

Foundations of Language

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PREFACE

*Il n'y a pas de faits indépendants; chaque catégorie de faits reste inintelligible, tant qu'on s'enferme dans une étude spéciale, car elle est liée à d'autres, qui en sont la raison d'être. On doit isoler les faits pour les constater, les rapprocher pour les comprendre. (Henri Delacroix, *Le Langage et la pensée*, second edition, Paris, 1930, p. 77.)*

THIS book has had its origin not only in many years of technical study of language, but in practical experience of the needs of students in the classroom, in questions asked by lay friends and acquaintances, and in letters read in the daily press or received from many enquirers personally unknown. It is an attempt to answer the problems raised by specialist and layman alike, to summarise the present state of linguistic knowledge, to set forth certain hypotheses which seem not wholly improbable, and to draw boundaries between what is generally accepted, what may fairly be inferred, and what is at present utterly unknown. It is not planned for the technical linguist alone, or merely for students in secondary schools, colleges, or universities who may be interested in language, but also for the cultivated public in general who may desire to know something of a phenomenon without which thought itself would be well-nigh impossible (cf. pp. 93-97).

These pages deal with language as a whole, not with this or that language or with this or that linguistic group. Words are quoted from some two hundred languages, and forms and grammatical categories are cited from tongues spoken in every part of the globe; yet beneath this outward multiplicity and, very frequently, apparent contradiction, underlying unity must ever be traced. The aim has been to present, so far as our present state of knowledge permits, an encyclopaedic compendium of linguistics in a single volume; and, since Indo-European is the branch most studied, to give, at the same time, an introduction to Indo-European linguistics as a whole, for which no up-to-date manual in English exists.

Though all are not general linguists, and though Indo-Europeanists are rare, a few Classicists still remain, and many study French, Italian, or Spanish, English or German. These latter students have

constantly been borne in mind; and every effort has been made, so far as space permits, to explain the various phenomena which present themselves in the languages commonly studied. Had it been possible, citations would have been made only from them, but so closely are they interwoven with others, less known, that such restriction quickly proved impracticable.

Special stress has been laid throughout on precise definition of technical terms. Great haziness here exists in the minds of most, but vagueness of definition brings with it vagueness of thought: a return to Scholastic exactitude is desirable. These definitions and technical terms, as well as cardinal principles, are indicated by *italics*, even at the risk of impairing the aesthetic appearance of the page; and particular care has been taken to give examples to illustrate every statement made. So conflicting are the explanations of many linguistic phenomena, and so rapid and revolutionary are the changing theories of the intensive study of language at the present time, that I have found myself obliged, in a general compendium, to make what seemed to me a wisely conservative choice, and to appear more dogmatic than I really am.

Objection may be made that linguistic psychology is less fully discussed in this volume than in some other manuals on language. After careful consideration, I have become convinced that I should leave recondite problems of psychology to the psychologists — *ne sutor ultra crepidam*; my last here is linguistics, not psychology; and I venture to think that in Chapter IV I have given full value to the influence of thought on language so far as language itself is concerned. I commit myself neither to a vitalistic nor to a mechanistic theory of language, but I can at least say that mechanistic philosophy seems to me (and to others of higher competence here than I) to be not without grave flaws. So far as I am here concerned, the problem is philosophic rather than linguistic.

The standard adopted throughout for the pronunciation of English is that of the public schools in Southern England. English spelling is dictated by historical reasons in themselves: *honour* is from Anglo-French *honour*, and only indirectly from Latin *honore*^m as *honor* would imply; and *catechise* is from French *catéchiser*, and only indirectly from Late Latin *catechizo* (itself borrowed from Greek *κατηχίζω*) as *catechize* would suggest (cf. p. 348). Since I am convinced that Indo-European bases were originally disyl-

labic (cf. p. 159), I have reconstructed them as **bhere-* 'bear', etc., rather than the more conventional **bher-*, etc. Latin quantities have seldom been marked except where necessary for etymological reasons; and Greek and Vedic Sanskrit accents have been indicated in phonetic transcription as stress, though tonic accentuation would technically have been more accurate (e.g., *τομός* 'a cut' as [tomōs] rather than [to'mos]; cf. p. 63). The injunctive (p. 210) is scarcely a true mood, but simply the tenseless aorist used as a future; and the Latin *'faciō* (pp. 63, 233) was merely the unaccented base **dhē-* (cf. Greek *τι-θη-μι*) in the zero-grade **dhə-* (cf. pp. 65–66), so that *'vir* *'facit* 'the man makes' was originally **'uīros dhək.ti*. For the pronouns **so-*, **to-* (pp. 175, 192), E. H. Sturtevant (*Language* xv [1939], 11–19) has proposed an origin different from that which I suggest. The following works came to my attention after the plating of the book: H. Hirt, *Hauptprobleme der indogermanischen Sprachwissenschaft* (ed. H. Arntz, Heidelberg, 1939); M. Wehrli, *Neue Karte der Völker und Sprachen Europa's* (Bern, no date); the first part of S. Pop's *Atlasul lingvistic român* (Cluj); A. N. Tucker, *The Eastern Sudanic Languages* (London, 1939); A. Dauzat, *Toponymie* (Paris, 1939); and the *Revue des études indo-européennes* (Bucharest, 1939, sqq.). A revised edition of *Les Langues du monde* is being prepared.

No formal bibliography has been given. Instead of a long list of titles with no suggestion of their values, which even a technically trained linguist is sometimes puzzled to decide, it has seemed better to record the principal relevant books with some indication of their particular importance as regards their specific subjects after the various language-groups in Chapters XI and XII and in the chapter on The History of Linguistics (Chapter XIII).

My thanks are due to many who have aided me in preparing this volume: to the late Dr Frederick Tilney and to Drs Foster Kennedy, William H. McCastline, and Kenneth M. Lewis for examining the section on the brain (pp. 89–93), and to Dr Paul R. Neukirch for reading the manuscript as a whole; to my colleagues at Columbia, Dean George E. Pegram for revising the pages dealing with the physics of sound (pp. 45–46), and Professors David Eugene Smith for the mathematical formula of the word (p. 159–160), Gardner Murphy for criticising Chapter IV on Language and Thought, and Robert M. MacIver for similar help in

Chapter V on Language and Society; to Professor Robert J. Menner of Yale University for clarifying the problem of the origin of Anglo-Saxon (pp. 346-347); to Mr Hans J. Uldall of Vedbæk for his criticisms of my definition of the word (pp. 146-147); to Professor Daniel Jones of the University of London for his permission to reproduce Figures 4, 5, and 7 from his *Outlines of English Phonetics*, and to the Librairie O. Doin et Fils of Paris for allowing me to reproduce Figure 8 on the language-centres of the brain.

I must also acknowledge my debt to my students, whose questions, comments, and criticisms have been of much value. In a very real sense, the volume is inspired with the principles of my lamented *quasi-maitre* M. Antoine Meillet and my confrères of the Société de Linguistique de Paris, to whose Gallic profundity of thought, divinatory intuition, and clarity of expression I owe much. To the Publishers and Printers I am grateful for their courtesy, skill, and patience in a task which must at times have been sorely vexing. To my wife I owe a gratitude transcending words. A constant inspiration, an unsparing critic, she has from the first given beyond her strength in correcting manuscript, in reading proof, and in every form of aid that her technical skill and training could afford.

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22 June, 1939.

ARBITRARY SIGNS AND DIACRITICAL CHARACTERS

The following omissions are here intentionally made: Greek letters; characters of the International Phonetic Alphabet (pp. 58-59); those whose phonetic value is obvious in French, Spanish, Italian, German, Latin, etc., or is sufficiently indicated in the text; some, especially in American Indian, which occur only once or twice, and for whose value special grammars dealing with the languages in question should be consulted; and certain signs whose pronunciation is quite dubious (e.g., *q, g, ř, š*).

: = in relation to

< = comes from; is derived from

> = becomes; develops into

/ = varies between

~ = is similar to, but not identical with; is contaminated with

* = hypothetical reconstruction (see pp. 3, note; 440)

Accented vowels (*á*, etc.) in Anglo-Saxon, Old Icelandic, and Irish denote long vowels (*á* = [a:], etc.); so also *â*, etc., in Old High German, Old Frisian, and Old Saxon

under a vowel (*u*, etc.) in Balto-Slavic denotes nasalisation (*u* = [ũ], etc.)

A tilde over a vowel denotes nasalisation in Portuguese; over a vowel, nasal, or liquid in Lithuanian, low-rising intonation (e.g., *ỹ* = [i:~])

Small superior letters (e.g., *centu^m*, *katbuⁿ*) indicate that the sounds which they represent were pronounced extremely short, and under certain conditions were either dropped or survived only as nasalisations; in Avestan, a small superior vowel (e.g., *bava^{ti}*, *ha^{rva}-*) denotes an infection-vowel (cf. p. 313)

' in Semitic = [ʔ]

` in Semitic = [ʕ]

à, etc., in Lithuanian = [a]

ä in Tokharian = [ə]

â, ä in Avestan and Swedish = [ɔ], [ɔ:]

ái in Gothic = [e]

- am* in Sanskrit = [ã]
au in Gothic = [u]
c in Armenian and Balto-Slavic = [ts]; in Sanskrit = [tʃ]
č in Iranian, Armenian, and Balto-Slavic = [tʃ]
ç in Armenian = [tʃh]
ĉ in Armenian = [tʃh]
ch in Anglo-Saxon, Lowland Scots, Irish, Welsh, and Slavic = [x]
c'h in Breton = [x] or [ç]
d, t, n in Sanskrit and Semitic = [d], [t], [n]
ð in Semitic = [ð]
ė in Lithuanian = [e:]
ě in Slavic = [ɛ]
ei in Gothic = [i:]
γ in Semitic = [ɣ], as does *ǵ* in Proto-Teutonic
gk, gg in Gothic = [ŋk], [ŋg]
h in Sanskrit = [ɦ]
ḥ in Sanskrit = [h]; in Semitic = [ħ]
ḥ in Semitic = [χ]
ḥ in Semitic is silent
î in Oscan = [i]
ĵ in Proto-Indo-European = [j]
ĩ in Slavic = extremely short [i]
j in Albanian, Gothic, Balto-Slavic, etc. = [j]; in Armenian = [dz]; in Sanskrit and Arabic = [dʒ]
ǵ in Avestan and Armenian = [dʒ]
ĵ in Proto-Indo-European = [j]
ĵ in Sanskrit = [ɟ]
m in Proto-Indo-European = [m]
n̄ in Tamil = English semi-retroflex [ɳ]
n̄ in Proto-Indo-European = [n]
ȯ in Lithuanian = [o:]
ø in Danish = [œ]
r̄ in Proto-Indo-European = [r]
ṛ in Sanskrit = [ɾ]; in Hindī = [ɽ]
ṛ in Armenian = [ɾ]
š in Semitic, Iranian, and Balto-Slavic = [ʃ]
ş in Semitic, Sanskrit, and Tokharian = [ʃ]
ś in Sanskrit and Tokharian = [ʃ]
sch in Dutch = [sk]

sz in Hungarian = [s]

t̥ in Avestan = [t̥] (?)

þ in Teutonic = [θ]

ʷ in Proto-Indo-European = [w]

ǔ in Slavic = extremely short [u]

ú in Oscan = [o]

x in Iranian and Slavic = [x] or [ç]

χ in Semitic = [x]

y in Welsh = [y], [ə]; in Lithuanian = [i:]; in Old Church Slavic = [ɨ]

ȳ in Anglo-Saxon = [y:]

ŷ in Welsh = [y:]

z in Hittite and Old French = [ts]

ž in Avestan and Slavic = [ʒ]

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FOUNDATIONS OF LANGUAGE

CHAPTER I

General Survey of Language and of Linguistics

Subject and method of the science of language — the name of the science — its place among other sciences — its relation to physiology and physics — phonation and audition — mental and physiological aspects — its relation to literature, to national consciousness, and to the history of civilisation.

LINGUISTICS, or the science of language, deals with the history and scientific investigation of language whether one studies a phenomenon common to all mankind, or examines the resemblances and differences between languages belonging to a given linguistic family (cf. pp. 301–303), or to sub-groups of such a family, or investigates an individual language or one or more of its dialects.

We may, for example, seek to know how language has affected man's mentality, and how his mentality has affected his language; or how the meaning of words has changed as his civilisation has changed; or how language has influenced his consciousness of belonging to a given social group; or wherein the Indo-European and Semitic languages resemble or differ from each other; or what are the relations of the Indo-European or of the Semitic languages among themselves; or what are the history and characteristics of English, or of any of its dialects (e.g., Kentish, whether in itself or in comparison with Suffolk or some other English dialect).

So far as the data accessible permit, linguistic method must be essentially historical in its assemblage of material, which it must gather with the utmost fullness possible, and without preconceived theories. Only after such unprejudiced collection of data may it safely seek to compare and to contrast the phenomena which have been found; and only then may it endeavour to draw deductions or to make generalisations. Each resemblance and each contrast

must carefully be considered from at least two points of view: (1) as an individual phenomenon; and (2) as a part of a complex whether of the language immediately concerned, or of a group of kindred languages, or of language as a whole. In very many instances, particularly in case of languages whose history is known only in scanty measure (e.g., the great majority of the American Indian languages), this can be only a counsel of perfection, since the data are too meagre to afford a basis for more than the most tentative of interpretations; but it should invariably be followed so far as circumstances permit.

It must always be borne in mind that equal attention must be given to resemblances and to differences in linguistic phenomena; dissimilarities are as truly characteristic as are similarities, and a single apparently aberrant form (e.g., *went* as the past tense assigned to *go*, or the series *am* : *was* : *been*, or *was* : *were*) may be of more real value than a hundred seemingly regular types (e.g., *come* : *came*; *love* : *loved*). Again, outward similarity or even identity of form does not necessarily imply essential and historical unity; widely differing origins not infrequently lead, through varying evolutions, to results which are superficially identical, as in the three English words *sound*, which in the meaning of 'a passage of water connecting seas, lakes, etc.', is cognate with Old Icelandic *sund* 'strait', in the connotation of 'healthy' with German *ge-sund* 'healthy', and in the signification of 'noise' is derived from French *son*, Latin *sonus* 'noise'. It becomes necessary to be thoroughly versed in the history of each language studied, and to know what rules have governed its sounds, forms, and arrangements of words before one can render a scientific judgement upon any of the phenomena which it presents. Only when such knowledge has been gained for a number of languages, is it possible to formulate principles valid for their comparison or for their differentiation. It is worse than useless to form any opinions of general application to language from, say, the phenomena of Modern English or Modern French alone.

When these general principles have been thoroughly understood, the specific function of linguistics is, for the most part, investigation of the phenomena of languages belonging to cognate groups (such relationship being established by methods to be set forth later; cf. pp. 301-303) to determine their historical development and mutual relations, and to discover, if possible, why these phenomena

assume the forms in which they actually appear, whether at one particular stage or in a series of stages. The special method is comparison and contrast of such cognate languages, and, if need be, comparison or contrast with non-cognate groups, so as to ascertain their characteristics and their resemblances or differences according to certain laws which may be deduced empirically, and then formulated to interpret the linguistic phenomena under consideration. If, for instance, one has such a series as English (*he*) *bears*, Old Icelandic *berr*, Gothic *bairiþ* ['beriθ],¹ Old High German *birit*, Old Irish *berid*, Modern Irish *bheir* [ver], Latin *fert*, Greek *fépei* ['phere:], Armenian *berē*, Old Church Slavic *beretŭ*, Sanskrit *bhāratī*, one may, by comparing and contrasting these forms in accordance with phonetic correspondences (pp. 74–83), determine why they are here alike, and there unlike, and may perceive how they can all be derived from an hypothetical pre-form **bhereti* or (more probably) **bher_oti*.

The science thus outlined is conventionally termed, for the most part, 'comparative philology' in English-speaking countries, but this designation is open to grave objections. In the first place, it lays undue emphasis on comparison of linguistic phenomena, whereas differentiation is equally important. By comparison, the zoologist determines that the lion and the tiger belong to the cat-family; by differentiation, through knowledge of the historical processes of evolution and through actual observation, he determines what peculiar characteristics demarcate the one species from the other. A more serious objection to the term lies in the fact that 'philology', strictly speaking, denotes not only the study of language, but also of literature and of all the civilisational phenomena of a people or of a group of peoples as given in written records. This meaning is preserved in the English term 'classical philology' as well as in French *philologie*, German *Philologie*, etc. The terms 'linguistics' (French *linguistique*) or 'science of language' (German *Sprachwissenschaft*), on the other hand, are

¹ Characters in brackets refer, in linguistic works, to the signs employed in phonetic alphabets, in this volume, to the *International Phonetic Alphabet*, Fig. 6, found on pp. 58–59. By means of this alphabet, which should be thoroughly learned by every student of linguistics, the actual pronunciation, or at least a very close approximation to it, may be acquired, additional characters being devised if necessary. An asterisk * indicates that the form before which it is placed is hypothetically reconstructed and has not thus far been found in any written or spoken record.

free from danger of misinterpretation. Of these, 'linguistics' seems preferable as being briefer and equally descriptive.

The precise position of linguistics among the sciences is a matter of dispute, due, in great part, to its somewhat composite nature. It must be said at once that it is not an exact science in the sense that mathematics and chemistry are exact; the human factor in it is too strong to permit it to be merely mechanical in operation. Neither is it a purely empirical science, like modern psychology or philosophy, or like anthropology or the social sciences, since strict laws may be deduced for all the more important phenomena which language presents, so that it is possible to predict in great measure what will be the given form of a given word in a given language. It is, in fact, a combination of two main factors hard to reconcile and often in conflict: physical, or mechanical; and mental, or psychological. It seems, on the whole, to take a place among the historical sciences, especially as its method of procedure is essentially the same as in investigation of any problem of history, both in its collection and comparison of material, and in its prognostication of the future, so far as one may legitimately forecast the probable future from the known facts of the past.

Linguistics does not, however, stand in isolation from other sciences, but, as one of the most important developments of the human race, it is intimately connected with many of them, casting new light upon them, and receiving indispensable illumination from them. Language is much more than a mere vehicle for communication of thought. Before a single sound can be uttered or heard, both physiology and physics are involved. The interaction of the highly complicated mechanism of the organs of speech (from the glottis to the oral and nasal cavities) and of hearing (the ear) demand a general acquaintance with the anatomy of these areas, although the linguist is not obliged to possess the exact knowledge of these areas which the surgical specialist in the throat, mouth, and ear must have; and physiological processes which, because of their constant use and repetition, become so familiar as to pass unnoticed are found to be almost incredibly complex when studied by the X-ray or the laryngo-periscope. Physics is involved by the fact that the sounds of a living being's voice, like all other sounds, produce vibrations which impinge on the ears of the auditor.

From the physical point of view, communication of thought by

means of speech consists of *phonation* (the utterance of sounds by the speaker) and *audition* (the hearing of sounds by the listener). The part played by phonation is too obvious to need discussion; the rôle of audition is sometimes overlooked. Yet so important is audition that one will scarcely be far wrong in maintaining that, in the great majority of cases, slowness or rapidity of linguistic change throughout the history of language, both as a whole and in the various specific forms of speech, has been largely conditioned by accuracy or inaccuracy of audition (cf. pp. 83-87). The current view, which tends to regard language merely as a means of phonation, seems dangerously incomplete. Phonation is only half of language; a speaker requires a hearer; audition is at least as necessary as speech; the relation of the two is reciprocal and complementary; and linguistic phenomena cannot properly be understood without equal attention to both factors. As things have been from time immemorial, one hears a sound before one attempts to speak it; and then one endeavours to reproduce it as accurately as one can. In the case of persons whose phonational and auditory apparatus are normal, this ability of reproduction is not conditioned by the mechanical structure of the organs concerned, for these are not essentially different in any race or in any part of the world.

It is a linguistic commonplace that any sound whatever which any normal human being is able to hear or to utter can, so far as the vocal apparatus is concerned, be reproduced with mechanical exactness by any other normal human being whomsoever; it is simply a matter of correct adjustment of the vocal apparatus. If one who says he cannot pronounce a given sound is intelligently taught by one who knows the correct position of the phonational organs for the utterance of that sound, and if he has the requisite patience and ability to adjust the organs concerned, he will be perfectly able to reproduce the sound in question. On the other hand, it very frequently happens that a sound accurately heard and accurately reproduced in childhood or during a sufficiently long sojourn in the area of its vernacular utterance is so utterly forgotten when the speaker changes his residence to a region where the sound in question is never, or at best very seldom, heard that he honestly believes that he cannot reproduce it. As a matter of fact, physically he can do so, and return to the old area will very probably restore the supposedly lost ability, perhaps without his

even noticing it. The real cause of his fancied incapability is merely that he has forgotten, through long disuse, how to adjust his vocal apparatus to reproduce the sound; and, probably, the situation is complicated, through the same desuetude, by the fact that his audition no longer catches the sound exactly.

One must remember that, however excellent the mechanism of the human ear, it is far from being so accurate a recorder of sound as some machines invented by man. Most valuable assistance in gaining a deeper knowledge of the mechanism of sound and audition is given by apparatus especially designed to record, reproduce, and transmit speech; and here the linguist must acknowledge his indebtedness especially to three inventions for artificial conveyance of the human voice: the telephone, the phonograph, and the radio, for whose further improvement intensive researches both practical and purely scientific are constantly being made. It is by no means impossible that these investigations may revolutionise many of the older theories of phonetics, and may place this study on a new and surer basis.

The importance of audition as a linguistic factor receives vivid illustration in cases of deafness. Even if only partial, this often involves mispronunciations; while total deafness, especially if congenital or contracted in childhood, generally involves total loss of intelligible speech, not because the 'deaf-and-dumb' patient cannot speak (for he practically always can, as certain famous cases prove), but simply because he cannot hear sounds, and so does not know how to utter them.

The production of speech is the function of the vocal apparatus — the larynx, throat, oral and nasal cavities, tongue, teeth, and lips. The mechanism and inter-working of this apparatus are highly complex; and very slight changes of position often give rise to differentiations of the sounds produced, as in [s] in contrast to [θ] (e.g., English *sin* ; *thin*). Spoken sound thus produced may be defined as a current of air given resonance and modification during its passage from the lungs to the atmosphere beyond the lips or nostrils (the reverse is relatively rare; cf. pp. 45, 57, 406-407). During this progress, the sound, like any other, causes vibrations in the air which impinge on the auditory apparatus of the hearer. Only in case of abnormality of the vocal or of the auditory apparatus is there inherent abnormality in the process of speaking or hearing, i.e., of reproducing or receiving more or less artificially

sounds normally uttered or heard with almost mechanical accuracy. Such abnormalities are of great interest to the linguist in that through their negative characteristics, and through the adjustments and devices to which the abnormal subject must resort to reach his closest possible approximation to the normal, they afford a valuable check upon observations of the normal processes in speech and hearing. It thus becomes necessary for the linguist to know by what processes the various sounds are produced; next, he should learn how to co-ordinate his own vocal apparatus so as to produce the sounds in question; and then he will be in position not only better to understand the data of his own science, but also to correct speech-defects, and even trifling errors of pronunciation, in others due to faulty placement of the vocal organs.

Behind the vocal and auditory apparatus, conditioned by physics and physiology, lie mental and psychological processes. Generally speaking, the function of language is the conveyance of thought. In its non-physiological aspect, it is the result of unnumbered centuries of effort to express facts and ideas. Various means, not always compatible, have been adopted to fulfil the purpose desired by all speech. Consequently, languages are expressions of underlying psychologies which characterise them, delimit them, and often actually hamper them; while they, in turn, characterise, delimit, and perhaps hamper the psychologies of their speakers. Thought, which is psychological in essence, and language (the oral expression of thought), which is physiological in operation, are by no means co-extensive, still less co-incident. From this point of view, one may define language as the endeavour to express the mental by the physical or, what is really an equal paradox, to connote the intangible by the tangible.

Language is inherently conservative in its structure. Formed in earlier periods, when conditions of life and thought were far less complex, this structure strongly tends to remain stable, and change takes place only after overcoming stout resistance. Even then, except in vocabulary (cf. pp. 126-136), there is little modification in more than details, with the result that no language is a perfect instrument which can render each and every concept of the speaker. 'Thoughts too deep for words', 'words fail to express', and the like are no idle phrases in their essence, but indicate a state of affairs which one may lament, but can remedy only more or less inadequately (cf. p. 15). But on the other hand, the necessity