The Study of Human Language in Human Life*

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Linguistics is quite simply the scientific study of human language in all its manifestations and uses, near and far, past and present, without restriction on time, place, or culture. In this respect linguistics is different from language study, since this latter term is normally used to refer to the study of a particular language, say Latin, French, German, Malay, or English, in order to read its literature in the original language, or for the purposes of written or spoken communication with its speakers. But the linguist, in the sense of the student of linguistics, studies languages, his own or foreign language, as examples of mankind's faculty of language acquisition and use, in order to learn more about the ways in which language works and how it may best be described and analysed. An American linguist has put this well: 'Linguistic scientists are engaged in developing a sound body of scientific observation, facts, and systematic theory about language in general and languages in particular' (Carroll 1953:2).

In one way language is too familiar to us all, every normal human being has throughly mastered the use of one language in childhood without knowing much about the process, and in areas and social systems that require and facilitate it, many persons of no more than average intelligence and application have a fluent command of two or even more different languages. Just because language is universal and so much taken for granted as part of our lives, its problem and perplexities, but also its incredible fascination to those who take the trouble to examine it for its own sake, often pass unnoticed among otherwise sensitive and percipient persons.

Leonard Bloomfield (1914:325), one of the greatest linguistic scholars who ever lived, once declared that 'Linguistic science is a step in the self-realization of man' He was right to do so, because of all the abilities that distinguish man from the rest of the animal kingdom, language is the most prominent and the most important. Consider

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almost any aspect of human life as we know it or have read of it, particularly of man's life in conjunction with his fellows, and ask how much, if any, of it could he recognizably maintained without the use of language.

Language is species-specific to humankind. No physiologically and psychologically normal human, he he or she clever or dull, introvert or extrovert, fails to master a mother tongue in the prepubertal years. We speak today of the so-called 'language' of bees and of some other animal species, including the primates; and, more generally, animal communication is a very proper field of study, but there is a great gulf fixed between even the most language-like of these systems and any known human language.

The traditional definition of man as *homo sapiens* might be more aptly replaced by *homo logiens* (cp. Fry 1977). Rationality and the ability to communicate by speech go hand in hand. It is implausible to say, as mediaeval thinkers tended to do, that speech was given to mankind to express an already fully fledged rationality; and the eighteenth century philosophers of language, such as Herder, were surely right in assuming that man developed as a thinking animal *pari passu* with his development as a speaking animal.

Once one has begun to examine language, its intricacy, delicacy, and power become endlessly fascinating; but for many people all this remains below the level of conscious awareness. Learning to speak is almost effortless, in marked contrast to the conscious and willed effort
literacy or in the learning of a foreign or second language at school or in later life.

Of course careful parents spend time and take trouble in teaching their children a command of their own spoken language. But this activity really refers to extending their vocabulary rather than teaching them the grammatical and phonological structure of the language. Visits to zoological gardens and utterances like "That's a hippopotamus', and conversational exchanges of the type 'What's that?', 'That's a giraffe',
long neck', and so on, all presuppose on the part of the child an existing mastery of a great deal of basic grammatical structure: the interrogative syntax of questions, the declarative syntax of statements, the referential function of pronouns (now the subject of so much current research among generative grammarians), and the predicative value of the copula verb, etc. All of these are still very difficult to make explicit in linguistic descriptions and in sets of rules; it would be quite impossible to explain them in advance to children at their most vigorous question-and-answer stage in life.

Just what processes are involved in a child's acquisition of his first language, his or her mother tongue. is an intriguing field of research, and first language acquisition is one of the major growth points in

linguistics today, with its own specialist literature and regular conference meetings. How much innate structure does the child bring with it into the world, and how far is language acquisition the result of unconscious pattern abstraction and analogical creation from random exposure? These questions add a new depth and new insights to the long familiar question of language universals or universal grammar.

One of the major tasks of the linguist is to describe language, to write grammars, and to compile dictionaries. There are quite literally thousands of distinct languages in the world today, most of them very inadequately described and analysed, and the greatest certainty about the best known languages such as English is just how much we have still to understand. But as native speakers we successfully control it all. The problem is one of getting down on paper exactly what we have in our heads as speakers of a particular language. The initial sentence of one book puts it thus (Katz and Postal 1964:1); 'A linguistic description of a natural language is an attempt to reveal the nature of a fluent speaker's mastery of that language'.

How can the linguist set about his task of understanding language and describing language? And how can he do this both for his own intellectual and professional satisfaction and in a way that will make available interesting and illuminating statements for other people? This is what linguists are trying to do in attempting to popularize their subject (in the best sense of that misunderstood verb).

We do well to examine language primarily and principally from the starting point of speech. One is used in literate civilizations like our own to think of languages as systems of writing with a pronunciation; it is better to think of them as systems of oral communication that may in some way be written down. Every normal person speaks, but many languages are without any writing system, and in many areas those who can read and write are few, and in earlier times they were proportionately fewer still. Everywhere speaking and hearing occupy far more time than writing and reading. Speech is a skill acquired before writing, and in the span of human history, writing is very much a newcomer, perhaps four or five thousand years old, whereas speech is probably coeval with *homo sapiens*. We may say that it is the conditions of speaking and listening rather than those of writing and reading that have determined the development of language in general and of each particular language. Moreover the orderliness, complexity, and efficiency of the language of illiterate peoples, whose cultures are labelled as primitive by outside observers, are not inferior, or superior, in quality or degree; nor indeed are the languages of such peoples notably different in form from languages long studied and familiar as the vehicles or worldwide civilizations. This is one of the more valuable incidental lessons of linguistic studies.

Speaking is essentially making and responding to certain sets of noises by means of which we cooperate in living in and understanding

our common world and in regulating our relations with one another therein. The more portentous definition of speech as the communication of thought may be taken as covering a relatively small part in this more general and humdrum activity. The material of speech, sounds emitted from the vocal tract, is limited, but its range and application, nothing less than the entire furniture of earth and heaven and all our doings therein, is unlimited. Yet speaking is only a by-product, an exploitation of waste; with few exceptions, that do not alter the general picture, speaking is simply the noisy interference with expiratory breath, used air, as it passes up from the lungs through and over the various organs of speech: glottis, tongue, palate, teeth, lips, nasal cavity, etc. Breathing out is a biologically essential process of ridding the lungs of air charged with carbon dioxide. The energy expended in additionally interfering with it to make a noise, that is, to speak, is minute. In the light of the importance of spoken language in human life as we know it, one may challenge anyone to name any other exploitation of waste material that comes anywhere near it in power and significance. Moreover the organs of speech as they are called, for example the teeth and the tongue, are not primarily organs used just for speaking, in the way that the lungs and the stomach are the organs of breathing and digestion. They are organs performing a number of functions in the economy of the human body; speaking is one more function superimposed upon them.

Yet this wonderful and complex activity is learned by any normal child in his or her early years. In childhood we master the pronunciation and the grammar of our native, our first and perhaps our only, language, and its basic vocabulary. Grammar and pronunciation are more or less exhaustively acquired for the spoken language in childhood, except in situations of rapid language change, personal dialect replacement, and the like, but our vocabulary goes on changing and enlarging itself all our lives; we learn new words and new meanings of old words almost every day, fitting them in to our established pronunciation patterns and grammatical rules.

Speech is invariably linear, or unidimensional, as it proceeds, and the stream of spoken sound must be separated by pauses into manageable bits. These bits are usually smaller than complete sentences. We have, all the time, to keep within the average memory span of the hearer. Written sentences and parts of sentences can be as long and as unbroken as you like, because we can read and reread them. Thus it is that legal texts can dispense with many punctuation marks and when read aloud may become comically unintelligible.

How can such a restricted base of articulatory, auditory, and memorizing possibilities support such a vast social superstructure? One part of the answer lies in what has been called the 'double structuring' of language (Martinet 1948). Speech sounds as such, like the letters of the alphabet as such, are meaningless; we cannot

sensibly ask what *t* or *f* means, in the way that we can ask in simpler communication systems like traffic lights what the red light means: it means 'Stop' Each language uses a somewhat different set of sound distinctions within the totality of possible speech sounds: English distinguishes [t] and [ ], German [k] and [x], Arabic velar [k] and avular [q], and so on. Hence in part the difficulties encountered in pronouncing foreign languages.

In the English word *pin* there are just three such units. *Pin* is minimally distinct from *bin*, from *pen*, and from *pit;* other audible differences, such as loudness and pitch, do not alter the word you recognize. But such features may be distinctive in other languages; in Chinese *pin* said on a level tone and *pin* said on a rising tone are different words. Phonetic differences are indefinitely divisible; no two people sound exactly alike even when talking the same dialect of the same language in the same style, and this is how we recognize different speakers' voices. But the phonological form of a language recognizes only discrete distinctions. I can say the words *pin* and *bin* in all sorts of different ways, with more or less initial aspiration, with heavier or lighter vibration of the vocal cords in the *b* segment, etc., but as long you assume that I am talking English you will try to assign what I say to one or the other of the two words. You may think that I am teasing, that I am a bit drunk, or that I am a foreigner or a speaker of an unfamiliar dialect, but you will always seek to impose on what I say the pattern of distinctive segments that you have come to recognize for the English language.

Some marginal aspects of language are not like this. If I speak softly, you will understand that I am being confidential, intimate, or perhaps reassuring; if I shout you assume that I am angry or excited, and the louder I shout the angrier you think I am getting. There are no distinctive jumps here from one unit of loudness to another, but a continuous scale interpreted as such by speaker and by hearer Moreover in these less central aspects of speech there is a direct connection between the sound feature as such, e.g. loudness, and its meaningful counterpart, e.g. anger or excitement.

Distinctive sound units form one level of structure. But these units can be grouped into sequences (sometimes a sequence of one unit only), and these sequences do bear meanings. *Pan* and *ban, pill* and *bill* differ in their initial consonants and they mean different things, but *p* and *b* do not of themselves mean anything. [s] as a sound is meaningless, but as a plural marker in words like *cats* and *caps,* along with the [iz] of *paces* and *horses* and the [z] of *cow* and *dos,* it does bear a meaning, 'more than one'. English spelling, which uses one letter for these three different phonetic representations of plurality, is not so irrational as is sometimes maintained.

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markers just mentioned, or the *-er* of *singer* and *builder*, or the *-ism* of *nationalism* and *liberalism*, technically called morphemes. They have meanings and they contribute to the meanings of the words that they compose. Words are combinations of distinctive speech sounds, and they have meanings; they also come together to form sentences according to definite patterns and rules (sentences are not haphazard sequences of words). These three aspects of language give rise to the three main divisions within linguistics, which correspond to the three traditional branches of language study: phonetics or pronunciation, vocabulary and dictionary making, and grammar.

The double structuring of language, which probably does not apply to any known animal communication system, provides the means for the necessarily infinite flexibility of language, whereby we can talk about anything we please through the strictly finite resources of our native language. This was well summed up by Wilhelm von Humboldt a century and a half ago (1836:103): 'Language must make unlimited use of limited means'. This unlimited flexibility comes about in two ways:

1. Syntactically there is no theoretical limit on sentence complexity or sentence length, other than the practical one of comprehensibility; put technically, the syntax of a language nust contain some indefinitely recursive rules. We can say, for example, something like this: 'I have come here today, to give a talk, which I promised to the University, which had invited me to take part in a conference which they were organizing, for the purpose of investigating ....' and so on and so on. This is also the pattern of the jingle *The house that Jack built:*

This is the farmer sowing his corn,
That kept the cock that crowed in the morn,
That waked the priest all shaven and shorn...

This well-known poem rambles on until it is finally closed by 'that lay in the house that Jack built'. The point is that there is no grammatical limit at which you can say that any further subordinate clause will be syntactically wrong or a breach of a statable rule; we also notice that the poem from which I have just quoted, though in an extreme form of its type, is part of the corpus of English speaking children's literature and that children find no difficulty in following and understanding it.

2. Lexically languages have indefinite flexibility. New words can always be created to cope with new things, like *gas* or *kodak*, or they can be made up from existing bits, like *microorganism* or *encephalography*, or they can be borrowed from other languages, like *tobacco, potato,* and *kindergarten*. But though the lexicon of a language is flexible and indefinitely variable, being composed of individual words,

it is still structured. This structuring is looser than that of phonology and grammar, but we can still speak legitimately of the lexical form or the lexical structure of a language. Word meanings are not fixed and determinate individual relations between words and things or concepts aggregated in a lexical heap like suitcases in a luggage store or unsorted letters in a post-office. They are in part a function of the total number of words and wordlike phrases available for use in a language at a given time. In a sense a sort of 'Parkinson's Law' applies in vocabulary; the meanings of words expand or contract to fill the available semantic space. We can distinguish as many things as we can name, and we can classify them in as many ways as we can use a common term to refer to them. A familiar example of this lies in the field of colour recognition. The range of humanly discriminable hues, if not infinite, far exceeds the colour word vocabulary of any known language, and it is well known that different languages make their primary cuts in the colour spectrum at different places; a single colour word in one language has to be translated by two or even more colour words in another, and *vice versa*. In the learning process it is doubtful if a child learns the principal colour words in his or her language separately (as in English *red, green, blue, yellow,* etc.); each occupies the place it does in the colour spectrum by virtue of the co-presence of the rest of the colour vocabulary When we need to be more precise than is normally necessary, we can subdivide the main terms and invent new ones or press other words into technical service: *peach, blush-pink, cream, eau-de nile, bice-green,* etc. The more words there are in a given range the more restricted and exact is the function or meaning of each one of them. One of the main reasons for the precision of quantitative arithematical statement as compared with quantitative statements is the infinite extensibility or quantitative terms on the basis of a very small lexical stock. According to the degree of precision required there is always a further term between any two prior terms: between 11 and 12 there is 11 1/2 or 11.5, between 11 and 11 1/2 (11.5) there is 11 1/4 (11.25), and so on without end, and all these quantities are readily pronounceable (*eleven and a half,* etc.). Compare the numerical divisions on a thermometric scale with the repertoire of normal temperature vocabulary in English or any other language (*hot, warm, cool, luke-warm, cold,* etc., though we can, of course, add to these, as with colour vocabulary, if we want to).

It is this infinite flexibility that distinguishes human language from all known varieties of animal communication. Human beings express what they need or want to express; as an individual's experience is enlarged, as a community's culture changes, so does the vocabulary available for use. Very properly, animal communication systems are studied scientifically today, both for what they reveal about the animal kingdom and for their relevance to human communication.

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Let us remember that human beings communicate in other ways than through speech, for example by facial and other bodily gestures and by touching. Studies embracing all these systems have come to be known collectively under the title *Semiotics,* and animal systems are sometime designated by *zoosemiotics.*

Human beings can express affection tactually by caressing and kissing, and they can offer
many cultures. We can also achieve these ends verbally, but it is only in words that we can, for example, give or elicit information about the time of the next fast train to London or the price of an airline ticket between Kuala Lumpur and Heathrow To cite one of the best documented areas of animal communication, we read that bees are able to inform each other of the distance, direction, and strength of a nectar source out of sight of their hive, by performing symbolic dance-like movements, thereby enabling other bees that have not left the hive to make their way straight to it (Von Frisch 1954; 1967). But bees cannot ask questions, for example they are totally non-plussed if the hive is moved while they are away, nor can they discuss whether it is worthwhile gathering nectar at the time, and, if so, who should do it; and these are just the sort of questions that the least intelligent human child can easily manage.

These non-human communication systems among various animal species can, so far as is known, be described as single-structured, lacking the stage involved in combining one set of signs, by themselves meaningless, into another set, which do bear meanings related to the external world. This fact and the narrowly restricted semantic ranges of animal communication, and of human non-linguistic communication, set human speech, human language, in a place apart within the totality of semiotic systems.

So far Washoe has been deliberately left out of account. Washoe, a chimpanzee, has been expertly trained to operate a communication system with a limited vocabulary and a limited syntax that can be linked to human language. The symbols themselves must be expressed visually; attempts to train Washoe, or any other primate, actually to speak have proved unsucessful, perhaps because of the different form of the non-human larynx (Lenneberg 1967:39-52). But for all the devotion and skill of the trainers of Washoe and of other such experimental animals, the fact remains that their communicative achievements came about within an essentially human environment and a very special one at that. Unlike the bees, no chimpanzee or other primate is known to have evolved anything comparable on its own, and the question must remain whether Washoe's performances, significant as they undoubtedly are, do not belong more to the realm of the animal trainer than to the realm of the ethnologist (Gardner and Gardner 1969; Premack 1970; Aitchison 1976: chapter 3).

There is, then, a profound and wide gap between any known animal communication system and any known human language. Possibly this gap was once bridged by various now extinct hominid species ('missing links') possessing intermediate language-like vocal means of communication, the product of a more highly developed brain and of a larynx evolving towards its present structure, a communication system that displayed increasing flexibility and adaptability to new circumstances. If, as has been suggested, early man was forced by population pressures and food shortages to migrate to new climates and terrains and to take up hunting, the survival value of spoken language in a form comparable to what we know today is obvious (Morris 1967: chapter 1).

Consider the advantages of speech as the material of communication over gesture, facial display, etc. It uses very little energy beyond that expended in silent expiration, it does not interfere with locomotion or with the use of the hands, and in most cases it is compatible with normal eating and drinking (the civilized discouragement of children 'talking with their mouths full' is more a matter of manners and aesthetics than a precaution against choking). Speech can be used by day and by night between mutually visible and invisible partners, and one person's voice, as we know from telephone conversations, can usually be distinguished from another's even when the same dialect of the same language is being spoken.

Linguists are now paying increased attention to the physiology of speech beyond the more obvious aspects of articulation. Just what part is played by the brain and the central nervous system in speaking and in understanding speech? For decades linguists have acknowledged their awarness of Broca's convolution, but more recently the work of such scholars as Lenneberg has aroused much more interest in research of this sort, and a specialization entitled neurolinguistics has come to be recognized within the purview of the linguistic sciences. Research is currently being carried on in several parts of the world on the possible localization of aspects of speech production and speech reception in different areas within the brain. Most notably Lenneberg (1967) has argued that part of the maturational process that takes place in the prepubertal years is the progressive separation of functions between the two hemispheres of the brain and the normal localization of much of speech functioning in the left hemisphere. One of his theses is that during childhood, before this lateralization is accomplished, language learning by exposure (which is how we learn our first language) comes readily, but that after lateralization is complete, in puberty, foreign languages have to be learned by conscious effort as intellectual subjects much like other school learning. This certainly seems to bear out one's common experience and observation on language learning in general.

Lenneberg's views were set out in his *Biological foundations of language* in 1967 and have been the subject of further study. The book was not intended to present a final and veridical statement, but we are all aware of the ability of young children to pick up the language and the dialect of the community where they live and of the many adult expatriates who have lived abroad for years scarcely acquiring any command or fluency in the language of their adopted country Labov, well known for his studies in the social setting of language use and of language change, has made available the term 'linguistic puberty' (1973:247) to refer to this falling off in our ability to acquire foreign languages without effort as we pass through our teen years, a falling off for which Lenneberg was seeking a biological explanation.

In view of these biological and sociological researches into second language acquisition, the numbers of multilingual countries in the world like Malaysia and Switzerland, and the current development of the world into a single multilingual community, one can hardly lay too much stress on the importance of effective early teaching of languages in our schools. International trade and the growth in financial and industrial organizations that span territories much larger than single nation-states, the extensive transmigration of working members of different communities, and the writing of technical literatures for the arts and sciences in different languages are all familiar features of life today; and there is every indication that these tendencies will grow more, not less, prevalent in the future. A public speaker not so long ago declared that this was the last adult generation that could expect to hold down more than a routine job while remaining wholly monolingual.

Modern language teaching can and should be thought of and first taught as a practical socially important skill, and not necessarily as an intellectual and literary accomplishment such as was and is the justification for ancient language studies. The study of French and German literature, like the study of Greek, Latin, and Sanskrit literature, is a highly valuable part of the education of many intellectually able and literarily inclined young people of all countries; but this is quite another thing compared to the acquisition of some current colloquial command of spoken and written French and German. Secretaries, doctors, officials, and businessmen in continental Europe and in most parts of Asia already have such a command of spoken English without necessarily any special acquaintance with or interest in English literature.

Returning finally to the main theme of this article, I have tried to present some thoughts on what language is, how it works, what it does in human social life, and how we humans can best seek to understand it and profit by our possession of this faculty. We have the circumscribed but probably indefinite range of actually different

vocal sounds, and we have the uncircumscribed and infinite range of the universe of human experience. Our social life depends on our use of language, and it is in language that form and structure are imposed through phonology, grammar, and lexicon on these vocal sounds; and it is through their use that form and structure are imposed on our environment, creating indeed what we call our common world. Many traditions treat language as a sacred thing; and they are well justified in so doing, for it is language that gives order and significance to primal chaos.

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