

**REPORT
OF THE SIXTH ANNUAL
ROUND TABLE MEETING
ON LINGUISTICS
AND LANGUAGE TEACHING**

**EDITED BY
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FOREWORD

The Sixth Annual Round Table Meeting on Linguistics and Language Teaching was held in the spring of 1955 at Washington, D. C. This Monograph publishes in their entirety the papers read at the sessions along with selected excerpts from the ensuing discussions. In this way we make available in permanent form to an even wider audience the contributions of all who participated.

Those who have sponsored these meetings through the years are gratified at the consistently rising number of linguists and language teachers who have attended. That trend was continued at the Sixth Annual Meeting.

It is a pleasure to extend the thanks of all of us to those who collaborated to make the meeting profitable as well as to those whose sponsorship made the meeting possible.

RUTH HIRSCH WEINSTEIN, *Editor*

Introduction

THE REVEREND FRANK L. FADNER, S. J., Executive Assistant to the Regent, School of Foreign Service, Georgetown University, made the following welcoming remarks:

Once again I deem it a great privilege, in the name of the Reverend Edward B. Bunn, President of Georgetown University, and on behalf of the Reverend Edmund A. Walsh, Founder and Regent of the School of Foreign Service, to welcome you at this our Sixth Annual Round Table Meeting on Linguistics and Language Teaching.

As I look at this group of enthusiastic scientists gathered around the discussion table—each prepared to make an honest contribution in the several sectors of that most human science of language—I am reminded of a notorious convention of linguists who met in the city of Moscow from January 24 to 27, 1949. I am referring to the scientific session which convened under the auspices of the Institute of Language and Thought to do honor to the memory of Nikolay Yakovlevich Marr, dead by that time for some fifteen years, and, in his lifetime, the recognized founder of what Marxist linguists of the U.S.R.R. chose to call the “new materialist teaching in language”. With but few timid exceptions the delegates to the linguistic congress of 1949 swung incense at the icon of the man who, following the gospel of Marx, Engels, Lenin and Stalin, had made the remarkable discovery that language is a means of communication!

At this famous gathering Marr, the pioneer of Soviet linguistics, was generally praised for his “genuinely materialistic theory of the origin of language”, for his theory that languages and changes in language were the creation of “the labor activity of a human collective”. For years the “new linguistics” of N. Y. Marr had been recognized as the official linguistic doctrine of the U.S.R.R. Students of language in the Soviet Union had taken for granted Marr’s proposition that language is a superstructure resting on and reflecting the social and economic base of the human collective that makes use of it. Accordingly, following the “logic” of the trichotomy of inverted Hegelianism, when that social and economic base was negated or contradicted by a violent revolution, then the language superstructure

was by necessity also radically changed. In other words, just as is the case with all other things in Lenin's universe which is made up exclusively of matter in motion, the development of language, too, was a matter of progression by leaps, by explosions. What could be more logical, therefore, than that the new linguistics of the Soviet period of the antithesis in Russia, the Dictatorship of the Proletariat, should present a contradiction of all pre-revolutionary linguistic science, dubbed "idealist"? In his officially approved crusade against bourgeois ideology, Marr had led the game of setting up and knocking down straw men, when he condemned the old historical-comparative methodology as connoting the racism of Hitler's fascism, and Anglo-American imperialism.

And so N. Y. Marr, the dean of Russia's linguistic scientists, had long carried the day with his proposition that all languages are class languages. "Language has always been of a class nature", declared the Marxist Marr; so that, to put it more concretely, the "Georgian *feudal* language is more closely related to the Armenian *feudal* language than either of them to the popular language of its own country". There is not, nor should there be, such a thing as a *national* language. The concept is simply a dead one for a revolutionary Marxist. With a naiveté that put to shame the whimsies and the false etymologies of the glorious old armchair philologist of a bygone day, Admiral Shishkov, who in his time was accused of wanting to find the Russian language in the Garden of Eden and who suggested that the very name of the gods of classical antiquity were Slavonic in their origin (he appropriately derived the name of Neptune from the phrase *ne potonu*—I shall not drown), N. Y. Marr, high priest of the science of language in the Soviet Union, became renowned for his *Japhetic* theory. This theory, with a grand *mépris* for history and word meaning, affirmed that all languages originate from four elements, the mystic syllables *Sal*, *Ber*, *Yon* and *Rosh*, which were pulled out of the air as the basis for the fantastic procedure of linguistic analysis that followed. Thus the job of the disciples of Marr became the game of comparing cabbages and kings. Completely emancipated, the Soviet scientist now had merely to track down these four elements, with their numerous sound shifts and modifications, in the words of human language. His task was completed when he found such inevitably common elements in languages as disparate as Georgian and Chinese, Latin and Arabic,

Chuvash, Turkish, and Basque. Small wonder that as time went on, the group of so-called Japhetic languages in which Marr had first interested himself, came to constitute a huge language empire, since it was his belief that these languages represented the common linguistic material from which the world's single glottogonic process had begun. Indeed, this whole process was to end where it had started—with a single common language for mankind. Even the great Stalin himself, at the Sixteenth Party Congress, had been intrigued and expressed himself in favor of the fusion of all languages into one general world language after the victory of socialism.

But, as I have already hinted, there were a few *timid exceptions* to the general chorus of eulogy sung in honor of Marr at this Moscow *agape*. There were a few students of language in necessarily obscure corners who had not mounted the bandwagon as enthusiastic subscribers to the officially blessed linguistic line of the revered N. Y. Marr. There were those condemned "reactionaries" and "idealists" who felt that the great mentor's scorn for the disciplines of grammar and history was generally responsible for the chaotic, stagnant state of Soviet linguistics, and the unsatisfactory state of even the elementary study of language in the Union.

Perhaps significantly, on the eve of a new imperialistic venture undertaken by the Soviet Union, the Korean War, on May 9, 1950, the official party organ *Pravda* announced that two of its pages each week would be opened to articles discussing questions of linguistics in the U.S.S.R. Apparently assured of official encouragement, some thirteen bright lights on the linguistic scene published articles in the columns of the paper. First to appear were the scathing words of A. Chikobava who set about the task of smashing the idol of N. Y. Marr. Seven of the articles that followed were highly critical of Comrade Marr while five sought to defend the memory and doctrine of the pioneer of the "new, materialist teachings on language".

Then came the bombshell of June 20, 1950, touched off by the new high priest of Soviet linguistics, the Georgian J. V. Stalin, who broke a silence of four years and pre-empted half the issue of *Pravda* for that day in order to pontificate in its columns "On Marxism in Linguistics". With this encyclical and two further communications, in July and August respectively, N. Y. Marr, the long revered prince of linguistic academicians was posthumously dethroned and his dis-

ciples disgraced, because now it was decreed that Marr's "new look" in linguistics had from the very beginning failed to conform to the demands of the Marx-Engels-Lenin-Stalin ideology.

One after another, Joseph Stalin, of whom Kalinin once said that he knew more about the Russian language than any man living, pulverized the linguistic theses originally proposed by N. Y. Marr, and accepted down through the years by Soviet linguists.

Now it was suddenly false, un-Marxist, to hold that language is a mere superstructure resting on a social economic base. Why? Because, obviously, that base can be changed, negated by glorious revolutions, while the same language itself continues its life—goes on with no fundamental or essential change incomparably longer than any base or superstructure. "The Russian language", Stalin pointed out, "has remained basically the same as it had been before the October Revolution". By the same token, it could no longer be held that one language is created by, and belongs exclusively to one *class* in a given society, and that another class will have its own distinct tongue. Language is created by a *whole* society. The same language, Stalin now insisted, which is part of the whole society's historical development, serves equally *all* classes of that society—feudal lords, capitalists and workers alike.

Laying himself open to a charge of bourgeois bias that might well have been hurled up against him from the grave of N. Y. Marr, Stalin pointed out that since it was false to say with Marr that only class languages existed or should exist, it was equally un-Marxist to say that a national language was a fiction and should be liquidated, in the name of class revolution. In his condemnation of Marr's so-called "new, materialistic teachings on language" Comrade Stalin now declared that Marxism-Leninism, the vocabulary of which had been commonly supposed to exclude the term *nationality* as bourgeois, does hold that a common language is one of the most important characteristics of a nation, notwithstanding the presence of class contradictions within the national society. Since all of these things are true, the great teacher went on, in his efforts to set the record straight, then it follows that the development of *language* does not and should not follow the pattern set by the neo-Hegelian trichotomy of thesis, antithesis and synthesis; that is, progression by *explosion*. Now, Stalin's readers learned, a successful social and economic revolution is not the cue for

a sudden explosion in the development of language, "the sudden death of an existing language and the sudden construction of a new language". Those who felt otherwise, Stalin opined, richly deserved the name of *troglydites* which he gave them; he recalled and ridiculed those hide-bound Marxist revolutionary zealots who in their rigid reverence for the letter of the book would have torn up all pre-October railroads in Russia to replace them with *proletarian* ones. Freedom-loving readers of Pravda now had it from Stalin himself that "Marxism is the enemy of all kinds of dogmatism"!

It followed, therefore, that Stalin in his reaction against the doctrines of comrade Marr should now in 1950 actually encourage reverence for the pre-revolutionary linguistics of old Tsarist Russia. The old classical method of comparative-historical analysis, against which N. Y. Marr had fulminated as "idealist", was now to be reinstated and respected in the circles of Soviet linguistic science: ". . . notwithstanding its substantial shortcomings", Stalin wrote, "the method of comparative-historical analysis is still better than the really idealist four-element analysis of N. Y. Marr. The former is an impetus to work, to study languages, and the second is an impetus to lying on top of the oven and reading teacups about the notorious four elements". In his diatribe the new self-styled guide of Russia's linguistics now expressed certain sympathy with the old "protolanguage" idea and the linguist's study of groups and families of languages—an occupation that had been so successfully shouted out of existence by N. Y. Marr. "It cannot be denied", wrote Stalin with interesting implications, "that language kinship, for example, of such nations as the Slavs is beyond dispute, that the study of the linguistic kinship of these nations should be of great benefit to a linguistic study of the law of the development of language."

Finally, the *grammarian* was to be restored to his pristine place of honor in Russia's halls of language study. Stalin roundly condemned Marr for having considered grammar as an empty "formality". It is, proclaimed Stalin, altogether stupid to talk down as *formalist* people who consider a grammatical system as the basis of a language.

Now, as might have been expected after the appearance of the Stalin pronouncement "On Marxism in Linguistics" on June 20, the succeeding issues of Pravda down to the end of the discussion in August were filled with the "Now I see" letters of repentant devia-

tionists among the heirs and disciples of the fallen comrade Marr, tumbling over one another in their pathetic haste to proclaim the error of their ways and their gratitude to "our father and teacher, the world's greatest torchbearer in science, Comrade Stalin," the protagonist of the new "creative Marxism". It did them little good, however; for when the dust of the explosion had settled, evidence of a drastic shakeup in Russia's academic world was only too clear. The Presidium of the U.S.S.R. Academy of Sciences had removed three vociferous, pen-wielding champions of Marr, the fallen hero, (I. I. Meshchaninov, G. P. Serdyuchenko, and F. P. Filin) from their key positions in the Institute of Language and Thought of the U.S.S.R. Academy of Sciences. The latter organization was consolidated with the Institute of the Russian Language into a single Institute of Linguistics of the U.S.S.R. Academy of Sciences. Out from the shadows of comparative obscurity into the limelight of the academic world strode the most outstanding of the "timid exceptions"—the opponent of the once officially accepted linguistic science of Nikolay Yakovlevich Marr—Professor V. V. Vinogradov, who now became the exalted Director of Russia's new Institute of Linguistics.

Ladies and Gentlemen, you might well wonder why, in what were supposed to be welcoming remarks, I have burdened you at length with this bizarre anecdote of recent Russian history. My object was not to crow triumphantly over what might be taken as a return to sanity in the field of linguistics in a distant quarter of the globe. Rather, I was interested on this occasion in driving home a lesson in contrasts. There is first and foremost the contrast on the score of freedom. You as linguistic scientists and students of language in the United States are free as intelligent human beings honestly to test and evaluate hypotheses by means of legitimate methodology. You can draw your own conclusions in the specialized field of your science without fear of political consequences. Your conclusions will stand until your opponent's more exact employment of the same means you took—the demands of human reason—proves it wrong. In this way the citizens and workers in the world of science arrive at truth.

And in that conscientious pilgrimage of yours you are not constrained to follow a Procrustean norm like the Marxist-Leninist politico-economic ideology and the arbitrary interpretation thereof, rendered for the moment by its ordained ministers and political bosses,

the slightest deviation from which might result in your permanent reduction to a status of dismal ineffectuality. We must not forget that in this comedy of errors, in this linguistic controversy I've mentioned, not only J. V. Stalin, but also the man he damned, N. Y. Marr, "really did want to and tried to be a Marxist", as Stalin himself wrote. Granted that Marr was a searcher with serious scientist's resolves, what security was there for him in following the dictates of the norm *he* accepted?

On the other hand the only norm imposed upon you linguists in the free West is the human rule of thumb dictated to us in the long run as human educators of individual whole men. Our individual endeavors are undertaken in the American ambient where education still has to be geared to the demands of independence. This means that the *individual* is still to remain the point of stress among us. Accordingly, our language study and our language teaching are necessarily channeled toward the complete formation of the individual who is made up of a rational soul as well as body. What a far cry all this is from the linguist's and educator's situation in the Soviet Union, where in the conduct of their work they must conform to a politically supervised norm—a norm dictated by the expediency and the imperialistic exigencies of the moment. Observation indicates that in satellite Middle Europe the greatest linguistic conquest in all history, "Russification by saturation", as it has been called, has been in progress since the late 1940's. With the overall objective of producing in those parts a great Russian-speaking populace to ease the penetration of the Kremlin's line and propaganda, the firm foundations of elementary and secondary Russian language education have been laid by virtue of which it is hoped that 8% to 12% of the puppet state population will be Russian-speaking by the early 1960's, 25% by the 1970's.

And so, my friends, in the name of Georgetown University, I congratulate you on the fact that you are meeting these days in these incomparably more propitious circumstances afforded by the historical atmosphere of our country. I assure you that it is the sincere and earnest intention of your hosts—the Administration and Faculty of the Institute of Languages and Linguistics of Georgetown University's School of Foreign Service—to wish you Godspeed and profit in the discussion of the subjects proposed for your consideration in the course

of our sixth annual round table meeting. It is a source of almost infinite gratification for me to note that so goodly a proportion of the topics proposed have an eye to the perennial objective of us as educators—the whole and humanistic formation of American youth.

L. E. DOSTERT (Director, Institute of Languages and Linguistics) welcomed the participants at the Meeting:

I welcome our visitors on behalf of my colleagues and of our students at the Institute. I express my sincere thanks to Dr. Weinstein for all her efforts in organizing this, the Sixth Round Table Meeting—and, in anticipation, I thank her for her future efforts in editing the Monograph which will contain the report of these sessions. I am deeply grateful to all speakers for their generous willingness to give their time to the preparation and presentation of their subjects.

From a timid beginning in the Spring of 1950, these meetings have now become a modest, but established contribution to the field of linguistics and language teaching. The Institute has found its rich reward in the satisfaction of having helped the broad movement of the last fifteen years or so to bring the scientific precision of linguistics to bear on the gradual improvement in the teaching of languages in this country and elsewhere, and to put it on a sounder basis. But the results of these meetings are due primarily to the distinguished contributions of more than fifty participating scholars from some twenty-five universities and government schools. The truly inter-institutional character of these meetings has demonstrated once more that scholars dedicated to the quest of truth in their fields, and of better ways to make their knowledge and their skills serve the ends of man, will gladly set their sights beyond the walls of the particular institutions where they pursue their day-to-day tasks. These meetings are and remain what they set out to be: an effort to bring together, in quiet, small groups, persons whose only concern is the significance of the material studied and discussed.

The renovation of language teaching—long overdue in this country and elsewhere—will take much time and patience. Indeed, it is a never-ending pursuit. Let us hope that this Institute will be permitted to continue to play its small part in this endeavor.

I am sorry that the Very Reverend Rector of Georgetown University could not be with us today, and I thank his representative, Father Fadner, for his very fine paper.

In closing, let me speak my personal and unending gratitude—

and, I know, the thanks of many of you who know him—to the man who by his broad vision made the Institute, and therefore these gatherings, possible—to Father Edmund A. Walsh, the Regent of the School of Foreign Service and of the Institute of Languages and Linguistics—whose absence because of prolonged illness in these last years has been a real loss to many of us.

RUTH HIRSCH WEINSTEIN (Institute of Languages and Linguistics) opened the first session of the conference:

I would like to thank all of you who have come to this Round Table Meeting. I hope that you will find it as rewarding as you anticipated. My particular appreciation goes to the speakers for their kind consideration which has made the planning all the easier for me. It goes without saying that credit for the success of this meeting is theirs. I know I speak for all of us when I thank those of Georgetown University who have helped to make this Round Table Meeting possible.

I. Applied Linguistics and the Preparation of Teaching Materials

Some Procedures in an Intensive Language Course¹

S. N. TREVIÑO

Army Language School

INTRODUCTION

The Army Language School, located at the Presidio of Monterey, California, teaches over thirty foreign languages to upward of 1,800 Army and Air Force personnel. These languages are taught chiefly in courses lasting six or twelve months. Sections are limited to a maximum of eight students. Students study one language only. They go to class six hours a day, five days a week, and spend three hours daily in outside preparation. This makes the average length of the six-month courses about 690 contact hours, and that of the twelve-month courses, 1,380 contact hours.

PREPARATION OF MATERIALS

The teaching materials are all prepared at the Army Language School, not only because of the great number of contact hours involved and the special procedures utilized, but also because of the military language requirements of the school. As is true elsewhere, courses did not spring full-blown. On the contrary they evolved slowly, and the vicissitudes brought about by innovations in techniques of presentation or in the materials themselves have made it necessary to be engaged in constant revision and rethinking. The state of the courses at any given moment reflects a considerable number of accretions. One or two examples will illustrate the situation.

The introduction of the individual use of tape recorders for about two months during each course required the revision of much of the homework exercises for those two months. The introduction of a set of pictorial *Basic Situations* and *Military Situations* and the compiling of a basic military vocabulary in English have necessitated considerable revision of the materials in order to integrate the new pro-

¹ Much of what is contained in this paper reflects the experience and thinking of Dr. D. Lee Hamilton, Dean of the Army Language School.

cedures and vocabulary into the courses. And when you are dealing with thirty-odd courses, it becomes a staggering job to implement even a relatively simple change. As a result no department to date has been able to prepare and stabilize a complete set of teaching materials as it is ideally envisaged.

PRIORITIES OF THE ARMY LANGUAGE SCHOOL

The priorities of the Army Language School are as follows:

First, to teach the student to understand a foreign language and to speak it with fluency and reasonable accuracy.

Second, to teach the student to read and write the foreign language to the greatest degree possible without impairing the first priority.

THE THREE PHASES OF THE COURSES

For administrative and practical considerations, each course is divided into three phases or parts: First, the pronunciation phase, lasting from four to six weeks in all courses irrespective of their length; second, the structural phase, lasting about twelve weeks in the six-month courses, and some twenty-four weeks in the twelve-month courses; finally, the synthesis or assimilation phase, which accounts for approximately the last third of each course.

Obviously such divisions are by no means mutually exclusive. The nature of language being what it is, any sample of context in any language necessarily involves pronunciation as well as structure, and any manipulation of the bits of the context, even at the most elementary level, involves synthesis or assimilation.

What this tripartite division really implies is that the context chosen to impart the language-speaking skill is organized and presented in each phase in such a way as to place relatively greater emphasis on a given aspect of the total skill. Thus, in the pronunciation phase the emphasis is naturally on pronunciation; in the structural phase, on structure; and in the assimilation phase the emphasis is on synthesis, with the ultimate goal of approaching the free adaptation of the language to the student's individual needs.

SKETCH OF AN AVERAGE COURSE AT THE ARMY LANGUAGE SCHOOL

The remainder of this paper will attempt to give first a brief sketch of an average course at the Army Language School, and following that a more detailed description of the pronunciation phase or first part of such a course.

PRONUNCIATION PHASE

The pronunciation phase has two chief aims. First, to impart a stock of highly useful utterances, incorporating basic structures and approximately all sequences of the essential sounds of the language. These utterances are taught, as far as possible, in the form of habitual responses to real-life situations. Second, to establish in the learner's mind the relationship between the spoken and written forms of the foreign language, paralleling somewhat the similar kind of relationship which obtains between speech and writing in his native language. A detailed description of the materials and procedures of the pronunciation phase will follow the general summary of the course.

STRUCTURAL PHASE

The chief objective of the structural phase is to build up in the student a stock of habitual responses in terms of changes in words and the patterning of words into groups. These responses must be of the highest frequency which are employed in the most common situations of everyday life and military activity. The stock must represent all the patterns of the language which are regarded as essential for practical communication.

The preparation of the teaching materials to accomplish this goal obviously presupposes the previous preparation of two adjuncts. First, a list of the structural features to be taught, arranged in the most logical and productive sequence. Second, a list of basic social and military situations to serve as the framework for the dialogues and narratives, arranged for the best possible internal correlation and correlation with the selected list of grammatical features. However difficult this task may appear, a practical solution is the careful construction of dialogues and texts centering around commonly recognized basic situations. This will inevitably insure the inclusion of the most useful structural features of the language. In addition, the situations will perforce group related vocabulary items which prove relatively easier to learn because they naturally cluster together in experience.

In the structural phase, paradoxical as it may appear, the importance of the situational element gradually increases until it becomes the governing factor of organization. The grammar features are consequently dealt with in a manner more nearly approximating the functional criterion. Thus the conflict between structural organization

and situational organization is resolved in a pragmatic manner which is not inimical to either approach.

Printed grammatical analyses in English, varying in amount in different languages, are included in the structural phase. They are intended to be studied outside of class hours. They are never discussed as such in class, because class time is considered too valuable and limited to afford such a discussion. Questions on grammar arising in class are answered by means of on-the-spot drills which lead a student to answer his own question by the very responses he himself makes. The guiding principle here, as in the pronunciation phase, is to make it possible for the student to acquire the structure of language by using it in ordinary oral communication.

Reading is taught in the structural phase, the amount again varying with the language. In all alphabetical languages students learn to read with ready comprehension ordinary prose, such as newspapers and simple narrative writing. In nonalphabetical languages the reading attainment is somewhat less.

The structural phase includes training in translating and interpreting. This bilingual art, besides being a military requisite, contributes materially to the process of language learning. The aim in this type of exercise is never to puzzle the student by assigning him difficult material. On the contrary, preferably materials which are already known are chosen, in order to develop speed and fluency and, psychologically, to build up the student's self-confidence.

SYNTHESIS PHASE

The synthesis or assimilation phase has as its ultimate goal the achievement of free and fluent oral use of the language in as many as possible of the anticipated needs of the student. Naturally such an objective is seldom fully attained except by the select few.

The instructional materials in this phase are purposely slanted to military needs. In addition to the incorporation of a heavy dose of technical military vocabulary, the subject matter deals to a large extent with military situations. There are interpreting, interrogating, and map reading exercises. The use of military training aids is emphasized. This includes tactical walks to military installations, military training films, and military sand table exercises.

Considerable area reading is done in this phase of the course. This

generally includes material on customs, sociology, history, and physical and economic geography.

Students are encouraged to make prepared and extempore talks about their military experiences before their sections or at class gatherings. They are also asked to prepare formal speeches and toasts such as they may be called upon to make in their tours of duty abroad.

It is hoped that this sketchy summary has given you a general idea of what constitutes an average course at the Army Language School. Let us now return to the details of the pronunciation phase.

SELECTION OF LINGUISTIC MATERIALS

The linguistic materials are chosen from frequency and structural lists wherever available, from the experience of instructors and military personnel, and from a series of the most common everyday situations. With the exception of technical military vocabulary, the main objective is to choose the most universally accepted linguistic counters in vocabulary, structure, and colloquialisms, and to present them through the enactment of situations which simulate as closely as possible those occurring in real life.

The training materials issued to students during the pronunciation phase are chiefly of two kinds. First, there is a systematic presentation of the essential sounds of the language in minimal contrastive pairs, in isolation, in syllables, in words, and in complete utterances. The presentation is made through a printed manual, diagrams of the approximate positions of the speech organs, and through phonograph recordings. The sounds are never introduced all at once, but rather systematically interspersed as needed in presenting the dialogues of the first two weeks. They are intended to serve as points of reference during drills in class and study at home on the pronunciation dialogues. The sounds include all the phonemes of the language and such allophones as must be differentiated in order not to sound shocking to the native listener.

The physiological description of the sounds, written in English, is made as nontechnical as possible. While comparisons and contrasts with English are fully utilized, the greater emphasis is placed on pinpointing and delimiting each sound with reference to adjacent and contrastive sounds in the target language. In other words, an attempt is made to place the sound in reference to the total phonology of the particular language. For ultimately the learner's proficiency depends

largely on his skill in learning to hear and to produce accurately the discrete differentiations between contiguous yet dissimilar sounds which the native listener habitually judges to be significant. The similarities and contrasts are described in terms of such well-known criteria as place, manner, and length of articulation, stress, etc.

In addition, students are given individual instruction on the production of sounds. Those who experience unusual difficulties are assigned to the pronunciation clinic for longer and more systematic remedial attention.

The second type of material in the pronunciation phase consists of a series of fifteen to twenty short, simple dialogues, usually containing about ten exchanges between the two speakers. They deal with everyday situations, including the chitchat of social intercourse and the paraphernalia of the classroom. These pronunciation dialogues are the core material of this phase. They are presented first of all as pronunciation drills. But they are organized on the basis of the contrastive structure of the target language. Naturally every attempt is made to select only the most common and basic structural features of the language. Each structural item presented is embedded in successive or neighboring utterances in such a way that it alone stands in contrast with the most relevant features of the same structural pattern.

The simplest form of such structural dialogues is the one exemplifying structural items which occur in contrastive pairs, such as articles and gender in many European languages. One obvious advantage of these contrastive structural dialogues is to enable the student to acquire fluency in the most essential grammatical categories of the language, and to acquire this skill as speech, that is, as a set of responses to very immediate and realistic stimuli. His progress occurs in terms of the language as a means of oral communication. Not the least of the advantages is the increased motivation accruing from the psychological satisfaction the student derives from the realization that he is able to function in the language in situations which are both real and practical.

The pronunciation dialogues are printed, and the foreign language version is recorded on discs or tapes.

The printed material for the first or basic dialogue of each lesson consists of five versions appearing in the manual in the following order:

1. Contextual English equivalent.

2. Word-for-word English translation.
3. Phonetic transcription or romanization wherever applicable.
4. A sequential series of simple, stylized line drawings providing a visual cue for each utterance.
5. A version in the conventional spelling of the target language.

The remainder of each pronunciation lesson is printed only in the conventional spelling or, where applicable, in a romanized version which is gradually supplanted by characters as soon as the latter are learned. The materials and procedure in presentation will be evident from the description of the phonograph recordings.

Each pronunciation lesson is recorded on five bands or spirals on a phonograph disc.

Spiral 1 contains the basic dialogue already described. It is spoken straight through at normal speed and with as much naturalness as the two interlocutors can muster. Students are required to memorize the basic dialogue of each pronunciation lesson.

Considerable care is exercised to insure that the dialogues, as well as all foreign language material presented aurally to students, be of average naturalness of speech, with everything that the term implies. It is always necessary to be on the alert to curb the kind-hearted instructor who wants to make it easy for the students to understand and imitate by slowing down or otherwise exaggerating his speech.

Spiral 2 has material identical with that of Spiral 1, except that there is a silence after each utterance to allow for repetition by the student.

Spiral 3 consists of a recombination dialogue spoken straight through at normal speed by the two speakers. This dialogue is purposely made somewhat longer than the basic dialogue in order to provide greater opportunity for the recombination of elements. As its name implies, the recombination dialogue is an attempt to recombine elements from the basic dialogue with as many combinable items from all preceding dialogues as are deemed productive. Students are asked to listen to the recombination dialogue until they are satisfied they can understand everything in it. They are encouraged to attempt manipulations of as many utterances as they can.

Spiral 4 contains a short piece of narrative or descriptive prose spoken with as much naturalness as possible. For the most part it represents usage of the vocabulary and structure of the basic dialogue in a different context. Sometimes a very few new vocabulary items

not considered excessively difficult are introduced as a challenge to the students. Students are held responsible only for the comprehension of the content.

Spiral 5 consists of from ten to twenty questions asked at normal speed, each followed by a pause to allow the student to answer. The questions are based on all the material of the pronunciation lesson, but with emphasis on the subject matter of the recombination dialogue and the prose piece.

TIME AND MANNER OF INTRODUCING THE PRONUNCIATION DIALOGUES

A new pronunciation dialogue is normally introduced during the last two class hours of the day. The only printed materials the students have during these two hours are the English colloquial and literal translations and the set of line drawings used as visual cues for the utterances. In the initial stages of introducing the dialogues, students are discouraged from looking at any of the printed materials in order to concentrate more on accurate hearing and imitating of what is being said. Even in later stages of the introduction, students are cautioned to refrain from referring to the English translation except for momentary checks on words or phrases which baffle them.

Usually the instructor begins the introduction of the basic dialogue by speaking it through at normal speed. He then returns to the first utterance and repeats it three or four times. Next he has the section repeat in chorus two or three times, each time saying the utterance himself before asking the section to repeat. Finally he calls on individual students in random order to repeat, each time saying the utterance himself as naturally as possible before calling on the student to imitate. He must ever be on the lookout to correct mispronunciations, yet he must also be ready to use all his skill and judgment as a teacher to avoid causing unnecessary embarrassment to the student or the premature building up of psychological blocks through undue insistence on correctness. Also the instructor must not allow excessive correcting to slow down unduly the pace of the section, with the consequent danger of lessening the natural interest and excellent motivation beginners usually display. He notes students who have unusual difficulties and insures that they receive individual instruction after class hours or are assigned to the pronunciation clinic for more detailed work.

In like manner the instructor continues introducing each succeeding

utterance until all the dialogue has been presented and every student has had the opportunity of saying each utterance with a pronunciation acceptable to the instructor.

USE OF THE PHONOGRAPH RECORDINGS FOR OUTSIDE STUDY

After class hours the student is expected to devote about three hours to preparation. Except for borderline students who are required to attend compulsory evening study, students are allowed to study whenever and wherever it best suits their convenience. Upon request, however, any student may receive individual instruction in addition to the regular class hours.

In learning the pronunciation dialogues outside of class hours, the chief aid available to the student is the phonograph recording. In addition to the English translations and sheets of visual cues, the student is issued at the last hour of the day a phonetic transcription or romanized version of the dialogue which he is to learn for the next day. The phonetic transcription or romanization first of all forestalls in part the almost universal feeling on the part of the students that they can memorize the basic dialogue more easily if they can just see it in writing. There is no denying that retention is considerably more difficult when one has to rely almost solely on the aural stimulus. On the other hand, to give students the conventional spelling may help them memorize, but it will lead them to the formation of atrocious habits of pronunciation which are extremely difficult to eradicate later. The phonetic transcriptions adequately satisfy the natural curiosity of the more alert student and usually with rewarding results. However, students are not required to learn the phonetic script. Its need is not greatly felt because of the large number of contact hours during which the student is constantly hearing the real speech and is constantly being corrected on whatever mistakes he makes.

The problem in languages for which romanization is used is considerably different. In such cases the student must become quite familiar with the transcription system employed, because the gradual transition to conventional writing can not be accomplished until much later in the course when the student has had time to learn an adequate stock of characters.

In the initial stages of the pronunciation phase the student is admonished to forego gradually any reference to the printed versions

and rely more and more on the pictorial cues in memorizing the dialogues.

To insure that students utilize effective study methods in their outside preparation, model study sessions are conducted under supervision during the first two evenings at the beginning of each course. Among the usual practical hints on just how to go about acquiring a foreign language, a set of specific directions is included indicating the number of times and the sequence of listening to the five bands or spirals on the phonograph recordings which contain the complete pronunciation lesson. These directions or steps in one version happen to number nineteen, so they are popularly alluded to as "The Nineteen Steps." Their purpose in brief is to make sure that each band is listened to and imitated, understood or answered as the case may be, a sufficient number of times so as to attain on the average the desired mastery. The greater variety embodied in the five spirals and the suggested alternation of listening to them minimizes the possibility of boredom which frequently results from the repeated listenings to a single dialogue which has to be committed to memory. An important though less evident merit of the five spirals and the suggested procedure for using them is that the student is exposed to a greater number of combinations and manipulations of the items. If we may assume the possibility of some kind of speech osmosis, the student comes out with a richer linguistic experience, and the learning process has been made easier and more effective.

CLASS PROCEDURE

As has been stated, the pronunciation dialogues are introduced during the last two class hours of the day.

The first class hour of the following day is devoted to checking whether the students have memorized the basic dialogue. Students are paired off at random and are asked to enact the dialogue before the section. They may use the sheet of visual cues to help them remember the sequence of the utterances. In speaking their parts they use gestures and movements, point to and handle objects in an attempt to impart realism to the context. Corrections are held down to the barest minimum during the dramatization of the dialogue. After the participants have spoken the dialogue through, the instructor makes only those corrections which he deems most essential. The

dramatization continues until every student in the section has had an opportunity to speak each part of the dialogue.

The second hour is generally devoted to checking for comprehension of the recombination dialogue and of the prose selection. Drills and graded practice are performed to insure that the students control the new vocabulary and items of structure. An attempt is made to clarify through drill practice any difficulties the students may have.

The third hour generally consists of an aural-oral drill using the questions of Spiral 5 and expanding the drills and exercises begun in the preceding hour.

Finally, the fourth hour is the most rewarding. All the vocabulary and structural items have now been learned, drilled and assimilated. The objective now is to guide the student by means of skillful drills toward a free adaptation of what he has learned. The student who has been diligent gains a sense of real accomplishment during these exercises. He is gradually led to make further manipulations and use of the newly acquired material, combining it with what he already knows, and encouraged to venture as far as he can into adapting what he has learned into free oral discourse.

Results from the procedures described have been gratifying. The average student who finishes a course at the Army Language School acquires the basic aural-oral skills to enable him to function adequately in the language. The more gifted student frequently achieves astonishingly good performance. Reports from the field indicate that graduates of the School in practically all parts of the world are performing their assignments satisfactorily—as interpreters, translators, interrogators, military attachés or members of special missions. Meanwhile the School is engaged in a constant and continuing process of self-improvement with the end in view that future graduates may be even better equipped to do the job for which they are trained.

JEAN DONALD BOWEN (Foreign Service Institute): I wonder if you could say something about the standards which you employ in the various phases of the course, and what the implications are for selective testing. I would also like to know how students are grouped in classes, and if the aptitude of an individual student is the basis for some grouping in classes.

S. N. TREVIÑO (Army Language School): In answer to your first question, it would take too long to give a detailed reply. Generally speaking I think that the final testing in the course may give a good

indication of what we are doing. I have some sample tests here which have been given, and those of you who have the time and would like to see them are welcome to do so. I would also say, as I already indicated in my paper, that we achieve the goal of fairly free expression only in relatively few cases. By that I mean in about less than 2% of the students. However, I am using 'free expression' on a relatively high level. I do not include someone who can just get along. I mean a student who really has good ability to express himself in a foreign language, and there are relatively few of them. However, a student who finishes a course satisfactorily is usable to the military in some capacity. The jobs in the military structure are very diverse. I don't believe that we turn out generally competent interrogators or interpreters, for example. Once in a while we do, but on the average we turn out a good many people who can do a fair job on the scene. We have not done anything on pre-testing. In regard to the grouping of the classes, for the most part we group students according to their abilities. This process constitutes an incentive for the students. However, there is one catch to it. When you have a large class, let us say, consisting of 20 sections, or approximately 160 students, and you group the students of poor ability together, those sections are not likely to be too effective.

FRITZ FRAUCHIGER (Foreign Service Institute): How do you insure sufficient performance on the part of the teaching staff?

S. N. TREVIÑO: As you probably know, there is a continuous chain of supervision throughout the School. This supervision is at times not as good as we would like it to be. We have instructors, we have a supervisor checking them, we have a course supervisor in the larger departments, we have an assistant chairman, then of course the chairman; we have a division director, and we have an assistant dean and a dean. Now that is just on the civilian side. On the military side, there is also quite a chain, but not as extensive as the other. You can see that there is considerable supervision.

EDMUND S. GLENN (Department of State): My question is a little bit peripheral. You have used the word "interpreter" and "interpreting," "turning out interpreters," several times. I am acquainted with this problem and I have often found a certain lack of awareness of the fact that the word "interpreter" covers very many categories. This fact, I believe, causes an endless amount of confusion. I do not believe that it could be remedied in a Language School as such. However, I

believe it might be good if many of the students became aware simply of the fact that there exist levels of interpretation in some of which, for instance, technique takes a complete priority over questions of vocabulary which is considered acquired.

S. N. TREVIÑO: May I correct you. I used the word interpreter once in my paper and I do not want to go into this matter too deeply. What you said is perfectly true. The term covers, and that is not the only term, a linguistic military occupation over a big area. I did say that generally we do *not* train our people to come out as trained interpreters. Once in a while—I think those were the actual words that I used—we do. Our training is supposed to be the training before on-the-job training for military specialists.

Textbook Materials for Teaching German Pronunciation

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On the shelves of a bookcase in my office I have a total of twenty German grammars for beginners, published in this country during the last fifteen years. All of these books give a reasonably full coverage of German morphology and syntax, along lines that have long been established in this country. Fourteen of the 20 books also contain brief sections on German pronunciation, ranging from a minimum of a few poems to be recited for pronunciation practice, to a maximum of 17 pages of descriptive material. These sections on pronunciation are often a bit confusing, since they are interlarded with statements on spelling and punctuation (one book, for example, begins its description of German "structure" by stating that all nouns are written with a capital letter); but nevertheless, the pronunciation sections are at least there.

Of the remaining six books, five contain nothing on pronunciation whatever. The reason seems to be—surprising as this may sound—that these are precisely the books which place primary emphasis on *speaking* German. The one exception is a book which I wrote myself:

it contains 31 pages devoted to pronunciation and spelling, spread out over the first ten lessons; in addition, it makes extensive use of a rather crude type of phonemic transcription. For all of this I take none of the blame or credit which you may wish to lavish upon it: the book appeared in a series, and all of these things were prescribed by the editors. In any case, I can assure you that the pronunciation materials are hopelessly inadequate.

This is an odd situation indeed, where the books which stress reading give up to 17 pages of pronunciation material, while the books which stress speaking give none at all—with one miserable exception. What are we to make of this? I believe I can offer three explanations. First, some authors did not think that a good pronunciation is worth the trouble it takes, and so they got it out of the way by devoting a few pages to it, preceding lesson one. That's always the customary place. Secondly, the authors who would really have liked to include a full treatment of pronunciation did not know how to do so, short of constructing a whole course in phonetics. And thirdly, a good many authors from both sets probably thought that pronunciation could be learned far better from the lips of a classroom teacher than from the pages of a textbook. The result of all this is that, of the many German textbooks written for American students, not a one has ever made a wholehearted effort to teach pronunciation. This strikes me as so appalling a situation that I would like to examine briefly each of the three explanations which I have offered for it.

First, how important is good pronunciation—in any language, native or foreign? Here we enter the realm of taste, where wise men do not expect to find agreement. I am myself enough of a heretic to consider good pronunciation just a little bit more important than good grammar. Time and again I have noticed that a faulty ending or a misplaced participle is hardly noticed as long as the pronunciation is good; whereas a faulty pronunciation can be a serious barrier to communication, even though the grammar be impeccable. Perhaps it would be better, however, to compare pronunciation with spelling: poor spelling leads to faulty communication, and occasionally to downright misunderstandings; and the same is true of poor pronunciation. For my part, therefore, I shall continue to try to teach as good a pronunciation as possible. There will be those who disagree with me; to them I can only say: then why do you bother with grammar and spelling?

Let me turn next to the question of whether pronunciation can be learned from a textbook at all. If by this is meant *exclusively* from a textbook, then the answer is of course no; but neither is it desirable for *any* early stage of language learning to be done exclusively from a textbook. The language teacher is surely here to stay, and I would be the last to recommend his abolition. I believe that the textbook should play for pronunciation the same role it plays for grammar: it should save classroom time by providing the explanations which the teacher would otherwise have to give orally; and it should provide copious drill materials on which the students can practice under the teacher's guidance. This is exactly what any good textbook does for grammar. The only difference is that—in a pinch—the student can learn grammar from a textbook alone, without a teacher's efficient guidance; whereas for pronunciation the teacher—or at least a playback machine—is absolutely indispensable.

The third item which troubled us above was the question of how to write about pronunciation without constructing a whole textbook of phonetics. As long as languages were thought of only in terms of phonetics, this was perhaps the only solution. But in the last few decades the phonemic theory has come to our aid; and in the last few years the study of bilingualism has produced some findings which should be of great help to us. Particularly in this latter field we owe a great deal to the researches of Einar Haugen and Uriel Weinreich, and of Charles C. Fries and his students.

If we follow the lead which these scholars have given us, it is clear that the first thing we must do—and no textbook writer seems ever to have done it—is to analyze the phonemic systems of both American English and German, paying full attention to both the similarities and the differences. Then we must make our students aware of the differences, and teach them how to pronounce the German sounds without carrying over into German their American phonemic and allophonic habits. We must teach them some entirely unfamiliar sounds, such as /ü:/, for which they must not substitute their familiar /ij/ or /uw/; we must teach them some new variants of familiar sounds, such as monophthongal /e:/ and /o:/ in place of their diphthongal /ej/ and /ow/; and we must teach them some unfamiliar arrangements of familiar sounds, such as initial /ts-/ in /tse:n/ *zehn* 'ten' or final /-nf/ in /fünf/ *fünf* 'five'. The minimum we must aim at is to get the right

phoneme in the right place, which will make their pronunciation at least understandable; the maximum we can aim at is to get the right allophone in the right place, which will make their pronunciation perfect.

At this point many an old hand at the German teaching game will say to me: "Why all this nonsense about phonemic theory and the study of bilingualism? You're only suggesting what any good German teacher has been doing for years".¹ With this I am in complete agreement. Nothing would please me more than to think that I was spelling out in detail some of the tricks of the trade long used by experienced teachers of German. If these things are well known, let us by all means put them into elementary textbooks. We expect a good textbook to analyze grammar, and to drill the student on it through copious exercises; why should we expect anything less than this for pronunciation? We do not force the individual teacher to make his own grammatical analysis and devise his own grammatical exercises; why should we force him to do this for pronunciation? I would propose that our textbook writers put down on paper all the tricks which they have been using to teach good pronunciation to their own students. If the old hands at the game have been using these things for years, it is high time that they made them available to the newcomers in our profession. Above all, it is high time that we made these things available to our students. At the moment, it is perhaps too early to expose our students to the awful terms 'phoneme' and 'allophone'. (Who, I wonder, was first so rash as to use the new terms 'molecule' and 'atom' in a chemistry textbook?) But I propose to make our students so aware of these sound differences that the best will imitate the allophones, and all but the most inept will distinguish the phonemes.

Having made this ringing appeal to the textbook writers of the nation, it would be the better part of valor for me now to bow out gracefully. Being quite indiscreet, however, I shall proceed to give you my own ideas on how pronunciation analysis and drill could be built into our elementary textbooks. I must obviously begin with a description of the phonological differences between American English and German

¹ This is, in effect, the reply given recently by R-M. S. Heffner ("Phonemics in Elementary German?", *Monatshefte* 46.273-7, 1954) to Byron J. Koekkoek ("German vowel length and the student of American-English background," *ibid.* 267-72).

TABLE 1
STRESSED VOWEL NUCLEI

American English			German			
Front	Central	Back	Front unrd.	Front round.	Central	Back
ij		uw	i:	ü:		u:
i	ɪ	u	i	ü		u
ej		ow	e:	ö:		o:
e	ə		e	ö		o
æ(h)		ɔ(h)	(ä:)		a	
	a(h)				a:	
Also: aj, aw, oj			Also: ai, au, oi			

—which is to say, the features of pronunciation we must teach to our students.

Table 1 presents the stressed vowel nuclei of the two languages. The German side needs no particular comment: these are the recognized vowel nuclei of standard German as presented, for example, in the *Aussprachewörterbuch* of Wilhelm Viëtor, or in the *Bühnenaussprache* of Theodor Siebs. We may note merely that the phoneme /ä:/ is marginal for many North German speakers, being used chiefly for the name of the letter ä, in interjections such as *ätsch* 'yah!', and in mock-formal pronunciations. The American side of the table might better be labeled "sample" vowel nuclei. With the exception of those who have no /a(h)—ɔ(h)/ contrast, all Americans seem to have at least this many vowel nuclei, and a good many have several more. It will be no surprise to this audience when I say that this analysis of the American vowel nuclei has been adapted from that of Trager and Smith.²

Let us now see what difficulties we can predict by a mere inspection of these two sets of vowels. First, nothing in English corresponds to the whole row of front rounded vowels in German, and it is therefore obvious from the start that our students will have trouble here. This will be no news to anyone. Secondly, corresponding to the other high and mid long vowels of German we have in perhaps all varieties of

² George L. Trager and Henry Lee Smith, Jr., *An outline of English structure*. Norman (Oklahoma): Battenburg Press, 1951. (= *Studies in Linguistics: Occasional Papers*, 3.)

American English not long vowels, but diphthongs—vowel plus glide. Textbook writers have long known that the lax glides of American *say* and *so* are quite different from the tense monophthongs of German *See* and *so*; but, so far as I know, none of them has ever mentioned the similar difference between the lax glides of American *she* and *shoe* and the tense monophthongs which our students must learn to say in German *Schi* and *Schuh*.

Inspection will next show us that Americans are going to have trouble with the German /a—a:/ contrast, as in *Stadt* 'city' versus *Staat* 'state'. This is again a point with which textbook writers have long been familiar; but what they seem to have missed is that the German /a/ is not only shorter, but also higher than /a:/.³ Some Americans, including myself, have a short-long contrast in such forms as *bomb*—*balm*, or *bother*—*father*; here the contrast is solely one of length, for me anyway, and both vowels are lax. The German contrast is quite different: both vowels are relatively tense, and the short /a/ is noticeably higher, so that the vowel of German *ab*, *Kamm* is much more like that of my American *up*, *come* than of my *top*, *bomb*.

Returning again to our inspection of Table 1, we note that, corresponding to the German short /o/, there is a hole in the American side of the table. This is one of the touchiest points in the whole American vowel system. If I were making the table to suit my own speech, I could very easily fill this hole with my own short /o/ in *home*, *whole*. But most Americans use /ow/ in these words, saying /howm/ and /howl/; and the /o/ which my New England birth happened to give me will do no good to most other Americans. I also have a long /oh/, as in *caught*, *haul*, *law*. Some of my students have had this same /oh/; others have had the lower /o(h)/ which I have placed on the table. Whatever our students say, however, it is obvious that all but the lucky few who share my New England heritage will have trouble with the German short /o/. My own students usually do not even hear the difference between this and their corresponding American sound, and blithely pronounce German *Stock* as /štɔhk/, /štɔhk/, or /štɔk/.

So much for what an inspection of the two vowel systems can show us. When we come to listening to the actual speech of our students we find that, sure enough, every one of these predicted difficulties shows

³ I would not dare say that this is true of the speech of *all* Germans; but it is certainly true of all whose speech I have examined.

up. There are even two more. The first concerns the vowel sounds that occur before /r/. What our students pronounce in this position is not the tense and close vowels of German *vier*, *sehr*, *fuhr*, *vor*, but the lax and open vowels of American *peer*, *pair*, *poor*, *pour*. Trager and Smith analyze these sounds as vowel plus their /h/, that is, as in-gliding diphthongs, and perhaps I should have included them in Table 1. For teaching purposes, however, I believe they can be handled as if they were special allophones, occurring only before /r/, of the normally up-gliding /ij ej uw ow/.

The other difficulty is clearly an allophonic one. In English, all of the vowel nuclei, whether simple or compound, can be lengthened for expressive purposes. Something can be *goo-ood* or *ba-ad*, or *re-ed* or *bro-own*. In German, however, only the long vowels can be so lengthened. Something can indeed be *gu-ut* or *ro-ot*; but it is simply not German to say that something is *schle-echt* or *bra-awn*. Expressive emphasis is given to such words simply by saying them with overloud stress: *schlecht!* *braun!* If anything is lengthened, it is not the short vowel but a following consonant, as for example in *im-mer* 'a-always'. This difficulty shows up particularly in our students' pronunciation of the German diphthongs: they very often use for German *Eis*, *Haus*, *Eule* the lengthenable vowels of American *ice*, *house*, *boiler*.

In the above paragraphs we have given a reasonably complete analysis of the difficulties our students will have in pronouncing the stressed vowels of German. The question that now arises is: how much of this can and should we put into a textbook? I believe there are three very important steps which we must follow. First, we must begin by making our students aware of the sounds they use in English. This is, willy-nilly, their point of departure, and we must let them understand it fully. Next, we must make sure not only that our students hear and learn the completely *new* sounds of German—like /ü:/ and /ö:/—but also that they learn and practice the differences between the *similar* sounds: American /ij/ versus German /i:/, American /ej/ versus German /e:/, etc. Finally, throughout their elementary work they must be given exercises devoted exclusively to pronunciation practice—say, five minutes each day, in group and individual repetition. These exercises can perhaps be most effectively given through lists of minimal (or nearly minimal) pairs: *Biene*—*Bühne*, *viele*—*fühle*, or *Güte*—*gute*, *lügen*—*lugen*, etc. In this way the more

gifted students will acquire a very good pronunciation indeed; and the less gifted ones, even though their /ü:/s may never be quite right, will at least learn to distinguish them from /i:/ and /u:/.

To get down now to the brass tacks of textbook writing, how can we first make our students aware of the vowel sounds they use in English? I propose to do this by the time honored methods of articulatory phonetics. In classroom work, my usual procedure is to start off by saying that we need some method of describing vowel sounds, and that we usually do this by describing the relative position of the tongue in the mouth. I then say the vowels /ij/ and /uw/, and ask the class how they would describe the relative tongue position of these two sounds. With no difficulty at all we agree on the terms 'front' and 'back', and I then say that this will be one axis of a diagram, which I start drawing on the blackboard. Next, I contrast /ij uw/ with /ah/, and ask how they would describe this difference in tongue position. We agree on the terms 'high' and 'low', I draw this as the second axis, and then fill in the words *bee*, *boo*, and *bah* in the proper places. From here on it is merely a matter of filling in the diagram until we arrive at the forms listed in Table 2.

The next step is to discourse briefly on the idiocy of English spelling—a topic which is always well received—and to state that we need some fixed symbols to represent these sounds. The right-hand half of Table 2 is then presented as how a German phonetician might write these sounds down on paper. This inevitably leads to mention of the glides in American /ij ej ow uw/, and I illustrate briefly the contrasting German monophthongs. For laughs, one can always tell about the cow that moos with a German accent: /mu:/ rather than /muw/.

All of the above is classroom procedure; but I think a textbook can do much the same thing. The purpose, let me state again, is to lead the student into an awareness of his own American English vowels. At

TABLE 2
ENGLISH VOWEL CONTRASTS

bee		boo	ij		uw
bit	bird	put	i	i	u
bay		beau	ej		ow
bet	but		e	ə	
bat		bought	æ(h)		ə(h)
	bah			a(h)	

the same time, it also leads directly into a discussion of the German vowels. The German vowel system which we have already seen in Table 1 is then presented to the student, the sounds are pronounced and imitated for practice, and a beginning is made with the new front rounded vowels.

We are now ready for step two: letting our students practice the new sounds of German, and particularly the sounds that are deceptively similar to those of English. I should by all means begin with these latter, going from the easy to the hard. Easiest of all is the difference between English /ij uw/ and German /i: u:/. The textbook first describes this difference, then gives a list of similar but contrasting English and German words, and the student repeats all of these after his teacher (or after a tape recording). This is followed by step three: having the student imitate a list of German words only, in which /i:/ and /u:/ contrast with one another. (Examples of both types of exercises are given in Table 3.) After this the similar but far more difficult problem of English /ej ow/ versus German /e: o:/ is covered in the same way; and so on, down the line, through all the difficulties which our analysis has shown we must expect our students to have with the stressed vowels of German.

Before I leave this topic, let me call your attention to what I believe is a useful innovation in the above procedures. This is not the practice of having the students pronounce minimally contrasting pairs of words in German—a device which better teachers than I have used long before me—but that of having similar English and German sounds said one after another: English *fee*, German *Vieh*; English *she*, German *Schi*; etc. I consider this particularly important as a way of making the student fully conscious of the differences between such deceptively similar sounds. He must not merely learn the new sound; he must also note how it differs from the sound he will tend to substitute for it.

At this point I have nearly used up my time and have discussed only the stressed vowels of German. Rather than try to cover all the problems of German pronunciation, I thought it better to concentrate on one segment of them and to spell out in considerable detail the program of explanations and exercises which could be built into our textbooks. The principles, I hope, are clear; from now on it is merely a matter of applying them to further segments of the phonology.

Let me return in closing to the initial paragraphs of this paper. We noted there that no German textbook available in this country gives

TABLE 3
PRONUNCIATION EXERCISES

English-German contrasts				English-German contrasts			
fee	/fj-fi:/	Vieh	'cattle'	coo	/kuw-ku:/	Kuh	'cow'
she	/šij-ši:/	Schi	'ski'	do	/duw-du:/	du	'you'
vee	/vij-vi:/	wie	'how'	shoe	/šuw-šu:/	Schuh	'shoe'
see	/sij-zi:/	sie	'she'	hoot	/huwt-hu:t/	Hut	'hat'
knee	/nij-ni:/	nie	'never'	tune	/tuwn-tu:n/	tun	'do'
sheen	/šijn-ši:n/	schien	'shone'	hoop	/huwp-hu:p/	Hub	'lift'
deep	/dijp-di:p/	Dieb	'thief'	moot	/muwt-mu:t/	Mut	'courage'
meat	/mijt-mi:t/	mied	'avoided'	coon	/kuwn-ku:n/	Kuhn	(name)
seek	/sijk-zi:k/	Sieg	'victory'	moose	/muws-mu:s/	Mus	'mash'
sheaf	/šijf-ši:f/	schief	'crooked'	toot	/tuwt-tu:t/	tut	'does'

German contrasts			
(letter <i>i</i>) 'i'	/i:-u:/	'u' (letter <i>u</i>)	
'the' die	/di:-du:/	du 'you' (fam.)	
'ski' Schi	/ši:-šu:/	Schuh 'shoe'	
'blow' Hieb	/hi:p-hu:p/	Hub 'lift'	
'avoided' mied	/mi:t-mu:t/	Mut 'courage'	
'crooked' schief	/ši:f-šu:f/	schuf 'created'	
'victory' Sieg	/zi:k-bu:k/	buk 'baked'	
'was called' hiess	/hi:s-mu:s/	Mus 'mash'	
'shone' schien	/ši:n-tu:n/	tun 'do'	
'cattle' Vieh	/fi:-ku:/	Kuh 'cow'	

more than the most cursory treatment to pronunciation. Whatever reasons textbook writers may have had in the past for this neglect of pronunciation, they hardly seem valid any more. The ways and means for teaching pronunciation have been made fully available through recent work in linguistics; we need now only to apply them. Applied linguistics will certainly not reveal any problems in pronunciation which good German teachers have not known for generations. But applied linguistics can perform a valuable service for all of us if it shows future textbook writers how to analyze these problems, how to present them to students, and how to construct pronunciation exercises which the teacher can use as part of the regular, daily work. In the past, morphology and syntax have reigned supreme in our textbooks; the time has come for us to give an equal status to phonology.

HUGO MUELLER (Institute of Languages and Linguistics): Bill, I

have always been in disagreement with you on some points of your phonemic analysis of German. It would have been more apparent had you gone on to the unstressed vowel nuclei. This is true especially with your analysis of length as a phoneme which at the same time conditions the quality of the vowel. This is one point on which I disagree with you but this is not the place to discuss it, it would go into too much detail. However, I do agree with you on what you call the lower varieties being short per se, but I must protest if you say that it is simply un-German to pronounce them long even with a meta-linguistic modifier. For example, I come into the classroom in the morning and I say: [mɔ:gn]. That is good German.

PAUL L. GARVIN (Institute of Languages and Linguistics): I would like to make just a very short comment in connection with Mr. Moulton's paper. I think that it is very useful to tell the experienced language teachers who have been doing things intuitively all along that one of the foremost purposes of science is to take these intuitions of bright people and formulate them in such a manner that less bright and less experienced people can learn how to do it likewise.

KENNETH L. PIKE (University of Michigan): I am just curious to know what are you doing with intonation, stress groups, pauses?

WILLIAM G. MOULTON (Cornell University): I haven't gotten that far yet. We have meant to do it but nobody as far as I know, except for Hugo Mueller, has done any work on stress in German. We have a long way to go, we don't know enough about it as yet.

L. E. DOSTERT (Institute of Languages and Linguistics): Considering the stress problem in English aren't you bound to do something on stress, no matter how little we know about it?

WILLIAM G. MOULTON: I am sure that we will study it. It's actually one of the less difficult parts in the study of German if we let the students carry over English stress patterns which they usually do anyway. They won't be half as wrong in German as they would be in any other language they might learn.

L. E. DOSTERT: In the teaching of French, there is a very simple formula, and that is to try to tell them to put the stress on the last syllable. While it is not a perfect solution, at least it is a practical one.

ALVA L. DAVIS (American University), CHAIRMAN: Our next paper is by Mr. Robert P. Stockwell from the Department of State.

The Preparation of the Foreign Service Institute Spanish Materials: A Case History

ROBERT P. STOCKWELL

Foreign Service Institute

In the ideal world¹ which none of us will ever see, linguists would not be language teachers and language teachers would not be linguists. Language teachers would be trained in linguistics this far: to the extent that they could understand the jargon of the linguist, to the extent that they could understand the descriptive grammar written by the linguist, to the extent that they were in sympathy with the linguist's scientific orientation toward the study of this aspect of human behavior, to the extent that they would be propagating no unsound views about the nature of language. The rest of their training would be where it now very rightly is: in the language that they are going to teach. They would not be trained, as the linguist is, to approach a language totally new to them and analyze and describe it. The linguist in this ideal world, on the other hand, would be hard at what is manifestly his only proper work: analyzing, describing, classifying the raw data which comes to him from the mouths of people. He would not be teaching languages because it would only be by the merest happenstance that his training and inclination had ever qualified him to be a language teacher. He would not even be preparing teaching materials for language teachers to use.

Let us evaluate these idealistic statements in the light of reality. It is certainly true that linguists do a great deal of excellent language teaching, and they prepare teaching materials in rather staggering quantities. Both of these facts are attributable to simple necessity. Until the people who support research organizations like the Institute of Advanced Study in Princeton underwrite similar research organizations in the field of linguistics, or in the field of human behavior generally, most linguists will have to make their way by doing things which are related to, but which are not in themselves, linguistics. This means that they will remain in competition with language teachers, a competition which is not really fair to either party, and which neither party wants. Rather than competition, a teamwork kind of interac-

¹ In the platonic sense, not "best of all possible".

tion is both possible and desirable, and it is the division of labor on this team which principally concerns me in this discussion.

What is the proper working relationship between linguists and language teachers that both should strive to achieve? In my opinion, the job of the linguist is to provide the basis, both theoretical and in many instances, directly practical, on which the language teacher should build up his materials and his pedagogy. And the language teacher should make it his business to utilize effective pedagogy in drilling into his students an accurate model of the language being learned. Ideally, then, the working relationship would be something like this: The linguists prepare descriptive grammars of any given pair of languages—one the language of the learner, the other the target language. They then prepare systematic comparisons of the two structures for use by language teachers. They also prepare certain kinds of generalized statements about the nature of language which classify it along with other activities of people that are shared and learned behavior. These statements would indicate that because of the nature of the material, certain kinds of pedagogy are not appropriate. Beyond this point, however, the linguist as linguist has precious little basis for recommending pedagogy. The educational psychologists should take over—but they too must understand these statements the linguists have prepared. They will then contribute, from the point of view of efficient learning, certain generalized statements about pedagogy. The language teachers then take these three things: (1) description and comparison of the two languages that are involved, (2) generalizations about the nature of language, and (3) pedagogical principles of proven applicability to learning material of this nature—and they mould them into the practical substance of the classroom.

How does this division of labor work out in practice? Well, that's what I'm really here to talk about, and I'm going to approach it by way of a case history: the history of the preparation of a new set of Spanish teaching materials now coming into use at the Foreign Service Institute. In the course of giving this case history, I will attempt to highlight the points at which linguistics made its direct contributions, as contrasted with the points at which the experience of language teaching (as distinguished from linguistics itself) made its contributions. Before I begin I must say that no copies of this material are presently available to the public. The preparation of materials for

wider distribution is under way, but it will be a year before they are available. I have excerpted items from various parts of the materials so that you may get some idea of their structure.

First I must identify the personalities involved in this case history. Two of them were linguists who had never had the experience of teaching language in the normal university situation that most of us are faced with. They could not rightly label themselves "language teachers," because they had never been the individuals who—as most language teachers *must* do—provided the model for the student to imitate. To keep the lines drawn cleanly, let us simply identify these first participants as linguists who were not, in the traditional sense, language teachers. The third participant was a linguist who had been a language teacher in the college situation, and who, because of his position, had been subjected to the usual limiting conditions such as large classes, pre-selected texts, small number of class hours, etc. This third participant we will therefore identify as both a linguist and a traditional language teacher. The two other principal participants (ignoring, for simplicity's sake, more than a half-dozen lesser contributors) were native speakers of the target language who had had long experience as language teachers in a variety of situations: as private tutors, as university instructors, as teachers at the Army Language School, and as tutors on the Foreign Service Institute Spanish staff. Neither had any significant experience of linguistics before coming to the Foreign Service Institute. Both have since gotten exactly the type and amount of training in linguistics that I described in my introductory remarks as appropriate for a language teacher. Neither is therefore in any sense a linguist.

From the beginning of their work this team of five—two linguists, a linguist-language teacher, and two language teachers—had available to it a thorough and accurate description of the language of the learners who were expected to use the materials. The language was of course English, and the description was the widely-known *Outline of English Structure* by George L. Trager and Henry Lee Smith, Jr. Since I am afraid it has not always gone without saying—in spite of remarks made here this morning—I must pause here long enough to say that it is at least as important to know the structure of the language of the learner as it is to know the structure of the target language. A great many language texts currently available are off-base from the first

page on because their authors have known precious little about the structure of the language of the learner at whom the texts were aimed. A student learning a new language is faced, as we all know, with this kind of problem: he has a built-in set of channels through which all linguistic signals have habitually been sent. These channels are in a real sense ruts which it is difficult to get out of, because up until the time he faces a new language all linguistic signals have fitted these ruts pretty comfortably. When new signals come along that do not fit so comfortably, something has to give. There are only two things that *can* give: the channels or the signals. Obviously the channels should be reshaped to fit the signals. In fact, the signals are usually reshaped to fit the channels. If one knows the structure of the language of the learner, he can anticipate the direction of this reshaping of the signals and try to head it off, point by point right down the line. If he is an experienced teacher he will know some of the things he has to anticipate, but a good descriptive grammar of the learner's language will give him a check-list to be sure he anticipates them all.

Unhappily, from the beginning of their work the team did *not* have an equally complete descriptive grammar of the target language (Spanish). Such a thing does not yet exist, though it is now well underway because of the necessity to develop the bases of it in producing the teaching materials. The major weaknesses of the material to this very day stem from the uncertainty of the linguists as to the analysis and description of various kinds of patterns in Spanish. It need not be pointed out that other teaching materials have suffered at least as much from the same weakness. It is expected that this weakness will have been considerably lessened in the version that is eventually made available for wider distribution.

The first project of the team was to settle on the kind of pedagogy that would be used. It was their unanimous experience that only the procedures which are summarized as "the informant method" were acceptable to them. In the way of procedures acceptable within the informant method they understood (1) that the material should be built up in units within each of which would be grouped (a) dialogs (b) drills on selected points of morphology and syntax which had appeared in the dialogs (c) recurrent practice with the vocabulary of the dialogs (d) pronunciation drills on items similar to those which would cause trouble in the dialogs (e) conversation stimuli which would build

the bridge from simple repetition to normal usage within realistic contexts; (2) that the dialogs must be representative of the kinds of things their students were likely to hear in their actual contact with the language after leaving school; (3) that the informants would utter the basic sentences at normal colloquial speed in the classroom right from the very beginning, and that therefore some sort of printed "aid to listening" needed to be devised to help the students find their way around in the maze of new sounds; (4) that all drills must be capable of application by exclusively oral technique requiring little or no reference by the student to the printed page; (5) that a pattern of drilling must be established and followed throughout which would both provide variety and obviate the waste of time that results from continually dreaming up new types of drill that take time for student and instructor to get the hang of; (6) that grammatical explanation should be kept to an absolute minimum, allowing most patterns to reveal themselves through careful presentation of examples and drills, drilling only one point at a time, being very certain that no minor patterns crept in until the student was ready for them to be the point of the drill; (7) that the vocabulary must be severely circumscribed, of high usage-frequency, every item reappearing twenty or thirty times in the drills very soon after having been introduced; (8) that many of the informants would be relatively untrained as teachers, often incapable of originating extemporaneous drills, and that therefore the drills must actually be such as to lend themselves to easy and obvious analogical extension by such teachers—for the team assumed that no amount of printed drill would be adequate for some students, and that extemporaneous classroom extension *must* be anticipated.

The same team, less one of the linguists, had, before beginning the work on these materials, already gone through the searing task of preparing, under great pressure, a set of teaching materials for immediate use in an intensive program, and had behind it the experience of using these materials for more than a year. The earlier materials, also unavailable to the public, had been constructed along the same lines, and are—in the opinion of the authors—still the best materials available for their purposes, awaiting the completion of the present task. However, in preparing the earlier materials, errors were made, both linguistically and pedagogically, which came to light in the course of using them. Some of these errors—which are being systematically

avoided in the new materials—may be of interest. The first error was in the pacing: too much was packed into a unit, even though it was thoroughly drilled. The student needs to be given the illusion of covering ground in clearly-marked blocks, even though this may be simply a matter of dividing up the same dialogs and drills into several sections, with a trifling bit of renumbering. The second error was in placing too much confidence in the ability of students to abstract patterns from even the most carefully presented data: the only way to be safe is to abstract and present all patterns for him, along with the data, loaded with italics to highlight the pattern, followed by drill to internalize the pattern, with a final descriptive summing-up of the pattern that has been drilled toward internalization. The third error was the assumption that a transcription which was analytically the most useful would perforce be pedagogically useful as well. It is, if the student is bright enough, but as a general rule it requires two kinds of modifications: (1) it must transcribe allophones, not phonemes, in every instance where the allophones resemble phonemes in the learner's own language; (2) it must utilize the least possible abstraction in indicating any non-segmental phonemic features. The second rule applies most particularly to matters of pitch and juncture: in the earlier materials numbers and un-colored symbols like * and || were used, but are replaced by accents placed at appropriate relative heights and arrows up and down in the later materials. The fourth error was the assumption that most people could easily be convinced of the inadequacies of traditional Spanish spelling so that it need not be cited parallel with the modified phonemic transcription from the very beginning. They can't and it does. The fifth error was the scattering of pronunciation points: so many details must be corrected in drilling basic sentences that it is convenient to have the pronunciation drills arranged together where they can be used as needed. Thus if a student is, in a dialog, having trouble with the Spanish contrast between intervocalic /d/ and intervocalic /r/:

[óða] [óra]

then the instructor may then and there turn to the set of drills designed to correct this failing. There is a foolish but none the less real impression, given by spacing the pronunciation drills in steps through the materials, that the instructor should be critical only of the points

that have already been drilled. Habits of pronunciation are formed, for better or for worse, very early in a course, and all materials for drilling must be readily accessible from the first minute on, not buried in later sections. The sixth error, and the last one of any real consequence, though there are minor problems scattered throughout, was the assumption that here and there we could insert at the end of a dialog an additional set of sentences to provide a model for some matter of structure that had not occurred naturally in a dialog. It looked like a nice idea, but it doesn't work: students can be taught, and taught thoroughly, a sequence of contextually related material, as in a dialog. It is an almost hopeless task to get them to recall utterances that are not placed in such a context.

I now refer you to the samples of the new teaching material.

Sample A is a reproduction of the first page of the first unit. Everything about it should, after the background material that I have been summarizing, be reasonably transparent. The periods and hyphens on the left-hand column indicate change of speaker. The indentations are build-ups and their alternates. The alternate build-ups are then listed as utterances with the unchanged portion of the utterance shown by a dash.

Sample B is a reproduction of a complete set of drills on the first grammar point of the first unit. Except for the illustration drill, all drills are done with books closed, and are so designed. The problem here is to teach a set of verb *forms*: for this, three types of drills are used over and over. The first is number substitution, where the change to be made is horizontally across the pattern—singular to plural, plural to singular. The second is person substitution piled on top of number substitution so that the drill criss-crosses the pattern in every possible way. The third is response drill, in which questions are asked that require answers using the pattern that has been presented.

Sample C is a reproduction of a set of what we call *replacement* drills. These deal with no single specific grammar point, whereas the preceding samples do. They are drills which cover a multitude of the points of structure that the student has had, and are extremely well adapted both to oral drill and to extemporaneous extension by the instructor.

Sample D is one of dozens of the *variation* drills that appear in each unit, where every possible combination of structure and vocabulary from that unit is drilled by taking one of the basic sentences and work-

ing it over in every arrangement that can be made without introducing something new.

Sample E is a reproduction of a conversation stimulus from the first unit.

Sample F is a reproduction of a single pronunciation drill and explanation.

With these samples before us it should be possible to separate the work of the linguists from that of the language teachers.

Obviously only the language teacher can write the dialogs. The difficulty of this task has been underestimated: a *good* dialog (and I am not sure just what it is that *makes* a dialog good, but I have learned to distinguish good ones from bad ones with fair success) is *hard* to write, but it is infinitely more teachable than a bad one; the utterances follow in realistic sequence, they are not stilted, the vocabulary is of high usage-frequency, and the utterances are those which will be heard most often in the context. In addition, if the language teacher who writes the dialogs can arrange to have the structure points occur which his linguist colleagues have indicated as being appropriate for drill at that time, then he has made a real contribution. I cannot emphasize too strongly that good teaching materials cannot be built from just *any* dialog that one can come up with. In this set of materials the language-teacher half of the team has proven especially apt at dialog preparation, though obviously the first page that is cited as Sample A hardly can be expected to illustrate this fact.

The language teacher also can and should do the build-ups and prepare the two types of translation that are given: *literal* in the build-ups, *contextual equivalents* for the complete utterances. If, however, the language teacher is a native speaker of the target language but not of English, even though he may be quite competent in English as a second language, he should check his equivalents very carefully with a native speaker of English to get maximum naturalness as well as precise equivalence. This particular job is done as a team-work proposition on the Foreign Service Institute materials.

The decision about the sequence of presentation of grammar points is entirely a linguistic one, and when made by the language teacher must be based on the comparative information about the two lan-

guages that was mentioned earlier. In these materials the linguists made all such decisions.

The kind of drill that may be expected to be most effective in teaching a specific point is decided by language-teaching experience. The kinds we use are tested by a large body of experience that the crash programs of the war, and intensive programs afterwards, provided. It is clear that the drills must actually be *written* by language teachers. The statements of pattern and their discussion are, however, linguistic problems and must be written by linguists or by language teachers who are oriented toward linguistics in the manner and degree earlier described. If written by such language teachers, the teachers should have a sound linguistic description to work from. In the Foreign Service Institute materials, the pattern discussions are all prepared by linguists.

Conversation stimulus is strictly the property of the language teachers, and it is very rough ground indeed. Here the bridge must be built across the gulf that separates memorized utterance and free construction of new, though similar utterances. I personally have never been satisfied with the way this is done in classes I have taught or observed, but I must leave it to my language-teaching colleagues: as a linguist I have no contribution to make. Sample E shows an idea which works a great deal better than one might suppose: directed dialog, with the instructor giving indirect instructions.

Pronunciation drills must be manufactured out of very considerable linguistic sophistication. Few traditional texts handle them well, because they are too often bound to the spelling conventions. These matters are discussed so fully elsewhere at this meeting that I will not elaborate further.

But I have given one example of such a pronunciation discussion, and I might call Professor Moulton's attention to the fact that we have done exactly what he mentioned to be a new idea. We had not had his paper first.

I will conclude as I began: linguistics and language teaching are different kinds of work. By the right kind of interaction, of which I have cited what I believe to be a successful instance thereof, their respective practitioners can help each other in many ways, perhaps most of all in the preparation of teaching materials.

SAMPLE A

1.0 This unit emphasizes and drills useful expressions, obligatory contractions, and present tense forms of the irregular verb /estár/.

1.1 Basic dialogs

1.11 Dialog 1

GREETINGS	sálúdos ↓	SALUDOS
good days (used before noon)	bwénóz-díás ↓	buenos días
good afternoons (used in the afternoon)	bwénás-tárdés ↓	buenas tardes
good nights (used in the evening)	bwénáz-nóchés ↓	buenas noches
Mary	máriá ↓	María
.Good morning, Mary.	bwénózdíaz máriá ↓ bwénástárdéz ____ ↓ bwénáznóchéz ____ ↓	Buenos días, María. Buenas tardes, ____. Buenas noches, ____.
Louise	lwísá ↓	Luisa
-Good morning, Louise.	bwénózdíaz lwísá ↓	Buenos días, Luisa.
how	kómó ↓	cómo
are (to be)	éstá ↓	está (estar)
you	ústé'd	usted (Ud.)
.How are you?	kómqéstáústéd ↓	¿Cómo está usted?

SAMPLE B

1.2 Drills

1.21 Pattern drills

1.21.1 Present tense forms of the irregular verb /estár/

1.21.10 Presentation of pattern

	sg	pl
1	estóy	estámos
2, 3	está	están

1.21.11 Illustration drill

The following partial utterances are to be completed from the basic sentences you have learned.

- [are] 1 ¿Cómo ____ usted?
[am] 2 Yo ____ bien gracias. ¿Y usted?

- [are] 3 ¿En qué hotel ____ ustedes?
 [are] 4 ¿En qué hotel ____ ellos?
 [are] 5 Nosotras ____ en el Hotel Norteamericano.
 [is] 6 ¿Dónde ____ ella?
 [is] 7 Ella ____ ahí también.

1.21.12 Substitution drills

1.21.12.1 Number substitution

Repeat each utterance after your instructor. Then substitute the plural form of the italicized singular verbs, and the singular form of the italicized plural verbs.

- | | |
|------------------------------|-----------------------------------|
| 1 Yo <i>estoy</i> bien. | 5 Ellos <i>están</i> aquí. |
| 2 El <i>está</i> en la casa. | 6 Nosotros <i>estamos</i> bien. |
| 3 Ellas <i>están</i> allí. | 7 Yo <i>estoy</i> en el hotel. |
| 4 Usted <i>está</i> bien. | 8 Ustedes <i>están</i> bien aquí. |

1.21.12.2 Person-number substitution

Repeat each utterance after your instructor. Then substitute the suggested subject making all necessary changes

- | | |
|---|--|
| 1 <i>María</i> está bien aquí.
Yo _____
Luisa y yo _____
Ella _____
María y él _____
Las señoras _____
Nosotros _____
Usted _____ | 3 <i>Ellas</i> no están aquí.
Pablo _____
Nosotras _____
Usted _____
El hotel _____
María y ella _____
Las casas _____
Yo _____ |
| 2 Yo <i>estoy</i> en el Hotel Norteamericano.
La señorita _____
El señor y yo _____
El _____
María y Pablo _____
Luisa _____
Ellas _____
Usted y Pablo _____ | 4 <i>Ella y yo</i> estamos en la casa.
Yo _____
Ellos _____
Luisa _____
María y usted _____
Usted _____
Pablo y yo _____
María y él _____ |

1.21.13 Response drill

Give complete-utterance responses to the following questions.

- | | |
|--------------------------------|------------------------------|
| 1 ¿Está él en el hotel? | Sí, él está en el hotel. |
| 2 ¿Dónde está ella? | Ella está en la casa. |
| 3 ¿Cómo está usted? | Estoy bien, gracias. |
| 4 ¿Estoy yo bien aquí? | Sí, usted está bien aquí. |
| 5 ¿Están ellos ahí? | Sí, ellos están ahí. |
| 6 ¿Estamos nosotros bien aquí? | Sí, ustedes están bien aquí. |
| 7 ¿Cómo están ellos? | Ellos están bien. |
| 8 ¿Dónde está la señora? | La señora está en el hotel. |

9	¿Están María y Pablo en el hotel?	Sí, María y Pablo están en el hotel.
10	¿Cómo estoy yo aquí?	Usted está bien aquí.
11	¿Está usted en la casa?	Sí, yo estoy en la casa.
12	¿Estamos usted y yo bien?	Sí, estamos muy bien.
13	¿Está ella ahí?	Sí, ella está ahí.
14	¿Está él allá?	Sí, él está allá.

1.21.14 Discussion of pattern

As the drills above indicate, Spanish verbs change in form to agree with their subject (which may be expressed separately: /nosotros | estamos | enlotél | norteamerikáno ↓ / or merely understood in the selected form of the verb: /estamos | enlotél | norteamerikáno ↓ /). There are four forms distinguished in these materials, according to number (whether singular or plural) and person (first person, or person speaking, and second-third person, or person spoken to or of).

The subject selects (or determines) the form of the verb in any given tense. That is to say, the person of the subject makes the corresponding verb form obligatory in a construction. Given the subject /yo/, the only permitted present tense verb form is /estoy/, etc.

Mistakes in putting these forms together cause painful reactions in the feelings of speakers of Spanish, quite as much as constructions like 'He am not here' or 'I are done' cause similar reactions in speakers of English.

The feeling for the agreement of subject and verb in Spanish must be attained through practice until the correct association of forms is entirely automatic.

SAMPLE C

1.22 Replacement drills

1.22.0 In each of the following subsections appears a basic sentence that you have learned. Repeat it after your instructor. He will then give you a different word or phrase, as indicated, which you are to use in the frame of the basic sentence, replacing whatever item it is structurally permitted to replace and making whatever additional changes are required.

1.22.01	¿Cómo está Ud.?	
	¿_____ están ____?	¿Cómo están Uds.?
	¿_____ ellos?	¿Cómo están ellos?
	¿Dónde_____?	¿Dónde están ellos?
	¿_____ él y María?	¿Dónde están él y María?
	¿Cómo _____?	¿Cómo están él y María?
	¿_____ estoy _____?	¿Cómo estoy yo?
	¿Dónde _____?	¿Dónde estoy yo?

- | | | |
|----------------|--------------------------------------|---|
| 1.22.02 | Estamos en el hotel. | |
| | _____ casa. | Estamos en la casa. |
| | Estoy _____. | Estoy en la casa. |
| | _____ hotel Nortea- | Estoy en el Hotel Norteamericano. |
| | mericano. | |
| | _____ aquí. | Estoy aquí. |
| | Ellos _____. | Ellos están aquí. |
| | _____ ahí. | Ellos están ahí. |
| | Ud. _____. | Ud. está ahí. |
| | El _____. | El está ahí. |
| | _____ allí. | El está allí. |
| 1.22.03 | Quiero presentarle al Sr. del Valle. | |
| | _____ señora. | Quiero presentarle a la señora. |
| | _____ al _____. | Quiero presentarle al señor. |
| | _____ señorita. | Quiero presentarle a la señorita. |
| | _____ señor. | Quiero presentarle al señor. |
| | _____ del Valle. | Quiero presentarle al señor del Valle. |
| | _____ Torre. | Quiero presentarle al señor de la Torre |

SAMPLE D

1.23 Variation drills

1.23.0 In each of the following subsections appears a basic sentence that you have learned. Below it are the English equivalents of several Spanish utterances which are constructable by varying the model sentence. These variations are so slight that translation should be accomplished without hesitation, constructing the new utterance by analogy with the structure of the model.

This column for reference only; to be covered up during class recitation.

1.23.11 ¿En qué hotel están Uds.?

- | | | |
|----|------------------------------------|------------------------------------|
| 1 | What hotel is he in? | ¿En qué hotel está él? |
| 2 | What hotel is she in? | ¿En qué hotel está ella? |
| 3 | What hotel is Mary in? | ¿En qué hotel está María? |
| 4 | What hotel is Louise in? | ¿En qué hotel está Luisa? |
| 5 | What hotel is Paul in? | ¿En qué hotel está Pablo? |
| 6 | What hotel are you all in? | ¿En qué hotel están Uds.? |
| 7 | What hotel are Louise and you in? | ¿En qué hotel están Luisa y Ud.? |
| 8 | What hotel are they (m) in? | ¿En qué hotel están ellos? |
| 9 | What hotel are they (f) in? | ¿En qué hotel están ellas? |
| 10 | What hotel are Mary and Louise in? | ¿En qué hotel están María y Luisa? |

- | | | |
|----|-----------------------------|---------------------------|
| 11 | What house are you in? | ¿En qué casa está Ud.? |
| 12 | What house is he in? | ¿En qué casa está él? |
| 13 | What house are you all in? | ¿En qué casa están Uds.? |
| 14 | What house are they (f) in? | ¿En qué casa están ellas? |
| 15 | What house are they (m) in? | ¿En qué casa están ellos? |

SAMPLE E

1.3 Conversation stimulus

1.31 Dialog 1

Luisa tells Maria that she is leaving. She says she's going home and asks Mr. de la Torre if he's leaving too. He replies that he's leaving also. He then bids Maria goodbye and tells her he's glad to have met her.

Instructor's Prompting

Students

- | | |
|---|--|
| .Luisa, dígale a ella que ya se va. | Luisa: Ya me voy, María. |
| .María, pregúntele a Luisa que a dónde va. | María: ¿A dónde va, Luisa? |
| .Luisa, contéstele que va a su casa. | Luisa: Voy a mi casa. |
| .Luisa, pregúntele al Sr. de la Torre que si él ya se va también. | Luisa: ¿Ud. ya se va también, Sr. de la Torre? |
| -Sr. de la Torre, dígale que sí, que Ud. ya se va también. | Sr. de la Torre: Sí, ya me voy también. |
| -Sr. de la Torre, dígale "adiós" a María, y que mucho gusto de conocerla. | Sr. de la Torre: Adiós, María, mucho gusto de conocerla. |
| .María, contéstele que igualmente. | María: Igualmente, señor. |

SAMPLE F

Pronunciation points

19. Perhaps more than with any consonant except /r/, a mispronunciation of Spanish /l/ will identify a speaker with a heavy English accent. The following list of similar sounding words pronounced by a Spanish speaker and an English speaker will illustrate the important difference between what is thought of as *l* in the two languages.

19.1 English *l* and Spanish [l]

'feel'	[fíl]
'hotel'	[otél]
'el'	[él]
'dell'	[dél]

'tall'	[tál]
'coal'	[kól]
'tool'	[túl]

19.2 Discussion of the above examples

Q. They do sound different, but I notice in all cases the /-l/ occurs finally in a stressed syllable. Does this fact have anything to do with the difference?

A. No, the difference occurs regardless of position, but it is perhaps more noticeable finally in a stressed syllable.

Q. I can hear the difference all right, but how can I make the Spanish /l/?

A. Pronounce the English words 'steel' and 'steely'. If the *l* sounds of the two words are different, the second word will have an *l* more like Spanish /l/. The production of English *l* usually finds the back of the tongue low in the mouth, while Spanish /l/ is made with the back of the tongue very high in the mouth. In both pronunciations the tip of the tongue is in contact with the gum ridge above and behind the upper teeth.

RENEE FULTON (Curriculum Bureau of the Board of Education, New York City): Our speaker has given us some very practical information, but I should like to ask two questions, speaking particularly for a New York City Board of Education Committee which has been working for two years on the reconstruction of a curriculum for five modern languages. There are other parts of the country where new curricula are being built because, as you all know, we are eager to have our secondary school pupils, not to mention the many who are starting languages in the elementary schools, get some good information on linguistics. How soon will the type of information and the results of the cooperation between linguistic scientists and language teachers be available for these more or less uninitiated practical school-workers? Could you also tell us what frequency list you are using for your Spanish?

ROBERT P. STOCKWELL (Foreign Service Institute): To answer the first question. Dr. Jean Bowen and I are working at the request of the Foreign Language Program of the Modern Language Association and the American Council of Learned Societies on precisely this kind of comparison between Spanish and English, designed to be read by teachers. It is to contain all the information which you are asking for. For example, comparisons of intonational patterns, the very things Dr. Pike mentioned a few minutes ago, are discussed in very great details as well as all other aspects of the structures. It has not been com-

pleted as yet but should be ready within a few months. I hope that it will be widely distributed. As for other languages, I don't know the answer. Now to your question in regard to frequency. There are three frequency lists we have referred to but they are all based on documentary evidence, i.e., on the writing system and material which appears in novels and newspapers. Hence these lists are not dependable for the spoken languages, and cannot be relied on for this purpose. What we have actually done is the following: we have examined several other spoken language texts and have tried to find there items of highest frequency. We have also done a great deal of studying and listening to speakers of Spanish whom we have on our staff, and have tried to determine what items might turn out to be most valuable. In addition, we have ways of checking up on our students after they have left. We always ask them to tell us what we left out of our material which they found useful or what we did put in that they had no occasion to use. In this way, we gradually work the material over toward items of highest frequency. That is about all I can tell you.

MARGHERITÁ MORELLI (Catholic University): There is one difficulty here which I would like you to help us solve. Namely, many of your examples seem to be stated in English first, and then translated into Spanish. Take Example B. You have the sentence "What hotel is he in?" That is a normal question in English when you want to find where a person is, in what hotel he is staying. Your Spanish equivalent *¿En qué hotel está él?* is not a very frequent expression.

ROBERT P. STOCKWELL: This expression can be used contrastively even in Spanish. You would normally say *¿En qué hotel está?* But you can also say contrastively *¿En qué hotel está él?* This is a perfectly normal Spanish sentence.

MARGHERITÁ MORELLI: It is true that it is normal, but it is not as frequent as the English equivalent and my question is therefore: How do you show the student which is the more frequent form? If he is drilled to use the pronoun subject so often, you just encourage the usual difficulty of the American student of Spanish to over-use the pronoun subject.

ROBERT P. STOCKWELL: Let me clarify one point. You are looking at variation drills. These variation drills are for a very specific purpose indeed. If you'll look back at the normal dialog, you will find that

those subject pronouns are not used. The basic sentence on which there is a variation is: ¿En qué hotel está? We also point out to the student that in the case of Spanish, the pronoun subjects would not necessarily be used in this kind of question. They also do not appear in the basic dialog but they are in the variation drills where the use of pronouns among others is included. This problem is just one of the necessary evils of teaching structure as well as completely normal utterances.

ALBERT H. MARCKWARDT (University of Michigan): I think that Mr. Stockwell's point on bilingual checking of drill sentences and translations cannot be overstressed. It has to be done. My favorite sentence from a Spanish textbook written for English speakers and used in Mexico City was: "She was riding on an automobile through a country road."

KENNETH L. PIKE (University of Michigan): If I understood you correctly, Mr. Stockwell, you suggested that the structure of a sequence is left entirely to the linguist. I would like to raise a little question here. My guess is that you better be ready for a little feed-back from the actual class-room situation.

ROBERT P. STOCKWELL: "The linguist too is experienced in this kind of teaching situation" probably is the statement that should have been made.

KENNETH L. PIKE: I would be very much afraid of this. The specific reason is that the structure must not only be presented as a sequence to cover all the data in some ideal pattern, but it must also lend itself to handling of the very dialogs which your authority put into the province of the language teacher. The structure therefore will eventually have to lend itself to the formation of a dialog with the most widely useful nucleus possible.

ROBERT P. STOCKWELL: I just have to point out that there has to be an interaction of linguist and language teacher on this point.

KENNETH L. PIKE: Your statement didn't sound as if you had left it open for that feed-back.

ROBERT P. STOCKWELL: I intended it.

PAUL L. GARVIN (Institute of Languages and Linguistics): I have just a very small comment to make on the: ¿En qué hotel está él? I

think that if you underline the "he" and "she" in the English sentence, this would resolve all the difficulties.

ALVA L. DAVIS, Chairman (American University): This is a very good point indeed, Mr. Garvin. Thank you.

SEYMOUR CHATMAN (Wayne University): Does the Foreign Service Institute employ an educational psychologist?

ROBERT P. STOCKWELL: Under the present plans for expansion, the budget provides for an educational psychologist. At present, we do not have one employed. However, we have had extensive conferences with educational psychologists, for example with John Carroll of Harvard.

Phonetic Training as an Aid to Language Learning

ERNEST N. McCARUS

University of Michigan

Arabic is famous as a language which Westerners generally find difficult to pronounce. It is noted for its variety of pharyngeal, velar and velarized consonants. The consonant *ʿayn*, for example, a voiced pharyngeal fricative, has been described as properly pronounced only by a young she-camel when she first gets up in the morning. Well, in spite of this tradition, I feel sure that the Arabic-speaking peoples manage this consonant adequately well for their day-to-day purposes, and I find that even students in my colloquial Arabic classes eventually learn to negotiate it. Indeed, those who make the effort develop the ability to recognize and produce all the phonemic contrasts of Lebanese Arabic.

Now, probably most language courses use similar techniques in teaching pronunciation, regardless of the language being taught. This morning I wish to make a case for the inclusion of training in phonetics as such in a foreign language course. My illustrations are in terms of American students learning Lebanese Arabic, but I am sure that the principles involved will hold true for most languages. I should like to footnote here that in this paper when I say "Arabic" I am referring to colloquial Lebanese Arabic. I should like to add briefly also that my classes are set up as follows—we have five hours a week, with

an informant drill master conducting the class on three days, during which only Arabic is used. The remaining two hours I meet with the class alone to talk about Arabic, the culture of the people of Lebanon, etc.

As a language teacher, I see as my primary obligation assisting students in mastering a foreign language. I recognize that the great majority of language students are not professional linguists, but may be interested in a language merely as a tool, as a means to an appreciation of a great literature, to gain an insight into the culture or the attitudes of a different people or to do some other specialized research, or merely to be able to speak the language. Still, just as we should master such basic computation processes as addition and subtraction in order to be able to do mathematical problems—and this even though we do not hope to be professional mathematicians—I wish to express the belief that a *limited but basic* knowledge of phonetics will greatly assist the student in a language learning situation.

Of course, the sixty-four dollar question is: How much phonetic training to provide? Surely, an army field commander would not use an A-bomb to liquidate a minor enemy command post, and it would be just as uneconomical to include a fanatically complete phonetics course in an Arabic or any other language class. There should be provided just enough indoctrination to cover the phonology of English and of the language being studied; rather than include a great deal of detail, it is more efficient to include enough material to cover only the salient features of the phonologies of the two languages. Since neither English nor Arabic is a tone language, for example, tone (as opposed to intonation) would be ignored.

The principal emphasis of the phonetics material would be on the classifying of phonemes. Thus, consonants can be identified in terms of these distinctive features: 1) voiced versus unvoiced; 2) point of articulation—whether the consonant is produced at the lips, the alveolar ridge, velum, etc. and 3) type of articulation—whether the consonant is a stop, fricative, nasal, etc. For identifying vowels the minimum features to be described are 1) lip rounding, 2) frontness or backness of the tongue in mouth, and 3) relative position of the tongue from the roof of the mouth—high, mid, low, etc.

In order to illustrate phonetic features, it is usually most effective to deal first with English, the known, and then observe first similar

and later contrasting phenomena in the target language. It is easy to illustrate with English the difference between the stops and the various continuants by explaining the production of speech sounds as essentially some kind or modification of the air stream. Then, in teaching the Arabic voiced velar fricative x , we are able to instruct the student to pronounce the voiceless velar stop k , then to get a k with incomplete closure and lo! he has x . X is usually readily mastered, perhaps so because of contact with European languages containing it. At this point, the voiced velar fricative \tilde{g} , the voiced counterpart of x , can be attacked as \tilde{g} with incomplete closure, as in the case of x , or it can be approached as x plus voicing.

Now, the feature of voicing can be very easily demonstrated by contrasting English s and z . A common and simple technique is to pronounce a steady stream of s 's and z 's while holding the hand on the throat or top of head. The average student is surprised to learn that voicing is the only significant difference between s and z , and that, in fact, most English consonants fall into such voiced-voiceless couples. By repeating the exercise above with other English voiced-voiceless pairs, the student isolates and gains control of voicing as such. And now that he has mastered the voiceless x , from above, he can be tricked into the voiced counterpart \tilde{g} by being told to pronounce the x with voicing. Thus, if the approach to the \tilde{g} above does not work, this one might.

This phonetic approach has an obvious advantage, in that through an understanding of how sounds are produced expressed in physical terms, the learner sees that these are not mysterious and impossible sounds, but that they can be analyzed, described and, with practice, mastered. This provides the student with both a learning aid as well as a basis for self-confidence in tackling what seem at first to be forbidding phonemes.

A further advantage is that when the individual finds himself in a new linguistic community and encounters a dialectal or otherwise new variation on familiar phonemes, he will presumably be better able to identify and, if desired, to reproduce them, so easing his adjustment to a new linguistic environment.

Further, when such processes as assimilation and dissimilation, palatalization, syncope and so on occur, it is much easier for students to grasp their operation if they are able to receive an explanation

couched in phonetic terminology. That is, fundamental classifications as voicing and type of articulation become basic building blocks in constructing an understanding of more sophisticated, phonological processes.

Let me give an example from Arabic. The definite article is *l-* in Arabic, prefixed to the following morpheme. It is assimilated to the following consonant in case of half of the consonants, but is not assimilated to the rest of the consonants. Traditionally, the student is required to memorize one list of consonants which assimilate the definite article *l-* and another group which doesn't—a matter of sheer memorization. When analyzed and stated in phonetic terms, however—that *l-*—is assimilated only to consonants of the same area of articulation; that is, *l* and *t* are both dental and therefore the *l-* is assimilated, but in the case of *l* plus *b* there is no assimilation, as *l* is dental and *b* is labial—then the process proves to be a regular one which can be generalized upon, this generalization becoming a convenient mnemonic device.

The use of audio-visual aids is recommended in the presentation of phonetics. Drawing mouth-diagrams on the board provides a visual image or ideal of the new phoneme which the beginner can carry away with him. After the phonetic symbol or terminology has perhaps been forgotten a particular diagram may be recalled by a given individual as the symbolization of a particular sound, and be a lasting aid to him in his pronunciation of this phoneme.

Having accounted for single phonemes, the class can proceed to a higher level: sequences of phonemes. Clusterability and syllable structure will invariably be different in two languages. In Lebanese Arabic utterance-initial clusters of more than two consonants are rare, limited to those in *st* plus a third consonant, but in English three-consonant clusters are quite usual. On the other hand Arabic permits many two-consonant clusters at the beginning of the word that English does not show: *tl-* as in *tlaatii* 'three', *mn-* as in *mniiH* 'good', and *kt-* as in *ktiir* 'much'. Analysis of phoneme sequences will show the "why" of rules that would otherwise have to be accepted on understanding faith. For example, the Arabic for 'and' may be *w-* or *wi-*, without variation in meaning: *w-kutub* 'and books' and *wi-ksaab* 'and a book'. The alternation becomes clear when put in terms of consonant clusters—*w-* before a word with a single initial consonant,

and *wi-* before a word with an initial cluster of two consonants. This then fits in with the regular pattern of phonemes.

The constant drilling that goes on concurrently will be based on Arabic, of course, and will reflect morphemic structure and patterns and will reinforce what has been learned from the informant, from recordings, etc.

Prosodic features such as stress and intonation must not be neglected. In Arabic stress is phonemic, and at the beginning of the course it is marked on every polysyllabic word. However, in the great majority of cases stress is predictable in terms of syllabic structure and need be indicated only in a comparatively few ambiguous cases. Before eliminating the written accent from the unambiguous words, I present to the class the problem of stress analysis and help them work it out. Once we have all agreed on the solution, then they have a much better understanding of stress than if they had simply memorized a rule. They retain the rule much better and integrate it the more readily as an automatic habit.

An important lesson illustrated by the various examples I have given involves the scientific method: observation and classification of data, generalizations and testing of these generalizations. Our budding linguist is confronted with apparently chaotic behavior in the case, for example, of the definite article in Arabic. However, he is shown that by classifying the items showing assimilation in one group and those that do not in another group, and then by observing the common features in each group he can make generalizations which characterize the different behavior patterns. But this can be done only if he has first been trained in phonetics.

The amount of formal language training that a student can receive is limited; eventually he must go out and operate on his own in an Arabic language community. I feel that it is my responsibility to give him not only the elements of Arabic but also the means whereby he can continue under his own steam. In the case of Arabic, which shows tremendous dialectal variation even in a relatively small area, I believe that these techniques of analysis are essential equipment for the learner.

I should like to summarize now the advantages of phonetic training in language learning:

1. This approach assumes that the student is a reasonable being

capable of teaching himself. He thus assumes an active rather than a passive role in the learning process. This approach will appeal to some students more than it will to others; the answer is that a combination of as many different approaches as possible is best.

2. It permits the student to learn difficult sounds more easily and more effectively through an understanding of the nature of their production.

3. This training brings a better understanding of the nature and the functioning of language. It points out that language is not chaos, but is a system of analyzable patterns. I might add that very often it is the informant himself who is most amazed at the existence of regular patterns in colloquial Arabic. Arabs generally are taught that only Classical Arabic is correct, and the colloquials have no rules or grammar and are not worth studying—they are referred to as slang.

4. Phonetic training will provide a certain amount of independence in a strange linguistic community, whether in a new dialectal area or perhaps even in attacking a new language.

5. By forming the habit of reasoning out rules in terms of phonetics from the outset, the learner will eventually form habits which approximate the habits of native speakers. Too, the daily pronunciation drills never show, for example, the definite Article *l-* before a morpheme with initial *t-*, so that intellectual comprehension and mechanical drill reinforce each other. This will contribute to the development of a "feeling" for the language.

6. Finally, perhaps the most important advantage of all is an increased appreciation of the scientific method. This produces a set of mind worthy of being considered an essential part of one's education. That is to say, language learning can thus become more of a true educational experience.

WILLIAM G. MOULTON (Cornell University): I agree thoroughly with everything Mr. McCarus has said, particularly with his remark that we must try all possible approaches. This leads us into Mr. Stockwell's paper in regard to the great help we can get from language teachers who may or may not know anything about linguistics. In the book which I wrote, I did just exactly what Mr. McCarus suggested. I tried several different approaches in teaching the German /x/ and it worked reasonably well.

A. T. MACALLISTER (Princeton University): I have been listening

with great interest to these excellent papers, and this remark is not directed exclusively at Mr. McCarus. I wonder whether a short course in TRAGER AND SMITH should not be made a required part of a public school-curriculum?

LT. COL. R. B. EKVALL (Department of Defense): In my opinion, even more basic than a phonetic analysis is the following question: does the student hear a certain sound or not? Testing the students in the beginning on so-called 'similar sounds' between the language being learned and English will give a very good forecasting of what will be done in phonetics. If he originally hears differences between the two similar sounds, then he will pick the right sound. If he doesn't hear the difference, we have to go through all the process of defining what the difference is.

ROBERT P. STOCKWELL (Foreign Service Institute): I have asked Mr. McCarus' permission to answer this question. I would only like to remark that the ability to hear sounds is a learned and acquired ability. All human beings have a reasonably equal ability to hear, which can be developed further by the proper kind of training.

L. E. DOSTERT (Institute of Languages and Linguistics): I am sorry but my observations do not permit me to agree with Mr. Stockwell. I think that there is considerable divergence in the auditory capabilities of individuals. This is not merely a personal opinion. I have tested it by trying to get students to associate certain vowel sounds in French with certain colors. Then, after uttering the sound I asked them to name the color in English or, the reverse, by naming the color in English, I tried to get them to make the utterance in French. I found that there is considerable divergence in individual aptitude in respect to both sound perception and sound production.

ERNEST N. MCCARUS (University of Michigan): I agree with Col. Ekvall completely. As a means of predicting what the progress will be and of checking on the progress being made, I think that I would be very much in favor of a test based on the phonemic contrasts of the language being studied. This test would be given on the very first day, e.g., and then at certain stages throughout the course with a final test based on the same contrasts with different items and different questions.

ALBERT H. MARCKWARDT (University of Michigan): This remark is not to criticize Mr. McCarus. However, I am wondering whether

we are not doing ourselves a disservice by insisting on the use of the term 'informant'. While it is not precisely what we mean, I am afraid to the class-room language teacher it suggests a linguist and a Navajo on the other end of the table. On the other hand, the term drill-master is likewise an unhappy choice because it also suggests something alien to a class-room teaching situation. I wonder if we could think of a term. The person we are referring to is more in a position of a laboratory-demonstrator than anything else—perhaps there would be some psychological advantage to this term.

ERNEST N. MCCARUS: I am sure that there would be. My informant would be the first one to agree with you.

FLOYD G. LOUNSBURY (Yale University): Mr. Marckwardt referred to the possible appropriateness of the term 'informant' with a Navajo on the other side of the table. I might mention in this connection that in my work with Indians there is nothing that insults them quite so much as to be called "informants". I always call them my teachers and they are highly flattered.

A. A. HILL (Institute of Languages and Linguistics): I would like to go back beyond the current discussion. One point was not made which is certainly a useful one in drill, and that is that the first drill should be in recognizing foreign sounds. Not that recognizing a foreign sound would guarantee making it, but it is certainly true that a student who cannot distinguish between a pair in English, say *sheep* and *ship* has no chance of producing them correctly. The second point I would like to make is whether the disagreement between Mr. Stockwell and Mr. Dostert is not perhaps in a large measure a matter of terms. By this I mean that very often, inability to hear is something which the student has acquired out of his own source of experience rather than out of his native ability.

EDMUND S. GLENN (Department of State): At one time I coped with a student who seemed to be entirely hopeless from the point of view of learning French vowels. Then I tried to apply the color and shade method of Professor Dostert. The difficulty was cleared up in a few days.

DOROTHY MULGRAVE (New York University): I should like to make one addition at least to Mr. McCarus' material. It comes as a great shock to me every time that students don't know the difference between voiced and voiceless consonants, but it is even more of a shock

to me that they have never thought of the differing influence of quality of consonant on vowel-length, as for example in *heed* and *heat*.

ERNEST N. McCARUS: The only comment I can make is that you have to choose the most significant contrasts between Arabic and English or the target and native languages and then devote most of the time to them.

The Use of Phonemic Analysis in the Teaching of English as a Foreign Language

A. L. DAVIS

The American University

Most of this audience would agree, I believe, that the application of linguistics to the preparation of classroom materials has been the most significant advance made in this century in the teaching of foreign languages. Although even today most classroom texts show little—and usually none—of this influence of linguistics, scientifically devised materials are becoming increasingly available and we may hope that eventually they will supersede traditional texts. Such a great day will not come without a concerted effort on the part of linguists and experienced teachers, preparing materials which do justice to structural analysis but which are at the same time readily interpreted even by those who have had little professional linguistic training. Bridging the gap between the linguist and the classroom teacher is a serious problem which must be effectively solved; otherwise teachers will continue to be at the mercy of those textbook makers who, paying lip-service to linguistics, publish the same old stuff year after year, changing only the illustrations and bindings.

Characteristic of linguistically oriented classroom materials has been the use of analysis of the language to be taught, accompanied by an analysis of the learner's language in order to anticipate his difficulties. We should not be astonished to find that such materials have not been universally adopted and at once. Most of these materials require special training (or re-training) on the part of the teacher; and we must expect that ordinary human inertia will make acceptance a slow process.

Emphasis on oral drill has made phonemic analysis a prerequisite to language teaching efficiency. Literate adult students demand that they have visual aids, some kind of graphic devices to help them remember the pronunciation they are trying to master. For English, some modified phonemic transcription has supplied this need. In spite of this, most new textbooks, even those for use on the beginning level, use the ordinary English orthography, with perhaps an IPA transcription to approximate the pronunciation of words in vocabulary lists. Phonemic transcription for extended stretches of dialogue is rarely used. In this paper, I should like to discuss a modest approach to this problem of classroom acceptability, as applied to English intonation, stress, and juncture—matters which, until recently, have been almost completely ignored.

In the field of English as a foreign language we have had two important series of texts which have made extensive use of phonemic analysis: those published by the English Language Institute of the University of Michigan, based upon the analysis of Dr. Kenneth Pike, and those published by the American Council of Learned Societies based upon the analysis of Drs. George L. Trager and Henry Lee Smith, Jr. As the analyses differ, so also do the transcriptions used in the textbooks which have been prepared.

In addition to vowels and diphthongs, and the suprasegmental phonemes¹ (stress, juncture, and pitch), the textbooks reflect different treatment of dialect variants. The English Language Institute texts represent a single dialect of the language, that of the northern Middle West, with lists of variant pronunciations which may be heard in other regions of the country, introduced rather late in the course materials.² The ACLS texts, on the other hand, are devised throughout with pretty close to a maximum number of phonemic distinctions.³ The result is that the English Language Institute ma-

¹ For an explanation of suprasegmental phonemes see George L. Trager and Henry Lee Smith, Jr., *An Outline of English Structure* (Norman, Okla. 1951), pp. 35-52.

² Charles C. Fries and others, *Lessons in Pronunciation from An Intensive Course in English for Latin-American Students*, rev. ed., (Ann Arbor, 1950) vol. 3, pp. 184-9.

³ William E. Welmers, *Spoken English as a Foreign Language, Instructor's Manual* (Washington, 1953) No. 10.

terials seem to many people oversimplified, while those of the ACLS seem overcomplicated.

The same generalization can be made about the treatment of the suprasegmental phonemes: the ELI texts represent four levels for intonation, but only two degrees of stress, and make little representation of juncture. The ACLS texts indicate four degrees of pitch by the use of superscript numbers; four degrees of stress are indicated by acute, circumflex, grave accent marks and no mark for weak stress, junctures are represented by space, single vertical bar, double vertical bar, or double cross (*). The combination is a bewildering array of symbols, difficult for the teacher and the student to use.

At the American Language Center at The American University we have literate adult students at all levels of English proficiency, from many language backgrounds, and with a very limited time to study the language. Most urgent has been the preparation of materials which would be of aid in teaching stress and intonation, because it is in this area that the pronunciation of our students has been most deficient. We felt that the ELI treatment was far too simple, and that the ACLS system of notation, while certainly adequate, would have to be changed in the interest of ready intelligibility.

After considerable experimentation with visual representation of the suprasegmental phonemes, Dr. Kenneth Croft and I decided that dots of four sizes, placed on four horizontal lines, could be used. The height of the dot indicates its relative pitch and the size of the dot its degree of loudness. Since a single syllable may have a change in pitch, we add a tail to the dot to show this change. Internal open juncture is indicated by space as in the ACLS texts. Single bar juncture, which is a slowing down, is shown by a single vertical line drawn through the staff of horizontal lines. Double cross is indicated by a double line drawn through the staff. Double-bar, which is comprised of a short pitch rise combined with pause, is also represented by a double line. The accompanying short rise is indicated by a short curved tail, in the case of a single syllable, and the placement of a dot between the horizontal lines when an additional weak syllable is present. In this way we are able to represent the suprasegmental phonemes without doing violence to the structural analysis; the notation is, at the same time, nearly self-explanatory.

We have prepared a manual⁴ to accompany a set of recordings which we have been using. Mrs. George Trager listened to the records and transcribed them in the Trager-Smith notation. Dr. Croft then changed the transcription into the "dot" representation. The manual has proved to be of immediate value in our classes. Teachers who had expressed impatience with other kinds of notation have been most enthusiastic. Student response has been equally good.

The real proof of the effectiveness of any kind of notation would have to come from the setting up of controlled experiments. We are now planning such experiments to include not only the suprasegmental phonemes, but some of the segmental ones as well, bearing in mind that any kind of transcription has as its purpose helping the student to speak and understand more readily and that all teaching materials are subject to change when better ways of presenting the facts of the language become known.

PAUL L. GARVIN (Institute of Languages and Linguistics): There is one serious problem which those who are teaching English to foreigners must face. Most of the discussion here has dealt with the necessity of presenting the target language in terms of the language of the learner. Mr. Davis, what do you do when your learners speak a variety of languages and, in addition, your linguist speaks the target language rather than the learner's language.

A. L. DAVIS (The American University): This is a very difficult problem indeed. We do the best we can. We handle people from as many as 30 different language backgrounds. We cannot possibly hire linguists to help us with all these language backgrounds. Furthermore, many of the language descriptions are not available. What we do in practice for a language where we have many students is to use analyses of those languages as help, and prepare special drills. For example, Thai is a language for which we have an analysis, and we try to help those people with their specific problems. It is not a good solution but it is a problem which we must meet somehow.

DOROTHY MULGRAVE (New York University): I am not clear why you don't show stress along with your other visual aids?

A. L. DAVIS: Stress is shown by the size of the dots, not on the word but above it.

⁴ A. L. Davis and Kenneth Croft, *Ameriphone Lessons with Stress and Intonation Markings* (Washington, 1954).

PAUL L. GARVIN: It occurs to me that this representation is of a theoretical interest. The fact that students can learn suprasegmental material more easily if it is presented completely separately from the segmental material seems to indicate that perhaps you might be dealing with two separate values of communication. They are not to be confused with each other and are to be treated on separate levels.

A. L. DAVIS: I believe that Dr. Pike can tell us about learning these patterns independently as has been done at Michigan?

KENNETH L. PIKE (University of Michigan): We tried to work with just the abstract patterns, but we haven't continued it for very long throughout the course. We fused it to the segmental line by having a heavy dash for the stressed syllable and dots for the unstressed ones and the four lines oriented in terms of the phonetic symbols themselves. This stressed line representation goes back to some of the British phoneticians who have done something like that but without the four levels of pitch. We usually try to keep our symbolism tied to the segmental line. We early found, as Dr. Stockwell has mentioned, that numbers were a little awkward. Hence we took a solid line symbolism to superimpose upon the length and keep the stress written on the segmental line too, and so far we haven't found anything that seems to us to work better.

ROBERT P. STOCKWELL (Foreign Service Institute): I would like to point out that the notation of intonation used in my sample of Spanish material is very similar to that used by Mr. Davis and the American University group. However, in Spanish there are only two phonemic stresses—a weak stress and a strong stress; and they are both marked. We have not left the weak stress left unmarked. We use accents instead of enlarged dots because the students are going to learn to read accents anyway and here they get used to them. The relative height of these accents indicates the same kind of thing that Mr. Davis has indicated in his transcription.

CARLETON T. HODGE (Foreign Service Institute): The advantage of placing the symbols above the linear phonemes is that you can have substitution of intonation and stress patterns. In other words, you can change your pattern and still keep your linear phonemes steady. Furthermore, if you are using tutors—we usually call the native speakers tutors—they very frequently give the intonation and stress pattern differently. If these patterns are intimately tied in with the

linear phoneme, this is often confusing to the student. If it is written separately the student himself often will make the adjustment and do this without saying anything or calling attention to the fact that it is different. Another advantage is that you may wish to use the conventional orthography, and this can be done by adding the line above.

RALPH D. WINTER (Somerville): It seems to me that what might be good for the first day or week might not necessarily be best for the 30th week. How do you handle that?

ALVA L. DAVIS: First of all, we want to start out our students correctly. That is why we put so much emphasis on these patterns. We hope to be able to do without this notation after some time.

ALBERT H. MARCKWARDT (University of Michigan): I wonder how much difficulty you have in actual practice to get your students to distinguish between secondary and tertiary stress?

ALVA L. DAVIS: We have considerable difficulty, but I believe that the difference does exist and therefore we indicate it.

DOROTHY MULGRAVE: Do you make any attempts to find out how many of your students know the international phonetic alphabet from other languages?

ALVA L. DAVIS: We make no systematic effort to find out. We know that many of them have been exposed to it. We have had students who have been exposed to regular presentation of either the English Language Institute materials or who have been exposed to the American Council materials abroad.

L. E. DOSTERT (Institute of Languages and Linguistics): I would like to raise a general point although I am sure that it cannot be dealt with today. It might be considered as a topic for next year's Round Table Meeting. I think those of us who have had to learn foreign languages have discovered that they keep on learning outside the class-room, both while they are formally studying the language and after they have stopped their formal training. I wonder whether the pedagogy of language teaching could not somehow be improved to equip the language learners to go on with their self-study more efficiently after the formal training period is over. I don't think that this point has been brought up in any of our recent discussions and it might be something worth considering for a future meeting.

FREDERICK D. EDDY (Georgetown University): This is perhaps too broad a question for the few minutes we have. Mr. Treviño and others

had mentioned the use of records rather than tape in their laboratories, and I am wondering if Mr. Treviño could tell us why records are used rather than tapes.

S. N. TREVIÑO (Army Language School): Courses at the Army Language School at any given point are in a state of flux. Also, very simple changes which can be implemented in a group dealing with about half-a-dozen languages is quite different from changing anything like our School which involves about 1800 students and a faculty of some 450. At the time of installation, disc-recording was the only medium available. We have means to produce our own records, and we have the students use them. I was instrumental in the suggestion of changing from 78 rpm to $33\frac{1}{3}$ and from a 96 pitch to a micro-groove of around—I think—135. We had to get different types of play-backs for that. About 6 months after that, we were authorized a number of tape recorders. Thus while we are in the process of changing over from 78 rpm to $33\frac{1}{3}$, we are also trying to utilize tapes as much as possible. We still use more records but not because I feel that one particular medium is superior to the other.

II. The Terminology of Linguistics: A Problem in Communication

ALBERT H. MARCKWARDT

University of Michigan

I have no intention of delivering a sermon this afternoon. Nevertheless, I believe that it will serve a useful purpose if I begin my discussion with the reading of a lesson—drawn for the occasion from a quite un-scripturelike text, namely Sinclair Lewis's *Elmer Gantry*.

The scene is laid in Banjo Crossing, the village where Elmer holds his first regular pastorate. The bishop of the district has suggested to his new recruit that he ought to read philosophy and has recommended Josiah Royce as a splendid field for any intellectual adventurer. From here on, I quote:

"So Elmer came back from Sparta with the two volumes of Royce's 'The World and The Individual,' and two new detective stories. . . He opened the first volume of Royce confidently, and drew back in horror.

"He had a nice, long, free afternoon in which to become wise. He labored on. He read each sentence six times. His mouth drooped pathetically. It did not seem fair that a Christian knight who was willing to give his time to listening to people's ideas should be treated like this. He sighed, and read the first paragraph again. He sighed, and the book dropped into his lap.

"He looked about. On the stand beside him was one of the detective stories. . . An hour later Elmer had reached the place where the Scotland Yard inspector was attacked from the furze-bush by the maniac. He excitedly crossed his legs, and Royce fell to the floor and lay there.

"But he kept at it. In less than three months he had reached page fifty-one of the first volume of Royce. Then he bogged down in a footnote."

After reproducing the footnote in all its academic verbosity and scholastic complexity, the author adds, "The Reverend Elmer Gantry drew his breath, quietly closed the book, and shouted, 'Oh, shut up!'

He never again read any philosophy more abstruse than that of Wallace D. Wattles or Edward Bok."

I believe that the parallel to our own situation is a clear and a pertinent one. For a good many years we, as linguists, have been insisting that our discipline may be profitably applied not only to the teaching of foreign languages but to instruction in the native language as well. We have been persevering and tried to be persuasive in our insistence that linguistic analysis is not only helpful but truly indispensable in the language-teaching situation.

All too frequently the foreign language teachers we have thus cajoled and encouraged have gone forth like Christian knights in their quest for enlightenment, and after their first encounter either with a general introduction to our science or with an article on a topic which they thought might be of interest or assistance to them, they too have either dozed and reached for a paper-back or have dismissed the experience with a fervent, "Oh, shut up!"

Whether this is a proper display of knightly fortitude is a question which I shall postpone until later. What I am concerned with now is merely the plain fact that we, as linguists, are not making the impact upon American education that we can and should. One important reason for this is our failure to communicate successfully with the large body of teachers at all levels of education upon whom we must necessarily depend for the practical application of the science to which we are devoting our time and our efforts.

For documented evidence of our having fumbled the communications process I shall cite excerpts from a number of work-papers written by foreign language teachers in preparation for a conference held with a group of linguists early in December at the headquarters of the Modern Language Association. The impetus for the meeting came in part from a letter written by a French teacher who felt that the report of the United States delegation to the UNESCO Seminar in Ceylon had been unduly invidious in tone with reference to foreign-language teaching in this country. If linguistics has something to offer to the foreign-language teacher, he argued, why does not someone "(1) find out what research in the field of general linguistics bears on the speciality of, say, a teacher of French, (2) put into comprehensible English a few samples of the findings of those in the

know . . . and (3) give us a carefully selected list of books and articles which tell us what we need to know."

The conference which was planned as a response to questions of this kind consisted of a number of linguists and an approximately equal number of competent and generally well-informed foreign-language teachers who, however, had had little or no direct contact with linguistics. In preparation for the conference, members of this latter group were invited to write work-papers bearing the title, "What questions does the informed, non-linguist foreign-language teacher have about linguistics." These papers are extremely valuable for what they reveal about the attitude of this group towards our handling of what I have called our communications problem. A few excerpts from them will be sufficient to make the point.

The first is by a supervisor of foreign-language instruction in the secondary schools: "Could there be a simple statement," the author inquires, "of the function of the linguist and of the goals and method by which he is working—this with a view of enabling every modern language teacher to understand it and not become lost in a maze of terms except for those on speaking terms with the linguistic pedagogical jargon? There must be a way of simplifying it so that the foreign-language teacher will be challenged to look into it." Later on this same writer speaks of "linguists operating so much of the time somewhere up in the clouds, never seeming to come into earthly contact with those trying to teach very young students to communicate through a new medium of speech." "So," she concludes, "first let's talk in terms understandable to all."

The chairman of a university foreign-language department asks, "What have linguists done wrong and what must they do right to present their findings in a manner both intelligible and palatable to those who must be convinced?" "Excessively technical content and language even in communications addressed to the non-specialist," is his first answer to his own question.

Another college teacher writes, "In my numerous pronouncements, however, I have carefully avoided using technical terminology, (1) so as to readily be understood by foreign-language teachers, and (2) so as to avoid being classed with 'linguisticians', whom somehow or other, foreign-language teachers have come to regard as the enemy."

Finally, a person concerned with the training of foreign-language teachers asks, "Are linguistic scientists making a determined effort to keep their new terminology simple, direct, and comprehensible so as to reach more quickly and more effectively the non-specialists. Our teaching profession suffers too much already from technical and professional jargon, from too many people talking to themselves in a narrow circle."

This is how we appear to our colleagues, the teachers of foreign languages in our schools, colleges, and universities; this is how we have impressed them over the past twenty years. And let me remind you again that the authors of the statements I have just read are regarded as leaders in the profession. For the moment I am not concerned with the justice of their criticisms or with the several possible rejoinders which might be made, and which, no doubt, are leaping to your minds. I am merely presenting what I am very certain is an absolutely honest set of reactions, possibly even toned down a little for the sake of politeness.

No one who accepts as authentic the statements which I have just quoted can fail to agree that if we are to have the effect upon the teaching of language that we should, in the light of an increasingly critical situation in our schools and colleges, we have a communication problem on our hands and that part of this problem at least is centered about the matter of technical terminology. Certainly the best way to set about solving or meeting such a problem is to examine it from all possible angles. This is what I propose to do very briefly in the course of my discussion.

That linguistics should be faced with terminological problems is, of course, not surprising. Virtually all new or reconverted disciplines are confronted with the necessity for developing terms or sets of terms for new concepts, for basic classifications, for processes, for relationships, and so on. In this respect, linguistics is no different from psychology, nuclear physics, radiology, or metallurgy. Because of our basic concern with language, it might be expected that we would have a greater awareness of the nature of our predicament and that we would set about meeting it more systematically, with fewer false steps, and with greater virtuosity. And indeed, representatives of some of these other studies actually consider us to have been more than moderately successful in doing so.

We do, however, face one problem at the outset. Most of us in this room normally find it necessary to operate within the framework of the English language when we write or talk about linguistics. This means that along with the practitioners of other branches of learning, we are faced with the peculiar set of conditions which the language imposes upon us. Let us consider them briefly.

For a number of reasons, with which most of you are thoroughly familiar, the English lexicon falls into two levels of layers: a popular and a learned, the former consisting of short, familiar, frequently used and readily understood words; the latter opposite in every respect. The net result of this circumstance is that the terminologies of most of the sciences and the professions fall into the category of the learned. There is some advantage here in that the Latin and Greek roots which form the bases for such terms are likely to be understood by speakers of most Western European languages, thus giving a partially international character to hundreds of scientific terms. There is the disadvantage, however, that in English technical terms are seldom self-defining or self-explanatory.

In this respect the English language is in marked contrast to German. I open an English-German dictionary and find such words as *nephritis*, *demurrage*, *epiglottis*, and *chiaroscuro* glossed as *Nierenkrankheit*, *Liegegeld*, *Kehldeckel*, and *helldunkel* respectively, all of them immediately comprehensible and self-defining to the native speaker of German. No one in the English-speaking world is likely to encounter the term *nephritis* except in a learned or technical context, and even when he does, he seldom breaks it down into its component parts—and then only as an afterthought rather than as an aid to understanding. In contrast, *Nierenkrankheit* needs no dictionary nor does it give off the flavor of a learned jargon—anyone can understand it. In the Romance languages, as in English, technical and scientific language is based chiefly upon Latin and Greek, but since the total vocabulary of French, Spanish, and Italian is derived from Latin anyway, these terminologies do not form such a sharp contrast to the rest of the language.

At any rate, the net result, as far as English is concerned, is that technical languages tend to become a convenient and habitual shortcut for the initiated, but remain a mass of incomprehensible jargon to the outsider. Furthermore, their very incomprehensibility or code

aspect is frequently a source of irritation; the coinage of such a disparaging term as *gobbledygook* often applied to scientific terminology as well as to other types of difficult language, is greeted with cheers from the lay public.

In this connection, however, it is well to remember that the foreign-language teachers who complain to us about the complex jargon of the linguists regularly employ their own technical language, which happens to be the terminology of conventional grammar. Much of this is as puzzling to, and as imperfectly understood by their students as the specialized vocabulary of the linguists appears to them. The nature of their complaint, therefore, is not against a scientific language *per se* but rather that we do not employ the technical language with which they are already familiar. They would be the first to agree that one cannot talk about language in a vacuum, but they don't understand why we should confront them with a whole new lexicon. Consequently the very first phase of what I have called our communications problem necessarily consists of demonstrating to the non-linguist wherein and to what extent the battery of terms he already possesses fails to meet the needs of linguistics as a descriptive science.

This operation requires more tact than we have shown up to the present. We have, I believe, been sufficiently aware of a somewhat general suspicion of, or a reluctance to accept new terms, and as a consequence our tone in presenting them has at times been almost apologetic. For example, in an article published within the past year, we find Professor Uriel Weinreich writing, "Let us dub these constructions 'diasystems', with the proviso that people allergic to such coinages might safely speak of supersystems or simply of systems of a higher level." Precisely two years ago, Professor Bloch, who was then the luncheon speaker at this conference, likewise conceded, "What I have to say is not new, though it will be couched in a new terminology. You may well find this terminology irritating, perhaps needlessly recondite; but it is not mere verbal doodling."

This recognition is significant and helpful, but it does not constitute the complete answer to our problem. Beyond this we need to demonstrate to our potential non-technical audience not only that the way in which we are trying to talk about language makes for consistency, economy, and precision, and that it is the only way in which we can

talk about language in view of our particular approach to the subject, but that the terminology with which he is familiar and which he has employed for years fails to meet the requirements I have just mentioned. We shall not be able to convince him merely by telling him that such is the case. It will require skillful demonstration—a more successful and succinct presentation of the principles of linguistics, at once lucid and compact, than we have yet achieved, and yet done in such a way that the novice will of himself come to realize the shortcomings of the time-honored and conventional series of terms and their definitions. This cannot be done by shouting *myth* and *superstition* at him. We must by all means avoid arrogance, condescension, and impatience. I know that I am asking for the well-nigh impossible, but it will have to be done if we are to realize our aims.

We have considered the difficulties that the English language imposes upon those who are faced with the necessity of developing an adequate technical terminology. Let us ask ourselves next, what means or devices are or may be employed in the creation of such vocabularies, and which of these in particular have we put to use, to what extent, and with what result. In general the problem has been met in some three or four different ways. We may develop new words, either through borrowing words or word-elements from other languages or by new combinations of those already in the language. We may give a special scientific sense to more or less common words already within the language, or we may attempt to alter the meaning of terms already established in the science or in some near relative or older form of it. Finally word blends or acronyms may be employed, such as *GU* (*gerade-ungerade*) in spectroscopy or *ACTH*, *DDT*, and dozens of similar coinages in pharmaceutical chemistry. This latter device is sufficiently unimportant for linguistics that it may be dismissed without further comment.

I think it may be said in all fairness that we have been quite fortunate in some of our word creations. The process of secretion has co-operated with us to the extent that *-eme* has emerged as a highly useful word-building suffix. I have lost count of the number of combinations in which it has been employed, but they are rapidly becoming legion. When it is finally taken up and used by some discipline other than our own, we may then take full credit for having added a

productive morpheme to the language. A number of other sciences anticipated us in the employment of the prefix *allo-*, but certainly we have put it to excellent use. In fact it can be said with some justice that if we succeed in accustoming the newcomer to linguistics simply to the use and the concepts behind these two affixes, we shall have solved no inconsiderable portion of our terminological problem.

These terms are functioning successfully because they are in a large measure self-defining. Once the linguistic neophyte is familiar with *allophone* and *allomorph*, *allolog* will tend to take care of itself. Here, it seems to me, is a valuable lesson which we can well apply elsewhere, that of complete or partial self-definition. It is on this basis, for example, that I would prefer the term *shape types* for the patterns of consonant and vowel distribution within morphemes to the somewhat more cryptic *canonical form* or *prosodeme*. These latter may have their virtues for the initiated, but they require far more experience in technical vocabularies other than that of linguistics to make them wholly meaningful or immediately comprehensible.

One type of secondary or tertiary reaction to newly-coined terms must also be taken into account. That is the irritation or something stronger which arises at times from what seems to be a particularly inappropriate combination of base and affix. I know that Professor Pike will forgive me if I dredge up a bit of past history and admit to what almost amounted to a revulsion—thoroughly irrational, of course—at the time he coined the term *velic* for the upper part of the soft palate facing the naso-pharynx. I won't even try to reconstruct the objection that I felt, but I am quite certain that they were based partly on etymological considerations and partly upon a dubious aesthetic. The important thing is that when I tried to come up with an acceptable substitute of my own, I was quite at a loss to do so.

I mention this only to reassure my listeners that I have every sympathy with the man who, feeling the necessity for a new term, sets about to fashion one as best he can. I am also aware, however, of the condescension of many of us toward the language of other special groups—the professional educators and the New Critics, to mention only two. These we sometimes accuse of creating jargon to conceal intellectual barrenness or because of a desire to elaborate and to render complex that which is essentially quite simple. Let us not be so wrapped up in our own righteousness that we fail to sense a simi-

lar attitude on the part of many of those outside our own closed circle.

Not infrequently words already in the language are drawn upon by the linguist to satisfy a particular need. Obvious examples are *constituent*, *component*, *segment*, *nucleus*, *cluster*, and so on. Again there can be no question of the usefulness of much of this specialization. Yet the non-linguist is likely to raise two questions about our practices here. First, he will want to know if our reaching, as we sometimes do, for a rare or unusual term actually results in a gain in clarity. This might be asked, for example, with reference to the choice of *fictive* rather than the much more common *fictionous*, and one is inclined to wonder whether our reply would really carry conviction.

The second question might well be aimed at what seems at times to be a multiplicity of terms. As ammunition our critic might employ the following quotation from a recent article: "However, linguists appear to be in general agreement over the principle to be applied, whether they use the term *commutation*, or *non-redundancy*, or quite simply *relevance* (better *communicative relevance*)." If there is general agreement on the principle, why then must we refer to it by three different names, and why could not the author of the passage I have just cited have resisted the temptation virtually to add a fourth?

A special problem for the newcomer to linguistics is posed by those terms which have been drawn from other sciences or specialized vocabularies, such as Pittman's *valence* or Hockett's *tactics*, to say nothing of the numerous extensions and adaptations of mathematical terms we have come to employ. Whereas the already initiated can appreciate an aptness, a suggestiveness, and certain advantages in their use, the more usual associations of such terms can get in the way of a realization of their relevance by those of less experience.

An even more complex situation arises when the linguist, adhering strictly to the working principles of his science, classifying his materials on the basis of form and distribution, attempts to decide whether he can profitably employ the terminology of conventional grammar. I am thinking here of my colleague Professor Fries who, in his analysis of English structure, concluded that there were four major form-classes in the language. These are, as you all know, roughly analogous to noun, verb, adjective, and adverb. However, Fries decided to discard the conventional terminology and merely

assigned numbers to these categories. His reasons for doing so merit quotation here:

"The reader, familiar with the conventional grammar, will probably attempt or has already attempted to equate these class numbers with the usual names: . . . and has assumed that the numbers are simply somewhat confusing new names for the old classes. If he does, he will certainly find increasing difficulty in the following chapters. It is true that many of the functioning units grouped in Class 1 would be called "nouns" by those who customarily use the traditional terms; and many of those in Class 2 would be called 'verbs'; many of those in Class 3 would be called 'adjectives'; and many of those in Class 4 would be called 'adverbs'. The two sets of names, however, do not coincide in either what is included or what is excluded. More important still, perhaps, it is impossible to make an analysis of the precise differences in what the old and the new terms cover because the conventional grammars vary tremendously in what they include under each of the old terms. In the use of the numbers for the four functioning units or parts of speech set up here there should be no uncertainty for one who will forget the old terms and follow strictly the procedures of this approach."

For us the question is not so much whether we accept Fries's reasoning but rather the amount of conviction it will carry among the non-linguistic audience for whom he wrote his book. To his credit it must be said that he did have the terminological problem in mind, that he weighed the pros and cons very carefully, and certainly it cannot be said that his final decision was either hasty or rash.

The fact remains, however, that the vast majority of students and teachers who are introduced to the system do, sub-vocally if not overtly, equate Fries's Class 1 with nouns, Class 2 with verbs, and so on. Moreover, his lettered classes of function words are simply too much for the ordinary memory, possibly because they are numerous and their ordering seems to have less of a mnemonic character. It is worth noting also that whenever attempts have been made to adapt this work to high-school and college teaching, such as that by Paul Roberts in San Jose, the traditional terminology has generally been reinstated.

The lesson to be learned from this is that redefinition, though more liable to error, encounters less opposition than a whole new system of

terms. We might well wish that this were not so, yet it seems the obvious conclusion to be drawn. We may take cold comfort from the circumstance that this problem troubles the psychologists even more than it does us, nor have they been able to employ other naming devices with anything like the facility we have developed.

Thus far my discussion may have seemed unduly negative, but I sincerely hope that it will not be so interpreted. I have merely been trying to consider our private language from what I conceive to be the possible point of view of our wider public audience. Much of our writing is done for our own intimate circle, and here we can certainly be as recondite, as nice in our distinctions, and as inventive as our colleagues will permit us to be. I do not expect the linguistic scholar to cripple his language in the interests of simplicity. Moreover, I am the first to recognize that the responsibility for successful communication is not entirely one-sided—it devolves upon the reader as well as the writer.

As I indicated at the outset, every new or reconverted discipline faces a terminological problem, and linguistics being in a sense both new and reconverted, is certainly no exception. For the past several years I have been at pains to inquire of scientists in other fields as to the state of their technical languages. I have found a few apparently in a more satisfactory condition than ours, but the vast majority profess a great deal of dissatisfaction. The bio-physicists have considerable difficulty even in agreeing upon the meaning of *bio-physics*. One nuclear physicist made the statement that their terms are now at a point where they furnish a reasonably satisfactory common ground for discussion, but beyond that little can be said. Even in such an applied science as metallurgical chemistry there is far from common acceptance of a basic terminology. We and our potential audience in the field of what I hope will turn out to be applied linguistics must simply remember that new terminologies inevitably encounter initial opposition and that they need a period of trial and error to settle themselves. This calls for patience on both sides.

Another portion of the rejoinder which we must in all honesty give to our prospective audience was furnished by a linguist in a work-paper preliminary to the conference I mentioned at the outset of this discussion. "Engineers don't reproach the theoretic physics journals for being 'unapplied'," he wrote. "Some read 'em and some

don't. . . For myself, I find acoustics analogous. I am a fellow trained with the average amount of elementary physics and calculus. I get lost in the equations, but I try hard to make my way through a fair amount of the *Journal of the Acoustical Society*. I find that I keep improving; some day I hope to get a real understanding, maybe even take an acoustics course and some advanced mathematics. Meantime I feel positive that my linguistics teaching improves even though some of my students can probably lick me cold on Fourier analysis. I also intend to get a *quid pro quo*: some day I shall be able to pose my problems in a way that will enable the acoustician to give me the data I want. Similarly, I should be delighted to help the foreign-language teacher whenever he will pose an answerable question." This is the kind of intellectual curiosity and open-mindedness that some of our critics will do well to emulate. As I have said, there is a bilateral responsibility for successful communication, and the stake of the English and the foreign-language teachers in the educational future of the country is every bit as great as ours.

Nevertheless, I was greatly impressed when I saw the telecast of E. R. Murrow's interview with Dr. Robert Oppenheimer a few weeks ago and in the course of it, I observed that one member of the staff of the Institute of Advanced Studies was characterized by Dr. Oppenheimer as "a statesman of mathematics." In connection with the very problem I have been discussing and its wider educational implications, it strikes me that for linguistics we need not merely one statesman but that actually most, if not all, of us must assume that function. If some of us with due modesty and a realization of our shortcomings feel that this office is beyond us, the very least we can do is to earn the title of diplomat.

III. Problems of Translation

L. E. DOSTERT (Institute of Languages and Linguistics) Chairman: This afternoon, the general topic is problems of translation. Before proceeding with the regular panel discussion, I should like to devote a few minutes to two points related to our topic. At the risk of violating the good advice just given us by Professor Marckwardt about the introduction of new terms in the field of linguistics, I should like to propose a definition of translation, as we are to use it here. The purpose is to try to give a broad framework to the discussion this afternoon.

In translation, we deal with two languages. One we call the *source* language, the language from which we are translating. The other, into which we are translating, is usually referred to as the *target* language. The problem in effecting translation is to achieve a transference of the meaning contained in the source symbol system into the target symbol system. If we deal with the written word, we speak of "translating" or "translation;" when working with the spoken language, we usually refer to the transference as "interpreting" or "interpretation."

When we further observe what we are dealing with, we are confronted with two structures: the *cultural* structure and the *linguistic* structure. They interact upon each other, and in turn determine the signalization system. We thus have a series of signals which carry meaning, and the problem of translation is arriving at meaning equivalence between the source signal and the target signal systems. In both instances, the signaling system, as stated before, is affected by the two fundamental structures: the cultural and linguistic structures.

I would like to advance as a postulate that the degree of translatability between two languages is proportionate to the similarity of the cultural structures, both source and target. In other words, the more remote the cultural structure of the source language is from the cultural structure of the target language, the greater the degree of untranslatability. Likewise, the further the linguistic structure of the source language is removed from the linguistic structure of the target language, the greater the reduction of translatability.

Translation then is effecting the transference of meaning-contents in a determined set of signals, in the source language, into a determined set of signals in the target language, with a minimum of alteration of

meaning and culture contents when transferred from one pattern into the other.

The second point in these preliminary remarks is to give you a brief summary of an experiment conducted by Dr. Balthasar van der Pol, who is neither a linguist nor a language teacher. He is the Director of the International Consulting Committee on Radio Communication in Geneva. He is a versatile scholar and conducted an experiment which, because of its conclusion, should be brought to the attention of this meeting. Dr. van der Pol calls his test "An Iterative Translation Test." From now on I am going to speak in French. The interpreters in the booths, who are familiar with the general topic but who have not been drilled on what I am about to say, will attempt to translate my words into English, German and Spanish simultaneously. This is merely to give you a direct experience in the problem of meaning transference, in interpretation in this case.

Pour son épreuve, M. van der Pol a choisi son texte dans l'ouvrage de Will Durant, "L'Histoire de la philosophie." Je dis "l'histoire" puisque nous n'avons pas en français d'équivalent autre que "histoire" pour le mot "story" (Un des aspects, soit dit en passant, des difficultés de la traduction). Donc de votre anglais "The story of philosophy"—"L'Histoire de la philosophie." van der Pol choisit un passage où Durant discute certains aspects de la philosophie de Francis Bacon. Il remit le texte original à un traducteur, lui demandant de le traduire en français sans indiquer pourquoi; ensuite il soumit la première traduction française à un deuxième traducteur, en priant celui-ci de la traduire en anglais; sans lui indiquer, bien entendu, qu'il s'agissait d'un texte déjà traduit de l'anglais. En troisième lieu, la traduction anglaise établie d'après la première traduction française fut donnée à un troisième traducteur, qui fut chargé de la traduire en français; et une dernière traduction fut ensuite établie en anglais.

Comme vous le verrez dans l'article qui paraîtra dans le Rapport que nous publions en octobre, les modifications apportées au texte par les traducteurs successifs sont reproduites. Je vous fais distribuer un tableau qui résume en quelques mots les principales divergences. De ce tableau une conclusion s'impose: c'est que dans la deuxième colonne le premier traducteur qui transforma le texte original en une première traduction française se permit un très grand nombre de "libertés." Par conséquent, les textes numéro 3 et 4 et 5 reflètent la

première traduction française, relativement libre, beaucoup plus que le texte original anglais. Je vous cite, pour conclure ces remarques préliminaires les conclusions de M. van der Pol lui-même. Elles sont rédigées en anglais, et je les ai traduites aussi littéralement que possible en français. "La conclusion essentielle que l'on peut tirer de cette épreuve est que le sens a été maintenu à un degré remarquable, bien que, comparé à l'original, le style du texte numéro 5 soit entièrement corrompu. Ainsi donc, une personne qui lirait l'original et une autre personne qui lirait le cinquième texte devraient pouvoir être d'accord quant au *contenu* et au *but* de ce texte, bien qu'elles puissent ne pas avoir reçu la même mesure d'assistance pour l'*appréciation* en raison du style particulier de chacun des textes. Dans l'original, même sans indications typographiques, on reconnaît aisément les passages où Durant exprime sa propre pensée, et ceux où il cite Bacon, en raison de leur style différent; Bacon naturellement est rendu dans un anglais plus moderne. Dans le cinquième texte, cependant, c'est-à-dire le dernier texte anglais ayant passé par deux traductions françaises, cette distinction n'est plus évidente. Les deux styles, c'est-à-dire le style de Durant et le style de Bacon, ont pour ainsi dire entièrement disparu en raison des changements répétés de l'anglais au français, et vice versa. Dans une certaine mesure, le style des deux auteurs a été remplacé par les styles individuels des différents traducteurs."

Vous pouvez remarquer, et j'attire votre attention sur la première ligne du tableau comparatif que je vous ai fait distribuer, que le mot "become" pouvait très bien être traduit par le mot *devenir* dans la phrase "We must become as little children." En fait, le premier traducteur français décida de la traduire par *redevenir*. Remarquez qu'à partir de ce moment, la deuxième traduction anglaise n'est plus *become* mais *become again*. Notez également que la deuxième traduction est *redevenir*, et que la dernière traduction anglaise est *become again*. On pourrait donc conclure, ou ajouter à la conclusion de van der Pol, que plus la traduction est littérale, moins elle est marquée par l'intrusion de la stylistique particulière du traducteur, plus elle sera exacte en ce sens qu'elle se rapproche davantage de l'original.

Problems in Literary Translation

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Not the essence of translation but the existence of the translator shall be our first concern. That existence is usually an unenviable one. Over the centuries the translator has been equated with the servant who inverts the sense of his master's message or who considers himself the better man, especially when the master is very old. He tenders copper coin in exchange for gold, he displays the reverse side of the carpet so that every thread is visible, but not the real pattern. Inescapable is the Italian gibe that brands the translator traitor.

Penury is added to insult. The wages of translation, it has been suggested, are adequate for a cripple possessing private means, only with the wages of sin do they compare favorably. In many cases the translator must either skimp his task or invite the wolf to step inside. What remedies can we propose?

It would be unwise to replace too total a contempt by indiscriminating praise. But praise there should be, praise first of all for the dignity of the translator's calling. For he is a cultural ambassador, a conciliator and evangelist, whose mission serves alike the nation that gives and the nation that receives. In his humble yet glorious and even passionate pursuit of the word, in his striving to measure out the grains so that between translation and original the balance remains level, the translator must exercise many qualities. A French commentator lists "self-abnegation, patience, charity, scrupulous honesty, intelligence, subtlety, a wide range of knowledge, a well-stocked and ready memory . . . which, taken all together, never are associated with mediocrity."

Apart from and much more urgently than such generalities, which can find expression in the polite essay or the improving televisioncast or on some other too frequently semi-moribund cultural occasion, what is required is the distinction, the heightening of the prestige, of the individual outstanding translator. Awards, medals. In 1948, Louis Varèse received for a Baudelaire translation the Denyse Clairouin Award. However, if the *Index* to the *New York Times* can be relied on, since that year no one else has been deemed worthy. It is impossible,

today, to reflect very long on any non-commercial or insufficiently commercial human undertaking before reaching the conclusion that a *Foundation* ought to do something about it. This need not of course take the form of prize-giving; some scheme to provide funds for the publication of translations would do nicely—and for the proper remuneration of the translators. One thinks of the projects that the Bollingen Fund has supported, and of the use, too, that George Bernard Shaw made of his Nobel Prize-money: to finance the translation into English of Swedish literary works.

Prizes, indeed, are not alone or even chiefly the answer to the problem of improving the status and solvency of the translator. Much more important is the general level of compensation. But here, unfortunately, one can do little more than say what should be. The prospect of any union of translators which could hope to advance their legitimate demands is even more illusory, I should think, than that of a housemaids' union. Although not unskilled laborers they do constitute casual labor and are engaged on piece-work. Many are satisfied to pocket a little pin-money, and their ranks at any instant can be swelled—are so swelled, we must feel, considering certain grossly incompetent translations that have blotted more than one publisher's escutcheon—by anyone whomsoever with the effrontery to claim that he "knows" a foreign language. Another circumstance that applies to English is the fact that the English usually have a native's skill in handling the language and thus, given the exchange rate and the different living standards of England and this country, can undersell the American translator.

In view of all these factors, the chances for any genuine professionalization must remain slight. Nevertheless, a weak professional organization would be preferable to none at all. (A Translators' Guild was formed in England in the 1930's: I have no idea whether it still survives and of what achievements it can boast.) The demand could at least be made, the request tremulously voiced, that the translator of any work whose sale is likely to run into thousands be accorded a small royalty. I knew a translator of French novels into German who was paid on this basis and who professed himself satisfied. Such an organization could also keep a file or publish a list of translators. And also—though hardly by the same body—it is to be hoped that a blacklist of botchers might be compiled. In these days of commercial and political black-

listings, it should not prove too hard to evade the obstacles that might oppose its circulation.

For we would not be so "progressively educational" as to rely utterly on kind words and candy in order to improve the translator's morale and standards. Censure, also, can play a valuable part. Regrettable, in this connection, is the nonexistence of any journal devoted to the art of translation and the careful consideration of the translations that appear. It could do much to awaken a professional conscience. The mass of book-reviewers are not competent to examine translations critically, and rarely try. Even the most flagrant cases of impossible English and infidelity to the original may go unscathed.

The translator, thus exposed to the hail and sunshine of critical commentary, should not stand alone. With him must be associated his publisher. For, as one of my forerunners has remarked, some publishers get out of their translators more than others do. Among these others, I could mention a publisher who rushed into print the rough draft that had been sent him. Or another, and highly reputable publisher, who was willing to take over from a Foundation and bring out at his own risk a scholarly work that set quite ticklish problems of translation. Since, however, he would have insisted on the employment of a cheaper substitute for the thoroughly equipped translator already designated, the author wisely declined the offer. Publishers, then, should have to expect, for their good deeds and their villainies, to face the music or the fanfare.

There are no schools, to the best of my knowledge, that attempt to train the translator of literature for his task.¹ I shall not imagine how such a school might function. But I do think there could be some value in stating, not how a translator should proceed—for our abstract detail would be vain generality—but how, materially speaking, he should be outfitted. It goes without saying that, owning at the very least the best bilingual dictionary of his languages, he should have available, if he cannot own, all the reference works that could throw light on the meaning of his text. Many translators have conclusively demonstrated that on this score they merit flunking. Beyond this elementary requirement, we must ask the translator to regard even the most admirable bilingual dictionary with suspicion, and not as an oracle. Otherwise,

¹ It may be, however, that the institutes for training translators which exist in Geneva and in Florence concern themselves to some degree with problems of literary translation.

he deserves to be replaced by a machine. One time out of ten, perhaps, he will choose a term the bilingual dictionary has omitted. How does he arrive at it? Via the dictionary that lives within his mind—and that, in its turn, can be helped out and enriched by the use of dictionaries of synonyms, in one language and the other, by stylistic reference works, and by the outstanding monolingual dictionary for each of his two languages (the *NED*, *Littré*, *Diccionario de la Real Academia Española*), since here he will find examples of the usage of the best authors. The order he will follow is this: first the foreign dictionary, say the *Littré*, is consulted, in order to increase his familiarity with the circles frequented by the term he must translate, then the French-English *Mansion*, perhaps checking also on the translations proposed for some synonyms, and finally the *NED*. After that, whether or not he decides on a word given by *Mansion*, he will have chosen out of a much greater range and depth of experience. Similarly, he can learn not from grammars of current usage only, but from historical grammars of the foreign language and of English. For these proposals and for some that follow, as well as for the quotation in my first paragraph, I am indebted to *Sous l'invocation de Saint Jérôme* by Valery Larbaud,² who abandoned a distinguished literary career of his own and turned to translation. He did into French Coleridge's *Ancient Mariner*, Whitman, Landor, Sir Thomas Browne and Samuel Butler, author of *Erewhon*, and translated, too, from the Italian and Spanish.

At times, however, all reference works fail one. Far too seldom does the perplexed translator seek the aid of others: friends, specialists and, when the author is alive, the author himself. It should be an established custom to thank, in a preface, all who have given their aid, while expressly absolving them from responsibility for any blunders committed.

Nor might it be entirely useless to mention the reference works that *should* exist. For countless languages and English, an even reasonably adequate bilingual dictionary is lacking. Also, for all languages other than French, works corresponding to *Les Faux Amis du Traducteur*, or Boillot's *Le Vrai Ami du Traducteur*.³ There should be a whole series: *I falsi amici*, *Los falsos amigos* . . . —*Die Hinterlistigen Freunde*

² Valery Larbaud, *Sous l'invocation de Saint Jérôme*, Paris, 1946.

³ Maxime Koessler et Jules Derocquigny, *Les Faux Amis, ou Les Trahisons du vocabulaire anglais*, Paris, 1928; Félix Boillot, *Le Vrai Ami du traducteur anglais-français et français-anglais*, Paris, 1930.

would, I believe, be less essential—in the domain of translation. Other immense untapped resources that could be put to use are suggested by such works as Ritchie and Moore's *A Manual of French Composition*, intended for English university students, or, also working from English to French, *Les Traquenards de la version anglaise*.⁴ As a last plea: might not the eye of some seasoned translator from the German or Russian or French into English, prepare an alphabetically arranged volume that could come to possess the authority enjoyed by Fowler's *Modern English Usage*?⁵

Many an author in many a century, and certainly from the time of Cicero, has attempted to express in words what the essence of translation is. I believe that their coincident and varying views could be summed up rather briefly—and should be, and could be pondered over by apprentice translators. But here the task cannot be undertaken. It is questionable, too, whether a better book on the matter could be written than Tytler's eighteenth-century *Essay on the Principles of Translation*.⁶ In support of this judgment I could cite not only favorable recent references by a Frenchman and a Pole,⁷ but the weightier fact that the book continues in print, in Dent's Everyman's Library. More striking, perhaps, than the maxims themselves is the failure of one and another of us to agree, in specific instances of translation, whether they have been successfully applied or not. With Tytler himself we must fairly often differ. The proof of this pudding, most signally, is in the eating. And, of course, *de gustibus* . . . To mention one important cleavage of opinion, we may prefer a wife, or a translation, to be ugly and faithful; or to be beautiful, but untrue. And even then what agreement is there on who is beautiful, and who, true? In a word,

⁴ R. L. Græme Ritchie and James M. Moore, *A Manual of French Composition for Universities and the Higher Classes of Schools*, Cambridge, 1930; Henri Veslot et Jules Banchet, *Les Traquenards de la version anglaise*, Paris, 1922.

⁵ H. W. Fowler, *A Dictionary of Modern English Usage*, Oxford, 1926.

⁶ Alexander Fraser Tytler, *Essays on the Principles of Translation*, third edition, Edinburgh, 1813. The first edition appeared in 1791. But let us commend, also, the general remarks in one recent work: William Frost, *Dryden and the Art of Translation*, New Haven, Conn., 1955.

⁷ Larbaud, *op. cit.* p. 100–103; Waclaw Borowy, *Studia i rozprawy*, Breslau, 1952, II, 11, 95. For the latter reference I am indebted to Mrs. Olga Scherer-Virski.

literary translation is an art, it works for one reader and with another reader it fails. It is not a primitive handicraft that with advancing technology can be handed over to automation.

The old-fashioned notion of literary genres retains a far-reaching validity. But first we may set apart from the rest the Greek and Latin classics, to which may perhaps be added Dante's *Divine Comedy* and Cervantes' *Don Quixote*, and also, it may be, a few Russian and French novels. Like "men of distinction," these books of distinction—thanks to their other qualities—have made money and continue to do so. They have even made money for some of their translators. Alexander Pope received over £5000—a modest fortune, for the eighteenth century—for his version of the *Iliad*, and a like sum for his share in translating the *Odyssey*.

Thanks to Homer I live and thrive,
Indebted to no Prince or Peer alive.

Today these classics sell better than ever. E. V. Rieu, provided he has an appropriate contract, may well have done better than Pope, with his prose "Penguin translation" of the *Odyssey*, for by 1953 this has sold over 300,000 copies in the United States alone. In these circumstances we have the right to demand first-rate modern versions, and we are, I believe, getting some. At all events, fairly numerous renderings are appearing of Homer and Virgil, of the Greek plays and the *Divine Comedy*. If not themselves great, they prepare the atmosphere and make ready the ground for later, better contestants.

That the ruck of novels will often be translated poorly is perhaps unavoidable, and perhaps offers little reason for regret. For the artistically more ambitious novel I may hope, at least, that some of the suggestions already made will in the long run exert a little influence—particularly if additional pressure came to be placed on publishers via their prestige and even their profit and loss accounts. The translation of plays to be acted has special problems of its own. The sentences of the translation must be spoken on the stage and, consequently, must be speakable. To read a play by quite a minor dramatist is to realize that the language has a special glow or lift, which the best of literary translators might fail to match. But, in actual fact, plays are less and less being translated, nowadays they are "adapted." Eric Bentley and

Louis Kronenberger, among others, have commented on this malpractice with admirable vigor.⁸

There remains that embarrassing question, how lyric poetry should be translated. It can be shown, pretty conclusively, that no literary work whatever can survive a transposition, since to translate is to undertake to pair the unique, to find a substitute for the irreplaceable. Yet translations there have been. But if for any genre we feel bound to uphold in all its rigor this assertion of untranslatability, then it is for lyric poetry. This, above all, in the whole realm of translation, is the domain where vanity stalks in bedraggled peacock's feathers. One translation after another appears, and by the claims he makes in the preface, and which clash so absurdly with the piddling quality of his performance, one poetic translator after another arouses a smile of pity. Yet book reviewers, including some who should know better, are guilty of an excessive indulgence.⁹ No encouragement should be given to verse renderings of poetry, they should be barred from consideration for awards. Every now and again a great poet or, perhaps, merely a great translator, will prove that it can nevertheless be achieved (one thinks of Rilke's translations of poems by Paul Valéry). But what should be provided is a workmanlike prose "trot" accompanied by the original text. In this respect, the Italians and the French are better served than we.

I shall conclude with the conclusion of the late F. O. Matthiesen's book on the Elizabethan translators.

"The average translation does not last long. It is either a useful crib with no style of its own, and simply a pale reflection of the original; or the style of the translator's generation intrudes upon it and makes it lively for the time being, but generally unsatisfactory after twenty years. The translator must either suppress his personality and produce a scholarly work, faultless, but without life; or, if he enters creatively into his work, he runs the almost certain risk of adding elements which the next generation will consider a clouding of the spirit of the original. The Elizabethan translators all sinned in this second way, and yet their work has endured as a part of English literature as

⁸ Eric Bentley, *In Search of Theater*, New York, 1953, p. 29; Louis Kronenberger, *Company Manners*, New York, 1954, p. 64f.

⁹ It is the existence of this regrettable tendency which has motivated the almost unqualified harshness of the above remarks.

no other group of translations has . . . the great miracles of North's *Plutarch* and the Bible can be explained only by the fortunate circumstances of the Elizabethan age. Knowledge was fresh, language could be bent to one's will, thoughts swarmed so eagerly that they could not be separated from emotions. The language was more fully alive than it has ever been, which means that the people were also.¹⁰

A living language, living people, and a life-creating reciprocal relationship of the two. I leave it to you to judge whether the outlook for translation today is encouraging or bleak.

¹⁰ F. O. Matthiesen, *Translation: An Elizabethan Art*, Cambridge, Mass., 1931, p. 231-32.

Translation as a Tool of Research

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I

The gist of the hypothesis put forward by B. L. Whorf may be briefly stated as follows: that there is an intimate connection between the concepts forming the cosmology or the *Weltanschauung* of a people and the language spoken by such people, and that the first is, in all probability, to a large extent derived from the second.

Verification of this hypothesis has met with considerable difficulties. The technique most often adopted consisted in exploring the culture and the language of one of the more or less isolated and more or less primitive societies, in the hope of finding types of non-verbal behavior to be put in parallel with linguistic characteristics. Now, obviously, a cosmology, if connected at all to linguistic phenomena, is connected to them only through a complex chain of abstractions. Nonlinguistic behavior is likewise connected only indirectly to a *Weltanschauung*, and such connections as may be found need in general to be described in language. The connection link is in the cosmology, but this cosmology is in general unknown.

A research worker undertaking to explore the unknown, using an unproven hypothesis as a tool of research, is often apt to be criticized.

It seems therefore that it might be useful to confirm Whorf's hypothesis by the use of a different technique and by exploring a different field. Doing so would greatly strengthen the hand of those using linguistic techniques in anthropological work.

II

A promising avenue of approach may be found in comparing Whorf's hypothesis to a thesis developed by Professor K. Pribram.

According to Professor Pribram, a majority of the international conflicts, both contemporary and historical, can be correlated with, or explained in terms of, patterns of thought characterizing the cultures of the peoples involved. The patterns of thought in question are derived from the habitual and in most cases unconscious acceptance of definite philosophical systems, and from the application to the problems of life of the types of reasoning characterizing such systems.

I will not dwell on this question here, as I developed it in a paper published last year, and, principally, as Professor Pribram's works are available. I will mention only that the patterns of thought of which he writes are, so to speak, tangible. They are detailed in the works of the philosophers who created them—or possibly, though the question resembles that of the egg and of the chicken, who derived them from language. The influence of given schools of philosophy upon national cultures is also a matter of common knowledge. One can hardly think of English thought without thinking of Bacon and Locke, or of the French without Descartes or of the Germans without Hegel and Fichte.

Two questions remain:

- 1) To what extent are such patterns of thought applied in a variety of concrete situations; and
- 2) If and how can a connection be established between such patterns and the languages of the countries in which they dominate.

III

My own interest in these questions derives to a large extent from the findings I made as a result of my experience with the various exchange programs of the United States Government. Time and again, when interviewing visitors or when directing the work of interpreters,

I found that bridging the so-called linguistic gap was not enough to obtain mutual understanding between visitors and Americans. The French, in particular, insisted most often to study the situation deductively from the general to the particular, from the abstract to the concrete, and in so doing asked questions which the Americans neither could answer nor were interested in answering. The Americans, on the contrary, stuck to inductive, we-will-cross-that-bridge-when-we-come-to-it terms which produced an impression of utter chaos on the French.

It is only when the interpreters were capable of taking the direction of the debate, and to interpret from inductive into deductive in addition to interpreting from English into French, that contacts tended to become profitable.

Unfortunately I was at that time too preoccupied with finding immediate solutions and did not proceed with a systematic collection of data. There is still a job to be done in this field.

IV

It seems clear that when dealing with languages such as English, French or Russian, and with the cultures of the countries in which those languages are spoken, we cannot hope to study these languages and these cultures in toto. We cannot maintain the fiction of an isolated culture and an isolated language reacting upon one another in the absence of all external influence. We know that English, for instance, is capable of expressing all possible ideologies and schools of thought, we know that there are Americans who are fully convinced, and even sometimes convicted, Marxists.

The question is whether it is possible to show that there exists definable affinities between languages and dominating patterns of thought, or, in other words, that certain types of reasoning are easier to express in given languages, and, therefore, more likely to be understood by the peoples speaking such languages. Conversely it may be sought to show in what manner definable patterns of thought influence the formation of neologism.

If we do not take languages and patterns of thought in toto, we must take situations under which the languages are used and in which patterns of thought can be detected. The degree to which these situations are representative remains to be determined.

V

Promising situations may be found in debates. The points of view defended by various participants are not necessarily connectible to their patterns of thought, but the argumentation in terms of which such points of view are defended cannot be anything else but a presentation of such patterns (the question still remaining as to the degree of representativeness in regard to the culture concerned and even the habitual and sincere manner of thinking of the individual).

The minutes of the Security Council of the United Nations offer a fairly obvious source of situations of polylingual debate, and were selected as material for research.

VI

We know that everything said in one of the languages concerned can be expressed, or denoted, in the other languages, and also translated into them. What is being sought is not the question of possibility of expression, but the question of ease, clarity and naturalness of expression. In other words, research will bear not on the denotative but on the connotative aspects of language.

Connotations are notoriously elusive, difficult to determine and to describe.

This is, however, where translation comes in.

As every translator knows, the most universal difficulty of translation lies in reconciling the often divergent requirements of groups of sentences and individual sentences, of sentences and component phrases, of phrases and component words. The words of one language can, in general, be easily translated, but, when put together, they do not necessarily mean the same thing as the original. Good translations are not literal, and often a good translation, conveying the intent of the original, can be obtained only at the cost of deliberate mistranslations of detail.

Thus, although the translation of one word by another, or of one sentence by another, may present connotational differences so tenuous as to be unclassifiable, denotational faithfulness at sentence level will often be obtained only at the cost of a clearly perceptible divergence at phrase or word level.

Such divergences will be used as principal data for research.

VII

A first sample, bearing on one and one half Security Council meetings, yielded 200 entries.

Once carded entries are classified, first according to original language, with a subdivision indicating whether the language in question is native to the speaker; then into four categories: 1) rhetorical, 2) lexical, 3) grammatical—syntactic and 4) stylistic.

The first category—rhetorical—does not deal with translations, and, in fact, hardly deals with language per se. Entries in this category bear on the organization of speeches and the selection of arguments, according to such criteria as inductive or deductive presentation, arguments ad hominem, tendency to consider each question as a self-contained unit, or, on the contrary, tendency to insist on general criteria, dichotomies between substance and procedure, general principles and particular cases, or their absence, eternalism or temporalism, etc.

The second, third, and fourth categories are established on the basis of a comparison between originals and translations. It is often unclear in which category a particular entry should be placed, and quite often an entry may qualify for mention within several categories.

The following step in the analysis consists in grouping data within each of the linguistic categories according to their semantic value, that is to say along the lines used in the presentation of rhetorical data.

VIII

I will now present a few examples from the lexical category. These examples will be presented in the form of simple words or of short phrases. Competent linguists may obtain the impression that better translations could often be obtained. However, it may be good to remember that the words and phrases in question are lifted from complete sentences, and that the translation of such sentences is in general highly satisfactory. Moreover, if we are dealing with languages not as they can be spoken but as they are spoken, we must compare the originals to translations not as they could be made, but as they are made. Precision and safety of conclusions will be sought in an accumulation of data.

IX

GROUP 1

proper	utile	nuzhnyi
	opportun	podkhodyashchiy
	conviendrait	pravil'no
	('proper' refers here to a decision or virtual decision of a political nature)	
useful	opportun	slyeduyet
	('useful' refers here to a procedure)	
like this	de ce genre	takogo roda
practical	caractère pratique	real'nyi
suitable	de nature	slyeduyet
served its own interests	semblerait utile	sootvyetstvuyet eyo vygly- adu na dyelo
sound	raisonnable	pravil'no

'Proper', used here in expressions such as "as it would consider proper," has a variety of meanings, all of which derive from and carry the connotations of 'belonging to' (French: 'propre à'); the general connotation is that of standards entirely contained within the case and not necessarily susceptible of generalization. In that 'proper' is similar to 'like this' and 'suitable'. On the contrary 'utile', 'nuzhnyi', 'pravil'no', 'de ce genre', 'takogo roda', 'de nature', 'slyeduyet' and, to a lesser extent 'podkhodyashchiy', contain references to general standards. 'Opportun' avoids that, but at a cost: cf. the connotations of 'propriety' and those of 'opportunisme'.

'Useful' translated by 'opportun' seems to point in the opposite direction. The background circumstances are, however, slightly different: the example is taken from a question of the Chair concerning the procedure of the Council, whereas the other examples were taken from reference to substantive decisions to be taken by delegations.

'Useful' does refer to an outside standard, but this standard is much more relative than is suggested by the fatalistic 'slyeduyet'.

The addition of 'caractère' before 'pratique' may be interpreted again as a need for generalization—by pointing to possible classificatory oppositions such as 'caractère politique' or 'juridique'.

'Real'nyi' has the double denotation of 'real' and 'practical'. The degree to which it connotes general—and theoretical—standards may be exemplified by the expression "'real"—'noye uchilishche,'" a secondary school in which Latin is omitted from the curriculum and emphasis is placed on the physical sciences.

“Served its own interests” is forthright and self-contained; “semble-rail utile” is weak and, again, seems to suggest general standards—utile à quoi?

All reference to usefulness is eliminated from “sootvyetvuyet eye vzglyadu na dyelo,” as it was eliminated earlier from the translation of ‘useful’ by ‘slyeduyet’, The character of self-sufficiency is strengthened to the point of redundancy: its (the delegations) actions will correspond to its opinions.

X

GROUP 2

it cannot (a request)	nous n'avons pas le droit	my nye mozhem (the Council)
reasonable	raisonnable	pravil'noye
fair	juste	spravyedlivoye
take it up	l'aborder	obsuzhydenyey
discussion	discuté	obsuzhydenyey
a chance	le droit	vozmozhnost'
justified	justifiée	obosnovana

“It cannot” does contain a connotation of standards, but these standards are left undefined. “My nye mozhem,” where the emphasis passes from a given particular request to a permanent and official body, brings in generality: the standards are the standards of the Council. “Le droit” places the question in the light of standards that are both definite and universal.

The standards in ‘reasonable’ are tentative, ergo difficult to generalize; ‘pravil'noye’ refers to general standards. What is ‘fair’ can be defined only in terms of a particular situation, in which the positions of both sides are taken into account and constitute almost the sole basis of determination. What is ‘juste’ or ‘spravyedlivoye’ can be determined only by reference to general standards, often even in the absence of any other party; cf. “is this legal?”

Similar remarks may be made in the case of ‘obsuzhydenyey’.

‘A chance’ connotes again a particular circumstance, a decision in its respect be automatically generalized. ‘Vozmozhnost’ is more general—upon retranslation it calls for ‘the’ possibility, not ‘a’ possibility. ‘Le droit’ is both general and based on definite external standards.

The last example seems, at first glance, to point in the opposite di-

rection. Yet 'justified' is not 'just' and 'obosnovana' may be interpreted as a reference to definite standards of reality, which is much stronger than tentative standards of moral approval.

XI

GROUP 3

deal with	discuter examiner traiter (de)	rassmotryet' rassmotryet' zanyat'sya
dispose	classer	rassmotryet'
act upon	examiner	rassmotryet'

The English verbs suggest an intention of finishing the job; they do not imply in what manner or on what basis. Only the last of the French verbs implies that the business is to be completed, and it does it at the price of a mistranslation: 'to dispose of' might mean 'to pigeonhole', but the context reveals that it doesn't. None of the Russian verbs implies reaching a decision. 'Rassmotryet', used most often, implies however a method of approach: that of subdividing the problem into aspects and categories.

XII

GROUP 4

is	zaklyuchayetsya sostoit (difficulties and proposals)
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In this group the Russian verbs have a character of completeness which lacks somewhat in English. The situation, however, is different. In this case the Russian implies that the descriptions—of difficulties or proposals—are complete; not that the cases should be considered on their own merits.

XIII

Consideration of groups 1 through 4 suggests that a connotation of "considering the case on its merits," or of "crossing-the-bridge-when-we-come-to-it," or again of grouping one's attention on particular circumstances rather than general principles, is particularly easy to carry in English; to such a point perhaps that it may be suggested even, up to a point, unconsciously and unintentionally. French and Russian seem to find it difficult to follow on that terrain.

It goes without saying that this conclusion is highly tentative, as the group of data examined is fairly small, and as the Council was dealing only with one type of subject matter, which happened to be procedural. We will see in the future whether this preliminary finding is confirmed by data obtained from another type of debate, and by grammatical-syntactical and stylistic considerations.

Should these findings be confirmed, they would be collated with others of a similar nature in search for a more general pattern.

XIV

GROUP 5

believes (Gvt.)	estime	schitayet
I feel	je crois	schitayu
I think	a mon avis	polagayu
I assume	je crois comprendre	polagayu
that conveyed the idea	ce qui signifie	iz etogo slyeduet
I think	j'estime	po-moyemu

'Believes' is general; it may be used as in "I believe it was three weeks ago," or as in "I believe in God." It may be considered as an invitation for the other parties to put their own opinions on the table. 'Estime' is much more precise; it is somewhere in the center of the scale of certainty; it also implies that a preparatory study of the situation has been carried out. 'Schitayet' is still more categorical; its very etymology shifts the emphasis from the subject to the object of the estimation or opinion: if one can read something, it is because such a thing is written. It might be useful to remark here that Russian and the Slavic languages in general very frequently form many of their verbs by using prepositions as prefixes and verbs in current use as roots. Such verbs carry the connotations of their origins much more obviously than do such other words whose etymology is known only to philologists and obvious to no one.

A fairly similar gradation separates 'I feel' from 'Je crois'. 'Croire' is not as easy to use with legal entities as is "to believe;" the difference in the nature of the subject between the first and the second example should be taken into account.

'Polagayu' is again much stronger and stiffer than its counterparts.

'I understand' would have been only slightly stronger than 'I assume', the French 'je crois comprendre' is cautious, it shows that the

notion of understanding is something precious which should not be risked lightly. 'I assume' is always difficult to translate; it carries a connotation that preliminary hypotheses are a normal thing, which may be said to be somewhat retained in the French, but disappears completely from the Russian.

'Ce qui signifie' is again quite a bit stronger than 'that conveyed the idea'. 'Iz etogo slyeduyet' is not only stronger, but also carries a connotation of causality and may be compared to the examples in group (1) (reference to general standards).

'Po-moyemu' is 'à mon avis' and is faithful to the original. But it is seldom used. It can never be used as such with legal entities and its equivalents in persons other than the first are not easy to use.

It may be interesting to note that the Russian verbs (which, obviously, does not include 'po-moyemu') carry clear locative or spatial connotations, either in their roots or in their prefixes.

XV

GROUP 6

intimate to	informer	postavit'
my attitude is that (I am not ready)	(je) (ne suis pas prêt)	moya pozitsya takova chto
I am not ready	je ne suis pas prêt	ya protiv
sound	raisonable	pravil'na
would be proper	conviendrait	bylo by pravil'no

'Informer' has one of the two meanings of 'to intimate'; thus, although the meaning in question is unquestionably the one representing a good translation in this case, there is a certain loss of imprecision, the meaning of which may become apparent in the light of the following examples.

'Postavit' again introduces an idea of locative neatness.

"My attitude is that I am not ready" is a double modus and appears redundant. At the same time such an insistence on the modal part of the sentence, coupled with expressions such as 'attitude' and 'I am not ready', may be interpreted as connoting an invitation to debate, or even to compromise and a certain amount of healthy horse trading. The double modus disappears completely from the French, possibly because it has no strictly logical justification, and possibly because it would be too obvious to be permissible (cf. the analysis of the English

and French connotations of 'compromise' in my paper on "Semantic difficulties in international communication").

'Pozitsya' is much more positive than 'attitude' with, again, a locative metaphor.

'Protiv' is also obviously much stronger than its counterparts. The full strength of the Russian in this case will be made clearer in the grammatical—syntactical part of the analysis, to be undertaken later. In any case the connotation of invitation to an exchange—of something or other—has disappeared.

The last two examples were mentioned earlier. They are repeated here to show the rigidity of the Russian. It may be useful to mention that two different and even opposite practices may be equally sound—for instance the practice of borrowing money, or of buying on the installment plan, and the practice of paying cash—may be equally sound, though future events may show which one was preferable under given circumstances. A course of action and its opposite may both be 'raisonnable' though the use of reason, or rather of 'raison', with its rationalistic connotation, should be enough to eliminate one of the two, even if both appeared 'raisonnable' in the light of a purely preliminary study. But a course of action and its opposite cannot both be 'pravil'nyye'.

XVI

GROUP 7

(when) it came	il sera	budyet postavlyen
amounted to	établissait	svoditsya k
then	donec	takim obrazom

This group is fairly heterogenous, and some of its entries will be reexamined in different contexts. At the same time a few observations may be presented.

'Postavlyen' introduces again a locative term which differs considerably from 'when it came', in that it suggests visualization. The same remark may be made in regard to 'svoditsya k'.

'Établissait' replaces a comparative by an absolute; it is thus considerably more rigid.

'Donec' introduces the idea of causality; thus it also is more rigid than is 'then'.

'Takim obrazom' may be compared to an expression such as 'this is the picture'. It has a clear causal meaning which is entirely absent from the English. If one remembers that pictures are representations of reality, and if one compares the slightly tentative undertone of "this is the picture" to the causality of 'takim obrazom', one is led to believe that there is in Russian a suggestion of the possibility of representing, or of knowing, reality fully, sufficiently or even perfectly, which is not present in English.

XVII

GROUP 8

(the Council) be free	ait toute liberté	mog
Do I take it	puis-je considérer	mogu li ya schitat'
	dois-je comprendre	

'Be' and 'ait' will be considered later, together with predicative usage in general. It may be noticed, however, that 'ait' is slightly more restrictive, and makes it necessary to define the particular circumstances of freedom. This may be compared to cases such as "X is a man," but "X has a nose," which point clearly to what is a part of what else.

Elsewhere notions of possibility or of duty are introduced in French and Russian, suggesting a comparison between this group and groups 1 and 2.

XVIII

Consideration of groups 5 through 8 seems to suggest that English—insofar as the passages analysed may be considered representative, and subject to confirmation or rejection on the basis of further research—presents a speaker with means to suggest rather than to state, and, possibly has a tendency to lead speakers to suggest rather than to state.

French has some difficulty in following on this terrain; Russian doesn't seem to try.

English seems to favor using the same expressions for legal entities and for physical persons. French and Russian cannot always do it.

The Russian expression appearing in these entries present, when viewed together, a suggestion that whatever is being described is almost susceptible of a diagrammatic representation.

Consideration of groups 1 through 8 seems to suggest that English makes it possible for a speaker to avoid showing his hand, where the two other languages, and Russian is particular, force him to take a stand in one way or another.

XIX

GROUP 9

Then	Ainsi	togda
	donc	takim obrazom
so far as	en ce qui concerne	chto kasayetsya

Simple succession is replaced by causality, in both cases in French, in one case in Russian. In addition, both 'ainsi' and 'takim obrazom' have a markedly static character.

'So far as' is not necessarily temporal, but the idea of distance is generally associated with that of motion. That idea disappears from both the French and the Russian.

XX

GROUP 10

immediate	immédiat	tepyerishnaya
continuing (agenda)	(ordre du jour) à longue échéance	obshchuyu (povyestku) odnosyashchuyusya k budushchey rabotye
specific (agenda)	(ordre du jour) particulier	cyegodnyashchuyu (povyestku)

(the second and third entries are taken from the same passage)

In the first entry the English (and French) refers to time without specifying the position of the observer or speaker; in the third example the fact that questions pertaining to time are being discussed can be deduced only from the context. In both cases, however, the Russian refers to time from the specific position in it of the speaker or observer.

The English in the second example is durative. The French gives a spatial representation of time (in the Bergsonian sense). The Russian decomposes the meaning of the English into two very distinct parts: 'obshchuyu' to indicate the catch all connotation of 'continuing', and 'future' to spell out that time will be needed to take care of it all. Here again the future is expressed in respect to the precise moment—within a unique time—at which the speaker has the floor.

XXI

GROUP 11

actual	immédiat	dyeystvityel'noy
timing	époque	srok
length of time	durée	prodolzhnost'
more time (to study)	davantage de temps	dlityelnoye (izuchenye)
(during the) Assembly	(au cours de la présente)	(v tyechenye dannoy)
(now) in session	session de l'Assemblée	sesii Assambleyi
now	présente	dannaya

One cannot help but to notice that, in the case of the first entry, the interpretation improves on the original (which, in this case, was not native to the speaker). At the same time a certain ambiguity between 'real' and 'present' is solved, in French through the punctual 'immédiat', and in Russian through the elimination of all reference to time.

In the second and third example 'time' is replaced in both French and Russian by words with a different root, and a clear punctual meaning in 'époque' and 'srok' and a clear durative meaning in 'durée', 'prodolzhnost', and also 'dlityelnoye'.

'Assembly' again introduces an ambiguity between "what-ness" and "when-ness," eliminated in French and Russian.

All reference to time is eliminated from 'dannaya'.

XXII

Consideration of groups 9 through 11 seems to show that the translations into French and Russian tend to distinguish clearly between the durative and punctual aspects of time in cases where such distinctions remain contextual in English. French tends to spatialize time more clearly than English. Russian tends to eliminate expressions referring to time.

Viewing all the 11 groups together it may be seen that certain features characteristic of an inductive approach—such as studying situations per se, rather than in reference to pre-determined standards, hypothetical rather than categorical descriptions—do not seem to carry from English into French and Russian.

It is of course understood that the sample studied is too small to be in any way conclusive. It may be described as preliminary, having for purpose the determination of possible techniques of research rather than a search for results.

The following steps suggest themselves for the near future:

- 1) Collation of grammatical—syntactical and of stylistic data.
- 2) Collection of data for samples in which French and Russian are the source languages (a lesser number of entries was collected so far, because of the predominance of English on the floor).
- 3) Enlargement of sample.
- 4) Comparison between target languages, rather than comparison based primarily on differences between original and translation.
- 5) Comparison between samples collected exclusively from native and from non-native speakers.
- 6) Collection of data from a substantive rather than a procedural debate.
- 7) Collation of rhetorical data.
- 8) Collation of data concerning the use of expression borrowed from foreign languages.
- 9) Checking on the basis of additional samples.

If research seems to be promising at that point it might be considered whether the use of recorded rather than edited versions of debate, and the submission of prepared descriptions and word lists to native informants may not be useful for a better evaluation of the results.

Machine Translation to Date¹

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You probably agree with Alexander Pope that "The proper study of mankind is man", but there is less unanimity as to the proper method to be followed in that study. Nevertheless, the element of subjectivity is being reduced in areas like psychology and the other social sciences. In the field of the measurement of speech sounds and the application of machines to the translation of languages new at-

¹ This is a revised version of a paper presented before the Division of Chemical Literature, Symposium on Aids to the Use of the Foreign Chemical Literature, at the 126th meeting of the American Chemical Society, New York, N. Y. and published in PMLA-LXX, 2, April, 1955.

tempts are being made to apply the techniques of mathematics, physics, and electronics.

Unfortunately, the human being, and particularly the manifestations of his mental processes, offer especially difficult subjects for scientific investigation. Language, which is an avenue into the most intimate part of man's consciousness, has been particularly impervious to attack. Not the least difficulty is that language itself has been the main tool for the study of language and for recording observations. As a result much of linguistics of the past was based on subjective appreciation, even when it purported to be based on formal description and analysis. Yet scientific study and engineering applications can be built only on completely objective analysis of the languages involved. New concepts and new devices are now being developed for the objective study of linguistic phenomena, both spoken and written. In order that we may arrive at techniques for translating speech and writing, these studies must be brought to a successful conclusion.

Perhaps a word is desirable as to why anyone should contemplate a translating machine, though the difficulty of the job alone gives it a certain interest. At present our access to foreign literature is limited by the high cost of good translations. Yet few translators can earn a good living, for too high a proportion of their time is spent doing routine operations, writing down common words—50% of every text being composed of 50 or so high-frequency words. The favorite American solution for such situations is to mechanize the repetitive part of the work. Skill of the translator is then used efficiently and paid for accordingly.

The starting point is to define the problems and solve by machine those which it can best handle, looking up words in a dictionary, for instance. This will eliminate drudgery for the human translator, upgrade him to editorial work and provide a more rapid and thorough coverage of technical literature from the rest of the world while lowering the cost of high quality translations.

Where do we stand with respect to spoken language as a potential input for a machine?

Attempts at observing, describing, and classifying the phenomena of language can be traced back to the inventors of the first systems of writing, but the first really scientific approach to speech came with

Von Kempelen² in 1791. He built a "talking machine," partly for his own amusement and that of his friends at Court in Vienna where he was the Imperial architect and engineer, and partly to increase his understanding of the nature of speech sounds. He wrote "my talking machine and my theory of speech progressed together, each serving as a guide for the other." —What better guiding philosophy could we have today!—For the next 100 years physicists attempted to analyze speech sounds, especially vowels. They correctly perceived that the latter are compounded from the resonances of a complex resonator, the human vocal system. Helmholtz³ gave us a theory of resonators applicable to the human system but the complexity of individual speech sounds is so great that *no single sound of any language has yet been completely described*. For a recent acknowledgment of this fact, see Marguerite Durand, in ORBIS (II, 2, 1953, p. 501): "Un plus grand développement des sciences permettra sans doute d'aller plus avant dans la connaissance du contenu phonétique du phonème (considéré comme fonction différenciatrice), *contenu que nous ignorons encore presque entièrement, il faut l'avouer*." Or, looking at it another way, one of my speech engineer friends said: "The damnable thing about speech is that it's full of variables varying all over the place all of the time."

While physicists studied speech as an acoustical phenomenon, nineteenth century linguists set up classification systems for the sounds, the vocabulary, and the syntax of the world's languages. As far as vocabulary and syntax go, they dealt mostly with the written form of the language, which gave them a fairly fixed corpus of material on which to work. Recording, describing, and classifying the sounds of spoken languages was, and is, infinitely more difficult. For languages which had a literature, the written form was often used as a crutch, albeit a most untrustworthy one; but some American, African, and Polynesian languages had no way of representing words in writing; they presented new problems to those who tried to study their speech

² Baron Wolfgang von Kempelen, *Mechanismus der menschlichen Sprache nebst der Beschreibung seiner sprechenden Maschine and Le mécanisme de la parole, suivie de la description d'une machine parlante* (Vienna: Bauer, 1791).

³ H. L. F. von Helmholtz, "Theorie der Luftschwingungen in Röhren mit offenen Enden" *Journal für die reine und angewandte Mathematik*, Vol. 57, 1860.

sounds. Much of this work was done originally by missionaries trying to devise a system of writing which they could teach the natives and into which they could translate the Bible. Radically different writing systems were devised for the same language by men whose own linguistic backgrounds were different. It is obvious that this is quite the reverse of the scientific method, which is founded on the reproducibility of experimental results.

Not only missionaries but linguists today have the same problem in collecting objective data on spoken languages. On a field trip to record the Acadian dialect of the northeastern coast of New Brunswick, Ernest Haden and I took down words and expressions in phonetic script. There were one or two sounds which we simply heard differently. We never did finally resolve the argument as to exactly what they were and how they should be transcribed. Incidentally, that was before the invention of the Sona-graph.

What linguists need for describing spoken language is a set of measurements in which to write specifications for each of the sounds of the world's languages. Perhaps we should already have such a set of specifications if linguists as a group were not ill-fitted by training and even by inclination for carrying out a rigorous physical analysis guided by their keen linguistic intuition—or if physicists were not equally ill-fitted by training and inclination to do the job. Fortunately there are a few linguists who are also physicists or engineers and vice versa. With their help progress has been made, particularly since 1946.

As far back as 1926 Stumpf⁴ in Germany published an acoustical analysis of some vowels. Crandall⁵ and Fletcher⁶ at the Bell Telephone Laboratories carried on similar work in this country, but the analysis of complex waves was extremely laborious because a Fourier analysis had to be made of each wave shape.⁷ In 1946 the Bell Laboratories announced a new machine, the Sound Spectrograph,⁸ which gives an

⁴ Karl Stumpf, *Die Sprachlaute*, Berlin (1926).

⁵ I. B. Crandall, "The Sounds of Speech", *Bell System Technical Journal*, Vol. 4 (1925), p. 586.

⁶ H. Fletcher, *Speech and Hearing*, 2nd Ed., New York (1953).

⁷ This mathematical technique provides a method for analyzing any complex steady-state wave into a series of sine waves which can be described quantitatively. But note that it has to be a steady state wave which the speech wave never is in fact. Here error is introduced.

⁸ W. Koenig, H. K. Dunn, and L. Y. Lacy, "The Sound Spectrograph", *Journal of the Acoustical Society of America*, Vol. 18, No. 1, July 1946, p. 19 ff.

automatic spectrum analysis of sounds, including speech sounds. This device is now commercially available under the name *Sona-Graph*. Its transient response is fairly satisfactory but we should eventually have a better analytical tool.

With the advent of a new apparatus and a new technique there has been an almost explosive increase in the activity in the field of speech analysis. In fact, only in the last eight years has it been possible to speak of speech analysis as a field of research.

Active projects are now underway at the Bell Telephone Laboratories, and at the Haskins Laboratories, in New York, at numerous universities including Columbia, Northeastern, and M.I.T. (Massachusetts Institute of Technology), and in laboratories of the Armed Forces. An idea of the magnitude of the effort in this field may be had from the funds being expended on it. An estimate based on published reports shows \$300,000 a year being spent on research in the United States alone.

The concerted effort now being made towards the objective analysis of speech sounds gives promise of great benefits, both for a new scientific linguistics, and for practical engineering applications. Before passing on to the latter let us look at a few of the stumbling blocks still lying in the road to a complete set of specifications for the sounds of a language. Presumably, if we can handle any one spoken language, the same methods will work for all the others.

The magnitude of the present effort and the fact that it has been going on for a good many years, both indicate that the analysis problem here is not easy. Let me remind you of what my engineer friend said about the variables in speech. "It is full of variables varying all over the place all of the time." He should know; he has been working for more than five years on the Speech Analysis Project of Northeastern University.

What are some of these variables? We don't really know yet how many there are, but some are immediately obvious. Take fundamental pitch, for example. Any word in English can be spoken on nearly any note in the voice range of the speaker and still be understood as the same word. Moreover, you can say any word with a rising or falling inflection and the amount of rise or fall may be small or very large. All this is elementary. Even a child has no trouble in distinguishing "pin" from "pan" regardless of what you do to the pitch of either one, but not so a machine. The minute you change the pitch you change the

wave shape. To the machine it is now a different sound, so here is a neat problem: how can an electronic machine be so designed as to determine when two wave shapes represent the same sound, and when they are two different sounds? *A machine can only make choices in terms of predetermined criteria which, for practical purposes, must be stated in terms of numbers.*

The direction in which we should work to eliminate the pitch variable is clear. All we need is to make some sort of a device which will either normalize it or else separate it out and look at the residue. Then we can identify any one word as "the same" whatever the pitch. Attempts to do this have not yet been entirely successful.⁹

Let us take another variable out of this real Pandora's box. When you say "pin" or I say "pin" or someone else says "pin", man, woman, or child, even assuming pitch differences are neglected, the wave shapes are different because the sound quality of the voice is different. No two people have identical sound quality. It's like fingerprints. But again, if the wave shapes for the same word are different for every individual, how is a machine to know when it's the same word?

A no less troublesome variable is the matter of dialect differences. Depending on linguistic background and surroundings our pronunciation differs. This poses another problem in identification for a machine, but probably the first speech sound recognition device we shall have will not worry about dialect differences. We shall start with one dialect, perhaps with the speech of one person. But even this will not avoid a major difficulty stemming from a matter of allophonic variation, the fact that any one speech sound isn't the same when it appears in different words. Take "pin" again. To use a simple, well-worn example, the "p" of "pin" is followed by a puff of air which most Americans are not even aware of. Neither do we know or care that the "p" in "spin" has no puff of air before the vowel. At the end of a phrase or sentence some people complete their "p" with a puff of air and some don't. The presence or absence of this puff after "p" is not significant in English. A machine built to identify our speech sounds would simply be instructed to overlook the possible presence of a puff of air after those sounds. For languages like Korean, where aspiration is significant, the machine would have to be designed to take it into account.

⁹ A step in this direction has been taken by L. Dolansky of the Electronic Research Project at Northeastern University with his Pitch-Period Indicator.

That is simple, but what is not so simple is that the vowels, and some of the other consonants, vary much more considerably than "p" according to what sounds precede and follow them. The question that has to be answered is, must we record all the possible allophones of every phoneme of the language in the memory of a machine and conduct a matching operation for the best match, or can we find some feature or features of each phoneme which distinguish it from every other phoneme in the language? Research at M.I.T. is following the latter path. It seems that the human mind works by an elimination process and identifies each sound in terms of what it can't be, paradoxical though that may seem. A particular sound is voiceless, so it cannot be one of the voiced phonemes; it is an explosive, so it cannot be one of the continuants, and so on until we know that the sound can only be a "p".

According to a theory advanced in *Preliminaries to Speech Analysis*¹⁰ by Jakobson, Fant, and Halle, twelve decisions should be sufficient to identify any sound of any of the known languages of the world. For English only nine decisions should be required. Some progress has been made. We have now a device that distinguishes vowels and vowel-like sounds from consonants. We are working on instrumentation for separating vowels and consonants with energy in the higher frequency bands (i, t) from those in the low frequency bands (u, p). Only seven further decisions may be necessary to identify any English sound, providing we have been able to control the other variables.

The potential applications of any device which could identify the sounds of the spoken language and print them out in any sort of symbols—literally, in any sort of symbols—are enormous. All that is needed is a shorthand which can be read back, phonetic symbols for instance—spelling introduces further complications. This infant concept, though a long way from realization, has been optimistically dubbed "the speech typewriter."

Given a recognition device at the input end of a transmission system, speech sounds could also be coded into dots and dashes or any other convenient code and transmitted over telegraph facilities. At the receiving end the words would be resynthesized. The air waves are literally jammed with communications. There simply are not

¹⁰ Jakobson, Fant, and Halle, "Preliminaries to Speech Analysis," TR 13 (Cambridge, M.I.T. Acoustics Laboratory, 1952).

enough frequencies for all the demands made upon them. Reduction of speech to a series of discrete symbols would allow it to be sent in a tenth or maybe a hundredth of the present bandwidth, multiplying the channels by a corresponding factor. The cost of voice transmission by telephone or radio would be proportionately less.

One of the most interesting applications of a speech recognition device would be to provide an input for a translating machine. Once we have a working speech recognizer there is no reason at all why the code it produces cannot be fed into a translating machine just as well as punched cards, impulses from a keyboard, or code signals from a "character recognition machine", the latter giving a direct input from a printed page.

Let us turn for a minute to the matter of obtaining a direct input to a translating machine from the printed page. Work under the name of character recognition is analogous to speech recognition research. Studies have been carried on for the last few years to devise a machine which can scan a printed page and identify letters one after the other. The main impetus behind this work comes from the pressing need for a device which can read printed material aloud for the blind. Early work was done by Zworykin, Flory and Pike¹¹ of RCA and by Shepard¹² of the Intelligent Machines Research Corporation of Arlington, Virginia. Similar work is under way at the Burroughs Corporation laboratories, in Brooklyn, IBM, the Laboratory for Electronics in Boston and at the Intelligent Machine Research Corporation. Several models of check-tabulating machines are in the final stages of development. Code letters on the face of each check are recognized optically or electronically and the information is automatically tabulated. Of course, in dealing with one or a few fonts of type, the character recognition machines have the advantage of a limited number of variables. What is more analogous to recognition of the spoken language is the recognition of handwriting. Individual variation in the formation of letters, the running together of words, uneven lines—all these are reminiscent of the variables we find in individual speech. Handwriting recognition by machine offers an almost unexplored field so far.

¹¹ V. K. Zworykin, L. E. Flory, and W. S. Pike, "Letter Reading Machine", *Electronics*, XXII (July 1949), pp. 80-86.

¹² D. H. Shepard, "The Analysing Reader", a paper presented at a meeting of the Institute of Radio Engineers, Aug. 19, 1953, in San Francisco.

The first idea that modern computers might be used for translating from one language to another seems to have been conceived by A. D. Booth, the Director of the Electronic Computer Project, Birkbeck College in London, and discussed by Booth and Warren Weaver, Secretary of the Rockefeller Foundation, in 1946, only 9 years ago. What Booth had in mind—and what he further developed, working with Britten at the Institute for Advanced Study in Princeton in 1947 and with R. H. Richens of the Commonwealth Bureau of Plant Breeding and Genetics, in Cambridge, England later—was a sort of automatic dictionary. The words of a foreign text were to be fed into the machine one after another, matched against bilingual dictionary entries in a memory storage device, and the machine would automatically print out the equivalents of each of the incoming words in the new language. The theory was worked out but not actually programmed on a computer.

Warren Weaver took a much more optimistic view of the quality of translation which might be expected with the aid of computers. In 1949 he wrote a memorandum "Translation"¹³ which he sent for comment to a number of his friends in this country and abroad. In it he suggested that the techniques of cryptanalysis should be applicable to the translation of languages as the two problems are analogous. He also felt that, by using a context of a few words, the many possible dictionary meanings of any one word could be reduced to a single meaning; the result would be that the text issuing from the machine would not be a mere word-for-word rendition but an intelligible translation.

The responses to Weaver's Memorandum were varied in the extreme. There was that of Vannevar Bush, President of the Carnegie Institution and one of America's most farsighted scientific thinkers: "All in all, I think the job could be done in a way that would be extraordinarily fascinating."

Others scoffed. "Garbage!" said one "Dr. Weaver confesses to the naïveté of his own ideas, why should I comment further?" said another.

Six years later the skeptics have been pretty well converted. A com-

¹³ Published by the Technology Press of M.I.T. jointly with John Wiley & Sons, Inc. in *Machine Translation of Languages* edited by W. N. Locke and A. D. Booth, New York (1955).

bination of missionary work on the part of a few of the proponents and an understanding of the modest aims held for the first translating machine have done the trick.

The aims in 1949 and 1950 were much the same as those of Booth and Richens in 1948: an automatic dictionary supplying one or more meanings for each word of the original text, supplemented by information as to the grammatical construction of the inflected forms to be derived from looking up the endings in an ending-dictionary. The input was to be unedited, original text. The predominant opinion today, too, among most of the workers is that we should start by building some sort of automatic dictionary. The equipment is available.

A different approach was advocated by some linguists. In 1950 Erwin Reifler, Professor of Chinese at the University of Washington, started a series of mimeographed papers, *Studies in Mechanical Translation*. These were admittedly tentative. He recommended that the original text be *pre-edited*. Symbols would be attached to individual words to indicate the area of meaning and the grammatical construction involved. The machine would act upon these supplementary instructions, consulting technical glossaries for correct meanings and grammar rules for constructions in the new language. Glossaries and grammar would, of course, be stored in the machine's memory in appropriately coded form.

Reifler also mentioned that a *post-editor* would probably be necessary to correct errors and smooth the style of the output.

Experiments by Booth and Richens¹⁴, by J. W. Perry¹⁵, and by A. G. Oettinger¹⁶ of Harvard have carried forward what I might call the unsimplified approach—build an automatic dictionary and use that as a pilot operation; then gradually add circuitry and storage capacity to deal with increasingly difficult syntactical problems, until a completely automatic machine translating the original printed text into a

¹⁴ R. H. Richens and A. D. Booth, "Some Methods of Mechanized Translation," mimeographed, June 1952, reprinted in *Machine Translation of Languages*, see note 13.

¹⁵ James W. Perry, *Machine Translation of Russian Technical Literature*, Notes on Preliminary Experiments, mimeographed, about October 1952, and *Machine Translation of Russian Technical Literature*, Notes on Exploitation of the Russian Grammar, mimeographed, about Nov. 1952.

¹⁶ Anthony G. Oettinger, *A Study for the Design of an Automatic Dictionary*, Doctoral Thesis, Harvard University, April 1954.

final printed text is achieved. A group under the direction of V. H. Yngve¹⁷ at M.I.T. is now working along those lines. Another group under A. D. Booth in London is pursuing the same aim.

The Georgetown-IBM approach to the translating machine under the direction of Professor L. E. Dostert for Georgetown and Cuthbert C. Hurd for IBM, differs in that it follows a simplified or selected text approach. On January 7, 1954 their first public demonstration of a 701 computer programmed to translate sentences was held in New York before an invited audience composed of members of the press and representatives of interested government agencies. They took Russian sentences with a total vocabulary of 250 words and used six syntactical constructions, five differing from English and one identical with English. The sentences were translated into English, with words being omitted, added, or transposed as necessary and the meanings of individual words being selected on the basis of a context composed of a preceding and a following word. These five operations were entirely automatic once the original sentence was punched into IBM cards. It should be mentioned, however, that Professor Dostert makes only modest claims for the applications of this method. He calls it "a Kitty Hawk of electronic translation." The English entries of the 250-word dictionary were selected in view of the particular sentences to be programmed for translation. This must be taken into consideration in envisaging the broader application of the method. The particularly difficult problem of the English definite and indefinite articles was not handled by the machine on the basis of context; rather, the most appropriate articles to accompany the substantives in the text were incorporated into the dictionary entries so that they would be produced each time the particular substantive was called for; for instance, each time the Russian word for "sergeant" was fed in, "a sergeant" came out in the English text. This improved the quality of the English in the output but it was cheating. Any good translation into English must provide for the correct introduction of *a*, *an*, and *the*, on the basis of context. In spite of this defect, translations produced by computer mark a milestone in the history of translation by machine.

To continue with my brief historical survey, 1951 saw the first published contribution on the subject. Oswald and Fletcher, working with

¹⁷ V. H. Yngve—See his chapter on "Syntax and the Problem of Multiple Meaning" in *Machine Translation of Languages*, op. cit., note 13.

the U. S. Bureau of Standards Western Automatic Computer, wrote "Proposals for the Mechanical Resolution of German Syntax Patterns"¹⁸, an attempt at producing an objective treatment of a syntax such as computers could use. Such syntax received the name "operational syntax" at the First Conference on Mechanical Translation at M.I.T. in May 1952.

The M.I.T. Conference was organized as the result of growing interest in all parts of the country. At U.C.L.A., the University of Washington, and at M.I.T. projects were under way. At M.I.T., Dr. Yehoshua Bar-Hillel was the first full-time research worker in MT, as mechanical translation is affectionately nicknamed. Bar-Hillel, a philosopher and linguist, has published a total of five articles on MT, more than any other worker. The Conference, which he organized with the support of the Rockefeller Foundation, lasted for three days and was devoted to the reading of papers and informal discussions. Everyone who had been actively interested in MT was invited, plus a few others like Professor Dostert. I knew he would be interested. The membership was about half engineers and half linguists, giving a good opportunity for each to learn the other's language and especially the limitations which each placed on immediate possibilities in his own field.—At the beginning each group was over-optimistic about what the other could do.—As it turned out, the computer men will be ready with suitable components for a translating machine before the necessary linguistic studies are finished. The latter are only now getting underway. They involve restudying vocabulary and syntax from the newly-defined operational point of view. That point of view would seem to imply treating each pair of languages separately, at least until we learn whether more general solutions are possible.

It was the consensus of the M.I.T. Conference that we should stick to bilingual machines for the present, concentrating our effort mainly on turning Russian or German into English. Money from defense sources was then available for work on Russian, but that was under the Truman regime. It would have been possible to inaugurate a "crash program" to build a translating machine for four and one-half million dollars, according to one estimate. It now looks as though de-

¹⁸ Victor A. Oswald, Jr. and Stuart L. Fletcher, Jr. in *Modern Language Forum*, Vol. 36, No. 3-4, pages 1-24 (1951).

velopment would be slow, with piecemeal solutions resulting from limited finances.

The 1952 Conference stimulated much additional interest in the subject. The number of published papers took a bound from only one through the end of 1952, to five in 1953, and twelve in 1954.

From 1953 on, the names of workers on machine translation become too numerous to mention. A complete bibliography is published in the Journal *MT*, *Mechanical Translation*, which is published at M.I.T.—yes, there is already a journal—No. 1 appeared in March, 1954, No. 2 in August and No. 3 in December. They contain an annotated bibliography of the 50-odd papers and publications to date, with more being added in each issue, plus news of projects and papers reporting on research. In another sense, too, it might be said that the field has attained a certain recognition. Harvard has accepted the first doctoral thesis on MT, that of Oettinger, "A Study for the Design of an Automatic Russian Dictionary", 1954.

The first book on MT was published in May, 1955, by the Technology Press of M.I.T. jointly with John Wiley & Sons, Inc.: *Machine Translation of Languages*. It contains up-to-date essays on all phases of MT by the outstanding men in the field, with a foreword by Warren Weaver and a Historical Introduction by the editors, A. D. Booth and myself.

The present status of MT is this. Linguists working hand in hand with scientists of many fields are evolving designs for bilingual translating machines for written languages with the input from manually prepared cards, tapes, etc. We may later see a machine for a spoken input, once we have a recognition device. At first the output of the machine will be imperfect, but perhaps usable English; eventually, though machines may never translate Pushkin or Heine, they will certainly provide accurate, economical translation of technical and scientific material and I think this will be within the foreseeable future.

Approach to Mechanical Translation

L. E. DOSTERT

Georgetown University

May I now, with the preliminary material as background, summarize briefly the Georgetown-IBM mechanical translation experiment. My task has already been facilitated by the excellent review of the experiment given by Professor Locke. The Georgetown-IBM experiment is a direct result of the 1952 Conference on Mechanical Translation conducted at MIT. I am obliged to say that my first inclination was not to participate, because I did not feel that there was a good enough possibility in the concept of mechanical translation to justify the conference itself. I went, then, with a certain prejudice, and came away believing that mechanical translation was feasible. The only way to find out whether it was, was to try to do it. I thought that this approach would be more productive than to erect endless windmills only for the purpose of tearing them down again. The participants in the experiment were Cuthbert Hurd and Peter Sheridan of the Division of Applied Science of IBM and Paul Garvin of this Institute and myself. Why we came to conduct this experiment is easy to explain. We had been seeking, and after long months of patience were about to receive, financial support to continue research in this field. We circulated a plan of work among a number of potential users. There was a great deal of affirmative reaction. One of the agencies, however, simply blackballed the whole project by stating that the present status of the art of electronics was not such as to warrant the expectation of positive results. This was early in 1953. We tried to combat this opinion, but the engineers were rather reluctant to indulge in a controversy as to the feasibility of mechanical translation. One of them suggested that the best answer to the skeptics would be to prove the point by an actual demonstration.

The problem which we set out to resolve then was to achieve *authentic* translation within a modest scope, because we had no money with which to carry on a large experiment. When I say *authentic* translation, I mean just that: we did not "rig" the experiment, as some have rather sourly suggested. Obviously, we could not have stored a large dictionary into the electronic instrument. Since we could not, in the

time at our disposal, work out a large number of syntactic operations, we selected six which we considered basic, and a random lexicon of 250 words in diverse fields. *We did not write up the sentences first*, we first selected the words. Then we defined in mechanically expressible terms what a *human translator* does when he translates. We reduced the human operations to two basic ones: the human translator *selects* the correct equivalent in a multiple choice situation. What determines the correctness of the equivalent is complex and diversified, but he does choose ultimately what he considers to be a correct equivalent. We shall see later upon what basis his choice is made. The second operation which he performs is to place the selected equivalent in its *correct location*, according to the structural requirement of the language into which he is translating.

These operations of *selection* and *location* having been formulated, the next step was to devise a systematic code which could be programmable; that is, formulated in such a way as to be storable and usable in an electronic instrument. The concept was to use *digital diacritics* to fix the meaning of words on the postulate that words, when operating in normal language, are fluid or unfixed entities, and that to achieve mechanical translation one has to achieve a greater measure of *meaning fixation* in the "fluid" items or signals which we call words. Thus by the use of a series of digital diacritics added to the words as suffixes or prefixes, we were able to bring the machine to select the correct item in a one-out-of-two situation. We recognized that the choice problem is limited, and yet in fact it was not insignificant. The coding system worked with digits 1, 2, 3 in such a way that when the machine encountered the number one code, this simply was a signal to the machine that a *look-up* was to take place. The look-up might refer the machine to an operation signalled by the presence of the number 2. Then the sub-rule to be followed might be represented by the digit 3; the choice and transposition were then effected. This is a very simplified description, but it will have to do because of the few minutes at my disposal.

We formulated six syntactic operations. They were based on determining what guided the human translator in locating the item in the target text, or in the making of the choice of the proper equivalent. One of the operations that the translator performs is that of *omission*. To give an extremely simplified example, the French sentence: *La*

France est à l'ouest de l'Europe. It is quite obvious that in the English translation we must delete the article *la* and come up in English with *France is in the West of Europe.* The second operation is the reverse of the first. If we were to present to a mechanical translator the English sentence *France is in the West of Europe,* the French rendition of this statement would have to start with *La France.* Here, then, we have the problem of *omission* or *insertion.* We represent omission by the symbol \ominus , and insertion by \oplus . The third operation is that of choice in a multiple choice situation (one-out-of-two) This may be accomplished on the basis of a *predeterminer.* This operation is represented by the symbol \leftarrow . The "solution" word appears earlier in the context, and we set the machine to look *backward* or to the *left* to find the determining item enabling it to make the proper selection for the problem item. The fourth rule is, in a sense, the reverse of the third in that the choice is based on a *postdeterminer;* the representation of the operation becomes \rightarrow . In the French sentence *Il lui parle,* the machine will need to identify precisely the item *lui.* *Lui* has seven possible equivalents in English: *him, her, to him, to her, it, to it, or he.* How is the machine to find what the proper English equivalent for *lui* is? It will do, in a way, what the human translator will do. It will seek the key in the context; in this case it will look for the *predeterminer* until it finds something which will determine to what *lui* is equivalent in English. The fifth rule gave us the situation: item A precedes item B; we say *white house* in English, and the French say *house white* (*maison blanche*). We want to bring out a BA situation in the target rendition. Now the number of "spaces", word spaces, between A and B, can vary. The sixth and last rule is what we have called the zero-rule. You have, so to speak, a one-for-one equivalence, where there is no problem of choosing among several possibilities, and where there is no problem of relocating the items.

The analysis of the processes involved in language translation has further led me to the formulation of certain operations under the designation of FACTORS OR AREAS OF MEANING DETERMINATION. I have thus far indicated seven such areas of meaning determination. However, Professor Douglas' paper suggests a possible eighth one. The first area of meaning determination has been called the INTRINSIC. This is what is meant: if the utterance *chair* is made, what is first elicited in the minds of those who receive the signal? Is it the concept of this object

on which we are sitting, or is it the concept of a person presiding at a meeting? Or further, is it the concept *to chair* a meeting? I think, without verification, that when the utterance *chair* was made, the concept elicited in the minds of most listeners was probably that of the "four-legged" thing with a "back" on which one sits. This first, normal elicitation is referred to, then, as **INTRINSIC** in the signal. The second area of meaning determination I have called the **STRUCTURAL** or **GRAMMATICAL AREA**. For example, if I make the utterance *lui*, what spontaneously comes into the mind of an English speaker knowing French? Most likely, *him*. Now, as we saw a moment ago, *lui* has several possible meanings. The only way we can determine what is to be used as the English equivalent is to find the **STRUCTURAL DETERMINER**. Structural determination is also part of the next area of meaning determination, which I call the **CONTEXTUAL** since it involves a look-up in the context. However, I have distinguished between the **STRUCTURAL** and the **CONTEXTUAL** as such, because the factor of determination in the **CONTEXTUAL** search is not *necessarily* structural or grammatical. If, for example, we write "Ex-president Truman went under the knife last spring," the usual French rendition for *knife* here would be *scalpel*. When does *knife* become *scalpel* instead of *couteau* or *poignard*? *Knife* is rendered as *scalpel*, I believe, when it is preceded by the item *under* and when there is a *personal* 'item' somewhere in the context. Thus we have two **CONTEXTUAL** predeterminers in this instance. The fourth factor I have called the **FUNCTIONAL** area of meaning determination, but perhaps a better term can be found. For example, if the word *stream* is used in a text in geography, it will carry a connotation different from that of *stream* in a medical context, or in psychology where it might be associated with the word *consciousness*, as *stream of consciousness*; or in aero-dynamics, where the word *stream-slip* would have again a specific connotation.

These four areas of meaning determination I consider to be accessible to mechanical translation or operations. They represent what might be referred to as the relatively *inert* areas of language. There are also four other possible areas of meaning determination which, so far as I can now see, will remain inaccessible to mechanical handling. These include first the **CULTURAL AREA OF MEANING DETERMINATION**. What is one to say in French for *You've got two strikes against you*? The expression is so culturally specific as to have no linguistic

equivalence (i.e. lexical and structural), and therefore could not be mechanically handled. Another is the one suggested perhaps in Professor Douglas' paper, i.e. the *aesthetic*, the choice being based on 'taste,' which here would mean the socially hereditary and cultural experience of the translator.

If Lincoln had written his Gettysburg Address in the language of our days, he might have begun with *eighty seven years* rather than *four score and seven*. This is merely to suggest that another possible area of meaning determination is the CHRONOLOGICAL. This would take care of the factor of obsolescence in the lexicon and structure. One last area may be indicated as that of CIRCUMSTANTIAL MEANING DETERMINATION. The remark about kennel dogs by Mr. Charles E. Wilson would have had a different connotation to members of a hunting lodge than it had when made in Detroit to a group of journalists a few days before elections. This represents, then, 'areas' of meaning determination formulated as part of our work in the field of mechanical translation. The development of a coding system made up of digital prefixes, infixes, suffixes, suprafixes and infrafixes will help to achieve the 'stabilization' of the unfixed language items that we call 'words,' and to make them more readily accessible to machine operation.

To conclude, what is the practical meaning of mechanical translation? As was suggested by Professor Locke, there is a tremendous amount of sheer mechanical drudgery in translation. If the human translator can be relieved of that work and devote his effort to creative endeavors, then inter-lingual communication will have been enhanced. Specifically, works in various fields of science and technology will be more readily available to the researchers by the elimination of the lag that present methods of translation entail. A Swedish scientist, for example, may publish an extremely significant monograph in physics, which may not be within the reach of many of his American colleagues for a number of months. Thus human time, another word for 'life,' is lost in the process. A major potentiality of mechanical translation is the prospect of developing it to a point where it will be efficient enough to permit the translation of basic references in various fields of technology and science. If those basic materials could be then placed on the library shelves of countries in the less favored areas of the world, the obstacle of language between the would-be-learner and the data

to be learned will, to a considerable degree, have been eliminated. Thus, far from being a 'mechanistic' subordination of language processes, mechanical translation has a place among the humanistic and social disciplines, since it will serve man.

PAUL L. GARVIN (Institute of Languages and Linguistics): I would like to comment on the first two papers by Professor Douglas and Mr. Glenn. I think that they have touched upon an area which presents considerable difficulties on the conceptual level. Some of these conceptual difficulties will have to be resolved, at least in part, before the matter can be approached operationally in the scientific sense. That is, in both literary translation and in the analysis of connotational differences between various utterances used in different languages in international meetings, we deal with a conglomeration of linguistic patterns rather than with a single linguistic pattern. We deal with very subtle differences in style, in social and functional dialects, in all sorts of underlying cultural variables, plus the inevitable and necessary distortions of the norms of the user in order to achieve aesthetic or other special effects. I think that a great deal of sorting out of all these variables is necessary before anything sensible can be said about the subject.

EDMUND S. GLENN (Department of State): In so far as my part of the question is concerned, what we are going to arrive at now is, if you will, the sorting of things. That is why we would need a huge number of examples, so as to find within those examples the patterns which we need, which would permit the sorting and eliminating. It is doubtful whether the linguistic categories, as we know them, will be applicable directly to the sorting. My personal inclination is to believe that they will be, in part at least.

KENNETH DOUGLAS (Yale University): I do not think that I need to speak at any length with regard to that, except to suggest what seems to me to be the truth, and that is that the work of art is not just made up of a number of components which are very difficult to separate. Even when one succeeds in separating them out, these components taken individually and then put together by any mechanical system don't add up to the work of art.

L. E. DOSTERT: I have a note to add to that. I daresay that the name of one of Baudelaire's works by the translator to whom you referred

earlier must have been translated *Flowers of Evil*, very likely. At the moment a movie is being shown in Washington, based on a book of Colette, which was called *Le blé en herbe*. It has been translated into *The Game of Love*. I don't want to guess about the artistry of the translation. It is certainly a free translation. I daresay that today, when our cultural motivations may not be as pure as at the time the translation of Baudelaire's *Fleurs du mal* was made, we might perhaps translate his title as *Erotic Dreams*. It might insure a wider market. I would suggest that there is a danger of stating the case for 'artistic' freedom. We saw, for example, the translation of Sartre's *Les mains sales* as *Red Gloves*, probably because of the connotation of the word *red*, which somehow had to appear in the title; otherwise, there might not have been the expected reaction. While I would not contradict Professor Douglas on the necessity of freedom in artistic creation—and the translator is an artist when he is a good translator of literary work—there is a danger of coming up not with a 'translation' but an 'adaptation,' if there is no limit placed on the freedom of translation and of the translator.

ARCHIBALD A. HILL (Institute of Languages and Linguistics): To a large measure, the problem of literary translation is essentially the problem of stylistics; and while no one can define the area of stylistics, in anything like completeness as yet, I think that a definition of the point at which it starts has been going around among linguists sufficiently of late years; so that at least it might be a preliminary clarification for some of these problems. Here is the definition: Stylistics is concerned with all those relationships between speech entities or language entities which cover a larger span than the area of a single sentence. This is not all of stylistics, but this is the point at which it should begin. Secondly, it seems to me not right to say, for instance, that the problem of literary translation will never be solved. Perhaps it won't, but I would like to see it tried just the same.

LT. COL. ROBERT B. EKVAL (U. S. Army): There is a certain universality of human thought and experience. I was interpreting for our Ambassador Deane at the negotiations in Panmunjon. He said: "Let's put first things first." It fitted into a 6-syllable quotation from Confucius that came to my mind. I didn't need to do a thing but to take those 6-syllables and state them, and it was the same thing that the Ambassador had said.

EDMUND S. GLENN: It's rather interesting that if you would try to put that into French, you would come out with: "Commençons par le commencement," I suppose. At the same time, this has an entirely different connotation from the point of view of semantics in philosophy. In the "Let's put first things first," there are separate things which have to be put into a separate order. "Commençons par le commencement" or "Let's begin by the beginning" means that you have taken the thing in toto and you are assigning to it a beginning from which there is a continuance.

L. E. DOSTERT: I had an interesting experience once in *mistranslation*, when I allowed an artistic impulse to take precedence over language accuracy. I was translating for the present President of the United States, then General Eisenhower. His interlocutor happened to be at times a difficult gentleman, Charles de Gaulle. He had just made a request, and General Eisenhower, who sometimes speaks from the side of his mouth, said: "Tell 'im we can't do it." I translated something like this: "The General is of the opinion that your proposal will present considerable difficulty." De Gaulle looked the length of his rather long nose and said: "Vous adoucissez." That's one of the dangers in interpreting freely, when the interlocutors know the languages involved!

PAUL L. GARVIN: I just want to make one more comment on this matter of translation. I think especially in those things that are considered untranslatable or that have difficult and different connotations etc., it might be worth remembering that it is always possible to render an utterance by an equivalent utterance correspondingly appropriate to the other culture. In other words, there is a place, let us say, in the culture of the American-English speakers—there is a place somewhere in the culture—for "Tell 'im we can't do it." There is also an equivalent place in the very polite culture, into which Professor Dostert was interpreting, for the elaborate equivalent. I would say that these are two pieces that are equivalent, not because they translate the same literally, but because they occupy comparable places in two different structures. When you then map out the two structures (in a way, here again you deal with many variables), it may be possible to spot equivalent places.

ALBERT H. MARCKWARDT (University of Michigan): I would like to take issue with the assumption that there is always a spot in the

other culture that will correspond. I have recently compared, word for word and line by line, the German translation of Thornton Wilder's *Our Town*, which, when I say *Unsere kleine Stadt* gives not quite the idea of the translation. To give you a few other examples: In this small American village at the beginning of this century, the village-physician is called "Doc" by everyone. Now, just how do you call someone "Doc" in German? This is one instance of a type of problem that arises. The tradespeople are usually called by their nicknames, so that you have in translation Mrs. White addressing the milkman as "Haly" and then going on "Glauben Sie . . ." I just mention these illustrations to point out that these translations are not impossible, but I should say that it is extremely difficult to find spot-equivalents.

IV. Meaning and Language Structure

A Discrimination among Synonyms of the Word "Meaning"

ALLEN WALKER READ

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As any field of investigation moves forward, the modifying and refining of its terminology, together with the clarifying of its assumptions, is an ever-increasing necessity. The development of linguistics has exemplified this. We have long passed the stage of being satisfied with the terms of ordinary conversation. Nevertheless, the term *meaning* is still with us, carrying along a bewildering diversity of applications from centuries of general usage. This word needs unceasing critical examination. How adequate is it? What, if anything, is wrong with it?

So far as I can find, there is no student of language who denies that the raw material of our study must in some way be differentiated from noise, from random squeaks, taps, pops, thumps, etc.; and the word *meaning* serves to characterize the systematic relevancies that are involved in language. As long as the word is used on the highest level of abstraction, with the widest generality, it appears to be acceptable and to cause little trouble.¹ We can grant that meaning is a suffusing characteristic of all language phenomena by definition. In a behavioristic analysis this can be accounted for as an elaboration of the stimulus-response pattern.

Troubles arise, however, for the scientific student, when meaning

¹ Leonard Bloomfield, in his essay "Meaning," *Monatshefte für den deutschen Unterricht*, XXXV (March, 1943), 101-106, supposed that an intelligent observer from another planet might come and note the adjusted cooperation achieved by language. As he concluded: "Now when our observer went back to his planet and made his report about us, he would need, in whatever system of communication was there in use, a general term to cover the objects and events which are typically connected with any one terrestrial speech form. The actual student of language, to return to him, faces the same necessity, and, if he does not want to coin a new term, he will naturally choose the traditional term *meaning*."

is appealed to in concrete, particular instances. When we speak of "a" meaning, or "the" meaning, or "this" meaning, we automatically appear to erect it into an entity, to reify it. These entities do not fit into the framework of scientific investigation. They are based on the assumption of the traditional philosophical outlook, still respected and prevailing among most people today, of a dualism between mind and body or between a mental realm and a physical realm.

In the dualistic outlook, form and meaning must be correlated in some matching process. I have been haunted by the rhetorical query of Leo Spitzer ever since his controversy with Bloomfield in 1944. Spitzer asked, "By what miracle have sound and meaning been joined in the first place?"² When his outlook reduces him to allocating the problem to the realm of "miracle", he can make little fundamental contribution to the science of language. The work of C. K. Ogden and I. A. Richards, provocative as it has been, has a similar shortcoming, for their well-known "basic triangle" of meaning includes "thought or reference" at its apex.³

Can we fashion a terminology that will avoid fabricated mentalistic entities? The finding of a set of brilliant new terms can hardly be our solution, for people with a dualistic orientation would soon cram them back into their own system. As an instance we may cite from the field of medicine the term *psychosomatic*, intended to refer to the unified, unsplit approach to the body-mind problem. And yet listen to how an incorrigible dualist like J. B. Rhine treats it. He said: "At any rate in the new field called 'psychosomatic medicine' organic effects are casually enough attributed to the state of mind of the patient."⁴ And on a popular level Mrs. Dorothy Schiff, publisher of the *New York Post*, has likewise written: "Most illnesses are due to psychosomatic causes—in other words, they are mental in origin."⁵ When a fine term

² *Language*, XX (Oct., 1944), 251.

³ *The Meaning of Meaning* (2nd ed.; London, 1927), p. 11. See especially the searching criticism of their work by Thomas Clark Pollock, *A Theory of Meaning Analyzed*, "General Semantics Monographs, No. III" (Chicago, 1942), pp. 1-25. Also I cannot accept the formulation of Stephen Ullmann, in *The Principles of Semantics* (Glasgow, 1951), involving a curiously aberrant use of the word *sense* (p. 70): "Meaning is a reciprocal relation between name and sense, which enables them to call up one another."

⁴ J. B. Rhine, *Extra-Sensory Perception After Sixty Years* (N. Y., 1940), p. 93.

⁵ *New York Post*, March 16, 1952, Mag. section, p. 3, col. 3.

like *psychosomatic* can be thus maltreated, and its structural implications ignored, we see how strong the tendency is to fit new terms into old orientation patterns.

The search for a unitary, non-split analysis of language phenomena has been going on in many quarters, and I choose to mention here, as illustration, only a handful.

1. The position of Leonard Bloomfield is well-known, and he has influenced a moderate number of students, especially those practicing in anthropological circles.⁶

2. Independently of Bloomfield, J. R. Firth of the University of London has espoused the unitary approach. He wrote in 1935: "As we know so little about mind and as our study is essentially social, I shall cease to respect the duality of mind and body, thought and word, and be satisfied with the whole man, thinking and acting as a whole, in association with his fellows. . . . Meaning, that is to say, is to be regarded as a complex of contextual relations, and phonetics, grammar, lexicography, and semantics each handles its own components of the complex in its appropriate context."⁷

3. Charles Morris, from a background in philosophy, has approached language on a thoroughly behavioral basis and has even taken the drastic step of dropping the word *meaning* altogether from his book of 365 pp., *Signs, Language and Behavior*. As he explained his point of view: "Accounts of meaning usually throw a handful of putty at the target of sign phenomena, while a technical semiotic must provide us with words which are sharpened arrows . . . ; hence it is desirable for semiotic to dispense with the term and to introduce special terms for the various factors which 'meaning' fails to discriminate."⁸ In this careful and impressive volume, Morris developed an elaborate set of terms, such as *lexicative ascriptor*, *utilitator*, *obligatum*, etc., which

⁶ The *locus classicus* for his discussion of mentalism is in his *Language* (N. Y., 1933), pp. 31-41; but see also his "Language or Ideas?" in the journal *Language*, XII (1936), 89-95; and his *Linguistic Aspects of Science*, "International Encyclopedia of Unified Science, I, No. 4" (Chicago, 1939), pp. 12-13. He did his best not to found a 'school,' but his work was so stimulating that in effect he did so; and his principles have been developed further at Yale, Cornell, and other centers.

⁷ "The Technique of Semantics," in *Transactions of the Philological Society*, 1935, pp. 36-72, quot., pp. 53-54. For a recent re-statement, see his "General Linguistics and Descriptive Grammar," *ibid.*, 1951, pp. 82-87.

⁸ *Op. cit.* (N. Y., 1946), p. 19.

serve their purpose well, but do not deal with the make-up of language itself.

4. Working in the wide field that can loosely be called the "unity of science", Alfred Korzybski developed the discipline of general semantics, in which the approach that he called *non-elementalistic* was central. He maintained that verbal habits can lead us to split up wholes in a structurally false-to-fact way. The dichotomies of meaning/form, body/mind, emotion/intellect, ends/means, etc., are the result of pathological verbalisms. Although he did not attempt to analyze language mechanisms themselves, his system of formulations revolved around the place of symbolism in human life. In 1941 he declared: "The present-day theories of 'meaning' are extremely confused and difficult, ultimately hopeless, and probably harmful to the sanity of the human race."⁹

5. The development of "information theory" has had a benign influence in the direction of a non-mentalistic linguistics. The coding machines can handle only mechanical operations, and therefore a rigorously operational procedure has had to be devised. The accommodating to these limitations has led a number of scholars to modify their theories in a behavioral direction.¹⁰

Other workers of this same general orientation, such as George L. Trager, Henry Lee Smith, C. C. Fries, Zellig Harris, etc., will be mentioned in later connections.

The device that most firmly establishes the "entitizing" of "a meaning" is the frequent grammatical pattern of saying that "a word has a meaning." The verb *has* implies that a something is possessed. Nowhere is this pattern more prevalent than in the practices of lexicographers, and let us turn to these next.

Nearly a century before linguistics could be called a science, the best English lexicographers had developed the practice of collecting quotations, and these served to emphasize the importance of context. However, when these quotations are regarded merely as "illustrative

⁹ *Science and Sanity*, Introduction to the 2nd ed. (Lancaster, Pa., 1941), p.x. See also his important essay of 1950, "The Role of Language in the perceptual Processes," in *Perception: an Approach to Personality*, ed. Robert R. Blake & G. V. Ramsey (N. Y., 1951), pp. 170-205.

¹⁰ George A. Miller, *Language and Communication* (N. Y., 1951), is oriented towards these problems; and the copious literature is there cited.

examples," as they often are called, they seem to be nothing but decoration, and the definition takes on an *a priori* character. The very procedure of isolating the evidence away from its social setting leads to an artificial result, and dictionaries appear to set forth reified meanings in serried ranks. It comes natural, even to the most enlightened of us, to say, "This word has two meanings," "The other word has three meanings," etc. James A. H. Murray, in the Introduction to the *Oxford English Dictionary* in 1884, stated this outrightly:

"Some words have only one invariable signification; but most words that have been used for any length of time in a language have acquired a long and sometimes intricate series of significations, as the primitive sense has been gradually extended to include allied or associated ideas, or transferred boldly to figurative and analogical uses."¹¹

The words *signification* and *sense*, in lexicological use, are so close to *meaning* that they are no improvement.

But is this reification inevitable in lexicography? Theoretically it is not. The so-called meaning is a set of "features" to which users of a language have become conditioned. These features could be set forth informally, without the arbitrary definitions that seem to create formidable entities.¹² In the compilation of the *Oxford English Dictionary*, the intermediate or transitional quotations were discarded as being "ambiguous" or "not clear", and the resulting neat patterns are false to actual usage. The theoretical fluidity of these features that are abstracted from a social setting is hard for many people to admit, especially philosophers. Bloomfield has stated the principle that "every utterance of a speech-form involves a minute semantic innovation."¹³ And yet in denouncing this position, Ernest Nagel, a Columbia philosopher, has declared: "If this were really the case, no valid inference

¹¹ In the reprinting of 1933, I, xxxi.

¹² I have set forth how this could be done in my paper, "The Lexicographer and General Semantics, With a Plan for 'A Semantic Guide to Current English,'" in *Papers from the Second American Congress on General Semantics*, ed. M. Kendig (Chicago, 1943), pp. 33-42, esp. pp. 34-35. The project of the *Semantic Guide* has been under way since that time, and my files for it now have well over 25,000 alphabetized quotations and as many again waiting to be processed. See also the report of progress in *Studies in Linguistics*, I, No. 17 (April, 1943), 4.

¹³ *Language*, *op. cit.*, p. 407.

could ever be drawn and no inconsistency ever exhibited."¹⁴ Thus some philosophers achieve their false absolutisms.

In the project called "The English Semantic Count," at Teachers College, Columbia, the workers have attempted to count the uncountable, by assuming that they have access to reified meanings. In actual practice, they simply compared their contexts with the numbered definitions of the *OED*, thus depending upon the arbitrary slicings of its editors.¹⁵ These "semanticists," as they called themselves, agreed with one another, on the average, about 85% of the time.¹⁶

Let us pass now from a consideration of lexicon to that of morpheme analysis, as practised by linguicists.¹⁷

Rigorous linguicists have reached the conclusion that morphemes can be segmented on the basis of their relation to each other, and the attribution of a particular "meaning" to each is merely a bow in the direction of traditional ways of talking about language. In Zellig Harris's words:

"Descriptive linguistics has not dealt with the meanings of morphemes; and though one might try to get around that by speaking not of meanings, but of the social and interpersonal situation in

¹⁴ *Journal of Philosophy*, XXXVIII (Dec. 18, 1941), 721.

¹⁵ Irving Lorge, "The English Semantic Count," *Teachers College Record*, XXXIX (Oct., 1937), 65-77, esp. pp. 66-69.

¹⁶ Irving Lorge, *The Semantic Count of the 570 Commonest English Words* (N. Y. : Bureau of Publications, Teachers College, Columbia University, 1949), pp. 4-5. He has found, with regard to the *OED*, he says, that "some of the distinctions among numbered and lettered meanings are excessively precise."

¹⁷ I present this coinage for your sufferance. The two rival sets of contexts of the word *linguist* have long been a nuisance—on the one hand, in popular use, a set referring to "polyglot," and on the other, among specialists, "scientific student of language." The word *linguistician* has had some currency since 1895, as noted by Fred W. Householder and T. A. Sebeok, in *Am. Speech*, XXV (Oct., 1951), 221-22; but it is so awkward and cumbersome that most of us have refrained from adopting it. I submit *linguicist* as a great improvement over *linguistician*. It was inspired by the distinction made over two decades ago by Professor Kemp Malone in his essay, "The Terminology of Anglistics," in the *English Journal*, XIX (Oct., 1930), 639-51, between *Anglist*, a student of English culture in general, and *Anglicist*, a student of a particular phase of the subject. Cf. also C. S. Peirce's distinction between *pragmatist* and *pragmaticist*. Thus the word *linguist* can be left to its fate in popular usage as "polyglot," and the neat *linguicist* can serve our linguistic needs.

which speech occurs, descriptive linguistics has had no equipment for taking the social situation into account: it has only been able to state the occurrence of one linguistic element in respect to the occurrence of others".¹⁸

Trager and Smith hold a similar point of view in this matter. As they say, "The recurrences exhibit patterns of occurrence and distribution."¹⁹ They admit that meanings of utterance fractions can serve as "a general guide and short-cut to the identification of morphemes,"²⁰ but in principle it is not necessary: "The theoretical basis of the analysis then becomes evident: it consists of the recognition of the recurrences and distributions of similar patterns and sequences."

In his practice, C. C. Fries arrives at a similar position by correlating, as he says, the "regularly recurrent sames of the stimulus-situation features, and the regularly elicited recurring sames of response features."²¹ Here the word *same*, certainly a neutral one, carries the burden of the terminology, and yet he insists on labeling these as "meanings." I query whether such a labeling is necessary or operationally entailed: perhaps it is a gesture in the direction of popular understanding.²² Other definitions are open to serious criticism, as when John B. Carroll describes morphemes as "the smallest units of structure which embody grammatical or lexical meanings."²³ His stipulation "which embody" is an especially unfortunate pattern to fall into.

It will be noted that the word *distribution* occurs in some of these accounts, and it can be made to carry a heavy burden in describing what has usually gone by the name of "meaning." If we describe and classify the elements of speech in terms of their relations to social situations for lexicon and their relations to one another in morphemics

¹⁸ "Discourse Analysis," in *Language*, XXVIII (Jan., 1952), 2. His procedure is set forth in his *Methods in Structural Linguistics* (Chicago, 1951), *passim*, esp. pp. 25-28, 156-96.

¹⁹ George L. Trager and Henry Lee Smith, Jr., *An Outline of English Structure*, "Studies in Linguistics, Occas. Papers, No. 3" (Norman, Oklahoma, 1951), p. 53.

²⁰ *Ibid.*, p. 54.

²¹ "Meaning and Linguistic Analysis," in *Language*, XXX (Jan., 1954), 57-68, quot., p. 65.

²² This manner of statement does not seem to me to invalidate the actual methodology in his brilliant study, *The Structure of English* (N. Y., 1952).

²³ *The Study of Language* (Cambridge, Mass., 1953), p. 24.

and syntax, is this not the same as saying their *distribution*? Objective as this sounds, it has been challenged. W. Haas, of Manchester University, England, developing the approach of J. R. Firth, has recently pointed out that even the reliance on the term *distribution* has its dangers. As he says:

"The distributional definition of a sign is disguised as an analysis of it. Meaning, although in fact defined by the sign's function, is presented as if it were contained within the limits of its form—the 'content' of the form. Sounds and meanings continue to be forced into some kind of parallelism—the empty frame of the forsaken psycho-physical theories of language. The distributional relations of a sign masquerade as components of it".²⁴

Although this strikes me as hyper-critical, or even carping, the Firth-Haas solution is to emphasize *function*. As Haas says (*ibid.*, p. 78): "Speech *engages* in social situations, but its internal structure does not 'correspond' to them." This outlook leads to what Haas calls "a Functional Theory of Meaning and Form." He concludes: ". . . the meaning of an element is not the content, it is the functions of its form. . . . In this way, we seem to have freed ourselves of the perplexities of Correspondence Theories of Language, the psycho-physical version or any other." (*Ibid.*, p. 81.)

Other problems arise when we pass on to the subject of syntax. Here too, Trager and Smith have said boldly: "It is emphasized that all this is done without the use of 'meaning': it is formal analysis of formal units."²⁵ And yet, C. C. Fries has found it necessary over a period of years to make a sharp distinction between what he calls "lexical meanings" and "structural meanings."²⁶ Is this again a bow towards popularization? Need a syntactic category be labeled a meaning? Perhaps Martin Joos's statement in this connection is *a propos*: ". . . it is the category that tyrannizes over us, not the form, and not

²⁴ "On Defining Linguistic Units," in *Transactions of the Philological Society*, 1954, pp. 75-76.

²⁵ *Outline of English Structure, op. cit.*, p. 68.

²⁶ This began in his article, "Implications of Modern Linguistic Science," in *College English*, VIII (March, 1947), 314-20, and continued in *Structure*, p. 56 and elsewhere, and in the article "Meaning and Linguistic Analysis," *loc. cit.*, p. 66.

the meaning either; and even a word like *sheep* must be, each time that it is used, either singular or else plural."²⁷

As a sample of syntax, let us take a bit of light repartee from a featherbrained English novel: " 'By trade he's a corn-chandler' [said one character]. 'And what on earth *is* a corn-chandler?' Peggy asked crossly. . . . Lady Mear said: 'A man who chandles corn, I suppose. Even my underrated intelligence can work that out.' "²⁸ To be sure, her answer was not the one requested. She was asked for a lexicological account, "In what social situations does the word *corn-chandler* operate?" However, she answered by manipulating forms, and Fries would say that she knew, or used, structural meanings. But is it not sufficient to say that she demonstrated her conditioning to the equivalences of certain syntactic form classes? The whole situation in the above incident was suffused with generalized meaning, but do we need to appeal to any lump of concretized meaning?

The great danger in attempting to exorcise reified meaning is that one will merely push the problem into other terms, and they will carry the same burden in a masked way. Is *signal* blameless? Are *purport* and *import* profitable? What of the phrases with the adjective *semantic*?²⁹ I feel that the phrase *semantic content* implies a "thingness" that is parallel to form, and am therefore unhappy at the statement of John Lotz: "Speech is a *tool* for communicating a semantic content, a meaning."³⁰ However, the phrases *semantic value* and *semantic dimension* do not seem to me to lead to hypostatization.³¹

The word *meaning* has often implied far more richness in the interpretation of life than is involved in descriptive linguistics. If we use the word *meaning* to refer to a generalized suffusion throughout human relations, we can say that it is multi-dimensional. These dimensions

²⁷ "Language Design," in *Journal of the Acoustical Society of America*, XXII (Nov., 1950), 703.

²⁸ Barbara Worsley-Gough, *Public Affaires* (London, 1932), p. 149.

²⁹ The background of this word is found in my study, "An Account of the Word 'Semantics'," in *Word*, IV (Aug., 1948), 78-97.

³⁰ "Speech and Language," in *Journal of the Acoustical Society of America*, XXII (Nov., 1950), 712.

³¹ I used the term *semantic value* in my paper, "English Words with Constituent Elements Having Independent Semantic Value," in *Philologica: the Malone Anniversary Studies*, ed. T. A. Kirby and H. B. Woolf (Baltimore, 1949), 306-312.

deserve study even if this puts us somewhat in rivalry with sociologists. Beyond the narrower linguistic contexts, the fuller contexts can be studied, involving the total evaluational processes of people in a cultural environment. Fries calls this "social meaning" but notes that it "is not a completely satisfactory term."³² I suggest that to speak of "dimensions" of meaning, to be labeled when we identify them, would be a solution.

Alfred Korzybski, when operating in the larger context of the relationship of the individual to cultural and philosophical systems, found that "theories of meaning" were too restricted, and he had to move on to terms like these: "neuro-semantic and neuro-linguistic living reactions of Smith₁, Smith₂, etc., as their reactions to neuro-semantic and neuro-linguistic environments as environment."³³ I would like to raise the question here whether the term *neuro-linguistic* would not be useful in some contexts among linguicists? We know, of course, that anything *linguistic* is in the last analysis embedded in a conditioning of the nervous system; therefore *neuro-linguistic* should be a tautology. But when the point needs emphasizing, as it often does, the word *neuro-linguistic* is available. Moving in a sphere well beyond linguistics, in metalinguistics if you wish, Korzybski found the term *evaluation* most serviceable of all. It functions in the unitary, non-split outlook, drawing together "body/mind," "emotion/intellect," etc., in the reaction of the organism-as-a-whole. When, as students of language, we hold ourselves strictly to our descriptive work, both lexicological and structural, we need not lose sight of these larger considerations and can take pride that our findings are central to the full interpretation of human life.

CONCLUSIONS

1. The retaining of the word *meaning* for use in the abstract, generalized application, describing a necessary component of the data of language itself, is justifiable. This wards off the threatened criticism that "meaning is left out of account."

2. Beyond this one application, however, the word *meaning* seems to cause havoc and confusion wherever it is used. It can hardly be used without implying, structurally, that a mentalistic entity corre-

³² *Structure of English*, pp. 293-96, esp. p. 295, footnote 21.

³³ *Science and Sanity*, Introd. to 2nd ed., p. x.

sponds to a form. Such mentalistic entities are beyond the reach of scientific investigation; instead, we have to find some formulation that makes investigation possible.

3. In the study of lexicon, there should be a re-emphasis on context and the function of symbols in personal and social situations. Since "the dictionary" is the most usual tool that people encounter when they turn their attention to language, the conventional listing of so-called "meanings" or "senses" sets the verbal pattern that creates "entities" out of symbolical relationships.

4. In syntax too the term *structural meaning* has its dangers, in appearing to establish entities. A greater reliance upon words like *relation* and *function* would serve to put analysis upon a sounder basis.

5. In areas beyond linguistics, such phrases as "the meaning of life" or "the meaning of it all" have a hallowed, dedicated ring about them. If they are to be transmuted into usable formulations, the terms *evaluation* and *orientation* represent a sounder approach.

EDMUND S. GLENN (Department of State): The general problem which you have raised here, Mr. Read, is one which arises not only in linguistics in connection with the word 'meaning', but it is also a problem present, for example, in physics. It is a problem which arises at the moment in just about every science, and in psychology in particular. A fairly simple approach, I believe, is the definition of the level of pre-occupation in each particular case. For instance, 'meaning' is something to a teacher of introductory French or German, for whom a reference to an abridged dictionary in general will provide a very satisfactory answer to the question of 'meaning' in his class. If he deals with the problem of teaching language at a slightly higher level, then he will need a good dictionary instead of an abridged one to solve a similar 'problem'. If he goes still higher, dictionary-meaning becomes quite meaningless. Thus the problem is one of defining levels of pre-occupation, and if we rise to the highest level of pre-occupation, as you have done, we are approaching the general problem of epistemology. We need a series of epistemological concepts. However, before reaching that stage, it might be profitable to define the level of pre-occupation in each case.

PAUL L. GARVIN (Institute of Languages and Linguistics): It seems

to me that the more we talk about the problem of meaning, the more we are getting into other disciplines. I wonder whether the orientation of Bloomfield, which is essentially empirical in nature, should not be recalled at this point. Bloomfield's objection to the older approach to meaning was that it had led to a great deal of unempirical philosophizing on what can be called a mentalistic basis. We may at times be prone to fall victim to the same thing on an anti-mentalistic basis, and I question the usefulness of this.

ALLEN WALKER READ (Columbia University): It's perhaps self-defeating to talk about meaning but if one relegates meaning to a particular spot in our formulations, one might help to clarify one's own orientation in the matter.

L. E. DOSTERT (Institute of Languages and Linguistics): The paper we have just heard suggests to me that yesterday, when I spoke of areas of meaning determination, I might perhaps have used another term. I would therefore like to make a correction in my terminology, in the light of Professor Read's paper. I think that it would be more accurate to call areas of meaning determination, 'factors for choice-determination.'

Meaning and Hypostasis

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For the past seven years I have been working on the development of a behavioristic theory in order to explore relationships between the structure of speech and the structure of nonverbal activity. As the material developed, it became increasingly evident that the theory would have many implications for the understanding of problems of meaning in speech and of purpose in the nonlinguistic behavior. At every point in the structure of behavior, whether verbal or nonverbal, components of value, meaning, significance, and/or purpose arise, and must be included within the conceptual framework used for handling such units of activity as are under consideration at any one moment. A number of these elements have already appeared in the

project under way,¹ and others are scheduled for inclusion in a later chapter on meaning but cannot be presented in the time available for this paper. One particular crucial problem which has appeared in the first published findings, however, may be summarized for discussion at this Round Table.

What is the relationship between the meaning of a word as deduced by the lexicographer, and the meaning of the word which might be reported by a native speaker of that language? Is there any structural relationship between this problem and that of determining the relationship between the purpose of a nonverbal act as defined by the techniques of observation of the cultural anthropologist and the purpose of the same act as stated by anthropologically-untrained native participants of that culture?

We start by suggesting that the stated purpose of an act—stated by native participants—is by no means irrelevant to the culture; on the contrary, the verbalized purposes of a community are assumed here to be highly relevant to the activity of that community; whether or not these purposes are the same as those deduced by anthropologically-trained observers. Similarly, we suggest that the meanings verbalized by native speakers are relevant to their verbal and nonverbal behavior at *some* point in the system of behavior whether or not these naïve analyses are “correct” from the point of view of the trained linguist. Verbalized purposes or meanings can affect behavior even if the verbalizations are not in a form approved by the technicians. Since such verbalizations both *constitute* part of the activity of the members of a culture, and *affect* the activity of those persons, the verbalizations must be considered part of the data which should itself be analyzed by the technicians, and the possibility of noncongruence, complete congruence, or partial congruence of the technical and naïve statements of meaning should be allowed for in any theory of meaning or of human behavior as a whole.

For some technical analysts, the meaning of an utterance may be considered as the elicitation by a particular utterance of a particular kind of response, or the meaning may be considered as constituted

¹ Kenneth L. Pike, *Language in Relation to a Unified Theory of the Structure of Human Behavior*, Preliminary Edition, Part 1 (Glendale: Summer Institute of Linguistics, 1954), e.g., pp. 17b-18, 23a, 24a, 39b, 78b-82, 88, 94-98, 100b-01, 104b-05a, 116-17a, 121, 126b, 132-33, 135b-36a, 150a-51.

of a response² to such an elicitation of response, provided that he does not assume that the response elicited is always performed by the hearer even though the latter understands the eliciting character of the utterance (i.e., the hearer may deliberately refuse to 'shut the door' in spite of a request that he do so). Elicitation of the response and the response itself has a probability aspect rather than a complete certainty.

The discovery by the analyst of the meaning of such an utterance involves the investigation of its occurrence—or the occurrence of repeated fractions thereof—in various contexts, in order to find in the various contexts the kind of responses which it can be seen to regularly elicit, and which can be predicted for it elsewhere. A competent technician, furthermore, is likely to *retain as part of his essential data* certain of these contexts as illustrative of and as productive of the meaning deduced. In addition, he is keenly aware of the fact that any one linguistic item may occur in a variety of contexts, and hence have a variety of variant meanings (variant elicitation-of-response) in these contexts.

For the naïve native speaker of a language, however, "meaning" almost seems to "reside in" the words, as a mystic entity apart from their phonemic form, apart from the particular contexts in which they happen to occur at the moment, and apart from the regularity of response which he tacitly reacts to while often unaware of the response-elicitation character of meaning. Words seem to "mean something" to the native speaker apart from what the words "are", and it is in part this mystic character which he seeks when he wishes to "define terms" during an argument, or when he wishes to follow an exposition with understanding.

The discovery of meaning by the native speaker in the large majority of instances—i.e., when he is not "looking them up" in a dictionary or being taught meanings of certain terms in a class in science, etc.—is done in a manner which leaves him, as an adult, unaware of the process involved by which he reached his conclusions about those meanings. Hence he can be quite convinced of the independent existence of mystic meaning units in a particular language even when he has in fact obtained those meanings by a procedure similar to that of

² See, for example, Charles C. Fries, *The Structure of English* (New York: Harcourt Brace and Co., 1952), p. 65.

the technician, but with mental compilations of contexts rather than written ones. In addition, having made his response-elicitation abstractions from these defining contexts he may have forgotten the contexts in most instances (except, for example, in the rare instances for which he can remember the time when he "first heard" a particular word), and when pressed he may be able to verbalize, instead, only the generalized abstraction itself which somehow is available to his memory, or for which a crude verbalization can be manufactured on the spot without reference to the particular contexts in his personal history which are behind this capacity. Such a tendency to forget the specific contexts which underlie such a capacity carries with it, however, the tendency, also, to fail to call to mind at such a moment many contexts which would lead the technician to set up multiple meanings for his definition of a term; the naïve product is nonsystematic, and has gaps; it may emphasize one kind of response-elicitation at the expense of another, or lead to the definition of central meanings while ignoring metaphorical meanings, etc., which are also relevant to the usage of a term.

Some linguists have attempted the setting up a theory of meaning which has in common with that of the naïve speaker the postulating of a "meaning" which is structurally distinct from but concomitant with the forms. Other linguists have taken a sharply different view, attempting to describe forms as units, without including their meanings as essential parts of the definition of these units. In the theory which I am developing, however, I am attempting to keep form and meaning more rigidly joined, as a form-meaning composite, such that no structural unit of meaning as such is postulated apart from or within the lexical form which it accompanies, and no lexical structural unit of form as such is postulated apart from the meaning which constitutes one component of the form-meaning composite. This endeavor is part of a more inclusive view of behavior for which I postulate, exclusively, *units which have a manifestation mode comprised of a structured physical component*. Every structural unit (emic unit, in my technical terms) postulated for language, in this system, has a physical component as its base; no exceptions are knowingly tolerated. It is this more basic starting point which rules out an eme of meaning as such; a morpheme, or a sentence, is a form-meaning composite, *not* an eme

of form plus an eme of meaning (nor an eme of form accompanied by a meaning).³

This approach seems to be useful for ordinary speech, but now a special problem arises: What are the emic units of activity of the native speaker by which he does discuss meanings as if they were isolatable, as if he thought they had no physical component? The first part of our solution in such an instance is to assume that a physical component *does* appear in these instances, as well as in those of ordinary speech which have their manifesting contexts, but that here the physical component of the "meaning" which the native speaker proposes is the combination of his neurological activity as he thinks about or utters the words labelling these meanings, plus the physical activity of uttering the words aloud. The verbal activity constitutes the physical manifestation of these activity units just as verbalization constitutes the physical component of ordinary speech in context, so that no non-embodied emes of meaning need here to be postulated.

The second part of our solution is to point out a further generalized dichotomy in kinds of human activity. One kind of activity is the normal occurrence of an event as part of a sequence of events which it helps comprise; ordinary activity occurs in an appropriate context, as the verbal activity comprised of pronouncing the word *Bill* occurs in context as the subject of the sentence activity *Bill ran home*. A quite different kind of activity is the excising of a part of a sequence of activity from its regular context, and viewing it as an isolated unit; a "viewing context" or "viewing frame" may be set up as a special "holder" of the "specimen" to be examined; note, for example, that in the preceding sentence the phrase *the word (Bill)* served as such a viewing context for the word *Bill*, since in that sentence we specifically wished to accomplish the kind of activity which we were at that moment describing—the taking of an activity (the pronunciation of the word *Bill*) out of its normal stream of activity (its pronunciation in such a sequence as *Bill ran home*) so as to view it as if it were an isolatable item (i.e., in this present context, to talk about the activity of pronouncing *Bill* as if it were "a thing" which existed in its own right, instead of as one component of a system of speech activity).

Any abstraction of an activity from a normal participant sequence for purposes of viewing it, studying it, mentioning it, analyzing it,

³ Cf. Pike, 1954, pp. 24, 74b, 83a, 96b, 98b, 150b.

listing it, cataloging it, or discussing it as such, we shall call *HYPOSTASIS*⁴ of that activity. The mention of a word is an activity of hypostasis. The formation of a dictionary listing is accomplished by the hypostasis of these forms. The practicing of the passing of a football is the hypostasis, and repetition in hypostasis, of the football-passing activity of a normal game, etc.

The native speaker, in quoting a word out of normal context, is performing an act of hypostasis. If he mentions the *meaning* of that word, however, he is doing something further: he is making an abstraction from various contexts of some common phase of the elicitation-response characteristics of those contexts, and is giving to his abstraction a name, or "label." The physical manifestation of the label is a component of the abstracting activity and, for that activity, fulfills the kind of function which for the non-abstracting activity of normal speech is played by the physical component of that normal speech. Activity units in which a substitute verbalization for hypostasis defining purposes replaces the verbal activity utilized in normal non-abstracting sequences, we may call 'conceptualized hypostasis' to differentiate it from hypostasis which merely repeats, out of context, an item to study it apart from that context.

The technical analyst in making a listing of terms does so by hypostatic activity; when he defines these terms, the definition is similarly a conceptualized hypostasis of the elicitation-response data. If, however, he were merely to cite the contexts in which the responses could be observed, without attempting to make up a "definition" from the data within these contexts, his activity in respect to the abstraction of the elicitation-response contexts would be hypostatic, but not a conceptualized hypostasis.

What, then, is the difference between the activity of the lexicographer and that of the native speaker who mentions meanings? Both of them use conceptualized hypostasis in setting out the statement or definition of meanings, but the native speaker is less likely to understand the significance of defining contexts in general, or to preserve an awareness of the particular defining contexts relevant to a particular word—and, to the extent that he does operate theoretically in the

⁴ Compare Leonard Bloomfield, '... *hypostasis*, the mention of a phonetically normal speech form,' in *Language* (New York: Henry Holt & Co., 1933), p. 148.

same hypostasic or conceptualized-hypostasic manner, does so less systematically.

Applied to non-verbal behavior, this same general outlook helps to clarify the relation of the purpose of a unit of non-verbal activity as deduced by the cultural anthropologist to the purpose of that unit of nonverbal activity as reported by a regular participant in that activity. The description, or "definition" of a purpose by technician or participant is an activity of conceptualized hypostasis. The technician needs to make his own analysis, his own conceptualized hypostasis of the purpose of a particular unit of activity in a culture. In addition, the technician needs to make an analysis of the purpose of that activity as alleged by the regular participants in that activity. This latter activity by the technician is the act of making a technical conceptualized hypostasis of the naive conceptualized hypostasis of the regular participant, just as the linguist's description of the meaning-abstracting activity of a naïve speaker is a technical conceptualized hypostasis of the naïve conceptualized hypostasis of the native speaker.

Our generalized analytical and conceptual framework has proved fruitful, in this way, by allowing us to bring into a single theory various items which have troubled both linguists and anthropologists.

SEYMOUR CHATMAN (Wayne University): Professor Pike, I would like to raise a question which I think is also pertinent to the previous talk, and I would welcome Professor Read's comment on the subject. It is my understanding that you consider the terms Bloomfield coined, namely "sememe" representing lexical-meaning and "episememe" indicating structural meaning, to be useless.

KENNETH L. PIKE (University of Michigan): You are right, I do not work with the sememe in the Bloomfieldian sense for reasons I have given. I think that Bloomfield is inconsistent at this point. His basic assumption of all linguistics is that in every speech-community there are some forms which are alike or practically alike in form and meaning. However, when he later sets up a sememe as distinct from a morpheme, I think that he abandons his basic assumption. But I would not say that the term 'sememe' is therefore useless. It is useful in order to discuss the kind of analysis which Bloomfield proposes. However, I wouldn't like to confuse the usefulness of a term with what I think is Bloomfield's inconsistency.

ALLEN WALKER READ (Columbia University): Bloomfield's use

of the word *sememe* has troubled me. It involves dangers which he certainly avoided in his practice. He did not reify his *sememe* in analytical procedures, and therefore I do not consider the term necessary in his formulations.

Semantic Considerations in Grammar

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The significance of a scientific theory, and the security of the results to which it leads depend to a considerable extent on the clarity and operational interpretability of the terms which enter into the theory. For this reason, it is quite natural that the role of semantic considerations in grammar should be the topic of so much methodological discussion. Meaning is a notoriously difficult notion to pin down. If it can be shown that meaning and related notions do play a central role in linguistic analysis, then its results and conclusions become subject to all of the doubts and obscurities that plague the study of meaning, and a serious blow is struck at the foundations of linguistic theory.

The central objection to meaning as a criterion of analysis has always been the obscurity of semantic notions. Suppose that we do manage to develop effective and unambiguous cross-culturally valid tests for synonymy, meaningfulness, and related concepts. Would this mean that the description of grammatical structure may thenceforth be based on semantic considerations? I think that it would not—that in fact there is a deeper motivation for refusing to base the theory of linguistic form on semantic notions than merely the present-day obscurity of such a foundation. The contention of this paper will be that semantic notions are really quite irrelevant to the problem of describing formal structure, and that their irrelevance is disguised only by their unclarity and by the failure to formulate the purported dependence of linguistic analysis on meaning with sufficient care and precision.

The linguist who claims that linguistic analysis can be carried out without meaning must demonstrate that the methods of description

which he wishes to apply can be formulated and developed in an effective and general way, with no reference to synonymy, meaning, etc. But the customary challenge "how can you construct a grammar with no appeal to meaning" begs, by implication, an important question, in the unspoken assumption that naturally one can construct a grammar *with* appeal to meaning. To show that this assumption is correct it is not sufficient to point out defects in non-semantic linguistic theory. It is necessary in fact to carry out the analogous procedure of constructing an effective and general system of analysis in which semantic notions *do* play a role. The immediate availability of such a theory is often, quite mistakenly, taken for granted. It is impossible to give a literal demonstration that linguistic analysis cannot be based on semantic notions. But it is both possible and important to investigate in more detail some of the particular cases where, it is urged, linguistics must (or can) rely on meaning. I would like to investigate one crucial case.

It is almost a linguistic cliché, even among those linguists who consciously attempt to avoid meaning in their descriptive work, that in order to construct a phonemic system it is necessary to know which utterances are different in meaning. To know difference in meaning is to know synonymy, and this is the central term of the theory of meaning.¹ If accepted then, this claim is an open admission that linguistic analysis must be based on precisely the most dubious part of semantic theory.

Let us put aside the question of whether we can know synonymy relations in some clear and unambiguous way, and assume that we have as much knowledge about synonymy and meaning as we please. It is by no means clear that we can use this knowledge in constructing a phonemic system. If the problem at hand is stated clearly, and if the claim that difference of meaning can be relied on to resolve it is made explicit, then it becomes difficult to see how this claim could be correct.

The problem for which a semantic solution is proposed is this. We cannot know from studying only the physical properties of observed and recorded utterances, which of these are repetitions of one another,

¹ As opposed to the theory of reference. For the distinction between meaning and reference, see, for instance, W. V. Quine, *From a Logical Point of View*, Cambridge, 1953.

which utterance tokens are instances of the same utterance type. If we carry out careful measurements we find, of course, that every two utterance tokens are distinct. And the problem is to determine which phonetic differences are significant in the language in question in that they determine non-repetition or phonemic distinctness. To determine this, it is urged, we must investigate the relations of synonymy between utterance tokens. Let us make this claim explicit. The strongest form that it could assume is this: Given two utterance tokens U_1 and U_2 ,

(1) U_1 is phonemically distinct from U_2 if and only if U_1 differs in meaning from U_2 .

For clarity, we may think of the two utterances U_1 and U_2 as identified with the two pieces of tape T_1 and T_2 on which they are recorded. Since we are granting the accessibility of all semantic knowledge, let us assume that as U_1 and U_2 were produced and recorded on T_1 and T_2 respectively, their meanings and the reference of all their terms were somehow marked as well.

But it seems that because of homonyms on the one hand and synonyms on the other, this proposed equivalence (1) is simply false in both directions. Let U_1 be the utterance *I saw him by the bank*, meaning the bank of the river, and let U_2 be the utterance *I saw him by the bank*, i.e., the First National Bank. Clearly the two utterances are different in meaning. Nevertheless they are phonemically identical. Thus it is not the case that if U_1 and U_2 differ in meaning, then they must be phonemically distinct. Notice that we cannot appeal here to the fact that these physically distinct utterances are two occurrences of the same sentence, two tokens of the same type, because the problem at issue is precisely to determine which utterances (i.e., which distinct pieces of tape) are repetitions of one another or tokens of the same type. To make this appeal is thus to beg the question at issue completely.

Now consider the equivalence from left to right. Let U_1 and U_2 be any two expressions with the same meaning, e.g., "he is a bachelor" and "he is an unmarried man." Or, if one is inclined to deny the existence of absolute synonyms, consider such pairs as /ekənamiks/ and /iykənamiks/, "ádułt" and "adúłt," "advértisement" and "advertísement," /rəʃən/ and /reyʃən/, /rədiyeytər/ and /reydiyeytər/, etc., which often coexist in one person's speech and are clearly syno-

nyms. Such pairs have the same meanings but are phonemically distinct. Hence it is not the case that if two utterances are phonemically distinct, then they must differ in meaning.

Thus there are clear counter-instances to (1) in both directions. We cannot circumvent this argument by holding that this rule (1) holds for all cases except the rather special case of homonyms and synonyms. For one thing, these are by no means peripheral cases. For another, 'homonymity' and 'synonymity' are simply the names we give to exceptions to this rule, and any rule works except for its exceptions.

It appears, then, that if we classify utterance tokens on the basis of sameness of meaning, we find that the resulting classes do not correspond to utterance types, to classes of repetitions in the intended sense. That is, if we take meaning seriously enough to assign meanings correctly to utterances, we seem to learn very little about phonemic distinctness. It is important to add that when we run into a real problem of establishing phonemic distinctness, we in fact do not rely on meaning in any way.

A typical instance in which it is important to discover whether there is a phonemic difference between two forms is the case of the intervocalic post-stress allophone of /t/ and /d/ in certain English dialects, as in *latter* and *ladder*, *rating* and *raiding*, etc. If a linguist is interested in determining whether *take the latter* and *take the ladder* are phonemically distinct, there seems to be only one method that he can actually employ in practice, namely, the pair test² in one of its forms. To perform this test we take two utterances, let us say recorded on tape and labeled U_1 and U_2 , play them repeatedly in random order to an informant, and see whether he can consistently and correctly identify them as U_1 and U_2 . Of course we know that *take the latter* and *take the ladder* are different in meaning, but this information seems quite irrelevant to solving the problem at hand. Knowing it, we must still determine whether these forms are phonemically distinct. We are certainly interested in knowing whether the forms differ, but not, apparently, in whether they differ in meaning; rather in whether they differ in phonemic constitution. And even the linguist in the field must employ some such non-semantic device as the pair test to determine this. Only in this way can he determine how *take the latter*

² Cf. Z. S. Harris, *Methods in Structural Linguistics*, Chicago, 1951, p. 32f.

and *take the ladder, go to the bank (of the river) and go to the bank (First National)* are related in a given dialect.

Certain more complicated attempts to define phonemic distinctness in terms of meaning seem to amount to special variations on the pair tests, with a spurious explanation of the results of the test thrown in. The compulsion to give some such explanation seems to arise from a feeling that even if the pair test operationally makes the distinction we require between utterances, it still does not answer the question: in what respect are these utterances distinct? But to this question the answer can only be the tautology: in phonemic constitution. There is no more need for a semantic explanation for the fact that *bill* is phonemically identical with *bill*, than for the equally indisputable fact that *bill* rhymes with *pill*. If in fact difference in meaning corresponded exactly to distinctness as defined by the pair test, this would be an interesting correlation between independent notions. But since only the latter gives an operational account of the intuitive sense of distinctness of utterances that we are attempting to reconstruct in linguistic theory, only the latter is taken as the test of phonemic distinctness.

With this in mind we can consider such comments on linguistic method as the following: "the kind of meanings that the linguist needs can be defined with considerable objectivity in terms of behavioral discriminations. No appeals need be made to subjective intangibles in order to use meaning in a linguistic analysis."³ It seems to be true that the kinds of reactions to language that the linguist needs can be defined objectively, for instance, by the pair test. But the responses to language marked by such operational devices as the pair test are not meanings. Calling them 'meanings' can only be explained as the result of an all too prevalent compulsion to introduce the word 'meaning' into the statement of linguistic method, no matter what violence is done to the ordinary sense of this term in the process.

The pair test is one of the operational cornerstones for linguistic theory, and as such, it deserves much more study and development. Many elaborations and refinements can and should be developed. In administering the pair test, instead of asking the informant to identify the utterances as U_1 and U_2 , we may ask him to identify them by

³ G. A. Miller, "Communication," *Annual Review of Psychology*, vol. 5 (1954), p. 404.

meaning. This has occasionally led to the idea that meaning is being 'sneaked in' surreptitiously. But this is a confusion. We might just as well have the informant label the utterances by signs of the zodiac, but this will not indicate that linguistics is based on astrology.

We have seen that any attempt to define phonemic distinctness wholly in terms of synonymy seems doomed to failure. But we might try to establish a semantic basis for phonemic analysis in a more elaborate way, making a weaker claim for meaning than (1). Suppose that we have a system of phonetic transcription which is guaranteed in advance to be more detailed than anything we will ever need in the phonemic analysis of any language. In other words, given this system, any two utterances in any language that are phonemically distinct will be differently transcribed, although naturally, transcription of any one language will reveal a tremendous amount of irrelevant detail.

But it is presumably the case that if two sounds are assigned to different phonemes in a given language, then substitution of one for the other will lead to a difference of meaning in some context. Now that we are assuming part of the problem of phonemic distinctness to be solved on phonetic grounds by this *a priori* system of phonetic transcription, we can attempt to use this semantic property to complete the characterization of phonemic distinctness. We might now replace (1) by the condition that two differently transcribed tokens are assigned to different phonemes if there are two utterances which differ in meaning but which are identically transcribed except for the transcriptions of the two tokens in question. But the problem of homonymy again stands in the way of this formulation. Naturally, many phonemically identical tokens will be differently transcribed. Hence homonyms will often be differently transcribed, and this condition breaks down just as before. We might revise the proposed condition, then, requiring for phonemic distinctness that *every* two utterances that differ just in the tokens in question⁴ be distinct in meaning. But this will not do because of the existence of synonyms. We must require, then, that there will be a *sufficient* number of pairs of utterances (in some sense to be defined) that differ in meaning, and are phonetically differentiated just by the tokens in question.

⁴ Literally, that differ just in tokens with the same transcriptions as the tokens in question.

Let us suppose that some more elaborate construction can succeed in avoiding these difficulties, thus providing us with a partially semantic approach to phonemic distinctness. A common attitude towards non-semantic procedures in linguistics is that even if they are possible, they are roundabout and tedious, and they involve an impossible expenditure of effort as contrasted with the simple and direct semantic procedures. But this position can only be maintained when the semantic procedures are left unanalyzed. This discussion of phonemic distinctness indicates that in this case at least, the shoe is on the other foot. The simple and direct approach is by means of the pair test, a thoroughly non-semantic operational device. It may be possible, with a sufficiently detailed construction, and with laborious investigation of an immense corpus, to arrive at the same result in partially semantic terms, though no satisfactory way to do this, even in principle, has yet been advanced.

Of course it is an empirical assumption, not a logical necessity, that the pair test and some semantic approach will provide the same analysis of utterance tokens. But it is an empirical assumption which we cannot verify or disprove, since only one of its components (the pair test) can be evaluated by any operational means that we now possess.

This discussion of the possibility of a semantic approach to phonemic distinctness was based on the assumption that all semantic information is available, and that it is possible to assign a meaning to each utterance token to be compared with other meanings.⁵ But clearly in making this assumption we have granted far too much. We have not asked how we can determine whether the meanings assigned to utterance tokens are the same or different. Surely this is a far more difficult problem than the problem of sameness or difference of linguistic forms that we hope to solve in terms of it. Notice in particular that we have not dealt with the question of whether the meanings assigned to distinct (but phonemically identical) tokens are identical, or merely very similar. If the latter, then all the difficulties of determining phonemic distinctness are paralleled (and magnified, since now we are dealing with inherently more obscure subject matter) in the determination of sameness of meaning. We must provide a method for determining when two slightly different meanings are sufficiently

⁵ Note that in our context, this is no stronger than the assumption that we can determine synonymy.

similar. If, on the other hand, we try to maintain the position that the meanings assigned are always identical, that the meaning is a fixed and unchanging component of each occurrence, then a charge of circularity seems warranted. It seems that the only way to uphold such a position would be to conceive of the meaning of a token as 'the way in which tokens of this type are (or can be) used', the class of situations in which they can be used, the type of response that they normally evoke, or something of this sort. But it is difficult to make any sense at all out of such a conception without a prior notion of utterance type. The degree of unclarity in this discussion makes the attempt to define phonemic distinctness in such terms appear rather pointless.

Once we have recognized that a semantically based theory is by no means an immediate alternative to a non-semantic theory, and that in fact a semantic theory must receive a painstaking and elaborate development and must meet the strict criteria of significance that are rightly posed for a non-semantic approach, then the semantic orientation loses a good deal of its attractiveness. In place of the customary challenge "how can you carry out linguistic analysis without meaning," it is perfectly proper to ask "how can you carry out linguistic analysis *with* meaning?" It is not at all evident that there is any way to meet this challenge.

Until we are presented with some interesting and promising way to meet this challenge, we can afford to be quite skeptical about the often-voiced claim that even if linguistic analysis can proceed without meaning, it is much easier to proceed *with* reliance on meaning, using this as a heuristic device to be eliminated in our careful reconstruction and validation of the results of linguistic analysis. It is certainly true that our intuitions about linguistic form may be useful in the actual process of gathering and organizing data. But this is not to say that our intuitions about meaning serve the same purpose. Whatever meaning is, it is certainly not intuition about form. Before we develop an objective and effective technique of phonemic analysis we have only our intuition that *pit* and *pull* begin with the same phoneme, while *pit* and *bit* do not (despite the initial articulatory similarity). But there is nothing semantic about this intuition. The same is true on other linguistic levels. For example, before we develop an account of grammaticalness as a part of linguistic theory, we have only our

intuition about form to tell us that *this is a round square* is a grammatical (though nonsensical) sentence, whereas *this are a round square* is not. But again, there is nothing semantic about this intuition. This point is easily obscured in vague and general statements to the effect that to construct a grammar it is useful (or necessary) to know the language under analysis. If 'knowledge of a language' includes knowledge of the grammar, this statement is trivially true. If not, I see no reason to assume that it is true at all.

The major goal of methodological work in linguistics is to enable us to avoid intuition about linguistic form, replacing it by some explicit and systematic account. In the case of phonemic distinctness, the pair test enables us to avoid this reliance on intuition. In the case of grammaticalness, and many other linguistic notions, an effective way to replace intuition about form has yet to be demonstrated. In any case, there is no reason to introduce 'meaning' into such a conception of linguistic theory. If the appeal to meaning proves to be irrelevant at other points in the theory of linguistic form (just as it appears to be irrelevant to the problem of determining phonemic distinctness), then we are entitled to say that this appeal functions as a dangerous bypass, in the sense that it simply indicates lack of interest in the problem of characterizing the linguistic notion in question—a dangerous bypass, because (as distinct from open recourse to intuition) it gives the illusion of being a real explanation, not merely avoidance of the problem.

It is important to distinguish sharply between the appeal to meaning and the study of meaning. I have argued that the appeal to meaning is actually an appeal to intuition, and hence is to be avoided in linguistic analysis. But the study of meaning is an essential task of linguistics. It is certainly important to find some way of describing language in use. However, this is not the study of linguistic form. When these parallel studies are sufficiently advanced, it will be possible to explore the many indisputable connections between them. The important thing to remember in constructing a theory of linguistic form is that no matter what difficulties beset this endeavor, these difficulties in themselves do not indicate that this theory should be based on meaning or on any other given notion. It may be that a given basis for the development of linguistic theory is too narrow. But to show that some particular notion should be added to this

basis, it is necessary to demonstrate that when this notion is added, the difficulties fall away. We have seen that in at least one crucial case, the introduction of semantic considerations seems to be quite beside the point, even when we overlook the difficulty of giving a clear account of meaning. If the same sort of argument can be applied to other proposals for recourse to meaning, as I think it can, then we are forced to conclude that at least at the present stage of our knowledge, the theory of linguistic form does not appear to have semantic foundations.

GORDON M. MESSING (U. S. Government): Mr. Chomsky has given us a theoretical presentation of a very significant and interesting problem on which other practitioners differ strongly. B. Bloch not too long ago questioned whether it would be theoretically possible to base a grammar on distributional factors alone. In fact, he concluded that there was no one who would think of doing it. His words, I believe, were that it would be madness to do such a thing. Furthermore, I recall a recent article by Rulon Wells in which he defended the procedure Mr. Chomsky was advocating. He pointed out that it was theoretically possible to do such a thing, and perhaps it would be theoretically desirable to do it. In the course of his discussion, however, he had to admit that no one had ever done it. In presenting the examples *I saw him by the bank*, Mr. Chomsky has actually based his reasoning on the fact that we as English speakers are aware of the differences in meaning. Also, when Trager and Smith, in their *Outline of English Structure* claim that they are working without meaning, it is actually a false claim. In practice, they knew which examples to choose. They do not base their work on distributional factors alone. They approach English as two native speakers who know exactly what contrasts. In dealing with the problem of meaning, we must remember what Einar Haugen said in his presidential address a few years ago. He spoke of the circularity of reasoning without meaning because meaning is tacitly brought in and assumed.

A. N. CHOMSKY (Harvard University): I don't think there is a problem in the example of *I saw him by the bank*, except for someone who thinks that he uses meaning in phonemic analysis. If you were interested in determining phonemic distinctness, the problem of meaning would never have arisen. It only arises for someone who asks

that we determine phonemic distinctness by asking which utterance-tokens differ in meaning. This then is not a problem for a non-semantic approach.

In regard to the statement that it is madness to handle the problem operationally without meaning, I don't think that it is a correct statement. Instead of saying that no one has ever succeeded in building a grammar without meaning, I think that you can say that no one has ever succeeded in building a grammar without at any point bringing in his intuition about the linguistic form. This, however, is not the same as bringing in his intuition about meaning. In order to show that one really utilizes meaning or information about meaning in constructing a grammar, a great deal of elaborate construction is necessary. No one has ever done it to my knowledge and I think that it would be far more difficult than to go through that same elaborate construction using form.

KENNETH L. PIKE (University of Michigan): There was one crucial point which I missed in your arguments, and I wonder if you would elaborate on this. You mentioned the non-semantic pair test several times. Could you tell me what the pair test is, and why you say that it is non-semantic. This seems crucial to me because if you can establish the pair test as non-semantic, everything else is just irrelevant.

A. N. CHOMSKY: You can set up the pair-test in various forms. One way of handling it would be the following: You record a certain set of utterances, all of them distinct, that is to say, each one a distinct piece of tape. Then you take two utterances and call them U_1 and U_2 . They are two distinct pieces of tape. You splice them together after having copied one of them a certain number of times and copied the other one a certain number of times. You splice them in the following way: You take U_1 , the original one, put U_2 following it, and then put a random sequence of U_1 and U_2 after this. You can tell the informant that you are going to play U_1 . You play it. Then you tell him that you are going to play U_2 and you play it. After that you play both of them and you ask the informant to tell you which one, U_1 or U_2 , you are playing. If you give him the two utterances "I saw him by the bank" and ask for identification, you will get about 50% accuracy. The same thing is true if you would play "take the latter" and "take the ladder" as I say it. If on the other hand, you take the utterances

“bill” and “pill,” you will get close to 100 % accuracy in identification. There are, of course, problems which can arise in performing this test.

KENNETH L. PIKE: Why isn't this semantic? You are asking the informant to identify things which he knows are semantic.

A. N. CHOMSKY: I don't think that I am asking him to do that. I am asking him to identify the same utterance. *I saw him by the bank* is different semantically from *I saw him by the bank*, when I take account of context. He is judging on a non-semantic basis.

KENNETH L. PIKE: How do you know that?

A. N. CHOMSKY: I don't know because I don't know how he judges upon it. If we admit that words have the meaning we think them to have, that is, if 'bank' and 'bank' has a different meaning if it refers to a bank of a river or to the First National Bank, then on that assumption I know that he is doing it non-semantically. The reason for this is that he gives the same response, even though they are different. If, on the other hand, you would say they have the same meaning, then you would be correct.

FLOYD G. LOUNSBURY (Yale University): I would like to take advantage of my position here as chairman to ask a question myself which is along the lines of Mr. Pike's question. Suppose our U_1 and U_2 are these two utterances in my dialect: $[k^hæ^t^v]$ and $[k^hæt^h]$. We perform the pair test and let's assume that I am the speaker of some aboriginal language. We have a linguist from a higher culture investigating my language. He has in his note-book $[k^hæ^t^v]$ with a preglottalized and unreleased $[^v t^v]$ and he has another entry with a released, aspirated $[t^h]$. First, the linguist performs the usual semantic test on me: same or different in meaning? He will ask: What's a $[k^hæ^t^v]$? If I have one lying on the rug, I will point to it. Then he may ask: What's a $[k^hæt^h]$? I will point to the same animal. Then, he will perform the matching pair test. He will play recordings of these two utterances, U_1 and U_2 . Will I identify them with a 100 % accuracy?

A. N. CHOMSKY: You may. As an operational test the pair-test runs into some difficulties that non-operational tests never run into. For this reason I suggest the following elaboration of the pair test. Suppose that I am the linguist, and you are the native speaker, who has perceived this sub-phonemic difference between U_1 and U_2 , which

usually native speakers would not hear. Then I ask you to repeat these utterances, and I can run the pair test on the repetition. I can ask you to repeat again and run the pair test on these repetitions. If on the whole sequence of such repetitions of the pair test, each time run with your repetitions and your utterances, if the same differences hold out consistently, then, I think, we are obliged to say that there is a phonemic distinctness there. In other words, if in your repetitions of your own utterances, you consistently make a given phonetic distinction, then that is phonemic difference. In fact, in using the pair test, this does not happen for two reasons: because speakers of a language don't react to sub-phonemic differences, and should they react after all, by definition in repetitions this drops off.

FLOYD G. LOUNSBURY: You are then ruling out free variation which the 'same or different' question tried to elicit.

A. N. CHOMSKY: No, this does not rule out free variation. Every time you repeat an utterance, there is free variation, since the repetitions are not identical.

PAUL L. GARVIN (Institute of Languages and Linguistics): I contend that *I saw him by the bank* and *I saw him by the bank* are identical in English. They both have the same ambiguous meaning and neither of them is U_1 or U_2 on the tape. Your native informant will be able to give you only an ambiguous response to either of the two. That means that they both have the same meaning and therefore, does this not invalidate the semantic test?

A. N. CHOMSKY: This does invalidate it in the sense that we couldn't make anything out of this. If you are going to say that the pair test is semantic, and that we are going to use semantic notions in building phonemic distinctness, then you have to be able to define semantic notions in your system in a way that is prior to the notion of phonemic distinctness.

GORDON M. MESSING (U. S. Government): Mr. Chomsky, I was wondering whether perhaps the concentration on phonemic analysis in your theoretical discussion of grammar doesn't come from the fact that the phonemic system is the first feature which can be analyzed out of a large mass of material. Perhaps that is the one set of features which can be shelled out without recourse to meaning. The following example occurs to me: if, in some coming generation, we would stumble upon tapes of some 10 million words in a completely unknown lan-

guage with no commentary available, and we would set to the task of interpreting this material, we may be able to work out the phonemes of that language, after a careful phonetic analysis, including a machine analysis. Perhaps we could also make a stab at a morphemic analysis. However, we would be working in a vacuum because we would not even have those elements which we could substitute for meaning—that is the situational significance of various acts. An interesting parallel would be the interpretation of documents. For example, in our corpus of Etruscan we have a substantial body of texts, but unfortunately we have no clue to it. That then inevitably is our position if we have to work in a vacuum without some recourse to meaning.

A. N. CHOMSKY (Harvard University): I have to disagree with you on this question if you are saying that there might not be a way to do it without meaning. I am considering just the opposite. There might be a way to do it *with* meaning. As far as we know there isn't. Suppose that I gave you a corpus of an actual set of recorded utterances by a native speaker of English. Included would be *It is the latter* and *It is the ladder*. In addition, I would list alongside everything that you want to know so that it would not be in a vacuum. You would know the situation in which these two utterances were spoken, the references of the terms, the meaning. Then I would say that you simply get the wrong analysis because we find that they were spoken in different situations, they had different meanings, different references, everything in the context that you want to bring in would indicate that these are different utterances. However, they are not. The difficulty in determining the phonemic distinctions of the Etruscan example is not that we did not know what the reference of the individual spoken word was, but because we did not have any speakers around.

EDMUND S. GLENN (Department of State): I feel that there is a certain amount of danger in Mr. Chomsky's approach, particularly in the fact that he ignores the findings in parallel sciences. Auditive perception is still perception. I admit that very little has been done in studying this type of perception, but there is no *a priori* reason why at this time we should not believe that some of the findings applying to visual perception may also apply to auditive perception. I firmly believe that they do apply. The Princeton experiments have shown that most people are incapable of distinguishing, except in an

entirely subjective manner, between identical stimuli. More exactly, they do establish a distinction between them but that distinction is purely an interpretation of their own previous subjective experience. In my opinion, the same thing applies to a large extent to auditive perception. The percentage of what is heard by most individuals after certain utterances have been made, is extremely small. In other words, the factor of recognition and non-recognition cannot be equalized with the phonetic value of the utterance in any kind of test.

A. N. CHOMSKY: I cannot agree with you. Utterances which are phonetically different could be reacted to as identical by a native speaker in a given language. This follows from the fact that certain utterances are reacted to as identical, and every two utterances have a different phonetic value.

EDMUND S. GLENN: Utterances with a very greatly differing phonetic value then may be very often reacted to as being the same.

A. N. CHOMSKY: Yes, this is generally the case, from the point of view of a given language. From the point of view of language A, however, the differences in language B, which are reacted to as identical, may be very great.

EDMUND S. GLENN: Then where is the identity on which the test in question is based in order to be valid?

A. N. CHOMSKY: The identity is an identity in the phonemic constitution which may cover quite a range of phonetic data.

GEORGE S. WALDO (Columbia University): It seems to me that a good deal of misunderstanding here comes from the failure to recognize the distinction whether two utterances happen to be different or whether they need to be different. In other words, through this discussion we have been underestimating the value of cross-questioning, that is, of substituting phonetically slightly different items in the same frame, where the circumstances are subject to observation and to control to a certain extent.

ARCHIBALD A. HILL (Institute of Languages and Linguistics): What I have to say is not so much a question as a comment. It seem to me that there have been two sources of confusion in the discussion of this paper. The first of these is that some people have been talking about phonemes, others about morphemes. In Washington, it is regarded as a heretical kind of activity to mix levels. The second of these is that in a morphemic analysis, the conditions of two sequences

which are different phonemically, and the conditions of two sequences which are identical phonemically, are different. Thus, if we have two identical sequences, but can define them as always occurring in different linguistic environments, these sequences are different morphemes. I can illustrate this briefly by a pair of sentences. *Yesterday, we went to the movies* and *Yes, Mr. Jones*. Leaving aside any features of stress or supra-segmental features, there is a sequence *yes* in each. Applying a kind of version of the pair test, I would ask the informant, in this case myself, whether I can say only *Yes, Mr. Jones*, but also *Yes, Mr. Jones, -terday we went to the movies*. Since I can't say that, *yes* of *yesterday* is always in the environment *-ter* and is a member of a different morpheme from the *yes* of *Yes, Mr. Jones*. But with three things, like *dogs, cats, horses* where each has a phonemically different suffix, where each one is controlled by what precedes, and where it is further possible to draw analogical frameworks, in which you can replace *I saw two dogs* by *I saw two cats* etc., we can safely say that the difference of environment here throws these together into one morpheme.

CARLETON T. HODGE (Foreign Service Institute): I want to emphasize what Mr. Chomsky said, that is, that the utterances must be in the same dialect. If you take the two utterances *latter* and *ladder* and give them to another speaker, he might readily say that they are different. They might be so in his dialect. If you play it back to the same speaker and ask him if they are the same, you will get a response which will mean something in the pair tests. We use this procedure all the time and this to me is a meaningful thing. We take a couple of words and we ask the speaker whether they are the same or different, and he will reply accordingly. Sometimes, we make up nonsense syllables and ask about the contrast there. A nonsense syllable, if using the phonemes of the language, will readily be recognized as the same or different. This is highly significant in the pair test. You can get a phonemic distinction which is recognized as such, and is nevertheless a nonsense sequence compared to a real one.

A. N. CHOMSKY: I agree with Mr. Hodge that if one speaker in one dialect makes the distinction, and a speaker of a different dialect doesn't make it, this indicates that they speak different dialects and a phonemic analysis must be given for both dialects.

KENNETH L. PIKE (University of Michigan): There is a basic as-

sumption which has been mentioned at least three times this afternoon: no two utterances are exactly alike. I hold that this argument is utterly irrelevant, and anything based on this is irrelevant. The reason being that we are not dealing with the spectrograph when we are analyzing behavior. We are dealing with people. And built into these machines which are brains and ears, we have thresholds. There are differences in every utterance. But these differences may be completely irrelevant to the determination by an informant whether two utterances are the same or different. It would be a very rash assumption, indeed, to assume that there would never be two utterances which couldn't be just the same as far as the specialist is concerned.

PAUL L. GARVIN (Institute of Languages and Linguistics): I would like to make a few empirical comments in this discussion. In regard to the question whether we know anything of meaning when we approach phonemic analysis, I think that we know as much of meaning as we know of linguistic form. We have a set of operational procedures. We have operational procedures for recognizing forms by knowing what to listen for from our phonetic training. I can think of at least three procedures, pointing, translation, and paraphrase as operational procedures in recognizing meaning. In either of the three procedures, we can determine with relative ease whether it is the same object that is being pointed to, whether it is the same translation that is being given, or the same two translations as the case may be or even more, or whether you get the same, or roughly the same paraphrase. The paraphrase need not be identical, since the form need not be identical either. This then can be used to arrive at an empirical analysis of meaning by determining whether formerly minimally different sequences are translated by identical minimally different translations. If this is so consistently, you can say that the identical minimally different translation corresponds to the identical minimal difference in form and is its meaning in an operational set. As an example, you ask the informant how he translates *This is a cat*. Let's assume he translates it into French, his response therefore will be *C'est un chat*. When you ask him how he translates *This is a dog*, his reply will be *C'est un chien*. You then assume that whenever you change *cat* to *dog* you'll get in the translation a corresponding change from *chat* to *chien*. You therefore can equate the minimal differences in one type of response. By this empirical procedure, if carried sufficiently far,

you can establish similar minimal differences in meaning as we now are able to establish differences in form.

A. N. CHOMSKY: This requires a careful construction to see whether your suggestion can be carried out. It seems to me, that as you are stating it now, in the notion of translation and paraphrase you assume phonemic distinctness. We have to know that the various translations of a word as *chat* or the various translations of a word as *chien* happen to be the same translation. This is just a problem of phonemic distinctness and I can't see how we could use this method. Whereas I agree that we might get an approach to meaning this way, I don't think that we get an approach to phonemic distinctness in such a fashion.

The Varieties of Meaning

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1. Speech events, from the standpoint of behavioral analysis, have a dual character. In behavior sequences they occur on the one hand as *responses* to antecedent stimuli, and they may be studied and analysed as such. But they serve on the other hand also as *stimuli* which elicit or in part determine subsequent behavioral responses, and they may be viewed in this role and analysed accordingly. We may diagram thus:

$$S \rightarrow R(\text{ling.})$$

$$S(\text{ling.}) \rightarrow R$$

The full study of language cannot ignore either of these two roles of the speech act, although of course it is quite legitimate to concentrate on them one at a time or to introduce a division of labor in their study.

The linguistic response, by virtue of its acoustic consequences and/or its kinesthetic properties, becomes also a linguistic stimulus, either to another individual (a hearer) or to the same individual (the speaker

himself). The above diagrams may then be connected, showing the mediational function of speech in social and in individual behavior:

$$S \rightarrow R(\text{ling.}) = S(\text{ling.}) \rightarrow R$$

Speech events are always links in a chain; they are parts of a behavioral concatenation which continues—with interruptions and rests, to be sure, and sometimes overtly but sometimes only internally—throughout the life of an individual or even throughout the history of a speech community. Antecedents and consequences of speech events are relevant data for the study of these events themselves.

This mediate position of the speech act—its position as a link in a behavioral chain, and its dual character both as a response to antecedent stimuli and as a stimulus to succeeding responses—has been recognized by philosophers, linguists and psychologists and has shaped the development of the general theories of signs.

2. Charles Morris, following C. S. Peirce, distinguishes three aspects of semiosis: the semantic, the pragmatic, and the syntactic.¹ The study of semantics, as defined by Morris, has as its focus the relations of signs to things signified. Pursued systematically, this leads to the study of the relations between signs-as-responses and the properties of the stimulus situations which elicit them. The study of pragmatics, in this framework, is concerned with the relations between signs-as-stimuli and the responses which they elicit. Syntactics, finally, is concerned with the relations of signs to signs within a system of signs. If the study of language is placed against this framework, it is seen that Morris's 'syntactics' coincides nicely with our 'structural linguistics', that his 'semantics' applies to certain varieties of referential meaning, and that his 'pragmatics' may cover many things ranging from the study of connotative meaning to ethnology.

Leonard Bloomfield implicitly recognized similar distinctions when he gave his definition of "the *meaning* of a linguistic form" as "the situation in which the speaker utters it and the response which it calls forth in the hearer."²

The meaning of a linguistic form, or of any sign, in its broadest

¹ Charles W. Morris, *Foundations of the Theory of Signs* (International Encyclopedia of Unified Science, Vol. 1, No. 2). Chicago: Univ. of Chicago Press, 1938.

² Leonard Bloomfield, *Language*, p. 139, New York, 1933.

sense is taken to be the total relevant context of the linguistic or other sign. In the case of animal sign behavior under experimental laboratory conditions such total relevant context may not be too difficult to ascertain, for the antecedent situational contexts are controlled, and the 'relevant' responses are limited by behaviorist definition to the immediate overt and observable. In human sign behavior, however, including the all-important case of language, such conditions do not prevail. The situational contexts which give meaning to signs are not under the investigator's control. Neither can the 'relevant' responses be defined narrowly as the overt and observable. Nor can the time boundaries of the relevant context be constrained to the immediately preceding and following periods of observation. The broad conception of meaning, then, is not directly usable.

There is no better discussion of these problems than that given by Bloomfield in Chapter 9 of his *Language*. Bloomfield has solved the dilemma presented by the complexity and elusiveness of meaning insofar as it pertains to the work of the structural linguist. The dependence of structural linguistics (i.e., of 'syntactics', or sign-to-sign relationships in Morris's terms) upon questions of meaning was seen to be minimal, and at the few points of real dependence Bloomfield's well-known "fundamental assumption of linguistics"³ and an accompanying simple operation fill the linguist's needs. These do not, of course, give any aid to the student of meaning, whom Bloomfield felt, as a linguist, he was not in a position to advise. The real problems of meaning were seen to fall mainly within the domains of other sciences.

3. It is not to be expected that any one approach to the study of meaning will be capable of dealing with it in all of its aspects or in all of its complexity. It is readily apparent, moreover, that the various writers on this subject are often referring to quite different things when they use the term. 'Meaning' to a psychologist is not the same as it is to a lexicographer. It is not the same thing to an ethnologist as it is to a linguist. To each of these specialists, and to still others—to the language teacher, to the literary critic, and to the philosopher, it presents widely varying aspects. Further, the techniques for the description of meaning are as various as the aspects it presents. For the most part their development is lopsided, the emphasis being in some

³ *Ibid.*, p. 144.

cases on very practical matters to the neglect of theory, while in other cases it is on theoretical system building, to the neglect of practical method.

We shall attempt to sketch here a tentative framework for discriminating among a number of varieties of meaning, or of phenomena called 'meaning' in the technical literature of some of our disciplines.⁴

If we start from our broadest definition of the meaning of a form, namely, the total relevant context of the form, we may make a first dichotomy between the stimulus-bearing parts of this context and the response portions of it. The former may be called *situational meaning* and the latter *behavioral meaning*.

A second dichotomy may be made between the linguistic portions and the nonlinguistic or extralinguistic portions of the total context. Accordingly we may distinguish between *linguistic meaning*⁵ and *extralinguistic meaning*. This dichotomy cuts across the first one, inasmuch as any stimulus situation which calls forth a particular linguistic form may contain both nonlinguistic and linguistic parts, and also since any further responses may be in part linguistic and in part nonlinguistic. Or we may look at it in another way. Of the linguistic context surrounding a given form, a part may be antecedent and a part may be subsequent. Due to the phenomenon of linguistic structure, the occurrence of the form in question is partly determined by the antecedent portions of the linguistic context and by antecedent anticipations of a few parts of the subsequent linguistic context. These portions of the linguistic context, then, are 'situational' as already defined. Further, and again due to the facts of linguistic structure, the occurrence of the given form exercises some conditioning effects upon the portions of the linguistic context which follow. These portions are 'behavioral' in the sense previously defined.

The intersection of these two dichotomizations must yield four sub-varieties of meaning. Morris's trichotomy of 'semantic', 'syntactic', and 'pragmatic' corresponds to these in the following way. The dis-

⁴ This framework has been discussed by the writer in *Psycholinguistics, A Survey of Theory and Research Problems*, pp. 171-7 (Charles E. Osgood and Thomas A. Sebeok, editors; Indiana University Publications in Anthropology and Linguistics, Memoir 10), 1954.

⁵ This term is used as it is by Martin Joos ("The Description of Language Design", *Journal of the Acoustical Society of America* 22.701-8; 1950), not as it was by Bloomfield (*Language*, p. 141).

inction between the syntactic on the one hand, and the semantic and pragmatic together on the other hand, corresponds to our distinction between linguistic and extra linguistic meanings. The further distinction between the semantic and the pragmatic seems to fall along the same lines as that between our extralinguistic-situational and our extralinguistic-behavioral varieties of meaning.

A third dichotomy recognizes that phenomena internal to the organism of an individual speaker or hearer constitute an important part of the 'meaning' of a linguistic form. It distinguishes between the internal and the external stimuli which determine the occurrence of a given linguistic response. Further, it distinguishes between the covert and the overt responses which may be made to a given linguistic stimulus. The 'meanings' dichotomized by this criterion may be referred to as *intraorganismic* and *extraorganismic* meanings respectively. The internal stimuli and the internal or covert responses are largely inaccessible to observation. One of the goals of the psychology of language, however, is to learn as much as possible about these internal states which accompany and constitute a part of language behavior. The methods are partly inference from the analysis of overt behavior, partly the use of electrical devices which register continuous records of certain changes in internal states, and partly, of course, judicious use of introspective data.

Undoubtedly the simple dichotomy of internal vs. external to the behaving organism is overly crude. Among the *intraorganismic* varieties of meaning a further important distinction could be made according to whether their locus is cortical or somatic. Accordingly one might distinguish between *cognitive meaning* and certain other varieties whose locus is somatic. The former are inferable, at best, from circumstantial evidence of a linguistic nature. The latter can be indicated, and to some extent measured, by the use of appropriate apparatus.

The dichotomies previously drawn intersect with the present ones. Thus, the situational and behavioral distinctions are applicable to the category of cognitive meaning, as are also the linguistic and extralinguistic distinctions. The linguistic vs. extralinguistic dichotomy, when applied to the internal situations and response of somatic locus, yields important subvarieties. On the one hand we have the covert speech or subliminal articulations which accompany and facilitate

thought. On the other hand we have the physiological states, particularly of viscera and of skin, which are associated both in the response role and in the stimulus role with speech as well as with other forms of behavior. When these somatic phenomena are associated with the occurrence of any given linguistic form—either as part of the stimulus situation which elicits it, or as part of the total response which is made to it—they constitute parts of the ‘meaning’ of that form. The one variety, which has the organs of speech as its locus, may be referred to as *covert linguistic meaning*. The other variety, of locus elsewhere in the body, may be referred to as *affective meaning*. Both varieties are known to us from introspection, and they have been verified as well through the employment of specially designed laboratory machinery.

The handling of the data of meaning presents problems of classification similar to those encountered in handling the data of linguistic form. In phonemics these currently find recognition in the terms ‘phoneme’, ‘allophone’, and ‘defining features of the phoneme’. Similar distinctions are made in morphemics and also in what might analogously be termed ‘tagmemics’. These are the distinctions of (a) a given class, (b) any particular member of the class, and (c) the ‘essential’, or ‘distinctive’, or ‘defining’ features of the class. In semantics, similar distinctions have been made. Peirce’s ‘type’ and ‘token’ represent, respectively, a class, and any particular member of the class. Morris’s ‘designatum’ and ‘denotatum’ represent the same distinctions, and his ‘semantical rule’, or ‘significatum’,⁶ corresponds to the third distinction, that of the defining features of the class. Bloomfield’s ‘distinctive meaning’, or ‘linguistic meaning’⁷ as he alternatively termed it, made this same third distinction and corresponds to Morris’s significatum. Morris used his terms only for the semantic aspects of meaning, i.e. for what we have here called situational meanings. It would be preferable now to choose terms of wider application, as it may prove necessary to extend similar distinctions into the pragmatic or behavioral aspects of meaning. We shall therefore speak instead of the *particular meanings*, the *generalized meanings*,

⁶ The term ‘semantical rule’ was used in Morris’s *Foundations of the Theory of Signs*, p. 23; ‘significatum’ was introduced in his later work, *Signs, Language and Behavior*, p. 17 (New York, 1946).

⁷ Cf. footnote 5.

and the *abstract meaning* of a form. These terms correspond to Morris's denotata, designatum, and significatum, respectively, but unlike these, they may be applied to behavioral as well as to situational meanings.

We have made distinctions of four kinds, or in four dimensions of difference among varieties of meaning:

1. Situational *vs.* behavioral
2. Linguistic *vs.* extralinguistic
3. Extraorganismic *vs.* intraorganismic (and within the latter, cognitive *vs.* affective and covert linguistic)
4. Particular *vs.* generalized *vs.* abstracted.

Distinctions of each kind intersect those of the other kinds. Our purpose, however, is not to arrive at some final number of pigeonholes for the varieties of meaning which the product of these differentiations would yield. Rather, it is to call attention to some of the ways in which the uses of the term *meaning* have differed. Different writers, representing different scientific and scholarly interests, have often focused on quite different phenomena within this field, while yet applying the same general term, 'meaning', to all. If difficulties in communication have ensued, it is not to be wondered at. A second reason for drawing these distinctions is that we feel that the study of meaning is not quite so hopeless a task as a generation of descriptive linguists has assumed it to be. A preliminary dissection of the phenomenon, however tentative its lines may be, may help in the formulation of research problems and in the interpretation of their results. In particular, it may help us to relate the results of one line of investigation to those of other lines of investigation.

V. Closing Luncheon Speech

Adventures among Language Teachers and Linguists

WILLIAM R. PARKER

Executive Secretary, Modern Language Association

Since I was instructed to put these remarks on paper, I must begin with an apology. If this speech is to be printed, I can't give you the completely candid account of my adventures among descriptive linguists and foreign language teachers which a congenial atmosphere, and the silent harmony of digestive juices at work, might otherwise have inspired. I shall have to be discreet—exercising as much caution, at least, as befits a professor of English literature who can say “*honi soit qui mal y pense*” without a trace of French accent.

It was long, long ago, in the summer of 1952, that I first walked through the looking-glass. Something of what I have seen and experienced on the other side is my present theme. I have adventured among unfamiliar creatures in a grave, new world. I have learned a smattering of strange tongues, among them pedagogue, methodese, and metalingua. I have taken an intensive course in schizoprofessionalism. I have panted after Enthusiasm, and sat down with Inertia. Lest you think I am now posing as Malice in Wonderland, I must ask you to go back with me to that moment before I braved the looking-glass.

During four decades before 1952, the initials MLA might appropriately have signified the Modern *Literature* Association of America. To be sure, our founders, back in 1883, intended that “L” to stand firmly for Language, but from the time of World War I, or thereabouts, the MLA devoted itself increasingly, and at length exclusively, to scholarly research in literary history. I have analyzed elsewhere¹ the reasons for this preoccupation, and need not rehearse them now. Suffice it to say that the MLA secretariat, which I entered in 1946, was a preparation of dubious value for a Director of a Foreign Language Program, which I became in 1952.

¹ “The MLA, 1883–1953,” *PMLA*, LXVIII, iv, pt. 2 (Sept. 1953), 3–39.

My personal background did not improve matters. I was appointed MLA Secretary chiefly because I was a productive scholar, a specialist in a "respectable" period, that of Milton and the English Renaissance. I had studied Latin and Greek in school and college, and the single modern language in which I received formal instruction was learned in much the same way. I later taught myself to read a little in another language. Fortunately for me, most papers published in *PMLA* were written in English, or in what passed for English. Even more fortunately, occasions rarely arose in which I was expected to *talk* in French or German or Spanish. The Modern "Literature" Association was in fairly confident, if none too competent, hands. As time passed, the Editor of *PMLA* acquired a growing knowledge, unusual if not unique, of who's who among American scholars in the blooming fields of Romance and Germanic literatures. Choosing appropriate readers for 500 papers a year gives a critical overview of scholarship that no scanning of annual bibliographies can match. I discovered which persons have judgment along with learning; I encountered, and soon discarded, the casual and the hypercritical consultants; I learned to spot phonies. Thanks to the annual meetings, I eventually made the acquaintance of many persons with whom I had corresponded, and some of them became my very good friends. By 1952, when my Executive Council asked me to direct an extensive Foreign Language Program, I thought myself pretty well acquainted among prominent teachers of foreign languages in this country. Those I didn't know, I knew about.

Then I walked through the looking-glass and, to my amazement and dismay, found few of them on the other side of research. It was a bustling, noisy, different world of new faces—some hostile, many suspicious. Even the friendly faces were, for the most part, nameless; I had seen them, perhaps, at some MLA meeting, or at any rate they weren't unlike faces to be seen at MLA meetings. I felt like an alumnus attending the wrong class reunion by mistake: I should recognize some of these people! Finally I saw a big sign with the word "Linguists" printed on it in large capitals, and, as I drew closer, the word "descriptive" printed above in very small, barely legible letters. In the group clustered about the sign I recognized, with intense relief, those well known specialists in Old High German literature, Bill Moulton and Freeman Twaddell. Later, some distance

from the sign, I was equally relieved to see such familiar faces as those of Hayward Keniston, Henri Peyre, Norman Torrey, and B. Q. Morgan. But gradually it dawned on me that the knowledge of the profession I had proudly acquired through six years was going to prove of doubtful comfort hereafter.

Risking years of bad luck, let me drop the looking-glass now, and speak more directly of my experience. Although the MLA Executive Council embarked on its Foreign Language Program at my suggestion, it did so because it was ready for the suggestion. Only a few months before, the Association had formally voted to broaden its constitutional statement of purpose. The feeling had grown among us that "the scholarly research of the MLA cannot exist by itself; it must rest upon a broad base of work in the schools and colleges of the country. The promotion and support of the study of English and of foreign languages at all levels must, therefore, be a matter of continuing concern to the Association." I have just quoted part of a resolution passed by the MLA Commission on Trends in March 1950. With the inauguration of the Foreign Language Program in 1952, the MLA was returning to its original purposes. It had come full circle.

But, in doing so, it found itself handicapped by forty years of history. Literature had divorced language, scholarship had divorced teaching, and, though there were countless disturbed children in these broken families, reunion was not suddenly to be effected by steering committees or votes at a business meeting. Language, in fact, had remarried, and had started a second family. Literature, obviously enjoying his freedom, was flirting with every new criticism he met. Teaching, no longer steadied by scholarship, was living in sin with a layman. Forty years had worked many changes. Each of the modern foreign languages traditionally taught in American schools and colleges now had its separate national organization and its separate professional journal. There was also a Linguistic Society of America, as devoted to research as ever the MLA had been, but in an area the MLA had neglected. World War II had inspired the study of uncommon languages in our universities, and where there had once been a half dozen foreign tongues that Americans might learn, there were now about sixty. Applying the scholarship of the LSA, the Committee on the Language Program of the ACLS had pioneered with

new tools and new techniques. Here and there individuals had also pioneered. Tinny discs had given way to tape recorders; makeshift realia, to informants.

With all these changes there were perceptible only two things that had *not* changed. Language teachers were still quarreling among themselves about methods and objectives, and language study was still declining, percentagewise, in our schools and colleges. These two constants, plus a great change which I have not mentioned, seemed to warrant the entrance of the MLA into a welter of proliferation for which it was partly, if not largely, responsible. The great change was one in our nation, beyond and above the profession of linguists and language teachers. The active part that the United States was now taking in world affairs made it highly desirable that more and more Americans acquire a knowledge of foreign languages and cultures. This is what leaders in public life were beginning to say, and this is what the Rockefeller Foundation said in granting nearly a quarter of a million dollars to the MLA for a six-year inquiry into the role that foreign languages and literatures *should* play in American life. It was not simply that the MLA had come full circle, reviving its original aims; it had done so precisely at a moment when newly recognized self-interest was demonstrably part of the national interest. Clearly we would have powerful allies in any effort to lift the language curtain that kept us from understanding our friends and enemies in a shrinking atom-haunted world.

Unfortunately, there were first curtains to be lifted, and walls to be breached, separating language teachers themselves! The MLA's Foreign Language Program was greeted with open cynicism in some quarters, and for a long while met with vast indifference from a majority of the profession. This was not to be wondered at, in view of the recent past, but I confess to occasional impatience, as a non-language-teacher, with some of the reactions of language teachers to our efforts to be helpful. I am thinking now of the dozens who would not even answer our letters. I am thinking of departments where the chairman receives our bulletins but cannot persuade any of his colleagues to look at them. I am thinking of some of the disappointing responses to our specific appeals for information. I am thinking of the few individuals who wouldn't play unless we gave them star billing.

I speak thus frankly because I have long believed that only those

who live in glass houses have any moral right to throw stones. On the other hand, the MLA's motives are so simple and transparent that I suppose our more complex colleagues regard them as possibly Machiavellian. I am even used to having people ask my friends, "What's *he* getting out of it?" That he's getting the rich satisfaction of doing a job that seems to him important isn't enough for some persons. When the FL Program began, there were those who accused us of deliberately bypassing the ACLS—this despite the fact that I was on the Board of Directors of the ACLS at the time, and had the full blessing of its then Executive Director, Charles Odegaard, in my request to the Foundation. What interested me particularly about this uninformed suspicion was the assumption behind it that the Committee on the Language Program of the ACLS was the central, logical spokesman for foreign language teachers in America. It was not, and is not. Nor, let me add at once, was the MLA. No strong, active, representative organization existed. The National Federation of Modern Language Teachers Associations was potentially such, but as an organization it had conspicuously failed to supply the energetic leadership which the profession needed. I have lost friends for saying this, but I say it again, because it is the truth. The Federation's journal has only 2,200 individual subscribers among the approximately 30,000 modern foreign language teachers in this country. Barely one third of these 30,000 belong to *any* national organization, and the third are split among a half dozen single-language associations. Nearly 4,000 foreign language teachers belong to the MLA, but these are largely college and university people.

I am being a bit tedious about the complex of organizations in order to explain to you why it seemed to us essential, when the FL Program began, to emphasize that it was *not exclusively an MLA program*, to invite the active participation of foreign language teachers *at every level* of American education, and to entertain any and all ideas that gave promise of making language instruction more effective. The record will show, I believe, that we have held firmly to these unusual objectives. We have had the cordial cooperation of many teachers who are not MLA members, and we have leaned over backward to avoid even the appearance of making the FL Program an inducement to MLA membership. We have sent, free, nine issues of a special newsletter to approximately 1,500 elementary school

teachers of foreign languages. We are at work on a syllabus for the teaching of French in the third grade. We reach high school foreign language teachers and college teachers who are not MLA members through the cooperation of FL bulletins in 38 of the 48 states, and also through a special 7-page report published and distributed by D. C. Heath and Company, the first of which was mailed earlier this year to approximately 50,000 persons. We have also enjoyed the cooperation of most of the AAT journals and the *Modern Language Journal*. Slowly but surely the important data gathered by the FL Program are being communicated to the rank and file, and more and more we are receiving information and ideas from persons who have never seen a copy of *PMLA*. It has been a slow, often discouraging business, but I can tell you now, after two and a half years of stubborn effort, *we are succeeding*.

The third aim I mentioned, an impartial hearing of all sides to a question, a readiness to entertain new points of view, has also been strictly followed; but this has left us wide open to criticism and misunderstanding. If I am seen in public with Haxie Smith or Arch Hill, there are dimwits in our profession who will conclude that the MLA has sold out to the descriptive linguists. When news of my appearance here leaks out, there will be those ready to say that the MLA is trying to replace the classroom teacher with mechanical gadgets. I exaggerate—but not very much, alas! Our interdisciplinary seminar in language and culture, held at Michigan in the summer of 1953, has already been interpreted as an MLA attempt to turn all language teachers into social scientists. Plenty of people are quick to translate our openmindedness into radical policy.

In discussions of foreign language pedagogy, I have discovered, it is often a case of dogmatist eat dogmatist. Much of the atmosphere is ringing with revealed truth. The descriptive linguist, on the other hand, arrives objectively and systematically at facts which the successful language teacher knew all along, and the two of them call each other fools—which they both may be, for not taking the trouble to understand each other. I wish I could show you some of the correspondence I have received, in a few instances from well-known scholars, warning me against the subversive influence of the descriptive linguists. As a mere professor of English literature, it seems I need to beware lest inadvertently I betray a whole profession. But

I have met the light *housekeeper's* daughter in the city of the white *house*, and, though under stress, and threatened with the "double cross," I think I escaped with my virtue. Frankly, I don't pretend to know what the linguists are talking about much of the time, but I confess to a temperamental affinity with the evangelical spirit, the scholarly zeal, and the passion for work which I have noted in those I have met. They are most convivial missionaries, with all the clubbiness and aggressiveness of a convinced minority. As some of them already know, the FL Program welcomes any practical ideas they may offer for improving language instruction, so long as such ideas are expressed in language understandable to those who need to profit from them. Meanwhile, I fervently wish that more non-linguists among language teachers would imitate the energy and the persuasive confidence of these "subversive" characters. The few moments of real discouragement I have had as Director of the FL Program have come from an overwhelming awareness of the defeatism and indifference which blind so many traditional language teachers to the opportunities of a lifetime.

It's a big country, and touching every foreign language teacher in it is a task of staggering proportions, a problem in communication to challenge us who consider ourselves experts in communication. But the FL Program will settle for nothing less. It seeks to understand the situation in Maine, Connecticut, Rhode Island, and New Jersey, where every public high school offers some instruction in a modern foreign language, and also the situation in North and South Dakota, Iowa, Nebraska, and Oklahoma where *nine out of every ten* high schools offer no modern foreign language at all and enrollments in modern languages are less than 5 per cent of the total enrollment. We are following closely the situation in our public elementary schools, some 1,500 of which were last fall offering instruction in French, German, Italian, Spanish, or Polish. We are watching the liberal arts colleges, 85 per cent of which still have a language degree requirement, 30 per cent of which still require languages for entrance. I could go on with these statistics, which I mention only to remind you of the fact that, two years ago, *no one* could have produced such revealing and useful figures. They give us the understanding upon which constructive action can be based.

In this constructive action we explicitly invite your assistance.

The FL Program cannot legislate to teachers, but it can inform them it cannot compel improvement, but it can hold up examples of better methods, fresh approaches, more realistic objectives. It can publicize results. It can give the profession a voice. I am not merely rhetorical in saying this; we have recently produced a statement of the minimal, good, and superior qualifications of a secondary school teacher of foreign languages, and this will soon be published to the world with the approval of the executive boards of seven national and at least six regional associations of language teachers. To the best of my knowledge, this is the first time that language teachers in America have ever spoken with one voice on a matter of central importance, the proper training of teachers. We are now in a position to say to our critics: "Anything less than this we will not defend. If you accept anything less, you alone are responsible for the results."

Yes, I've enjoyed my adventures on the other side of the looking-glass. It's been fun. Moreover, I've met some wonderful people, whom I would probably never have known had I not broken through my purely scholarly reflections and dared to serve a profession. I do not expect you, however, to be more than casually interested in one man's feelings; I have talked in this very personal way only because it may throw a somewhat different light on your own problems—put them into a new perspective. Alice, you will remember, was a Victorian miss, and liked to draw morals from her adventures. Those I would have you draw from mine are chiefly two. First, this profession of language teachers needs more people who possess scholarship, *and* teaching skill, *and* a sense of professional responsibility. The thing is possible, as your presence at this meeting in part suggests; it is far from widespread, as the absence of your colleagues mutely argues. But let us state this more often as a goal, let us tell our graduate students about it, and let us reward those who achieve it. My second moral is that language teachers should strive increasingly for professional unity, learning a little *intramural* understanding while they are busily inculcating international understanding. Unless you would have another national organization—and God knows there are enough already!—the FL Program offers a present means of achieving and expressing that unity. I trust that it will have your whole-hearted support.

APPENDIX I

Program of the Sixth Round Table Meeting

FIRST SESSION—Friday, April 15, 1955, 9:30 A.M.

Welcoming Remarks:

Reverend FRANK L. FADNER, S.J. (Executive Assistant to the Regent, School of Foreign Service)

L. E. DOSTERT (Director, Institute of Languages and Linguistics)

RUTH HIRSCH WEINSTEIN (Institute of Languages and Linguistics) (Chairman of the Sixth Round Table Meeting)

Panel: *Applied Linguistics and the Preparation of Teaching Materials*

Chairman: ALVA L. DAVIS (American University)

Speakers:

S. N. TREVIÑO (Army Language School) *Some Procedures in an Intensive Language Course*

WILLIAM G. MOULTON (Cornell University) *Textbook Materials for Teaching German Pronunciation*

ROBERT P. STOCKWELL (Department of State) *The Preparation of the FSI Spanish Materials: A Case History*

ERNEST N. MCCARUS (University of Michigan) *Phonetic Training as an Aid to Language Learning*

ALVA L. DAVIS (American University) *The Use of Phonemic Analysis in the Teaching of English as a Foreign Language*

LUNCHEON MEETING—Friday, April 15, 1:00 P.M.

Speaker: ALBERT H. MARCKWARDT (University of Michigan) *Linguistic Terminology: A Problem in Communication*

SECOND SESSION—Friday, April 15, 1955, 2:30 P.M.

Panel: *Problems of Translation*

Chairman: L. E. DOSTERT (Institute of Languages and Linguistics)

Speakers:

KENNETH DOUGLAS (Yale University) *Problems in Literary Translation*

EDMUND S. GLENN (Department of State) *Translation as a Tool for Research*

WILLIAM N. LOCKE (Massachusetts Institute of Technology) *Machine Translation to Date*

L. E. DOSTERT (Institute of Languages and Linguistics) *Approach to Mechanical Translation*

Reception—Friday, April 15, 5:30 P.M. (*Offered by Georgetown University, Faculty Lounge*)

THIRD SESSION—Saturday, April 16, 1955, 10:00 A.M.

Panel: *Meaning and Language Structure*

Chairman: FLOYD G. LOUNSBURY (Yale University)

Speakers:

ALLEN WALKER READ (Columbia University) *A Discrimination Among Synonyms of the Word 'Meaning'*

KENNETH L. PIKE (University of Michigan) *Meaning and Hypostasis*

A. N. CHOMSKY (Harvard University) *Semantic Considerations in Grammar*

FLOYD G. LOUNSBURY (Yale University) *The Varieties of Meaning*

CLOSING LUNCHEON—Saturday, April 16, 1:00 P.M.

(*Offered by Georgetown University*)

Speaker: WILLIAM R. PARKER (Modern Language Association) *Adventures Among Language Teachers and Linguists*

APPENDIX 2

Membership of the Sixth Round Table Meeting on Linguistics and Language Teaching—15 to 16 April, 1955

Allen, Robert L., Columbia University

Allen, Robert L., Mrs., Columbia University

Allen, Rolfe L., Dep't. of the Army, G3

Ani, Moukhtar, Georgetown University

Arsenault, Philip E., University of Maryland
Austin, William, Institute of Languages and Linguistics
Barrett, C. J., Col., U.S. Military Academy
Bidwell, Charles E., Foreign Service Institute
Bilinski, Stanislaus K., Institute of Languages and Linguistics
Borkowski, Casimir George, Institute of Languages and Linguistics
Bouianovsky, E., Institute of Languages and Linguistics
Bowen, Donald J., Foreign Service Institute
Brown, Hazel P., New York University
Caino, Domingo, Institute of Languages and Linguistics
Canals, José Manuel, Institute of Languages and Linguistics
Canu, Jean, Institute of Languages and Linguistics
Castiglione, Salvatore J., Institute of Languages and Linguistics
Chatman, Seymour, Wayne University
Chatman, Seymour, Mrs., Wayne University
Chomsky, Avram Noam, Harvard University
Chomsky, Carol, Radcliffe College
Choseed, Bernard J., Institute of Languages and Linguistics
Clark, William H., University of Rochester
Cochin, Renée, Washington, D. C.
Cohen, Antony, Fellow Rockefeller Foundation
Cohen, Antony, Mrs., Fellow Rockefeller Foundation
Conrads, Robert A., Department of State
Critchell, Mary Howard, Institute of Languages and Linguistics
Cutting, Helen F., Greensboro, N. C.
Danesino, Angelo, St. Peter's College
Davis, Alva L., American University
Dostert L. E., Institute of Languages and Linguistics
Douglas Kenneth, Yale University
Dowdeswell, Helen, Valley Stream Memorial H. S., N. Y.
Dunn, John, St. Peter's College
Eddy, Frederick D., Institute of Languages and Linguistics
Ekvall, Robert B., Lt. Col., DA, G2, Washington
Emmanuel, Michael, Institute of Languages and Linguistics
Erwin, W. M., Institute of Languages and Linguistics
Fadner, Reverend Frank L., S.J., School of Foreign Service, Georgetown University
Fallis, Roy F., Jr., Georgetown University
Farber, Barry, Georgetown University
Fersen, Nicholas, Institute of Languages and Linguistics
Fiot, André L., Department of State
Frauchiger, Fritz, Foreign Service Institute
Fulton, Renée J., Board of Education, New York City, N. Y.
Gallo, Armand G., Lafayette College
Gardiner, Catharine, Wilson Teachers College, D. C.
Garvin, Paul L., Institute of Languages and Linguistics

- Gedney, William J., American Council of Learned Societies
Gillette, Jo Anne, Institute of Languages and Linguistics
Glenn, Edmund S., Department of State
Grigaut, H. L., Institute of Languages and Linguistics
Grubbs, Joe G., Institute of Languages and Linguistics
Hanhardt, Arthur M., University of Rochester
Hantshall, Paul K., National Security Agency
Harter, Joseph Martin, Foreign Service Institute
Hayes Mary E., New York State Education Department
Herbert, Raymond J., Institute of Languages and Linguistics
Highley, A. E., Department of Defense
Hildebran, Kathryn B., Western Maryland College
Hill, Archibald A., Institute of Languages and Linguistics
Hodge, Carleton T., Foreign Service Institute
Hoa, Ngyen Dinh, Columbia University
Horn, Stefan, F., Institute of Languages and Linguistics
Jacovantuno, Val, Institute of Languages and Linguistics
Jazayery, Mohammad Ali, University of Texas
Jones, Robert B., Institute of Languages and Linguistics
Kepke, John, American Council of Learned Societies
Kiely, Jane, Institute of Languages and Linguistics
Kiernan-Vasa, Helen, Studio of English, Washington
Kirsan Benkü, Institute of Languages and Linguistics
Kroll, Mary E., Institute of Languages and Linguistics
Kuipers, J. W., Eastman Kodak Co.
La Drière, J. C., The Catholic University
LaFollette, James R., Institute of Languages and Linguistics
Lang, Anton, Georgetown University
Lazenky, M. Candler, Lehigh University
Levitzky, Sergei A., Institute of Languages and Linguistics
Lloyd, Donald J., Wayne University
Locke, William N., Massachusetts Institute of Technology
Lounsbury, Floyd G., Yale University
Louvét, Louis, Institute of Languages and Linguistics
MacAllister, A. T., Princeton University
MacPhail, Marion L., Hood College
Maffud, Maria de Conceicao, Institute of Languages and Linguistics
Marckwardt, Albert H., University of Michigan
Margo, Raphael, Department of State
Martinez, M. G., Georgetown University
Mathiot, Madeleine, Institute of Languages and Linguistics
McCarus, Ernest N., University of Michigan
McIntosh, Lois, Columbia University
Mantini, Lawrence, Institute of Languages and Linguistics
Maudach, André B., Washington
Mayer, Edgar, Lafayette College

Mayer, Yvonne, Lafayette College
Meek, Maria G., Washington, D. C.
Messing, Gordon M., U.S. Government
Montero, Maria, Trinity College
Morrelli, Margherita, The Catholic University
Moulton, William G., Cornell University
Mueller, Hugo, Institute of Languages and Linguistics
Mueller, Hugo, Mrs., Institute of Languages and Linguistics
Mulgrave, Dorothy, New York University
Murdoch, Ameilia C., Dep't of Defense
Myshenkoff, Nicholas A., Institute of Languages and Linguistics
Nemser, William, Columbia University
Norton, Virginia, Public Schools, Washington
Obolensky, Serge, Institute of Languages and Linguistics
Obrecht, Dean H., Lafayette College
Ornstein, Jacob, U. S. Dep't of Agriculture Graduate School
Parker, William R., The Modern Language Association of America
Pavia, Mario, Georgetown University
Pike, Kenneth L., University of Michigan
Ram, Bhagwam, Institute of Languages and Linguistics
Rauscher, Dorothy, Foreign Service Institute
Read, Allen Walker, Columbia University
Read, Charlotte Schuchardt, Institute of General Semantics
Rice, Frank A., Foreign Service Institute
Rosenfeld, Alan H., Union College
Sa'id, Majed, Institute of Languages and Linguistics
San, Richard, Washington
Sanz, Robert B., Sanz School of Languages, Washington
Saudack, Gil M., Washington
Sbaschnig, Robert, Institute of Languages and Linguistics
Shnitnikoff, Boris N., Institute of Languages and Linguistics
Silva-Fuenzalida, I., Foreign Service Institute
Sister Francis, S.N.D., Trinity College
Sister Margaret Thérèse, S.N.D., Trinity College
Sister Mary St. Joseph, Trinity College
Smith, Donald C., Institute of Languages and Linguistics
Smith, Georgienne, American University
Smith, P. H., Jr., Institute of Languages and Linguistics
Spainhour, Mary, Institute of Languages and Linguistics
Spector, S. D., George Washington University
Stanley, Mildred C., Mrs., Washington
Staub, Brother Augustinus, Institute of Languages and Linguistics
Stevens, Lisbeth, School of Advanced International Studies
Stockwell, Lucy, American Council of Learned Societies
Stockwell, Robert P., Foreign Service Institute
Taber, Constance, Columbia University

Towle, Elizabeth, Hood College
 Trager, Edith, American University
 Treviño, S. N., Army Language School
 Waldo, George S., Columbia University
 Walker, Claire, Friends School
 Walker, Lillian Tinsley, Howard University
 Waters, Halsey, Institute of Languages and Linguistics
 Watkins, Charlotte C., Howard University
 Watkins, Mark Hanna, Howard University
 Weinstein, Ruth Hirsch, Institute of Languages and Linguistics
 Wendel, Liselotte E., Institute of Languages and Linguistics
 Wied, Nosuan, Washington
 Wilhelm, Maria, Washington
 Winter, Ralph D., Somerville
 Young, Elizabeth Jen, Institute of Languages and Linguistics
 Young, John, Institute of Languages and Linguistics
 Zanga, Louis, Institute of Languages and Linguistics
 Zelensky, Paul, Institute of Languages and Linguistics

APPENDIX 3

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APPENDIX 4

An Iterative Translation Test*

BALTH. VAN DER POL

Geneva

PURPOSE

It was considered interesting to determine to what extent a given text, translated several times, each translation being made from the previous one, retains its original sense.

METHOD

To this end a selected passage of English text (Version I) was translated in the sequence:

Version I: English (Original)

Version II: French

Version III: English

Version IV: French

Version V: English

so that a total of four translations took place.

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The translators were drawn from the International Telecommunication Union (I.T.U.) and the United Nations (U.N.), and each translator received only the preceding version without further information.

SUBJECT

As subject text, approximately two pages were taken from Will Durant's widely read *The Story of Philosophy* (New York), in which Durant discusses Bacon's tenet that philosophies reflect the nature of the originator and his surroundings, rather than the intrinsic nature of the subject. This text was considered suitable as it treats a subject of general interest in an erudite manner and does not require incidental specialized knowledge.

SOME DETAILS

As an example of the change in style, a number of specific terms, as they pass through the various translators, follow in the accompanying chart.

Naturally, the significance of these changes can only be appreciated fully by reference to the context.

CONCLUSIONS

The primary conclusion that can be drawn from this test is that the meaning has been retained to a remarkable degree, though by comparison with the original (Version I), the style of Version V is entirely corrupted.

Thus a person reading the original, and another reading the final text, should be able to agree on the content and the intent of the paper, although they might not be equally assisted in their appreciation of it by the respective styles.

In the original, even without the typographical indications, it is quite clear where Durant himself is speaking, and where he is quoting Bacon, due to their different styles (though, of course, Bacon has been "translated" into more modern English). In the final text, however, this distinction is no longer clear. Both styles have been lost, obviously by repeated changing from English to French idiom and vice versa, and have been to some extent replaced by the individual styles of the translators.

Para.	Line	I (E) (Original)	II (E)	III (E)	IV (F)	V (E)
1	2	become	redevenir	become again	redevenir	become again
2	2	mistaken	prise	taken	prend	taken
2	6	cause	raison	reason	raison	reason
3	2	sense	jugement	judgment	jugement	judgment
3	3	standard	critère	criterion	critère	standard
3	9	really finds	est le cas	is really the case	réellement le cas	is the case
4	1	understanding	intelligence	intelligence	intelligence	intelligence
4	6	with violent prejudice	causant un grave préjudice	causing grave harm	cause un tort grave et dangereux	committing grave injury
5	4	dry light	lumière franche	open light	flamme libre	unconfined flame
6	9	tentative	tentative	trials	essais	tentative
6	9	experiment	expérience	experience	expérience	experiments
8	4	wonderful	incroyable	unbelievable	incroyable	unbelievable
8	7	first cause uncaused	cause première non causale	non causal first cause	première cause non causale	first noncausal cause
8	8	first mover unmoved	mobile premier immuable	immutabile primum mobile	premier mobile immuable	immovable first mobile
8	10	no cause can be causeless	aucune cause sans origine	no cause can be without origin	nulle cause sans origine	no cause without its origin
8	10	no moves unmoved	aucun mobile sans changement	no mobile can be without change	nul mobile sans changement	no mobile without change

VERSION I (ORIGINAL) (ENGLISH)

1. The first step, therefore, is the Expurgation of the Intellect. We must become as little children, innocent of isms and abstractions, washed clear of prejudices and preconceptions. We must destroy the Idols of the mind.

2. An idol, as Bacon uses the word (reflecting perhaps the Protestant rejection of image-worship), is a picture taken for a reality, a thought mistaken for a thing. Errors come under this head; and the first problem of logic is to trace and dam the sources of these errors. Bacon proceeds now to a justly famous analysis of fallacies; "no man", said Condillac, "has better known than Bacon the causes of human error."

3. These errors are, first, *Idols of the Tribe*—fallacies natural to humanity in general. "For man's sense is falsely asserted" (by Protagoras' "Man is the measure of all things") "to be the standard of things: on the contrary, all the perceptions, both of the senses and the mind, bear reference to man and not to the universe; and the human mind resembles those uneven mirrors which impart their own properties to different objects. . . and distort and disfigure them." Our thoughts are pictures rather of ourselves than of their objects. For example, "The human understanding, from its peculiar nature, easily supposes a greater degree of order and regularity in things than it really finds. . . Hence the fiction that all celestial bodies move in perfect circles." Again,

4. the human understanding, when any proposition has been once laid down (either from general admission and belief, or from the pleasure it affords), forces everything else to add fresh support and confirmation: and although most cogent and abundant instances may exist to the contrary, yet either does not observe, or despises them, or it gets rid of and rejects them by some distinction, with violent and injurious prejudice, rather than sacrifice the authority of its first conclusions. It was well answered by him who was shown in a temple the votive tablets suspended by such as had escaped the peril of shipwreck, and was pressed as to whether he would then recognize the power of the gods. . . "But where are the portraits of those that have perished in spite of their vows?" All superstition is much the same, whether it be that of astrology, dreams, omens, retributive judgment, or the like, in all of which the deluded believers observe events which

are fulfilled, but neglect and pass over their failure, though it be much more common.

5. "Having first determined the question according to his will, man then resorts to experience; and bending her into conformity with his placets, leads her about like a captive in a procession." In short, "the human understanding is no dry light, but receives an infusion from the will and affections, whence proceed sciences which may be called "sciences as one would" . . . For what a man had rather were true, he more readily believes." Is it not so?

6. Bacon gives at this point a word of golden counsel. "In general let every student of nature take this as a rule—that whatever his mind seizes and dwells upon with peculiar satisfaction, is to be held in suspicion; and that so much the more care is to be taken, in dealing with such questions, to keep the understanding even and clear." "The understanding must not be allowed to jump and fly from particulars to remote axioms and of almost the highest generality; . . . it must not be supplied with wings, but rather hung with weights to keep it from leaping and flying." The imagination may be the greatest enemy of the intellect, whereas it should be only its tentative and experiment.

7. A second class of errors Bacon calls *Idols of the Cave*—errors peculiar to the individual man. "For every one . . . has a cave or den of his own, which refracts and discolors the light of nature"; this is his character as formed by nature and nurture, and by his mood or condition of body and mind. Some minds, e.g., are constitutionally analytic, and see differences everywhere; others are constitutionally synthetic, and see resemblances; so we have the scientist and the painter on the one hand, and on the other hand the poet and the philosopher. Again, "some dispositions evince an unbounded admiration for antiquity, others eagerly embrace novelty; only a few can preserve the just medium, and neither tear up what the ancients have correctly established, nor despise the just innovations of the moderns." Truth knows no parties.

8. Thirdly, *Idols of the Market-place*, arising "from the commerce and association of men with one another. For men converse by means of language; but words are imposed according to the understanding of the crowd; and there arises from a bad and inapt formation of words, a wonderful obstruction to the mind." Philosophers deal out

infinities with the careless assurance of grammarians handling infinitives; and yet does any man know what this "infinite" is, or whether it has even taken the precaution of existing? Philosophers talk about "first cause uncaused"; or "first mover unmoved"; but are not these again fig-leaf phrases used to cover naked ignorance, and perhaps indicative of a guilty conscience in the user? Every clear and honest head knows that no cause can be causeless, nor any mover unmoved. Perhaps the greatest reconstruction in philosophy would be simply this—that we should stop lying.

9. "Lastly, there are idols which have migrated into men's minds from the various dogmas of philosophers, and also from wrong laws of demonstration. These I call *Idols of the Theatre*, because in my judgment all the received systems of philosophy are but so many stage-plays, representing worlds of their own creation after an unreal and scenic fashion . . . And in the plays of this philosophic theatre you may observe the same thing which is found in the theatre of the poets,—that stories invented for the stage are more compact and elegant, and more as we would wish them to be, than true stories out of history." The world as Plato describes it is merely a world constructed by Plato, and pictures Plato rather than the world.

VERSION II (FRENCH)

C'est pourquoi il convient tout d'abord d'expurger l'intellect. Nous devons redevenir des enfants, ignorants, comme eux, des doctrines et des abstractions, dépourvus de préjugés et d'opinions préconçues. Nous devons détruire les idoles de l'esprit.

Une idole, dans le sens où l'entend Bacon (et qui reflète peut-être le rejet des protestants de l'idolâtrie), est une image prise pour la réalité, une pensée prise pour une chose. Des erreurs se produisent, par conséquent, et le premier problème de la logique est de repérer et supprimer les sources de ces erreurs. Bacon poursuit alors par une analyse justement fameuse des erreurs. "Aucun homme", a dit Condillac, "n'a mieux que Bacon connu les raisons de l'humaine erreur."

Les erreurs dont il s'agit sont tout d'abord les Idoles de l'Espèce, idées fausses qui sont naturelles à l'humanité en général, "car le jugement de l'homme est considéré à tort" (par "L'homme est la mesure de toute chose," de Protagoras) comme le critère en tout. Or, au contraire, toutes les perceptions, qu'elles relèvent des sens ou de

l'esprit, sont reliées à l'homme et non à l'univers; et l'esprit humain ressemble à ces miroirs inégaux qui communiquent les propriétés qui les caractérisent aux différents objets . . . et les déforment et les défigurent". Nos pensées sont des images de nous mêmes, plutôt que de ce qui les suscite. Ainsi, par exemple, "l'intelligence humaine, étant donné sa nature particulière, croit aisément à l'existence dans toute chose d'un ordre et d'une régularité plus grande que ce n'est le cas en réalité . . . De là, la fiction selon laquelle tous les corps célestes évoluent dans des cercles parfaits".

Une fois reconnue une idée générale (soit qu'elle ait été admise et crue par la plupart, ou qu'elle donne satisfaction), l'intelligence humaine contraint tout le reste à appuyer cette idée et à la confirmer. Et, bien qu'il existe plus d'un exemple frappant et incontestable du contraire, elle n'en tient pas compte et les méprise ou s'en débarrasse et les rejette en établissant quelque distinction, causant ainsi un grave et dangereux préjudice, plutôt que de revenir sur ses premières conclusions. Quelqu'un à qui l'on montrait, dans un temple, les ex-votos offerts par ceux qui avaient échappé à un naufrage, et auprès de qui l'on insistait pour qu'il reconnût la puissance des dieux, fit cette bonne réponse . . . : "Mais, où sont les portraits de ceux qui ont péri malgré leurs vœux?" Toutes les superstitions se ressemblent, qu'il s'agisse d'astrologie, de rêves, de présages, de jugements vengeurs, ou autres, car, pour chacune d'entre elles, les superstitieux trompés prennent note des événements lorsqu'ils s'accomplissent, mais les négligent ou les ignorent lorsqu'ils ne se réalisent pas, bien que ce soit là le cas le plus fréquent.

"Lorsqu'il a délimité la question selon sa volonté, l'homme a recours à l'expérience. Puis, l'obligeant à se conformer à ses sanctions, il la conduit çà et là, telle une captive dans un cortège". En un mot, l'intelligence humaine n'est pas une lumière franche. Elle est influencée par la volonté et les affections, d'où il naît des sciences que l'on pourrait appeler "les sciences que l'on aimerait" . . . Car l'homme est plus disposé à croire ce qu'il voudrait vrai". N'en est-il pas ainsi?

Arrivé à ce point, Bacon donne un précieux conseil, en disant ceci: "Que chaque étudiant de la nature adopte comme règle générale que tout ce que son esprit saisit et sur quoi il s'attarde avec une complaisance particulière doit être mis en doute; et qu'il convient de traiter ces questions-là avec la plus extrême prudence, afin de garder

toujours une intelligence claire et équitable". "Il ne faut pas que l'intelligence puisse, en partant de cas particuliers, arriver à des axiomes qui en sont fort éloignés et prennent alors presque un caractère de vaste généralité. Il ne faut pas donner des ailes à l'intelligence, mais bien plutôt l'alourdir de poids qui l'empêchent de s'enfuir". L'imagination peut être la pire ennemie de l'intellect, alors qu'elle ne devrait représenter que ses tentatives et ses expériences.

Il y a une deuxième catégorie d'erreurs que Bacon appelle les Idoles de la Caverne et qui sont des erreurs particulières à l'homme en tant qu'individu. "Car chacun possède une caverne ou un antre qui lui est propre et réfracte et décolore la lumière naturelle." C'est son caractère, tel qu'il est formé par la nature et l'éducation, ainsi que par son état d'âme ou la condition de son corps et de son esprit. Certains esprits, par exemple, sont analytiques de par leur constitution et voient des différences partout. D'autres, en revanche, sont synthétiques et voient les ressemblances. Nous avons ainsi le savant et le peintre, d'une part, et le poète et le philosophe, d'autre part. De même, "les dispositions des uns témoignent d'une admiration sans bornes pour l'antiquité, tandis que d'autres sont pleins d'enthousiasme pour la nouveauté. Rares sont ceux qui savent garder un juste milieu sans dénigrer ce qui a été correctement établi par les Anciens et sans mépriser les bonnes innovations des Modernes." La Vérité ne connaît pas de partis.

Viennent ensuite, en troisième lieu, les Idoles de la Place du Marché qui, elles, sont dues "au commerce et à l'association des hommes entre eux. Car les hommes communiquent au moyen du langage, mais les mots s'imposent selon l'intelligence de la masse, et il résulte d'une formation mauvaise et inadéquate des mots un incroyable encombrement de l'esprit". Les philosophes dispensent des infinis avec l'assurance insouciant de grammairiens maniant des infinitifs. Et cependant, y a-t-il un homme qui sache ce qu'est cet "infini" et s'il a même pris la précaution d'exister? Les philosophes parlent de la "cause première non causale" ou du "mobile premier immuable". Mais, ne sont-ce pas là, de nouveau, des termes semblables à celui de la feuille de vigne, et qui ne servent qu'à dissimuler une ignorance totale, témoignant peut-être chez celui qui les utilise d'une conscience coupable? Tout esprit clair et droit sait qu'aucune cause peut être sans origine et aucun mobile sans changement. Notre plus grande

reconstruction, en philosophie, serait peut-être celle-ci: "que nous cessions de mentir."

"Il y a des idoles, enfin, qui ont pénétré dans l'esprit de l'homme par les dogmes des philosophes et par de fausses lois de démonstration. Ce sont celles que j'appelle les Idoles de Théâtre car, dans mon esprit, tous les systèmes reconnus de philosophie ne sont qu'autant de comédies représentant le monde tel que l'ont vu les créateurs de ces systèmes, selon une manière irréaliste et théâtrale . . . Et l'on observe dans les comédies de ce théâtre philosophique exactement ce qui se passe dans le théâtre des poètes, à savoir que les récits inventés pour la scène sont plus composés, plus élégants, qu'ils ressemblent davantage à ce que nous voudrions qu'ils fussent que les récits vrais empruntés à l'histoire". Le monde décrit par Platon n'est qu'un monde construit par lui et qui représente Platon plutôt que le monde.

VERSION III (ENGLISH)

That is why the first thing to do is to expurgate the intellect. We must become children again, ignorant, as they are, of doctrines and abstractions, devoid of prejudices and preconceived ideas. We must destroy the "*Idols of the Spirit*".

An idol, in the meaning which Bacon gives the word (which reflects perhaps the rejection of idolatry by the Protestants) is an image taken for reality, a thought taken for a thing. Errors consequently arise, and the first problem of logic is to seek out and eliminate the sources of these errors. Bacon goes on to an analysis of errors which has become deservedly famous. "No man", said Condillac, "has known the reasons of human error better than Bacon."

The errors in question are first of all the "*Idols of the Species*", false ideas which are natural to humanity in general, "for the judgment of man is wrongly considered (by the "Man is the measure of everything" of Protagoras) as the criterion in everything. But, on the contrary, all perceptions, whether of the senses or of the spirit, are related to man and not to the universe; and the human spirit resembles those uneven mirrors which communicate the properties that characterize them to different objects . . . and distort them and disfigure them." Our thoughts are images of ourselves, rather than of the things that give rise to them. Thus, for instance, "the human intelligence, on account of its particular nature, easily believes in the

existence in all things of an order and a regularity which are greater than is really the case . . . Hence, the fiction that all the heavenly bodies move in perfect circles."

Once a general idea is recognized (whether it has been accepted and believed by most people or that it gives satisfaction), the human intelligence constrains everything else to support this idea and confirm it. And, although there exist more than one striking and unanswerable example of the contrary, it ignores these and despises them, or gets rid of them and rejects them by establishing some distinction, thus causing grave and dangerous harm, rather than renounce its first conclusions. Someone who was shown, in a temple, the ex-votos offered by those who had escaped from shipwreck, and who was urged to acknowledge the power of the gods, replied as follows: "But where are the portraits of those who have perished in spite of their vows?" All superstitions resemble one another, whether they be astrology, dreams, omens, revengeful judgments or others, since for each of them the believers are deceived and take note of events when they are accomplished, but neglect or ignore them when they do not come about, although this is more frequently the case.

"When he has set his own limits to the question, man has resort to experience. Then, forcing it to conform to his sanctions, he conducts it hither and thither like a captive in a procession." In a word, "the human intelligence is not an open light. It is influenced by the will and the affections, whence the birth of sciences that might be called 'the sciences one would like' . . . for man is more disposed to believe that which he would wish to be true." Is it not thus?

At this point, Bacon gives the following valuable advice: "Let each student of nature adopt the general rule that everything which his spirit seizes and over which it lingers with particular complacency must be put into doubt; and let those questions be treated with the most extreme caution, so as always to retain a clear and equitable intelligence." "The intelligence must not be able to go from particular cases and reach axioms which are very distinct therefrom, and which then take on almost a character of widespread generality. The intelligence must not be given wings; it must rather be weighed down with weights that prevent it from fleeing." The imagination can be the worst enemy of the intellect, when it should represent only its trials and experiences.

There is a second class of errors that Bacon calls the "*Idols of the Cave*", and which are errors that are peculiar to man as an individual. "For each one possesses his own cave or den which reflects and discolours the light of nature." It is his character, as formed by nature and education, and by his state of mind, or the condition of his body or his spirit. Some minds, for instance, are analytical in their constitution and see differences everywhere. Others are synthetical and see likenesses. Thus we have the scientist and the painter on the one side, and the poet and philosopher on the other. "The dispositions of some bear witness to a boundless admiration for antiquity, while others are full of enthusiasm for novelty. Rare are those who can keep a just balance without depreciating that which has been correctly established by the Ancients and without despising the good innovations of the Moderns." Truth does not take sides.

In the third place, there are the "*Idols of the Market Place*", which are due "To commerce and association men among themselves. For men communicate by means of language, but words impose themselves in accordance with the intelligence of the mass, and there results from a poor and inadequate formation of words, an unbelievable encumberment of the spirit." Philosophers deal out infinities with the careless confidence of grammarians handling infinitives, and yet is there a man who knows what this "infinity" is, and whether it has even taken the trouble to exist? Philosophers speak of the "non-causal first cause" or the "immutable *primum mobile*". But are not these more terms which resemble the fig-leaf and which merely hide a total ignorance, bearing witness, perhaps, in him who uses them to a guilty conscience? Any clear and upright mind knows that no cause can be without an origin, and no mobile without change. Our greatest reconstruction in philosophy would perhaps be this: that we should cease to lie".

"There are idols, lastly, which have entered into the spirit of man through the dogma of philosophers and through false laws of demonstration. These I call the "*Idols of the Theatre*", for, to my mind, all the acknowledged systems of philosophy are but so many plays representing the world as seen by the creators of these systems, in an unreal and theatrical manner . . . and in the plays of this philosophical theatre can be observed exactly what happens in the theatre of poets, namely, that stories invented for the stage are better composed and

more elegant and are more like what we should wish them to be than the stories taken from history." The world described by Plato is merely a world built up by him, and which represents Plato rather than the world.

VERSION IV (FRENCH)

C'est pourquoi la première chose à faire c'est d'expurger l'intellect. Il faut que nous redevenions des enfants, et que, comme eux, nous ignorions les doctrines et les idées abstraites, nous soyons dépourvus de préjugés et d'idées préconçues. Il nous faut détruire les "*Idoles de l'esprit*".

Une idole, au sens que Bacon donne à ce mot (reflétant sans doute le rejet de l'idolâtrie par les Protestants), c'est une image que l'on prend pour la réalité, une pensée que l'on prend pour une chose. Des erreurs surgissent donc, et le premier problème de logique consiste à rechercher et à éliminer les sources de ces erreurs. Bacon a fait une analyse des erreurs qui, à juste titre, est devenue célèbre. "Personne", a dit Condillac, "n'a connu mieux que Bacon les raisons de l'erreur humaine."

Les erreurs en question sont, en premier lieu, les "*Idoles de l'espèce*"; ce sont les idées fausses qui sont naturelles à l'humanité en général, "car c'est à tort que le jugement de l'homme est considéré—("L'homme est la mesure de toute chose", disait Protagoras)—comme le critère de toute chose. Bien au contraire, toutes les perceptions, qu'elles soient des sens ou de l'esprit, se rattachent à l'homme et non à l'univers, et l'esprit humain est comme ces miroirs défectueux qui communiquent les propriétés qui les caractérisent aux différents objets . . . et les déforment et les défigurent." Nos pensées sont des images de nous-mêmes plutôt que des images des objets qui les font naître. C'est ainsi que, par exemple, "l'intelligence humaine, à cause de sa nature propre, croit aisément qu'il existe en toutes choses un ordre et une régularité plus grands que cela n'est réellement le cas . . . D'où la fiction que tous les corps célestes se meuvent selon des cercles parfaits."

Dès lors qu'une idée générale est reconnue (que la plupart des gens l'acceptent et lui accordent créance ou qu'elle soit considérée comme satisfaisante), l'intelligence humaine force tout le reste à soutenir cette idée et à la confirmer. Et quand bien même il existe maints

exemples frappants décisifs qui prouvent le contraire, elle ignore et méprise ces exemples ou bien encore elle s'en débarrasse et les rejette en établissant quelque distinction, et cause ainsi un tort grave et dangereux, plutôt que de renoncer à ses conclusions premières. Quelqu'un à qui l'on montrait dans un temple les ex-voto offerts par ceux qui avaient échappé à un naufrage, et que l'on pressait de reconnaître la puissance des dieux, fit cette réponse: "Mais où sont les portraits de ceux qui ont péri en dépit de leurs vœux"? Toutes les superstitions se ressemblent, qu'il s'agisse de l'astrologie, des rêves, des présages, des idées de vengeance ou autres, car, dans chaque cas, les personnes qui y croient sont abusées et notent les événements quand ils sont accomplis, mais elles les négligent ou les ignorent lorsqu'ils ne se produisent pas, bien que ce soit le cas le plus fréquent.

"Quand il a fixé ses propres limites à la question, l'homme a recours à l'expérience. C'est alors que, la contraignant à se conformer à son propre jugement, il la conduit çà et là où il lui plaît, comme un captif que l'on promène dans un cortège." En un mot, "l'intelligence humaine n'est pas une flamme parfaitement libre. Elle est influencée par la volonté et les attachements, d'où la naissance de sciences que l'on pourrait appeler 'les sciences que l'on aimerait' car l'homme est plus enclin à croire ce qu'il voudrait souhaiter être vrai." N'en est-il pas ainsi en fait?

C'est alors que Bacon donne le précieux conseil que voici: "Que toute personne qui étudie la nature adopte pour règle générale que tout ce que son esprit saisit et tout ce sur quoi il s'attarde avec une complaisance particulière doit être mis en doute; et que ces questions soient traitées avec la prudence la plus extrême, afin que l'on conserve toujours une intelligence claire et équitable." "Il ne faut pas que l'intelligence puisse tirer de cas particuliers des axiomes très éloignés des prémisses et qui assument alors un caractère d'extrême généralité. A l'intelligence il ne faut pas donner des ailes, il faut bien plutôt peser sur elle pour l'empêcher de s'envoler". L'imagination peut être la pire ennemie de l'esprit, alors qu'elle ne devrait représenter que ses essais et ses expériences.

Il existe une deuxième catégorie d'erreurs que Bacon appelle les "*Idoles de la caverne*", et qui sont des erreurs propres à l'homme en tant qu'individu. "Car tout homme possède sa caverne ou retraite qui réfléchit et décompose la lumière de la nature". C'est son caractère,

tel que l'ont modelé la nature et l'éducation, son état d'esprit ou l'état de son corps ou de son intellect. Certains esprits, par exemple, sont analytiques de par leur constitution et ils voient des différences partout. D'autres sont synthétiques et ils voient des ressemblances. Ainsi, nous avons, d'une part, le savant et le peintre, et de l'autre, le poète et le philosophe." Les dispositions de certains les portent à une admiration sans réserve de l'antiquité, alors que d'autres sont pleins d'enthousiasme pour la nouveauté. Rares sont ceux qui savent tenir un juste milieu sans rabaisser ce qui a été correctement établi par les Anciens et sans mépriser les heureuses innovations des Modernes." La vérité n'est pas partisane.

En troisième lieu, il y a les "*Idoles de la place publique*", qui proviennent du "commerce et de l'association des hommes entre eux. Car les hommes communiquent par le moyen du langage, mais les mots s'imposent conformément à l'intelligence de la masse, et il résulte d'une formation médiocre et insuffisante des mots un incroyable encombrement de l'esprit." Les philosophes distribuent les infinis avec l'assurance et l'insouciance avec lesquelles les grammairiens jonglent avec des infinitifs, et pourtant existe-t-il un homme qui sache ce qu'est cet "infini" et s'il a jamais pris la peine d'exister? Les philosophes parlent de la "première cause non causale" ou du "premier mobile immuable". Mais est-ce que ce ne sont pas encore là des termes qui ressemblent à la feuille de vigne et qui dissimulent simplement une ignorance totale, témoignant peut-être chez celui qui les emploie d'une conscience coupable? Tout esprit clair et droit sait que nulle cause ne peut exister sans origine, et nul mobile sans changement. Notre résolution la plus constructive en philosophie serait peut-être la suivante: "Cessons de mentir".

"Il existe enfin des idoles qui sont entrées dans l'esprit de l'homme par l'intermédiaire du dogme philosophique et grâce à des lois de démonstration erronées. Ces idoles, je les appelle les "*Idoles du théâtre*", car, à mon avis, tous les systèmes philosophiques reconnus ne sont qu'autant de pièces qui représentent le monde tel que le voient les créateurs de ces systèmes, sous une forme irréaliste et théâtrale... et dans les pièces de ce théâtre philosophique, l'on peut observer exactement ce qui arrive dans le théâtre des poètes, c'est-à-dire que les histoires imaginées pour la scène sont mieux composées, plus élégantes et plus semblables à ce que nous pourrions souhaiter les

voir être que les histoires véridiques empruntées à l'histoire." Le monde décrit par Platon est simplement un monde qu'il a construit lui-même et qui est l'image de Platon plutôt que du monde.

VERSION V (ENGLISH)

That is why the first thing to do is to purge the intellect. We must become children again, and, like them, ignorant of all theory and abstract notions, strip ourselves of prejudice and pre-conceived ideas. We must destroy the "idols of the mind".

In the sense in which Bacon uses the word—a reflexion, doubtless, of the Protestant rejection of idolatry—an idol is an image that is taken for reality, the thought taken for the thing. Hence, errors arise and the first logical task is to seek out and eliminate the sources of these errors. Bacon has made an analysis of error which has become justly celebrated. "No one", said Condillac, "knew better than Bacon the reasons for human error." The first of these errors are the "Idols of mankind", the false ideas inherent in human nature, "for man's judgment is wrongly regarded as the standard by which all things are measured ('Man is the measure of all things', said Protagoras). On the contrary, every perception, whether of the senses or of the mind, is linked to man and not to the universe, and the human mind is like those defective mirrors that communicate their own characteristics to the various objects . . . distorting and disfiguring them. Our thoughts are images of ourselves rather than of the objects that give rise to them. Thus, for example, "human intelligence by its very nature readily believes that there is in every thing an order and a regularity greater than is in fact the case . . . Hence the fiction that all heavenly bodies move in perfect circles."

As soon as a general idea achieves recognition, that is to say, is accepted, believed and generally regarded by the majority of people as satisfactory, human intelligence obliges all the rest to support and confirm it. And though there may be many striking and decisive examples to the contrary, it ignores and disregards them or else pushes them aside and rejects them on the pretext of some distinction or other, thereby committing grave and perilous injury rather than give up its first conclusions. There was once a man who, on being shown in a temple the *ex-voto* offerings of the survivors of a shipwreck and urged to acknowledge the power of the gods replied "But where are the pic-

tures of those who perished despite their prayers?" All superstitions are alike, whether astrology, dreams, predictions, ideas of vengeance or anything else, for in each case those who believe in them are deluded, heeding events after they have occurred, but neglecting or ignoring them when they do not take place, even though that is what usually happens.

"Once he has set his own limits to the question, man falls back on experience and, shaping it to fit his own judgment, leads it hither and thither at will like a prisoner in a procession." In a word "human intelligence is not a flame entirely unconfined. It is influenced by the will and the passions; hence the birth of those sciences that might be called "the sciences of predilection", for man is readier to believe true the things he would like to be true". And is it not so in fact?

It is in this connection that Bacon then gives the following wise counsel: "Let every man who studies Nature take as a general rule that everything apprehended by the mind and everything that it dwells upon with particular pleasure must be doubted; and that such matters must be approached with extreme caution in order always to preserve a clear and balanced judgment" . . . "The intelligence must not deduce from particular cases axioms far removed from the premises, which then take on characteristics of an extremely general nature. The intelligence must not be given wings, but should rather be held down in order to prevent it flying away." The imagination, which should only reflect the tentative experiments of the mind, may well become its worst enemy.

There is a second category of error that Bacon calls the "idols of the cave", which are those errors peculiar to man as an individual. "For every man has his own cave or retreat which deflects or corrupts the light of nature." The cave in his character, shaped by nature and education, his state of mind, of body, of intellect. Some minds, for instance, are constitutionally analytical and see differences everywhere. Others are synthetical and see likenesses. Thus we have on the one hand the scholar and the painter and, on the other, the poet and philosopher. "The dispositions of some men incline them to an unqualified admiration for antiquity, whereas others are full of enthusiasm for novelty. Rare are those who know how to strike a fair balance without depreciating that which has been correctly established by the

Ancients or despising the successful innovations of the moderns." Truth is not partisan.

Thirdly, there are the "idols of the market place" arising from the "commerce and association of men with each other. For men communicate by means of language, but the choice of words is dictated by the intelligence of the crowd, and a mediocre and inadequate vocabulary leads to an unbelievable encumbrance of the mind. Philosophers dispense infinities with the easy assurance of grammarians juggling with infinitives, yet is there a man alive who knows what an "infinite" is, and if it has ever even taken the trouble to exist? Philosophers speak of the "first noncausal cause" or of the "immovable first mobile". But are not these merely terms which, like the fig leaf, simply conceal utter ignorance and perhaps even point to a guilty conscience in the user? Every clear and straightforward mind knows that there can be no cause without its origin and no mobile without change. Perhaps the most constructive resolution in philosophy would be "Let us stop lying".

There are, finally, idols which have penetrated men's minds through philosophical dogma and faulty methods of demonstration. I call these idols the "idols of the theatre" because, to my mind, all the recognized philosophical systems are nothing more than plays which depict, in unreal, theatrical form, the world as seen by the creators of those systems . . . and in these philosophers' plays can be found exactly the same thing as in the poets' plays, that is to say, that the stories fashioned by the imagination for the stage are better composed, more elegant and nearer to our desires than true stories from history." The world described by Plato is simply a world that he has built himself, a world in the image of Plato, not of the real world.