THÉORIE PHYS 22859.

$\kappa$ PAR LA MÉTHODE ORDINAIRE DES PHYSICIENS QUI S'EN TIENNENT CHAQUE FOIS AU PHÉNOMÈNE ÉTUDIÉ ET UTILISE DES 22878.

CE, LA DEUXIÈME MÉTHODE N'EST EMPLOYÉE NULLE PART EN CE QUI CONCERNE LA RÉFLEXION TOTALE.

PAR CETTE THÉORIE S ADAPTE D'AILLEURS À L'ÉCRITURE EN QUANTITÉS COMPLEXES ET PERMET ALORS L'ANALYSE PRÉCISE D 22905.

LE DEUXIÈME POSTULAT POSE, EN PARTICULIER, UN RETARD $\alpha$ QUELCONQUE POUR LES V 22918.

$\kappa$ ELLIPSE.

$\kappa$ PAR LA DÉTERMINATION DE LA VIBRATION EN UN POINT QUELCONQUE DU SECON MILIEU RÉSULTERA DE L'APPLICATION DE L'APPL 22939.

É CONTINUITE (TANGENTIELLE) S'ÉCRIT.

SOIT, EN IDENTIFIANT LES TERMES EN SIN $\exp \cdot \omega$-T.

$\kappa$ PAR NOUS AVONS LA 2 T 22949.

MINONS PAR EXEMPLE $\exp \cdot \delta$-SUB-2 ET $\exp \cdot D$-SUB-2 EN FONCTION DE $\alpha$ DELTA. 22951.
Structure in Meaning

Martin Joos

University of Wisconsin

In Linguistics, this is the age of structuralism. Our American descriptive linguistics is a local fashion within that general mode of discussion which is quite properly known to the world at large as structural linguistics. If my allusions refer particularly to the history of American descriptivism, this is nothing but a convenient way of referring to all structural linguistics through one sample.

The structural idea is that language, or some self-contained part of it, can be exhaustively discussed by speaking only of countable items in patterned relation to each other. It is not sufficient to count if we have no way to decide when the end of a list has been reached; it is not sufficient to find patterns unless they have the simplicity of counting themselves. If we subdivide the structure of a language, say into a phonological and a grammatical and a semantic sort of structure, we expect the three structures to differ, but we also expect them to be not entirely disparate sorts of structure. That is, if we count phonemes, then we expect to count morphemes; if we find them both countable, then we look for something similarly countable and similarly elemental in the field of meaning. If we find that phonemes are related to each other by rules of mutual exclusion, for instance the English or the Russian rule that fortis will not cluster with lenis, then we expect to find analogous clustering rules in grammar, and sure enough we do; having found such exclusion-rules in both phonology and grammar, we may decide that exclusion-rules are characteristic of linguistic structure; then we look for them in meaning too. Now if we have not yet found exclusion-rules in meaning, we may say that we have not yet found the linguistic sort of structure in meaning; and if we do find exclusion-rules in meaning, then we may say that at least to that extent we have found linguistic structure in meaning. Beyond that, we may find some further and new kind of structure in meaning; but we want the further structures that we find to build on to the exclusion-rules in some sort of continuity with them. Without that continuity, we should say that we have departed from the linguistic mode of structural description and are talking about something else. Perhaps we might still be talking about some sort of structure in meaning, but it would no longer be a linguistic structure in meaning. What it might be will appear later.
In the preceding, I have chosen 'exclusion-rules' as typical of linguistic structure. It is not necessary to insist on that choice; instead, some other characteristic shared by phonological and grammatical structure could be chosen as the common feature of all three. If that is done, it will have to be done by somebody else, or by me in another year. For the present, I can see nothing better than exclusion-rules to serve as the common feature of phonological, grammatical, and meaning-structure, to mark all three as linguistic structures.

I have mentioned the three in sequence with grammatical structure in the middle, between the other two. That is no accident. To those who have looked at the accompanying handout, (pg. 47) it is clear that I place grammar in the center so that it is insulated from the outside world on both sides, by phonology on one side and by something called 'semology' on the other, the latter being the name chosen for a particular theory of structure in meaning. The phonology then mediates between a purely and autonomously linguistic structure called grammar on the one hand, and the brute facts of human speaking and hearing organs on the other hand; there can be nothing in phonology which the physiology and acoustics of speech would forbid, but the physiology and acoustics of speech exercise no constraint upon the possibilities of grammar, except of course that the time-dimension is still asymmetrical in grammar; yet this latter fact is not an absolute constraint, since either direction in time may serve the same function, as when one language uses prepositions and another uses postpositions, and apparently all languages use discontinuous grammatical constructions. Similarly, semology mediates between the purely and autonomously linguistic structure called grammar on the one hand, and the brute facts of the referential world (the 'hypostasis') on the other hand; there can be nothing in semology that is forbidden by the custom of talking ABOUT something, except of course that nonsense may still be grammatical, which shows only that this forbidding is asymmetrical too.

This sort of discussion shows how we can, if we wish to, sharply distinguish between grammar and the other two realms of structure. Whatever structure in the language is entirely autonomous, so that it is not controlled either by physiology or acoustics or by the nature of things talked about (though of course in harmony with them both) is grammatical structure; whatever is not thus autonomous but is instead controlled by the physiology or acoustics of speaking, is phonological structure; whatever is not thus autonomous but is instead controlled by the nature of things spoken of, is semological structure.
At the same time, of course, both phonology and semology can have autonomous features. By this we must mean that e.g. phonology has extra restrictions in it, not required by physiology and acoustics; these make the difference between the phonology of one language and the phonology of another language. Again, semology has, we must expect, extra restrictions in it, not required by the nature of the things spoken of; these make all the difference between the semology of one language and that of another. In the sense in which the word 'grammar' is used here, it will not do to say that the grammar introduces those extra restrictions into the phonology; they are specifically phonological restrictions. For example, it is possible to use the 'English' pronunciation of Latin without contradicting the grammar of classical Latin, or to use the Ashkenazi pronunciation of Hebrew without contradicting the grammar of the Hebrew Bible. Similarly, it will not do to say that grammar introduces such extra restrictions as make the semology of one language different from that of another; they are, rather, autonomous restrictions in the semology, not required by either the grammar or the hypostasis.

To distinguish between the hypostasis and the semology, we may use a pair of terms which were proposed earlier, before the present theory of semology was worked out: we can speak of 'inside' and 'outside' meaning. Here 'inside' meaning belongs to semology, 'outside' meaning to the hypostasis. This needs discussion at length for historical reasons.

A full treatment of outside-meaning researches to date would be a library such as is presented in the bibliography of Stephen Ullmann's Principles of Semantics. A shorter but richly illuminating treatment of outside meaning will be found on pages 636-704 of the Proceedings of the Eighth International Congress of Linguists, the 1957 Congress in Oslo (Oslo University Press, 1958). Quotations from Ullman's share of that chapter will get us started on this: 'The theory of semantic fields was first enunciated by [Jost] Trier twenty-six years ago, in his monograph on terms of knowledge in [medieval] German. Trier's fields are closely organized conceptual spheres whose elements are interdependent [as synonymous, analogous, or antinymous] and delimit each other like pieces in a jig-saw puzzle. The scale[s] of colours and the system[s] of kinship terms are obvious examples. . . . Structural semantics may set itself an even more ambitious target: it may aim at giving an integral description of the total structure of the vocabulary. This program arose out of practical needs: the necessity to provide conceptual dictionaries with some sort of general classification of concepts. [681]"
To us in reading this sample it is important to realize that the senses of the words 'structure' and 'structural' used therein were well agreed upon among Ullmann and his collaborators. Not one of the twenty contributors to the chapter raised his voice to suggest that some other sort of structure in meaning was possible. Specifically, the example of kinship terms is paradigmatic for their whole notion of structure in meaning. On the other hand, I propose to show that what they were talking about is not a linguistic sort of structure at all, however much it may seem to vary from one language to another; that is the structure of outside meaning, with its own outside structure, and the linguistic sort of structure is structure of inside meaning, with inside structure, conforming to the general nature of linguistic structures, that is to say, characterized by exclusion-rules among other things.

The difference between the two shows up at once as soon as we ask what it is that is being anatomized. In those outside-meaning treatments it is a conceptual field, a field in the hypostasis, which one language subdivides into one set of parcels and another language into another set of parcels. Then it is possible to demonstrate, as Jost Trier did, how each parcel is referred to by this or that word of the lexicon of the language in question, with some overlappings between the domains of different words in the field but with a general tendency for synonyms to 'delimit each other like pieces in a jig-saw puzzle'. An organized presentation of the research-results is then a 'conceptual dictionary', and its organization is the structure of outside meanings in that language, to the extent that the presentation is adequate.

But there is another kind of dictionary — the familiar kind — Webster's for example. There we find a converse subdividing: Webster's starts with a word, one word, and subdivides its meanings, with some overlappings between the domains of different meanings for the word but with a general tendency for its meanings to 'delimit each other like pieces in a jig-saw puzzle'. The organization in such a dictionary is the structure of inside meanings in the language, to the extent that the dictionary is adequate.

Why do I say that the two types of dictionaries accurately reflect the difference between outside meaning and inside meaning? Because in the conceptual dictionary it is something outside the language, belonging to the rest of the culture, that is described; something that is shared with other languages to the extent that its speakers share
culture, as we and the Russians share chemistry or biological kinship. And in Webster's it is something inside the language, autonomous against the rest of the culture, that is described, namely an English word with its family or families of meanings. In Webster's it is the word that brings the meanings in for consideration; in the conceptual dictionary it is a mass of meanings that brings the words into the picture.

The particular theory of inside meaning to which I have frequently alluded under the name 'semology' developed, as a matter of fact, out of a seminar project whose original goal was to write a subdivided definition of one English morpheme (the morpheme CODE, as it happens, including its uses in derivatives like 'codify, encode'). It was the effort to make the subdividing rigorously logical that ultimately led to the published theory. It is notorious that the sub-meanings of a word are different (a) according to context-words, and (b) according to what is referred to by the sentence. The first work of sub-dividing was done entirely by the second or outside criterion. But then the subdivisions could not be inside or linguistic subdivisions. The reason becomes clear from an imaginary experiment. We started from several hundred citations, each using the word in at least a whole sentence, perhaps more, copied out onto the citation-slip. For the imaginary experiment, let us suppose (a) that each citation-slip had been translated into some other language understood by the workers, but (b) in each translation that segment or those segments had been underlined which carried the meaning carried in English by CODE in the original. For the single English morpheme, perhaps half a dozen second-language morphemes would have turned up underlined. Sorting the citations according to what was referred to, in the outside world, by the underlined parts, we should certainly have arrived at precisely the same subdivisions of meaning. Therefore, the criteria were not specifically English criteria — so far. De Saussure's maxim says that 'the linguistic sign is arbitrary'; we want something arbitrary in his sense, that is to say something exclusively English, that acts as a criterion of subdivision of meanings in CODE.

That arbitrary criterion appears to be the English context-words. In general, they give the same results, with a trifling margin of error, as the outside meanings of CODE; but that only means that English is adequate to talking about things no matter what those things may be. But note that those context-words would in general not be uniformly carried over in the translation phase of the imaginary experiment, therefore they would not similarly serve as a subdividing-criterion.
This much argument merely makes it plausible that we have found a criterion and a structure of inside or linguistic meaning. The demonstration can be completed by a crucial case. The jargon of teen-agers has been called a 'code'. The jargon of teen-agers is not written; it is unwritten. But in idiomatic English the jargon of teen-agers is never called an 'unwritten code'. Nothing in grammar forbids us to call it that; nothing in the cultural facts forbids us to call it that; the appellation is forbidden by a semological pattern according to which the context-word 'unwritten' has exactly the same effect as the context-word 'rigid' upon the available meanings of 'code', namely to eliminate all its other meanings and leave only those 'code' meanings which belong to personal morality and rules of personal conduct under ethical norms, whereas the jargon or code of those teen-agers is a code of symbolization and communication. Nobody can prove that 'unwritten' and 'rigid' codes ought, by cultural logic, never to be jargons; it is just an arbitrary fact in English semology. Accordingly, the meaning-structure discovered by observing merely the identities of context-words, without regard to what those context-words refer to, is an 'inside' meaning-structure; and accordingly, this mechanism is an arbitrary or purely linguistic mechanism, and the theory thereof is a proper part of linguistic theory which naturally occupies a position in linguistic theory side by side with grammar and beyond that with phonology.

This particular theory is called 'semology' because it operates with 'sememes' and 'allosemes', a set of three terms parallel to the familiar sets of three 'phonology, phoneme, allophone' and 'morphology, morpheme, allomorph', and similarly counts and arranges its minimum units. A more generally familiar name is 'distributional meaning', a term which is used in the other papers of this panel: distributional meaning in the pure sense of the term is inside meaning. The present semology differs from the discussion of distributional meaning which I presented three years ago in that semology is a discrete calculus, a quantum mechanics, whereas at that time I thought that inside meaning could only be treated statistically, that is by a continuous mathematics.
Cutting on this line removes the print substitutes for speech and pointing, to leave the chart printed with the Semology article, SIL 13.53-70 (1958), p. 55. They are related to linguistic substructures as indicated by the dotted lines. Dotted lines also indicate diplonomies: When disparate causes have effects distinguishable only by scientific inference, they seem to be a single cause; the seeming is a DIPLOMONY. The diplonomy between syntax and collocation means that words fit each other under two distinct regimes, grammar and semology, which can be distinguished only by linguistic argument (op. cit.).

The referential diplonomy (extreme right on the chart) means e.g. that a chemist understands chemical text (a) because he knows chemistry, (b) because the text guards him against misunderstanding. Both causes work subtractively: words in the text could each have other meanings, and the reader (a) eliminates those other meanings which would be false or irrelevant in chemistry, and (b) eliminates those other meanings which would conflict with context-words. To the extent that he is an expert native reader, these two processes are mutually redundant; to the extent that he falls short of perfectly knowing the hypostasis or the words, he (subconsciously) assumes such redundancy to learn one from the other.

Thus referential meaning in the present theory is not taken as axiomatic, but rather as the result of a calculus wherein inappropriate candidates for election as referent are subtracted out, and inappropriate meanings of the textual words are subtracted out, so that the particular reference is merely left over: residual.

Preliminary research (op. cit.) tends to show that the processes are structured, with countable items related to each other in a patterned way and interacting by a quantum mechanics. The linguistic half of the process seems to work like this:

A morpheme (least meaningful unit in text) has a complex of possible meanings: all the meanings which it could indicate in all possible texts. This complex is a SEMEME: not simply a list of meanings,
but an internally organized system of **ALLOSEMES**, e.g. the sememe of English *rigid* functions as a ring of 8 allosemes in definite sequence, a sequence discoverable by analysis of how groups of neighboring allosemes get eliminated in context. Thus in *rigid frame* 6 of them are eliminated by incongruity with (all allosemes of) *frame*, leaving those two neighboring allosemes which survive single in *rigid thing* and *rigid structure* respectively; in *rigid frame of reference* the former is similarly eliminated; in *rigid rope of sand*, all allosemes are thus eliminated, producing **NONSENSE**.
PAUL GARVIN (Georgetown University) Let me comment briefly on Professor Joos' very stimulating paper. I think it is reasonable to say that linguistic descriptions are to a large extent exclusion rules. It is equally reasonable to say that the description of any non-random object must largely consist of exclusion rules, otherwise, it would be random and hence, undescrivable. It also strikes me that some of the exclusion rules that were mentioned are open to question. For instance, it was said that in English fortis will not cluster with lenis. This is correct only if one assumes that there is a phonemic plus juncture there. But this can be debated, since it is an automatic phenomenon appearing any time a fortis is followed by a lenis, as in "houseboat," and this is either a fortis plus lenis cluster or fortis plus juncture lenis, depending on whether or not one defines one's juncutures rigorously, and customs vary greatly within the linguistic profession. The second exclusion rule was that singular will not cluster with plural as in "the United States is a very important country." But this does not, of course, invalidate the significance of exclusion rules. However, they are only part of the picture. There are other rules as well, —for instance, mandatory co-occurrence rules, some of which fall under the heading of "complimentary distribution," some not. One very interesting contribution in this respect is the rather old paper by Harris¹ on discontinuous morphemes where the co-occurence was considered so strong as to warrant the assumption of two discontinuous co-occurring forms (which were not yet at that time called morphs) constituting a single morpheme. This is a very interesting and useful idea, because in some instances one has to posit discontinuous morphemes such as the famous roots and patterns in Arabic, or the morph which is left after an infix has been inserted into a stem in a Malayo-Polynesian language. In other words, exclusion rules are very definitely only part of the picture. Then, of course, one gets into the problem of a structure of levels and such for representing the various facets of language. This again is a matter which has been subject to discussion to a considerable extent. The latest seems to be that one has a phrase-structure level and a transformation level. Martin, however, has levels which are more reminiscent of the pre-micro and metalinguistics of another era—an era which some claim is still the present one. I think this is reasonable; and it is extremely

reasonable to make a distinction between the inside and the outside meaning because this does allow you to make a distinction between a cultural description and a linguistic description. It has pragmatic consequences as are outlined in the very interesting discussion of the lexical unit CODE. This then, falls under the heading of "contextual meaning determination," which I believe was touched upon in the final paper.

**MR. JOOS:** It was, of course, impossible for most of you to follow in detail everything I said. These things, however, while written for oral presentation, are also written to be read afterwards. I wanted to put the emphasis on the notion of continuity, — that a linguistic description of meaning should be a continuation of our well established linguistic description practices, and I chose exclusion rules for something that could be carried over from our experience into the new field. Some of what Dr. Garvin said can be foot-noted by remarking that scientific description is always circular anyhow, and so we needn't worry about pluses. We all act circularly and Garvin, I see agrees by an approving shake of the head.

**WILLIAM K. ARCHER:** (Fairleigh Dickinson University and the University of Illinois) Dr. Joos, you mentioned that you have changed your earlier opinion that semology could be treated as a continuous mathematic, to your present view now that it is a quantum-mechanics; and secondly, you have mentioned that there are other areas of semantic study outside of linguistics. I wonder if you could comment briefly on the effort of Osgood, Suci, & Tannenbaum², which I believe is essentially an outside study attempting to get inside, in relation to your views on semology, and whether there is a bridge between these two.

**MR. JOOS:** The fascinating book by Osgood and others called *The Measurement of Meaning* is interesting to all linguists who are concerned with meaning at all, and I think we all ought to be. That was, after all, the main theme of my paper. And negatively, I have this to say about it: the kinds of outside meaning attacked by the methods presented in that book are of a very interesting and rather restricted kind. They all have emotional force in them of one kind or another and it is fascinating to measure in this way how these emotional forces participate in organizing our culture.

MR. ARCHER: In that first chapter they are apologetic about calling this the "measurement of meaning," and they suggest (not in the same vocabulary) that they are trying to move from the outside in,—that is from a hypostatic construction to a construction that would be essentially integral, although in their case "integral" in the psychological sense. I am wondering if you feel that this is completely divorced from your views on semology or if you feel that they are proceeding in a direction that can be semologically identified.

MR. JOOS: Semology treats all such outside matters as axiomatic. This is then a complete divorce. Naturally the two aspects, the inside and the outside, have to resemble each other, otherwise we could not use language for talking about things using the word "things" in the broadest sense. But it is dangerous to take that resemblance as a starting point. I do not say that this book introduces any confusion here, it clearly restricts the field of study to the outside, and thus does not conflict with anything we can do in semology. Anything we can do with distributional meaning, could not conflict. For me, the interesting thing was that the methods used, developed out of a long tradition of experimental psychology (with striking, powerful innovations, of course). They seemed to be better adapted to emotionally charged references than to such things as table and chair. But let us not have the discussion restricted to my own paper. I note that all three of the other papers are concerned with distribution of linguistic items initially identified by formal means. In mechanical translation, the spelling is taken as the only available formal identification. In the other three papers we are concerned with identifications that assume that we have already distinguished between a preposition en and a pronominal en. But in principle, the situation is the same: the item is linguistically identified and seeing how it consorts with other thus formally identified items advances us in our understanding of meaning.

MR. GARVIN: The paper by Lees stimulates me to observe that meaning is indeed an extremely important part in the identification of kernels and transforms. It seems that the little pussy-cat is now being let out of the bag, in this respect, since, if I understand correctly, meaning has no place in linguistics analysis. (This is what it says in one page in the syntactic structures). So, you identify identity of meaning by pair tests, (which is another way of saying that you find out whether it means the same or not by intuition). Then things which mean roughly the same, such as "John drives safely" and "John is a safe driver" are considered transforms of each other.
whereby the direction in which the transformation goes, (that is to say, whether A is a transform of B, or B is a transform of A), is ascertained by a process known in the trade as "elegance," which means primarily the investigator's individual preference and so on.

MR. LEES: It's very difficult to know what to reply to, but one comment was of particular significance, namely a kind of basic misunderstanding of what is involved in our notion of the tasks of linguistics. The comment you made about how one finds out whether something means the same or how one finds out something has a certain grammatical structure or something of that sort does not concern us. And, using this as a criticism is based on a misunderstanding of a point which I made in my paper today, namely, that in order to explicate a notion or a concept it is not necessary to give a test for membership. But your comment is pertinent if, and only if, you do accept that very strong restriction, namely that in order to talk intelligently about some notion, say the linguistic notion, or for that matter semantic notion, it is necessary to give a test for membership, that is to say to use what we call in mathematics "only recursive predicates." However, this is a very very strong requirement which does not appear in any other science that I know of. Just to give a simple-minded example, biologists use the notion cell to very good advantage, but biology does not supply us with a test for membership in the class cell. That is to say, there is no procedure, non-determinate, whereby, given any arbitrarily selected object presented to the biologist, this procedure accurately determines whether the object is a cell or is not a cell. This requirement is not necessary in order to use intelligently the notion cell or for that matter in order to intelligently explicate the notion cell, and similarly to explicate notions on the basis of the notion cell, for example tissue, or bone, or some such thing. Notice again, that no test for membership in the class bone or tissue need be given. The same applies to linguistics, of course. In order to use, let us say the notion noun or adjective, in order to explain something about sentences, it is not necessary to have at hand, a procedure such that given any arbitrarily selected text or any arbitrarily selected word item, the procedure classifies correctly that item as a noun or not. It is only necessary to characterize the notion that one has a set of rules which correctly lists the members of the given class, that is to say, supplies what we call in mathematics recursively enumerable sets.

MR. GARVIN: In linguistics my major worry has always been to find a reasonable definition for the units which I attempt to introduce
as descriptive notions or categories, so I'd like to know for instance what it is I call *nouns* before I call anything *nouns*. This goes back to the ancient custom in American linguistics of not accepting traditional Indo-European categories because they presumably don't fit languages outside of the Indo-European family. And I think that recent research on English tends to indicate that they don't even fit some of the members that are in the Indo-European family. If you say that you can use a notion without having a test for membership in any science outside of linguistics, then why not in linguistics? If that is the case, we are just ahead of these other boys because I can give perfectly good definitions of the units that I introduce in my grammatical description. They may not be as rigorous as one might want but physicists have whispered to me that they have the same trouble when it comes to sub-atomic particles, (you get Heisenberg's principle of uncertainty and so on). Therefore, if you give, let us say a definition of nouns which covers 95% of what you're talking about, you are better off then not defining it at all. And so, I am not strongly in favor of rejecting the use of defining criteria. I am "agin it," and I think that it's obviously possible to describe a language wholly intuitively, and if you're smart enough you don't have to be a linguist to do this. It has been done in the past by such brilliant amateurs as Father Anchieta in Brazil who described Tupi-Guarani in such a way that some kind of historical reconstruction might be quite possible between the Tupi of the Brazilian coast and the present remnants of Tupi languages and Guaraní in Paraguay. If linguistics is going to ignore the procedures by means of which we gain our basic insights and merely take for granted whatever intuition yields us and then discuss this intuitively arrived at knowledge mathematically, then I don't see where linguistics is needed. You just take an intuitive mathematician who knows the language and let him do the mathematics. It's got to be better mathematics than what linguists can cook up. This is just my point of view.

MR. JOOS: Part of what has been said can be simply answered by saying: it is nothing against a procedure if it is circular, since all science is circular anyhow. A second answer which applies to some of the same and part of the rest of the discussion is: that in the advance of a science, whenever a new proposal is raised, it is always possible for someone to get up and say: "you are throwing away some of what we had before." In this case, the problem of identification of categories, in the new circular procedure called "transformation grammar," it is sufficient to identify the category
in a part of the text, possibly a minor part of the text, such as those simple sentences that do turn up here and there in all texts, which qualify as kernel sentences. Having defined the notion strictly, and, of course, circularly, in those simple sentences, then you can proceed by the new technique out into other areas and record triumphs where former methods proved helpless to identify at all.

MICHAEL ZARECHNAK (Georgetown University) I have been following the relation between Soviet linguistic theories and Soviet high-school practices, and I have come to the conclusion that there is not too much of a gap there. On the other hand, there is a great gap between American linguistic theories, primarily, the theory of immediate constituents analysis, and high-school practices in America, where basically, the theory of dependences is being used. My question is, how do we explain this discrepancy, that our high-schools for some reason do not accept American linguistic theories?

MR. JOOS: This could be explained to a very large extent by the difference between evolution and revolution. In this country, as in the English speaking world generally, when something new develops in science, you have to count on a gap in time while it slowly filters down into the schools. A new theory of biology, Lysenkoism for example, could be imposed on the Soviet school by fiat overnight. We cannot do that here. This is part of the explanation.

KHALIL SEMAAN (Library of Congress) To those of us who are on the fringes and not in the center of things it is really gratifying to note that linguists are now realizing the importance of meaning, a subject to which Professor Dostert, Paul Garvin and others have actually been paying tremendous attention. I am stating this in connection with what Robert Hall once said in his classic Leave your Language Alone\(^3\) — there isn’t much one can do really with syntax because syntax deals with meaning. Professor Joos, I notice on the diagram that you distributed that physiology and acoustics equal free linguistics. I wonder whether this precludes the whole range of thought processes which consecutively really precede the phonology state.

MR. JOOS: Physiology and acoustics are certainly logically precedent to phonology in the language, in that you cannot speak

in a human way unless you are human to begin with. The term "free linguistics," however, had better be explained by the man who introduced it to us, George Trager.

GEORGE TRAGER (University of Buffalo) Although some of Paul Garvin's introductory remarks might be taken as relegating some of my views to a now dead past, I am most pleased to find in his subsequent remarks that he too belongs to a past which I don't think is dead. I must commend him for upholding a tradition which I'm afraid is going to have to be upheld for still a long, long time and which can be summarized perhaps in the phrase "linguistics is linguistics and not . . . ." And then I could give you a lot of other things that it is not. As for the matter of free linguistics, this is again a business of parceling out the fields of knowledge for convenience in handling them. If one has languages which are examined in a field which we call linguistics, and if these languages are spoken by human beings who are biological organisms and who have physiological processes going on in them which produce sounds which can be described in terms of branches of physics and in other ways, it is pertinent to have some information about the biological, physical and other non-linguistic processes which are involved. I originally coined the term "free linguistics," to designate those aspects of the outside world, in this case outside of linguistics, which are of interest and pertinence to the linguist. Free linguistics then is the "catch-all" in which all those biological, accoustic and other non-linguistic phenomena and data that may be of pertinence to the linguist may be gathered so that he can look at them with some kind of understanding and doesn't have to work his way through all of the other sciences.

LEON DOSTERT (Georgetown University) Just a footnote on Professor Zarechnak's query about the lack of filtering down of the methodology and some of the data of linguistic science to the high-school level. We should not over-look the fact that under the present defense and education act there will be held during this summer no less than forty institutes for the very purpose of giving high-school teachers in the field of languages at least a preliminary orientation on the problem of language pedagogy. So it would be wrong to see the American picture as zero in that field.
A complete survey of what makes linguists tick would be a very complex undertaking. Some linguists are motivated by what I wish to call here a "sense of mission." When a linguist sees that his studies could be used for the betterment of the society in which he lives, what could be more natural than that he should try to make his presence felt? Scientists in other fields have become "movers and shakers" of their culture — why should not the linguists do so too?

Our society, however, has built up a set of defenses against those who would bring about change. The "reformer" is usually caricatured as a figure to be made fun of, and there are sinister implications in "agitator," "do-gooder," "true believer," etc. Worse still is the "starry-eyed utopian," the "cultist," or the person with a "Messianic complex." But quite apart from this battle of epithets, there is a very sound basis in principle why the linguist should be cautious about espousing a program of reformism. A respect for his material as he finds it is a necessary basis for any practicing linguist. This can be summed up in the doctrine, "whatever is, is right," and it should serve as a strong brake on any "sense of mission." The linguist cannot afford to tamper with his basic material; he must accept it as a "given." The collecting of impartial, unbiased observations is the first step in linguistics, and it must be based on the fundamental assumption that "whatever is, is right."

This doctrine has been traced in the history of English grammars back to the year 1847, in a work by the English grammarian Robert G. Latham.¹ I have found it even earlier, in 1830, used as a motto by Schuyler Clark, in The American Linguist, published at Providence.

Rhode Island, but the author merely quoted Pope's couplet without discussion:

And spite of pride, in erring reason's spite,
One truth is clear, Whatever is, is right.²

The dispute in the early nineteenth century was often couched in the terms of "anomaly" versus "analogy," though they now have an old-fashioned ring.³ The believers in anomaly emphasized concrete details, however unsystematic they might be; while the believers in analogy sought to organize all material into neat patterns.

The avenues or channels by which the "sense of mission" has manifested itself are many and diverse. One type of activity is the improvement of the structure of the language itself. Such plans turn up every few years, and a sample can be given from the year 1785, by the Scottish antiquary John Pinkerton. He believed that English plurals should be formed in -a; thus, a bad pen, plural, bada pena. Also the substantives ending in harsh consonants should have -o added. Thus a passage of The Spectator would read:

I cast mina eyea towardo the summito of a roco, tha waz noto faro fro me, where' I discovered oné in the habito of a shepherdo with a litel musical instrumento in hiz hando. Az I looked upo him, he applied ito to hiza lipa, and began to play upo ito. . . . My hearto melted away in secreta rapturea.⁴

Only five years ago an American projector set forth a new system that he had devised, called "Simplify-ed English." He wished to regularize the verbs, and gave as one of his paradigms: "I am, you am, he am, we am, yous am, they am." ⁵

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²Schuyler Clark, The American Linguist (Providence, R. I., 1830), p. 91.
³See, e. g., Joseph W. Wright, A Philosophical Grammar of the English Language (London, 1838), p. 128: "... those reasonings which refine and improve the language, tend only to unsettle it; because this proper authority (which obliges anomalies to answet for analogies) speaks out and decides the point!"
⁴Under the pen-name of Robert Heron, Letters of Literature (London, 1785), p. 255.
⁵This was reported in an English newspaper (it would be!), by Lord Peterborough, in the London Daily Telegraph, as reprinted in the English Digest, October, 1955, p. 68.
As I look about at my colleagues, however, I see little evidence that they wish to make actual alterations in the language. It may be a temptation now and then, when one is obliged to explain some English irregularity to a student, but the feeling of "whatever is, is right" usually carries the day. The only exception I know of, among reputable workers, is that of Ogden and Richards, whose "Basic English" involved the reduction of English verbs to eighteen operators. They claimed that this was not an alteration of the language, for Mr. Richards has such literary skill that he could make his use of "Basic English" sound natural; but most people have agreed that the limitation is a most unnatural one.

The sense of mission has been illustrated also by centuries of attempted spelling reform, and lifetimes of energy have been poured into it. A few years ago, while I was managing editor of American Speech, I attended a meeting of the Modern Language Association when a spelling reformer was there buttonholing people to gain support for her system. She was so persistent in importuning me to print her work in American Speech that I had to go into hiding for part of the sessions.

The attempt to regulate, purify, and "fix" a language has engaged the attention of many students, often with the suggestion of a linguistic academy. For several centuries, both in England and America, there have been elaborate projects every few years. About a century ago, however, a new generation of linguists, led by William Dwight Whitney, Thomas R. Lounsbury, Brander Matthews, Jespersen, etc., changed the climate of scholarly opinion, so that "corruption" and "decay" were no longer feared. The puristic outlook has survived among the untrained, and one will still see outbursts like the following, from a letter to a popular magazine:

Outlawing the word "mutt" is much approved. I am a ninety-one-year-old gent. Been a "crank" most of my life on slang and other improper features of our language, which I hope will become world-wide and be kept pure. I'm especially anti to the words "got, going and oh, yeah," as in "I have got," "we are going to ask you," etc. "I'd, you'd, aren't I" and others are also on my list. I hope a million educators see my letter.6

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6E. W. Farnsworth, of Sheldon, Iowa, in Collier's, December 6, 1947, p. 76, col. 4.
The "old gent" certainly had a sense of mission, but linguists would call it misguided.

The sense of mission is also involved in the teaching of a language, and especially in the spreading of it to other countries. The spread of English began under the exuberance of the Elizabethan era. The spirit was well stated in 1599 by Samuel Daniel in his poem *Musophilus*:

And who, in time, knowes whither we may vent
The treasure of our tongue, to what strange shores
This gaine of our best glory shall be sent,
T'inrich vnknowing Nations with our stores?
What worlds in th' yet vnformed Occident
May come refin'd with th' accents that are ours?

But even the practice of teaching English abroad has been attacked. I still recall the shock that I had when I first encountered the phrase "linguistic imperialism." It was used in the early 1930's against Basic English when it first began making headway. Are the dedicated American teaching teams who nowadays go abroad guilty of "linguistic imperialism"? This is hard for me to believe. However, we may recall that imperialism has devious ways, and even Christian missionaries have been accused of softening up a foreign country as a prelude to imperialistic incursions. Some of the oratory about the glorious future of English could be said to have sinister overtones. An example is the speech of James Buchanan, American minister in London, on April 6, 1854, two years before he became president. In response to a toast by the Earl of Ellesmere at a formal banquet, Buchanan spoke as follows:

Though not blessed with a poetic imagination, I look forward with confident hope to the day when the English language, which is the language of Christian, civil, and political freedom, will be the language of the larger portion of the habitable globe. No people speaking this language can ever become the willing instruments of despotic power. These great results, in the destiny of the future, are to be peacefully accomplished by the energy, enterprise, and indomitable perseverance of the British and American races.8

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Perhaps this can be set aside as nothing but oratorical pomposity, but it does contain the seeds of imperialism.

The problem of the expansion of the English language is complicated by the fact that two strong political entities, Britain and America, make use of it. For many generations American English occupied such a modest colonial position that it offered no real competition. The earliest indication that I have been able to find of an Englishman recognizing the threat of American English is from the year 1834. In that year an English traveler, Charles A. Murray, while at Burlington, Vermont, visited the University of Vermont, then a small place of 100 students. He reported:

I had little opportunity of talking with any of the students, but was informed that among them were three Germans come thither from Gottingen to study the English language! Is there nothing in this to rouse the attention of Oxford, Cambridge, London, Edinburgh, &c. that three young men, desirous of learning English, should find it expedient (from reasons of economy or other facilities) to travel between four and five thousand miles to a remote town in the interior of North America?

About fifty years later than that, the teaching of American English met with great difficulty in Paris. In 1882 a minister's wife from Providence, Rhode Island, on a tour around the world, wrote home from Paris, as follows:

American-English is quite at a discount in Paris. I am told that it is an exceedingly difficult matter for an educated American girl to obtain a good situation to teach English in the Parisian capital. We are not so much to blame as the jealousy of our cousins, and their persistent effort to impress upon Continental people that Americans speak a corrupt dialect of the pure English. Parents, here, do not wish their children to learn either outlandish Zulu, or outlandish American.

I think that the charge of linguistic imperialism cannot be substantiated with regard to teachers of English, no matter how strong

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their "sense of mission." They are fulfilling a demand that comes to them, and I have seen no evidence of a desire to nominate or to impose on others.

The urge to build international languages has engaged the sense of mission of many linguists, and the bibliography alone of the field is staggering. I have respect for the mountains of effort that have gone into this enterprise, but the artificiality of the results, compared with natural languages, is distasteful to me. I am chiefly impressed by the bitter rivalries and the waspish bickerings between the proponents of the different schemes. Little can be expected in this field, because the rivals can be counted on to kill each other off.

The enterprise of increasing literacy in all parts of the world seems beyond criticism. When faced with the fact that three-fifths of the human race is illiterate, we find the doctrine of "whatever is, is right" fading away completely. The career of Dr. Frank D. Laubach is a monument to what the sense of mission can accomplish.

I have left to the last the area in which my own sense of mission has its greatest intensity. I refer to the spreading of the insights that are commonly known by the name of the "Whorfian hypotheses." It seems to me that the most important benefit that linguistics has to offer is the awareness of the role of language in determining our perception of the event level of existence. In this outlook, language is not a garment or vehicle of ideas, but it is the very medium, the mechanism itself, by which human actions are produced.

The best way of showing this is to analyze typical social situations and to point out the linguistic factors at work. The example that I wish to present first is a newspaper dispatch from Chicago to the New York Times, when Chicago's subway was being installed, as follows:

The plight of elderly persons who are puzzled by the escalators in stations of Chicago's new subway was demonstrated last night by a woman about 65. She tried repeatedly to walk up a descending escalator at the Madison and Monroe station. Finally she managed to get up about six steps and, holding to the guard rails, kept pace with the escalator in treadmill fashion. A guard shouted to her to turn around. As the woman reached the bottom again, she collapsed. Revived
after first-aid treatment, she said: "The old-fashioned stairways will suit me hereafter."11

Here is a case, it seems to me, where a misevaluation was the result of the words whirling about in her head. She did not examine the event in front of her but followed the words given to her by her culture. On seeing an escalator for the first time, she classified it as "stairs." She saw only what her language allowed her to see. She had known stairs all her life, and stairs are meant to be walked up. If she could have looked at the situation without the mediation of language, she could have seen that a channel of material coming downwards in her direction was not the proper means for going upwards. However, her language categorizing supervened over observation of the facts.

Although the "Whorfian hypotheses" have their most provocative statement in the work of Benjamin Lee Whorf, about 1940 and 1941,12 forerunners can be pointed out from Wilhelm von Humboldt on, especially Edward Sapir in the 1920's and Alfred Korzybski in the early 1930's.13 A. F. Bentley found language to be the mainspring of human behavior, and Ludwig Wittgenstein, before his death in 1951, moved in the direction of linguistic analysis as the sole field of philosophy.

It would seem on the face of it that linguists ought to leap with enthusiasm to the acceptance of the Whorfian outlook, but as a matter of fact they have moved in a gingerly and cautious manner. Why should this be? I think that I can isolate three reasons.

In the first place it could too easily lead to the conclusion that one language is better than another, and of all notions regarding language that is most of all to be anathematized. Whorf seems to be saying that if Hopi has a segmentative category in its verb system, it is superior to other languages as a medium for observing nature.


13His Science and Sanity of 1933 is supplemented by the important paper that he was working on as he died in 1950: "The Role of Language in the Perceptual Processes," in Perception; an Approach to Personality, ed. R. R. Blake and G. V. Ramsey (N. Y., 1951), pp. 170-205.
In his own words of 1936: "The Hopi actually have a language better equipped to deal with such vibratile phenomena than is our latest scientific terminology." But linguists are keenly aware that languages have remarkable compensatory mechanisms, and alleged deficiencies or alleged superiorities even themselves out in the long run. If the early Germanic dialects lacked a future tense, their speakers could talk about the future readily enough by the use of adverbs of time. Although a language can become enriched by the cultural experiences of its speakers, the basic categories of known languages are so much on a par that it is foolish to evaluate any language as intrinsically better than another. Linguists would take exception to the statement of one of America's leading sociologists, Alvin Johnson, concerning his native tongue: "The Danish is a simple, non-provocative language. It is a language in which you can speak the truth without offence, and can't speak a lie without detection." How fortunate the Danes are!

In the second place, the Whorfian hypotheses are open to the danger of over-simplified application. It is all too easy to attribute cultural effects to some particular linguistic feature. For instance, when an English traveler, Major John Thornton, came to this country in 1850, he was distressed by the colloquial American use of the verb *to guess*, and he set down the following comments in his diary:

> A parting word to brother Jonathan on the indiscriminate and unmeaning use of the word "guess." To speak with ambiguity, when you can speak with certainty, is prejudicial to truth, and the best interests of mankind, and is a habit brother Jonathan would correct did he see its bearings with the eye of experience. The vague and ill defined use of the word "guess" embodies in it a dangerous principle inasmuch as people may go on to guess at every thing, and be certain of nothing. The expression "I guess" should never be used but in its true and proper sense, or otherwise it serves too well to aid the fraudulent, the false, and the malicious, by raising doubts and suspicions whenever a cheat wishes to mystify and confuse; by invariably using correct language we cut up "Humbug" by the roots, and promote the cause of truth and honesty.  

1^Language, Thought, and Reality, op. cit., p. 55.

1^New School Bulletin, V, No. 25 (February 16, 1948), 1.

1^Major John Thornton, Diary of a Tour through the Northern States of the Union and Canada (London, 1850), p. 119.
It is doubtful if the off-hand American "I guess so" will bear this much moralistic interpretation. Another sample of the too easy explanation is by a Japanese writer, Satoshi Ichiya. He has written:

When an Englishman finds himself in a predicament he says he is "in a hole," whereas the American in a similar situation will tell you he is "up a tree." The former seems to indicate English pessimism or fatalism rather, and the latter, American optimism, inasmuch as the man "up a tree" can at least cherish a hope that he will eventually escape from his dilemma into the clouds above.\(^7\)

The strained nature of such interpretations has been well satirized by Joseph Greenberg in the sentence: "Because the sergeant barks at his men it does not follow that we feed him dog biscuits."\(^8\)

In the third place, the Whorfian hypotheses can probably never be "proved" in any sense that is acceptable to logicians or indeed to ordinary users of the word. Linguistic features never appear in isolation; they are always part of a complex social situation, and the attempt to isolate any one feature is likely to fail. One can never be sure that any particular feature is the operative one.

In fact, the words "cause" and "effect" are too crude to describe what is going on. A field of characteristics transforms into another field of characteristics, and under such multi-causation, the change cannot be attributed to any one feature. A word altogether different from cause must be used, and I suggest that the verb to coach offers the best description of the relationship. That is, words, categories, patterns "coach" the behavioral responses in a culture. Sometimes the coachings are not strong enough to be effective; but such ever-present gentle pressures have a significant influence in the long run. Our behavior is nudged ahead, in one direction or another, by linguistic forms. A word or category will nudge us to do something rather than cause us to do something. People with the so-called "logical mind" may not approve of this type of approach, but if it represents the nature of the relationships they must work with, they will have to put up with it. A figure of speech used by Wittgenstein may be

\(^7\)Satoshi Ichiya, "King's English" or "President's English"? (Kobe, Japan, 1933), p. 86.

helpful here: "And the strength of the thread does not reside in the fact that some one fibre runs through its whole length, but in the overlapping of many fibres."\(^{19}\)

Another restatement of the Whorfian outlook would be this: all human evaluation as well as misevaluation takes place in the medium of language. That is, when people act, the segmentation of their universe and the relationships that they perceive in it are determined by the language they habitually use.

Let us look at a situation that arose during the last war. The following report appeared in an American paper:

This week an officer suggested to General MacArthur that the U.S. flag on Army headquarters was a fine marker for raiding airmen, suggested it be brought down. Said Douglas MacArthur: "Take every other normal precaution for protection of the headquarters, but let's keep the flag flying."\(^{20}\)

Linguistic analysis will make the issues plain in such a situation. A piece of cloth is transformed into a flag by language and by language alone, and a considerable emotional dimension has been built up in the use of it. But could not General MacArthur have equally as well said, in a ringing, impressive voice: "Fly the flag when it is safe to do so, but let's keep headquarters functioning!" Now does linguistics offer a basis for a choice between the two decisions? The answer is a clear no, for linguistics can offer only clarification of issues and not ultimate goals. These goals must be supplied from some other source.

In order to find them, it is possible to take a larger base, beyond linguistics, and to ask "What is the nature of man?" The asking of this question has resulted, in one attempt, in the larger discipline called "general semantics," as formulated by Alfred Korzybski, and the basic answer he found is the assumption that it is the nature of man to try to survive. Thus "survival value" is the fundamental criterion by which behavior can be judged. On this base he elaborated a system that made use of the full range of science to achieve the optimum development of human potentialities.


\(^{20}\)Time, December 22, 1941, p. 18, col. 1.
Other people may prefer to accept their goals from the maxims handed down in their culture or from the assumptions of the religion they have espoused. While linguistics itself does not offer criteria for ethical judgment, its clarifications are so freeing, the enlightenment it yields is so stimulating, that one's sense of mission has ample scope for the dedication of a lifetime.

It may be asked by some whether it is not desirable to make a distinction between pure linguistics and applied linguistics. Should the linguist as such ever "do" anything at all? I have never been impressed by the attempt to make artificial delimitations of the field. One is simply faced by interesting problems and must try to find the answers wherever the answers are. The "pure linguist" will find himself unable even to make a sound, for he soon retreats into phonemes, and a phoneme, as we all know, has no sound. The purest linguist can only indulge in "mentation." But alas, even mentation, the neurologists tell us, involves vulgar electrical waves. I am showing here, in my sarcasm, the bias of my background as a very impure lexicographer.

Throughout this talk I have posed a contradiction between the sense of mission and the doctrine "whatever is, is right." Must we leave this as an unresolved paradox? I think we need not do so. When we examine the words "whatever is" we see that they seem to refer to a static quality, whereas the world we live in is constantly changing, is ever in flux. The phrase "whatever is" must be accepted then at a higher lever of abstraction, to include the ever-changing process-world. Would it not, in the long run, even include the sense of mission? Furthermore, it may be that the sense of mission, at its best, is co-terminous with living itself, and the linguist who has it is merely a warm human being, responding to the problems that attract him.
PANEL II

LINGUISTICS AND LITERATURE
The notion of linguistic style which I should like to suggest derives from a view of meaning developed by philosophical semantics, of semiotic, specifically the work of Monroe Beardsley, although with ultimate reference back to Charles Stevenson, C. K. Ogden and I. A. Richards, Max Black and Charles W. Morris. That view is briefly as follows: "meaning" is essentially a causal relation, behavioristically delimited. It consists of the disposition of a sign to affect a hearer (for the present purposes, a sign is taken in the narrow linguistic sense of any sound or combination of sounds or representations thereof which operate conventionally according to the structure of the language of which they are a part). The disposition or capacity to affect the hearer is called (after Beardsley) the Import. Import is of two sorts: Cognitive Import, or Purport (the capacity to affect the hearer's beliefs) and Emotive Import (the capacity to affect the hearer's feelings). For example, on hearing someone say, "Look, there's a dog!" one may respond in one or both of two ways: (1) he may believe that the speaker is saying something about a dog nearby, and (2) he may respond emotionally to the utterance for reasons out of his own personal history, say with fear or with a feeling of affectionate warmth. On the other hand, one may, or course, have no response whatsoever to the utterance; he may not have heard it, or he may have heard it and ignored it; still the utterance had meaning, since we have defined meaning as the disposition of a sign to elicit responses, even if it may not do so in particular instances. It is a matter of controversy whether utterances can have only emotive import or whether they must also contain an element of cognitive import, that is, purport; again following Beardsley, whose reasons I have no time to rehearse, I will assume that purport is always a necessary element in every utterance.


2 Beardsley, op. cit., pp. 120-122.
Purport, the capacity or disposition to affect the hearer's beliefs, rather than his feelings, is itself of three sorts: (1) cognitive purport, or meaning in the narrower sense, is the disposition or capacity to convey information (i.e., to affect the hearer's beliefs) about the speaker's beliefs; (2) emotive purport is the capacity to convey information about the speaker's feelings; and (3) general purport is the capacity to convey information about other characteristics of the speaker. These distinctions are best demonstrated with an example: let us consider again the utterance "Look, there's a dog." Disregarding emotive import, the capacity of that utterance to affect the feelings of the hearer irrespective of his beliefs, we may recognize these possibilities for purportive aspects of the meaning complex:

(1) *Cognitive purport:* the hearer understands that the speaker believes a dog to be nearby;

(2) *Emotive purport:* let us assume that the speaker introduces linguistic and paralinguistic features that signal alarm; for example, extra-high pitch, extra loudness and so forth. The hearer may understand by these that the speaker has feelings of alarm.

(3) *General purport:* because the speaker selects certain linguistic or metalinguistic features — let us say he pronounces *dog* as /doʊg/ or /dəʊg/ — the hearer can identify him as a certain kind of individual, say a New Yorker or a Southerner; because his pitch range extends between certain levels, he can be identified as a man, instead of a woman or a boy; because his voice is hoarse, we can perhaps perceive that he has a cold or that he has been talking a lot.

Now I wish to define a speaker's *style* as that totality of linguistic and paralinguistic features — that profile if you will — which has

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3On the advice of Martin Joos I have changed the term "metalinguistic" to "paralinguistic" to bring my terminology in line with current usage. Joos prefers to use "metalinguistic" to indicate "the structure of the hypostasis" (see his paper in the present volume, and G. L. Trager, "Paralanguage: A First Approximation," *Studies in Linguistics*, XIII (1958), 1-12 and included bibliography). "Paralanguage", a term suggested to Trager by A. A. Hill, refers to those "phenomena which accompany language, usually referred to by such terms as 'tone of voice'." Trager divides the paralanguage into "voice set as background for, and voice qualities and vocalizations as accompaniments of, language proper" (p. 8.).
the capacity to identify the speaker as an individual of such and such a sort; that is, style features are features that signal general purport. The fact that in many situations such features may not be used for identificational purposes does not disturb us since we have only claimed that they have the capacity or disposition to do so. Thus, for example, a Texan's selection of vowel phonemes from the overall pattern may only emerge into meaning when the question of the speaker's provenance becomes an issue. It will not do to write off such features as insignificant because they are often semantically neutral, since in some contexts they may become so important as to override all other kinds of meaning; imagine, for example, a situation in which, after hearing that a Texas convict is loose in the vicinity, one is accosted by a man on a dark street who speaks with a Texas accent. The cognitive and emotive purport of what the man was saying would obviously pale into insignificance in comparison with the general purport his utterance presented and its emotive import for us.

One's style, then, is one's particular way of speaking; whether that particularity means anything or not, however, is determined by the specific communication situation in which utterances exhibiting them are made. We can speak, then, of the disposition of style features to mean, on the one hand, and of their actual meaningfulness, on the other, as their emergence into meaning.

The study of literary style seems to be something more than merely a special case of studying styles in general. Literature is planned discourse, to which speakers of the language attribute esthetic value, and an analysis of the style of a literary artist must be related somehow to the fact that he exercises a more conscious control over it (for the purpose of eliciting value responses) than ordinary speakers. He regularly does so in terms of literary conventions which have grown up within the tradition of his literature. Literary conventions handle the facts of language in characteristic ways, and they are themselves signs in the broader semiotic sense: they signal that the speaker is a poet, for example, with all the complex meanings which that role implies in Western Civilization — willing submission to the exigencies of form, imaginative freedom, the possibilities of assuming different roles for dramatic purposes, the general ability to speak what are, from the literal point of view, lies, without social disapproval, etc.
I will say nothing more about literary style since I have recently undertaken to analyze the stylistics of one such convention, meter, and I am here concerned primarily with isolating another kind of stylistics, the stylistics of literary performance.

It is quite clear that every literary text is susceptible of a variety of performances. This stems from the obvious fact that the speaking voice conveys more information than can be conveyed in conventional writing systems, and thus makes explicit more of the message of the discourse than print can. This explicitness, despite some literary critics, is mandatory: the voice cannot hover between interpretations. It is committed, to a greater degree than is the printed text. The added information is typically suprasegmental and paralinguistic in nature. Automatically feeling the need to do so, the performer decides on an interpretation of a discourse — that is, a view of its total meaning — and then selects those features of stress, pitch, juncture, and paralinguistic features which he feels are necessary to depict that interpretation. (For a more rigorous and neater definition of "interpretation" and its distinction from two other terms, "elucidation" and "explication", see Beardsley. 5) An important difference between professional and amateur performances is that professional performers have developed a much greater ability to "put over" lines. On the other hand, the less able reader, although he may have a good understanding of the poem, often unconsciously introduces irrelevancies or even incongruities into his performance because he has a narrower repertoire of suprasegmental and paralinguistic patterns and is too tied by habit to those which he does use to develop the flexibility of voice which dramatic reading requires. Thus it is clearly possible to speak of different kinds of performances. As we've said, performances may vary in quality. Further they may vary in emotive purport: to take a very simple example, one reader might interpret and perform a line at its face value (i.e., with its minimal cognitive purport) while another might introduce what amounts to an ironic commentary on the cognitive purport:

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\text{3He's a nice guy!}
\]

versus:

\[
\text{His nice guy!}
\]

or:

\[
\text{He's a nice guy!}
\]

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5Beardsley, op cit., 129-134, 242-247, 403-406.
Further, performances may vary in respect to which identificational or general purportive features the performer feels are necessary to satisfy the role. This is most obvious in the case of dramatic texts, but in a broad sense, every literary text, even a lyric poem, is dramatic insofar as it implies a speaking voice which in turn implies an attitude, and hence a character. The first person singular, we are told by critics, is not to be identified with the poet himself. As an example of the problems of selecting features of general purport in performance, consider Iago: if one chooses to perform Iago as a latent homosexual and paranoic, he will adopt one set of identificational vocal features. If he prefers to perform Iago as the incarnation of the evil principle he may select a slightly different set of identificational features. It seems useful to make two distinctions here. First, there is a difference between depicted emotive features and depicted general features: that is, a paranoic, homosexual Iago may be angry or happy, and, on the other hand, features depicting anger or happiness of such an Iago will differ somewhat from those indicating the anger or happiness of some other sort of Iago. Secondly, performances differ in the extent to which they disassociate the actor’s own identificational features — that is, his own linguistic style — from the performance style, the set of general purportive features which he has chosen to illustrate the role. This is most obvious when we compare two kinds of actors: consider the performances of a screen-star, an actor who is so powerfully identified as a personality apart from the role he plays that people actually go to the movies to see him, rather than the role he is playing, or to see him turn the character he is ostensibly depicting into an image of himself. And then consider the performances of a character actor whose wide-ranging repertoire allows him to adopt a great variety of differing identificational patterns and whose personal linguistic style may be completely unknown to the public. But even with well-known actors, it is not an impossible maneuver to distinguish the style of the actor from the style of the projected character: John Barrymore as an indecisive Hamlet, John Barrymore as a revengeful Hamlet, Laurence Olivier as an indecisive Hamlet, Laurence Olivier as a revengeful Hamlet, etc.

To summarize, consider the chart on the blackboard:
In this chart, I've attempted to make the following distinctions: every performance entails features of general, emotive and cognitive purport which are based upon the performer's interpretation of the text. The signalling of understood cognitive purport seems, for all practical purposes, a neutral function: those suprasegmental and paralinguistic features are selected which do least to impair the conveyance of the character's beliefs as understood by the performer. But the signalling of understood emotive and general purport is richer in possibilities and depends more directly upon the reader's interpretation. The selection of features to signal local emotive purport is based upon the performer's interpretation of the character's feelings at the particular moment at which he speaks. The selection of features to signal the general purport, that is, the character's style, is based upon the performer's interpretation of the character's general traits, his age, sex, education, dialect, general disposition, etc. But the total general purport of the performance seems always to contain, in varying degrees, stylistic features of the performer's own linguistic style. I separate this from the performance per se by a broken line. The extent of the inclusion of these personal features in the performance varies between performers; some performers eliminate most of them, others include a great number, so that their own personalities seem mixed up with the roles they perform to an unusual degree.
At the bottom of the diagram I indicate the source consulted for the selection of linguistic features, namely the literary text itself. Notice that the literary text indicates cognitive purport explicitly, but emotive purport both explicitly and implicitly. For example, a play may give in its introductory stage directions explicit information concerning what general purportive features would be depictive of a character: he is thirty-nine years old, was born in Scotland, was badly educated, etc. And later in the play, before one of the character’s lines, a stage direction might give information concerning which emotive purportive features are appropriate, for example "(angrily)". On the other hand, no stage directions might occur, and the performer would have to deduce appropriate features from what the character actually says and does.

As a very brief illustration of these distinctions I’d like to play two performances of lines from the second section of T.S. Eliot’s The Waste Land, called “A Game of Chess”. The two parts of this section which I am interested in consist, first, of a description of a magnificent room in which is seated a beautiful, rich, neurotic woman, and the second, of an appeal by her to someone else, presumably her lover, and his response. The two performances are by the poet himself and by Robert Speaight, an actor and professional reader; the responses to these performances which I report were made by my informant, a professor of English Literature who has read the poem many times.

My informant’s general impression was that Eliot, unlike Speaight, managed to get across the idea that the person who describes the room in the first selection is the same man who responds to the woman’s appeals in the second. He is, in fact, the general protagonist of a poem, a bored and weary and sad man who appears in several guises, who is always confronted by the futility and sterility of the Waste Land and by the fact that he is himself an inescapable part of it. Thus the beauty of the magnificent room badly conceals the hollowness and barrenness of modern civilization. My informant detected a note of weariness, despair and resignation in Eliot’s performance of the description of the room. In Speaight’s performance,

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however, he got the impression that the performer was anxious to vivify the scene, to paint the gloriousness of the room by making it almost come alive for us. Struggling for words to describe the effect, my informant spoke of Speaight’s recourse to what he called “dramatic bits”, that is, making much of individual lines and words to excite a feeling for the color and mystery of the scene; but, in so doing, Speaight, he felt, lost the overall or global nature of the protagonist’s relation to what is described and what occurs.

There are several instances of this throughout the entire poem, but perhaps the clearest occurs in the first selection, wherein is described a painting above the mantle which depicts the rape and metamorphosis of Philomela. Critics have felt that the rape symbolizes the violation and destruction of beauty by man’s desire and the barbarous secularization of life; the fact that “pursues” is in the present tense suggests that the process is with us today and will continue to be with us. Beauty, the lovely song of the nightingale, is transformed by the world into a coarse sound for coarse ears: “Jug, jug.”

My informant felt that the impression Speaight gives is quite different from that of Eliot: Speaight is horrified and disgusted by the dirty interpretation of the bird’s voice. Eliot is sad about it, resigned about it, but not horrified or disgusted. Indeed, his pronunciation of “ears” sounds almost compassionate, as if he recognized that he too, willy-nilly, was implicated in the world’s deeds.

The same kind of difference emerges in the reading of the second or dialogue part of this section. The woman berates her paramour for not speaking to her and angrily asks him what he’s thinking about. He responds, probably to himself or to the reader, rather than to her, by striking again the note of sterility: in the Waste Land even death cannot fertilize the soil — dead men lose their bones and all for nought. My informant felt that Eliot gives the impression of utterable weariness, whereas Speaight manages to achieve only a kind of oracular declamation.
'What are you thinking of? What thinking? What?
'I never know what you are thinking. Think!

I think we are in rats' alley
Where the dead men lost their bones.

Finally, the same sort of difference occurred to him in the next line; Eliot's performance suggests a waery and resigned commentator, Speaight's a solicitous, almost patronizing participant in a discussion:

'What is that noise?'
The wind under the door.

Such distinctions are subtle, no doubt, and not easily described, but I think it is important to recognize them as part of the amazing complexity of the total literary work of art.
I take my text from I. A. Richards — appropriately enough, since he has an impressive stature in both disciplines which are here meeting in tentative amity. In his book *Practical Criticism*, after describing four kinds of meaning involved in poetry, he suggests that readers of poetry may be trained by exercise in two kinds of paraphrase, "the one to exhibit the sense of the poem, the other to portray its feeling." The first of these, he goes on to say, "requires only an intelligent use of the dictionary, logical acumen, a command of syntax, and pertinacity." I have observed that even those explicators and critics who stop to perform this more humble and pedestrian analysis before plunging ahead to the headier realms of paradox, tension, and symbolism, however gifted they may be in lexical intelligence, logical perception, and doggedness, are likely to disregard syntax almost wholly. Anything approaching 'command', even of the traditional Latinate kind of parsing, is rare enough. The newer syntax of suprasegmental morphemes, tagmemes, and immediate constituents and the newest syntax of kernels and transforms seem to be totally unknown.

This neglect of one of the principal keys to plain sense can be perilous. I cite only one example. It is from Kenneth Burke — ironically enough from his collection entitled *A Grammar of Motives*. In the essay entitled "Symbolic Action in a Poem by Keats" he develops an interpretation of the "Ode on a Grecian Urn" which depends rather heavily upon a reading of the last six lines of the third stanza of that poem which seems to me to do violence to syntax in a particularly wrong-headed way.

The lines in question are these:

*More happy love! more happy, happy love!*
*For ever warm and still to be enjoy'd,*
*For ever panting, and for ever young;*

*All breathing human passion far above;*
*That leaves a heart high-sorrowful and cloy'd,*
*A burning forehead, and a parching tongue.*

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Mr. Burke comments as follows:

The poem as a whole makes permanent, or fixes in a state of arrest, a peculiar agitation. But within this fixity, by the nature of poetry as a progressive medium, there must be development. Hence, the agitation that is maintained throughout . . . will at the same time undergo internal transformations. In the third stanza, these are manifested as a clear division into two distinct and contrasted realms. There is a transcendental fever, which is felicitous, divinely above "all breathing human passion." And this "leaves" the other level, the level of earthly fever, "a burning forehead and a parching tongue." From the bodily fever, which is a passion, and malign, there has split off a spiritual activity, a wholly benign aspect of the total agitation.²

It is clear from this that Burke takes the clause contained in the last two lines as a modifier of the "happy love" apostrophised in the first line quoted. This, in turn, forces him to read leaves with the meaning "departs from, leaves behind." This seems to me — and to several others upon whom I have tried it out — a violent wrench to the syntax of the sentence. Surely in placing the clause where he did and introducing it with the close relative that, Keats meant this clause to modify passion and intended leaves to mean "results in, leaves as residue." He balances three lines about "happy love" against three lines about "human passion"; the unmoving, marmoreal, unsatiated, eternally suspended love memorialized on the urn is far superior to transitory fleshly passion, which, caught in the flux of time, inevitably passes into melancholy and feverish satiation. By wilfully disregarding the syntax, Mr. Burke has also upset the rhetorical balance of the lines, which Keats had emphasized by the triplicate rime structure, the indentation, and the semicolon at the end of the third line quoted.

Howlers of this sort are admittedly not very frequent. I am more concerned about the fact that an explicator faced with a difficult poem or passage almost never uses close syntactic analysis to match the scrupulous attention he gives to lexical matters. The assumptions seem to be that syntax can usually be taken for granted, and

that when a favored lexical interpretation collides head-on with syntax, it is the syntax that must give. This second assumption, I suspect, was the cause of Mr. Burke’s error about Keats. He wanted *leaves* to mean “transcends,” which in turn required the clause of which it is the verb to reach back, across one very eligible antecedent and five adjective phrases in appositional position, to find its head four lines — rather than three words — earlier.

The native speaker can, of course, usually take syntax for granted as long as all goes well. For him, only syntactically ambiguous utterances are of even passing concern, and these he usually resolves on the basis of lexical, rather than grammatical, clues. So common is this habit — which is perfectly legitimate in easy poetry — that most people aren’t really aware of how many syntactic ambiguities there are, especially in written English, where punctuation only partially makes up for the absence of prosodic features. But when the lexical clues fail, when the poet is purposely, almost, one sometimes feels, maliciously, avoiding the texture of lexical compatibilities and mutual reinforcements which characterizes most discourse, then the syntactic ambiguities come out from behind the mask of words to add to the reader’s discomfort. No amount of dictionary grubbing seems to help; logical acumen is of no service in deciphering a writer who has abandoned logic; pertinacity leads only to frustration. The remaining avenue — close syntactic analysis — remains unexplored. I do not intend to suggest that it will prove the universal skeleton key to all difficult passages. But if it does nothing else, it will at least put the words in their places, and supply some kind of calculus of probability for appraising the validity of competing readings. I would like to emphasize the idea that syntactic analysis operates largely in the realm of probability; it seldom deals with either clear-cut decisions or heads-or-tails dilemmas. Mr. Burke’s reading of Keats which I have criticized above, is not an impossible one; it is simply highly improbable. Keat’s passage, in other words, is syntactically ambiguous — not, however, with a 50:50 kind of ambiguity, but something on the order of 95:5. Mr. Burke’s error was to pick the 5 side without sufficient justification from the total fabric of the poem, the exigencies of the diction, and the rhetorical structure of the stanza in hand, and without assaying, or at any rate clearly stating, what the syntactic probabilities are.
I should like to spend the remainder of my time with an example, chosen expressly for its difficulty. It is the first sonnet from the sequence "Altarwise by owl-light" by Dylan Thomas.3

Altarwise by owl-light in the half-way house
The gentleman lay graveward with his furies;
Abaddon in the hangnail cracked from Adam,
And, from his fork, a dog among the fairies,
The atlas-eater with a jaw for news,
Bit out the mandrake with to-morrow's scream.
Then, penny-eyed, that gentleman of wounds,
Old cock from nowheres and the heaven's egg,
With bones unbuttoned to the half-way winds,
Hatched from the windy salvage on one leg,
Scraped at my cradle in a walking word
That night of time under the Christward shelter:
I am the long world's gentleman, he said,
And share my bed with Capricorn and Cancer.4

I should like to locate the syntactic ambiguities in this baffling poem, and see how (or if) they can be resolved. This will not, I hasten to add, lead us to a lucid explication of the poem. But it will supply the framework which such an explication, if one is possible, must follow, and set the bounds beyond which it must not venture.

The poem is punctuated as four sentences, the first two separated by the semicolon at the end of line 2, the second and third by the period at the end of line 6, and the last two by the colon at the end of line 12. All the lines are end-stopped; that is, they would be read aloud with some sort of terminal juncture at the end, though in each

3This poem is by way of being a classic challenge to explicators. See, for instance, Elder Olson, The Poetry of Dylan Thomas (Chicago, 1954), 63-69; Ralph N. Maud, Explicator XIV (1955), 16; Bernard Kniefer, Explicator XV (1956), 18; Erhardt H. Essig, Explicator XVI (1958), 53; Monroe C. Beardsley and Sam Hynes, "Misunderstanding Poetry: Notes on Some Readings of Dylan Thomas," College English, XXI (1960), 315-22. Only Olson devotes more than a passing comment to Thomas's syntax, to which he gives up about a page of a ten-page chapter on "Techniques of Language" (60-61). It is, he rightly says, "full of pitfalls for the unwary." His discussion, in purely traditional terms, perhaps increases wariness but gives no clue to how the pitfalls are to be skirted.

case the choice of which one of the three terminals might vary with
the dialect and individual style of the reader, even if all readers could
agree on a single interpretation. Each line is thus treated as a
syntactic unit.

The first sentence, lines 1-2, is unambiguous. Trouble begins in
line 3, which is syntactically ambiguous because of the morphological
ambiguity of cracked, which can be either a preterit or a past parti-
ciple. The line is either a predication, with subject Abaddon in the
hangnail and predicate cracked from Adam, or a modification, with
head Abaddon and modifier in the hangnail cracked from Adam, in
which case cracked from Adam modifies hangnail. In other words,
the problem is which IC cut comes first, that after hangnail or that
after Abaddon? In the first case, the line is an independent predica-
tion coordinated with that in lines 4-6; in the second case, the whole
line must be considered in loose apposition with gentleman in line 2,
and the And at the beginning of line 4 coordinates the predication
of lines 1-3 with that of lines 4-6.

The general syntactic structure of lines 4-6 is clear (introductory
phrase followed by a predication), but they contain two ambiguities.
The first concerns the function of a dog among the fairies: is it the
subject of the predication, or is it in apposition with fork? That is,
which IC cut has priority, that after fork or that after fairies? If the
former, the noun-headed phrase in line 5 is in apposition with a dog
among the fairies; if the latter, it is the subject. The second ambi-
guity is in the predicate which fills line 6, and concerns the function
of the phrase with tomorrow's scream. Does it modify only the direct
object, mandrake, or does it modify the whole complementation,
Bit out the mandrake? That is, do we cut first after out or after
mandrake? Notice that this determines what screams, the mandrake
or the atlas-eater-dog complex.

The broad syntactic pattern of lines 7-12 is also apparent. It is
a single long predication, with a subject whose head is gentleman
built up by a series of appositive and participial modifiers, a predicate
which may be single and may be coordinate, and a concluding
sentence-modifier filling line 12 and balancing the then with which the
sentence begins. Apart from some minor uncertainties about the
hierarchy of the constituents of the subject, there are three syntactic
cruxes of some importance. The first concerns the function of the
heaven's egg: is it coordinate with nowheres or with Old cock?
That is, do we cut first after cock, making nowheres and the heaven's
egg coordinate objects of from, or after nowhere, making Old cock from nowhere and the heaven's egg coordinate appositives, modifying that gentleman of wounds? From the point of view of meaning, is the gentleman of wounds also a heaven's egg, or did he just come from one?

Secondly, is Hatched a participle, in which case line 10 is one more of the loosely coordinated or pyramided string of modifiers of that gentleman of wounds; or is Hatched a finite verb, so that line 10 is the first of two predicates in asyndetic coordination, the second being line 11? In IC terms, do we cut first after leg or after winds? In terms of meaning, was the gentleman already hatched or did he hatch during the course of the poem, before he scraped and spoke?

The third ambiguity in this sentence is relatively minor, in that its effects on meaning is unimportant. Does the phrase on one leg modify the phrase Hatched from the windy salvage or only the windy salvage? Is the first IC cut after salvage or after Hatched? Does the line say that the hatching took place on one leg, or that the salvage was on one leg?

The final sentence, filling lines 13-14, is syntactically as perspicuous and unambiguous as the first. So far as syntax is concerned, therefore, the difficulties of the poem lie in the middle two sentences, occupying the middle ten lines. We have located six principal ambiguities, which may be thought of either as problems of syntactic relationship or problems of IC division, depending on how you like to approach your syntactic analysis. In either case, how, if at all, are these problems to be resolved? Can we arrive at some sort of estimate of the probabilities of the competing readings?

Assuming that in locating the ambiguities we have exhausted the information conveyed by morphology, concord, word order, and the unambiguous marking of parts of speech, there remain three sorts of clues. These differ in relative significance from one poet or one poem to another; I shall present them in order of decreasing linguistic validity. The first is punctuation, whose primary function is to suggest syntax. Compared with musical or mathematical notation, it is very sketchy and imperfect, but it occasionally affords clues of primary importance to what the poet intended. It may also, of course, only indicate an editor's opinion — as in the usual editions of Emily Dickinson. The second clue is the verse. This may direct us to the stress and juncture structure, which in turn supplies some indications of the syntax. Verse is thus a secondary indicator of
syntax; that is why I rank it below punctuation, which is a primary, however imperfect. The third and least reliable clue to the syntax — however important and valuable it may be on the semantic, metaphorical, and symbolic levels of analysis — is the meaning already perceived. This is primarily a matter of the relative lexical compatibility of the words, and using it consists basically of bringing to bear on syntactic problems two of Mr. Richards's other tools, intelligent use of the dictionary and logical acumen. It should be a last resort, for two reasons: it is circular, since we want the syntax to tell us what words go together, rather than vice verse; and it is risky, since the metaphorical mode of poetry often attains its most striking effects by violating lexical compatibility altogether.

Assuming (perhaps a large assumption) that the punctuation of the poem is the poet's own and is in accordance with orthodox conventions, let us see what it can do to help us with our six ambiguities. In the first of them, the interpretation of line 3, the semicolon at the end of line 2 is of paramount importance. It is the strongest mark before the period at the end of line 6, and forces us to divide the first six lines 2:4 rather than 3:3. This in turn eliminates the reading of line 3 as an appositive to gentleman, and leaves us no alternative but to interpret the line as a predication, with cracked as a finite verb and the first IC cut after hangnail.⁵

Punctuation also virtually decides the assignment of a dog among the fairies as subject of Bit out. . . rather than as appositive to fork. The significant mark here is the comma at the end of line 5, which sets off that line as an appositive to a dog among the fairies, and would be definitely superfluous if this line alone were the subject. Note that lexical compatibility corroborates this judgment; dog goes much more consistently with atlas-eater, jaw, and Bit than it does with fork.

The third crux, the assignment of the phrase at the end of line 6, receives no help from punctuation. Whichever way it is to be read, this punctuation would be conventional. (But note that a comma after mandrake would resolve the ambiguity by locating the first IC cut at that point.)

⁵Knieger (Explicator XV) recognizes the significance of the semicolon only to disregard it: "Line 3: 'Abaddon,' in spite of the semi-colon after 'furies,' seems in apposition with 'gentleman.'"
Our fourth problem is the exact nature of the coordination in line 8, and once again punctuation is of no help. The line as punctuated can be read either way: as a coordination of cock and egg or of nowheres and egg. A comma at the intended primary cut, either after cock or after nowheres, while not called for by the usual handbook rules, would have been very helpful.

In case five, the interpretation of line 10, we get a faint suggestion from the absence of a comma at the end of line 11 that our first solution — to take Hatched as a participle — is more probable, since if hatched and scraped were coordinate verbs, the adverbial material in line 12 would presumably go with both and not be more closely associated with the second. But orthodox punctuation has no clear-cut way to indicate this. The comma at the end of line 10 is ambiguous, since according to one reading it ends the long modifier complex of lines 8-10, and according to the other it replaces the missing coordinator between the two predicates. We could presumably get some help here from studying the incidence of this kind of asyndeton in Thomas's early poetry; how does his usage compare, for example, with that of Time magazine?

In our last case, the assignment of the phrase on one leg to its proper head, neither interpretation is ruled out by the existing punctuation. In this case, furthermore, placing a comma at the primary cut, either after Hatched or after salvage, would not have solved the problem but would only have created a new one.

Turning to our second clue, the verse, we can take two of our four unresolved cruxes together. In lines 6 and 8 the problem syntactically and prosodically is the same: whether the primary cut, presumably marked by a single-bar juncture, comes after the second or after the fifth syllable. Metrically speaking, does the caesura come after the first foot or in the middle of the third? Either is possible. But a caesura as early in a decasyllabic line as the second syllable is a rather shocking device, and on the assumption that the poet has an ear (certainly not an unwarranted assumption in the light of the evidence still available in recordings of his readings), we do not expect him to use it twice in one poem. Nor is there any metrical reason to expect it in one of these lines and not the other, since they are metrically virtually identical, even to the initial spondee and the grammatically weak or at best tertiary syllable under the third metrical stress:
It seems clear to me that in both cases the verse calls for a feminine caesura — grammatically a single-bar juncture — at the midpoint of the line, with the consequent retardation compensated quantitatively by the following short, weak syllable in stressed position. This in turn leads us to interpret with tomorrow’s scream, rather surprisingly, as a modifier of the whole phrase Bit out the mandrake; and, somewhat more satisfying metaphorically, to take cock and egg as coordinate.

The same line of analysis settles the disposition of on one leg in line 10. Here the caesura after salvage is a feminine one, followed once again by an unstressed morpheme on in metrically stressed position. To put a single-bar and hence a caesura after Hatched — the ictus of the inverted first foot — does metrical violence to the line. Note, by the way, that the pattern of feminine caesura followed by grammatical weak occurs in three other lines that are not ambiguous: after owl-light in line 1, eater in line 5, and cradle in line 11.

Our remaining crux, the interpretation of line 10, receives no help from the verse, since the question concerns the assignment of the whole line en bloc to either the preceding string of modifiers or the following predicate, and since all the lines are end-stopped, there is no evidence as to whether line 10 is to be read with a final double-bar, which would make it one more in the string that began with line 7, or whether it has a /232#/ contour like line 11.

It remains to apply the final test, lexical compatibility, to this one remaining syntactical ambiguity. Certainly the key-word Hatched belong with Old cock and heaven’s egg, and windy salvage with half-way winds; whereas a new set of images begins with scraped. This joins with our sense of the relative infrequency of this kind of asyndeton to incline us toward interpreting line 10 as one more in the string of appositive and postpositive modifiers of that gentleman of wounds.

We are at last ready for a syntactic reading of the poem:

2Altarwàise by 3òwl-3light 2 in the half-way hòuse 2 |
2The gentleman lay 3gráveward 2 with his 3fúries 1 #
2Abâddon in the 3hàngnàll 2 cracked from 3Ádam 2 #
And from his fork a dog among the fairies

The atlas-eater with a jaw for news

Blit out the mandrake with tomorrow's scream

Then penny-eyed that gentleman of wounds

Old cock from nowhere and the heaven's egg

With bones unbuttoned to the half-way winds

Hatched from the windy salvage on one leg

Scraped at my cradle in a walking word

That night of time under the Christward shelter

I am the long world's gentleman he said

And share my bed with Capricorn and Cancer

This is as far as syntactic analysis will take us; the more familiar modes of critical interpretation must go ahead from here. But it seems to me that they can do so now with a firmer ground under their feet than if the syntax had been taken for granted or left to intuition as it commonly is by the ingenious explicators of modern criticism.
Structuralism Beyond Linguistics*

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The basic assumption of structuralism is that its particular object of cognition can be viewed as a structure — a whole, the parts of which are significantly interrelated and which, as a whole, has a significant function in the larger social setting.

The cognitive elements of structuralism are thus two orders of entities — the whole and the parts, and two orders of relations — the function of the whole and the relations between the parts. Structuralist analysis seeks to delimit the entities and to describe the functions, raising the boundary problem and the problem of function as crucial analytic objectives.

The analysis is possible because some of the cognitive elements are given by direct observation or may be posited on the basis of a common-sense interpretation of consistent informal observations. These can serve as the starting points for a controlled inferential method to ascertain the remaining elements, the unknown.

Structuralist analysis can thus be applied to any object of cognition which may legitimately be viewed as a structure and for which appropriate analytic starting points can be found.

Let me use as an example esthetic and literary structuralism as practiced by the Prague School of the 30's; in their approach the whole, the parts, and the function of the whole serve as starting points; the detailed relations between the parts are the unknown.

The whole and the parts are given by direct observation: the work and its components (such as the chapters of a novel or the lines of verse of a poem) have a perceivable beginning and end.

The function of the whole — that is, of the work of art or literature — is posited to be the esthetic function, which is by the Prague School defined in opposition to the practical functions.

*This paper is in part a restatement of views previously presented in my Introduction to the Prague School Reader (see fn. 1).
Every object or action, language included, can be assigned a practical function — utilitarian for tools, communicative for language, and so on. If, however, an object or action becomes the focus of attention for its own sake and not for the sake of the practical function it serves, it is said to have an esthetic function; that is, it is responded to for what it is, and not for what it is for. Thus, the esthetic function as such is not limited to works of art and literature but can appear in connection with any object or action. It comes about by virtue of what I have translated as foregrounding, as opposed to automatization.

Automatization is the term used to refer to the stimulus normally expected in a social situation; foregrounding — in Czech aktualicase — on the other hand refers to a stimulus not culturally expected in a social situation and hence capable of provoking special attention. Let me paraphrase a linguistic example given by Bohuslav Havranek: If we translate the well-known Russian greeting "zdravstvuyte" into English by its functional equivalent of "good morning", "good afternoon", or "good evening", it will pass unnoticed as the normal greeting under the circumstances. If, on the other hand, we translate it literally as "be well", it might still be understood as some kind of a greeting — that is, it may retain its communicative function — but it will in addition provoke special notice of some sort, perhaps cause some wonderment as to the intent of the translator, or be interpreted as trying to convey the impression of a foreign environment. The free translation thus constitutes an automatization, the literal translation is an instance of foregrounding in which the wording itself, rather than the communicative content of the message, is responded to, and this property of stimulating a response in terms of itself is what constitutes the esthetic function.

In regard to language, Jan Mukařovský refers to foregrounding as the "esthetically intentional distortion of the linguistic components". To put this statement into its proper framework, we must understand that the Prague structuralists are Saussurians. In Ferdinand de Saussure's conception, the linguistic pattern — la

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2Garvin, op. cit., p. 20.
langue — is both a system of signs, and a set of social norms. As a system of signs, the pattern has a certain flexibility, allowing for variations within the units and in the choice and arrangement of units, to the extent that it does not conflict with the requirement of intelligibility. As a set of norms, the pattern is more rigidly circumscribed in terms of the cultural preference for, and statistical frequency of, these allowable variations. Mukařovský's distortion is thus a distortion of the pattern qua social norm, but still within the bounds of the pattern qua system of signs, since the distorted, foregrounded units stem from the same system as their automatized counterparts, or are borrowed into it and in terms of it.

The esthetic function is not limited to works of art and literature. What characterizes the latter as opposed to the random foregrounding which may occur in any social situation is, in Mukařovský's words, "the consistency and systematic character of foregrounding. The consistency manifests itself in the fact that the reshaping of the foregrounded components within a given work occurs in a stable direction; thus, the deautomatization of meanings in a certain work is consistently carried out by lexical selection (the mutual interlarding of contrasting areas of the lexicon), in another equally consistently by the uncommon semantic relationship of words close together in the context. Both procedures result in a foregrounding of meaning, but differently for each. The systematic foregrounding of components in a work of poetry consists in the gradation of the interrelationships of these components, that is, in their mutual subordination and superordination. The component highest in the hierarchy becomes the dominant. All other components, foregrounded or not, as well as their interrelationships, are evaluated from the standpoint of the dominant. The dominant is that component of the work which sets in motion, and gives direction to, the relationships of all other components."

While the detailed relations between the parts of the whole thus still remain to be ascertained, two basic assumptions are made of their nature, which will aid in formulating a method for their investigation: that these relations are systematic, and that they are special detailed manifestations of the function of the whole.


4Garvin, op. cit., p. 23.
From this set of assumptions stems the use of test frames and verification by controlled techniques as illustrated in Mukařovský's paper on the prosodic line.\(^5\)

He deals with the whole (the poem) and the parts as given by direct observation. He posits as a basic functional property of the line of verse a particular prosodic line (that is, pitch and stress distribution) characteristic not only of certain poems, but also of a given author, functioning as the esthetic dominant to which other esthetic features such as word order (which, unlike English, in Czech has a strongly reduced grammatical function and is thus available for esthetic exploitation) are subordinate.

To verify this assumption, he uses the line of verse as a test frame within which he subjects word order to systematic and controlled variation. He has two controls (which he abandons only in a few instances where he explicitly states his reasons): (1) word order is varied only over the span of one half of the line, (2) rhyme is not altered. He inspects the prosodic line of the original line of verse, and compares it to the line of verse resulting from his controlled variation. The basis for the assignment of a given prosodic line to a particular line of verse appears to be (and this is the one procedural step Mukařovský fails to state) the unemphatic fluent reading by an educated speaker (I tested this by reading the lines myself). The result of his induced variation is in each case a change of the prosodic line, often from one characteristic for the author of the particular line of verse to that characteristic for another poet. He considers this, rightly I believe, a verification of his assumption of the dominant function of the prosodic line.

Mukařovský's methodological contribution consists in the addition of a sequential permutation test to the substitutional commutation test,\(^6\) thus doubling the inventory of basic structural techniques.

The two fundamental devices of Prague School structuralism can be summarized as follows: (1) the formulation of a functional criterion serving as the basis for a theoretical conceptualization

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\(^6\) Cf. Louis Hjelmslev, Prologomena to a Theory of Language (Translated by Francis J. Whitfield), Baltimore, 1953, p. 46.

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of the object; (2) the development of analytic methods exploiting the functional criterion. This dual approach has been applied by them not only to linguistics, but to literary, esthetic and folklore analysis as well.

It can be extended further, both theoretically by the development of functional relevance criteria and analytically by the application of the basic commutational and permutational techniques, to the description of any object of cognition for which it is reasonable to assume that it is culturally structured.

On the non-verbal level this includes, for instance, temporally structured cultural events (such as ceremonies) in which the whole and the substantive component parts are given by direct observation. Structuralist method can here help to study the relations of the parts to each other and to the whole, and to establish the underlying network of functional connections.

This also includes, on the verbal level, any not completely idiosyncratic and therefore culturally significant texts. Here it is reasonable to assume that the documents which are the focus of interest of such language data processing problems as information, retrieval, and automatic abstracting, constitute such texts. It follows that structuralism has an important part to play in these efforts.

*Cf. Peter Bogatyrev, Funkcia kroja na Moravskom Slovensku (The Function of Folk Costume in Moravian Slovakia), Turčiansky Svätý, Martin, 1937.*
Whether I have a subject or not depends on how I define grammatical analysis and literary criticism. Some kinds of grammatical analysis have no reasonable connection with some kinds of literary criticism. If grammatical analysis consists only of attaching labels like "noun," "determiner," and "adjective" to elements in sentences, it probably has little to do with literary criticism. If literary criticism consists only of studying sources or of seeking out biographical details, it probably is not assisted by any kind of grammatical analysis. Linguistic taxonomy and literary background are both worthy pursuits, but they have little to do with each other, or with what I have to say.

An utterance in English necessarily contains at least three kinds of ingredients — three kinds of tangible elements — acting concurrently in the expression of content. These kinds of ingredients are phonological, grammatical, and lexical. The edges between these kinds of tangibles are not always sharp. Some phonological elements have grammatical significance; some morphemes have lexical as well as grammatical significance. A sentence is, of course, a pattern of patterns. Its words are selected from particular classes, arranged in a particular order, and, sometimes, modified in particular ways. It is spoken according to a particular phonological pattern. The arrangement, the modifications, and the accompanying phonological pattern are all essential parts of the utterance. They constitute its grammatical ingredients. The grammar of a sentence, then, is the sum of the differences between the sentence (a meaningful utterance) and a list of vocabulary items (a random collection).

It follows, then, that the recognition of meaning in an utterance is dependent, in part, on the recognition of grammatical ingredients in the utterance. To understand any utterance, even partially, we must perform grammatical analysis — we must discover these ingredients. A native speaker of a language performs this analysis intuitively. A descriptive linguist seeks ways to do the analysis consciously and according to a standard procedure.

Now, I shall assume that a piece of literature is a linguistic utterance. It is something said in a particular language. As such, it contains grammatical ingredients, as well as other ingredients.
There is some literature which apparently does not follow the customary grammatical practices of its linguistic medium, but even its variations derive significance from the central, characterizing, or defining forms and arrangements in the grammar of this medium. Even this literature of variations is analyzable to the extent that it makes denotative sense.

These generalizations are easily illustrated. Take the English word-form turn, T-U-R-N. In the sequence “this turn,” it has one set of grammatical properties and hence one set of meanings. In the sequence “will turn,” it has a different set of grammatical properties and hence a different set of meanings. As a verb, “turn” can occur in sentences like “Turn quickly,” “Turn the car,” and “The milk will turn sour.” In each context, it has a somewhat different meaning, a meaning that is, in part, conveyed by grammar. The use of grammar to convey a nontypical meaning is not uncommon in literature. The following illustration is taken from Shakespeare’s Richard III: “And thou wilt show more bright and seem more virtuous.” In this sentence, “show,” ordinarily a verb with transitive meaning, is given linking verb meaning by an adjective complement — “bright.”

Now a word on literary criticism. In The Armed Vision, Stanley Edgar Hyman lists some basic assumptions underlying modern literary criticism. He says in part: “Other basic assumptions would include . . . the view that the reading and writing of literature are a form of human activity comparable to any other, answerable to the same laws and capable of being studied by the same objective procedures; the behaviorist addition that literature is in fact a man writing and a man reading or it is nothing; and the rationalist view that literature is ultimately analyzable.”¹ A criticism which accepts these assumptions also assumes the kind of grammatical analysis which I am talking about. A man writing must necessarily write according to or by reference to a grammar, and a man reading must necessarily read according to or by reference to the same grammar. A literary critic cannot escape grammatical analysis; he can only perform this analysis with more or less conscious attention, with more or less skill, and with more or less valid procedures.

Another modern critic, Hugh Kenner, speaks of finding out what is going on in the poem, in his book, The Art of Poetry. One chapter

is called "Plot and Syntax." In it, Kenner says "the action may occur without syntactic assistance." He illustrates this astonishing statement with a poem by William Carlos Williams. The handout reproduces enough of this poem for you to test his statement. (pg. 105) Consider the three single capital letters as marking the beginnings of three sentences. The second two are not difficult to analyze, and their patterns are not, for poetry, especially strange. The first is more unusual, but regard "While in the tall buildings" as a subject, somewhat as "Over the fence" is the subject of "Over the fence is out," and the grammatical pattern of a sentence is visible. The syntax of this poem is unusual, but its action certainly does not "occur without syntactic assistance." I have no quarrel with Kenner as a critic; only as a grammarian.

One of the chief concerns of both modern linguistics and of modern literary criticism is structure. Both assume that a structure is more than an accumulation of primary items. Both look on the object which they study — in one case, say, a sentence, in the other, say, a poem — as essentially a kind of gestalt, in which there are physical items and there are stable relations between these items, so that any unsystematic rearrangement of the items is destructive to the whole. Both regard the object which they study as an instance of social interaction and as an instance of purposive activity. And both accept non-uniqueness of solutions. That is, a linguist assumes that more than one analysis is possible, although he may prefer one of these to others. And a large number of modern literary critics accept the notion that more than one poem may derive from a particular arrangement of words on paper, although a critic may personally find one more acceptable than others. (I do not say that a particular arrangement necessarily represents more than one poem; I merely provide for the possibility.)

The activities of linguists and of literary critics are likewise related. To develop this point, I need to recall my earlier assumption that a poem is an utterance within a language and Hyman's assumption that literature is a man writing and a man reading. The two assumptions, of course, come to much the same thing. Now take from these the further assumption that a literary critic must first find a physical poem; that is, he must first be a man reading before he can be a critic. He must settle on what poem is, for him, repre-

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sented by the physical symbols of language, spoken or written, within which the poetic idea is embedded. It is in this initial effort, this attempt to find a poem to examine critically, that grammatical analysis is not merely useful, it is inevitable. If linguistics does its work well, it provides the literary critic with a sharper and more comprehensive perception into the workings of the linguistic medium, with a better methodology for applying this perception, and with a better terminology for transmitting the results of his perception to others. Until he finds a physical poem, a particular gestalt of tangible linguistic elements, the problem of the literary critic is within the area of the linguist. (Of course, there is some indeterminacy here, some allowance for variant solutions, but the linguist can provide a list of possibilities and some guide to probabilities, as Professor Francis has pointed out.)

These remarks are introductory to my next presentation. One of my colleagues at North Texas, who is himself a poet, suggested that I look at Archibald MacLeish's "You, Andrew Marvell." The results of my examination are on the handout. I do not claim that these results constitute a critical analysis of the poem, but these results display a physical poem on which critical analysis can be performed or interpretations advanced. When I have carried this kind of analysis to its ultimate limits, making all the probabilistic decisions which are required, when I have considered the items lexically and pointed out the indicated semantic relationships, and when I have added phonological patterns which run concurrent with these results, my work as a linguist is complete. Further consideration of the poem is an operation of literary criticism. I consider what critics call sensibility to be necessary to useful critical analysis, and I think that sensibility becomes more valuable with experience. I also grant that the real worth of this poem, as distinct from the display of linguistic virtuosity which this analysis reveals, must await that further consideration which is in the province of literary criticism. However, I feel reasonably sure that some such analysis as I have provided, done intuitively or systematically, mentally or on paper, is a necessary prelude to its consideration as literature.

I do not have time to discuss this diagrammatic representation in detail, or to deal with all the syntactic decisions made within it, some of which are certainly probable rather than certain. One instance of double syntax is indicated by the broken line in the eighth stanza.

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In fact, the poem is full of the kind of syntactic ambiguity which Empson speaks of. The solid lines connect subjects with verbs and verbs with objects or complements. I shall pause in a moment to allow you to read the poem. Later I shall point out a few of the correlations made more evident by the grammatical analysis. Note also that I have supplied a few words not in the original, those written with capital letters. These are not random insertions, nor are they based on semantic considerations. I think that all can be justified solely on syntactic grounds. Now you have a minute or so in which to read the poem.

First note that stanzas two, three, and four constitute one grouping matched by stanzas five, six, and seven. Each stanza in one group correlates with the corresponding stanza in the other. The eighth stanza and line 9a, which is spaced like a separate stanza in the original, recapitulates this pattern on a smaller scale. The phrase "that land," in line 8d, recalls stanza four, and the phrase "on the sea," in line 9a, recalls the seventh stanza. The final three lines constitute a summary of the pattern. Line 9b repeats the pattern of the first two lines. Line 9c has two parts in parallel structure. The choice of words is, it seems, significant. "Swift" is active and fits the verbs of stanzas two and three: "creep," "grow," "take," and "change." And "secretly" fits verbs of stanzas six and seven: "darken," "steal on," "deepen," and "fade out." Then the syntax of the final line recalls the syntax of stanzas four and seven, each the concluding stanza of a section, in that this line and these stanzas contain finite verb forms.

The poem as a whole gives an effect of very slow, almost glacial movement. It contains only four finite verb forms — one at the end of the first set of stanzas, two in parallel structure near the end of the second set, and one in the final line of the poem, a line that grammatically, echoes these stanzas at the ends of internal sections. The poem has three marked infinitives, all instances of "to feel," a verb that is relatively static in meaning. It has fourteen unmarked infinitives, two gerunds, and three participles. All the gerunds and participles are in the first three stanzas. It has several words ending with —ward, an element that implies action but does not denote it. These are placed in strategic spots: line 1a, line 2a, line 4d (end of one internal set), and line 7b, in the stanza that ends the second internal set. None of these words is an adverb, although —ward is often an adverbial ending. Thus the movement of the poem is carried
primarily by a nonfinite rather than by finite verb forms and by non-adverbial elements with adverbial endings.

Whatever else may be said about this poem, and a great deal more can be said about it, it has design. It illustrates the thesis that the poetic idea and the poetic form should be welded together — that structure and meaning should be congruent, that pattern and content should be integrated, that the two parts of the symbolic experience should be mutually supporting.

Before sitting down I wish to comment generally on an unhappy situation. The results of linguistic study have usually been welcomed and respected by scholars outside the humanities departments, but within these departments, a linguist is a prophet without honor. He is tolerated if he publishes or tells a good joke, but his opinions are ignored, derided, or rejected with anger.

I think there are two major reasons, apart from the usual problems of communication and cultural lag. According to R. W. Stallman, a major school of literary criticism is concerned, even obsessively concerned, with the present conflict between the scientific vision and the aesthetic vision. When the linguist calls himself a scientist and begins to have coffee with mathematicians, the humanist sees him as a fifth columnist, established within a humanities department but antagonistic to the current interests of these departments. True, some linguists have made exploratory raids into the aesthetic realm, but the basic work of linguists is within realms where the humanist is himself dependent on a science. But the language science of the humanist is an antique science, so unscientific that most of its scientific effluvium has evaporated.

Whether linguistics is a science or not is a semantic argument, and mutual understanding will settle it, but the other problem is more serious. In literary criticism, at least two operations are required. The first operation is properly within the realm of linguistics; the others are properly within the realm of aesthetics. We have learned to separate grammar from rhetoric in our discussions of composition teaching. We must now learn to separate the analysis and interpretation of the physical symbols of language from the consideration of a particular manifestation of language as a work of art. We must learn

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to separate the process of discovery from the process of criticism which comes after the discovery is made. Literary criticism is handicapped when this discovery of the physical poem, the first level of poetic expression, is based on a grammatical description that is demonstrably misleading and a theory of language that is demonstrably wrong.

From "How the Money's Made," by William Carlos Williams

While in the tall
buildings (sliding up and down) is where
the money's made
up and down
directed missiles
in the greased shafts of the tall buildings
They stand torpid in cages, in violent motion
unmoved
but alert!
predatory minds, un-
affected
UNINCONVENIENCED
unsexed, up
and down (without wing motion) This is how
the money's made . using such plugs.

"You, Andrew Marvell," by Archibald MacLeish, with modifications to indicate grammatical ingredients. The original poem is printed in quatrains, but the first line of the final quatrain is spaced like a separate stanza. All lines are set even to the left margin. In this version, some grammatical parallels are indicated by indentation, and a few words have been added in capital letters. Slash marks indicate major structural divisions within lines, hyphens indicate compounds, and some grammatical elements are indicated thus: finite verbs, infinitives, subjects, objects of verbs.

1a And here face downward beneath the sun

b And here upon earth's noonward height

c To feel the always coming-on

d The always rising of the night
To feel creep up the curving east

The earthy chill of dusk / and slow

Upon those under-lands the vast

And ever-climbing shadow grow

And TO FEEL strange at Ectaban the trees

Take leaf by leaf the evening / strange

The flooding dark about their knees

The mountains over Persia change

And now at Kermanshah the gate is

Dark-empty and the withered grass

And through the twilight now the late

Few travelers in the westward pass

And TO FEEL Baghdad darken and the bridge

Across the silent river TO BE gone

And through Arabia the edge

Of evening widen and steal-on

And TO FEEL deepen on Palmyra’s street

The wheel-rut in the ruined stone

And Lebanon fade-out and Crete

High through the clouds and overblown

-106-
And over Sicily the air is
Still flashing with the landward gulls
And loom and slowly disappear
The sails above the shadowy hulls

And TO FEEL Spain go-under and the shore
Of Africa-the-gilded-sand
And evening vanish / and no more is
The low pale light across that land

Nor now the long light on the sea
And here face downward in the sun
To feel how swift how secretely
The shadow of the night comes-on . . .
GARY MARTINS: (Georgetown University Student) It is most gratifying to note how precisely the gentlemen of this afternoon’s panel have limited the scope of linguistics and literary criticism. As Mr. Ives very succinctly pointed out, the whole purpose of linguistics and literary criticism is to establish a “Gestalt” upon which literary criticism per se can go to work. This is especially heart-warming in view of the many efforts made by some linguists to intrude their methodology into the realm of other sciences such as morality and ethics.

I’d like to ask you, Mr. Chatman, just how do you classify the literature of people such as André Breton, the French surrealist writers whose only planning in the creation of literature was not to have any method whatsoever, the automatic writing technique, and so forth?

MR. CHATMAN: I’m sorry I don’t know that French writer. My own experience with automatic writing was reading what Gertrude Stein had done in her autobiography, but I never saw a sample of this automatic writing so I don’t know what is really involved. This is the same sort of problem that an art critic has to face when he is confronted with a painting which he knows is a result of sheer accident and yet feels has some artistic merit. The definition which I offered is an extremely tentative one. I would recommend that you take a look at Prof. Archibald A. Hill’s article “Towards a Literary Analysis.” Although I am not totally in agreement, I think Hill is more aware of the full implications of what he is doing. He takes much greater precautions than I did in my perhaps overly casual definition.

DON HILDON: (Case Institute of Technology) Mr. Chatman, I wonder if you would accept perhaps a third category which would determine the way a performance comes off. And I’m thinking in particular of those two readings that you used. You spoke of the influence of the interpretation of the poem and then you spoke of the influence of the performer’s own style. Would it be all right with you to add a further category – something like the social role that the reader plays. It strikes me that the performance by Mr. Eliot had a lot in common with performances by poets reading their own and other persons’ poetry. It seems to me, that there is a difference between the role of the poet reading poetry and the role of the dramatic reader or actor.

MR. CHATMAN: I think that you have a valid point. And it would introduce one further complexity in a situation which is almost intolerably complex. There is no question but that there are all kinds of relationships between the performer and his auditor. I think only now do we realize the difficulties inherent in the problem of disentangling and spelling out what it is in fact that we understand by the interpretation. So I wouldn’t be at all surprised at certain assumptions. For instance, I can think of one: Eliot is reading a certain poem, he wrote it and he surely must know what it is about. In some instances this is misleading, because there are poets who read their own poetry atrociously and they apparently defeat their own purpose of communicating with the audience by their own performances. I think perhaps you have had the experience of hearing a poet read his poetry and coming away with the feeling that you understood his work before, but after hearing him it was quite unclear.

MARTIN JOOS: (University of Wisconsin) I find a distinct difference in the choice of examples by Mr. Francis and Mr. Ives. I think that Mr. Ives’ examples of poems by William Carlos Williams and by Archibald MacLeish are simple, ordinary examples of how an intelligent reader should get a poem. The text is supposed to be accessible to us and it is worthwhile to do as Mr. Ives did with the MacLeish poem to show what any fully literate reader of English ought to get out of it. It is true that I disagree with a couple of his insertions on the second page, but the fact is that his procedure is thoroughly appropriate. A high-school English teacher should do the same when members of his class are a bit helpless. Occasionally a poet will neglect to give you enough signals and that is the case of "More Happy Love" etc., in Mr. Francis’ first example. I take it that it should be read one way only, and that you have to guess this from your general understanding of the poet, that is, what sort of things he says. (In any case of course, guess, so as not to contradict the grammatical signals that are there before your eyes in print.) Mr. Francis' second example "Altarwise by owl-light..." etc., ought not to be attacked in this way at all. Certainly it should be attempted, but I hold that the attempt failed and has demonstrated only that the poet has succeeded in frustrating us all. It does not in fact have English syntactic structure, except on the smallest scale. This is in intention surrealistic and looking at the punctuation, all I can get out of it is that it is a sort of musical notation to show how the thing could be read aloud — thus the semicolon at the end of the second line.
The Frenchman's so-called surrealist text, of course, is not text at all. It is parallel to the case of the artist who, asked to contribute to an exhibit of non-representational painting, hung up the rag upon which he had wiped his brushes for some weeks past. This brush-wiping does not qualify in any sense as literature. What does qualify? Well, obviously the MacLeish poem qualifies to the extent that it holds our attention and makes us want to come back to it. Here, I go right back to what you might call an anthropologist's definition of literature, not far different from the high school teacher's definition: that that text which the community preserves intact, finds worth keeping in its form, is literature. (Members of the community repeat it to each other as the author gave it or in the shape that it gradually takes on as it changes from generation to generation in the case of unwritten literatures.) Until a document has habilitated itself in this way it is not yet a literary document, it is only a draft. I believe that Mr. Francis' second example cannot gain citizenship in the world of literature. I am only making a prediction here, that it will remain as a draft which some people from time to time will take up and look at and argue with each other about, but which will not gain admittance. I do not know how else to distinguish between literature and what happens when you perform the kind of experiment that Shannon publicized first a dozen years ago, drawing words out of a hat and then drawing them out with transitional probabilities and so forth.

MR. FRANCIS: Mr. Joos really challenged me to a private refutation rather than a public one. I must say I'm not prepared to prove an assertion which I will none the less make: that if this poem is nonsense or is surrealist, the nonsensicalness or the surrealism is lexical, metaphorical and not grammatical. I think this poem is English grammar and I think this could be proved. I think I could substitute words which do link together in the kind of discourse that we are a little more used to, in this same grammatical framework and it would make perfectly clear sense. It is interesting that the poet at least thought that he had said something here because this is one of the sonnets in the sequence in which we do have his own statement about what it means. I'm quoting from an article in College English by Monroe Beardsley and Sam Hines. They say it was Thomas himself


who set off a certain train of thought in his remarks about Edith Sitwell's famous hazard at an explication of the opening lines of this particular sonnet. Miss Sitwell said that these lines referred to "the violent speed and the sensation-loving, horror-loving craze of modern life." Starting back from this surprising proposal, Thomas protested "she doesn't take the literal meaning, that a world devouring ghost creature bit out the horror of tomorrow from a gentleman's loins.” Considering that Thomas was the author of the lines and was rejecting a specific explication, another explicator would be pardoned for taking his word "literal" with a generous allowance of rhetorical emphasis. It may amend "don't be so extravagant, read my poem instead of writing your own, get back to my text.” A little farther on, he went on to say, "the mouth of the creature can taste already the horror that has not yet come, or can sense its coming, can thrust its tongue into news that has not yet been made, can savor the enormity of the progeny before the seed stirs, can realize the crumbling of dead flesh before the opening of the womb.” Now, admittedly, it sounds as though Thomas is writing another poem in this prose extract, but still I think this is some kind of prima facie that he thought he had produced English discourse, that this has grounds and syntax.

ANDRAS BALINT: (Columbia University) I think we have to take into consideration what the writer's purpose is, in writing a poem. There are some poems which are not meant to communicate. If we think about the French symbolist poets, if I recall it was Mallarmé who produced his perfect poem at the end of a volume — which was a blank page. Now I don't know if any linguist exists who can examine that poem; subject it to a linguistic or any kind of analysis. There are certain directions in literary criticism and certain vogues which accept brush movements which are made without any purpose whatever. But this comes from the idea that the less one understands something, the more profound it probably must be. When we take poems and analyze them from the linguistic point of view, we are quite justified in discarding those which despite grammatical coherence, fail on the lexical level. I think it was Mr. Chomsky who showed sentences that were grammatical but had no meaning whatever, or we could refer the observer to Lewis Carroll who, in his nonsense poetry, showed that we can write something without any meaning.


So, is it justified to analyse a poem like Williams'; which is perhaps just one hair stroke away from a genius' work?

MR. IVES: There was a paragraph in which I said that I make a distinction between writing within the basic grammatical patterns of the language and my reference to them. The use of prepositional phrases, subject of a sentence, would be what I mean by reference to rather than within. That is, I am recognising a core grammar with possible variations. Another instance would be that if we have two nominals before the verb, the first is the object the second is the subject. But there are many poems in which the lexical compatibilities are such that you have subject, object, verb. Again I know what I mean by this. I said that this particular kind of thing can be analysed to the extent that it makes denotative sense, and this is the only answer I have. Insofar as a poem is written in a language, and makes denotative sense within that language, then it is analysable. At the same time, I'll grant that there are poets who are giving more or less emotional outbursts or relases, personal catharses, and I am in doubt whether this is to be considered as anything except a personal catharsis.

LEON DOSTERT: (Institute of Languages and Linguistics) I wonder if Nelson Francis has tried to identify the "I" of the penultimate line in this poem. It might throw some light on the rest of it.

MR. FRANCIS: I had assumed that the "I" was the same as the "gentleman" who is mentioned in line two, and the "gentleman of wounds" in line seven who is the subject of the word "scraped" and the antecedent of the pronoun "he". Therefore "I am the long world's gentleman" would in normal punctuation be put in quotation marks as a quotation from that "gentleman of wounds" in line seven, who is also the "gentleman" in line two. Of course, we have repetition of the word "gentleman" itself, and here he is speaking and identifying himself. I think that this is linguistically consistent, and it hinges on the interpretation of the antecedent, the personal pronoun "he" in the next to the last line, which can only be that "gentleman of wounds."

MR. DOSTERT: What about the last line, "And share my bed with Capricorn and Cancer"?

MR. FRANCIS: That's still part of the quotation. This is what the "he" is saying. I don't know what it means, but that's what he says.
MR. JOOS: I do not deny that this particular example that we are talking about is a poem. Certainly, it is a poem; it just isn’t literature, and I think we have enough to do analysing literature first.

MR. FRANCIS: That assertion is in the realm of literary criticism. Whether something can be a poem without being literature, is a question I leave to the literary critics. I don’t know if there are any present here who would help us out. I would call it literature as a poem.

WESLEY PANUNZIO: (National Association of Foreign Student Advisers) I wonder whether there is extant a tape recording of this “Altar-wise by owl-light” poem by Dylan Thomas. Would there be significant pertinence in starting from an analysis of the supra-segmental features here of juncture, stress and pitch rather than from the syntactic point of view? I notice of course the title is “Syntax and Literary Interpretation.” That would be beginning in a different direction, but might not this other approach be more fully in harmony with the linguistic principle?

MR. FRANCIS: There are about three questions there. The answer to the first is, so far as I know, “No”. I know of no reading of this by Thomas himself. Many of his poems are of course available, but I don’t think he read these early sonnets. Point two, the answer is of course “yes”. I think that Mr. Chatman sufficiently demonstrated that we can start from a performance by the poet himself, which has some kind of authority. Third, I would not say that starting from the supra-segmentals is not a syntactic analysis. On the contrary, we would then have been furnished with the kind of information which a poem on a printed page does not ordinarily furnish us, that is, an accurate performance of the supra-segmentals by the most authoritative performer. But I was specifically addressing myself to the question of syntactic analysis of the poem for which we don’t have an authoritative reading by the poet. No doubt, in the future all significant poetry will be recorded and perhaps we will then have an entirely different approach to interpretation.

WILLIAM K. ARCHER: (Fairleigh Dickinson University) In this discussion we have moved from clarity to unclarity rather swiftly, and I think that there is a logical flaw in some of the things which have been said. As I understood Prof. Garvin, he said that culture is at least in measurable part structured and therefore analysable
to that same degree. However, a poem really operates in two dimensions, and I think this is part of the circularity that Prof. Joos spoke of this morning. I fail to see where a linguist examining a poem in the fashion that we have seen this afternoon is doing anything other than linguistic work. Admittedly, this is way far out at the end of the "corpus" or the "continuum" or whatever you choose to call it. He is still analysing something as much as he can within the techniques he possesses. Beyond this point he may find this very resistant or very easy. When you get to someone like André Breton I suppose you are dealing with something that is almost impossible for linguistic analysis. It doesn't seem to me to bring in the question of the definition of literature, with which I would agree with Prof. Joos, but which is not I think, a linguistic canon. And surely, it does not bring in the question of value, because, as Prof. Chatman pointed out we are dealing with a man writing and a man reading. The man reading, or the man listening to a recitation, is bringing a constellation of emotions and intellect to his interpretation, of which linguistics is only a part. Therefore, (A.) the linguist is performing a routine linguistic function in examining literature and, (B.) in so far as a literary critic is concerned, this is a portion, and a rather small one, of the task of explication.

MR. CHATMAN: I'm glad you said that because there are people who say "well, now linguistics has made such wide claims for its implications for various areas like rhetoric and freshman composition, that they're expecting us to say you don't need literary critics or literary analysis anymore, you've got the linguists to do the job." In fact, I was somewhat appalled to see in a recent article by C. P. Snow, in Harper's, a reference to the fact that linguistics was taking over the New Criticism, in just the typical manner that critical movements have power in America. You had New Criticism for a while, now you have Linguistics, then we'll go on to something else. Nothing could be farther from the truth, and no linguist worth his salt would claim that he's going to replace the literary critic. As a matter of fact, it is essential that we steer clear of precisely that area which is so troublesome — value. I, for one, am content to let others make value judgements.

MR. FRANCIS: The role of the linguist here, as the speaker said, is a very humble one. The linguist has no more right to say "this has no poetic structure", than the literary critic to say that the

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Williams poem has no syntax. We are venturing out of our depth. The linguist can point out that the Williams poem has syntax, and that is his function. The literary critic can point out that the Thomas poem has poetic value, and that is his function. I all the more deplore the fact that there isn’t a really bona fide living literary critic here to tell us what an analysis in terms of poetics of the Thomas poem would be. I thought I made a very careful disclaimer that this would lead to any real interpretation of the poem. But this does seem to establish a base line from which literary interpretation can go, and which it violates at its own peril. In other words, when an explicator says "abaddon" I think is in apposition with this back here, in spite of the semi-colon, then he’s got to prove it, because he’s flying in the face of syntax. Syntax is simply a ground work which supplies a frame for the poem, from which he must take off. But that’s all it does, it certainly doesn’t explain the poem.

MR. IVES: Whether this particular part that linguistics can play is important or not, is like asking which is the important leg of a three-legged stool. The distressing thing is that so many persons who are literary critics are willing to talk about language knowing so little about it. A lot of what they say later on is predicated on certain assumptions about linguistics or about the structure of English. It just happens, that I have here a copy of How Does a Poem Mean by John Ciardi. This is a very widely used text book. I’ll just quote from it: "The iamb (iambic) is a two syllable foot consisting of an unaccented syllable following by an accented syllable: ta tum. It is the basic English foot for the idiomatic reason that most English words of two syllables (many exceptions are, of course, to be noted) are accented on the second syllable (rēfer, ābout, dēstroy)." I owe this one to Professor Francis who counted and found, I think, eighty-three words on this one page that were accented on the first syllable and seventeen on the second syllable. This is the kind of thing that we are talking about here.

MR. GARVIN: I represent the revenge of linguistics to literary criticism because I will talk about literature without having read a good book in the last twelve years. There is a fundamental difference to be made between the application of linguistic analysis to poetry or any other kind of literary text, on the one hand, and the introduction of structuralist method as a more broadly conceived and more

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fundamentally valid approach. The use of structuralism in literature as exemplified by the Prague structuralists is not isolated. There are now very serious attempts to introduce structuralism into the analysis of folklore by Tom Sebeok in this country and by Claude Levy-Strauss in France. There are very serious attempts at structural interpretation of culture in general by the British functional anthropologists. It was more or less in this sense that I talked about structuralism beyond linguistics. It is clear, that when you no longer deal with the linguistic function, you can no longer do linguistic analysis: but it is equally clear that consistency, exhaustiveness, and simplicity are not limited to linguistics. An approach which attempts to objectify the object of cognition, that is to say, to describe what is going on rather than pass value judgements, is justified, and may as well be justified in literature. This is what the Prague people were trying to do. The unfortunate thing is that ninety-five percent of the literature is in Czech and I haven't had time to translate more than a very small part of it. And the few people who have attempted to transmit it, in my opinion, have not transmitted the best things. But this is what I meant by structuralism, and one of the contributions that linguists can make is to understand that it is the method that counts, rather than the particular unit. I don't really see how much more you gain by transcribing a poem phonemically, if that is all you do. On the other hand, some linguistic methods such as substitution technique, if cleverly applied, could be used for the analysis of poetry simply to test what happens if the poem is no longer left as it is. This is what linguists do to ordinary utterances, or should do, and why not do it to poetry?

On Mr. Chatman's remark that vocal reading transmits more information than is on the printed page: I think that this is not necessarily correct. I would prefer to say that vocal reading transmits different information. One excellent example is a novel by Karel Capek, which exists in English translation. It is called The War with the Mutes, where part of the esthetic function of the work is transmitted by reprinting passages that look like clippings from newspapers. Try to read this and give more information than is on the printed page. It may also be part of the information content of the poem not to be directly informative. Say, the fact that not enough punctuation marks are in there, so that the intonations that you can attach to it, (if indeed you do read it out loud), can be varied is perhaps part of what the poem wants to be. It may be that it is intended to be just about as ambiguous as it strikes the reader. The absence of certain information is not necessarily less information, precisely because it is not
a matter of communication in the ordinary sense. That is to say the communicative function may be very poorly conveyed but the esthetic function as defined by conspicuousness, is conveyed very definitely. This incidentally also applies to Mallarmé's blank page.
PANEL III

CULTURE AND LANGUAGE TEACHING
Enculturation Versus Education in Foreign Language Teaching

ROBERT LADO
University of Michigan

I. LEARNING OUR NATIVE CULTURE.

We learn our own culture by observation and participation and through language. We observe a very small sample of our culture, and we observe it imperfectly.

Language serves as the chief vehicle of enculturation through (1) Elementary Meaning Units (EMU)\(^1\) which attach to words and other lexical units, and (2) messages whose content informs the subject of aspects of the culture which are not attached to specific lexical units or are not easily grasped.

In a complex culture such as that of the United States or those of most of the modern societies of the world today this process of enculturation through language becomes very complex. We will consider three dimensions which require further elaboration: (1) the relation of language to culture, (2) differences between a culture's image of itself and what it actually is, and (3) the complexities of regional and other differences within a culture.

(1) Relation of language to culture. The fact that there is a close relation between lexical units of a language and EMU's in the culture does not mean that learning the words merely as contrastive units gives the full cultural meanings.

EMU’s are learned in connection with the words to which they attach, and they show relevant cultural distinctions or entities. For example, Spanish has different terms for parts of the human body and of animals: 'animal neck' is *pescuezo*, but 'human neck' is *cuello*; 'animal leg' is *pata*, but 'human leg' is *pierna*; 'animal back' is *lomo*, 'human back' *espalda*. When a Spanish speaking child says at table that he wants the *cuello* of the chicken, he is promptly corrected and informed that chickens do not have *cuello*, they have *pescuezo*. After similar experiences with other terms the child by analogy or by explicit rules given to him verbally comes to expect

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a different term for some parts of the anatomy and actions of animals as distinct from those of humans. See Figure 1.

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<th>HUMAN</th>
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Figure 1. Relation of Elementary Meaning Units to Words in Spanish.

The existence of separate terms for the parts of the body of an animal and those of the human body makes us suspect a difference in reaction to these anatomically comparable parts but it does not tell us the nature of this difference. We must observe the culture further, largely through language messages, to discover that the difference involves among other things a nonfeeling isolate for animals, somewhat as fish and parts of fish are nonfeeling in U.S. culture.

Conversely, the fact that a pattern of cultural distinction exists between animal and human in a culture is not enough to assume that there will be different terms for parts of the anatomy of animals and of humans in every case. Spanish does not have separate terms for animal eyes and human eyes; ojos applies to both. And huesos applies to both human and animal bones but not to fish bones which are called espinas. We are again forced to cross the linguistic-cultural border to observe in this case the language for the existence or nonexistence of terms for which the culture has a pattern of distinction in meaning.

(2) Differences between self-image and scientifically observed culture. As one talks to the members of a culture and reads their writings, it is possible to observe certain uniformities in what they believe their culture to be. "America is the land of liberty." "We Colombians are not materialistic." Etc. A sufficient number of such characterizations reveals a cultural self image that cannot be ignored.
Anthropologists, sociologists, and educated persons know, however, that under more careful observation U. S. culture or Latin American culture does not coincide with this self-image completely. We see that the U. S. thinks of itself as the land of the free, but might deny the vote to a part of its members.

Both what a culture is and what it believes itself to be are of course important. If we represent the self-image as a vertical oval and the overt, directly observable culture as a horizontal oval, we get a picture such as that schematized in Figure 2.

![Figure 2. Schematic representation of Overt Culture and Self-image showing overlap and lack of complete equivalence.](image)

The fact that these two ovals do not coincide need not indicate any sinister deception. The self-image not attestable in the culture might represent ideals not yet attained; and the cultural elements not recognized in the self-image might just as well be praiseworthy behavior as not.

3. Complexity resulting from regional and other differences within a culture. Everything said thus far is a gross oversimplification of the facts. I have spoken of cultures and images of cultures as if they were uniform throughout their area and their membership. The picture is actually much more complicated. If we posit a culture of the English speaking world, we immediately recognize the U. S., Scotland, England, Australia, etc., as regional variants. If we start with the United States as a culture, we notice regional differences for New England, the South, Southwest, Middle West, etc. Looking at the Spanish speaking world we notice regional varieties in Argentina, Peru, Colombia, Venezuela, Mexico, Cuba, Spain, Etc. If we
limit ourselves to Spain we still observe major regional differences. And the same is true in the Arabic speaking world, in China, in any of the major cultures of the world.

The differences are so apparent and so generally recognized that one wonders why anthropologists and sociologists have not adopted or developed a specific term for a regional variant paralleling the term *dialect* used in linguistics. "Cultural dialect" has been proposed but seems unsatisfactory.

Cultural differences are readily observed among different socio-economic groups, urban and rural areas, different religious and national backgrounds, and even professional groups. Ultimately the basic representative of culture is the individual member of the culture. The individual's pattern paralleled by the patterns of other individuals constitutes the culture.

Here too there is need for a special term for an individual pattern on the analogue of the term *idiolect* of the linguist. The term *informant*, on the other hand, meaning an individual used as a representative speaker of a language, can very conveniently be borrowed to mean the individual who may be used as a representative of a culture.

Fully aware of the complexity of the ideas and processes involved we can still draw a useful distinction between the perfect informant and an educated person and between enculturation and education.

*The perfect informant and the educated person.* A perfect informant is one who has been perfectly enculturated and who communicates freely. Being perfectly enculturated, his image of his own culture coincides with the consensus image of the members of the culture, and his behavior again coincides with the general behavior of the members of the culture. In other words, the schematic representation of his image and his overt cultural functioning would be the same as those of the total culture. It is probably impossible to find such an informant, but even if we were to succeed in finding him, he would not qualify as an educated person. He would be a typical American, a typical Arab, a typical Chinese, who would imagine himself one way but would behave somewhat differently in actual fact.

The educated person differs from the perfect informant and from his culture in that his cultural self-image encompasses everything the culture actually is insofar as this is possible, and in addition he
knows important facts about himself, the human race, other cultures, the universe in which he lives, and God.

*Enculturation and education.* I will define enculturation as those activities that lead the individual to have the same self-image as the consensus of his culture and to act and react according to the overt cultural facts without awareness of the discrepancies. All cultures carry out the activities necessary for the enculturation of their young. Complex societies such as ours must evolve a formalized means of enculturation.

I will define education, on the other hand, as those activities that lead to an understanding of that part of culture that is not recognized in the general self-image and to the understanding of those elements which appear in the self-image but not in the overt culture itself. This is not all of education but it seems an important part of it and one that is often overlooked.

In the self-image of a culture one usually finds cliches or stereotypes concerning other peoples and cultures. These are often quite inaccurate and misleading. Enculturation includes those activities that lead to giving these same patterns to the young. Education would be the activities leading to an understanding of the other culture as it is and as it imagines itself to be.

The line of separation between enculturation and education is not as neat as it might appear from this characterization. It is the responsibility of the school system both to enculturate and to educate. In carrying out its task of enculturation it reflects or mirrors the culture of the day; but in carrying out its responsibility to educate — in the sense we have used the term — the educational system must go beyond the general or mass culture of the day.

II. ON LEARNING ANOTHER CULTURE.

With this frame of reference in mind, let's look at the problem of learning another culture in connection with the study of a foreign language. We will consider briefly what we are to learn, how we may learn it, and why.

*What.* First, we may dismiss as not learning the other culture the mere essaying of the false cliches that one's own culture passes as
the image of the other. We will dismiss this even when it is taught formally in a class as a cultural unit about the other culture. This is mere enculturation into one's own culture, and one aspect we can well afford not to pass on to our young.

Learning the other culture will mean learning both the other people's self image and their actual behavior. This will mean learning what their words mean to them since these constitute an index to their Elementary Meaning Units (EMU), and it will mean understanding what they say in their longer utterances and writings. This means understanding from their point of view, from their meanings. We must dismiss here the false propaganda statements that are apt to be released by some governments or political groups for their own schemes. By the culture's own point of view is meant the culture's self-image.

How. We are sometimes told that it saves time to present the culture in the student's native language in supplementary readings or through full length books on the subject. We note that messages concerning the other culture can be understood more readily through the student's language, but it is also noted that messages in the student's language about the other culture will as a rule have been written to satisfy the interests of the student's own culture since its members are the ones who will buy or not buy the book and read or not read it. The student is therefore limited to messages from his own point of view, which will tend to defeat the educational purpose of learning something of another culture.

If the treatment of the other culture is an attempt at scientific presentation such as one would expect in anthropology or sociology — although even here cultural bias may not always be eliminated — we will still have the problem of learning the EMU's as they attach to the words of the foreign language. It would be awkward and difficult if not impossible to indicate through translations and explanations in the student's language the specific meanings of the words of the foreign language, their major connotations, and usage so that when used in longer messages they may be interpreted somewhere near their actual significance.

Finally, by teaching the culture through, and in connection with, the foreign language itself, we give the student freedom to look further into the culture from the particular interests that move him. If he must depend on reports in his own language, he is condemned to learn only the things that are of sufficient general interest to warrant
their publication in his language, and this will usually be restricted and distorted in selection and point of view.

Why. Sometimes the question is raised as to the need to study the foreign culture at all. I believe we have shown that in the first place it is at least doubtful that the language can be taught without reference to the culture. Secondly, we can see that merely learning the language even if it were possible would tend to produce parrots who do not understand. Thirdly, and probably most important, merely to teach a foreign language as strange noises for familiar ideas, attitudes, hopes, and experience would contribute little toward the education of the students. It would not give them perspective to understand their own culture — image and overt — and it would therefore not help them understand their fellow man in other cultures.

Introduction to a foreign culture through its language, on the other hand, contributes to producing educated persons.

Variations in the purposes of teaching a foreign language. There are a variety of reasons for teaching foreign languages. An important difference in cultural content will depend on whether the language is taught as a cultural international language or as a national vehicle of communication. If a language is taught as a cultural international instrument for world participation and education, then the cultural content should be that of the foreign culture. Such is the view followed in the above discussion.

If, however, the foreign language is intended as a national language, as seems to be the case officially in Ghana, there would be justification for attaching the words to national meaning experiences. This would mean that the usual mechanisms of meaning extension and change would be in full operation.

When the language is taught as a cultural international instrument, we can see that foreign language textbooks and classes that present a foreign culture as made up of only gay sombreros and song, simply reflecting our own cliches of the other culture, are not fulfilling their function. They represent enculturation and not education.

Foreign language teaching is primarily justifiable on the grounds of education rather than enculturation. From this point of view, enculturation has no place in it.
III. PEDAGOGICALLY SPEAKING.

Given that the main purpose of foreign language teaching is to educate, i.e., to produce educated persons, and given that this is best achieved through the foreign language itself and the foreign culture, we still have the problem of teaching these things effectively.

A formula that seems to be productive in the light of the goals and the problems involved is this: teach the culture in language teaching in two stages: First, teach only those cultural matters that are essential for an accurate understanding of the language as it is being learned. Second, use the language to teach the culture and to free the student to continue his own contact and search for what will gradually become the interests of an educated person.
An Experiment In The Teaching Of The English Language

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This paper is written not from the scholarly point of view of structural linguists, nor from the anti-scientific attitudes of certain prescriptive grammarians nor from the mind as sensitive to language as that of the literary artist. Rather, it comes from the experience — also rigorous and sometimes rewarding — of the teacher of English language and literature to undergraduate students in the first two years of their discrete careers in various colleges of a state university.

In *House of Intellect*, Barzun acidly remarks that "more and more of our students can barely rank as monoglots."¹ "Illiterate," "semi-literate," "inarticulate," "incapable of uttering a sentence or comprehending a line of reading" — you know the epithets trailing after them in their clouds of inglory. They are, for the most part, bewildered by and unaware of the complexity of the world of language in which they try to learn — and to live. They wander in verbal space. They are not alone. Sir Charles Snow, in *Two Cultures and the Scientific Revolution*, has analyzed the increasing danger of the great gulf which separates the scientist and the non-scientific intellectual. "Literary intellectuals at one pole — at the other, scientists. Between the two a gulf of mutual incomprehension, sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding. They have a curious, distorted image of each other. Their attitudes are so different that, even on the level of emotion, they can't find much common ground."²

You, as scientists and scholars, and we, as teachers, have been particularly concerned with the bringing of water to the desert stretching between the scientific analyses of language and structure and the humanistic appreciation of language and meaning. As Snow remarks of the world in general, "This polarization is sheer loss to us all. To us as people and to our society. It is at the same time practical and intellectual and creative loss . . . closing the gap

between our cultures is a necessity in the most abstract intellectual sense, as well as in the most practical.\textsuperscript{3}

Which brings us to the title of this paper: a venture or adventure, rather than an experiment, in teaching between two cultures, the scientific and the humanistic. In Plato's famous parable of the chariot and the two horses, one horse is appetite, the other selflessness. In this teaching dilemma, one steed is scientific, the other humanistic. But I do not mean to equate science with appetite nor humanism with selflessness! Plato's driver was reason. Here the lead driver is a generalist by temperament, a humanist by training and predilection, and a semi-scientist by osmosis, imitation and proxy. The English language course to be run is 16 weeks — "run" is here used advisedly (education seeming particularly subject to the limits of time). With supplications to the gods of intellect, the driver attempts to guide the neophytes' chariots down the stretch. At this point, I abandon the metaphor, except to say that one may, hopefully, have more confidence in this chariot for this track and the inexperienced following than in the traditional one-horse shay.

Three main areas are defined for study: classical languages (Greek and Latin), selected English words derived from Greek and Latin and from students' questions, and an introduction to structural and historical linguistics. The class is elective, administered at the sophomore level. From 35 to 40 students enroll each term. Of these, two or three are not native speakers of the language. Although the majority of the students are sophomores, there are also juniors, seniors, and occasional graduate students.

Beginning with pronouncing Greek words and sentences by imitation, the student proceeds to transliteration of the Greek alphabet into English (thus learning the meaning of the word phoneme), to translations of simple Greek sentences (thus learning the significance of inflections, the importance of word order in English, and the place of function words in both languages). He is introduced to the roles of intonation and juncture in English. At the same time, he should become thoroughly familiar with about eighty Greek root words from which thousands of English words are derived, observing shifts in parts of speech indicated by contrasts in form and stress. To transliterate English into Greek letters, he needs to know the Inter-

\textsuperscript{3}Snow, pp. 12 and 53
national Phonetic Alphabet. It is natural to explain intonation and juncture in connection with the phonemes of English. When he learns the inflections of ἄνφρωπος, his attention is called to the inflection of the English word man. The morphemes he has to add to or subtract from a Greek sentence as he translates it are often function words. He must change the word order in his English translation and understand why a set word order is not essential in Greek.

Linguists count academic vocabulary of secondary importance in the language. College teachers do not. A colleague in literature lectures for a full period on mutability in Shelley. At the end of the hour, he finds that his students have associated mutability with inability to utter words. In this purgatory of wandering morphemes, a pedant may be "something that hangs around the neck loosely," and etymology "words of praise after death." From a required word list of derivatives from the Greek, certain words frequently used and confused are selected for detailed discussion as to form, historical significance, comparison and contrast with other words similar in structure or meaning. The terms are dealt with in context. Here one is studying the history of ideas and of society. Ahknoten's monotheism; hierarchies in government, business and religion; paradox in our experience. Discussion about automation is likely to come from engineering students, polyandry from young anthropologists, ochlocracy from political science majors, pragmatism from students of philosophy. "The power to summon up image-with-words and words-with-image," according to Jacques Barzun, "is, in truth, the most completely undeveloped in our schooling."4

After simple translations, the students hear and read well-known quotations from the classical Greek with word-by-word interlinear translations: The invocations to the Muses from Homer, "in the beginning was the word" and "the good man brings forth good from the treasury of his heart" from the Bible πάντες ἄνφρωποι τοῦ θεοῦ ὑπηρέται τῷ φύσιν of Aristotle, the description of the hypotenuse from Euclid, Plato's Allegory of the Cave, and Pericles' Funeral Oration of Thucydides. "Sappho's Evening" with interlinear translations by Byron, Edwin Arnold, and Page is studied in the hope that the problems of translation begin to become real in the microcosm of the fragment and the macrocosm of time.

4Barzun, op. cit., pp. 138-139.
Can the study of Greek literature after the self-image in native utterance, bring us clearer glimpses of our Western tradition of values: "the uninhibited use of the critical faculty, the exercise of political responsibility, sensitiveness to clarity of form, and uncompromising respect for human dignity and freedom?" To be "lovers of beauty without extravagance and of wisdom without weakness of will" was, and is still an appeal to idealism, for which there is yet a place in our cultures. In the age of dichotomies, the absolute is a steadying presence. One such absolute is "The noblest of all studies is the study of what man is and what life he should live."

In what manner and to what extent a student benefits from a consideration of this kind of view of the Western heritage cannot be readily determined, even by objective tests. That he does learn basic differences in the structures of Greek and English is evident in the examinations given on course content. That he is able to read and transliterate source words in Greek is also evident from the papers written on etymology and word change. He writes two papers: one on selected Greek works in translation or studies in Greek culture or in linguistics; the other on the etymology of an English word he selects.

We feel that the study of Latin becomes subordinate in the course to the study of Greek and of introductory linguistics. However, in order to understand the conflict between prescriptualists and structuralists in the language he is familiar with, or becoming familiar with, he must understand what is meant by "the attempt to impose the laws of Latin grammar upon the English language." Here too, he studies Latin words, English derivatives, and famous fragments of Latin literature: Vergil, Horace, Catullus, and Lucretius.

The final section of the course deals with a general outline of language. Reference is made to the research of linguistic scientists. Theories as to the origins of language, with emphasis upon Jespersen's and Hockett's theories, are explained. Then word loss, addition, and morphological and semantic change are outlined. We make every effort to interest the student to apply principles relating

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Thucydides. *Funeral Oration of Pericles.*
to these areas of change and development to his own experience: to slang, to reading, to other areas of academic study. Basic structural differences among the languages of the world are effectively demonstrated at this level, I believe, by panels of foreign students answering specific questions about their own languages, and by charts of language families of the world, with detailed consideration of the Indo-European family. A realization of levels of usage and functional varieties of English is essential. These varieties are demonstrated. In the past three or four years, the results of examination papers in the area of linguistic study show gradual improvement from a 70% median to an 82% median.

To summarize, here is one of many plans by which general study in language might begin to bridge — at an early stage in the college student’s career — the gap between the scientific and humanistic cultures. One wishes that such a bridge might be built earlier, but I know of no concentrated effort in this particular direction.

In the area of language, the foreign student and the native student have contributions for each other. The Far Eastern Student’s knowledge of linguistics and Western literature is usually limited. Even the South American’s is limited. During a visit to Mexico City in 1955, I discovered that some Mexican friends were taking the most advanced course, grammar, at the Bi-National Center for the third time. This was the end of their road. Directors of Bi-National Centers in chief Latin American cities told me that they particularly wanted new teachers trained not in linguistics but in the humanities. Apparently, the systems used by the largest Centers in teaching English as a foreign language are well mapped-out. They felt that most urgently they needed additional staff trained in American and Western cultural studies.

We talk of two twentieth-century cultures and of culture and language. Sapir speaks eloquently on both problems. “Culture, then, may be briefly defined as civilization insofar as it embodies the national genius . . . . The genuine culture is not a necessity either high or low; it is merely inherently harmonious, balanced, and self-satisfactory . . . . The major activities of the individual must directly supply his own creative and emotional impulses, must always be something more than means to an end . . . . The genuinely cultured individual or society does not contemptuously reject the past. He honors the works of the past, but not because they are gems of historical chance, not because, being out of our reach, they
must need be looked at through the enshrining glass of museum cases. These works of the past still excite our heartfelt interest and sympathy because, and only insofar as, they may be recognized as the expression of a human spirit, warmly akin, despite all differences of outward garb, to our own."

At my University I am honored by the title of Professor of Anthropology and Linguistics. But as is the way of Universities, the department to which I belong, that of Anthropology, and Linguistics has no official connection with the Department of Modern Foreign Languages and Literatures, nor with the Department of Classics. It does, however, curiously enough as these things go, have a connection with the Department of English, since my colleague Henry Lee Smith, Jr., bears the title of Professor of Linguistics and English. The fact that the chairman of the English Department took a course with Edward Prokosch at Yale many years ago is, by his own admission, not unrelated to this fact.

Now, the linking of linguistics and anthropology is an old story, even though my department happens to be the only one in the United States to have the link expressed in its name, and the few professors with the double title that I know have the items reversed. But there are very few, if any, modern language departments which dare — or care — to admit any link with linguistics or with anthropology as the more inclusive field.

We are concerned here — it says so in the title of the panel — with the link between culture and language teaching. I believe that those who planned these sessions, many of the speakers, much of the audience, and even a good part of the eventual readers of the resulting volume, know or will know that culture is here used as the anthropologists use — or are said to use — it. Even for us — the knowledgeable ones —, however, it seems to formulate sure definitions.

Let us take a well-known definition of culture: the system of learned and shared behaviour systems (please note — systems of systems) in terms of which the members of a society behave and interact. Culture is learned — we all know that, I hope. Culture is shared — it has to be; you get it from your elders and contemporaries, and it is passed on to your contemporaries (and your elders too) and your descendants. Culture is a system. Behaviour is what happens — what you and others do. Behaviour is patterned and systematic — the universe is ordered and you are ordered (and get
ordered!) with it. Every human being is born into a society; you don't have to apply for membership — they hand it to you at birth, it's for life, and you couldn't resign if you wanted to. Human beings must do things — behave — with and to each other — interact. And they can only do these things in terms of their own particular culture, because they know no other way.

So much for defining culture. Now let's try to define language, teacher, language teacher, teaches, and then maybe kind (of culture) will be definable.

A language can be said to be a system — learned and shared — of arbitrary vocal symbols in terms of which members of a society communicate. This is very much like the definition of culture. The "arbitrary vocal symbols" are the specific content of this system, and "communicate" is the special term for language behavior and interaction. So it seems that language is a cultural system, one of the systems of which culture as a whole is a patterned arrangement.

A teacher is a member of a special occupational class in our society. He is underprivileged, underpaid, underprized, but he's important, because he has duties to a noble cause — need I go on?! In any case, a teacher is one who teaches, and specifically one who teaches some accepted subject, according to accepted rules, in old-established and tradition-incrusted institutions of various kinds.

A language teacher is a teacher who teaches languages, or language. That's his "subject", his "field", and it says right here that the cobbler should stick to his last, so the language-teacher ought to stick to language-teaching and stay out of the other things — like world peace and, brotherhood, or how to travel successfully in Europe and other partibus infidelium, or how to order ham and eggs and apple pie in Blagoveshchensk. Or should he?

Well, let's try to define the verb to teach. Or rather, I'll try to describe what a teacher does or is supposed to do. A teacher presumably knows his field, controls his subject-matter, or something like that. This means he has spent some years learning it, or about it, and has observed others teaching it, and has followed in their footsteps — or deviated from them, as the case may be. He (and of course, as it said on the inside cover of a college catalog I saw recently, the word be includes she, and is used because of the exigencies of the language — a case exemplifying the Whorfian

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hypothesis, if there ever was one.) — so anyway, he usually has
some kind of document attesting to his competence — a certificate
or a degree, or several of them. He reads professional journals, he
plans lessons, he may write a textbook or two, he attends classes
regularly. He expounds the day’s lesson, tells the students’ all
about it, assigns homework, listens to the students’ rendering of the
previous lesson, corrects them, tells them how things should be.
He goes off on tangents, tells stories, wakes up the sleepy, puts
the alert ones to sleep. He works hard, usually and he gets de-
pressed often at the meager results. The language teacher has to do
all these things in a medium that sounds strange to his listeners,
that, in fact, hits them deeply in their inner being. For, in essence,
every foreign language is somehow immoral, or at least improper,
to all who are not native speakers of it. We’ve learned since we
were two years old the “right” way to make sounds, to inflect and
arrange words to refer to the world about us in these words. And here,
unexpectedly, the student finds himself confronted by a demand that he
make sounds in other ways — some of them really uncomfortable
or connoting various improprieties —, that he use grammatical forms
that make no sense, that he arrange words strangely (“The very idea
of putting a verb after its object”, and so on), and that he talk about
things he’s never talked about before, and, in fact does not know
anything about. The teacher of such a subject obviously has a
hopeless task.

What then, is the answer to our question? Or, rather, what are the
answers. I think they can be stated rather easily. The language
teacher, because he teaches a language, is teaching a cultural system.
And this cultural system is the one that is the vehicle for the expres-
sion of the largest part of all other cultural systems. The language
teacher teaches all kinds of culture — the culture of the peoples
who speak the language taught. He teaches an aspect of the culture
when he starts, when he says Guten Tag, or Bonjour, or the equivalent
of “Peace with you”. And he teaches culture when he says “In
Russian you say, in effect ‘two of book’, but ‘five of books’”, “In
language X you say ‘I-it-in a place-house (as a set) — performed the
act of seeing on’ for ‘I saw a house’”. And he teaches culture when
he says things about a literary work, or a paper on the physics of
artificial satellites.

In conclusion, then, we don’t need to define kinds of culture, but
can simply say that the language teacher teaches all kinds of culture.
He is behaving in culture, so he exemplifies his own culture; he is
expounding items out of another culture. He can’t help himself — he had better equip himself properly to do it.

And, if then the language teacher teaches all kinds of culture (including culture with a capital C), he had better equip himself properly to do his job. He has to know his own language and culture — know as a native and know as a scientist; he has to know the other language and culture — not as a native but as a skilled observer. He has to know how to present all this knowledge, how to “motivate” the student, how to make the learned knowledge stick. It is clear that most present-day language teachers have been trained to do almost everything except what they ought to be doing. Which means they’d better get with it, and learn their business. Then they might stop being low men on all the totem poles. They will stop being “language teachers” tout court, but will instead be a variety of applied anthropologists.
The elementary stage of teaching German or any other language is concerned with the development of new speech habits, the building up of skills in using structural patterns. The language material with which this kind of work can be done is simple, graded, taken from frequent daily situations. The more concentration is put on the acquisition of skills, the less it can be desirable to sacrifice much time to discussions on far-reaching intellectual insights.

This stage of learning the language comes to an end when the student masters the basic structural features. There can be no doubt that when that point is reached, the student cannot yet be considered as one who knows the foreign language. What has been done so far is nothing but practicing the use of a new code system for the same messages with which the student is familiar in his mother tongue.

Occasionally even in the elementary stage, a situation develops when the fictitiousness of the identity of messages in the two languages is suddenly exposed. This happens when there is a word either in the native or the foreign language to signify something for which no equivalent in the other language can be found. There is hardly any controversy about the pedagogical procedure in such cases. Since a translation is impossible, an explanation of what the word signifies must be given through a comment on the foreign culture, which of course is at the same time a comment on the native culture. Examples for such words are ready at hand. Schrebergarten, Stammtisch, FuBballtoto on the one hand, drugstore, baseball and all the terms related to it on the other.

Such excursions into semantics are rare during the time when the focus is on pattern practice. By and large, the assumption is maintained that words in one language have their equivalent in the other: it is taken for granted that Bauer means farmer, Braut means bride, Student means student, and weise means wise. It is a wrong assumption, of course, but it yields workable conditions for the concentration on drill work.
However, as was mentioned before, this elementary stage of learning comes to an end when the basic structural features are mastered. Any further steps in the learning of the foreign language meet with the increasing necessity of conveying information in regard to the total culture. This not only means a wide area of new factual data; it also goes deep into the understanding of language.

It would be repetitious to elaborate on generalities of language and culture in front of this audience. We are aware of the fact that language reflects the way in which members of a speech community comprehend the world. We know about the complex interrelation between the thinking of the individual speaker and the interpretation of the world which he finds already incorporated in the language. And, most important for the learning of a foreign language, we know that the comprehension of phenomena in categories, fields, or scales differs from language to language.

Our knowledge in this area is comparatively old. Wilhelm von Humboldt, at the beginning of the 19th century, already said most of what we know today. In the meantime his ideas remained dormant until in modern times the field theorists took up where he left. It is this concept of language phenomena having their place within a field and being determined by neighboring phenomena that proved extraordinarily fruitful.

The field concept is the underlying idea in the development of the phonemic principle. Every time the field concept has been applied to morphology and syntax, it has also been very helpful. And since the fields differ from language to language, they are indications of the peoples’ reactions to reality, that is to say, they are reflections of culture.

I would like to give an example of a field in German on the morphological level. The data for this example are to be found in Leo Weisgerber, *Vom Weltbild der deutschen Sprache*. It shows how cultural reflections can be observed in the area of word formation. The suffixes -lich and -bar for the formation of adjectives first have to be determined as to their exact place in the field to which they belong. Through pairs such as erklärlich — erklärbar; faBlich — faBbar; unsäglich — unsagbar; undenklich — undenkarbar it can be determined that -lich in these cases indicates something that can be fully done, whereas -bar implies mere accessibility. If one considers the fact that formations with -bar have considerably increased during the last
200 years and -lich formations have correspondingly decreased, the conclusion is permissible that this is a language symptom for a shift in viewing the world. Less situations are seen as capable of being completely mastered; one prefers their characterization as merely accessible to handling. In a dictionary of 1691 adjectives ending in -lich outnumber those ending in -bar by ten to one. In a dictionary around 1900, the -bar suffix prevails two to one.

To arrive at this kind of conclusion, some subtle distinctions have to be made in regard to meaning. Moreover, even research in historical linguistics is necessary. It goes without saying that the language teacher would have to await a large body of proven research findings before he could think of incorporating cultural information in his teaching on this level.

What about syntax? It could yield a tremendous amount of information on the manner in which reality is mastered in the language. But again, the task does not allow a piecemeal approach in teaching. It involves a thorough revision of our present day grammars which stop at the listing of forms according to traditional categories. These grammars do not reflect the way in which the world is intellectually arranged in the language. It is, for example, necessary to revise the whole traditional representation of tenses, including the terminology for them, since Präsens or Gegenwart, Futur or Zukunft, and other terms in this category do not really stand for what their names seem to indicate.

Ich gehe is hardly ever used merely to express that the process is taking place at the present time. One would say something like Ich bin auf dem Wege, or Ich bin gerade dabei, da und dabin zu geben. The form ich gehe is used in an entirely different situation, namely as a statement of something that will happen in the near future, with the additional element of firm will or intention. Ich gehe jetzt means 'I have made up my mind that I will go now.' Du gehst, on the other hand, is a form which expresses temporality, namely future, plus the additional element of command: Du gehst jetzt ins Bett! Er geht seems to be even more complex. In regard to temporality, past, present, and future can be involved: Er geht gern zu Fuß. Er geht da drüben. Er geht auf die Universität. In regard to other elements, the form er geht may involve command, but not intention: Du gehst jetzt hierhin, und er geht dabin!
Conversely, the verb phrases with werden, generally listed as future, are by no means always expressions of the future. *Du wirst jetzt müde sein* does not refer to future, nor does *ich werde mich wohl irren* or *wird heute den Brief bekommen haben*.

As one can see, our traditional grammatical categories do not represent the manner in which the empiric world is being put into order in the speakers' minds and the manner in which this intellectual reality is reflected in the language. A grammar which would do that, is still to be written, but probably not by one man, nor even by one generation of scholars. And it is therefore unrealistic to expect the individual teacher of the foreign language to teach grammar as a reflection of cultural reactions to reality. Beyond the most modest beginnings, we cannot hope to use grammar for cultural information, simply because we lack a sufficient body of established facts.

Does all this mean that the language teacher should give up hope of ever being able to include cultural information in his language classes? Is cultural insight to be gained only by turning to literature or to movies and travelogs? When we do that, we leave the field of language teaching proper and enter into new areas: literary interpretation, geography, sociology, politics, and economics. But the direct reflection in language of culture in its widest sense is then left out of our language teaching.

The level on which the direct reflection of culture in language can be systematically handled in language teaching is the lexicon, that is to say the items in the vocabulary, including idioms. When we have reached the stage where the concentration on the forming of habits in the use of structural patterns no longer necessitates the artificial assumption that one vocabulary item in the foreign language has an exact equivalent in its translation, we have to scrutinize carefully which place is occupied by each item in its word field within the total intellectual structure of the foreign language, and which place is occupied by its assumed equivalent in the student's native language.

We will then discover that *Bauer* and farmer are not equivalents. *Bauer* has its place not in the field of occupations like farmer, but it occupies a place in the field of social groupings, next to *Bürger* and *Adliger*. *Bauer, Bürger, Adliger* are separate members of one category which is part of the entire intellectual system through which the world is comprehended. All the words in this field, incidentally,
have strong historical undertones. Farmer, citizen, and nobleman in English are apparently not members of one field.

Another example may further clarify the point. The word *solid* or *solide* in German is, of course, not the equivalent of solid in English. But even if the translation *durable* is given, the student does not really understand the cultural information that it yields. The field neighbors of durable in English are lasting, permanent, constant, enduring, and their opposites are transient, fleeting. In German, *solide* has the field neighbors *beständig, echt, erprobt, gediegen, wertvoll, zuverlässig, korrekt, preiswert, dauerhaft, haltbar, fest, praktisch*, and the antonyms are *modisch, unpraktisch, unreell*. We see that *solide* is a member of an entirely different field, the members of which are predominantly used for classification of economic values. *Durable* is much less usable in that connection. It would seem that its place is mainly in the field of temporal extension. The cultural conditions reflected in the use of *solide* indicate an economy which is not geared toward consumption but conservation of material.

This example shows further that in this kind of analysis one aspect must always be taken into consideration: the place which a particular word occupies in the scale of emotional and moral values. What is good and should be done and what not? Because misunderstandings in this respect usually cause more troublesome reactions between speakers of different languages, than lack of complete understanding in evaluations of objective meaning.

One final observation wants to be made. It is clear that this way of handling cultural reflections in the lexicon, for which only a few examples have been given here, seems to present a colossal task for the language teacher. However, here as in the teaching of the foreign language structure, the position of the teacher is different from that of the theorist whose job it is to produce an analysis of the language in its entirety. The language teacher has to be concerned mainly with the troublespots, that is to say with those areas where discrepancies in the two language systems, the native language and the foreign language, lead to misunderstandings and significant errors. This is true for the phonological level where the teacher’s main effort must be concentrated on differences in the phonemic systems, not on identical phenomena. This is also true on the morphological and syntactic level. Likewise, there is no need for spending much time on the discussion of cultural reflections in the two languages which are identical.
An example for this would be the manner in which both English and German reflect our intellectual reaction to phenomena in the sky. The way in which we try to grasp and intellectually master our experience is beautifully exemplified by our grouping of stars into constellations which as such do not exist other than in our human perspective. The grouping of stars which are separated from each other by enormous distances into constellations like Orion or Dipper is nothing but a product of human intellectual behavior. Other speech communities have come to different concepts and thereby reflect certain aspects of different cultural behavior. But English and German, at this point, show identical categorization and for the language teacher this perfect one-to-one relationship is just one of many instances where he need not worry.
DISCUSSION

PAUL GARVIN: (Georgetown University) I would first like to comment on Professor Mueller's paper which I thought was extremely stimulating, and reminded me of something completely unrelated to language teaching, namely language data processing. It also reminded me of another paper, by Professor Marchand,¹ a very outstanding Germanic scholar, at the National Symposium on Machine Translation in Los Angeles. There he described how in some of the better textbooks of German, the student is taught to recognize syntactic structures by extracting key words and key relations. Let me go one step further, and say that it appears that in the better type language teaching community, (and I am using the term "better type" as a value judgment), there is apparently a tendency afoot to develop some kind of semantic categorization on the basis of which the language can be better taught. I am very pleased to see that there have been two references in the course of this conference to the "field theory" which is based on my favorite linguistic theorist, Karl Bühler,² (and has since been continued in Germany by Jost Trier, Leo Weisgerber, and others) and which apparently gives you some way to approach the problem of semantic categorization that is one step ahead of Roget's Thesaurus. One of the failings of this, as of many comparable European efforts, is that the methodology of arriving at these categories is not clearly stated. But this fault can be remedied, and one hopes that it will be.

There is a certain unity to applied linguistics, since it would not appear on the surface that there are things in common between the handling of language by machine and the transmission of language skills to undergraduates. But apparently there are common features, and if they are to be summarized, they can be stated in two terms. The first is, that one has to utilize some kind of relevance criteria in order to have a progression for the acquisition of knowledge and/or data. There has to be more than a purely impressionistic way of going from the simpler to the more complicated in both language teaching and in other applications of the results of linguistic

²See, Bühler, Karl, Sprachtheorie, Jena: Gustave Fischer, 1934.
science. I stress the term results because I would like to differentiate between results, on the one hand, and opinions on the other. The second parallel in addition to the relevance criterion is the significance of the problem of recognition. That is particularly true in teaching, when the student is not merely taught to use the language actively but passively. And many of the teaching efforts in American colleges are deliberately directed toward giving the student an understanding knowledge rather than an active knowledge. For instance, the foreign language requirements for a Ph.D. are usually limited to reading knowledge. Now, the basis for this kind of knowledge is the recognition of the content of messages and this of course, is exactly the same problem as is faced by the programmer who wishes to use the computer for automatic abstracting, machine translation, and automatic indexing, or any of these many jobs. The solution to the problem is to provide either the student or the computer with the necessary recognition clues. These clues can then be extracted again from the results of linguistics, particularly if recognition, (that is, perception) is given its proper place in the theoretical conception of the task. Professor Mueller’s paper has stimulated me very strongly to stress again this unity of applied linguistics.

On the interesting paper by Professor Kluckhohn on the need for a bridge between science and the humanities: — this bridge is indeed needed, in fact, it is going to have to be a toll bridge because we cannot have it for free. Primarily, this means that we have to understand the fundamental difference between the humanistic and the scientific approach which is as far as I can see, appreciation on the one hand and cognition on the other. Either one can be taken to extremes. One extreme is the humanists' idea that things such as literature and poetry, are simply beyond any objective treatment. The other extreme is that of some anthropologists who would carry cultural relativism to the extent of condoning any and all human acts, including the ovens in Germany. I think that this is a very sensible thought to bring into this context.

**MR. MUELLER:** Let me make a comment myself on one of the papers. I think it is very important to give language teachers an idea, a help, in their search for a frame of reference, for a system of check points by which they can manage to go systematically and cover the foreign culture which they are teaching in connection with the language. We are all aware of the desirability of having this kind of approach, but where do we find a method for defining a culture? We do have that, and we have the two authors who have
done that right here. One is Professor Trager and the other is Professor Hall, and either one of them should tell us about the ideas that went into this, because it is extremely useful for the practical situation in the class.

MR. TRAGER: Some of us in the various fields of anthropology, have been saying for many years that it is all very well to talk about culture, or to try to tell others about it, but we are not going to get very far in putting the idea across if we do not present them with concrete ways of getting into it. This is precisely the kind of thing Professor Mueller is asking for. If you then realize that culture is not a simple thing, but is as I said, a "system of systems," this means that there is a tremendous task of analysis, and listing, and comparison and everything else to be done. Some of us here have tried it. Dr. Hall and I, in our very initial attempt to be systematic, tried to get back to what might be the basic arrangement of human activity around which culture is built, and then tried to say something about how these arrangements are elaborated in different societies. We found that many of our colleagues were less than sympathetic to this effort. There was a rather wide lack of appreciation of our effort, a lack of understanding of it, even among other anthropologists who were themselves engaged in basic philosophical schemes. This, of course, is inevitable in our society. There will be differences of opinion and there will be arguments about the validity of systems. But, (and this is the point I have always made in talking about that and other efforts like it), you have got to get on with the business, and any available scheme in terms of which you can then try to arrange a cultural analysis is better than no scheme at all. My own feeling has always been that if you have an analysis, or what purports to be an analysis, the thing to do with it, is to try using it. If you get some use out of it and it works, well and good, and if it doesn't, well, that's too bad. In the scholarly world, however, and this I believe is found in all the scientific and scholarly fields, a good many people would rather argue about a basic theory than try to apply it. I have said for many years that I don't really worry about the arguments about the particular system of analysis of English with which my name is associated. It is not a question of its being right or wrong, it is a question of what can you do with it. Does it work? If it is possible to write the phonological part of a textbook for the teaching of English in terms of this analysis, so that the people who learn from that book produce a reasonable facsimile of English, then the analysis has its usefulness, even if it may have some infelicities here and there (or more than infelicities). Similarly, my feeling about the scheme for the
analysis of culture which Dr. Hall and I presented, and which cer-
tainly needs tremendous amounts of elaboration, discussion, and
change, is that, if it even as a very initial step, provides a list
of rubics so that one can say that a textbook or a collection of
readings which is going to tell people about culture, ought to touch
on this field, and that field, and so on down the line for 5 or 10 or
150 items, then it has served its usefulness. This is the kind of
prescription that I have for application of existing knowledge and
obviously for the continuation of efforts to provide new and better
and bigger schemes of analysis.

MR. MUELLER: I think I should say here that the book in which
this can be found is _The Silent Language_.

JACOB ORNSTEIN: (Department of Agriculture) I would like to
ask Professor Kluckhohn whether she made any attempt in her very
interesting course to orient the students to language typology, and
to give an idea of the leading language families of the world?

PROF. KLUCKHOHN: We talk about language typology when
foreign students are brought in to discuss their kinds of language,
that is, to discuss the role of pitch in certain languages. Charts
with distinguishing characteristics are given to the students to
study — charts first of all of the Indo-European or Indo-Hittite family,
and then charts of the Germanic family with their common characteris-
tics, and the common characteristics of the Indo-European family.
They are later tested on these. I have a collection of newspapers
from as many countries of the world as possible and these are sent
around for discussion. Whenever I can, I also illustrate discussion
with material from Thai which I know a little about, and I call on our
Indian students to talk about Laguna and Navajo, for example.

MR. ORNSTEIN: I think that implicit in the papers this morning,
was the idea that we don't have to stay within the large but neverthe-
less narrow confines of language structure, and that there are a great
many interdisciplinary borders to cross. As a group we have been
loath to communicate with the intelligent lay reader and I think that
we can find many outlets. Some of you may have seen some of my
own articles in journals which I never thought would accept them —
_The New York Times Magazine_, and even _Woman's Day_. These are
not scholarly works, but what is interesting is that I tried to publish

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these ten years ago and nobody wanted them then. I couldn't give
them away! I think the field is now open and we should not feel there
is a stigma attached to writing such articles. You will find that in
France the "academician" definitely does contribute to mass
magazines.

Such a course as Miss Kuckhohn described, could be modified for
introduction to the high school level. I think it's about time that we
pressure our friends, the educationalists, into accepting a general
course on language for high school students, such as general science,
now in the curriculum. And I do not mean the general language courses
which give a smattering of three or four languages and which do not
accomplish too much.

CONRAD HOMBERGER: (Polytechnic Institute of Brooklyn) I was
wondering about something which seemed implied rather than explic-
itly stated, and that is, that in the beginning of a language course,
culture has no place. At first the student learns a code system. This
seems to be a notion which is very widespread but I don't find it ap-
propriate. If you teach a code system you simply imply that this is a
code for the things the student already knows. But it seems to me
that it is necessary, from the very beginning, to begin with culture.
What Professor Trager said was just to the point; when you come into
a German class and say 'guten Tag' you are introducing culture. And
it is not a mistake to tell the student that you are introducing culture.
Pedagogically you enlist the adventurousness and alertness of a young
student by making him aware of something completely new and dif-
ferent. He should not think that in German "time" is 'Zeit.' In Ger-
man when you ask for the time you say 'wie viel Uhr ist?' From the
viewpoint of motivation as well as from the viewpoint of semantic
principle, the notion of teaching culture from the start should be seri-
ously considered again.

I would like to ask Professor Mueller about the '-lich, and -bar'
matter. What about 'wunderlich' and 'wunderbar,' 'sonderlich' and
'sonderbar,' 'sichtlich' and 'sichtbar'? Then there are many words
that don't have a -lich at all, only -bar.

MR. MUELLER: Let me answer your last question first. As I said
in my paper, I took my data from Weisgerber's, Vom Weltbild der
Now the examples that you gave are examples of how you misunderstood this. You are not starting from the field but you are starting from the form of the word, and you are just taking examples with -lich and with -bar, and you assume that they belong to the field. They don’t. You may have homonyms, and they belong to different fields. They are two different words. As far as the other part of your question is concerned, I think there is a misunderstanding there too. It is rather a matter of concentration. We all know that we cannot concentrate on cultural information on the beginning level. If you do, then you are in danger of falling into a trap. If you take 'buenos días' and interpret this culturally in terms of the Spaniard, then you are really doing something that shouldn’t be done at the elementary stage. At this stage, you are just laying the ground for some work that can be done later on. First you have to build up skills, habits, and the use of patterns. But a planned approach to conveying cultural information cannot possibly be done at this stage. If you do that, you wind up talking about Germany, or France, or Spain, and the language, rather than making the students use the language. Certainly you cannot teach a foreign language completely devoid of cultural information. Students absorb it with the language, with these patterns that are different. But you cannot devote too much time to specifically pointing out cultural differences. If you do, you are just stealing the time from other work.

KHALIL SEMAAN: (Library of Congress) While I am in perfect accord with the majority of Dr. Lado’s requirements for the perfect informant, I beg to differ with him on one point. I do not believe that knowledge of God on the part of the perfect informant should enter into the general scheme of scientific linguistics or cultural research. Dr. Lado is probably aware of the fact that the English morph, "God", connotes a different kind of being, (not always all-supreme either), when used by a Christian informant, than when used by a Moslem, Buddhist, or Hindu informant. Furthermore, if we are to require knowledge of God in our work with informants, we should be forced to omit from our range of intellectual activity many, many cultural entities. We would also be barred from working with educated Communist informants who once studied in modern Russia, or with a person of the Zoroastrian culture, or with a libre penseur of the study of any culture. For how could we study and describe an atheistic culture unless

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4Weisgerber, Johann Leo, *Vom Weltbild der deutschen Sprache* Düsseldorf: Schwann, 1950.
we worked with atheists? My question is this: is it not in the interest of scientific research to leave the spiritual where it now stands, namely on a personal basis, and separate it completely from our scientific work?

MR. LADO: I had several of my colleagues read the paper before I gave it, and one of them wrote a note on that particular item, and said in the margin 'this is a hot potato'. I would say this: I don't think you can understand India if you do not consider its views of God. I don't think you can understand any culture in the world, unless you take into account its religion. If there is a culture group that is completely atheistic, you cannot understand them unless you take their atheism into account. I did not mean to say that you had to understand God as I understand God. That would be inculturation. And I don't mean, on the other hand, that you must believe as the culture you are studying believes.

MARTIN JOOS: (University of Wisconsin) It is clear from this morning's discussion, that one of the most important things that teachers' should realize is that they are teaching culture all the time, and that they should monitor themselves by their understanding of the system or structure of what they are teaching. I am speaking here of what I called 'outside meaning' in my paper yesterday. When a teacher is teaching a word, or a phrase using a certain word, that word identifies something in a field where it is in competition with other words - analogues, antonyms, synonyms in that field. Also, the use of the word tells the listener what field is under consideration, as the German word solide tells the listener first that you are speaking German, second that you are talking in a field in which solide contrasts with other words, and third, that it is this word in that field and not others. The teacher has to realize that he is doing two or three things at once.

WILLIAM K. ARCHER: (Fairleigh Dickinson University) I have been troubled for many years by the term 'western heritage', which seems to me both meaningless and potentially dangerous. I think it leads people astray. I was conscious of this in a course at our University where when we teach Xenophon, The Persian Expedition, we also insist that the students read the appropriate chapter in Olmstead's History of the Persian Empire with the idea of trying to set up a wider matrix for culture than the notion that the Greeks somehow come directly down to us. We spend a certain amount of time with the anthropological historians who have pointed out that the Greek
temples and the Greek statues were not pure white against the Aegean sky. It seems to me that we are, as linguists, committed to the notion of a wider view of culture than the orthodox 'western heritage'. We know that the continuum is not direct, that the line from the Greeks and the Romans to us is, to put it mildly, unclear; that the Judaic, or Judaeo-Christian tradition is surely oriental as we use the term oriental; and that we have left out a large number of cultures which are germane to our contemporary 20th century variance, which might have not been germane to our antecedents. I think there is a stir among language teachers now, fortunately, to teach languages which are less part of what we think of as "our heritage". We used to call these "exotic languages" I believe, the title now is "under-represented languages". I would trust, if I may be malicious, that an "under-represented language" is something spoken by an indigenous inhabitant, rather than a native. It does seem to me, however, that there is as much of an argument, to choose one example, for teaching Chinese or Iranian or perhaps even Hindi, for its cultural value, as for teaching certain of the European languages, and that the classical argument for teaching German or French is **prima facie** something that benefits by integrating the student in his own culture is somewhat unrealistic. It seems to me that we could prudently strike "western heritage", "European civilization", and similar terms from the vocabulary of curriculum-making, if you will, or syllabus-making.

**PROF. KLUCKHOHN:** Along with the other texts, the students are required to read a book by Gilbert Murray,5 which stresses, what he calls, the three streams of Western culture: the Hellenistic, the Judaic, and the Christian. May I ask you a question, sir? Have you read recently the *Funeral Oration of Pericles* by Thucydides? Don't you think that it is a rather striking example of some of the ideals, and self-images of the United States political and social system?

**MR. ARCHER:** I think it would be impertinent as a non-classicist and certainly out of place in this discussion, to go too deeply into my attitude toward the Greek tradition. I would mention in passing that my reason for starting this was that I am presently working on a problem utterly unrelated to this, and trying to see what the background of Indo-European musical tradition was, and the Greek correlates, almost painfully nicely, with the Indian. As an individual literary work,

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we can talk about any number of ideal systems, insofar as they are individual essays. That is, the Funeral Oration has its own implicit value per se. I think I could find analogous items in Indian literature, and I am certainly confident that I could find them in Islamic literature. My point is not that the individual work lacks value, but that Pericles, in some way, stands more intimately for our present cultural needs than, let us say, the Bhagavad-Gita. My own sentiments would run somewhat more strongly to Krishna and Arjuna at this point, than to Pericles. Now this is a value system, and I would be terribly afraid of the teacher choosing among these, saying, "well now look I am going to turn my students into little students of the Gita" rather than the Greek experience. What we have to do is explicate texts, and we choose our texts on the basis of what, in the last analysis, we believe will benefit our students. I adhere to an old-fashioned notion that as much as possible, the teacher should present values, those with which he is in sympathy and those with which he is not in sympathy, as fairly as he can. The classroom and the University is not a place for establishing the ideals and the ideologies of a nation. I realize as I say it, that my word comes out slightly more strongly than I intended. But quite clearly, my feeling is that I would be very very loath to say "these are the ideals that you should support as a nationalist or as a patriot."
SECOND LUNCHEON ADDRESS
The National Defense Education Act and Linguistics

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It is a pleasure to join you here in Washington at the time of the Cherry Blossom Festival, though, as happens all too frequently, the cherry blossoms are late. In their stead, let me offer you a garland of initials of organizations related closely or remotely to your interests, many of which will be woven into what follows. We have the LSA, the ACLS, the CAP, the MLA, the FLP, the AATs, the NFMLTA, the SSRC, the NDEA, the LDP, and I might continue to add others.

Today I wish to concentrate upon two of these, both perhaps less well known to you than they should be, the NDEA — The National Defense Education Act — and the LDP — the Language Development Program, which comprises Title VI of the National Defense Education Act. In the past two years, appropriations for the Language Development Program have totaled nearly $16 million — $6.4 million of it for research, development of instructional materials, and studies.

I believe these are sums of money to command your attention — which is why I mention them here at the beginning of my remarks. Today I want to give you some idea of the scope of the Language Development Program and explore what must be uppermost in your minds, some of the implications for scientific linguistics.

First, permit me to remind you that the National Defense Education Act contains a variety of programs for making available "additional and more adequate educational opportunities" for our youth. The law points out that this aim depends upon the mastery of modern techniques developed from complex scientific principles as well as upon the discovery and development of new principles, new techniques, and new knowledge.

In conceiving and voting the modern foreign language provisions of the NDEA, the Federal Administration and the Congress were reacting affirmatively to the proposition that knowledge of the languages of the world, of the whole world, is vital to the welfare of our people and our nation — that we need improved and increased resources of language instruction from the elementary school to the
graduate school — and that the profession can accomplish what is needed only with Federal financial aid. In other words, when the NDEA was signed by the President on September 2, 1958, the language profession immediately passed into a new era, an era in which it is called upon to serve the national interest, and substantial funds were authorized as wherewithal to begin the monumental task ahead.

In general, two major problems in language instruction are the specific concern of Title VI, the Language Development Program, and in part, of Title III, which is a program of State aid to school systems. First there is the problem of teaching modern foreign languages in the elementary and secondary schools, and, in the nature of things at present, this means the commonly taught West European languages plus Russian. The other problem is the teaching of the needed but less-taught or neglected languages at the college and especially the graduate level.

Let's look first at the matter of the commonly taught languages in the schools. Under Title VI, the Commissioner of Education is authorized to contract with American institutions of higher education for the conduct of summer or academic-year institutes principally for teachers of modern foreign languages in the schools. All of the operating expenses for such institutes are paid by the Government, teacher-trainees attend tuition-free, and, furthermore, public school teachers are eligible for a weekly stipend of $75 plus $15 for each dependent. Summer institutes run from six to eight weeks, and last summer there were twelve, while this summer there will be thirty-six. These forty-eight institutes will have served more than 3,000 teacher-trainees. Four academic-year institutes are presently in operation and four more will be conducted next year, the eight serving approximately 200 school teachers. In the first two years of the NDEA, the sum spent on institutes will be $4,764,000.

The mission of these institutes is to upgrade the quality of language instruction in the schools through advanced training (and here I quote from the Act) "particularly in the use of new teaching methods and instructional materials." In other words, the intention of the Law is that the institute program will attempt to bring about changes in instruction, and these changes will be centered upon new materials and new methods.

Now, the question may be asked, "What new materials and what new methods?" The answer to this, it seems to me, is: materials and methods which show promise of training pupils in all four
language skills: listening comprehension, speaking, reading, and writing. If there is any uncertainty concerning the intent of the NDEA in regard to listening comprehension and speaking, we need only recall Title III of the Act, providing considerable funds to the States, on a matching basis, the use of which is in large part restricted to the purchase and installation of special equipment for instruction in science, mathematics, or modern foreign languages. Since the NDEA began some seventeen months ago, the number of secondary schools with language laboratories has risen from 85 to well over 400.

Let's turn now to the matter of the languages which are variously called neglected, uncommon, exotic, or funny. The Commissioner of Education is authorized to contract with American institutions of higher education for the establishment and operation of language and area centers, with the Federal Government paying up to one half the costs for new and/or expanded activities. In the first year of NDEA, nineteen centers were established, and next fall more than forty will be receiving Federal aid. The sum of Federal support in the first two years is slightly in excess of $2 million. The intent of this program is to collaborate with interested institutions in strengthening instruction in critical languages as well as in related area studies. Languages include those of the Far East, Southeast Asia, South Asia, Near and Middle East, Sub-Saharan Africa, and the Soviet World. The top priority critical languages, on the basis of an ACLS survey conducted under contract with the Office of Education and headed by Freeman Twaddell, are Arabic, Chinese, Hindi-Urdu, Japanese, Portuguese, and Russian.

Further aid to the neglected languages is provided under Title VI in the form of a graduate fellowship program. Last year 171 fellowships were awarded in the six priority languages just mentioned. This year, more than 400 fellowships will be awarded, and the list of eligible languages has been extended to more than 85, but with French, Spanish, German, and Italian excluded. Fellows may study at any American institution with a satisfactory program. Fellowship aid has totaled more than $2 million in the first two years of NDEA. The intent of the fellowship program is to increase the numbers of college-level instructors and researchers in the neglected languages and to train specialists for service of a public nature in which language competency is important.

One final program remains to be mentioned, the Research and Studies section of Title VI. This authorizes Federal support for
studies and surveys to determine the need for increased or improved instruction in modern foreign languages and related fields, for research into more effective methodology, and for the development of specialized materials.

With the sum of $6.4 million appropriated for research and studies in the first two years of NDEA, it has been possible to fashion a broad and varied program dealing with a good many of the important problems of language teaching in the schools as well as the teaching of neglected languages higher in education. This is not the time for an account of the substance of the projects involved. I can assure you that high professional standards of research have been set, and we expect all of our many contractors to contribute information, evidence, demonstrations which will further the aims of the LDP.

This then, very briefly, is the Language Development Program. In the United States Office of Education we feel that, considering all the circumstances, we have got off to a quick and solid beginning in this program. On the whole, the comments we receive support this feeling. One major reason accounts for the speed with which appropriations have been translated into action. When the NDEA was passed by the Congress, many of the basic decisions of policy concerning the strengthening of language teaching had already been worked out over a period of six years. I am referring to the work of the FLP, the Foreign Language Program of the MLA, sponsored by the Rockefeller Foundation from 1952 to 1958 for the purpose of learning what the role of modern foreign languages should be in American life and of exploring the means by which language instruction could be developed to serve that role most effectively. By means of surveys, interviews, and conferences, the reports and policy statements of the FL Program were accumulated gradually setting much of the stage for the swift implementation of the Language Development Program.

You will note that I said "setting much of the stage." The FLP did not by any means complete the picture. And one of several notable omissions is any direct expression dealing with the role of structural linguistics in language teaching. This omission was no oversight. The FLP sought within its means for evidence, pro or con, concerning the proposition that structural linguistics had relevance to language instruction in the schools and colleges, especially in the teaching of the West European languages. Of personal opinions on this matter there were many, usually charged
with disdain and wit, sometimes vituperation. Of evidence, pro or con, there was little. Of professional unity on the question, pro or con, there was none. A memorable weekend conference in 1954 between members of the CLP — the Committee on the Language Program — of the ACLS and members of the FLP Steering Committee was lively, but produced little results. I am sure you are not surprised by what I am saying, for I am merely rehearsing an old story, and I hope I have done so without insinuating any bias, for I have no bias.

At any rate, we entered the era of the LDP with the question of applied linguistics still pretty much in abeyance, especially insofar as the teaching of the commonly taught West European languages was concerned.

How does the LDP regard structural linguistics? We have no formal policy directed toward linguistics, and our attitude toward linguistics, to use a more mobile word, coincides with our general attitude about the intent and spirit of the National Defense Education Act. The Congress has charged the Office of Education with the mission of strengthening and extending language instruction to meet the needs of the national interest. In order to accomplish this task we invite the cooperation and ideas of all individuals with energy, imagination, resourcefulness, plus research-mindedness, whether or not they are scientific linguists.

Now, in the field of the non-West European languages, linguistics has for some time held a relatively strong position, largely because of the nature of things, and I think I need not elaborate this here. Therefore, in the Language and Area Centers and in the development of instructional materials for the neglected languages, linguists are quite naturally in evidence.

However, I wish to dwell at some length upon the matter of linguistics and the commonly taught languages insofar as the NDEA is concerned. As I have pointed out, the Act clearly calls for change, experimentation, animation. Not for newness just for the sake of novelty, but for development which will lead to more effective instruction within the settings of our schools, colleges, and universities. If electronics can contribute substantially toward this objective, we need to know, and we are launching experiments to collect sound data. If linguistics can contribute, we need to know, and therefore we need to experiment. Claims and allegations are not enough. Perhaps linguistics does not have any applied role in language teach-
ing in the schools. If so, we surely need to know and this can be done only by trying. Whatever the results of experiments conducted with the support of the LDP, we hope the profession itself will assess the results and shape its own policies accordingly.

Thus, last summer the LDP supported twelve summer institutes which served nearly one thousand language teachers from the schools, and Stephen A. Freeman of Middlebury College, eminent leader in the language profession, was invited, at the expense of the Office of Education, to organize his own team of evaluators and conduct an independent study of this program. This unhindered group, which included scientific linguists, reported very fully upon the institute program, characterizing it as "a bold experiment" which overall was successful. Its comments and recommendations were welcomed by the LDP staff. This kind of external evaluation and advice by responsible professional persons and groups is essential to a Government operation such as the LDP.

Not incidentally, you will be interested in the Freeman group's discussion of courses in descriptive or general linguistics at language institutes. On the whole, these courses were considered "not very successful." To quote the report: "Only a few of the professional technical linguists who gave courses this summer had had teacher-training experience and were able to make the practical applications to the foreign language at the participants' level, and to the procedures of the secondary school class. In the few cases where such applications were made, the participants gradually dropped their hostility to the new ideas and recognized the contribution which linguistics can make to language teaching. It is considered desirable that the attempt be made again in 1960, but competent linguists with foreign language classroom experience are in very short supply and it appears unlikely that the necessary number will be found."

It is not required that an NDEA language institute include linguistics, but a surprising number of directors seem inclined to offer it. As the Freeman report suggests, the LDP will not discourage linguistics, though a careful study will be made next summer to assess its usefulness to the task of improving language teachers.

I do not intend today to provide any checklist of the opportunities for linguistics in the NDEA. If you are perceptive and imaginative, you have no doubt glimpsed what you consider to be opportunities.
If you need help, I suggest you read a challenging editorial by Albert Marckwardt in a recent issue of Language Learning. However, you should be prepared for a shock. Dr. Marckwardt concludes as follows:

If the linguists fail to make the best of this situation, they may have to wait decades before another presents itself. If they fail to live up to the claims they have made for their science — often too vociferously and without due modesty and caution — they may have muffed the chance once and for all. It is no exaggeration to say that the NDEA has put linguistics squarely on the spot. ‘Put up or shut up’ may be a crude phrase, but it describes the situation precisely.

These are strong words, strong enough for me to emphasize that I was quoting Dr. Marckwardt — I did not write the words. However, I am inclined to agree with them. And if you have already dismissed them with a witty quip you ought to wonder about yourself and the future of linguistics. You should be alarmed — or at least angry.

There is a myth among non-structural language teachers that linguists are a formidable underground fraternity with a sinister master plan for taking over. It is merely a myth, of course. In the first 17 months of the LDP there was not a single communication from linguists asserting a claim, protesting a slight, declaring a policy.

One who has responsibility for a developmental program with considerable funds soon becomes aware of what we may call the sources of professional and quasi-professional accountability, and there are many in the language field today, from Esperantists to tape-recorder manufacturers. However, except for a handful of individuals, linguistics as an organized profession has shown all the pressure of an uninflated inner tube. I had expected — nay, feared — otherwise, and, quite frankly, I am surprised and indeed disappointed. Let me make clear to you that I am no votary of linguistics applied to American education, because I must deal with evidence and demonstration. But I do believe that the loss to the national interest may be grave if in the present circumstances the potential worth of linguistics in education cannot be tested. As Dr. Marckwardt intimated, what is happening right now will very likely shape the things to come for a long time.
Now, there have been some recent developments that suggest professional awareness may be stirring. I said a minute or two ago that in the first 17 months of the NDEA no communication had come from the linguistic field which might be classified as documentary. But only last week (in the 18th month) the CLP sent an official, thoughtful expression of the ways in which foreign language teaching can be aided by linguistic science. I hope that the CLP will see that this statement is published since it is, I believe, a document of some historical significance at least.

At the Christmas meeting of the LSA the Executive Committee appointed a Standing Committee on Linguistics and Education to serve as a responsible professional body to speak for linguistics in the operation of the NDEA. We shall be listening for its signals.

Finally, the Center for Applied Linguistics has come into being as an agency of the MLA, and it has quickly taken the first steps in a number of vital projects concerned mostly with the teaching of English as a foreign language. The Center is very effectively staffed and seems to enjoy general esteem, partly because it is too young yet to have committed what some colleagues will surely regard as deadly sins.

I hope you will forgive the random nature of this address, but we have been dealing with random, if great, subjects. I cannot conclude that any action is imminent vis-à-vis linguistics and American education. If anything is to happen, let it be clear that the initiative must come from the linguistics profession. And so ends this homily.
LEON DOSTERT (Georgetown University) A year ago Freeman Twaddell took as the topic of his address at the closing luncheon "Linguistics Plus". I think we just have heard an address on "Linguistics Minus". Ten years ago, in 1949, through the vision of Father Walsh, the Institute of Languages and Linguistics was founded at Georgetown University. We were not seeking alliteration, we were trying to define a reality, and the end was not meant to be languages or linguistics. It is rather unfortunate that after a decade of efforts in many institutions of higher learning there should still be the measure of skepticism about the potential contribution of linguistic science to the pedagogy of languages that Dr. Mildenberger has just expressed. And I wish to register a complete objection, regardless of the funds at his disposal, to the basic thesis of his presentation. I do not wish to be controversial, although I have the habit of being so, but I should like to go back to the thesis of "linguistics plus". I believe that the 10 years of our experience at Georgetown have demonstrated beyond a necessity of reports or resolutions, that there is a significant relationship between the science of linguistics and the pedagogy of language, and I am sure that the "linguistics plus" of the forthcoming decade will prove that the "plus" is indeed so.
APPENDIX
Appendix I

PROGRAM OF THE ELEVENTH ANNUAL ROUND TABLE MEETING

REGISTRATION - Lobby of the Walsh Building, from 8:30 a.m., April 8.

FIRST SESSION - Friday, April 8, 9:30 a.m.

WELCOMING REMARKS:

Reverend Frank L. Fadner, S.J., Regent, Edmund A. Walsh School of Foreign Service

Salvatore J. Castiglione, Director, Institute of Languages and Linguistics

Bernard Choseed, Chairman, Eleventh Annual Round Table Meeting

PANEL I: Language and Meaning

Chairman: Martin Joos (University of Wisconsin)
Structure in Meaning

Robert B. Lees (IBM Yorktown Research Center)
The Grammatical Basis of Some Semantic Notions

Henry M. Hoenigswald (University of Pennsylvania)
Synchronic and Diachronic Aspects of Distributional Meaning

Leon E. Dostert (Georgetown University)
Semi-Structural Approach to Meaning: en in French

LUNCHEON MEETING - Friday, April 8, 1:15 p.m.
Faculty Lounge, New South Dormitory

Speaker: Allen Walker Read (Columbia University)
Linguistics and the Sense of Mission

SECOND SESSION - Friday, April 8, 3:00 p.m.

PANEL II: Linguistics and Literature

Chairman: Sumner Ives (North Texas State College)
Grammatical Analysis and Literary Criticism
Seymour Chatman (University of Pennsylvania)  
*Linguistic Style, Literary Style and Performance: Some Distinctions*

W. Nelson Francis (Franklin and Marshall College)  
*Syntax and Literary Interpretation*

Paul L. Garvin (Georgetown University)  
*Structuralism Beyond Linguistics*

**RECEPTION — Friday, April 8, 6:15 p.m.**
Reception given by Georgetown University,  
The Palms Lounge, Walsh Building.  
Entertainment given by the Institute Foreign English Students.

**THIRD SESSION — Saturday, April 9, 10:00 a.m.**

**PANEL III: Culture and Language Teaching**

*Chairman:* Hugo J. Mueller (American University)  
*Cultural Reflections in German*

Robert Lado (University of Michigan)  
*Inculturation Versus Education in Foreign Language Teaching*

Jane Kluckhohn (University of New Mexico)  
*An Experiment in the Teaching of the English Language*

George L. Trager (University of Buffalo)  
*What Kind of Culture Does the Language Teacher Teach?*

**CLOSING LUNCHEON — Saturday, April 9, 1:30 p.m.**
Dupont Plaza Hotel

*Speaker:* Kenneth W. Mildenberger (Department of Health, Education and Welfare)  
*The National Defense Act and Linguistics*
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MEMBERSHIP OF THE ELEVENTH ANNUAL ROUND TABLE MEETING*

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Allen, Robert
Allen, Rolfe L.
Altinseven, N.
Amini, Houshang
Ani, Moukhtar
Arce, Jose M.
Archer, William K.
Aschbacher, Helen
Austin, William M.
Balint, Andras
Baskof, Professor
Baydalakoff, Victor
Bellerose, Leo M.
Bendix, Edward
Benedict, Warren C.
Benoit, Leroy J.
Berezowsky, Helen C.
Bernadette, Sister M.
Bernbrock, Rev. John J., S.J.
Bernstein, Janet
Beym, R.
Binda, H. Jeffrey
Binda, Margaret C.
Bird, E. H.
Bodman, Nicholas C.
Boldyreff, Antonina
Bonhomme, Georgette
Bonura, Aldo J.
Borleousler, C.
Bretschneider, Yveline
Brockhardt, Catherine

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*Not all those who attended the Eleventh Annual Round Table Meeting signed the register. Consequently, the above list is not complete.
Brower, Helen B.
Brown, A. F.
Brown, A. F. R.
Brown, Samuel A.
Browne, Elizabeth
Brownson, Helen L.
Bruggeman, L. L.
Bryant, William C.
Bunn, Rev. Edward B., S. J.
Burke, Fidelian
Butcher, C. H.
Candelas, Aida S.
Cantor, Marion E.
Castiglione, Salvatore
Chefe, Wallace L.
Chaiyaratana, Chalad (Miss)
Chalonplac, Bedrich
Chambrolaind, John L.
Chatman, Evelyn
Chatman, Seymour
Cherel, Lucien G.
Choseed, Bernard
Cintra, Luis F. Lindley
Clancy, Neil F.
Coates, William F.
Codel, Nancy
Colligan, Francis J.
Cowan, J. M.
Cowell, Mark W.
Cox, Doris
Dace, Angela
Daly, Rev. John P., S. J.
Darvisb, A.
Davila, Rev. Rafael R., M.M.
Davis, Helen
Desberg, Dan
Dindorf, Fr. Meinrad, O.S.B.
Dobbie, Mary
Dobson, Julia
Domgall, Rev. Raphael, O. P.
Dorr, Mrs. Robert
Dostert, Leon E.

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Erickson, Gordon
Erwin, Mrs. Wallace
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Fleming, Jeannie
Fotitch, T.
Fox, Robert P.
Francis, W. Nelson
Frank, Marcella
Friend, Joseph H.
Frith, James R.
Fujikawa, Christine
Gaarder, A. Bruce
Gage, William W.
Galbreth, Beatrice
Garvin, Paul
Gaver, Barbara L.
Gaynor, M. Florence
Glaude, Paul M.
Glicksberg, Daniel
Goellner, A.
Gonzalez, Carmen Cecilia
Goodwin, Rufus S.
Grant, Alice W. (Mrs.)
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Greg, Helen
Gulec, Ahmet
Halbrook, Dave
Hall, Edward T.
Handley, Mary G.
Harben, Felicia E.
Hardy, Colman L.
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Haydarogi
Hayes, Alfred S.
Hayney, Jane
Heller, Roger A.
Hernandez, Alfredo
Hernandez, German

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Hoffman, Reinhold D.
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Ives, Summer
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Jones, William F., S. J.
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Joseph, Grace
Kalikin, Eugen
Kelly, Brother David H.
Kelly, Ruby M.
Kennedy, Nancy M.
Kepke, John
Khouri, M.
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King, Frances H.
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Lang, Anton  Georgetown University
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Neely, Irene
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Nunez, Benjamin
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Oktay, Mrs. Eleni K.
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Pacak, Milos
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Panunzio, Wesley C.
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Picabia, Danute M.
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Poltoratzky, Marianna
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Rankin, Joseph
Read, Allen Walker
Read, Mrs. Allen Walker
Rickert, Philip V.
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Scmit, A., O.S.B.
Schneider, Mary Ellen
Schulgin, Dimitri

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Soffietti, James P.
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Southworth, F. C.
Spear, Mrs. M. J.
Spinello, Edward J., S. J.
Steckel, John A.
Stieglitz, Francine B.
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Zoghby, Samir M.           Institute of Languages and Linguistics
Among the main criticisms offered at the Friday morning session of the Eleventh Annual Round Table Conference to my contribution and position were the following three:

1. P. Garvin charged that mathematical name-dropping had been used to obscure the issues or to persuade unfairly.

2. Garvin complained that my position is unacceptable because I do not find it necessary to preface my study or remarks with "definitions" of all essential terms and/or exact rigorous characterizations of the "objects" to be studied, and

3. G. L. Trager gave the impression that he found the position to be a lamentable or dangerous deviation from established traditions.

The following remarks may serve to answer some of these criticisms or to clarify certain misunderstandings about it.

1. If any technical terms were used which, though common in mathematics, were not understood by the competent members of the audience, then they were used inappropriately. The two terms from my oral answer to Garvin's first comment which he mentioned as not being understood were recursive and recursively enumerable. The latter was used simply to abbreviate the idea of a class of items the members of which could be listed by some procedure; the former, for a class of items for which there is in addition a test for membership. Thus no subtle mathematical notions were employed. The illustration from biology, pointing out the lack of a test for membership in the class "cell", was intended to exhibit a class which is not known to be recursive, in fact, a notion for which, although it underlies all of biology, the questions of listing or testing, or even of "defining," are seldom, if ever, raised by the working biologist.

2. Garvin’s principal rebuttal to my comment on the almost complete lack of membership-tested concepts in science was a disdainful

*See p. 51–54.
and immodest remark that perhaps on this score linguistics had already outstripped all the other fields of empirical science. This view is not merely an indulgence in fanciful or wishful thinking, but it is based on the mistaken notion that there are at least some reasonable linguistic works in which the author achieves results by stating definitions of terms or data at the outset. But this is an illusion! Definitions are merely arbitrary agreements to use certain terms in a certain way. They may be given before or after a study; they may be chosen in any number of ways, except circularly; and their use may facilitate the statement of a scientific description or generalization. But they do not lead to new knowledge or insight. Once a phenomenon has been studied and general statements about any regularities found are formulated, well-chosen definitions of technical terms may aid in giving a felicitous presentation. But there is no way to choose useful definitions before any empirical insight has been gained.

It is simply not true to say that linguistics, unlike physics, biology, etc., begins with rigorous definitions of its primitive notions or of the objects of its study (the latter misconception doesn't even make sense, for one cannot "define" the objects of any study, or for that matter, any objects; one can only study them). There is not a single case in linguistic literature where any of the important basic notions of linguistic structural description are "defined". Apparent cases in which an author has attempted to study just those objects which exactly fit some prior "definition" are either on the one hand trivial because the designated class is of no possible interest, or fails properly to capture the desired notion, or on the other hand are illusory in the sense that the so-called "definition" employed fails to meet even the weakest requirements of adequacy for definitions.

If one were indeed able exactly to characterize the objects of some scientific study before beginning that study, the study itself would be pointless, for the knowledge which a scientist attempts to gain by means of his empirical methodology of the objects or phenomena of interest to him consists precisely of that which exactly characterizes those objects or phenomena and distinguishes them from all others with which they might have been confused.

Thus we see that, if the term "definition" is to be taken seriously, it is simply perverse to demand of a linguist who proposes to seek a theory characterizing sentence-hood that he first "define" these objects of his study, the sentences of the language. If he already knew how to define "grammatical sentence of English," there would be no
earthly reason for trying to formulate a theory of English sentences, i.e., an English grammar.

I do not know how or why research workers in the so-called "soft sciences," and in particular, in contemporary descriptive linguistics, have come so uncritically to accept this vulgar operationist philosophy of reductionism, abandoned already thirty years ago by most of its original proponents in the fields of the physical sciences and the philosophy of science.

It is frequently said, or strongly implied, that descriptivist studies are objective and firmly grounded because they begin by stating a "definition" of the objects to study, preferably in physical terms, whereas recent grammatical studies by Chomsky, Halle, Klima, Matthews, Lees, and others are tainted with the same vague notion-alism of older prescriptive grammars because they prefer to "define" their objects of study and basic concepts in terms of "intuition," an admittedly unsound basis for science to adopt. This view is mistaken in two important ways:

(1) The authors referred to do not in general employ any definitions at all in which the definiens is "intuition" or anything like the latter — in fact, for the primitive, or basic notions of grammatical theory, as is the case with all scientific theories, they do not supply any definitions. If every notion employed had to be defined, one could achieve nothing but an infinite regress!

(2) Even if definitions in terms of intuition, rather than, say, acoustic features, were employed to designate the data, this would not diminish the power of the resulting study to yield insight and explanations, for the following reason. If one begins by "defining" the data to be studied, then either (a) one intends never thereafter to depart from the designated objects, or else (b) one intends to alter the original "definitions" as greater knowledge and insight necessitate. In the first case, except in the extremely unlikely event that one has somehow managed to formulate exactly the right characterization from the start, thus rendering further study superfluous, the "definition" of objects of study will not in general pick out anything of lasting interest but only in part some arbitrary subset of the desired class of phenomena; i.e., it will in general refer to only a superficial aspect of the data to be explained. But in the second case, where one expects to alter, amend, improve, and deepen one's "definition" of the data as theoretical or empirical insights
are gained, it matters little what particular definiens is chosen originally, so long as it serves at least to focus attention on some indubitable objects or phenomena of the desired kind. To this end, a tentative "definition" in physical terms confers no more objectivity or soundness upon the subsequent study than does an equally tentative "definition" in terms of intuition or anything else. The exact and insightful characterization of the data, which in general will differ considerably from such an initial, mutable designation, is the main product of the scientist's labors, not an a priori agreement or decision on what the data must be confined to.

Thus it is of only minor interest or a matter of taste or laboratory technique whether we begin a study of English grammar by examining a set of strings designated by their occurrence between two successive pauses or instead a set of strings designated by the fact that a native speaker judges them to be "sentences". Neither decision is the more objective, rigorous, or well-founded (though the latter one probably takes one closer to the desired goal, just as do clues from the meaning of expressions), for the object of the projected study is to replace either of them by a formal theory of sentence-hood, or a grammar. It is this theory, or grammar, which must be rigorous and well-founded, not our initial statement of what data we expect to explain.

(3) As for the third contention, namely that my position is a kind of deviation from accepted traditions of linguistic methodology, two things can be said. First of all, it is not entirely true, for the position which views the main object of linguistic research to be the formulation of rules to construct sentences (at least as a start) is certainly a very traditional one. Insofar as modern structural linguistics has produced results, it has been by the formulation of generalizations about sentence-structure such as may be rendered exactly in the form of sentence-generating rules.

Secondly, without wishing in the least to attract undeservedly any prestige from the more successful sciences, it is not unfair to me to point out that all revolutionary advances in our knowledge of the universe which have occurred in the history of science have been in at least some respect radical departures from established traditions. A new theory might be wrong, or it might be shallow and unproductive, but it is surely no telling criticism to charge it with being unorthodox.
Finally, it has on several occasions been charged that I am inexplicably and excessively obsessed with the notion of "sentence," and that this overconcern is inexcusable both because there are many linguistic phenomena demanding analysis which are not in the form of sentences and because sentences are not inherently or physically distinguished segments of speech given to us by Nature herself. To this my reply is, I hope, a humble one: if anyone believes he can give an explanatory theory of linguistic data which subsumes not only the impeccably grammatical sentences which speakers are capable of producing but also the many other kinds of utterance so often heard, then I shall be among the first to applaud any results achieved. But since, in my judgment, a grammar of sentences alone would be the minimal requirement for a theory of language, and since to my knowledge no one has yet succeeded in explaining the ability of a speaker to produce only this central core or linguistic output, it is at least a reasonable choice as an empirical scientist for me to confine my professional attention to grammatical sentences for the time being. It is our hope that once a reasonable theory to characterize sentences has been formulated, other kinds of utterance or larger segments of discourse might be explained, or analyzed, the basis of such a theory, that is, on the basis of the grammar.